# DeltaSpiralConv [CPU 1515T-2 PN]

| DeltaSpiralConv | | | |
|---|---|---|---|
| **General\Project information** | | | |
| **Name** | DeltaSpiralConv | **Author** | kte |
| **Comment** | | **Rack** | 0 |
| **Slot** | 1 | | |
| **General\Catalog information** | | | |
| **Short designation** | CPU 1515T-2 PN | **Description** | Technology CPU with display; work memory 1.5 MB code and 4.5 MB data; 6 ns bit operation time; 1st interface: PROFINET RT/IRT with 2 ports; 2nd interface: PROFINET RT; firmware V3.1 |
| **Article number** | 6ES7 515-2TN03-0AB0 | **Firmware version** | V3.1 |
| | False | | |
| **General\Identification & Maintenance** | | | |
| **Plant designation** | | **Location identifier** | |
| **Installation date** | 2015-01-06 20:58:20.206 | **Additional information** | |
| **General\Checksums** | | | |
| **Text lists** | E4 97 35 8D 1A 8D E6 89 | **Software** | E7 09 CF 95 9A 87 0A F7 |
| **Connection resources** | | | |

| | Station resources - Reserved - Maximum | Station resources - Reserved - Configured | Station resources - Dynamic - Configured | Module resources - DeltaSpiralConv [CPU 1515T-2 PN] - Configured |
|---|---|---|---|---|
| Maximum number of resources: | | 10 | 118 | 128 |
| | Maximum | Configured | Configured | Configured |
| PG communication: | 4 | - | - | - |
| HMI communication: | 4 | 0 | 0 | 0 |
| S7 communication: | 0 | - | 0 | 0 |
| Open user communication: | 0 | - | 0 | 0 |
| Web communication: | 2 | - | - | - |
| OPC UA client/server communication: | 0 | - | - | - |
| Other communication: | - | - | 0 | 0 |
| Total resources used: | | 0 | 0 | 0 |
| Available resources: | | 10 | 118 | 128 |

| Overview of addresses\Overview of addresses\Overview of addresses | | | |
|---|---|---|---|
| **Inputs** | True | **Outputs** | True |
| **Address gaps** | False | **Slot** | True |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Type** | I | **Addr. from** | 0 | **Addr. to** | 3 | **Module** | DI 32x24VDC HF_1 |
| **PIP** | Automatic update | **OB** | - | **Device name** | DeltaSpiralConv [CPU 1515T-2 PN] | **Device number** | - |
| **Size** | 4 Bytes | **Master / IO system** | - | **Rack** | 0 | **Slot** | 2 |
| **Type** | O | **Addr. from** | 4 | **Addr. to** | 7 | **Module** | DQ 32x24VDC/0.5A ST_1 |
| **PIP** | Automatic update | **OB** | - | **Device name** | DeltaSpiralConv [CPU 1515T-2 PN] | **Device number** | - |
| **Size** | 4 Bytes | **Master / IO system** | - | **Rack** | 0 | **Slot** | 3 |
| **Type** | I | **Addr. from** | 4 | **Addr. to** | 21 | **Module** | Standard telegram 5, PZD-9/9 |
| **PIP** | PIP OB Servo | **OB** | MC-Servo[OB91] | **Device name** | SINAMICS-S120-CU310-2PN_1 [SINAMICS S120 CU310-2 PN V4.7] | **Device number** | 1 |
| **Size** | 18 Bytes | **Master / IO system** | PROFINET IO-System [100] | **Rack** | 0 | **Slot** | 1 3 |
| **Type** | O | **Addr. from** | 8 | **Addr. to** | 25 | **Module** | Standard telegram 5, PZD-9/9 |
| **PIP** | PIP OB Servo | **OB** | MC-Servo[OB91] | **Device name** | SINAMICS-S120-CU310-2PN_1 [SINAMICS S120 CU310-2 PN V4.7] | **Device number** | 1 |
| **Size** | 18 Bytes | **Master / IO system** | PROFINET IO-System [100] | **Rack** | 0 | **Slot** | 1 3 |
| **Type** | I | **Addr. from** | 22 | **Addr. to** | 39 | **Module** | Standard telegram 5, PZD-9/9 |
| **PIP** | PIP OB Servo | **OB** | MC-Servo[OB91] | **Device name** | SINAMICS-S120-CU310-2PN_2 [SINAMICS S120 CU310-2 PN V4.7] | **Device number** | 2 |
| **Size** | 18 Bytes | **Master / IO system** | PROFINET IO-System [100] | **Rack** | 0 | **Slot** | 1 3 |
| **Type** | O | **Addr. from** | 26 | **Addr. to** | 43 | **Module** | Standard telegram 5, PZD-9/9 |
| **PIP** | PIP OB Servo | **OB** | MC-Servo[OB91] | **Device name** | SINAMICS-S120-CU310-2PN_2 [SINAMICS S120 CU310-2 PN V4.7] | **Device number** | 2 |
| **Size** | 18 Bytes | **Master / IO system** | PROFINET IO-System [100] | **Rack** | 0 | **Slot** | 1 3 |
| **Type** | I | **Addr. from** | 58 | **Addr. to** | 75 | **Module** | Standard telegram 5, PZD-9/9 |
| **PIP** | PIP OB Servo | **OB** | MC-Servo[OB91] | **Device name** | SINAMICS-S120-CU310-2PN_4 [SINAMICS S120 CU310-2 PN V4.7] | **Device number** | 3 |
| **Size** | 18 Bytes | **Master / IO system** | PROFINET IO-System [100] | **Rack** | 0 | **Slot** | 1 3 |
| **Type** | O | **Addr. from** | 62 | **Addr. to** | 79 | **Module** | Standard telegram 5, PZD-9/9 |
| **PIP** | PIP OB Servo | **OB** | MC-Servo[OB91] | **Device name** | SINAMICS-S120-CU310-2PN_4 [SINAMICS S120 CU310-2 PN V4.7] | **Device number** | 3 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Size** | 18 Bytes | **Master / IO system** | PROFINET IO-System [100] | **Rack** | 0 | **Slot** | 1 3 |
| **Type** | I | **Addr. from** | 40 | **Addr. to** | 57 | **Module** | Standard telegram 5, PZD-9/9 |
| **PIP** | PIP OB Servo | **OB** | MC-Servo[OB91] | **Device name** | SINAMICS-S120-CU310-2PN_3 [SINAMICS S120 CU310-2 PN V4.7] | **Device number** | 4 |
| **Size** | 18 Bytes | **Master / IO system** | PROFINET IO-System [100] | **Rack** | 0 | **Slot** | 1 3 |
| **Type** | O | **Addr. from** | 44 | **Addr. to** | 61 | **Module** | Standard telegram 5, PZD-9/9 |
| **PIP** | PIP OB Servo | **OB** | MC-Servo[OB91] | **Device name** | SINAMICS-S120-CU310-2PN_3 [SINAMICS S120 CU310-2 PN V4.7] | **Device number** | 4 |
| **Size** | 18 Bytes | **Master / IO system** | PROFINET IO-System [100] | **Rack** | 0 | **Slot** | 1 3 |

# DeltaSpiralConv [CPU 1515T-2 PN]

## Software units

This folder is empty.

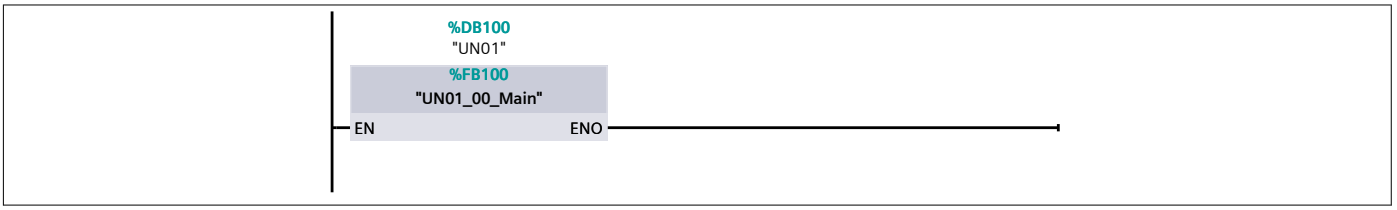
# DeltaSpiralConv [CPU 1515T-2 PN] / Program blocks

## Main [OB1]

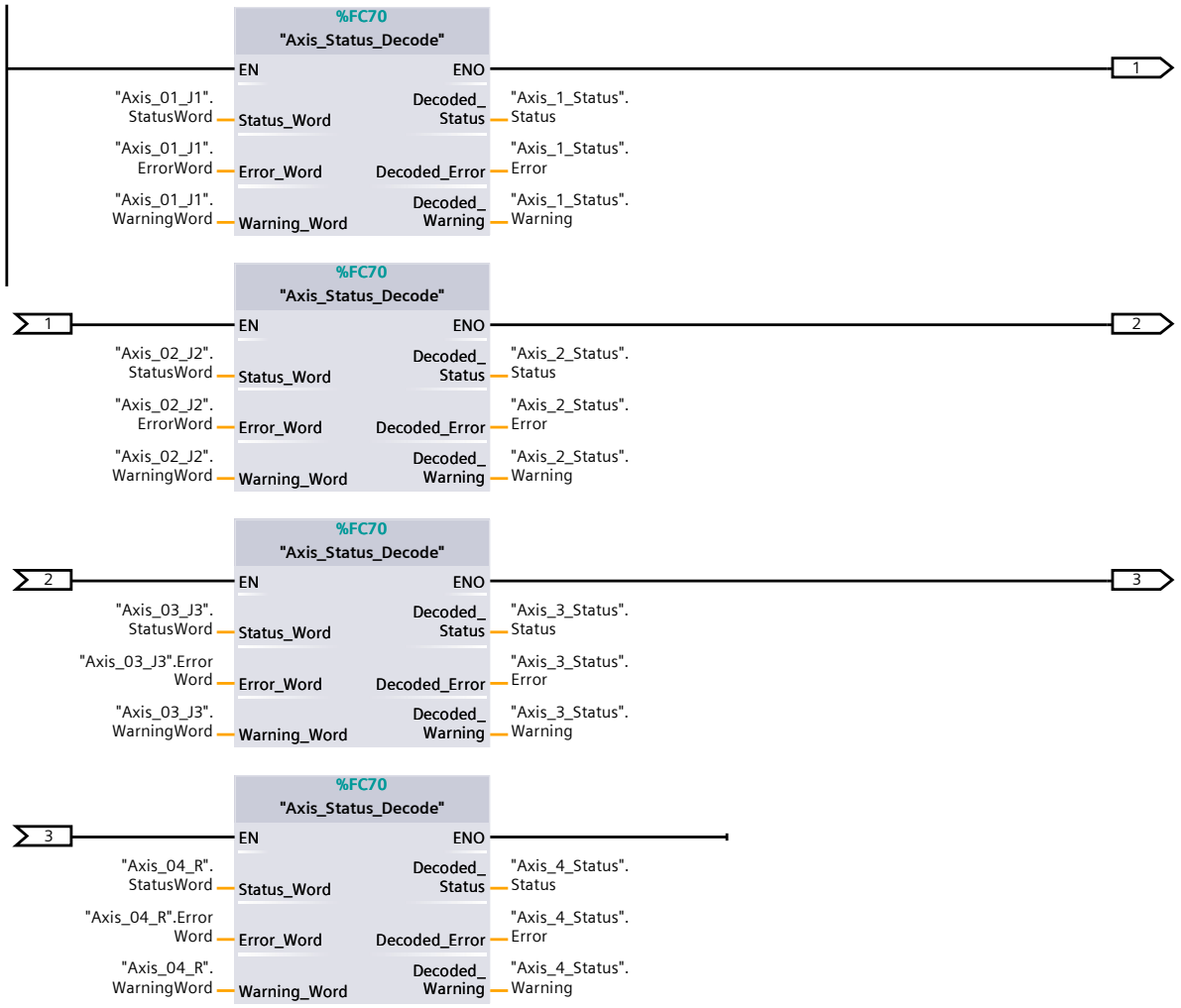
| Main Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | Main | **Number** | 1 | **Type** | OB |
| **Language** | LAD | **Numbering** | Automatic | | |
| **Information** | | | | | |
| **Title** | "Main Program Sweep (Cycle)" | **Author** | | **Comment** | |
| **Family** | | **Version** | 0.1 | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| Input | | |
| Initial_Call | Bool | |
| Remanence | Bool | |
| Temp | | |
| Constant | | |

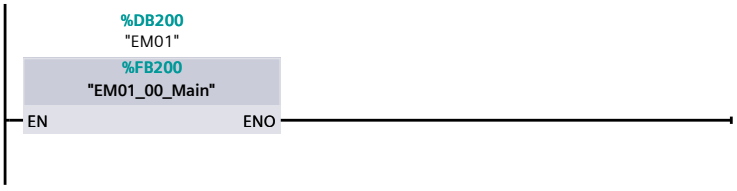
### Network 2: Unit Processing



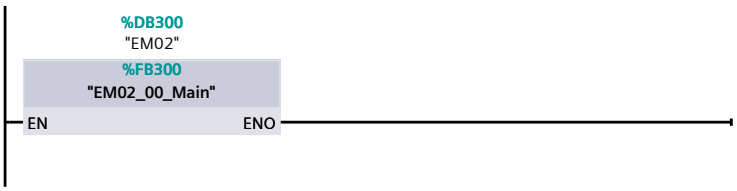

### Network 3:




## Network 4: EM 01 Processing




## Network 5:


%DB300
"EM02"
%FB300
"EM02_00_Main"
EN
ENO

# DeltaSpiralConv [CPU 1515T-2 PN] / Program blocks

## MC-LookAhead [OB97]

| MC-LookAhead Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | MC-LookAhead | **Number** | 97 | **Type** | OB |
| **Language** | LAD | **Numbering** | Automatic | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | 0.1 | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|

# DeltaSpiralConv [CPU 1515T-2 PN] / Program blocks / System blocks / Program resources

## MC_HOME [FB1201]

| MC_HOME Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | MC_HOME | **Number** | 1201 | **Type** | FB |
| **Language** | Motion_DB | **Numbering** | Automatic | | |
| **Information** | | | | | |
| **Title** | | **Author** | SIMATIC | **Comment** | |
| **Family** | MC_1500 | **Version** | 8.0 | **User-defined ID** | |

| Name | Data type | Default value | Retain |
|---|---|---|---|
| ▼ Input | | | |
| Axis | TO_Axis | | |
| Execute | Bool | false | Non-retain |
| Position | LReal | 0.0 | Non-retain |
| Mode | Int | 0 | Non-retain |
| Sensor | DInt | 0 | Non-retain |
| ▼ Output | | | |
| ReferenceMarkPosition | LReal | 0.0 | Non-retain |
| Done | Bool | false | Non-retain |
| Busy | Bool | false | Non-retain |
| CommandAborted | Bool | false | Non-retain |
| Error | Bool | false | Non-retain |
| ErrorId | Word | 16#0 | Non-retain |
| InOut | | | |
| Static | | | |

# DeltaSpiralConv [CPU 1515T-2 PN] / Program blocks / System blocks / Program resources

## MC_RESET [FB1207]

| MC_RESET Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | MC_RESET | **Number** | 1207 | **Type** | FB |
| **Language** | Motion_DB | **Numbering** | Automatic | | |
| **Information** | | | | | |
| **Title** | | **Author** | SIMATIC | **Comment** | |
| **Family** | MC_1500 | **Version** | 8.0 | **User-defined ID** | |

| Name | Data type | Default value | Retain |
|---|---|---|---|
| ▼ Input | | | |
| Axis | TO_Object | | |
| Execute | Bool | false | Non-retain |
| Restart | Bool | false | Non-retain |
| ▼ Output | | | |
| Done | Bool | false | Non-retain |
| Busy | Bool | false | Non-retain |
| CommandAborted | Bool | false | Non-retain |
| Error | Bool | false | Non-retain |
| ErrorId | Word | 16#0 | Non-retain |
| InOut | | | |
| Static | | | |

# DeltaSpiralConv [CPU 1515T-2 PN] / Program blocks / System blocks / Program resources

## MC_GROUPSTOP [FB1332]

| MC_GROUPSTOP Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | MC_GROUPSTOP | **Number** | 1332 | **Type** | FB |
| **Language** | Motion_DB | **Numbering** | Automatic | | |
| **Information** | | | | | |
| **Title** | | **Author** | SIMATIC | **Comment** | |
| **Family** | MC_1500 | **Version** | 8.0 | **User-defined ID** | |

| Name | Data type | Default value | Retain |
|---|---|---|---|
| ▼ Input | | | |
| AxesGroup | TO_Kinematics | | |
| Execute | Bool | false | Non-retain |
| Mode | DInt | 0 | Non-retain |
| ▼ Output | | | |
| Done | Bool | false | Non-retain |
| Busy | Bool | false | Non-retain |
| Active | Bool | false | Non-retain |
| CommandAborted | Bool | false | Non-retain |
| Error | Bool | false | Non-retain |
| ErrorId | Word | 16#0 | Non-retain |
| InOut | | | |
| Static | | | |

# DeltaSpiralConv [CPU 1515T-2 PN] / Program blocks / System blocks / Program resources

## MC_POWER [FB1206]

| MC_POWER Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | MC_POWER | **Number** | 1206 | **Type** | FB |
| **Language** | Motion_DB | **Numbering** | Automatic | | |
| **Information** | | | | | |
| **Title** | | **Author** | SIMATIC | **Comment** | |
| **Family** | MC_1500 | **Version** | 8.0 | **User-defined ID** | |

| Name | Data type | Default value | Retain |
|---|---|---|---|
| ▼ Input | | | |
| Axis | TO_Axis | | |
| Enable | Bool | false | Non-retain |
| StartMode | DInt | 1 | Non-retain |
| StopMode | Int | 0 | Non-retain |
| ▼ Output | | | |
| Status | Bool | false | Non-retain |
| Busy | Bool | false | Non-retain |
| Error | Bool | false | Non-retain |
| ErrorId | Word | 16#0 | Non-retain |
| InOut | | | |
| Static | | | |

# DeltaSpiralConv [CPU 1515T-2 PN] / Program blocks / System blocks / Program resources

## MC_MOVEJOG [FB1203]

| MC_MOVEJOG Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | MC_MOVEJOG | **Number** | 1203 | **Type** | FB |
| **Language** | Motion_DB | **Numbering** | Automatic | | |
| **Information** | | | | | |
| **Title** | | **Author** | SIMATIC | **Comment** | |
| **Family** | MC_1500 | **Version** | 8.0 | **User-defined ID** | |

| Name | Data type | Default value | Retain |
|---|---|---|---|
| ▼ Input | | | |
| Axis | TO_SpeedAxis | | |
| JogForward | Bool | false | Non-retain |
| JogBackward | Bool | false | Non-retain |
| Velocity | LReal | 100.0 | Non-retain |
| Acceleration | LReal | -1.0 | Non-retain |
| Deceleration | LReal | -1.0 | Non-retain |
| Jerk | LReal | -1.0 | Non-retain |
| PositionControlled | Bool | true | Non-retain |
| ▼ Output | | | |
| InVelocity | Bool | false | Non-retain |
| Busy | Bool | false | Non-retain |
| CommandAborted | Bool | false | Non-retain |
| Error | Bool | false | Non-retain |
| ErrorId | Word | 16#0 | Non-retain |
| InOut | | | |
| Static | | | |

# DeltaSpiralConv [CPU 1515T-2 PN] / Program blocks / System blocks / Program resources

## MC_HALT [FB1200]

| MC_HALT Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | MC_HALT | **Number** | 1200 | **Type** | FB |
| **Language** | Motion_DB | **Numbering** | Automatic | | |
| **Information** | | | | | |
| **Title** | | **Author** | SIMATIC | **Comment** | |
| **Family** | MC_1500 | **Version** | 8.0 | **User-defined ID** | |

| Name | Data type | Default value | Retain |
|---|---|---|---|
| ▼ Input | | | |
| Axis | TO_SpeedAxis | | |
| Execute | Bool | false | Non-retain |
| Deceleration | LReal | -1.0 | Non-retain |
| Jerk | LReal | -1.0 | Non-retain |
| AbortAcceleration | Bool | false | Non-retain |
| ▼ Output | | | |
| Done | Bool | false | Non-retain |
| Busy | Bool | false | Non-retain |
| CommandAborted | Bool | false | Non-retain |
| Error | Bool | false | Non-retain |
| ErrorId | Word | 16#0 | Non-retain |
| InOut | | | |
| Static | | | |

# DeltaSpiralConv [CPU 1515T-2 PN] / Program blocks / System blocks / Program resources

## MC_MOVEVELOCITY [FB1205]

| MC_MOVEVELOCITY Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | MC_MOVEVELOCITY | **Number** | 1205 | **Type** | FB |
| **Language** | Motion_DB | **Numbering** | Automatic | | |
| **Information** | | | | | |
| **Title** | | **Author** | SIMATIC | **Comment** | |
| **Family** | MC_1500 | **Version** | 8.0 | **User-defined ID** | |

| Name | Data type | Default value | Retain |
|---|---|---|---|
| ▼ Input | | | |
| Axis | TO_SpeedAxis | | |
| Execute | Bool | false | Non-retain |
| Velocity | LReal | 100.0 | Non-retain |
| Acceleration | LReal | -1.0 | Non-retain |
| Deceleration | LReal | -1.0 | Non-retain |
| Jerk | LReal | -1.0 | Non-retain |
| Direction | Int | 0 | Non-retain |
| Current | Bool | false | Non-retain |
| PositionControlled | Bool | true | Non-retain |
| ▼ Output | | | |
| InVelocity | Bool | false | Non-retain |
| Busy | Bool | false | Non-retain |
| CommandAborted | Bool | false | Non-retain |
| Error | Bool | false | Non-retain |
| ErrorId | Word | 16#0 | Non-retain |
| InOut | | | |
| Static | | | |

# DeltaSpiralConv [CPU 1515T-2 PN] / Program blocks / System blocks / Program resources

## MC_TRACKCONVEYORBELT [FB1352]

| MC_TRACKCONVEYORBELT Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | MC_TRACKCONVEYOR-BELT | **Number** | 1352 | **Type** | FB |
| **Language** | Motion_DB | **Numbering** | Automatic | | |
| **Information** | | | | | |
| **Title** | | **Author** | SIMATIC | **Comment** | |
| **Family** | MC_1500 | **Version** | 8.0 | **User-defined ID** | |

| Name | Data type | Default value | Retain |
|---|---|---|---|
| ▼ Input | | | |
| AxesGroup | TO_Kinematics | | |
| ConveyorBelt | TO_Axis | | |
| Execute | Bool | false | Non-retain |
| ConveyorBeltOrigin | TO_Struct_Kinemat-ics_Frame | | Non-retain |
| InitialObjectPosition | TO_Struct_Kinemat-ics_Frame | | Non-retain |
| CoordSystem | DInt | 1 | Non-retain |
| ▼ Output | | | |
| Done | Bool | false | Non-retain |
| Busy | Bool | false | Non-retain |
| CommandAborted | Bool | false | Non-retain |
| Error | Bool | false | Non-retain |
| ErrorId | Word | 16#0 | Non-retain |
| InOut | | | |
| Static | | | |

# DeltaSpiralConv [CPU 1515T-2 PN] / Program blocks / System blocks / Program resources

## MC_SETOCSFRAME [FB1323]

| MC_SETOCSFRAME Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | MC_SETOCSFRAME | **Number** | 1323 | **Type** | FB |
| **Language** | Motion_DB | **Numbering** | Automatic | | |
| **Information** | | | | | |
| **Title** | | **Author** | SIMATIC | **Comment** | |
| **Family** | MC_1500 | **Version** | 8.0 | **User-defined ID** | |

| Name | Data type | Default value | Retain |
|---|---|---|---|
| ▼ Input | | | |
| AxesGroup | TO_Kinematics | | |
| Execute | Bool | false | Non-retain |
| Frame | TO_Struct_Kinematics_Frame | | Non-retain |
| OcsNumber | DInt | 1 | Non-retain |
| ▼ Output | | | |
| Done | Bool | false | Non-retain |
| Busy | Bool | false | Non-retain |
| CommandAborted | Bool | false | Non-retain |
| Error | Bool | false | Non-retain |
| ErrorId | Word | 16#0 | Non-retain |
| InOut | | | |
| Static | | | |

# DeltaSpiralConv [CPU 1515T-2 PN] / Program blocks / System blocks / Program resources

## MC_MOVELINEARABSOLUTE [FB1326]

| MC_MOVELINEARABSOLUTE Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | MC_MOVELINEARABSO-LUTE | **Number** | 1326 | **Type** | FB |
| **Language** | Motion_DB | **Numbering** | Automatic | | |
| **Information** | | | | | |
| **Title** | | **Author** | SIMATIC | **Comment** | |
| **Family** | MC_1500 | **Version** | 8.0 | **User-defined ID** | |

| Name | Data type | Default value | Retain |
|---|---|---|---|
| ▼ Input | | | |
| AxesGroup | TO_Kinematics | | |
| Execute | Bool | false | Non-retain |
| Position | Array[1..6] of LReal | | Non-retain |
| Velocity | LReal | -1.0 | Non-retain |
| Acceleration | LReal | -1.0 | Non-retain |
| Deceleration | LReal | -1.0 | Non-retain |
| Jerk | LReal | -1.0 | Non-retain |
| DirectionA | DInt | 3 | Non-retain |
| CoordSystem | DInt | 0 | Non-retain |
| BufferMode | DInt | 1 | Non-retain |
| TransitionParameter | Array[1..5] of LReal | | Non-retain |
| DynamicAdaption | DInt | -1 | Non-retain |
| ▼ Output | | | |
| Done | Bool | false | Non-retain |
| Busy | Bool | false | Non-retain |
| Active | Bool | false | Non-retain |
| CommandAborted | Bool | false | Non-retain |
| Error | Bool | false | Non-retain |
| ErrorId | Word | 16#0 | Non-retain |
| RemainingDistance | LReal | -1.0 | Non-retain |
| InOut | | | |
| Static | | | |

# DeltaSpiralConv [CPU 1515T-2 PN] / Program blocks / System blocks / Program resources

## MC_MOVELINEARRELATIVE [FB1327]

| MC_MOVELINEARRELATIVE Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | MC_MOVELINEARRELA-TIVE | **Number** | 1327 | **Type** | FB |
| **Language** | Motion_DB | **Numbering** | Automatic | | |
| **Information** | | | | | |
| **Title** | | **Author** | SIMATIC | **Comment** | |
| **Family** | MC_1500 | **Version** | 8.0 | **User-defined ID** | |

| Name | Data type | Default value | Retain |
|---|---|---|---|
| ▼ Input | | | |
| AxesGroup | TO_Kinematics | | |
| Execute | Bool | false | Non-retain |
| Distance | Array[1..6] of LReal | | Non-retain |
| Velocity | LReal | -1.0 | Non-retain |
| Acceleration | LReal | -1.0 | Non-retain |
| Deceleration | LReal | -1.0 | Non-retain |
| Jerk | LReal | -1.0 | Non-retain |
| CoordSystem | DInt | 0 | Non-retain |
| BufferMode | DInt | 1 | Non-retain |
| TransitionParameter | Array[1..5] of LReal | | Non-retain |
| DynamicAdaption | DInt | -1 | Non-retain |
| ▼ Output | | | |
| Done | Bool | false | Non-retain |
| Busy | Bool | false | Non-retain |
| Active | Bool | false | Non-retain |
| CommandAborted | Bool | false | Non-retain |
| Error | Bool | false | Non-retain |
| ErrorId | Word | 16#0 | Non-retain |
| RemainingDistance | LReal | -1.0 | Non-retain |
| InOut | | | |
| Static | | | |

# DeltaSpiralConv [CPU 1515T-2 PN] / Program blocks / 0_UN01_ExampleMachine

## UN01_CM01_OperationLocal [FB101]

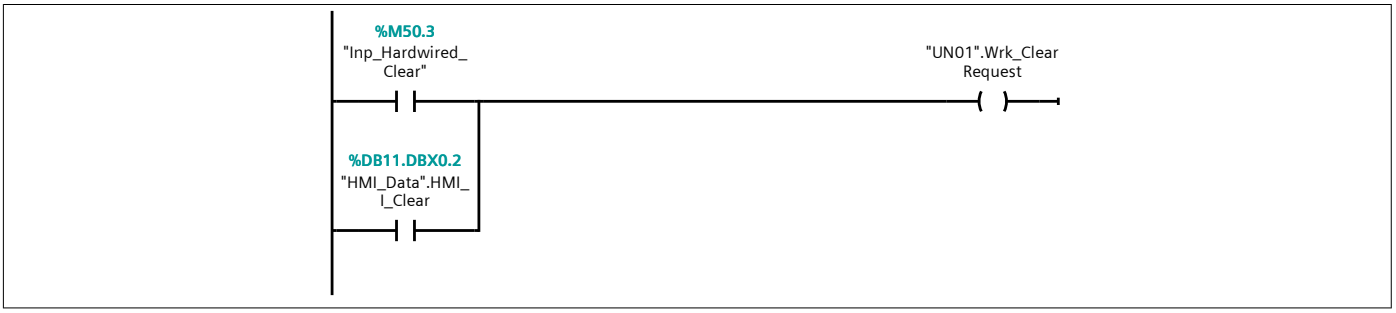
| UN01_CM01_OperationLocal Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | UN01_CM01_Operation-Local | **Number** | 101 | **Type** | FB |
| **Language** | LAD | **Numbering** | Manual | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | Handle commands that are requests to change to a particular state |
| **Family** | | **Version** | 0.1 | **User-defined ID** | |

| Name | Data type | Default value | Retain |
|---|---|---|---|
| Input | | | |
| Output | | | |
| InOut | | | |
| ▼ Static | | | |
| Wrk_StartWarning_TON | TON_TIME | | Non-retain |
| Temp | | | |
| Constant | | | |

### Network 2: Clear faults conditions

CLEAR FAULTS CONDITIONS

The Unit Conditions Set Here Are Used to Clear Faults and Initiate a State Transition of the Current Mode Operation Procedure from the Aborted State:
1) To the Clearing State, If the Clearing State is Enabled
2) To the Stopped State, If the Clearing State is Disabled




### Network 3: Reset Conditions

RESET CONDITIONS

The Unit Condition Set Here Is Used to Initate the Start Warning Cycle That Results in a State Transition of the Current Mode Operation Procedure from the Stopped State:
1) To the Resetting State, If the Resetting State is Enabled
2) To the Idle State, If the Resetting State is Disabled


## Network 4: Start conditions

START CONDITIONS

The Unit Condition Set Here is Used to
1) If the Idle State is Enabled, Initiate a State Transition of the Current Mode Operation Procedure:
a) From the Idle State to the Starting State, If the Starting State Is Enabled
b) From the Idle State to the Execute State, If the Starting State Is Disabled

2) If the Idle State is Disabled, Initiate the Start Warning Cycle That Results in
a State Transition of the Current Mode Operation Procedure from the Stopped State:
a) To the Resetting State, If the Resetting State Is Enabled
b) To the Starting State, If the Resetting State is Disabled and the Starting State Is Enabled
c) To the Execute State, If Bothe the Resetting and Starting States Are Disabled

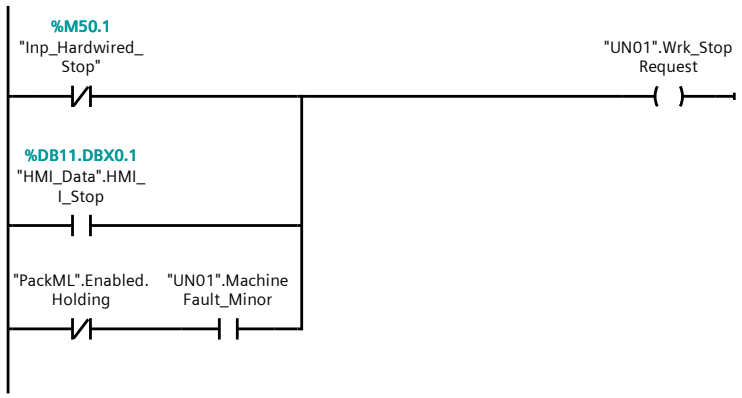

## Network 5: Stop Conditions

***** Changed polarity of Inp_Hardwired_Stop to match it being a N.C. contact

STOP CONDITIONS

The Unit Condition Set Here is Used to Initaite a State Transition of the Current Mode Operation Procedure to the:
1) Stopping State, If the Stopping State Is Enabled
2) Stopped State, If the Stopping State Is Disabled

From Any of the Following States:
Resetting, Idle, Starting, Execute, Holding, Held, UnHolding, Suspending, Suspended, UnSuspending, Completing

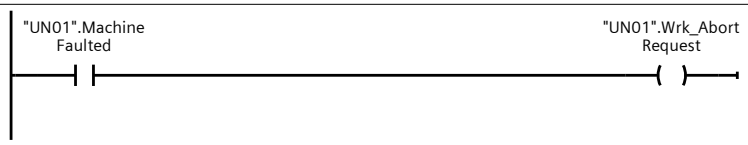



## Network 6: Abort Conditions

ABORT CONDITIONS

The Unit Condition Set Here is Used to Initaite a State Transition of the Current Mode Operation Procedure to the:
1) Aborting State, If the Aborting State Is Enabled
2) Aborted State, If the Aborting State Is Disabled

From Any of the Following States:
Resetting, Idle, Starting, Execute, Holding, Held, UnHolding, Suspending, Suspended, UnSuspending, Completing, Stopped, Stopping, Clearing




## Network 7: Hold Conditions

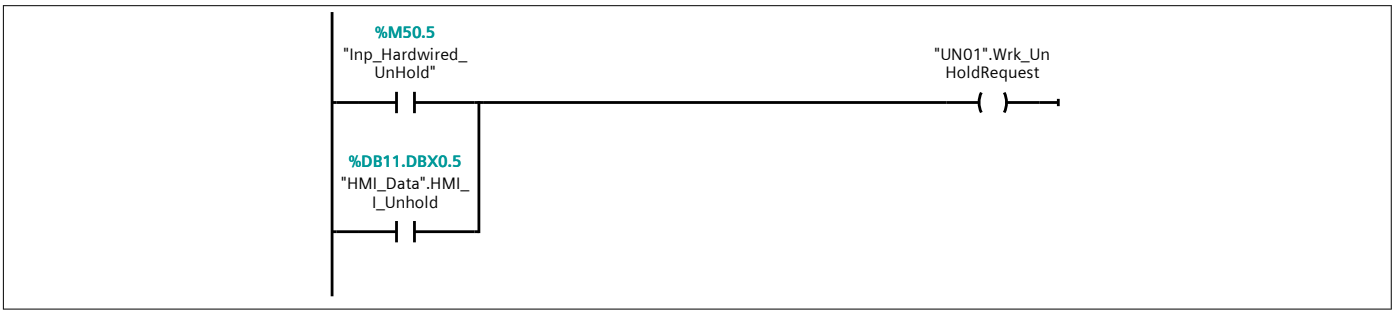
HOLD CONDITIONS

The Unit Condition Set Here is Used to Initiate a State Transition of the Current Mode Operation Procedure from the Execute State to the:
1) Holding State, If the Holding State is Enabled
2) Held State, If the Holding State is Disabled


## Network 8: Un-hold conditions

UN-HOLD CONDITIONS

The Unit Condition Set Here is Used to Initiate a State Transition of the Current Mode Operation Procedure from the Held State to the:
1) UnHolding State, If the UnHolding State is Enabled
2) Execute State, If the UnHolding State is Disabled



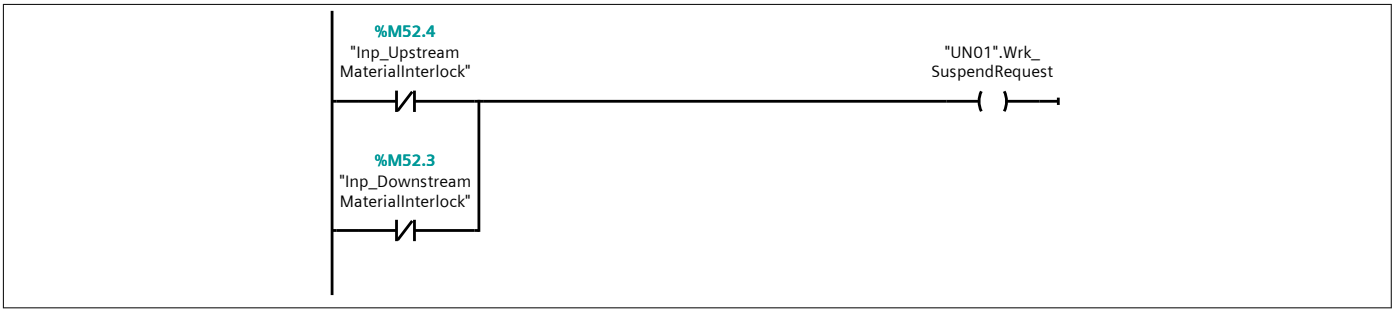

## Network 9: Suspend Conditions

SUSPEND CONDITIONS

If any upstream or downstream material interlocks are not satisfied a suspend request will be made.

If a suspend request is made while the Machine is in the Execute State, Then a State Transition Is Initiated From the Execute State to the:
1) Suspending State, If the Suspending State Is Enabled
2) Suspended State, If the Suspending State Is Disabled

When ALL interlock conditions Are Satisfied, Then a State Transition Is Initiated From the Suspended State to the:
1) UnSuspending State, If the UnSuspending State Is Enabled
2) Execute State, If the UnSuspending State Is Disabled




## Network 10: Complete Condition

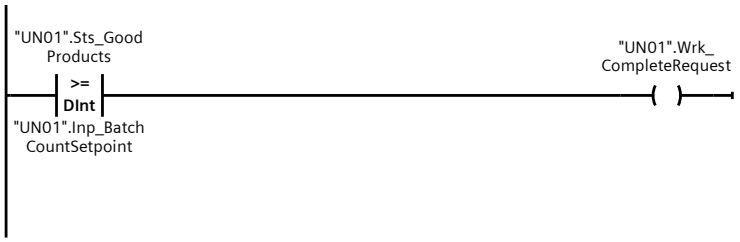
COMPLETE CONDITION

The Unit Condition Set Here is Used to Indicate That the Unit Has Produced the Desired Quantity of Good Product. It is Used for Processes That Run Desired Batch or Job Quantities And Automatically Stop to Conserve Materials. Such Processes Take Advantage of the Completing And Complete States of the PackML Model.

This Unit Condition is Generated By Comparing the Quantity of Good Product Counted or Calculated By the Program (In this Example, the Information from the Performance Tracking AOI is Used to Calculate Good Product * ), to the Batch Count Setpoint for the Current Recipe.

The Condition Initiates a State Complete Transition from the Execute State to the:
1) Completing State, If the Completing State Is Enabled
2) Complete State, If the Completing State Is Disabled

* The Production Counting Data Used By the Performance Tracking FB Must Be Generated By the Program and Input Into the UN01 DB.
It May Be Preferred to Use the Production Counting Data Directly for Setting this Condition.

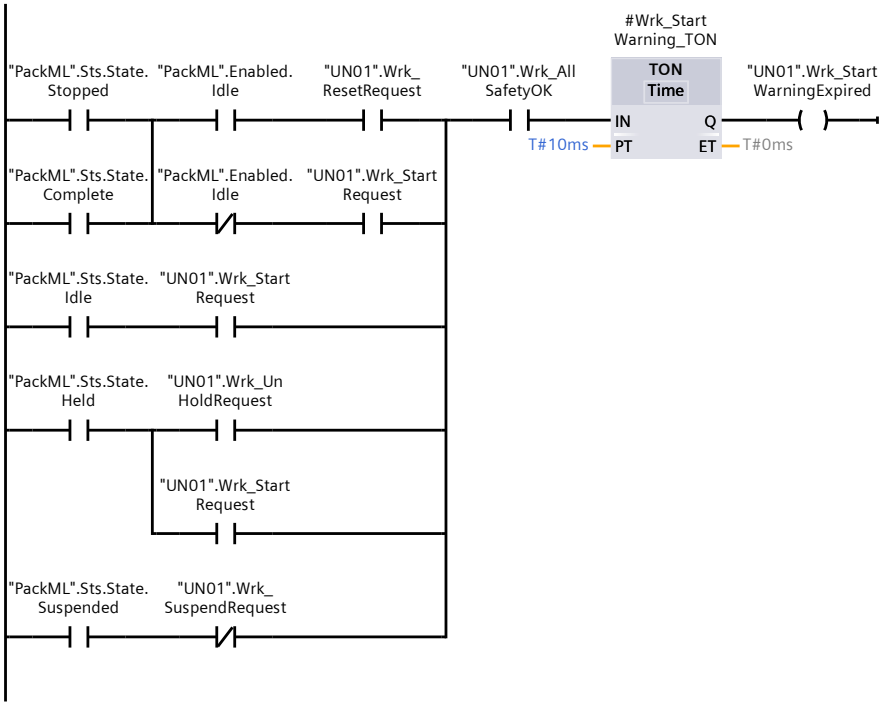



## Network 11: Unit Start Logic

UNIT START LOGIC

This Unit Start Logic is Used to Provide a Warning Cycle Time Before Motion Occurs on the Machine.
This Warning Cycle Should be Used Upon Initiating All State Transition Commands That Ultimately Result in Transition to the Execute State,
And May be Used to Provide Audible And/Or Visual Notification to the Operator That Motion Will Occur Upon Completion.

In case of Start warning buzzer included in the logic increase the timer preset to 1 or 2 sec



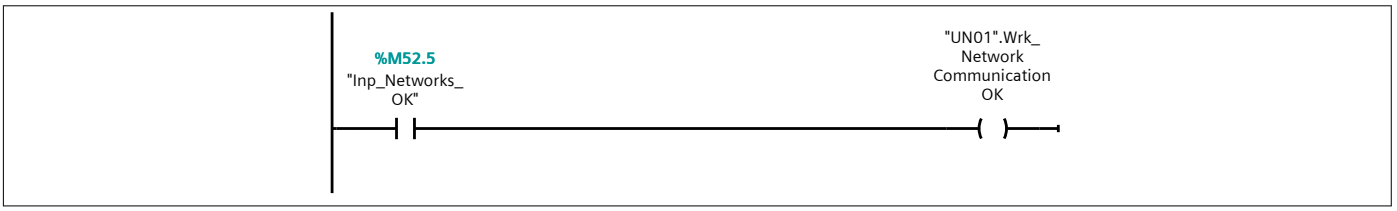
# DeltaSpiralConv [CPU 1515T-2 PN] / Program blocks / 0_UN01_ExampleMachine

## UN01_CM03_FaultHandler [FB102]

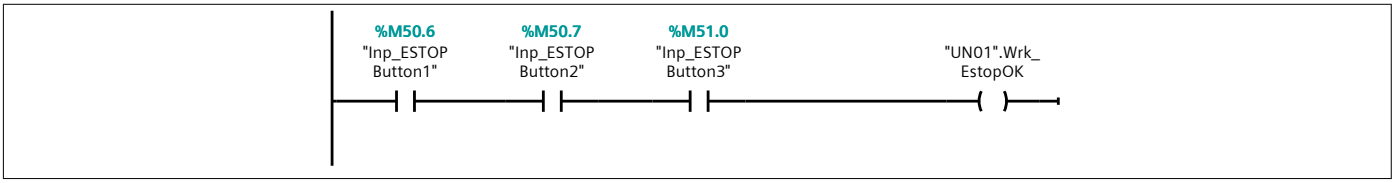
| UN01_CM03_FaultHandler Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | UN01_CM03_FaultHandler | **Number** | 102 | **Type** | FB |
| **Language** | LAD | **Numbering** | Manual | | |
| **Information** | | | | | |
| **Title** | Handle unit faults | **Author** | | **Comment** | |
| **Family** | | **Version** | 0.1 | **User-defined ID** | |

| Name | Data type | Default value | Retain |
|---|---|---|---|
| Input | | | |
| Output | | | |
| InOut | | | |
| ▼ Static | | | |
| Temp_Dint | DInt | 0 | Non-retain |
| Temp_Bool | Bool | false | Non-retain |
| Temp | | | |
| Constant | | | |

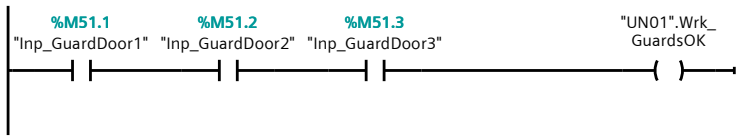
### Network 2: Communication faults



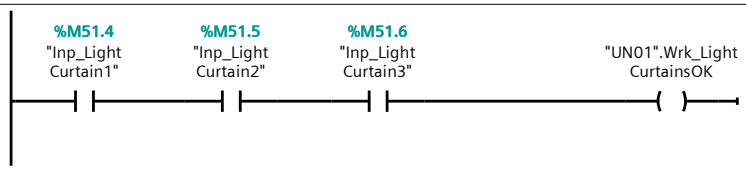

### Network 3: E-Stop Collection



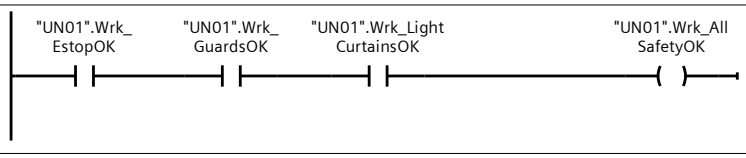

### Network 4: Guard door collection




## Network 5: Light curtain collection

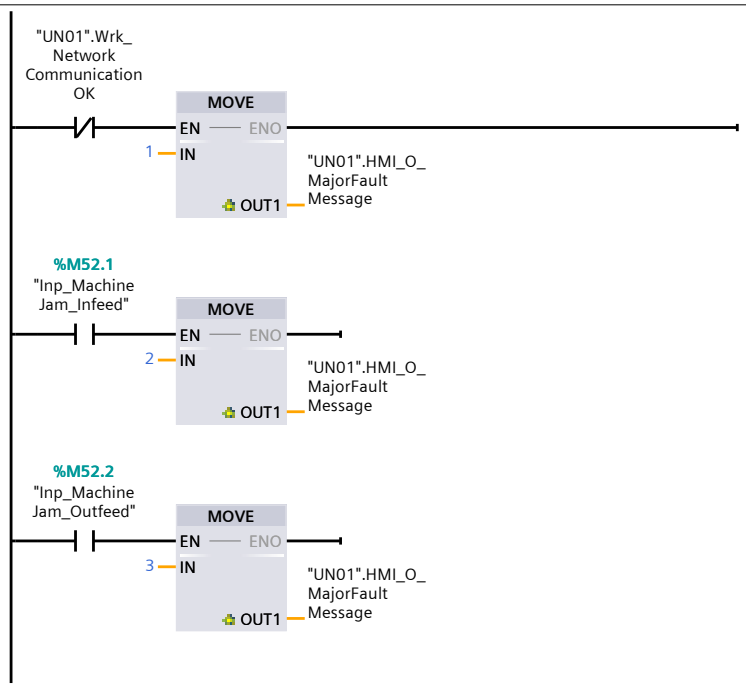



## Network 6: All safety inputs OK



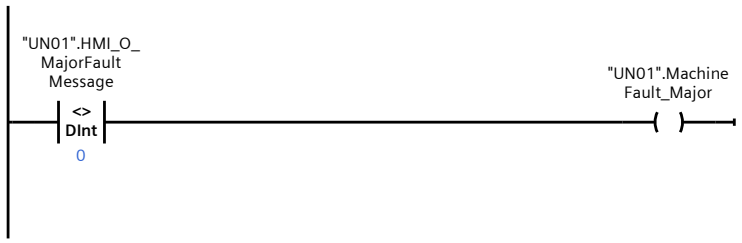

## Network 7: Machine major faults

Add major machine faults that should result in an abort request to the machine

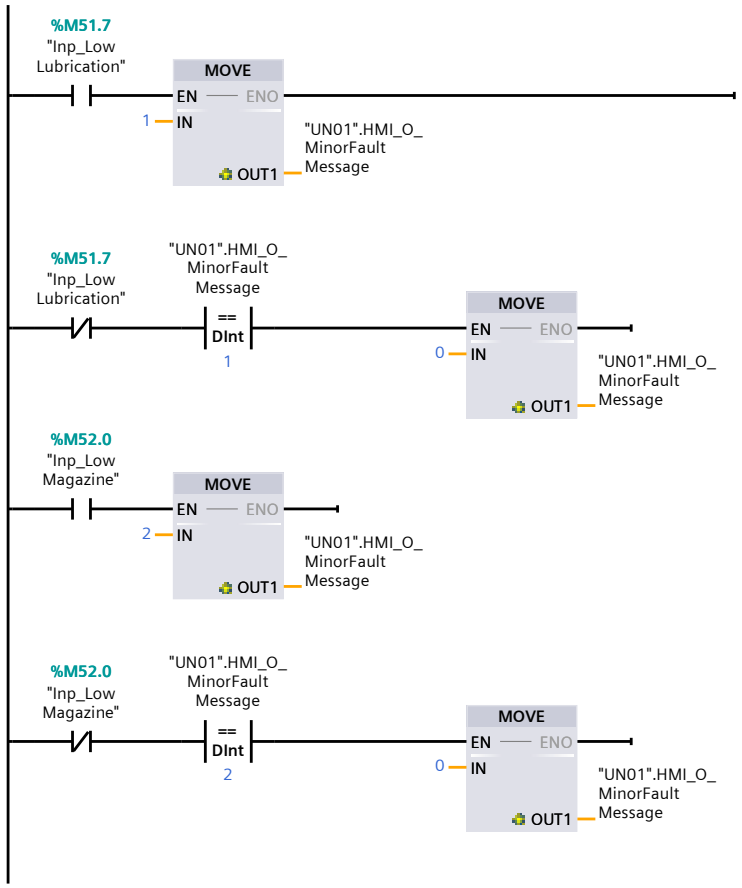



## Network 8: General Unit Major Fault - WIll result in machine abort request.

Add machine-specific major fault conditions as rung in conditions.

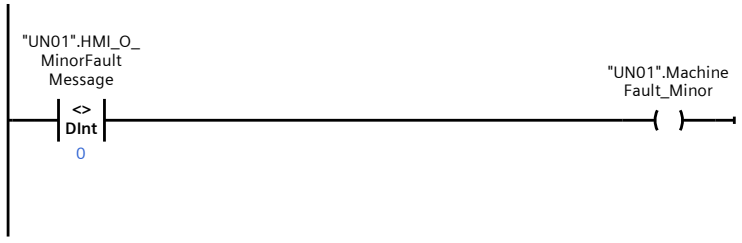



## Network 9: Machine Minor faults

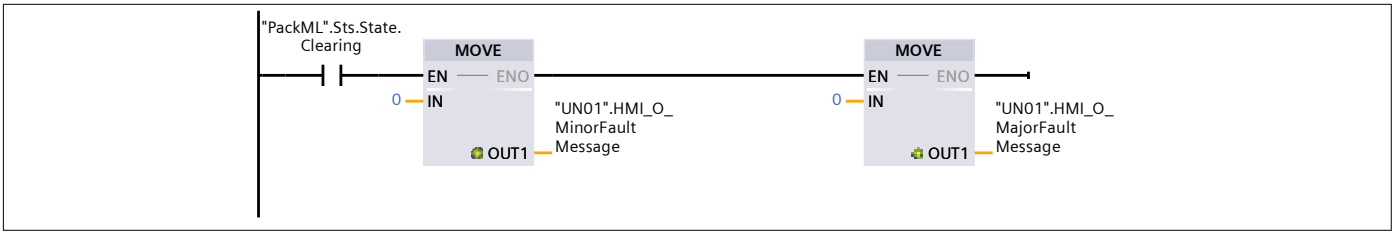



## Network 10: General unit minor fault

Will result in machine hold request if holding state is enabled or stop if holding state is not enabled.

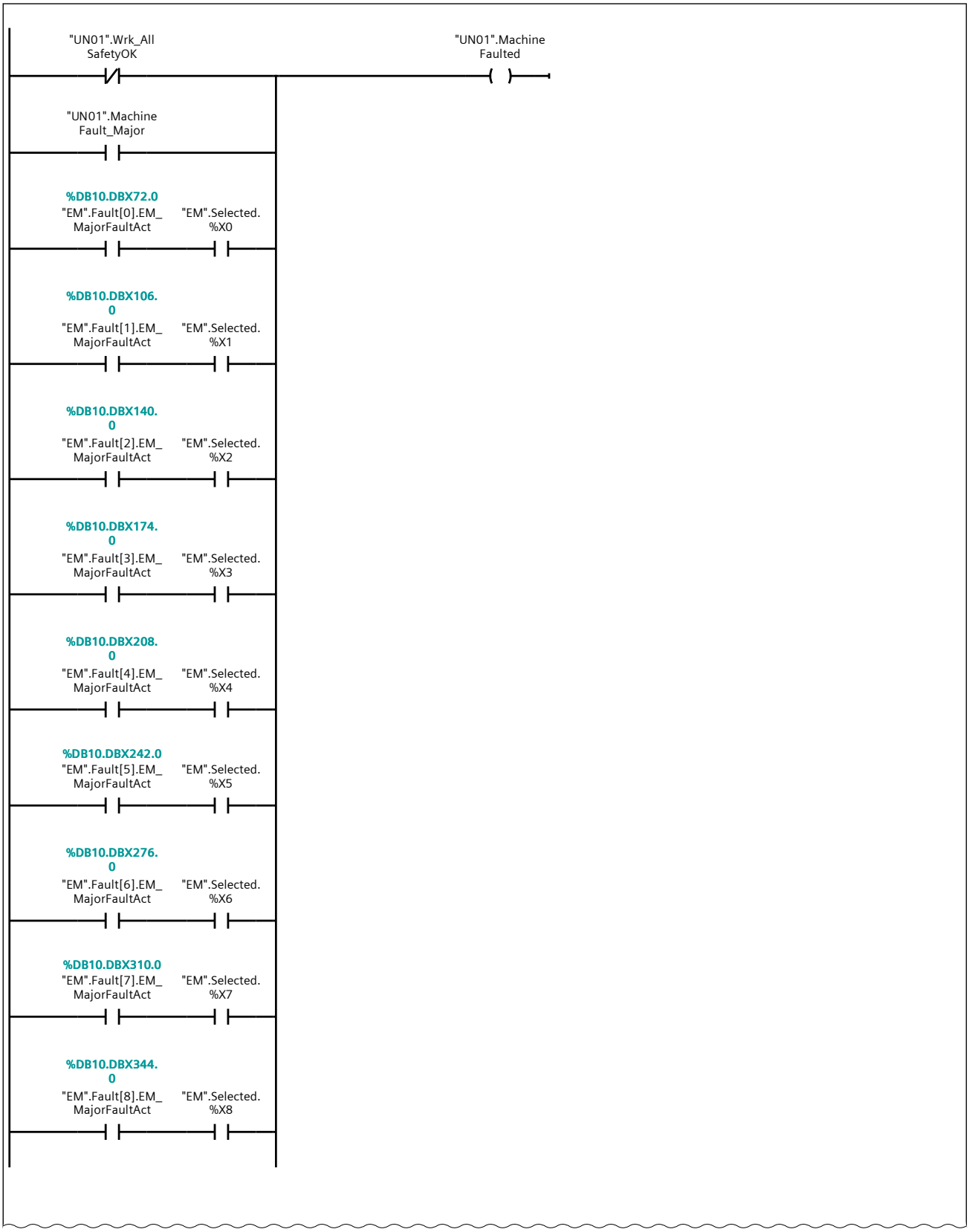


## Network 11: Clear machine fault indicators



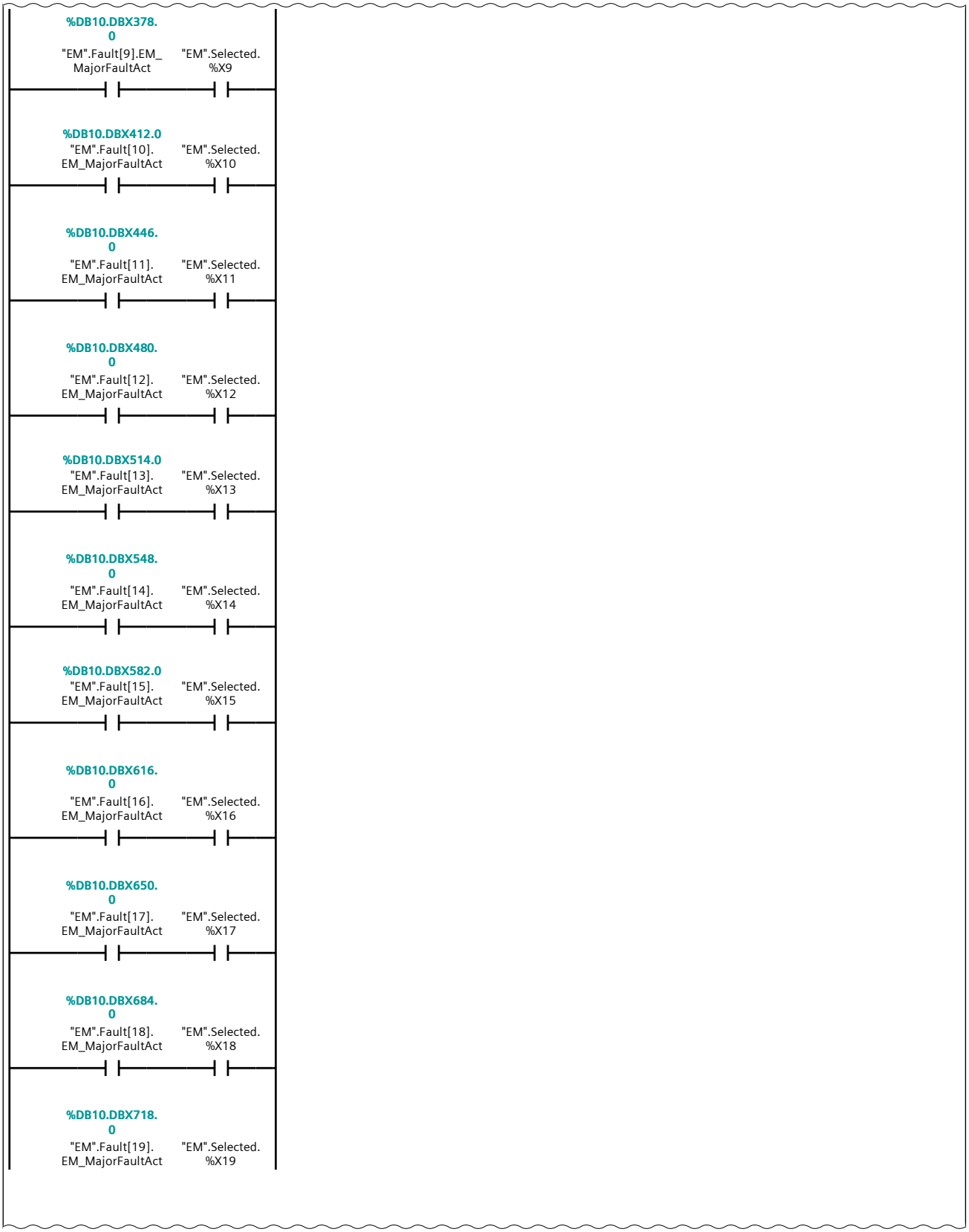

## Network 12: General unit fault summary

**Network 12: General unit fault summary (1.1 / 4.1)**



## Network 12: General unit fault summary (2.1 / 4.1)

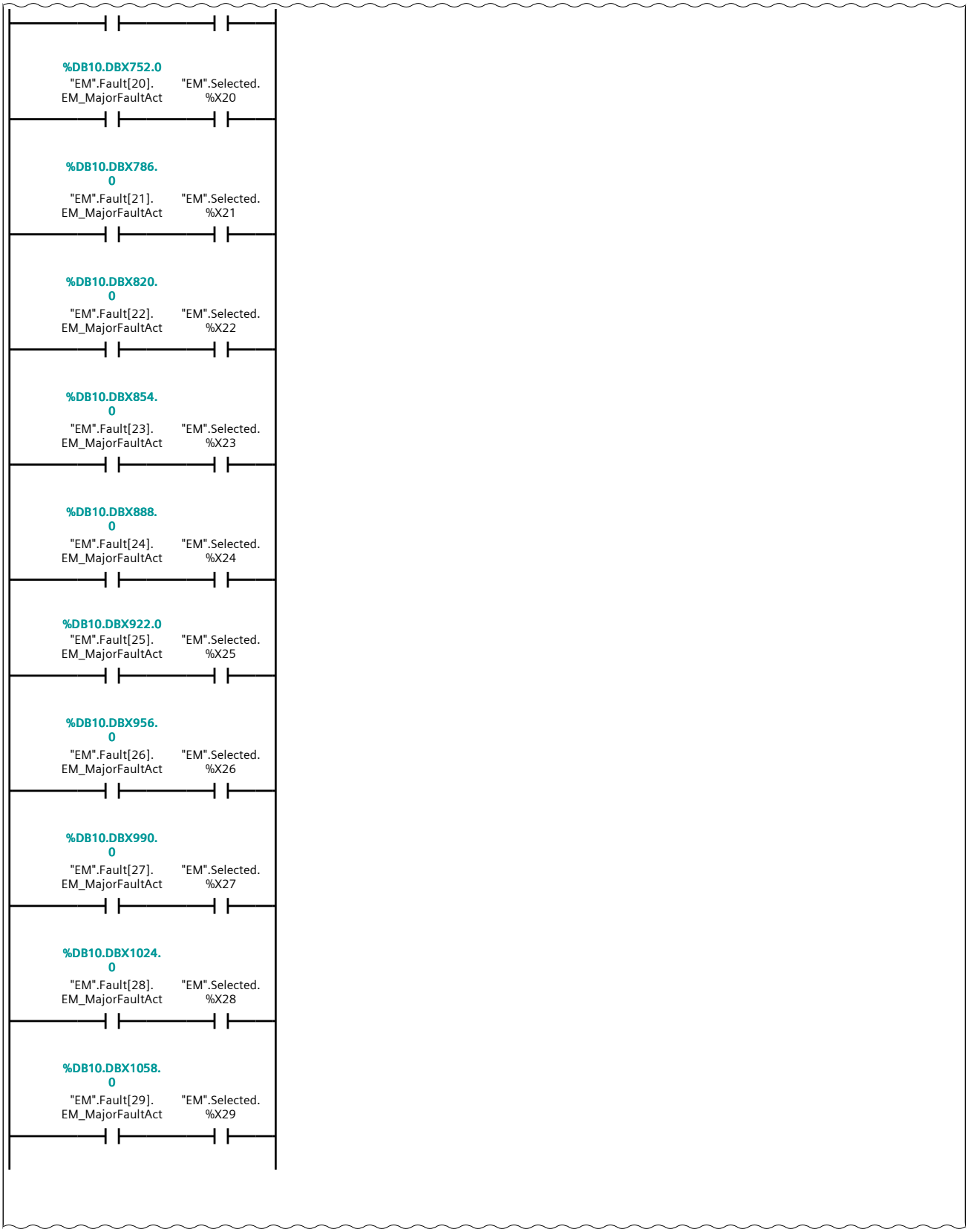
1.1 ( Page17 - 5)




3.1 ( Page17 - 7)

**Network 12: General unit fault summary (3.1 / 4.1)**

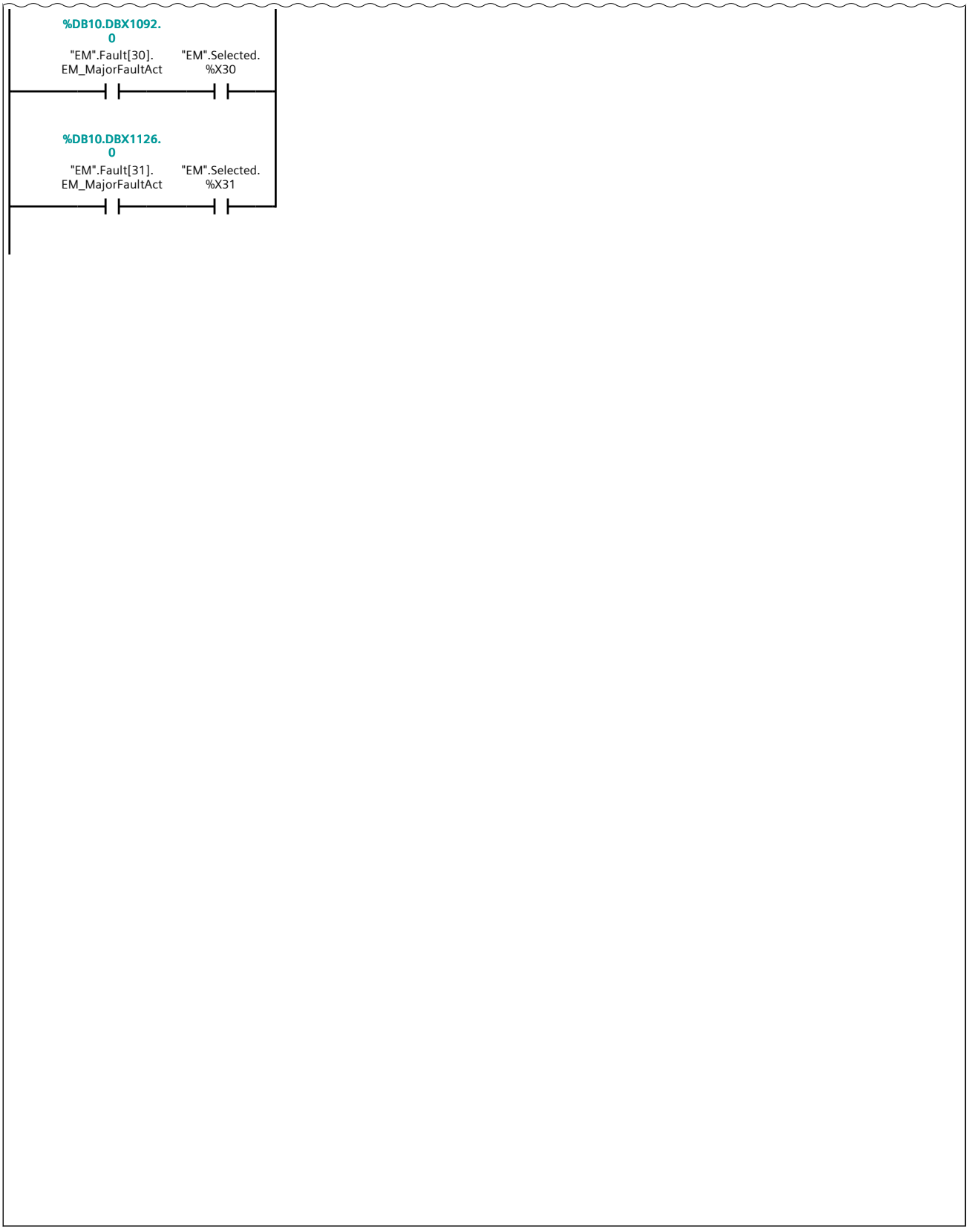
2.1 ( Page17 - 6)



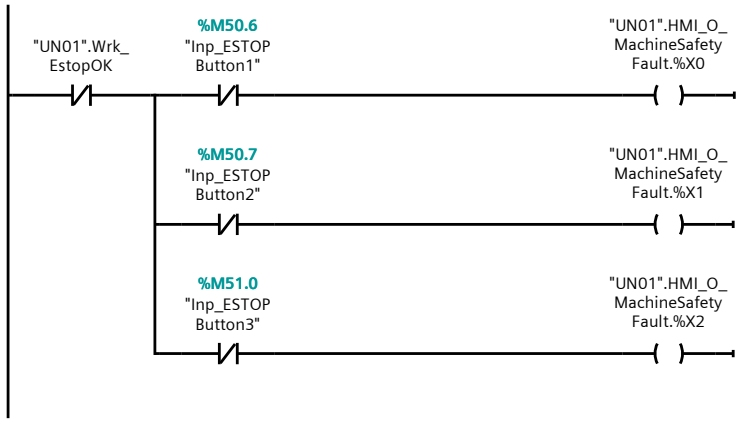

4.1 ( Page17 - 8)

**Network 12: General unit fault summary (4.1 / 4.1)**

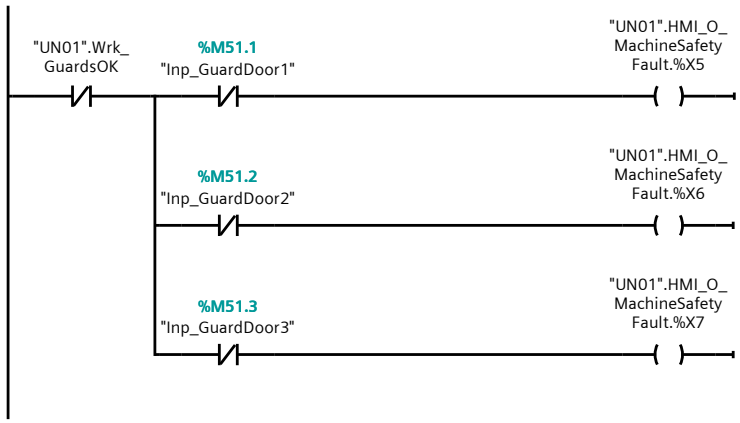
3.1 ( Page17 - 7)



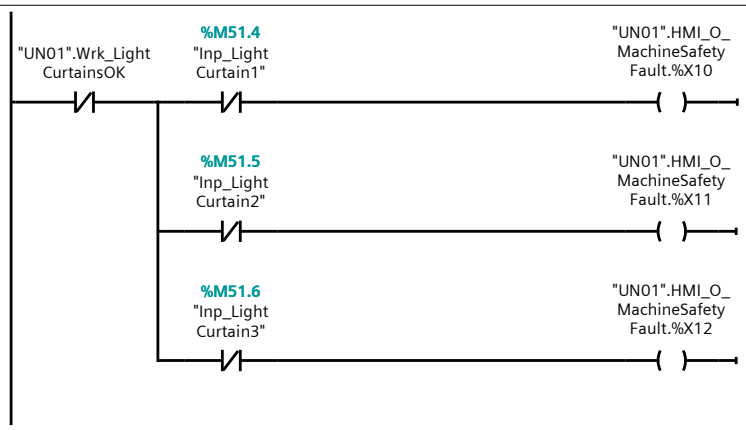
## Network 13: Safety estops/guards/curtains status reporting



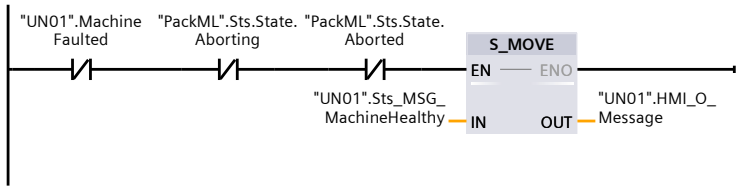

## Network 14:



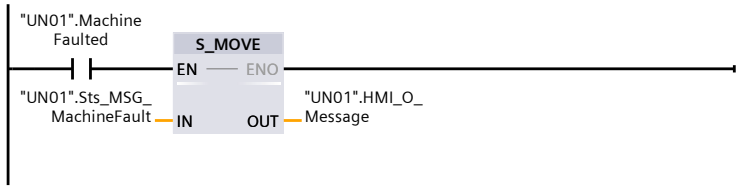

## Network 15:



## Network 16:




## Network 17:



# DeltaSpiralConv [CPU 1515T-2 PN] / Program blocks / 0_UN01_ExampleMachine

## UN01_SR20_Initialize [FB103]

| UN01_SR20_Initialize Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | UN01_SR20_Initialize | **Number** | 103 | **Type** | FB |
| **Language** | LAD | **Numbering** | Manual | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | 0.1 | **User-defined ID** | |

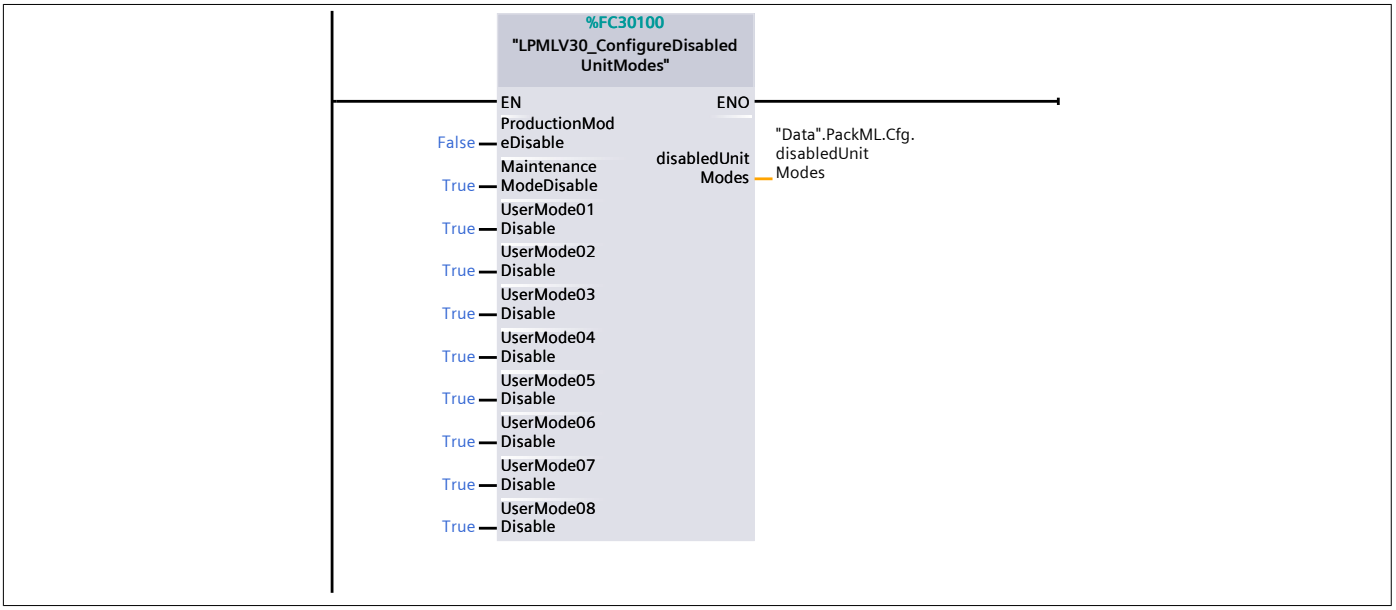
| Name | Data type | Default value | Retain |
|---|---|---|---|
| Input | | | |
| Output | | | |
| InOut | | | |
| ▼ Static | | | |
| Temp_Dint | DInt | 0 | Non-retain |
| Temp_Bool | Bool | false | Non-retain |
| Temp | | | |
| Constant | | | |

### Network 2: Clear EM selected

Each EM will turn on its bit as it initializes

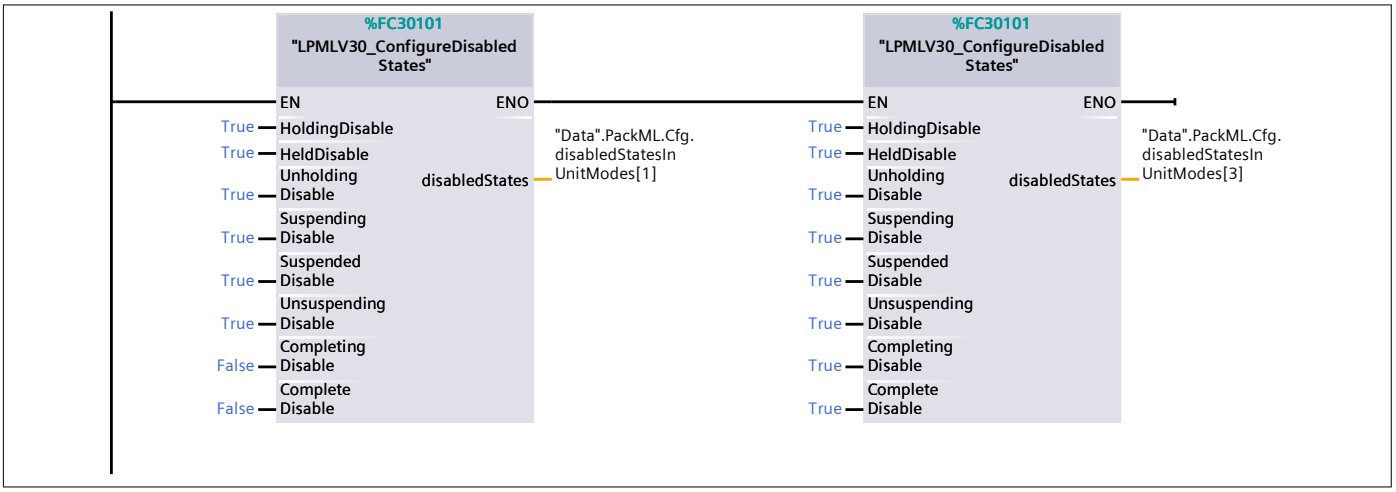

### Network 3: Disable modes

Only enable modes 1 (Production) and 3 (Manual) Note that Manual can not be disabled.



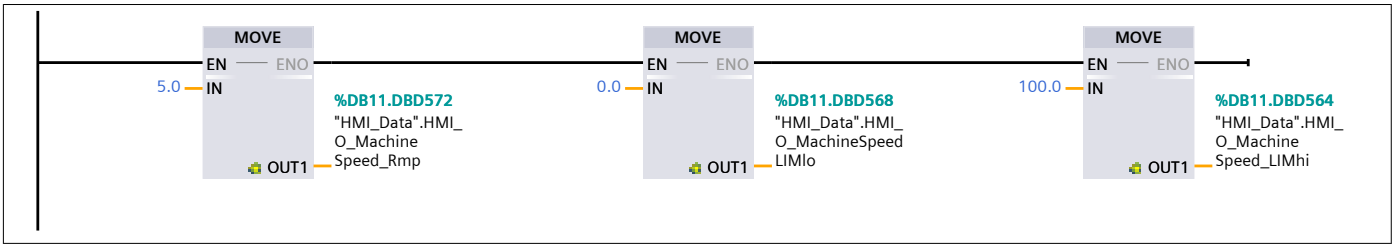

## Network 4: Set disabled states

For both Production and Manual modes

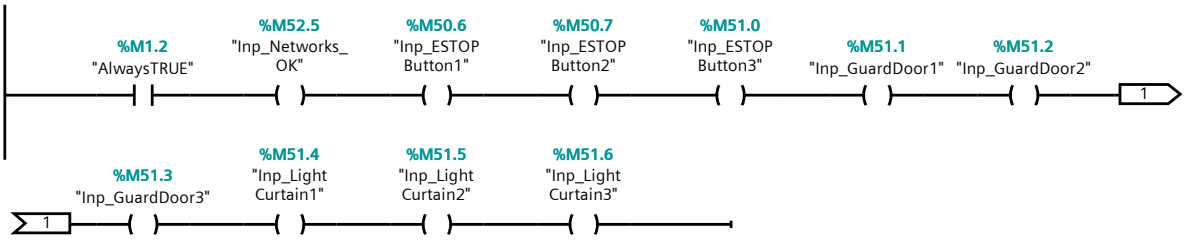



## Network 5: Initialize HMI machine speed limits

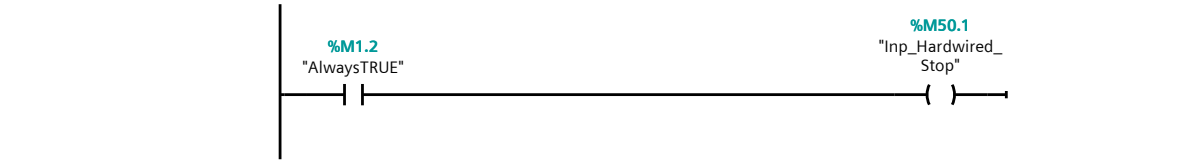
Ramp increment
Machine speed minimum
Machine speed maximum



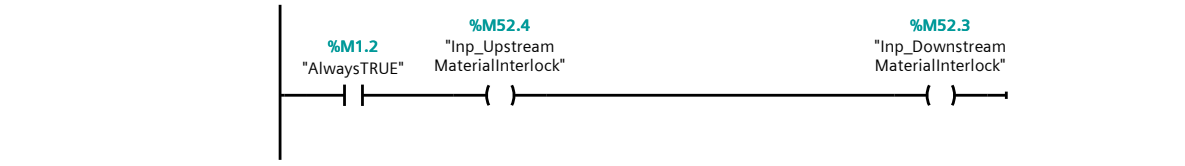

## Network 6: Unused safety and status inputs



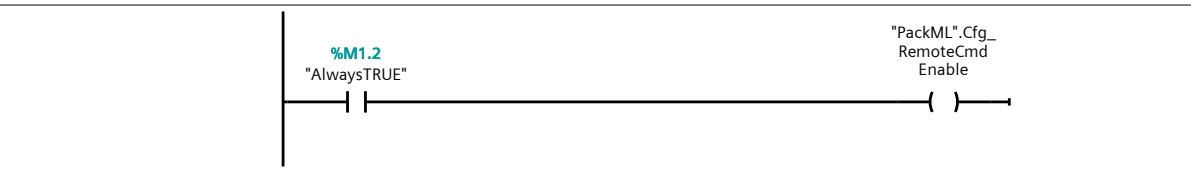

## Network 7: Disabled unused stop




## Network 8: Disable interlocks




## Network 9: Enable remote commands



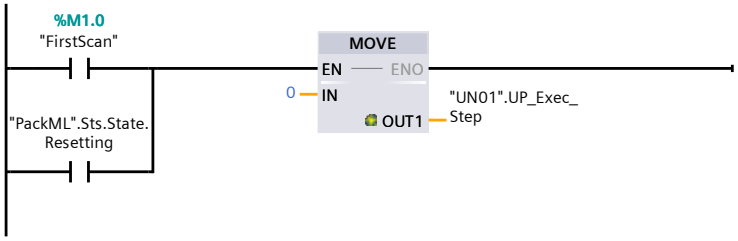
# DeltaSpiralConv [CPU 1515T-2 PN] / Program blocks / 0_UN01_ExampleMachine

## UN01_UP00_Procedure [FB104]

| UN01_UP00_Procedure Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | UN01_UP00_Procedure | **Number** | 104 | **Type** | FB |
| **Language** | LAD | **Numbering** | Manual | | |
| **Information** | | | | | |
| **Title** | Execute State motion steps/commands for over-all operation | **Author** | | **Comment** | |
| **Family** | | **Version** | 0.1 | **User-defined ID** | |

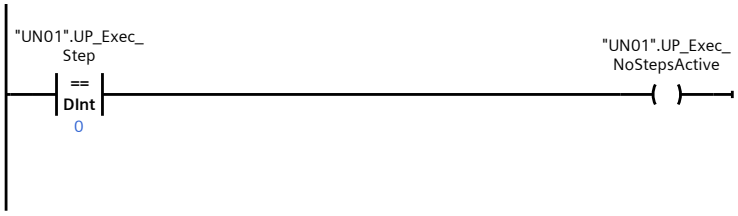
| Name | Data type | Default value | Retain |
|---|---|---|---|
| Input | | | |
| Output | | | |
| InOut | | | |
| Static | | | |
| Wrk_Delay1 | TON_TIME | | Non-retain |
| Wrk_Delay2 | TON_TIME | | Non-retain |
| Wrk_Delay3 | TON_TIME | | Non-retain |
| Wrk_Delay4 | TON_TIME | | Non-retain |
| Push | Bool | false | Non-retain |
| Temp | | | |
| Constant | | | |

### Network 2: First scan or resetting - clear all steps



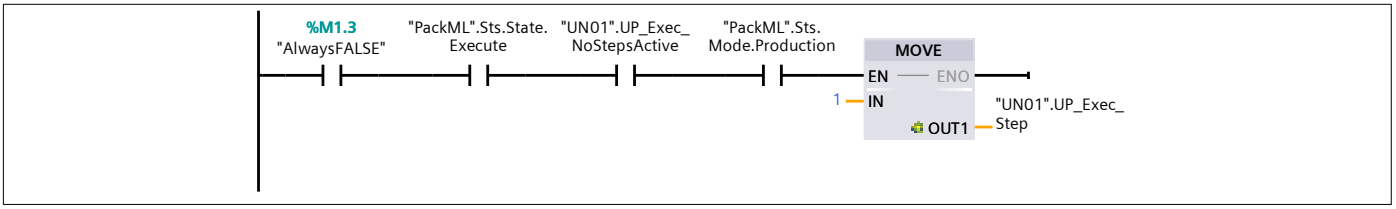

### Network 3: Indication that all steps reset

Used by RESETTING state complete logic and initial execute step

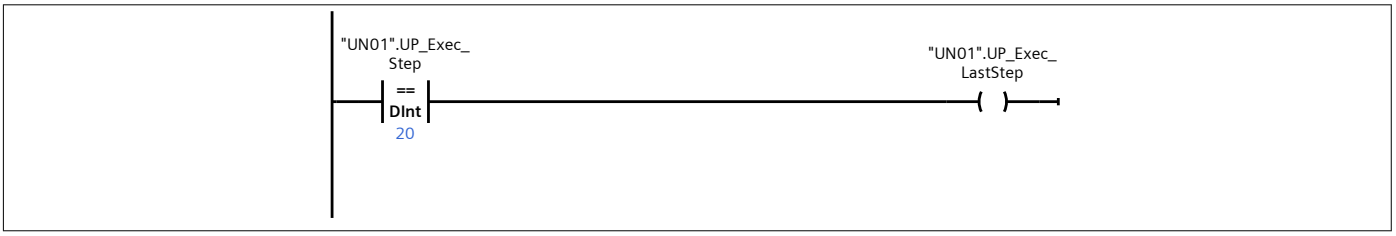


## Network 4: EXECUTE - start

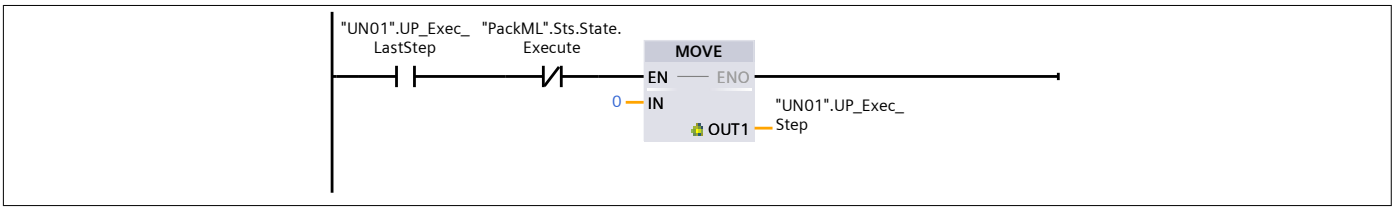
If no steps active, start in step 1




## Network 5:




## Network 6: Step 20 - When out of Execute, move zero into step number so it will start over at next push of start



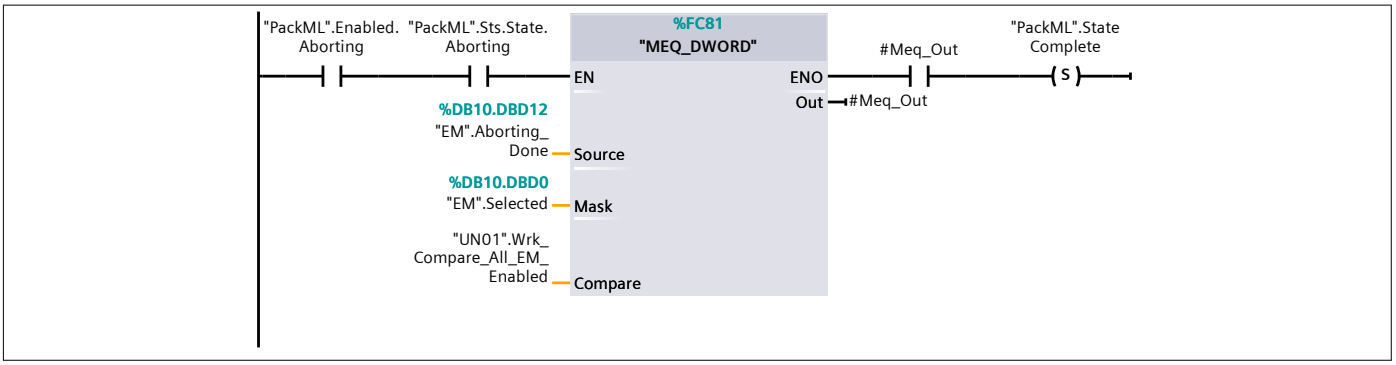
# DeltaSpiralConv [CPU 1515T-2 PN] / Program blocks / 0_UN01_ExampleMachine

## UN01_UP02_StateComplete [FB106]

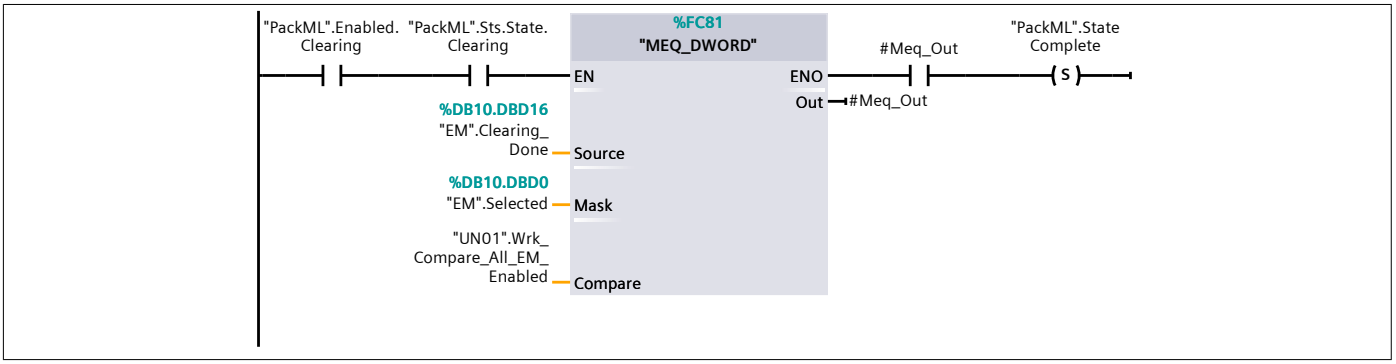
| UN01_UP02_StateComplete Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | UN01_UP02_StateCom-plete | **Number** | 106 | **Type** | FB |
| **Language** | LAD | **Numbering** | Manual | | |
| **Information** | | | | | |
| **Title** | State Complete Logic | **Author** | | **Comment** | |
| **Family** | | **Version** | 0.1 | **User-defined ID** | |

| Name | Data type | Default value | Retain |
|---|---|---|---|
| Input | | | |
| Output | | | |
| InOut | | | |
| ▼ Static | | | |
| Temp_Dint | DInt | 0 | Non-retain |
| Temp_Bool | Bool | false | Non-retain |
| ▼ Temp | | | |
| Meq_Out | Bool | | |
| Constant | | | |

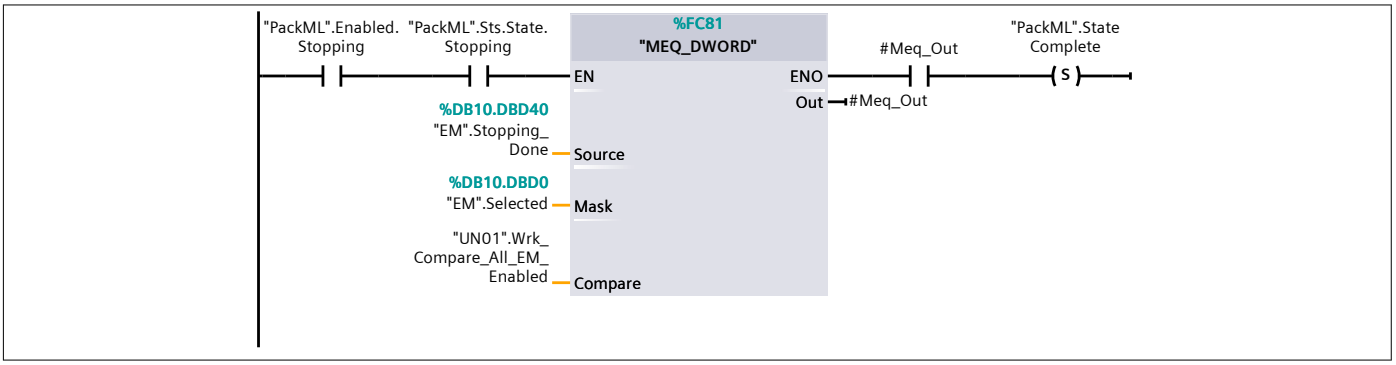
### Network 2: Aborting state complete




### Network 3: Clearing state complete

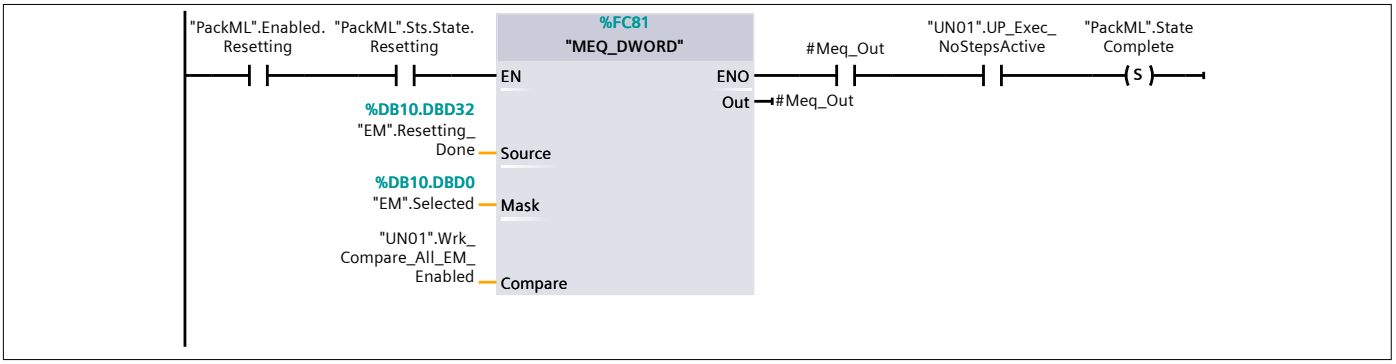



## Network 4: Stopping state complete

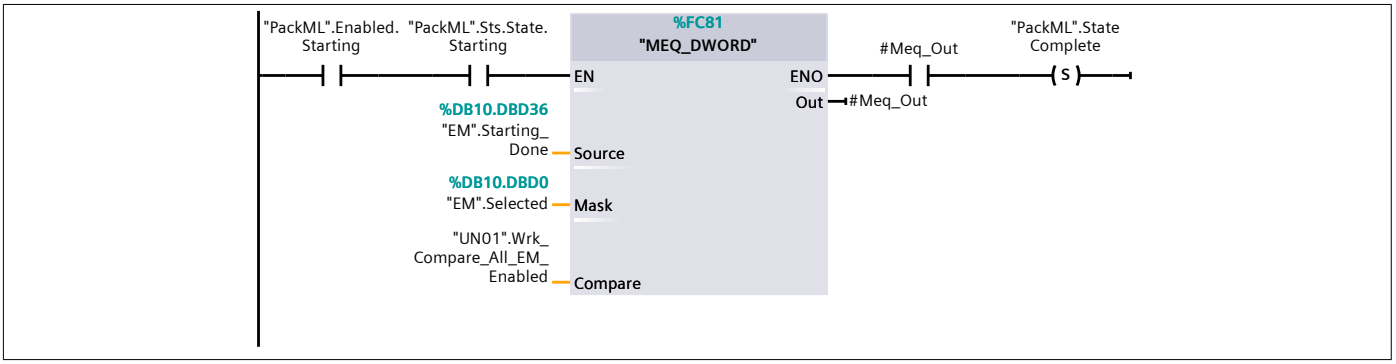



## Network 5: Resetting state complete

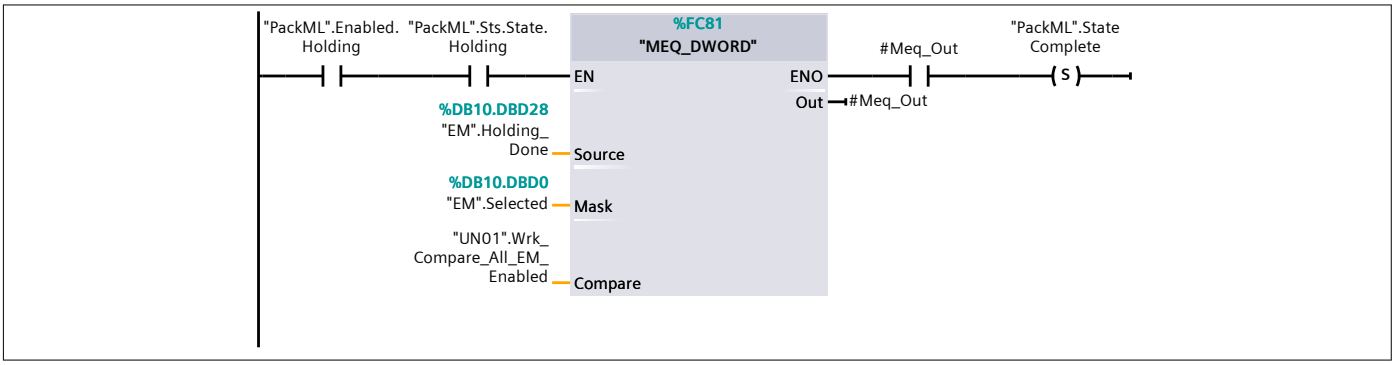
For resetting, make sure unit procedure initialized



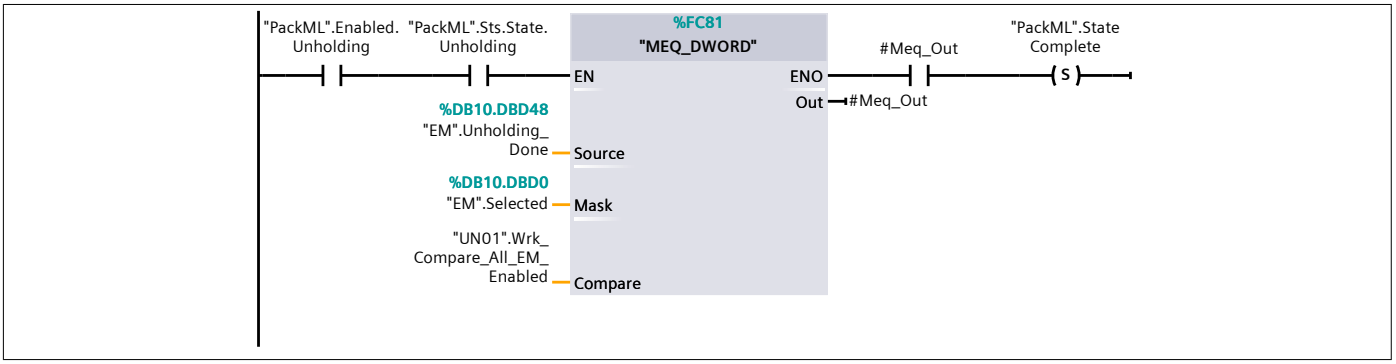

## Network 6: Starting state complete



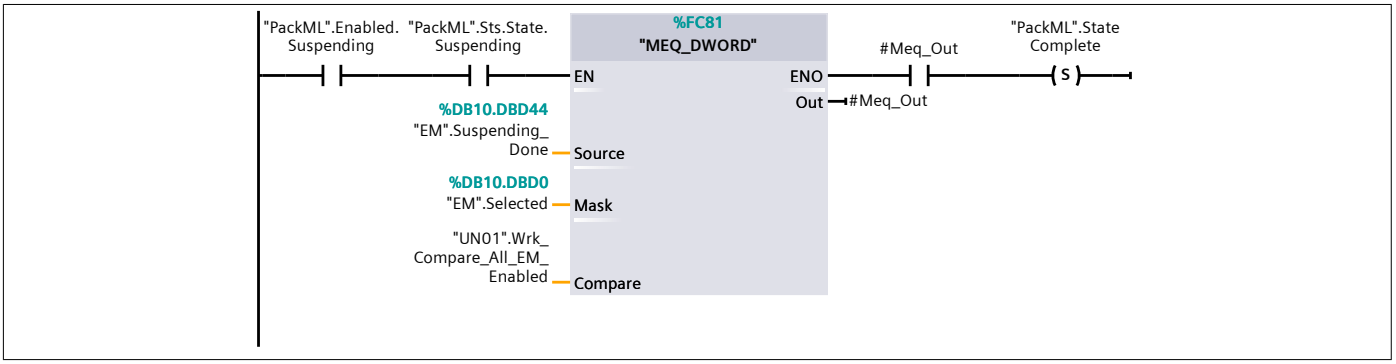

## Network 7: Holding state complete



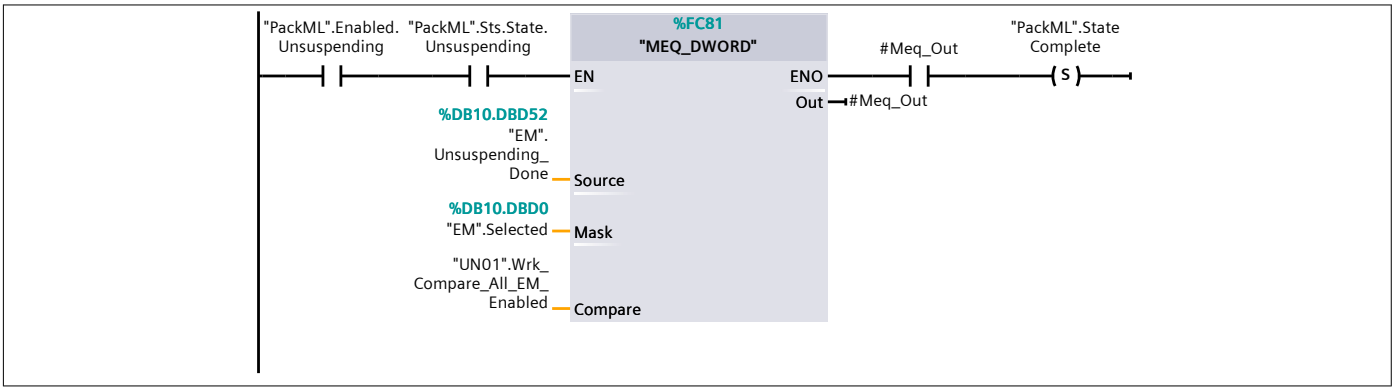

## Network 8: Unholding state complete



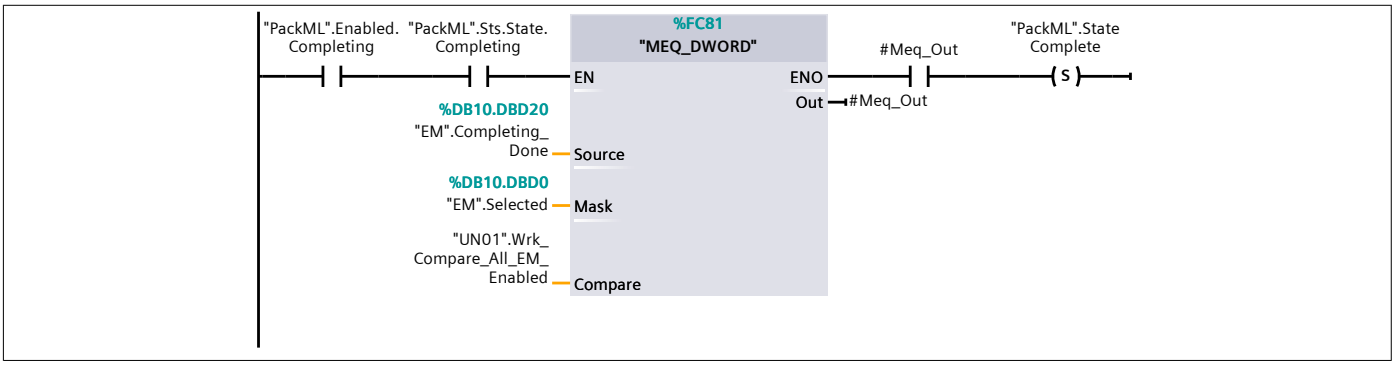

## Network 9: Suspending state complete




## Network 10: Unsuspending state complete

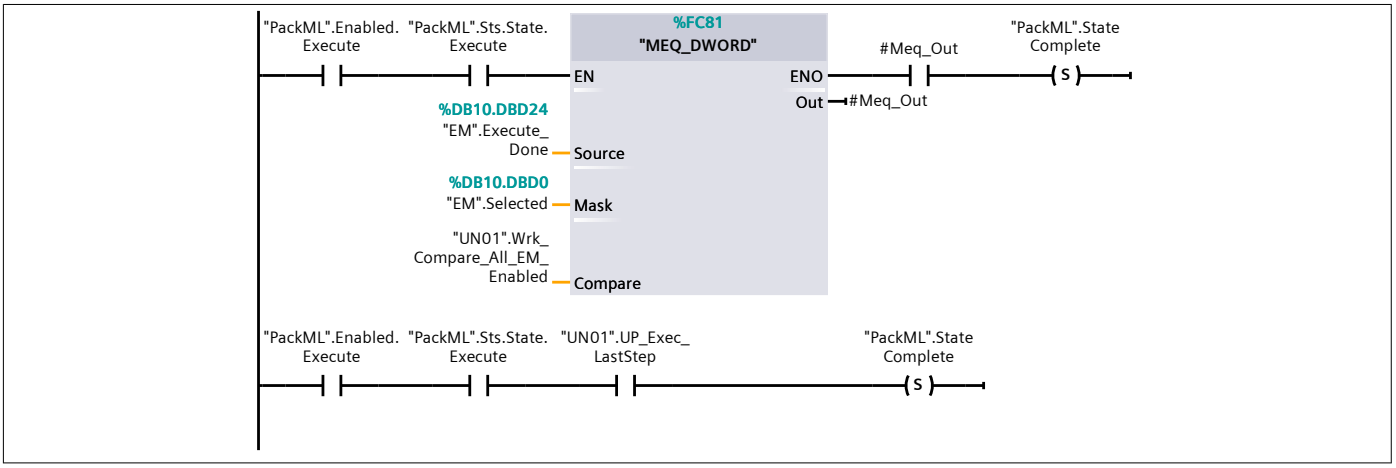



## Network 11: Completing state complete




## Network 12: Execute state complete

Complete when all EM's complete, or when unit procedure finished.


"PackML".Enabled.
Execute
"PackML".Sts.State.
Execute
%FC81
"MEQ_DWORD"
EN
ENO
#Meq_Out
"PackML".State
Complete
S
Out
#Meq_Out
%DB10.DBD24
"EM".Execute_
Done
Source
%DB10.DBD0
"EM".Selected
Mask
"UN01".Wrk_
Compare_All_EM_
Enabled
Compare
"PackML".Enabled.
Execute
"PackML".Sts.State.
Execute
"UN01".UP_Exec_
LastStep
"PackML".State
Complete
S

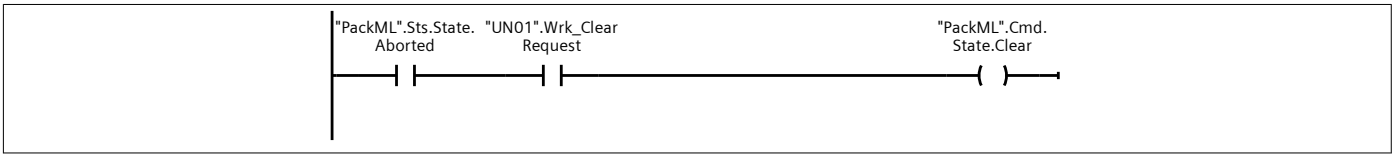
# DeltaSpiralConv [CPU 1515T-2 PN] / Program blocks / 0_UN01_ExampleMachine

## UN01_UP01_PackML [FB105]

| UN01_UP01_PackML Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | UN01_UP01_PackML | **Number** | 105 | **Type** | FB |
| **Language** | LAD | **Numbering** | Manual | | |
| **Information** | | | | | |
| **Title** | *** PackML Template *** Controls the machines modes & states | **Author** | FoodBev | **Comment** | The |
| **Family** | FoodBev | **Version** | 1.0 | **User-defined ID** | OMAC |

| Name | Data type | Default value | Retain |
|---|---|---|---|
| Input | | | |
| Output | | | |
| InOut | | | |
| ▼ Static | | | |
| LPMLV30_UnitModeStateManager_Instance | "LPMLV30_UnitModeStateManager" | | |
| LPMLV30_UnitModeStateTimes_Instance | "LPMLV30_UnitModeStateTimes" | | |
| RemoteCommand_ModeChageRequest | Struct | | Non-retain |
| SC_InputToBlock | Bool | false | Non-retain |
| SC_TrigStorage | Bool | false | Non-retain |
| ▼ Temp | | | |
| temp_ReadClock_RetVal | Int | | |
| temp_HMI_RetVal | Int | | |
| temp_OEE_Availability | Real | | |
| temp_OEE_Performance | Real | | |
| temp_OEE_Quality | Real | | |
| temp_Ret_Val | Int | | |
| temp_Int | Int | | |
| temp_string | String[10] | | |
| temp_DisabledStates | DInt | | |
| temp_ModeCurrent | DInt | | |
| temp_StateCurrent | DInt | | |
| temp_StateRequested | DInt | | |
| Constant | | | |

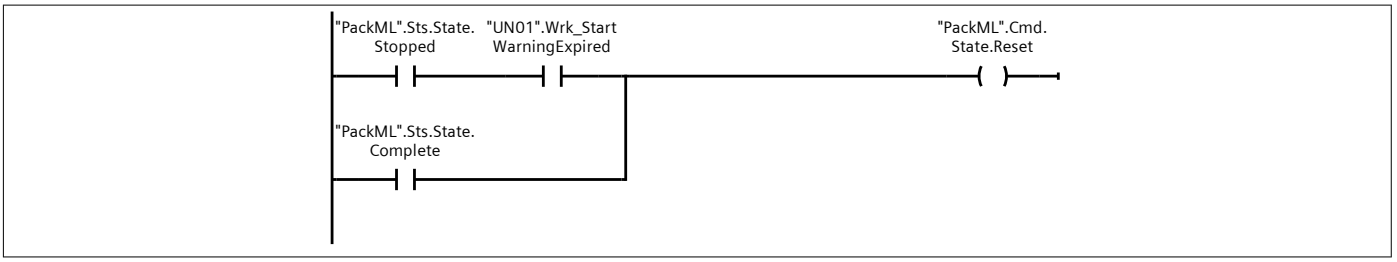
### Network 1: PackML ModeManager & State Model - Clear Command




### Network 2: PackML ModeManager & State Model - Reset command

STATE COMMAND
RESET

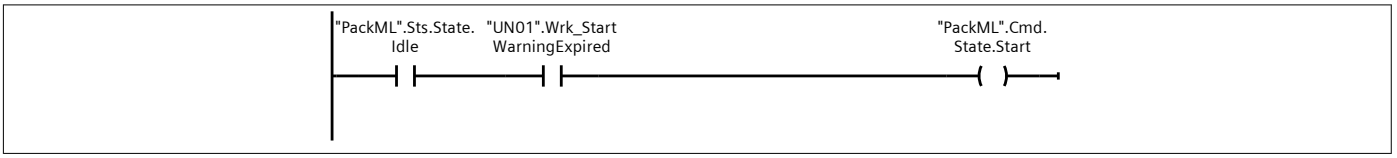
This Command is Triggered by the Unit Condition Indicating the Start Warning Cycle Has Completed.
The Command Initiates in the PackML FB for the Current Mode Operation Procedure to Transition From the Stopped or Complete State to:
1) The Resetting State, If Resetting Is Enabled
2) The Idle State, If Resetting is Disabled and Idle Is Enabled
3) The Starting State, If Resetting and Idle Are Disabled and Starting is Enabled
4) The Execute State, If Resetting, Idle, and Starting Are Disabled



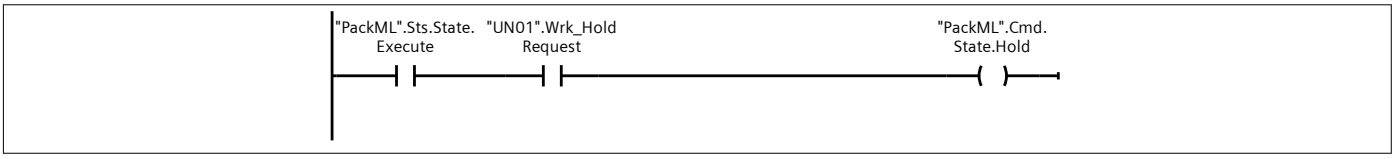

### Network 3: PackML ModeManager & State Model - Start command

STATE COMMAND
START

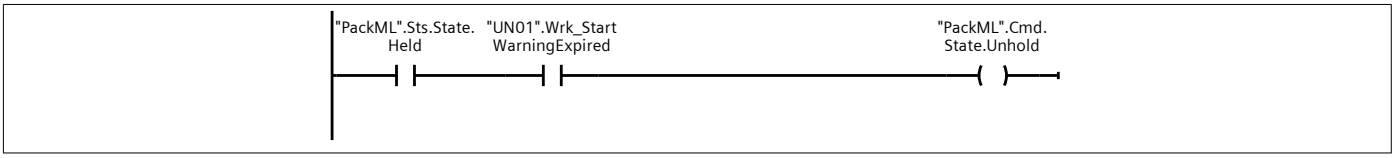
This Command is Triggered by the Unit Condition Indicating the Start Warning Cycle Has Completed.
The Command Initiates in the PackML FB for the Current Mode Operation Procedure to Transition From the Idle State to:
1) The Starting State, If Starting is Enabled
2) The Execute State, If Starting is Disabled



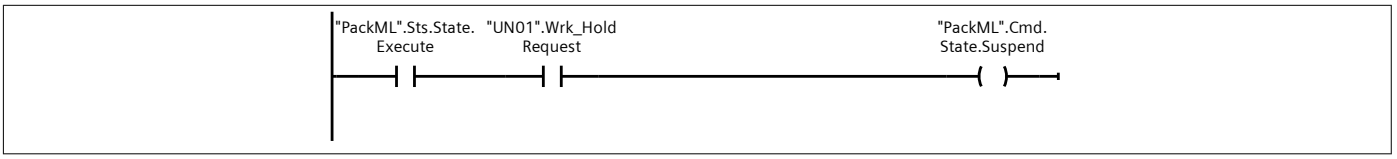

### Network 4: PackML ModeManager & State Model - Hold command



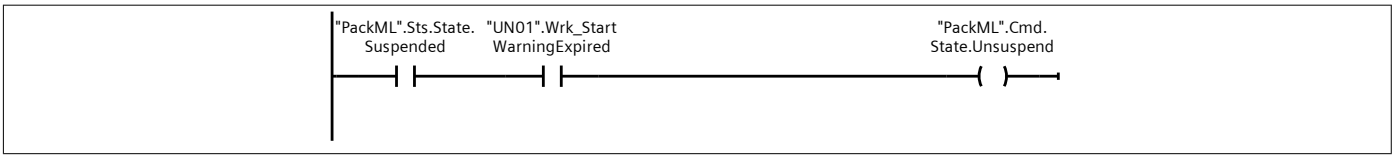

### Network 5: PackML ModeManager & State Model - UnHold command




## Network 6: PackML ModeManager & State Model - Suspend command



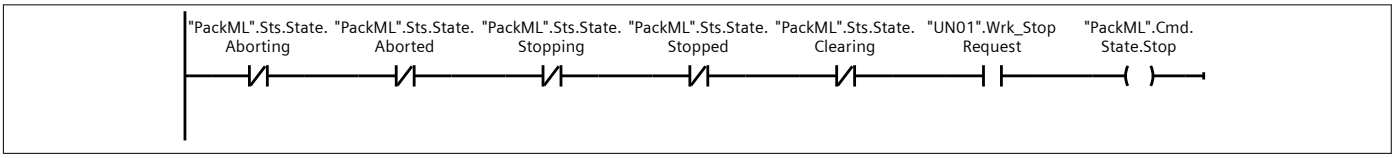

## Network 7: PackML ModeManager & State Model - UnSuspend command




## Network 8: PackML ModeManager & State Model - Stop command

STATE COMMAND
STOP

This Command is Triggered by the Unit Condition Indicating Any Stop Condition Is Present.
The Command Initiates in the PackML AOI for the Current Mode Operation Procedure to Transition From the Following List of States
(Resetting, Idle, Starting, Execute, Holding, Held, UnHolding, Suspending, Suspended, UnSuspending, Completing, Or Complete), When Each Is Enabled, To:
1) The Stopping State, If Stopping is Enabled
2) The Stopped State, If Stopping is Disabled

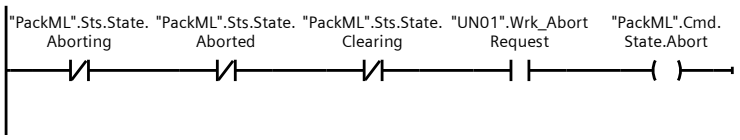



## Network 9: PackML ModeManager & State Model - Abort command

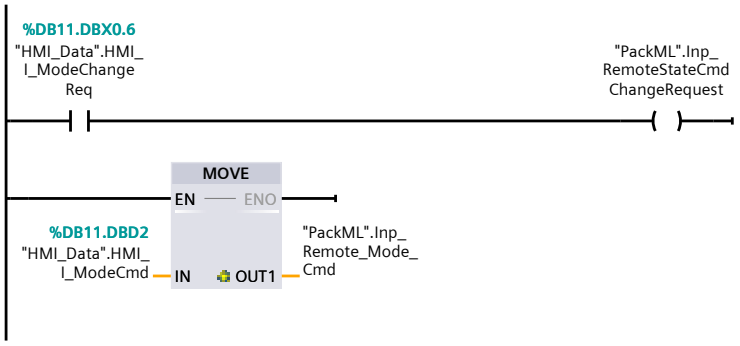
STATE COMMAND
ABORT

This Command is Triggered by the Unit Condition Indicating Any Fault Condition Is Present.
The Command Initiates in the PackML FB for the Current Mode Operation Procedure to Transition From the Following List of States
(Resetting, Idle, Starting, Execute, Holding, Held, UnHolding, Suspending, Suspended, UnSuspending, Completing, Complete, Stopping, Stopped, Or Clearing),
When Each Is Enabled, To:
1) The Aborting State, If Aborting is Enabled
2) The Aborted State, If Aborting is Disabled

MAKE SURE THAT ALL EQUIPMENT MODULES REPORT BACK A FAULTRESET_DONE AT SOME POINT IN TIME (EVEN IF FAULTS ARE PRESENT) TO AVOID THAT THE STATEMACHINE GETS STUCK IN CLEARING



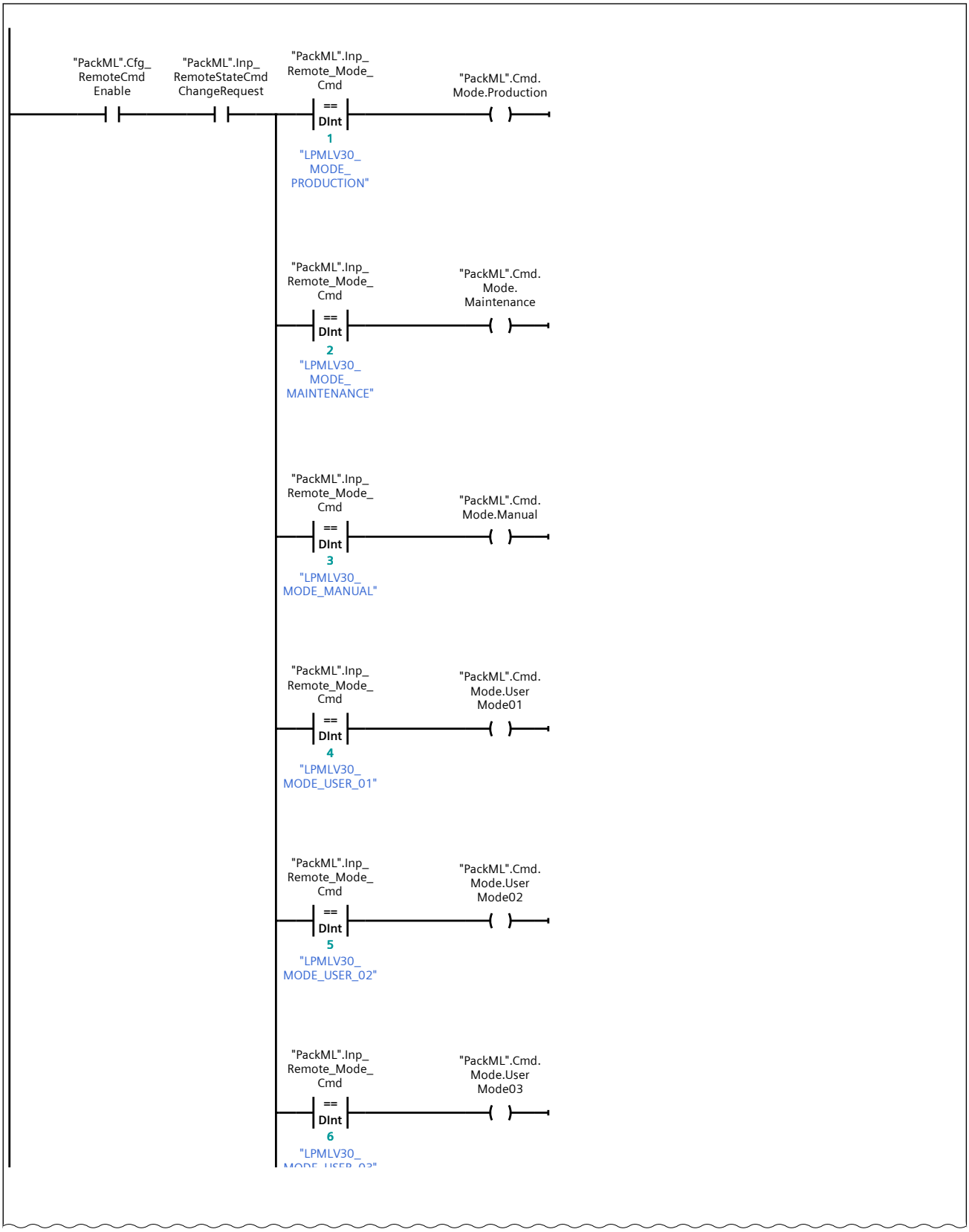

## Network 10: Mode change requests from operator




## Network 11: External PackML Mode Commands

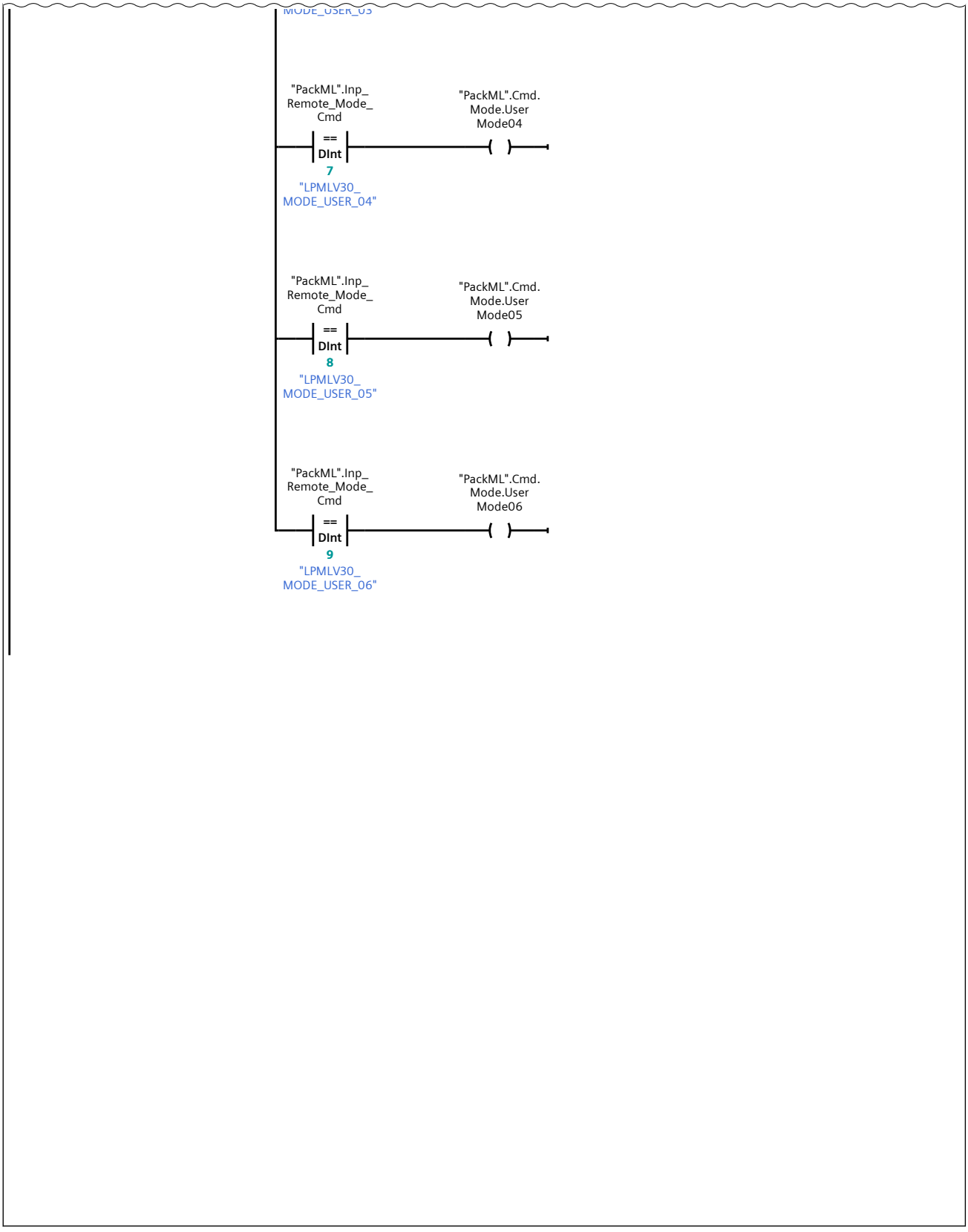
Rung from original program from CPG modified to use "PackML".Cmd.Mode. bits to change mode.

**Network 11: External PackML Mode Commands (1.1 / 2.1)**



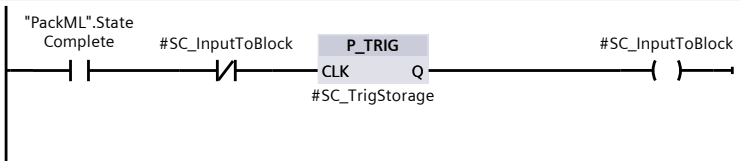
## Network 11: External PackML Mode Commands (2.1 / 2.1)

1.1 ( Page21 - 5)



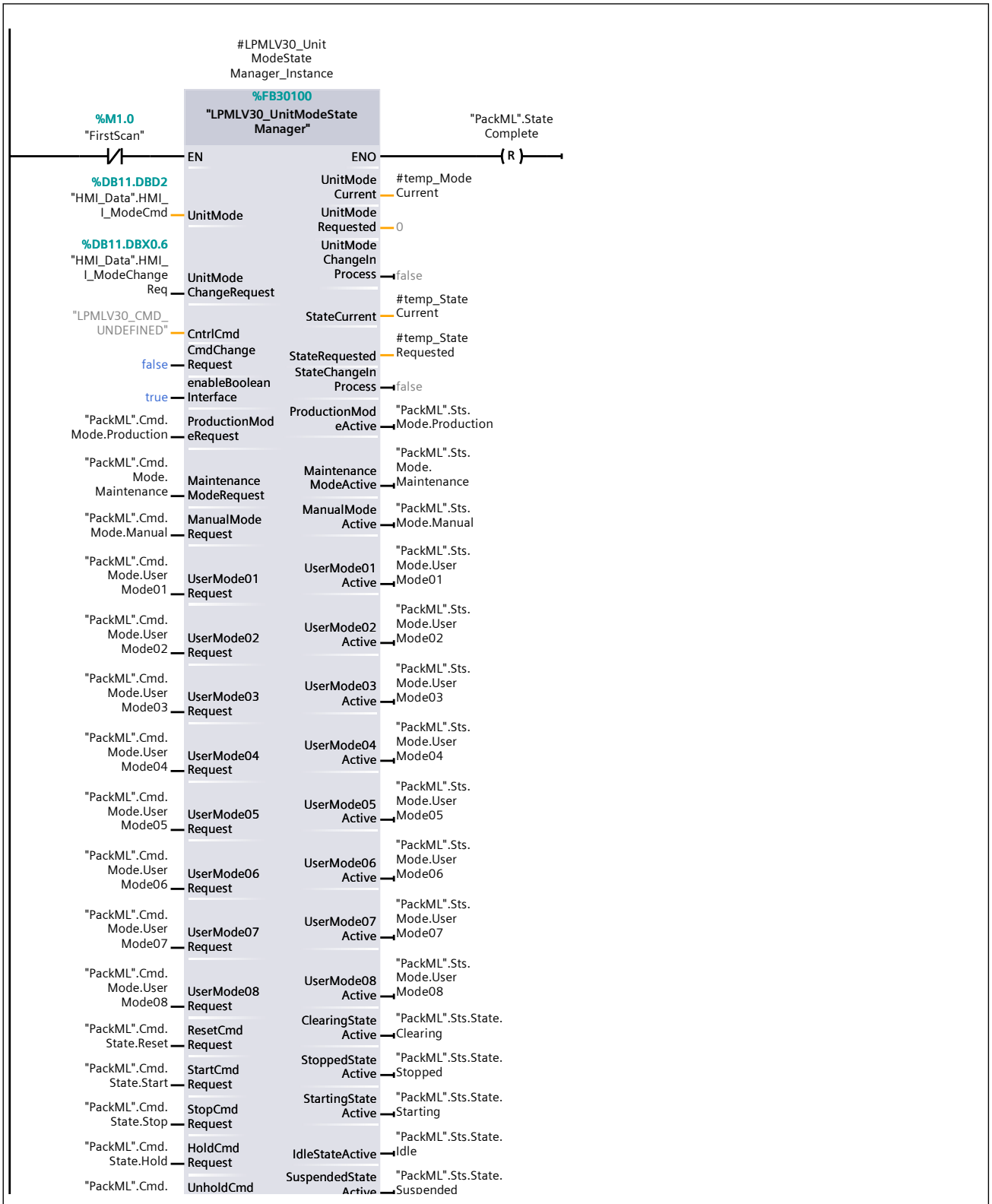
### Network 12: Enforce change in SC input to block

If state changes, but SC does not change because the state complete conditions are fulfilled as soon as the state is active, the SC input to LPMLV30_StateManager must still see a transition. This logic makes sure that the SC input is off at the next scan after it turns on.



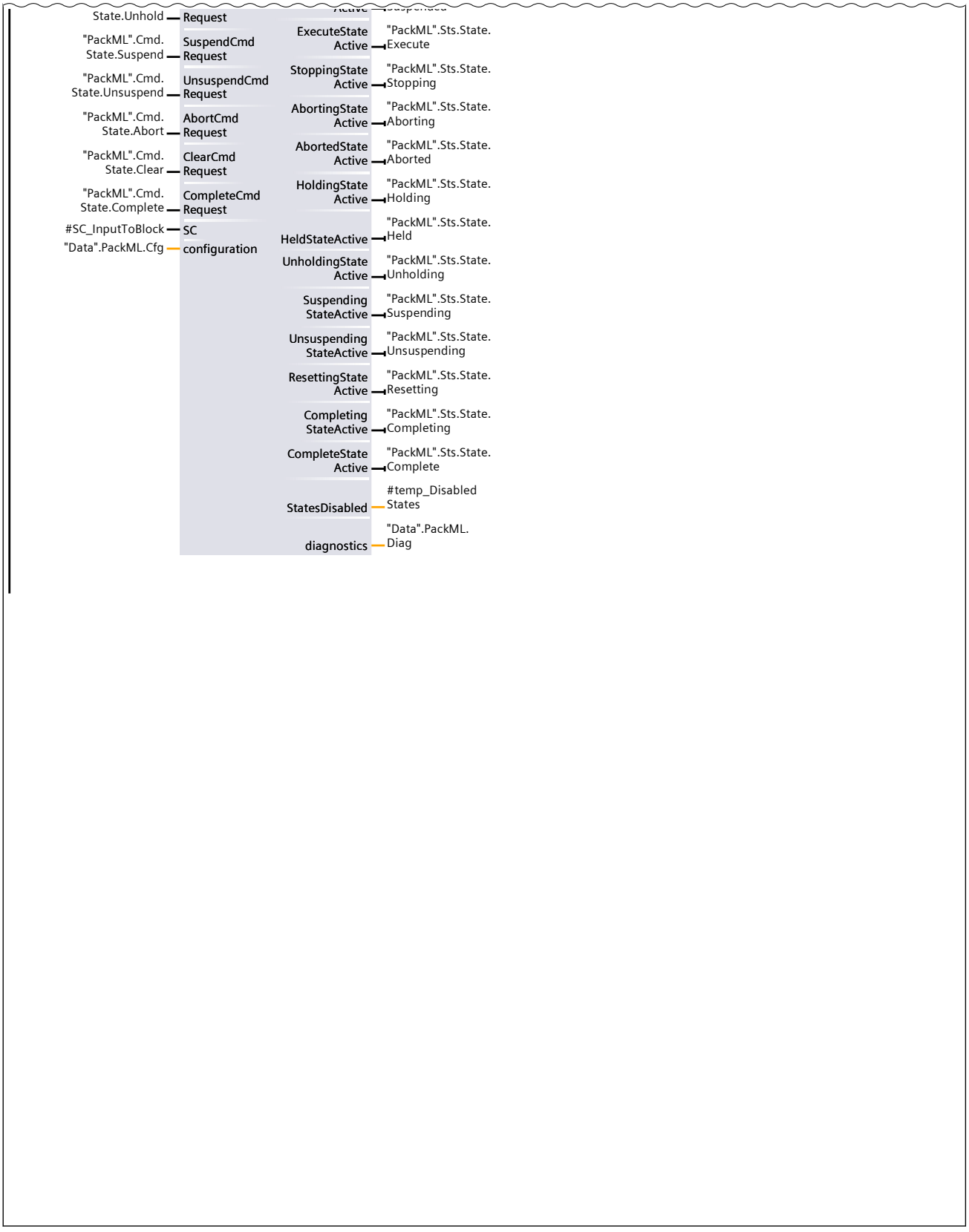

### Network 13: Call thePackML Mode Manager & State Model FB

## Network 13: Call thePackML Mode Manager & State Model FB (1.1 / 2.1)

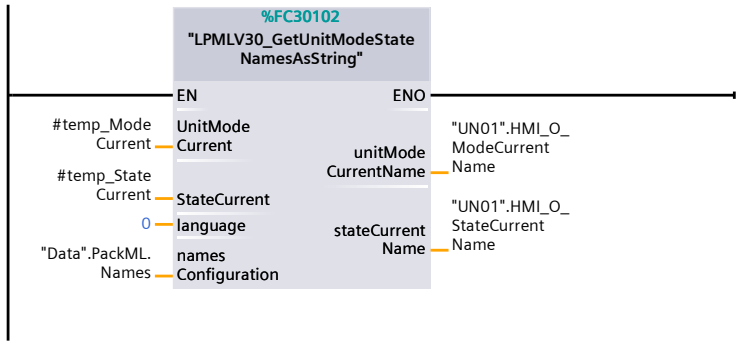


## Network 13: Call thePackML Mode Manager & State Model FB (2.1 / 2.1)

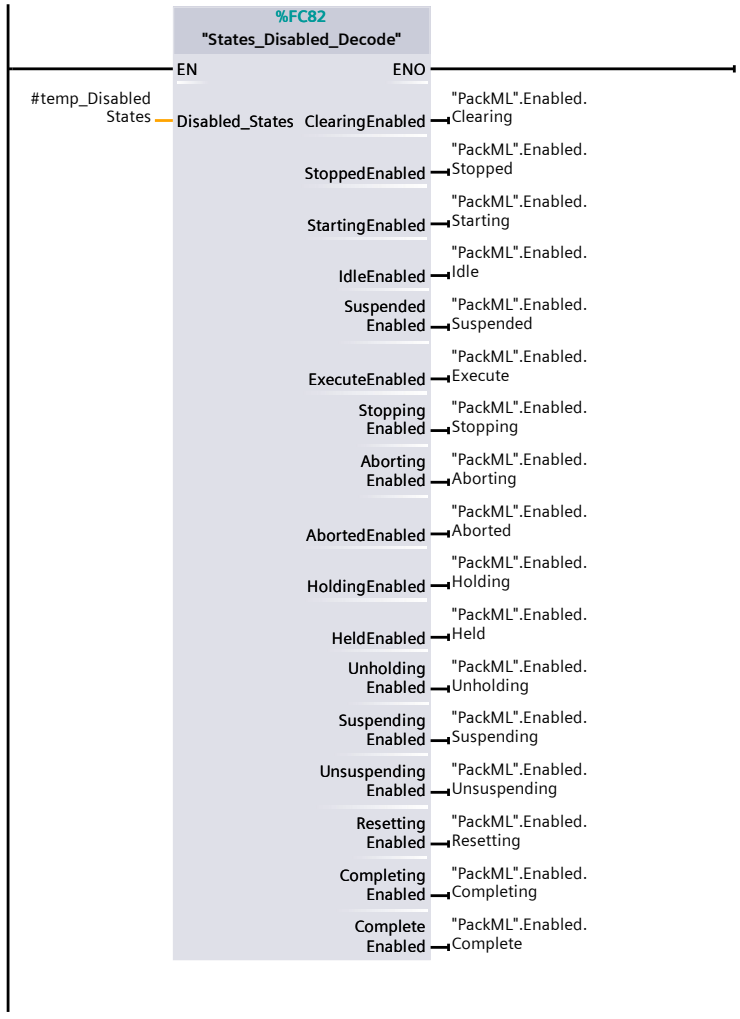
1.1 ( Page21 - 8)



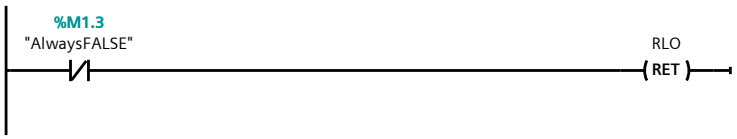
## Network 14: Mode / State Names.




## Network 15: Decode disabled states




## Network 16: END: Update the ENO Output. (DO NOT REMOVE. Must be last rung)


%M1.3
"AlwaysFALSE"
RLO
RET

# DeltaSpiralConv [CPU 1515T-2 PN] / Program blocks / 0_UN01_ExampleMachine

## UN01 [DB100]

| UN01 Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | UN01 | **Number** | 100 | **Type** | DB |
| **Language** | DB | **Numbering** | Manual | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | 0.1 | **User-defined ID** | |

| Name | Data type | Start value | Retain |
|---|---|---|---|
| Input | | | |
| Output | | | |
| InOut | | | |
| ▼ Static | | | |
| HMI_O_ModeCurrentName | String[18] | '' | False |
| HMI_O_StateCurrentName | String[16] | '' | False |
| HMI_O_MachineSafetyFault | DInt | 0 | False |
| HMI_O_MajorFaultMessage | DInt | 0 | False |
| HMI_O_MinorFaultMessage | DInt | 0 | False |
| HMI_O_Message | String[18] | '' | False |
| Sts_GoodProducts | DInt | 0 | False |
| Sts_MSG_MachineFault | String | 'Machine Fault' | False |
| Sts_MSG_MachineHealthy | String | 'Machine Healthy' | False |
| MachineFault_Major | Bool | false | False |
| MachineFault_Minor | Bool | false | False |
| MachineFaulted | Bool | false | False |
| UP_Exec_Step | DInt | 0 | False |
| UP_Exec_StepDn | Array[0..32] of DInt | | False |
| UP_Exec_LastStep | Bool | false | False |
| UP_Exec_NoStepsActive | Bool | false | False |
| Inp_BatchCountSetpoint | DInt | 0 | False |
| Wrk_StartRequest | Bool | false | False |
| Wrk_StopRequest | Bool | false | False |
| Wrk_ResetRequest | Bool | false | False |
| Wrk_AbortRequest | Bool | false | False |
| Wrk_ClearRequest | Bool | false | False |
| Wrk_CompleteRequest | Bool | false | False |
| Wrk_HoldRequest | Bool | false | False |
| Wrk_UnHoldRequest | Bool | false | False |
| Wrk_SuspendRequest | Bool | false | False |
| Wrk_Compare_All_EM_Enabled | DInt | -1 | False |
| Wrk_AllSafetyOK | Bool | false | False |
| Wrk_EstopOK | Bool | false | False |
| Wrk_GuardsOK | Bool | false | False |

| Name | Data type | Start value | Retain |
|---|---|---|---|
| Wrk_LightCurtainsOK | Bool | false | False |
| Wrk_NetworkCommunicationOK | Bool | false | False |
| Wrk_StartWarningExpired | Bool | false | False |
| S20_InitializeData | "UN01_SR20_Initial-ize" | | False |
| CM01_OperationLocal | "UN01_CM01_Opera-tionLocal" | | False |
| CM03_FaultHandler | "UN01_CM03_FaultH-andler" | | False |
| UP02_StateComplete | "UN01_UP02_State-Complete" | | False |
| UP01_PackML | "UN01_UP01_PackML" | | False |
| UP00_Procedure | "UN01_UP00_Proce-dure" | | False |

# DeltaSpiralConv [CPU 1515T-2 PN] / Program blocks / 0_UN01_ExampleMachine

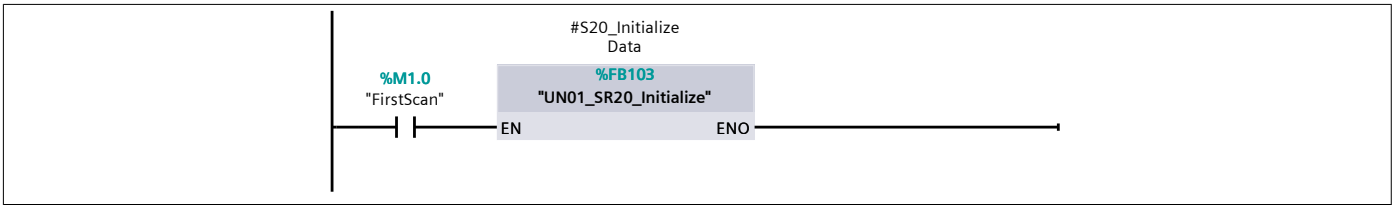
## UN01_00_Main [FB100]

| UN01_00_Main Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | UN01_00_Main | **Number** | 100 | **Type** | FB |
| **Language** | LAD | **Numbering** | Manual | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | 0.1 | **User-defined ID** | |

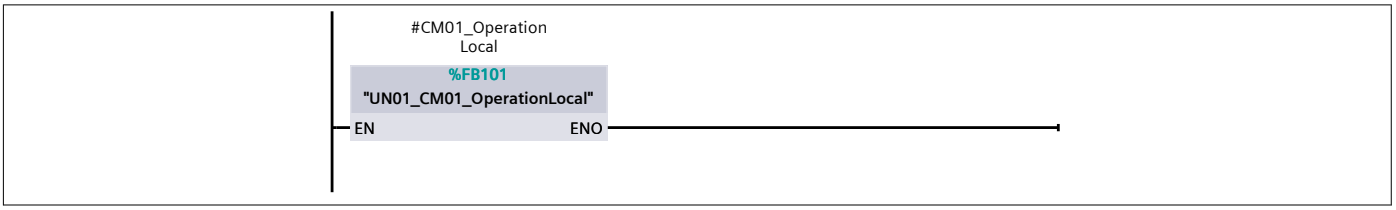
| Name | Data type | Default value | Retain |
|---|---|---|---|
| Input | | | |
| Output | | | |
| InOut | | | |
| ▼ Static | | | |
| HMI_O_ModeCurrentName | String[18] | '' | Non-retain |
| HMI_O_StateCurrentName | String[16] | '' | Non-retain |
| HMI_O_MachineSafetyFault | DInt | 0 | Non-retain |
| HMI_O_MajorFaultMessage | DInt | 0 | Non-retain |
| HMI_O_MinorFaultMessage | DInt | 0 | Non-retain |
| HMI_O_Message | String[18] | '' | Non-retain |
| Sts_GoodProducts | DInt | 0 | Non-retain |
| Sts_MSG_MachineFault | String | 'Machine Fault' | Non-retain |
| Sts_MSG_MachineHealthy | String | 'Machine Healthy' | Non-retain |
| MachineFault_Major | Bool | false | Non-retain |
| MachineFault_Minor | Bool | false | Non-retain |
| MachineFaulted | Bool | false | Non-retain |
| UP_Exec_Step | DInt | 0 | Non-retain |
| UP_Exec_StepDn | Array[0..32] of DInt | | Non-retain |
| UP_Exec_LastStep | Bool | false | Non-retain |
| UP_Exec_NoStepsActive | Bool | false | Non-retain |
| Inp_BatchCountSetpoint | DInt | 0 | Non-retain |
| Wrk_StartRequest | Bool | false | Non-retain |
| Wrk_StopRequest | Bool | false | Non-retain |
| Wrk_ResetRequest | Bool | false | Non-retain |
| Wrk_AbortRequest | Bool | false | Non-retain |
| Wrk_ClearRequest | Bool | false | Non-retain |
| Wrk_CompleteRequest | Bool | false | Non-retain |
| Wrk_HoldRequest | Bool | false | Non-retain |
| Wrk_UnHoldRequest | Bool | false | Non-retain |
| Wrk_SuspendRequest | Bool | false | Non-retain |
| Wrk_Compare_All_EM_Enabled | DInt | -1 | Non-retain |
| Wrk_AllSafetyOK | Bool | false | Non-retain |
| Wrk_EstopOK | Bool | false | Non-retain |
| Wrk_GuardsOK | Bool | false | Non-retain |

| Name | Data type | Default value | Retain |
|---|---|---|---|
| Wrk_LightCurtainsOK | Bool | false | Non-retain |
| Wrk_NetworkCommunicationOK | Bool | false | Non-retain |
| Wrk_StartWarningExpired | Bool | false | Non-retain |
| S20_InitializeData | "UN01_SR20_Initial-ize" | | |
| CM01_OperationLocal | "UN01_CM01_Op-erationLocal" | | |
| CM03_FaultHandler | "UN01_CM03_Fault Handler" | | |
| UP02_StateComplete | "UN01_UP02_State-Complete" | | |
| UP01_PackML | "UN01_UP01_Pack ML" | | |
| UP00_Procedure | "UN01_UP00_Pro-cedure" | | |
| Temp | | | |
| Constant | | | |

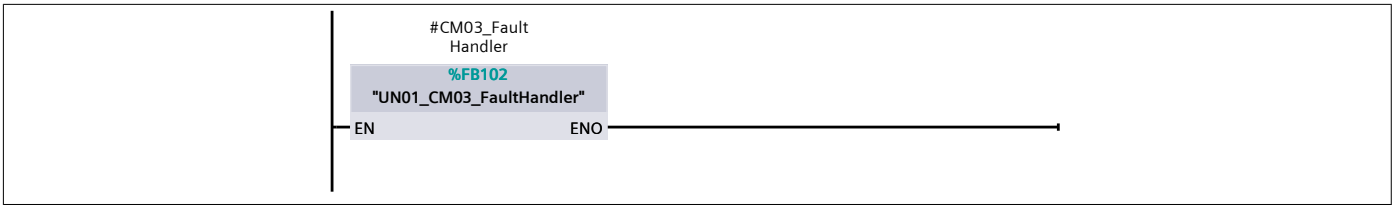
## Network 2:



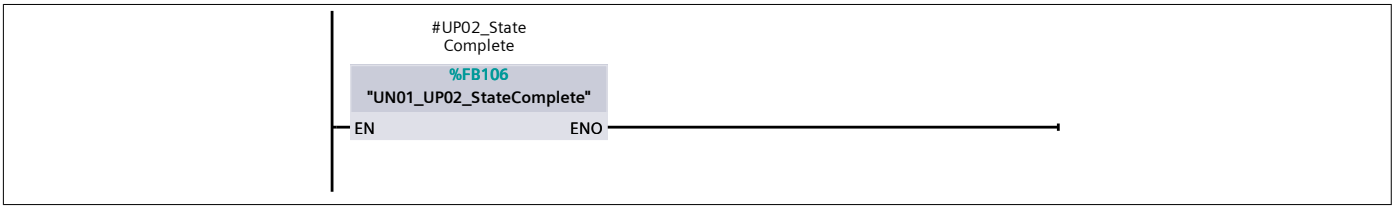

## Network 3:




## Network 4:



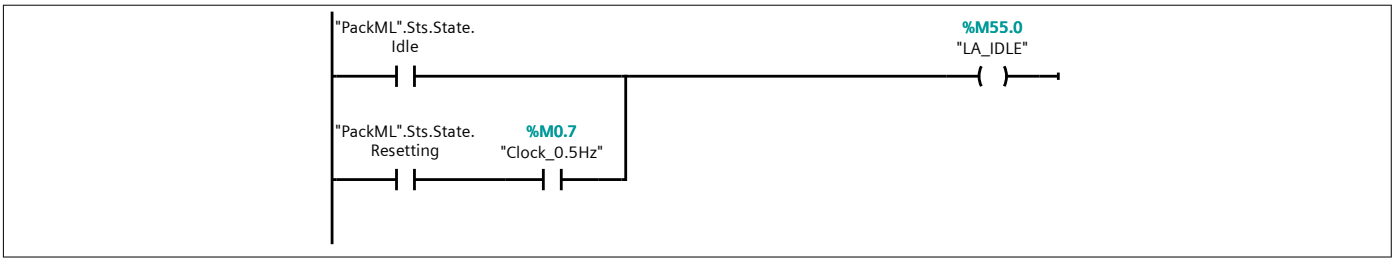

## Network 5:



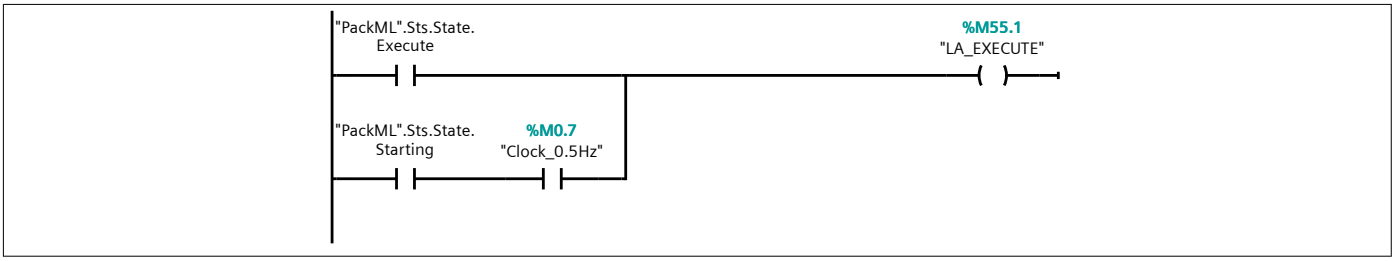

## Network 6:


## Network 7:

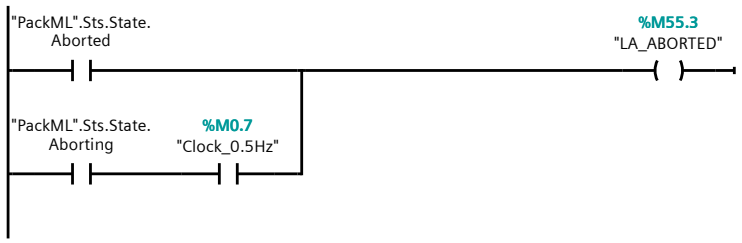

## Network 8: INDICATOR LAMPS for C-More



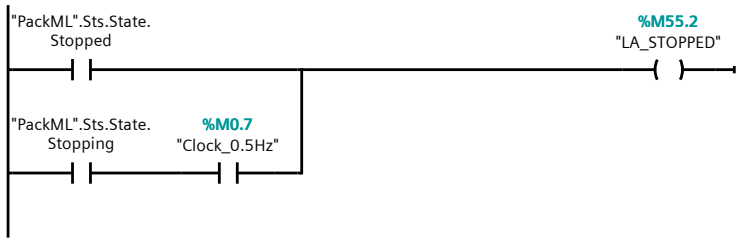

## Network 9:



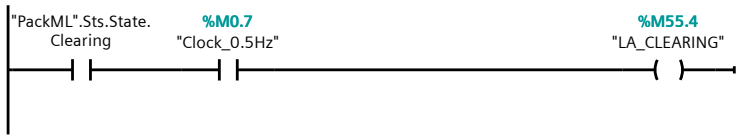

## Network 10:



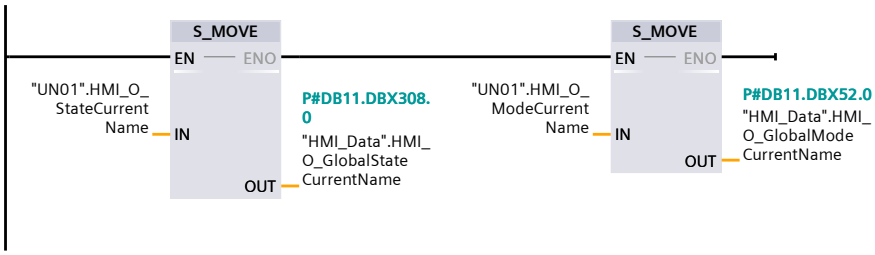

## Network 11:




## Network 12:




## Network 13: Pass on state and mode names to global hmi



# DeltaSpiralConv [CPU 1515T-2 PN] / Program blocks / Data

## EM [DB10]

| EM Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | EM | **Number** | 10 | **Type** | DB |
| **Language** | DB | **Numbering** | Manual | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | 0.1 | **User-defined ID** | |

| Name | Data type | Start value | Retain |
|---|---|---|---|
| ▼ Static | | | |
| Selected | DInt | 0 | False |
| Faulted | DInt | 0 | False |
| No_Motion | DInt | 0 | False |
| Aborting_Done | DInt | 0 | False |
| Clearing_Done | DInt | 0 | False |
| Completing_Done | DInt | 0 | False |
| Execute_Done | DInt | 0 | False |
| Holding_Done | DInt | 0 | False |
| Resetting_Done | DInt | 0 | False |
| Starting_Done | DInt | 0 | False |
| Stopping_Done | DInt | 0 | False |
| Suspending_Done | DInt | 0 | False |
| Unholding_Done | DInt | 0 | False |
| Unsuspending_Done | DInt | 0 | False |
| Fault | Array[0..31] of "EM_Faults" | | False |

# DeltaSpiralConv [CPU 1515T-2 PN] / Program blocks / Data

## HMI_Data [DB11]

| HMI_Data Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | HMI_Data | **Number** | 11 | **Type** | DB |
| **Language** | DB | **Numbering** | Manual | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | 0.1 | **User-defined ID** | |

| Name | Data type | Start value | Retain |
|---|---|---|---|
| ▼ Static | | | |
| HMI_I_Start | Bool | false | True |
| HMI_I_Stop | Bool | false | True |
| HMI_I_Clear | Bool | false | True |
| HMI_I_Reset | Bool | false | True |
| HMI_I_Hold | Bool | false | True |
| HMI_I_Unhold | Bool | false | True |
| HMI_I_ModeChangeReq | Bool | false | True |
| HMI_I_JogNegative | Bool | false | True |
| HMI_I_JogPositive | Bool | false | True |
| HMI_I_ModeCmd | DInt | 0 | True |
| HMI_I_Select_JogAxis | DInt | 0 | True |
| HMI_I_MachineSpeed_Cmd | Real | 0.0 | True |
| HMI_I_XMovePosition | Real | 100.0 | True |
| HMI_I_MoveSpeed | Real | 50.0 | True |
| HMI_I_JerkTime | Real | 50.0 | True |
| HMI_I_YMovePosition | Real | 100.0 | True |
| HMI_I_YMoveSpeed | Real | 50.0 | True |
| HMI_O_XCoor | Real | 50.0 | True |
| HMI_O_YCoor | Real | 35.0 | True |
| HMI_O_ZCoor | Real | 50.0 | True |
| HMI_O_RCoor | Real | 50.0 | True |
| HMI_O_LAAborted | Bool | false | True |
| HMI_O_LAExecute | Bool | false | True |
| HMI_O_LAIdle | Bool | false | True |
| HMI_O_LAStopped | Bool | false | True |
| HMI_O_GlobalModeCurrentName | String | '' | True |
| HMI_O_GlobalStateCurrentName | String | '' | True |
| HMI_O_MachineSpeed_LIMhi | Real | 0.0 | True |
| HMI_O_MachineSpeedLIMlo | Real | 0.0 | True |
| HMI_O_MachineSpeed_Rmp | Real | 0.0 | True |
| HMI_O_EM1_Step | Int | 0 | True |

# DeltaSpiralConv [CPU 1515T-2 PN] / Program blocks / Data

## Data [DB1]

| Data Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | Data | **Number** | 1 | **Type** | DB |
| **Language** | DB | **Numbering** | Automatic | | |
| **Information** | | | | | |
| **Title** | Machine Data | **Author** | | **Comment** | Machine Data |
| **Family** | | **Version** | 1.0 | **User-defined ID** | |

| Name | Data type | Start value | Retain |
|---|---|---|---|
| ▼ Static | | | |
| PackML | Struct | | False |
| ProdSchedule_BoxesMoveSP | DInt | L#30000 | True |
| ProdSchedule_BoxesMovePV | DInt | L#46 | True |
| ProdSchedule_Complete | Bool | false | True |
| ProdSchedule_Reset | Bool | false | True |
| OEE_RealTime | Real | 4.479167e-1 | True |
| OEE_Availabilty | Real | 0.0 | False |
| OEE_Performance | Real | 0.0 | False |
| OEE_Quality | Real | 0.0 | False |

# DeltaSpiralConv [CPU 1515T-2 PN] / Program blocks / Data

## PackML [DB19]

| PackML Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | PackML | **Number** | 19 | **Type** | DB |
| **Language** | DB | **Numbering** | Automatic | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | 0.1 | **User-defined ID** | |

| Name | Data type | Start value | Retain |
|---|---|---|---|
| ▼ Static | | | |
| Cmd | Struct | | False |
| Sts | Struct | | False |
| Enabled | Struct | | False |
| StateComplete | Bool | false | False |
| Cfg_RemoteCmdEnable | Bool | false | False |
| Inp_RemoteStateCmdChangeRequest | Bool | false | False |
| Inp_Remote_Mode_Cmd | DInt | 0 | False |

# DeltaSpiralConv [CPU 1515T-2 PN] / Program blocks / Data

## Axis_1_Status [DB75]

| Axis_1_Status Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | Axis_1_Status | **Number** | 75 | **Type** | DB |
| **Language** | DB | **Numbering** | Manual | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | 0.1 | **User-defined ID** | |

| Name | Data type | Start value | Retain |
|---|---|---|---|
| ▼ Static | | | |
| Status | "Servo_Status-Word_Type" | | False |
| Error | "Servo_Error-Word_Type" | | False |
| Warning | "Servo_Warning-Word_Type" | | False |

# DeltaSpiralConv [CPU 1515T-2 PN] / Program blocks / Data

## Axis_2_Status [DB76]

| Axis_2_Status Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | Axis_2_Status | **Number** | 76 | **Type** | DB |
| **Language** | DB | **Numbering** | Manual | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | 0.1 | **User-defined ID** | |

| Name | Data type | Start value | Retain |
|---|---|---|---|
| ▼ Static | | | |
| Status | "Servo_Status-Word_Type" | | False |
| Error | "Servo_Error-Word_Type" | | False |
| Warning | "Servo_Warning-Word_Type" | | False |

# DeltaSpiralConv [CPU 1515T-2 PN] / Program blocks / Data

## Axis_3_Status [DB77]

| Axis_3_Status Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | Axis_3_Status | **Number** | 77 | **Type** | DB |
| **Language** | DB | **Numbering** | Manual | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | 0.1 | **User-defined ID** | |

| Name | Data type | Start value | Retain |
|---|---|---|---|
| ▼ Static | | | |
| Status | "Servo_Status-Word_Type" | | False |
| Error | "Servo_Error-Word_Type" | | False |
| Warning | "Servo_Warning-Word_Type" | | False |

# DeltaSpiralConv [CPU 1515T-2 PN] / Program blocks / Data

## Axis_4_Status [DB78]

| Axis_4_Status Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | Axis_4_Status | **Number** | 78 | **Type** | DB |
| **Language** | DB | **Numbering** | Manual | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | 0.1 | **User-defined ID** | |

| Name | Data type | Start value | Retain |
|---|---|---|---|
| ▼ Static | | | |
| Status | "Servo_Status-Word_Type" | | False |
| Error | "Servo_Error-Word_Type" | | False |
| Warning | "Servo_Warning-Word_Type" | | False |

# DeltaSpiralConv [CPU 1515T-2 PN] / Program blocks / EM01_DeltaXYZR

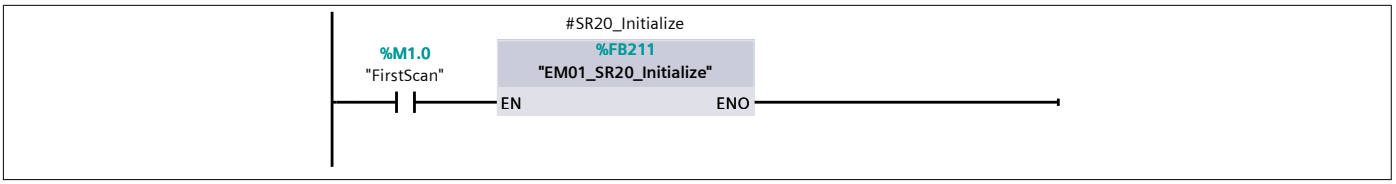
## EM01_00_Main [FB200]

| EM01_00_Main Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | EM01_00_Main | **Number** | 200 | **Type** | FB |
| **Language** | LAD | **Numbering** | Manual | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | 0.1 | **User-defined ID** | |

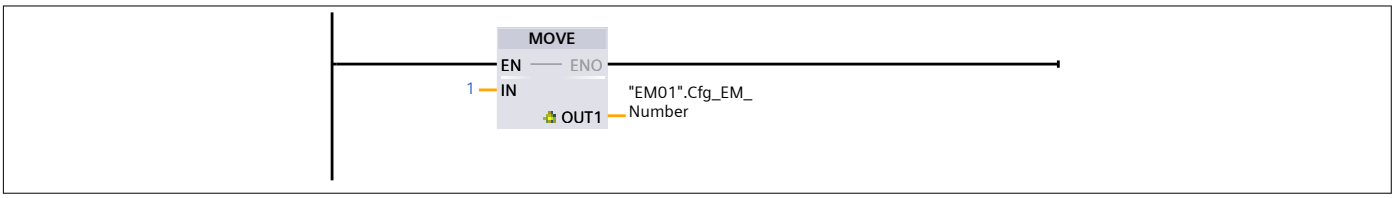
| Name | Data type | Default value | Retain |
|---|---|---|---|
| Input | | | |
| Output | | | |
| InOut | | | |
| ▼ Static | | | |
| Cfg_EM_Number | Int | 0 | Non-retain |
| Par_Jog_Accel | Real | 0.0 | Non-retain |
| Par_Jog_Decel | Real | 0.0 | Non-retain |
| Par_Jog_Speed | Real | 0.0 | Non-retain |
| CM00_EM_Procedure | "EM01_CM00_Procedure" | | |
| CM01_EMConditions | "EM01_CM01_EMConditions" | | |
| CM02_01_Axis_J1 | "EM01_CM02_ServoAxisObject" | | |
| CM02_02_Axis_J2 | "EM01_CM02_ServoAxisObject" | | |
| CM02_03_Axis_J3 | "EM01_CM02_ServoAxisObject" | | |
| CM02_04_Axis_R | "EM01_CM02_ServoAxisObject" | | |
| CM03_01_AxisJog_J1 | "EM01_CM03_ServoAxisJog" | | |
| CM03_02_AxisJog_J2 | "EM01_CM03_ServoAxisJog" | | |
| CM03_03_AxisJog_J3 | "EM01_CM03_ServoAxisJog" | | |
| CM03_04_AxisJog_R | "EM01_CM03_ServoAxisJog" | | |
| CM04_05_Kinetics_XYZR | "EM01_CM04_ServoKinObject" | | |
| CM05_05_KinJog_XYZR | "EM01_CM05_ServoKinJog" | | |
| SR03_FaultHandler | "EM01_SR03_FaultHandler" | | |
| SR20_Initialize | "EM01_SR20_Initialize" | | |
| SR30_Simulate | "EM01_SR30_Simulate" | | |
| Wrk_Temp_Bit | Bool | false | Non-retain |

| Name | Data type | Default value | Retain |
|---|---|---|---|
| KinStatusError | Int | 0 | Non-retain |
| TypeOfKin | DInt | 0 | Non-retain |
| A1_Type | DInt | 0 | Non-retain |
| A1_Status | DWord | 16#0 | Non-retain |
| Temp | | | |
| Constant | | | |

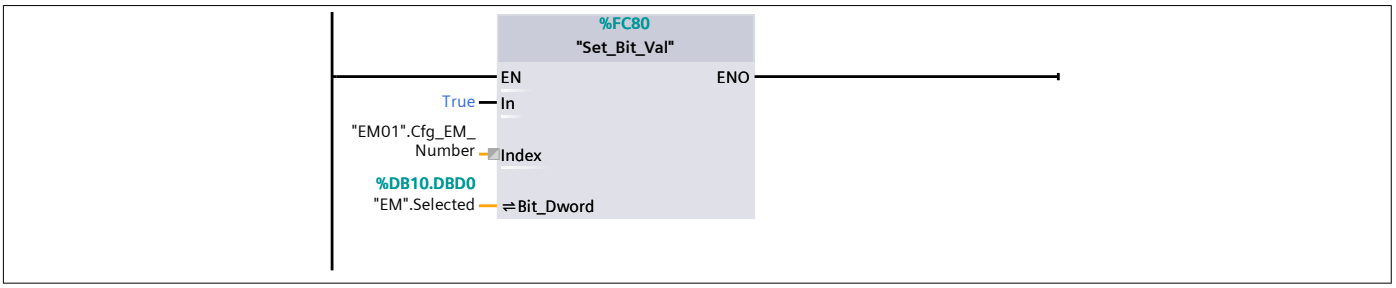
## Network 1:



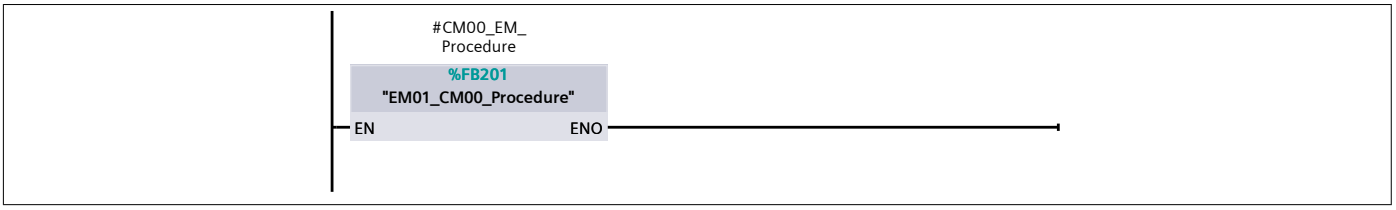

## Network 2: Set EM number



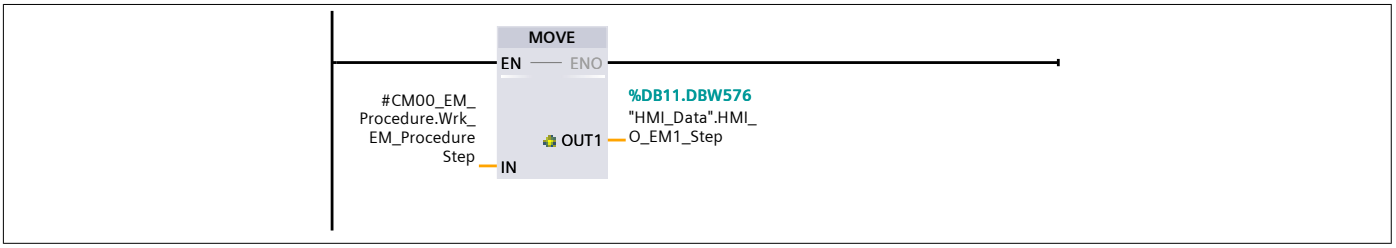

## Network 3: Equipment module is selected and active



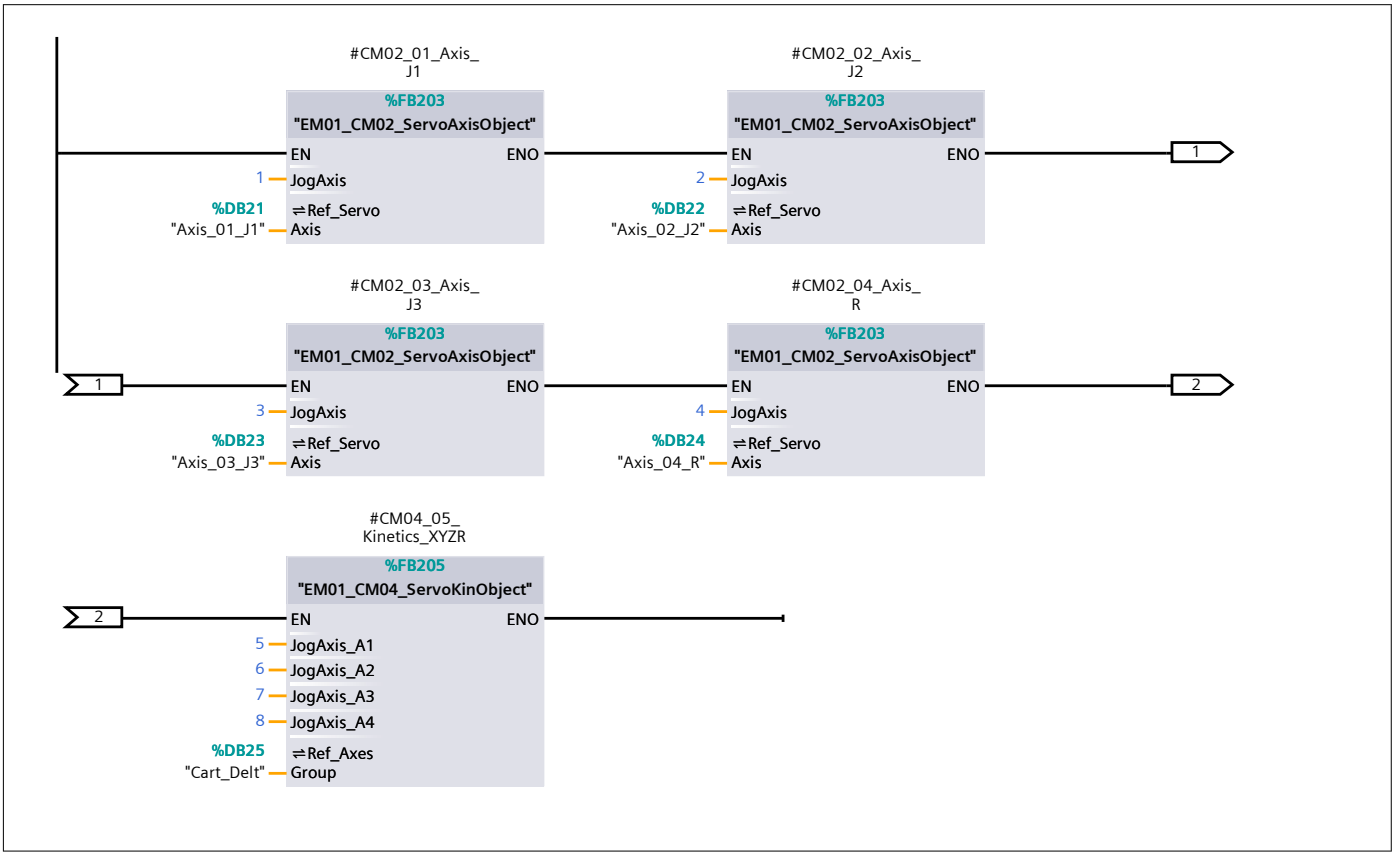

## Network 4: EM Procedure



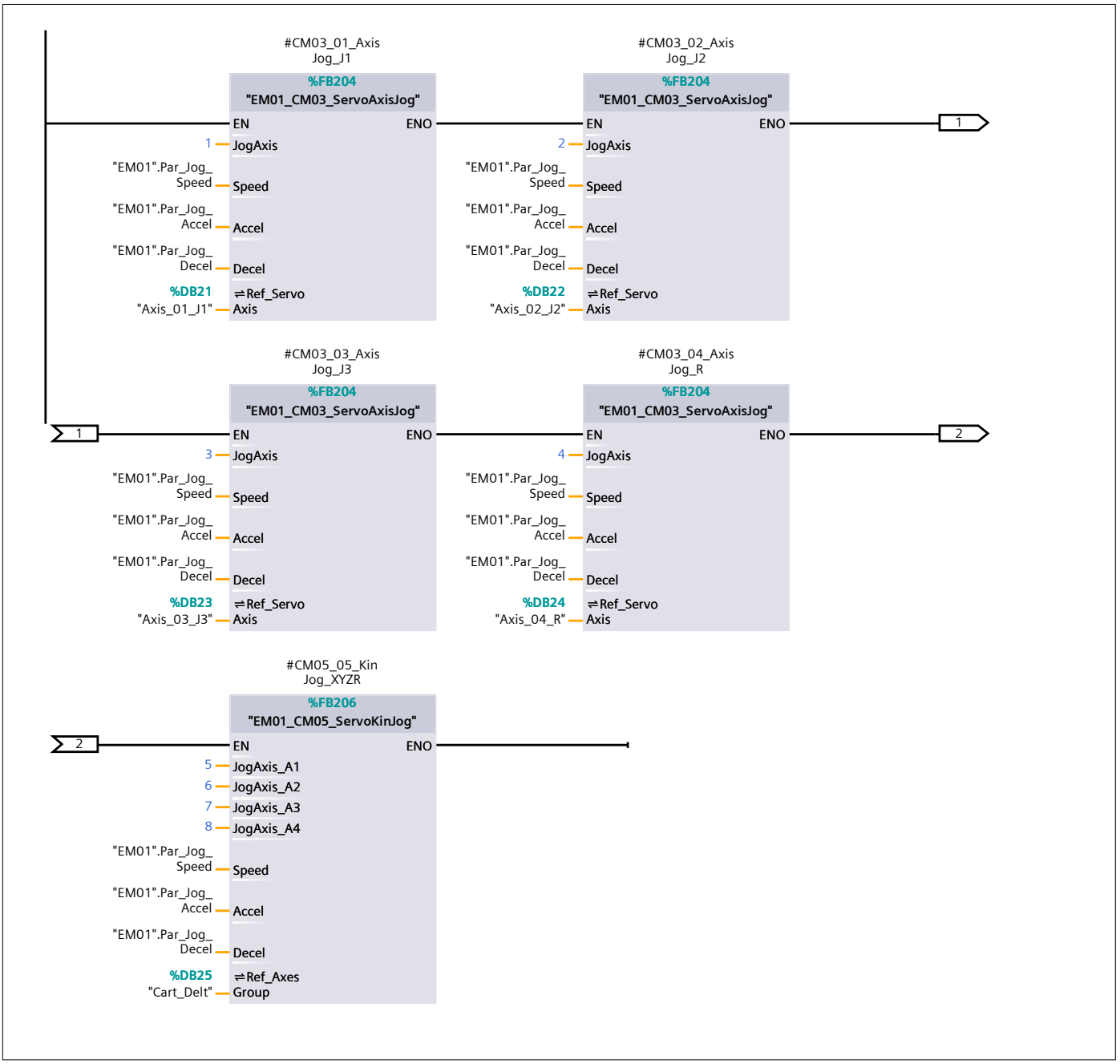

## Network 5: Em Procedure step number for HMI



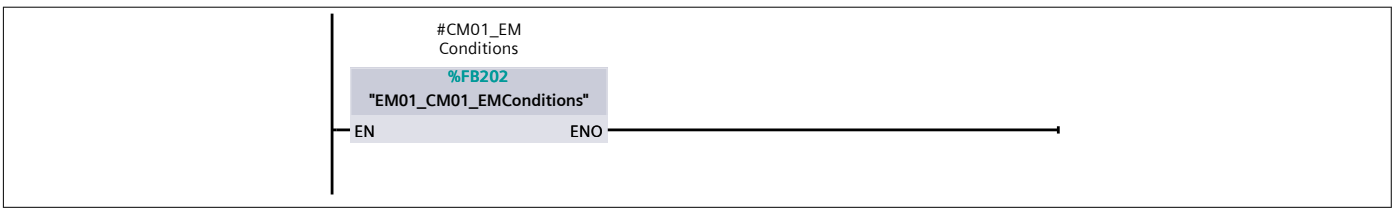

## Network 6: Axis servo objects



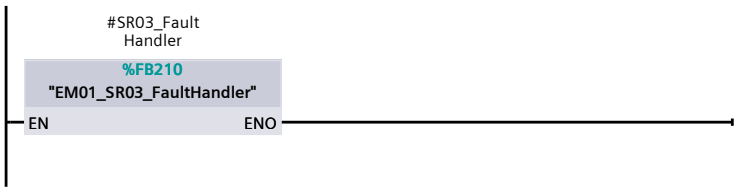

## Network 7: Axis jogging



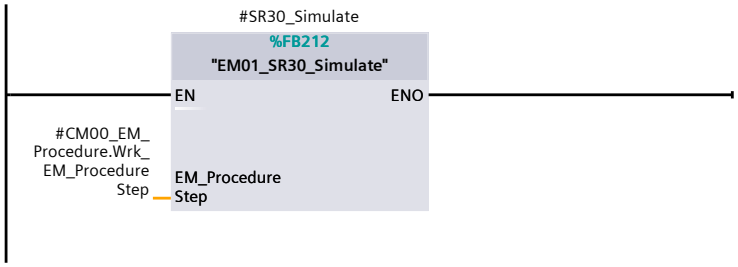

## Network 8: State complete handling for EM



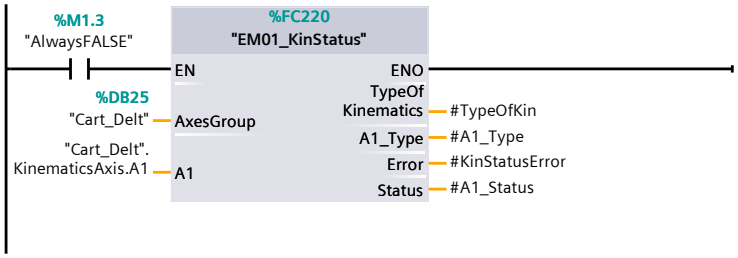

## Network 9: Error handling




## Network 10: Simulation




## Network 11:



# DeltaSpiralConv [CPU 1515T-2 PN] / Program blocks / EM01_DeltaXYZR

## EM01_CM00_Procedure [FB201]

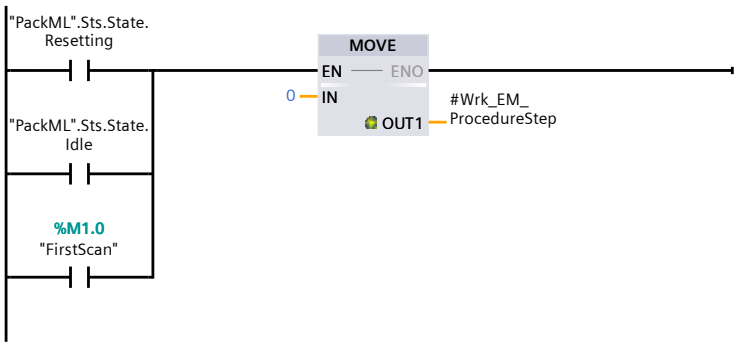
| EM01_CM00_Procedure Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | EM01_CM00_Procedure | **Number** | 201 | **Type** | FB |
| **Language** | LAD | **Numbering** | Manual | | |
| **Information** | | | | | |
| **Title** | EM Procedure Sequence | **Author** | | **Comment** | Uses blending between spiral segments. |
| **Family** | | **Version** | 0.1 | **User-defined ID** | |

| Name | Data type | Default value | Retain |
|---|---|---|---|
| Input | | | |
| Output | | | |
| InOut | | | |
| ▼ Static | | | |
| ErrorID | Word | 16#0 | Non-retain |
| Sts_Err | Int | 0 | Non-retain |
| Wrk_EM_ProcedureStep | DInt | 0 | Non-retain |
| Wrk_EM_ProcedureNoStepsActive | Bool | false | Non-retain |
| Wrk_EM_ProcedureDone | Bool | false | Non-retain |
| Wrk_EM_ProcedureFault | Bool | false | Non-retain |
| Wrk_MC_Move1 | MC_MOVELINEAR-ABSOLUTE | | |
| Wrk_MC_Move2 | MC_MOVELINEAR-RELATIVE | | |
| Wrk_MC_Move3 | MC_MOVELINEAR-ABSOLUTE | | |
| Wrk_MC_Move4 | MC_MOVELINEAR-ABSOLUTE | | |
| Wrk_MC_Move5 | MC_MOVELINEAR-RELATIVE | | |
| Wrk_MC_Move6 | MC_MOVELINEAR-RELATIVE | | |
| Wrk_MC_Move7 | MC_MOVELINEAR-ABSOLUTE | | |
| Wrk_TempReal | Real | 0.0 | Non-retain |
| Wrk_Move1_Pos | Array[1..6] of LReal | | Non-retain |
| Wrk_Move2_Pos | Array[1..6] of LReal | | Non-retain |
| Wrk_Move3_Pos | Array[1..6] of LReal | | Non-retain |
| Wrk_Move4_Pos | Array[1..6] of LReal | | Non-retain |
| Wrk_Move5_Pos | Array[1..6] of LReal | | Non-retain |
| Wrk_Move6_Pos | Array[1..6] of LReal | | Non-retain |
| Wrk_Move7_Pos | Array[1..6] of LReal | | Non-retain |
| Wrk_SpiralOrigin | Array[1..6] of LReal | | Non-retain |
| Wrk_MoveRel | Array[1..6] of LReal | | Non-retain |
| Frame_1 | TO_Struct_Kinematics_Frame | | Non-retain |

| Name | Data type | Default value | Retain |
|---|---|---|---|
| Conv_Init_Pos | TO_Struct_Kinematics_Frame | | Non-retain |
| Wrk_SetOcsFrame | MC_SETOCSFRAME | | |
| Wrk_CancelConv | MC_SETOCSFRAME | | |
| Wrk_MC_MoveConv | MC_MOVEVELOCITY | | |
| Wrk_RotateEndEff | MC_MOVEVELOCITY | | |
| Wrk_HaltEndEff | MC_HALT | | |
| Wrk_MC_TrackConv | MC_TRACKCONVEYORBELT | | |
| MoveSpeed | LReal | 0.0 | Non-retain |
| JerkTime | LReal | 0.0 | Non-retain |
| Move_AccelDecel | LReal | 50.0 | Non-retain |
| Move_Jerk | LReal | 25.0 | Non-retain |
| Move3_Vel | LReal | 40.0 | Non-retain |
| Move4_Vel | LReal | 50.0 | Non-retain |
| BufferMode | DInt | 5 | Non-retain |
| Trans_Param | Array[1..5] of LReal | | Non-retain |
| RoundingClearance | LReal | 5.0 | Non-retain |
| Initial_Delay | TON_TIME | | Non-retain |
| End_Delay | TON_TIME | | Non-retain |
| Stop_Delay | TON_TIME | | Non-retain |
| Move2_Dn_Latch | Bool | false | Non-retain |
| Frame_2 | TO_Struct_Kinematics_Frame | | Non-retain |
| Wrk_Trans_MoveErr | Bool | false | Non-retain |
| Push_It | Bool | false | Non-retain |
| Delay1_Old | TON_TIME | | Non-retain |
| Wrk_Delay1 | TON_TIME | | Non-retain |
| Delay3 | TON_TIME | | Non-retain |
| Delay4 | TON_TIME | | Non-retain |
| Delay5 | TON_TIME | | Non-retain |
| SIndex | Int | 0 | Non-retain |
| SEndRadius | Real | 0.0 | Non-retain |
| SNRevs | Real | 0.0 | Non-retain |
| SNumPoints | Int | 0 | Non-retain |
| Save_RoundingClearance | LReal | 0.0 | Non-retain |
| SSegRDistance | LReal | 0.0 | Non-retain |
| Prev_Conv_Position | LReal | 0.0 | Non-retain |
| Diff_Conv_Position | LReal | 0.0 | Non-retain |
| Inc_Trans | Bool | false | Non-retain |
| Step_11_Out | Bool | false | Non-retain |
| SIndex_Mod2 | Int | 0 | Non-retain |
| BufferMode_1 | DInt | 1 | Non-retain |
| Temp | | | |
| Constant | | | |

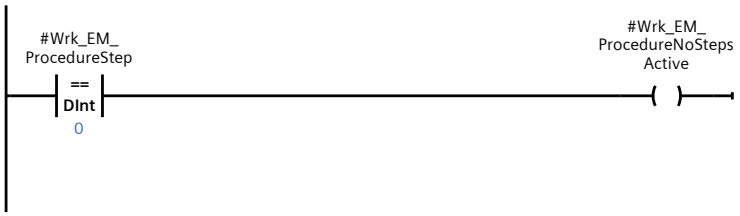
## Network 1: Reset step number

First scan or resetting or idle - clear all steps



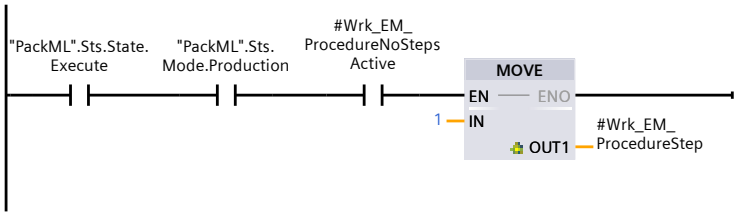

## Network 2: Indication that all steps reset

Used by RESETTING state and initial execute step

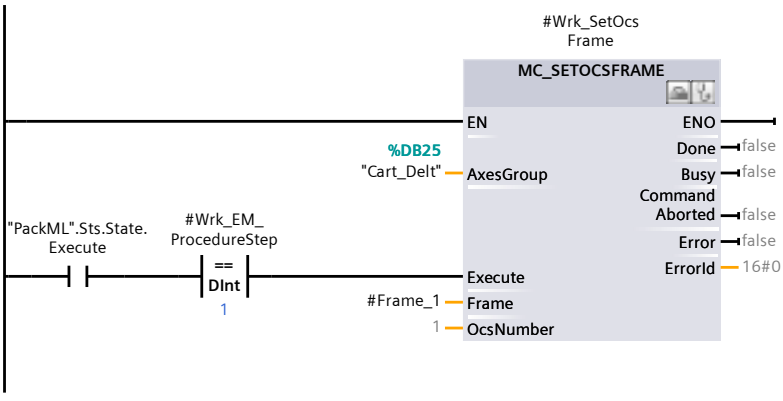



## Network 3: EXECUTE -

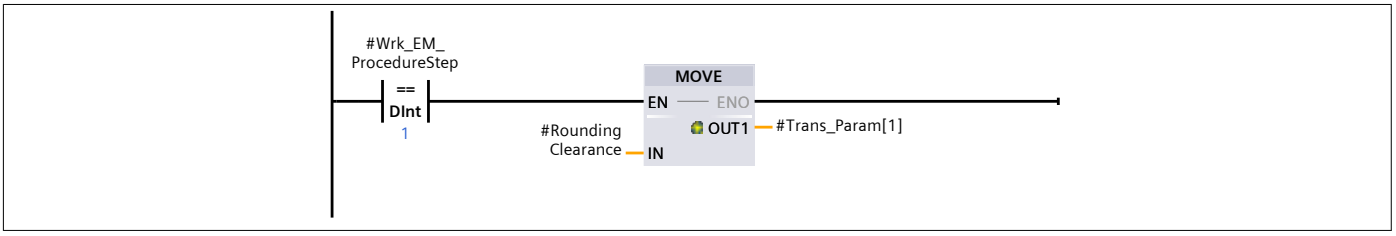
If no steps active go to step 1



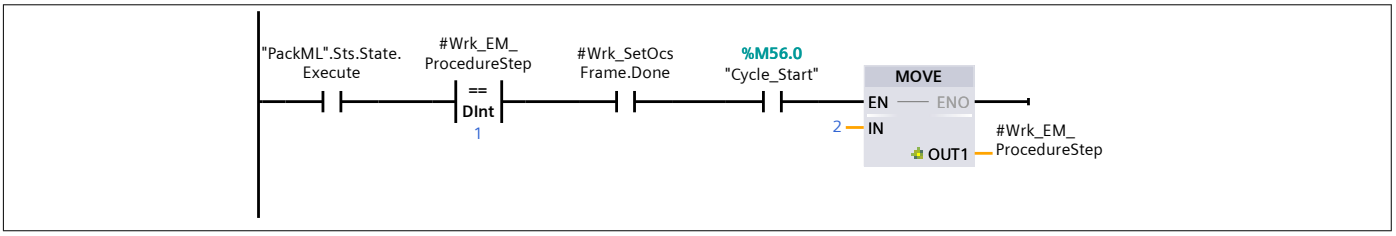

## Network 4: Set up OCS 1




## Network 5: Set up rounding distance for moves




## Network 6: EM Procedure Step 1 - Wait for Cycle_Start signal and OCS frame



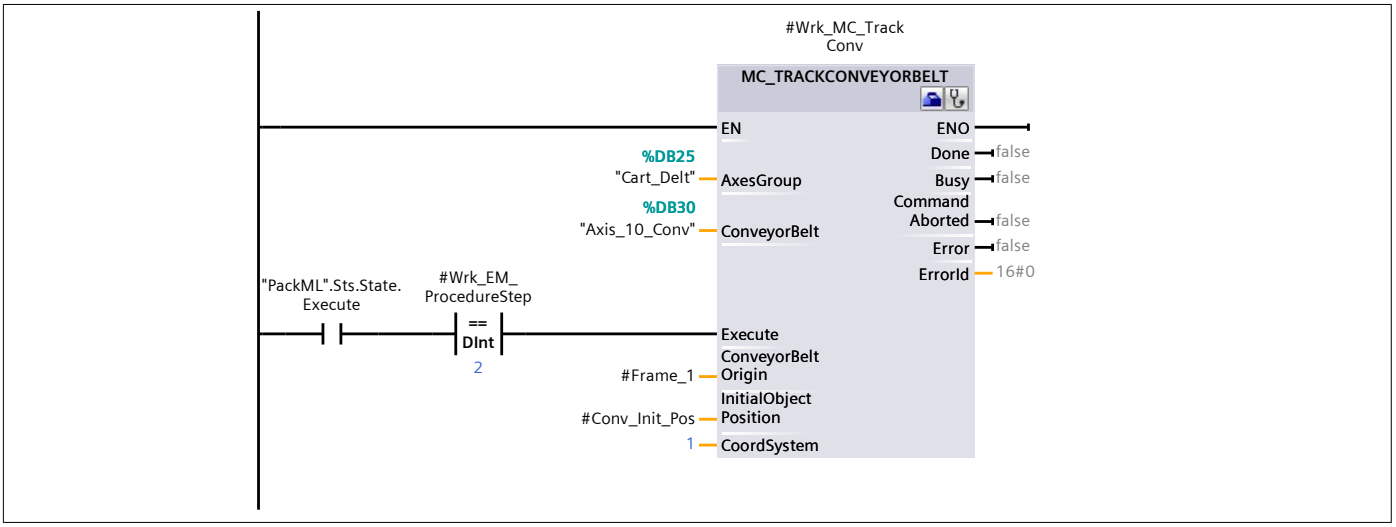

## Network 7: Copy move speed and jerk time into block tags

```
0001 #MoveSpeed := REAL_TO_LREAL("HMI_Data".HMI_I_MoveSpeed);
0002 #JerkTime := "HMI_Data".HMI_I_JerkTime;
```

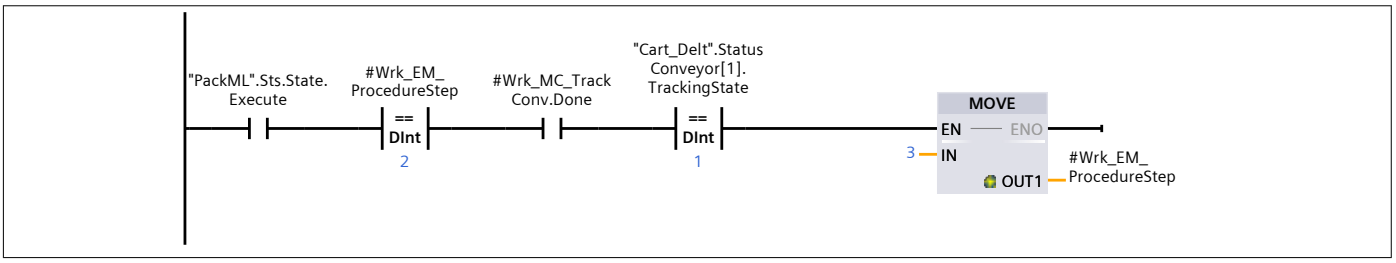
## Network 8: EM Procedure step 2 - Get conveyor position as initial for tracking

```
0001 IF #Wrk_EM_ProcedureStep = 2 THEN
0002     #SSegRDistance := "Axis_10_Conv".ActualPosition - #Frame_1.x;
0003     #Conv_Init_Pos.x := #SSegRDistance + 0.5;
0004     #Conv_Init_Pos.y := 0.0;
0005     #Conv_Init_Pos.z := 0.0;
0006     #Conv_Init_Pos.a := 0.0;
0007     #Conv_Init_Pos.b := 0.0;
0008     #Conv_Init_Pos.c := 0.0;
0009 END_IF;
```

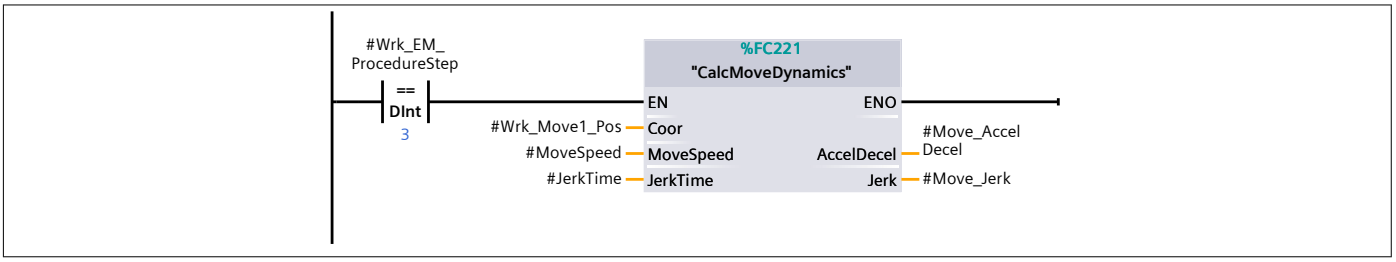
## Network 9: EM Procedure step 2 - Start conveyor belt tracking



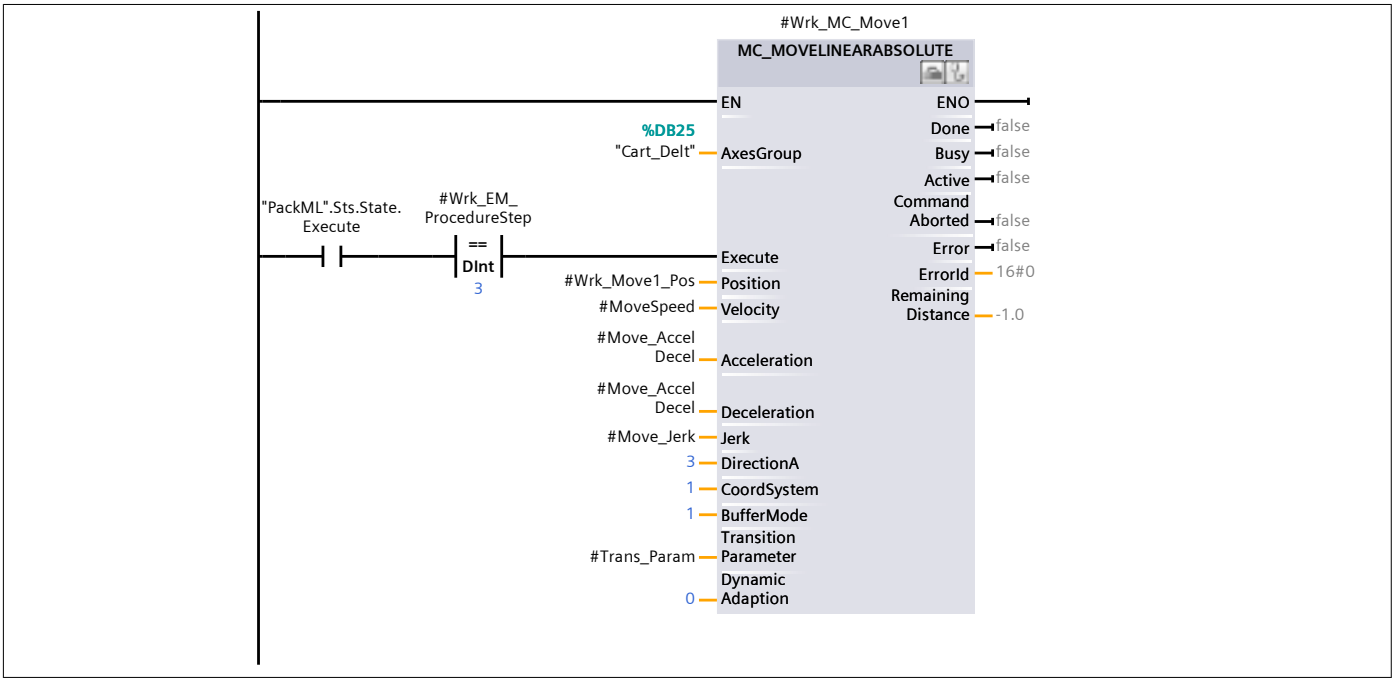

## Network 10: EM Procedure step 2 - Step transition




## Network 11: Calculate Accel/Decel and jerk in actual units for move

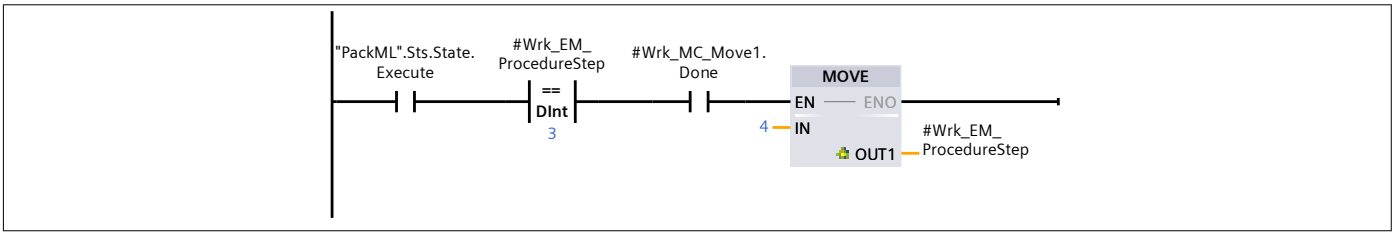



## Network 12: EM Procedure Step 3 - Move to initial position

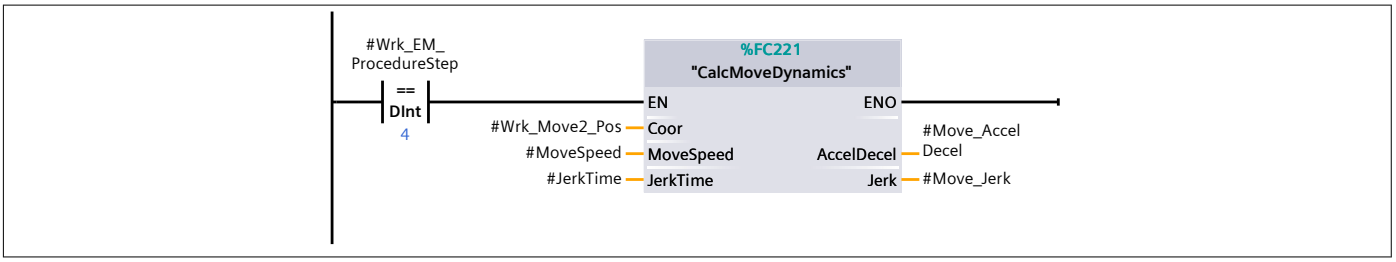



## Network 13: Check for move done to advance to next step.

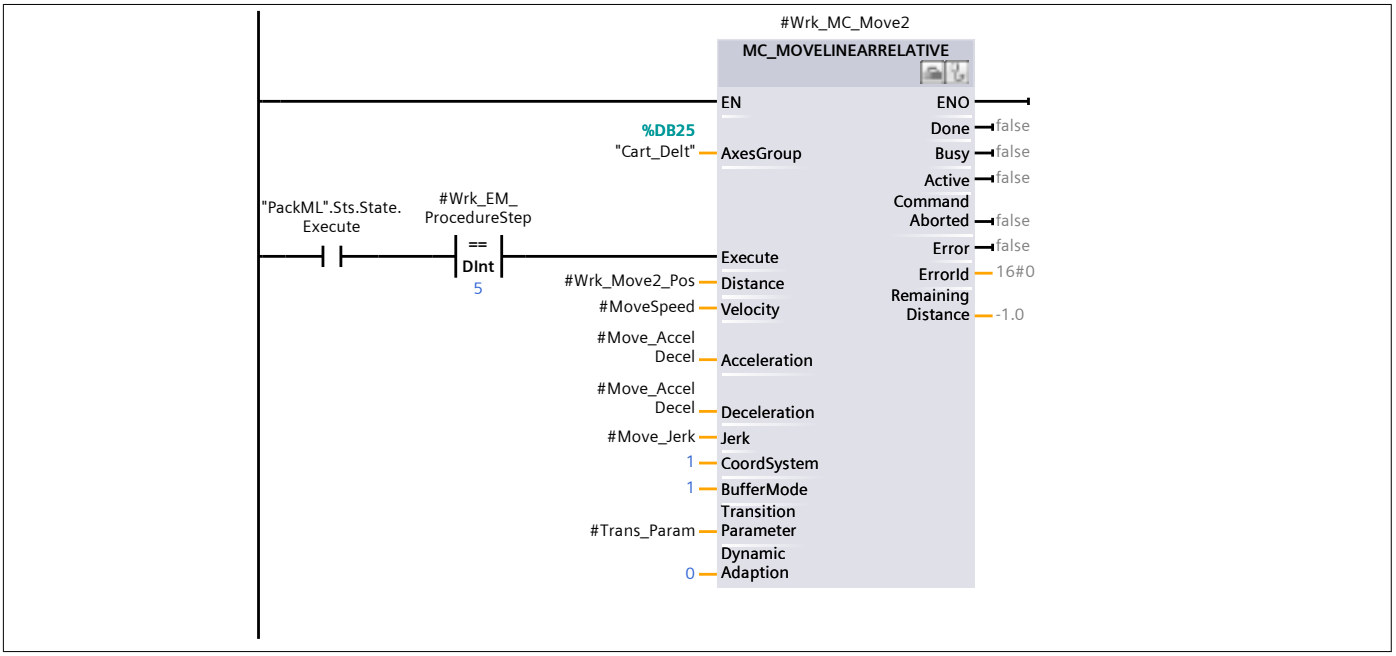
Additional delay



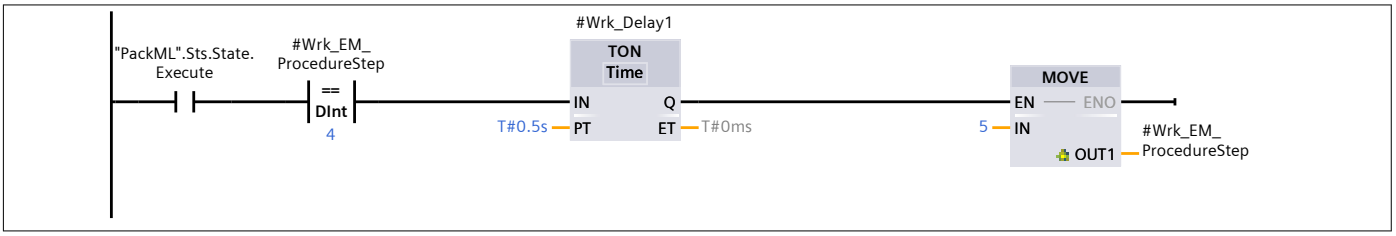

## Network 14: Calculate Accel/Decel and jerk in actual units for move



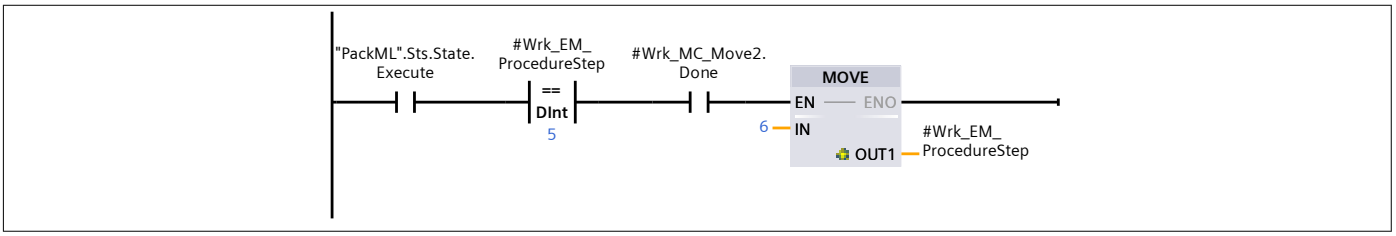

## Network 15: EM Procedure Step 5 - Second move Z move -10




## Network 16: Step 4 - Delay 0.5 sec




## Network 17: Check for move done to advance to next step

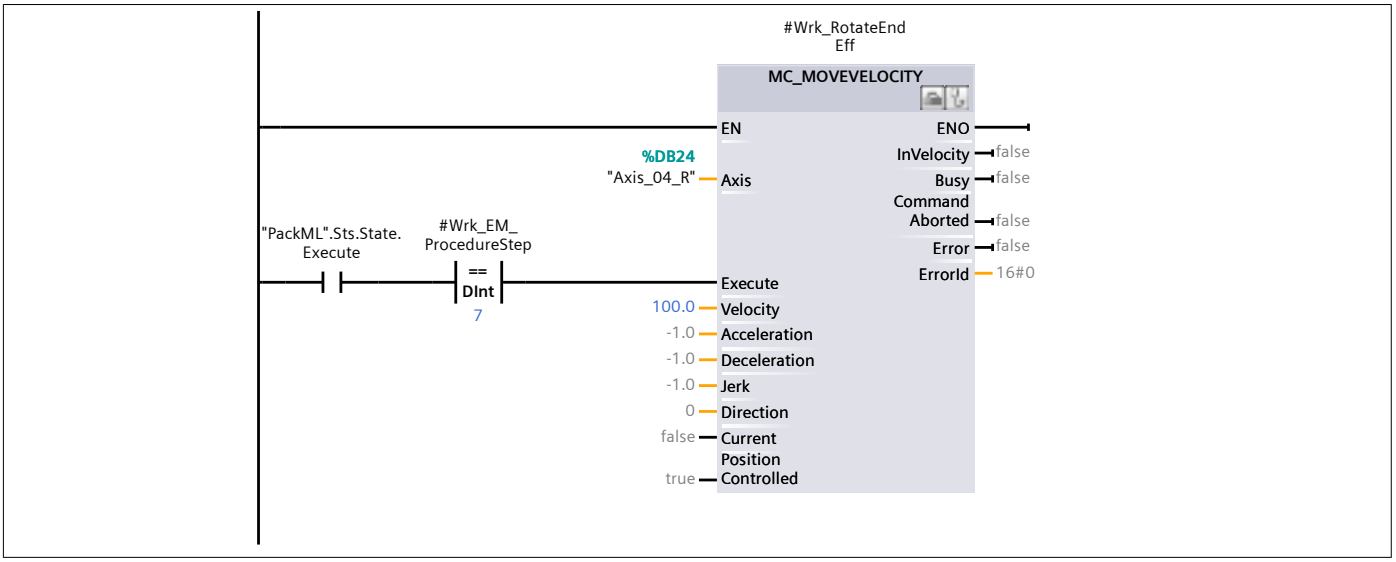



## Network 18: Step 6 - Setup for spiral move.

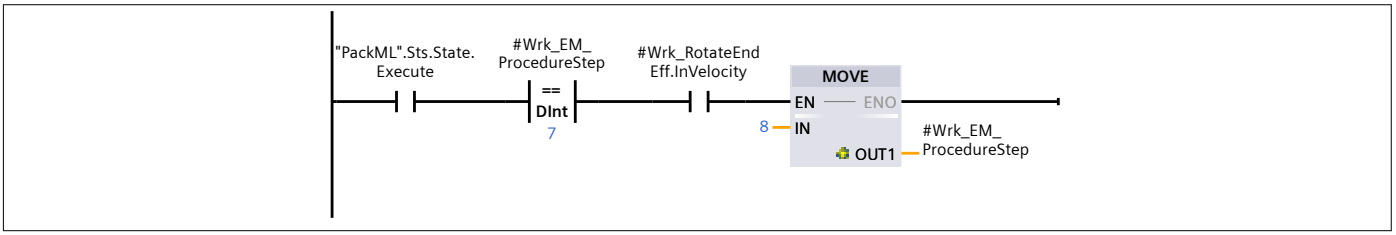
```
0001 IF "PackML".Sts.State.Execute AND #Wrk_EM_ProcedureStep = 6 THEN
0002     #SIndex := 1;
0003     #SIndex_Mod2 := 1;
0004     #SNumPoints := 100;
0005     #SEndRadius := 100.0;
0006     #SNRevs := 4.0;
0007     #Save_RoundingClearance := #Trans_Param[1];
0008     #Wrk_SpiralOrigin[1] := #Wrk_Move1_Pos[1];
```

```
0009      #Wrk_SpiralOrigin[2] := #Wrk_Move1_Pos[2];
0010      #Wrk_SpiralOrigin[3] := #Wrk_Move1_Pos[3] + #Wrk_Move2_Pos[3];
0011      #Wrk_SpiralOrigin[4] := #Wrk_Move1_Pos[4];
0012      #Wrk_EM_ProcedureStep := 7;
0013  END_IF;
```

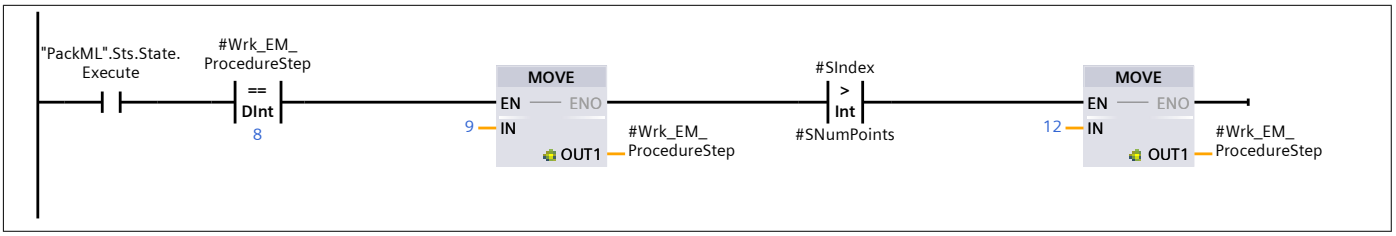
## Network 19: EM Procedure Step7 - Start end effector rotation




## Network 20: Step 7 - Done when in velocity

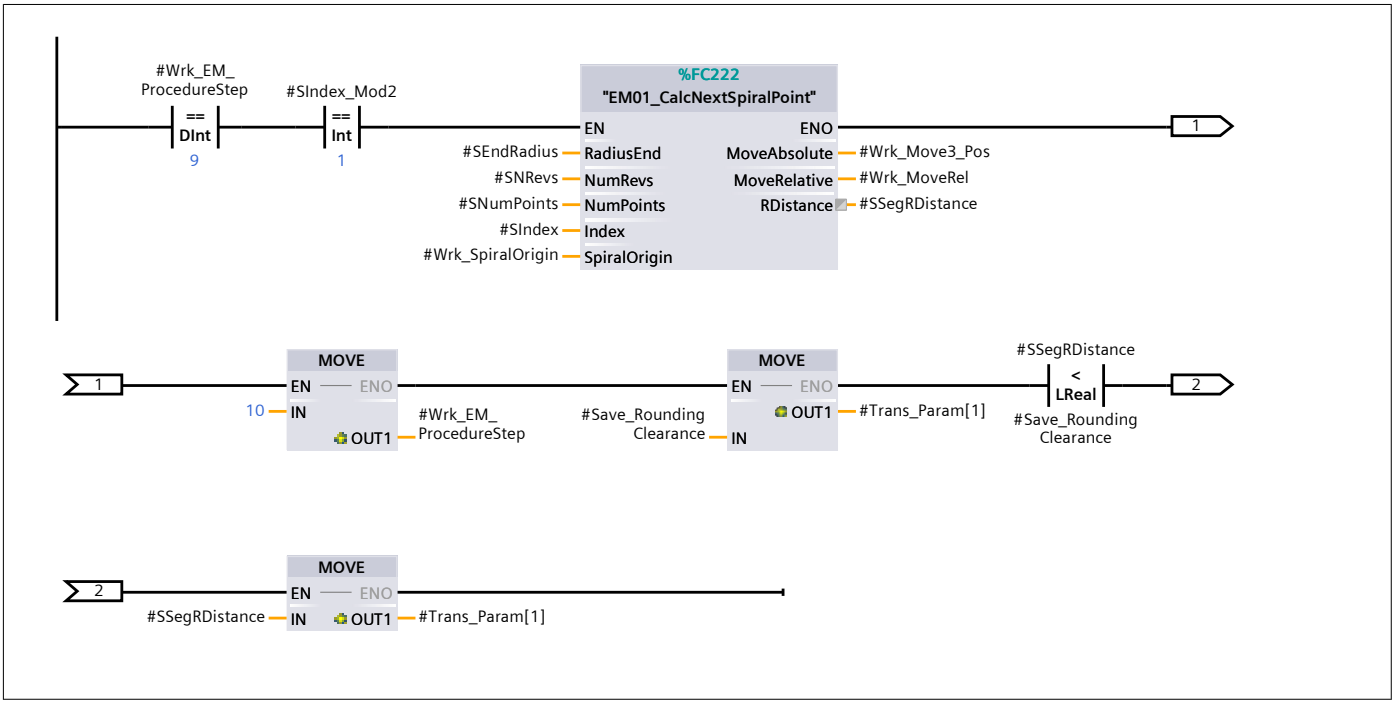



## Network 21: Step 8 Test index for last point. If index larger, then skip to step 12. Otherwise to step 9 for move



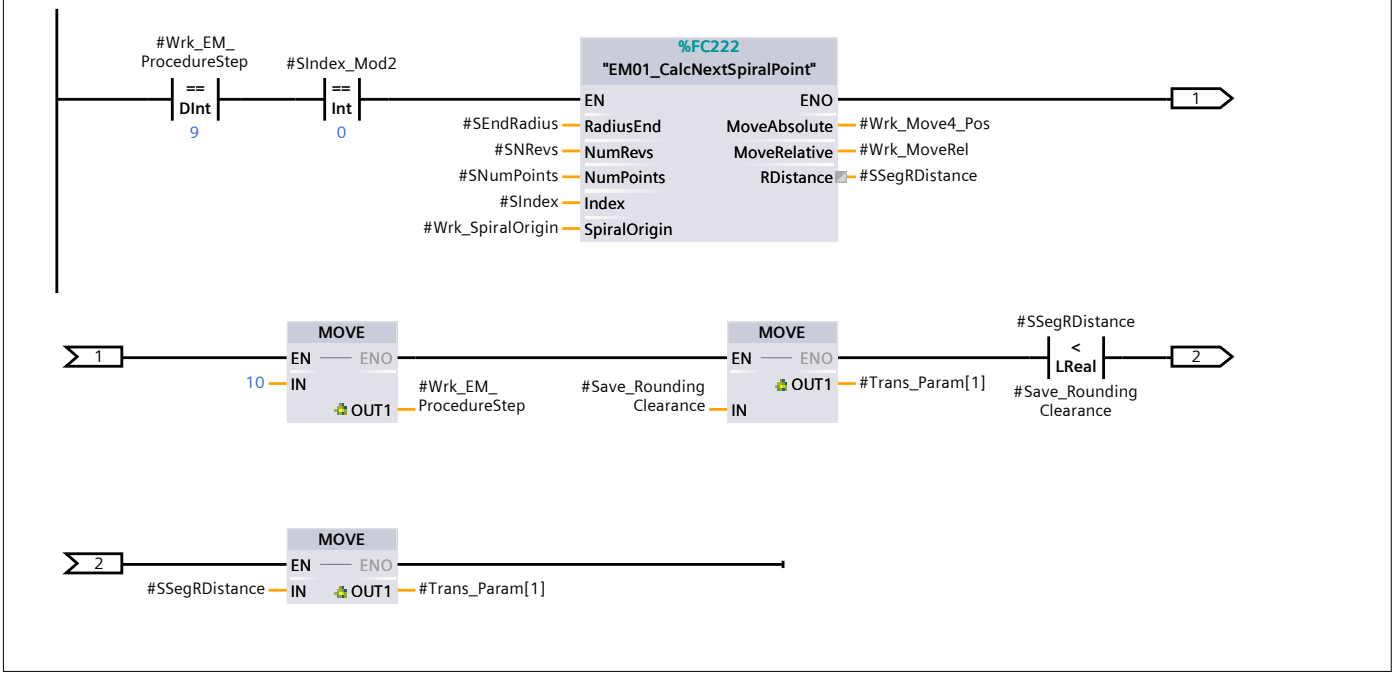

## Network 22: Step 9 - Calculate move coordinates for odd indices

Rounding distance is smaller of saved distance and the rounding distance calc'd by spiral segment

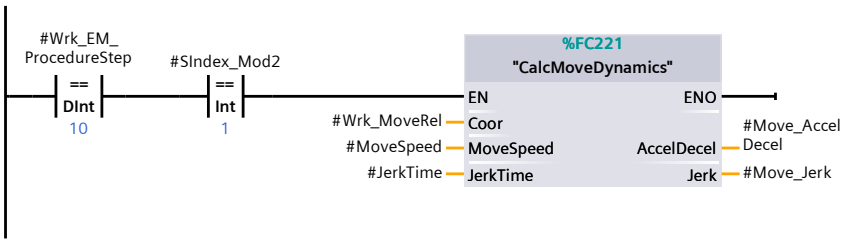



## Network 23: Step 9 - Calculate move coordinates for even indices

Rounding distance is smaller of saved distance and the rounding distance calc'd by spiral segment

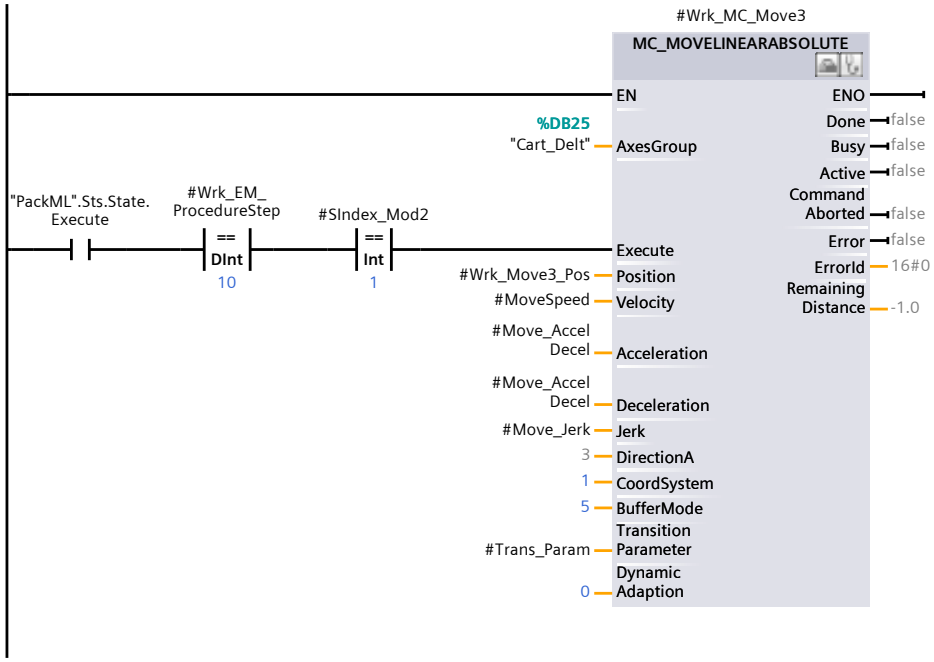



## Network 24: Calculate Accel/Decel and jerk in actual units for spiral segment move 3 - odd indices

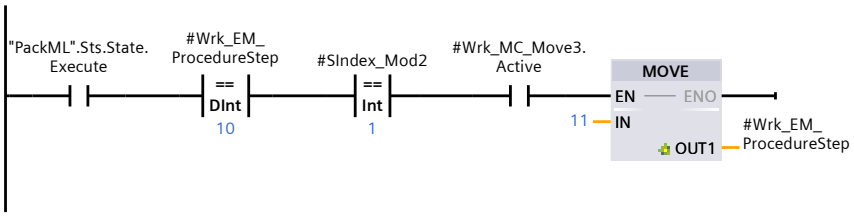



## Network 25: Step 10 - Spiral segment move odd indices

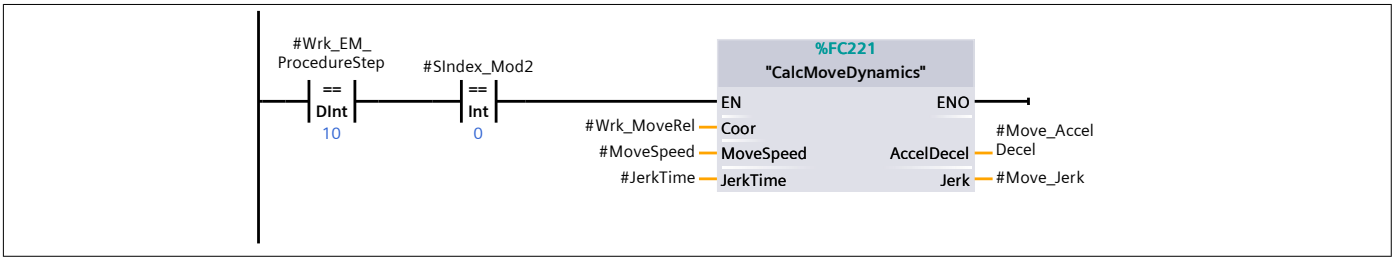
Blend with next move depending on buffer mode




## Network 26: Check for spiral segment move 3 done odd indices

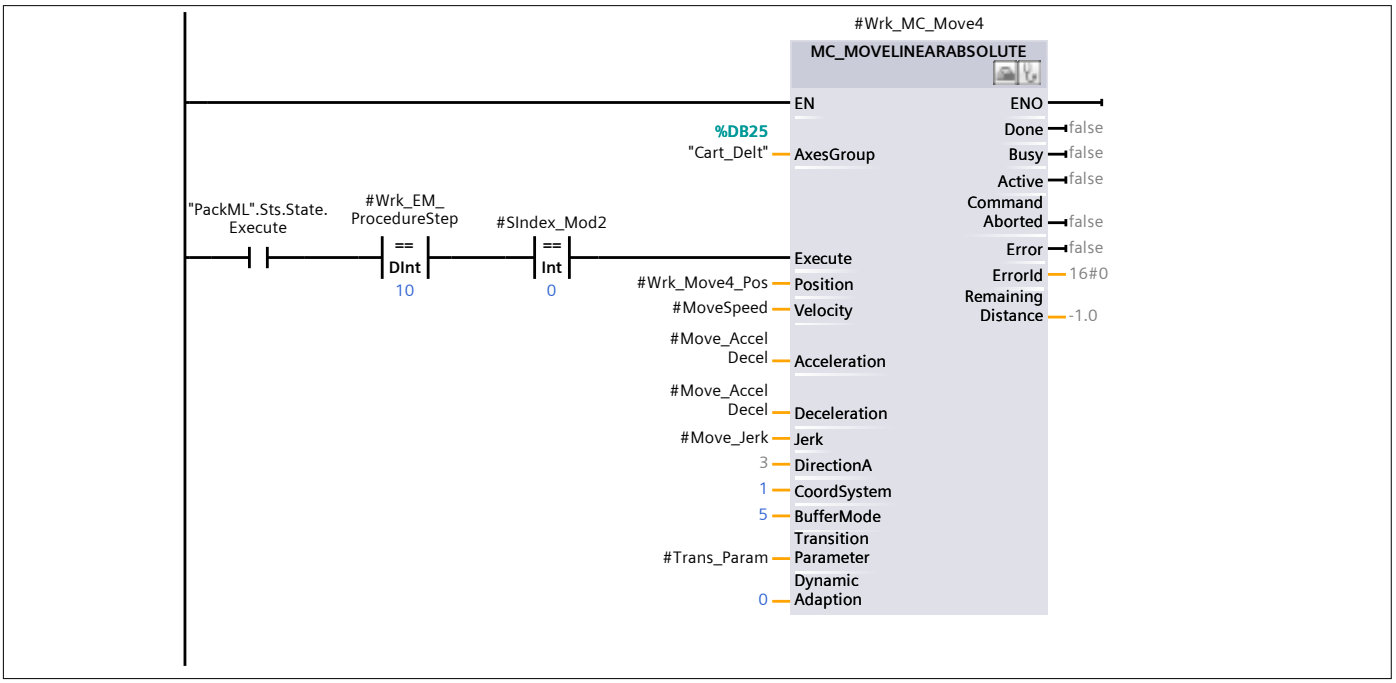



## Network 27: Calculate Accel/Decel and jerk in actual units for spiral segment move 4 - even indices

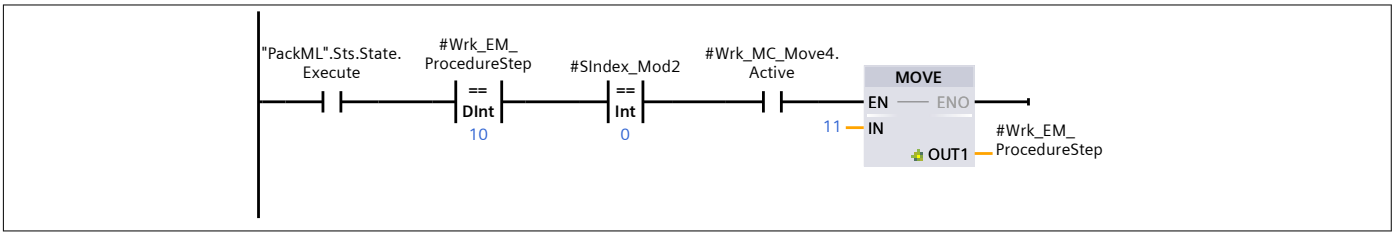



## Network 28: Step 10 - Spiral segment move even indices

Blend with next move depending on buffer mode

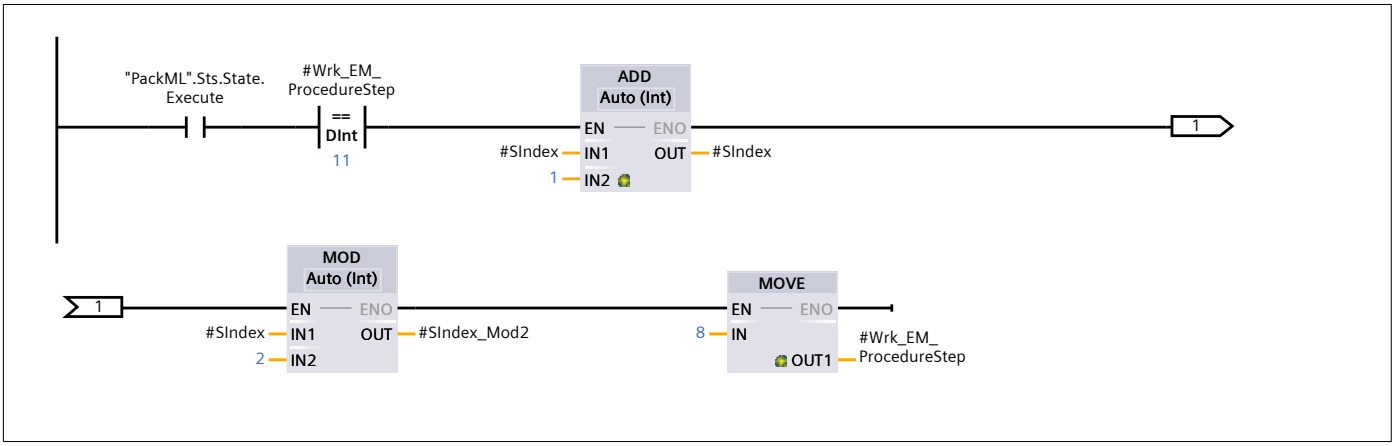



## Network 29: Check for spiral segment move 4 done even indices

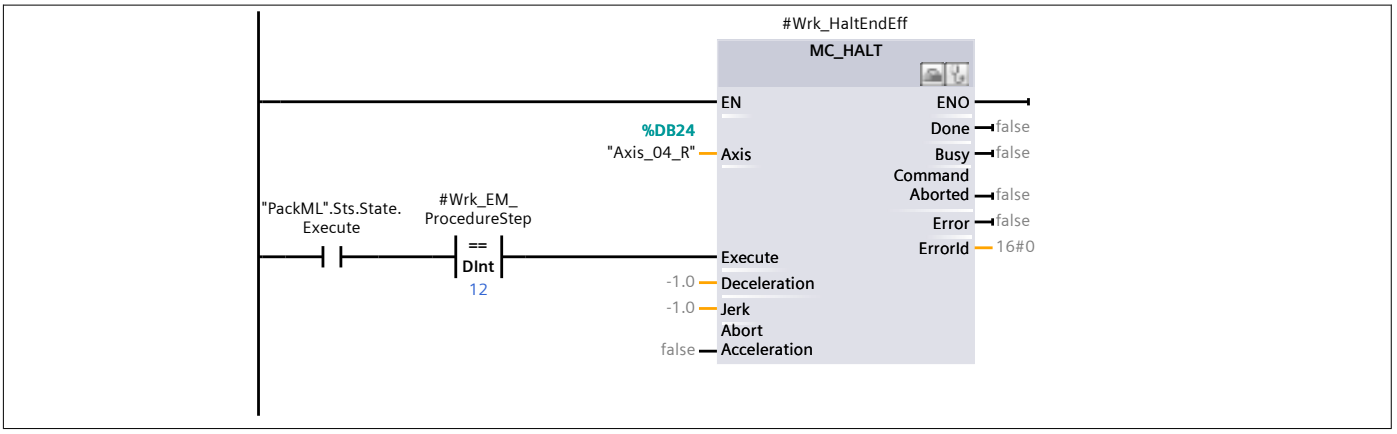



## Network 30: Step 11 - Increment index and back to top of loop, step 8

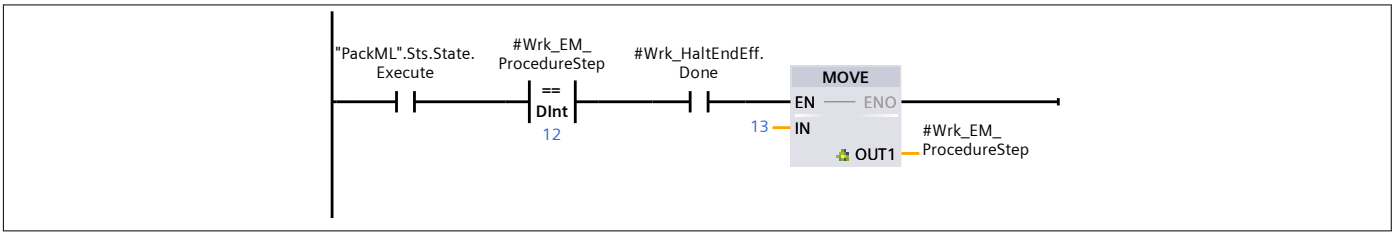
Must maintain Wrk_EM_ProcedureStep on for one scan, otherwise Execute input of MC_Move block will not transition off



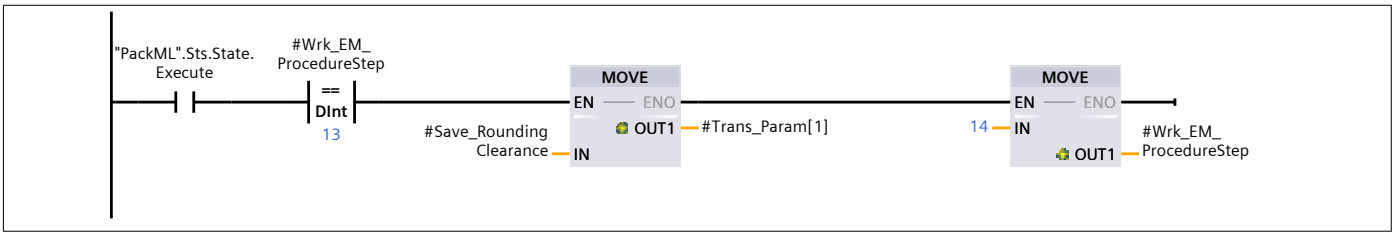

## Network 31: EM Procedure Step 12 - Stop end effector rotation



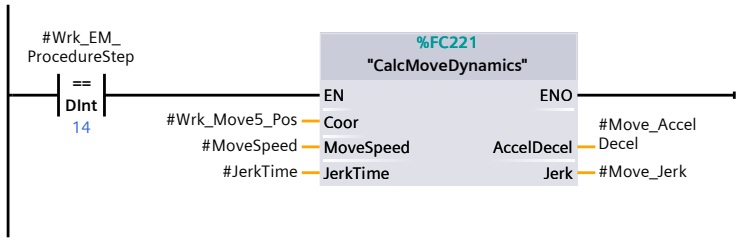

## Network 32: EM Procedure Step 12 - Stop end effector rotation




## Network 33: Step 13 - Restore rounding distance

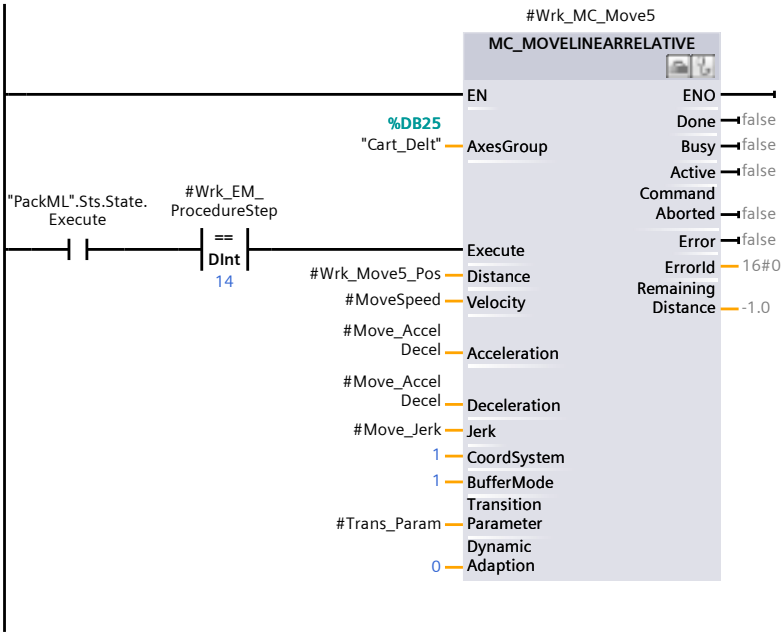


## Network 34: Calculate Accel/Decel and jerk in actual units for move 5

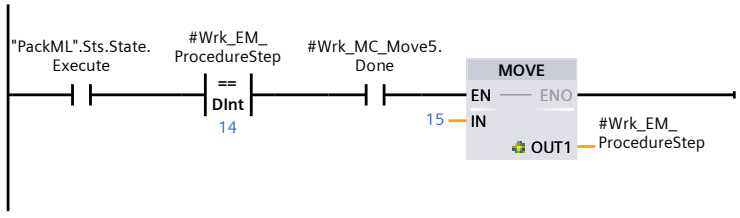



## Network 35: Step 14 - Move 5 Z +70

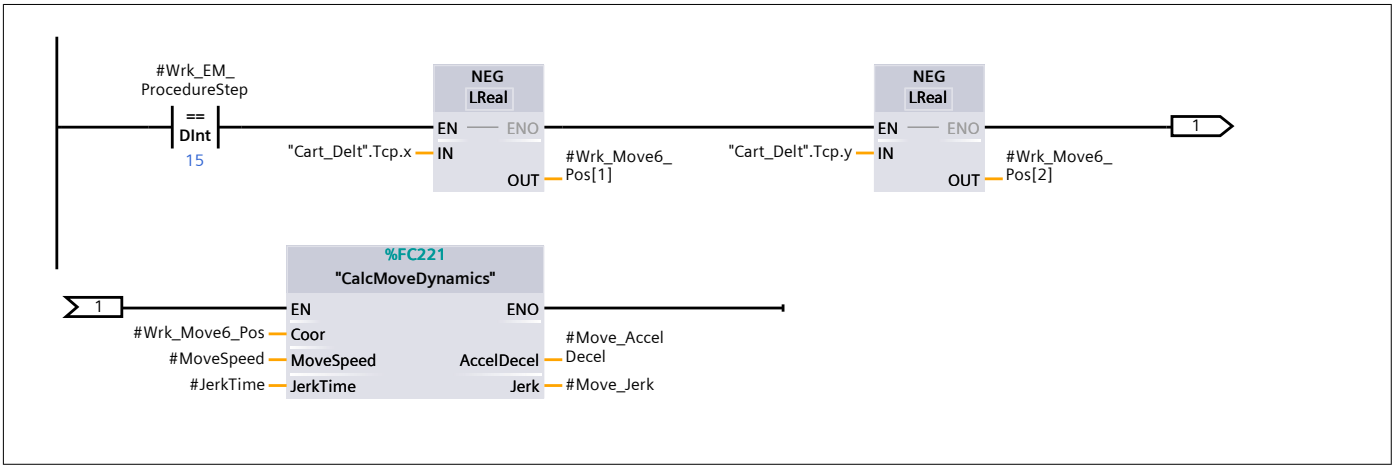
Blend with next move depending on buffer mode




## Network 36: Check for move 5 done

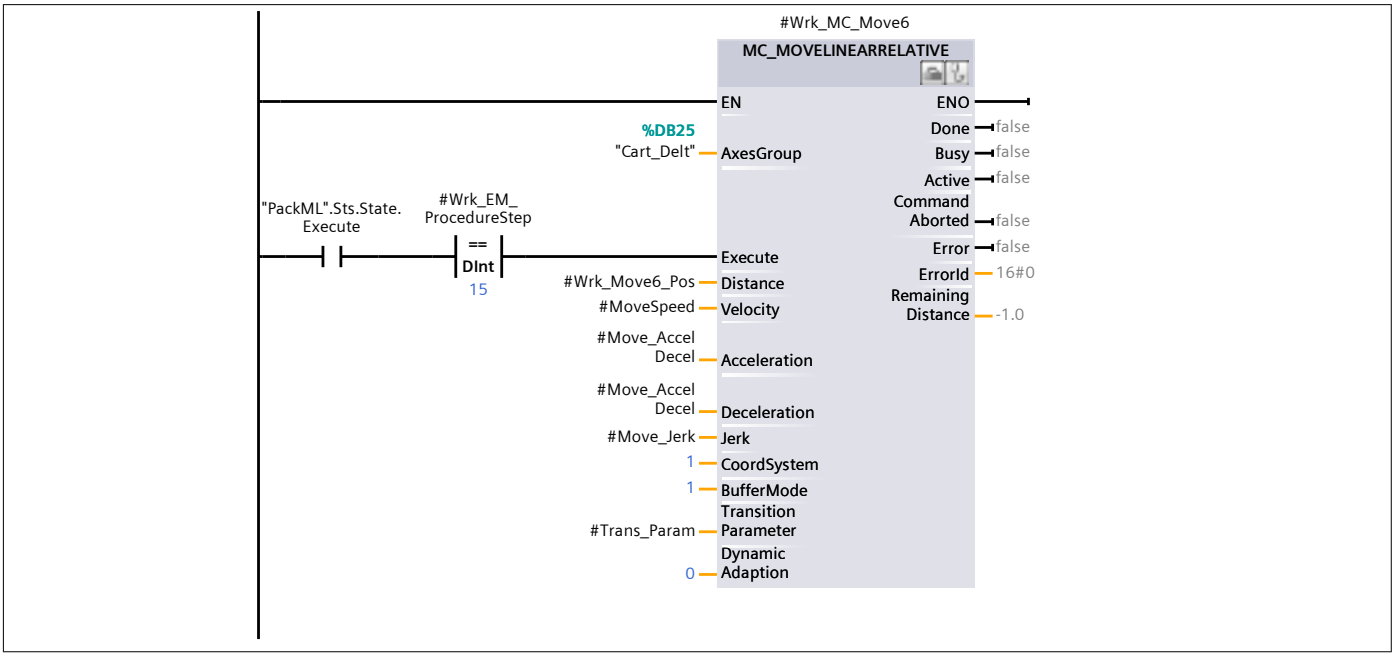



## Network 37: Calculate relative move on X and Y to bring to center. Calc Accel/Decel and jerk in actual units for move 6

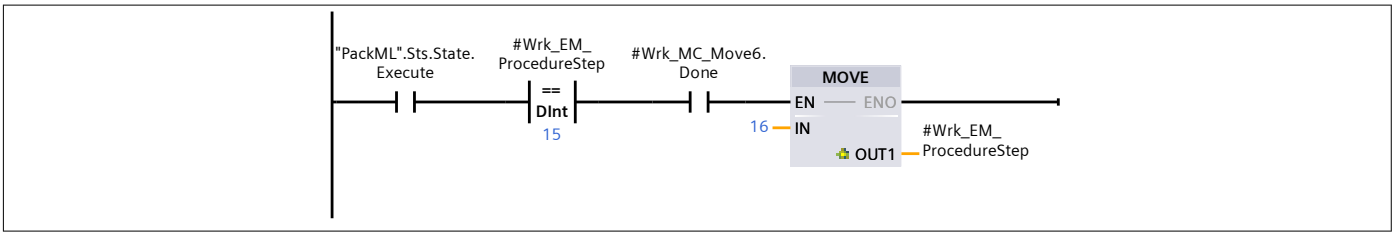



## Network 38: EM Procedure Step 15 - Move 6 to center

Do not blend with next move

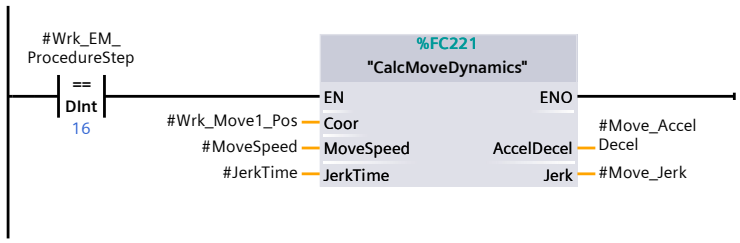



## Network 39: Check for move 6 done

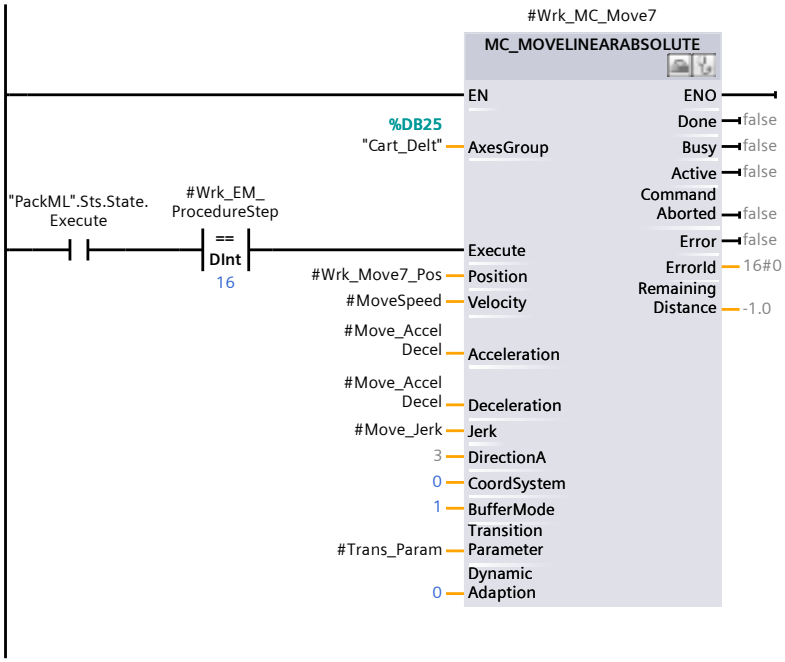



## Network 40: Calculate Accel/Decel and jerk in actual units for last move

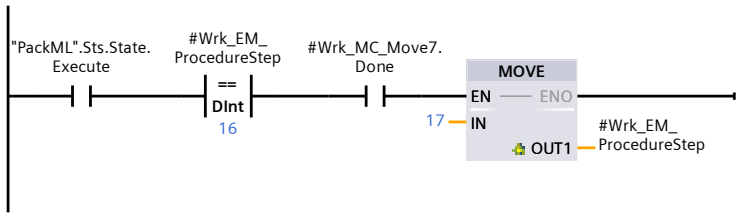
This is an absolute move. Distance will be similar to Move 1



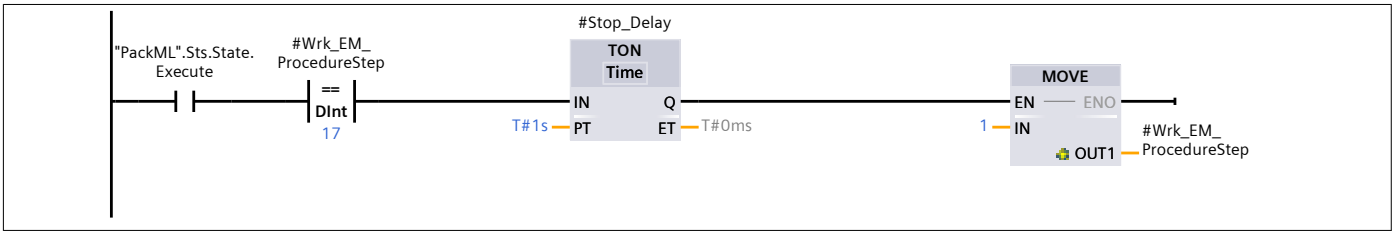

**Network 41: EM Procedure Step 16 - Move back to starting point (home). Also cancels conveyor tracking.**



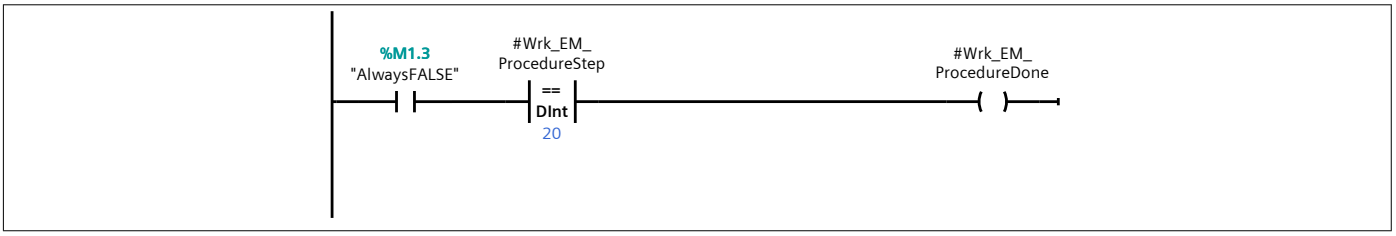

**Network 42: Check for move done to advance to next step**



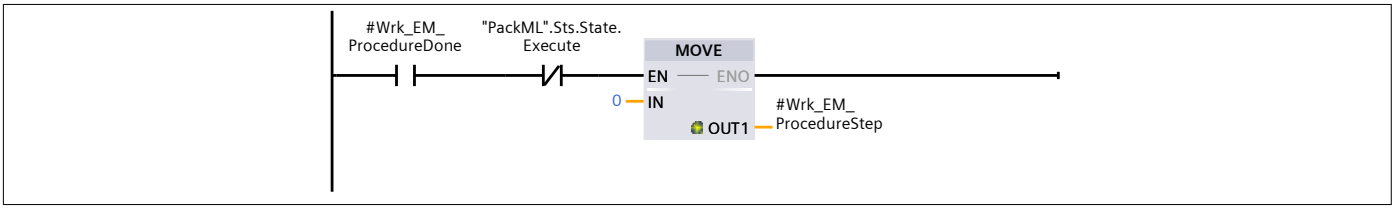

**Network 43: EM Procedure Step 17 - Delay to allow stop. Then back to start.**



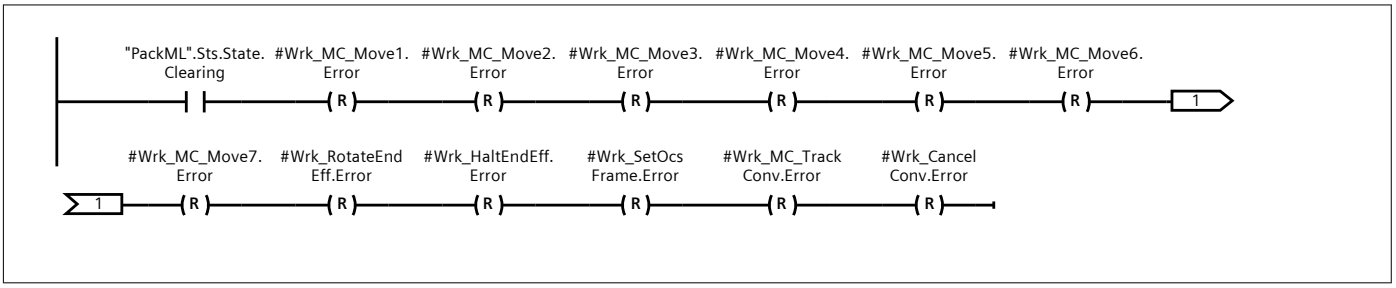

**Network 44: Last step - set done indication. Only used if last step finishes Execute state**




**Network 45: When done, wait for out of execute step, then set step back to zero so can restart without resetting**

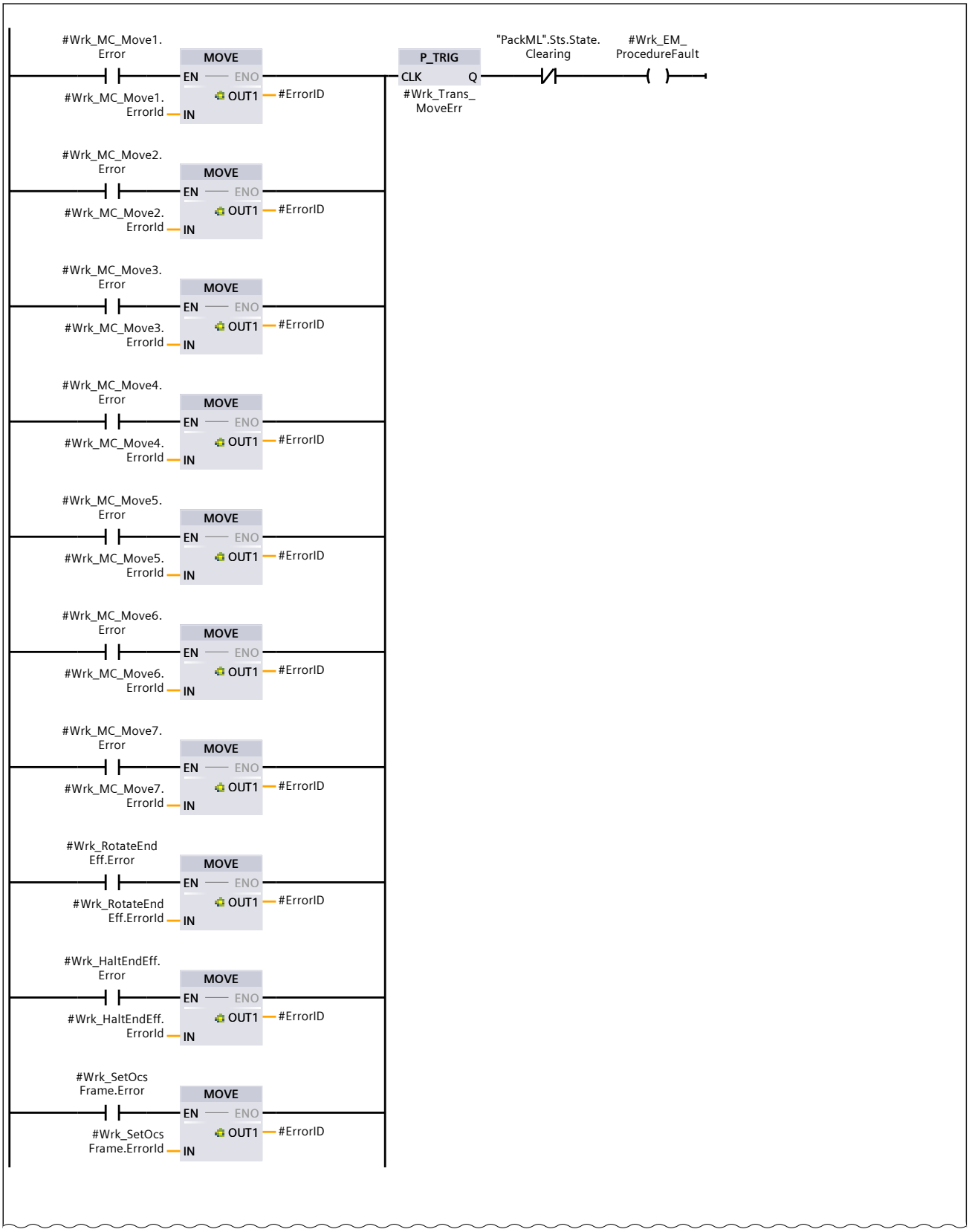



**Network 46: Clearing state resets all motion errors**



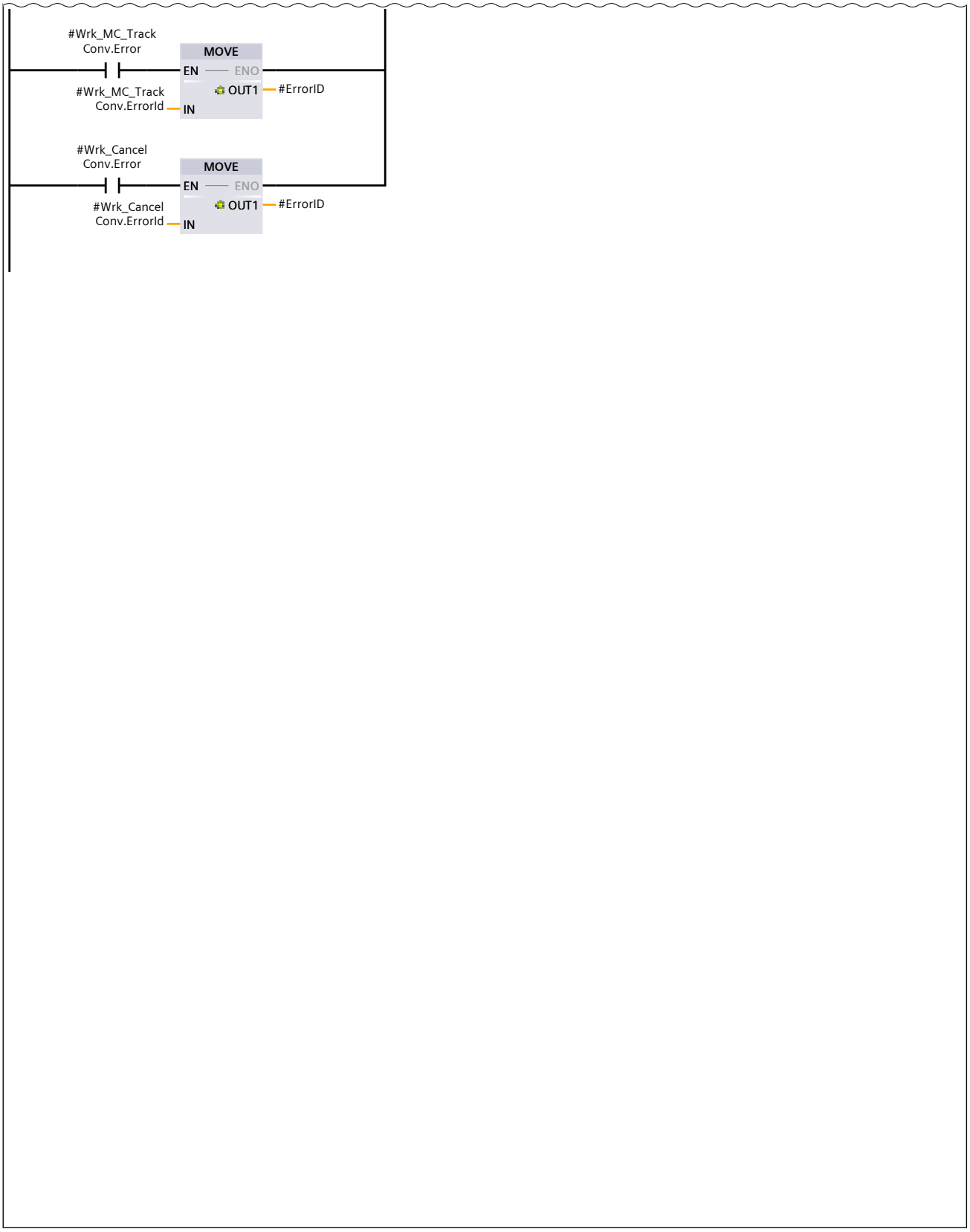

**Network 47: Motion block errors for Axis**

## Network 47: Motion block errors for Axis (1.1 / 2.1)

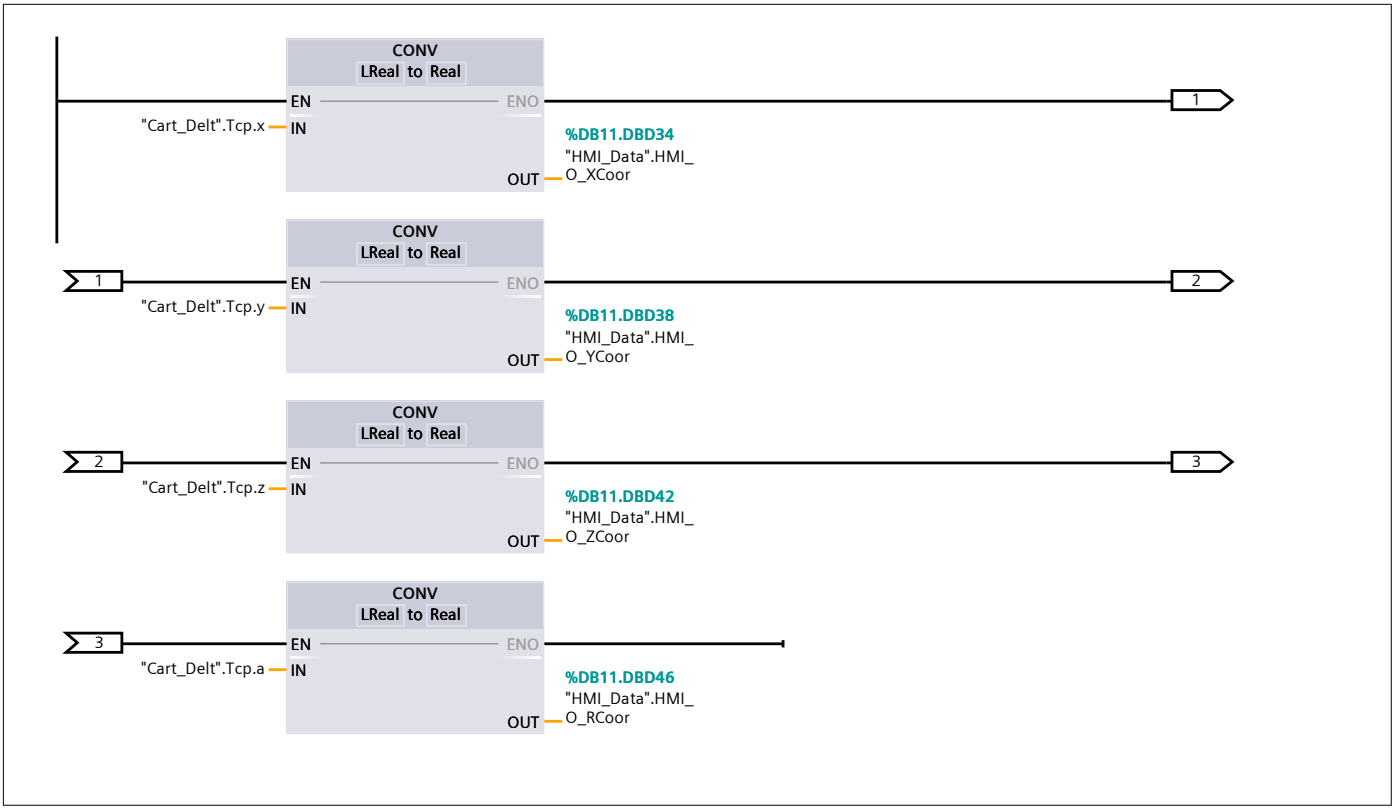


**Network 47: Motion block errors for Axis (2.1 / 2.1)**

1.1 ( Page33 - 17)



## Network 48: Coordinates for HMI



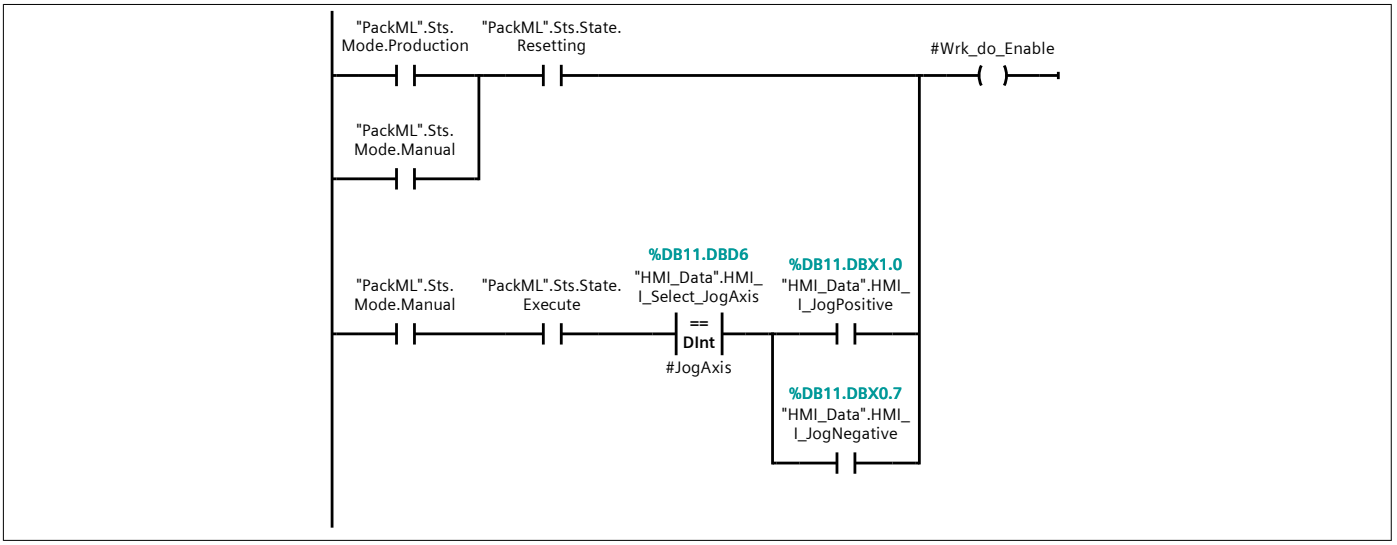
# DeltaSpiralConv [CPU 1515T-2 PN] / Program blocks / EM01_DeltaXYZR

## EM01_CM02_ServoAxisObject [FB203]

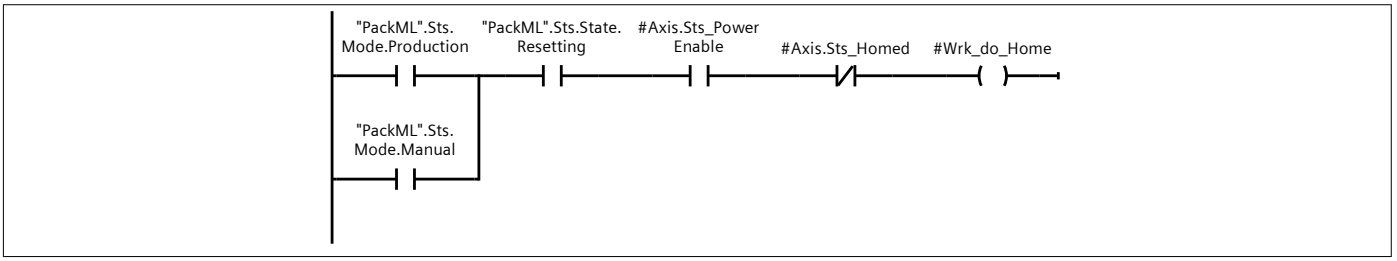
| EM01_CM02_ServoAxisObject Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | EM01_CM02_ServoAxisObject | **Number** | 203 | **Type** | FB |
| **Language** | LAD | **Numbering** | Manual | | |
| **Information** | | | | | |
| **Title** | Servo Axis object for X axis | **Author** | | **Comment** | |
| **Family** | | **Version** | 0.1 | **User-defined ID** | |

| Name | Data type | Default value | Retain |
|---|---|---|---|
| ▼ Input | | | |
| JogAxis | DInt | 0 | Non-retain |
| Output | | | |
| ▼ InOut | | | |
| Ref_ServoAxis | TO_PositioningAxis | | |
| ▼ Static | | | |
| Axis | "Axis_ObjectPOS" | | |
| Wrk_DisableDelay | TON_TIME | | Non-retain |
| Wrk_DisableDelay_IN | Bool | false | Non-retain |
| Wrk_do_Enable | Bool | false | Non-retain |
| Wrk_do_Home | Bool | false | Non-retain |
| Wrk_do_Stop | Bool | false | Non-retain |
| Wrk_do_Disable | Bool | false | Non-retain |
| Wrk_Temp_Bit | Bool | false | Non-retain |
| Temp | | | |
| Constant | | | |

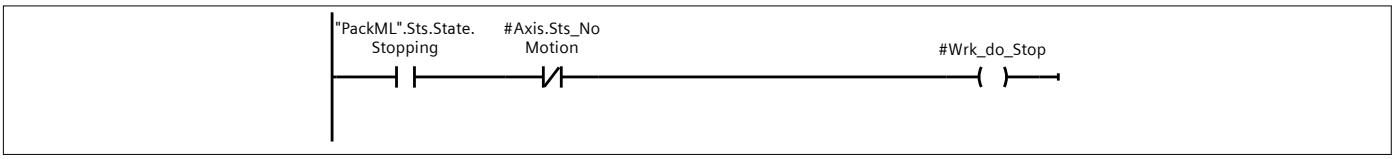
### Network 1: Enable logic for production and manual (jogging)



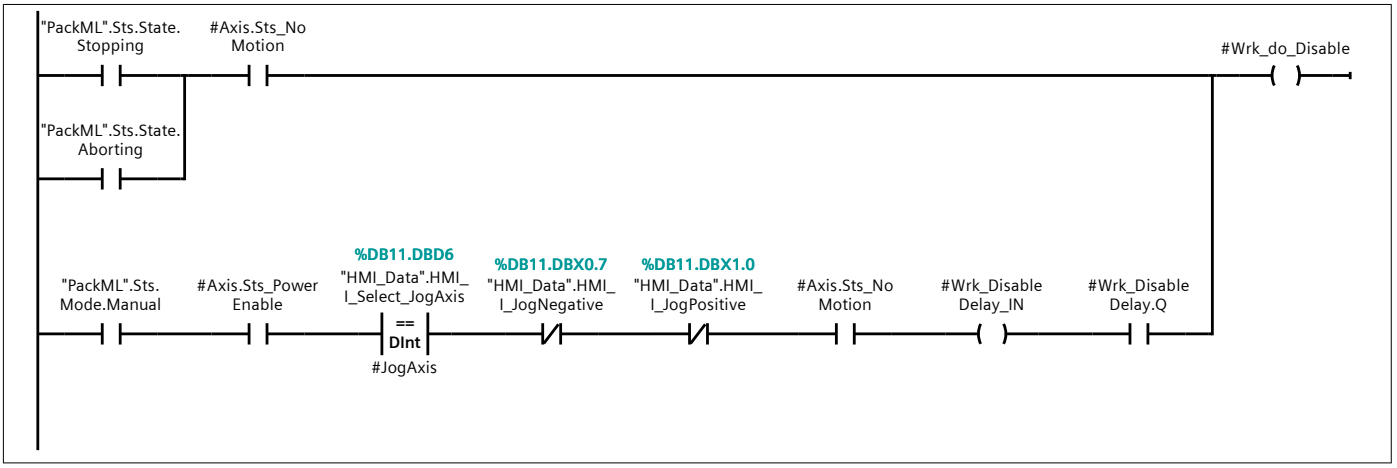

## Network 2: Homing logic



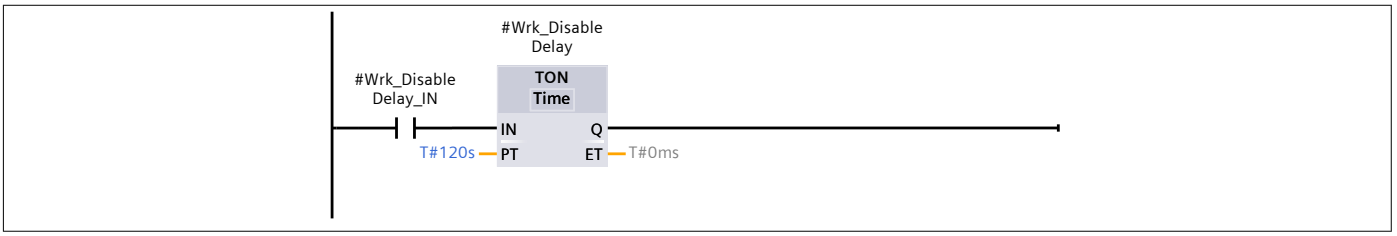

## Network 3: Stop logic



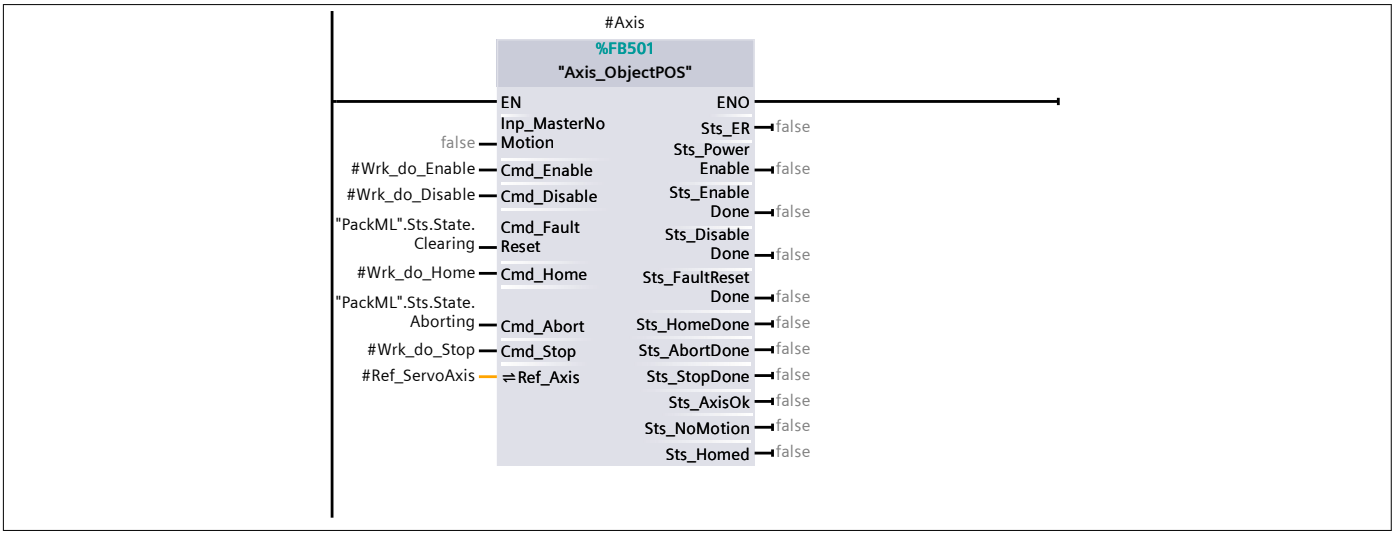

## Network 4: Do_Disable logic



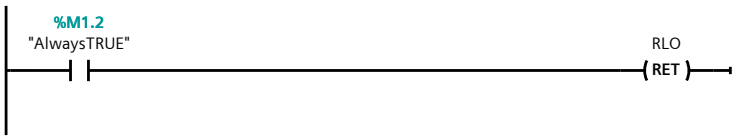

**Network 5: Disable delay timer for manual mode - if no jogging for 2 min, disable axis**




**Network 6:**




**Network 7: END: Update the ENO Output. (DO NOT REMOVE. Must be last rung)**


%M1.2
"AlwaysTRUE"
RLO
RET

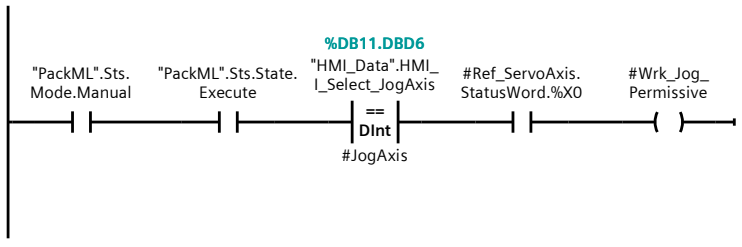
# DeltaSpiralConv [CPU 1515T-2 PN] / Program blocks / EM01_DeltaXYZR

## EM01_CM03_ServoAxisJog [FB204]

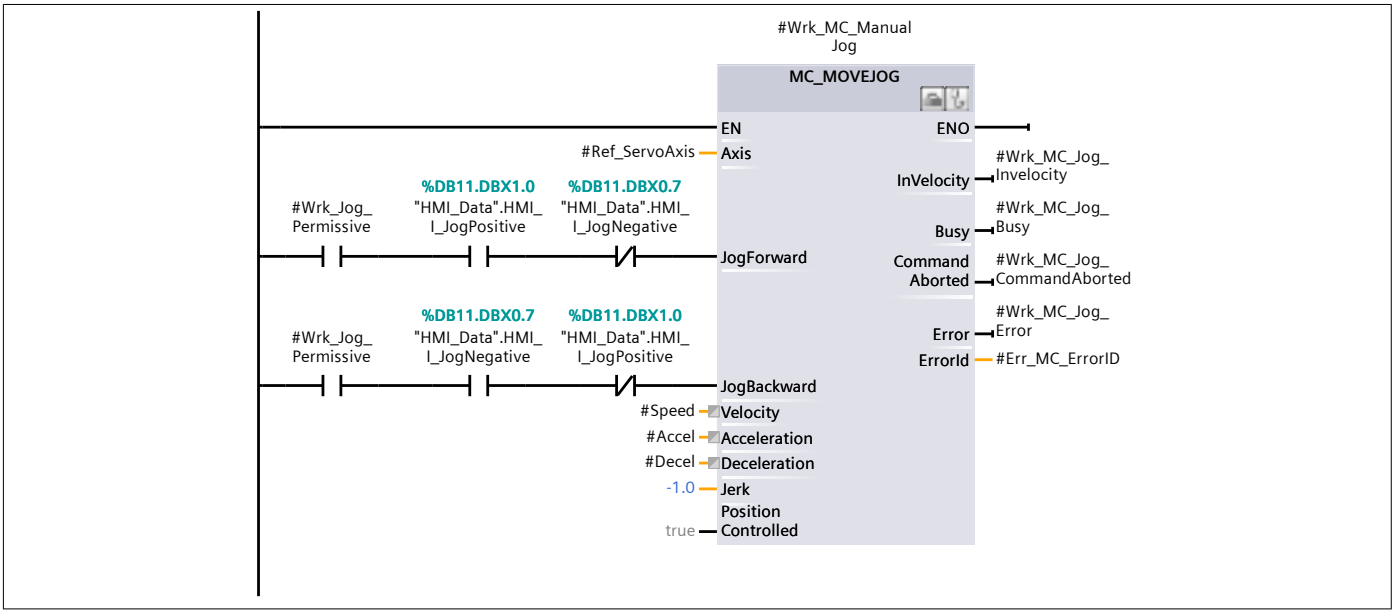
| EM01_CM03_ServoAxisJog Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | EM01_CM03_ServoAxis-Jog | **Number** | 204 | **Type** | FB |
| **Language** | LAD | **Numbering** | Manual | | |
| **Information** | | | | | |
| **Title** | Jog servo axis in manual mode | **Author** | | **Comment** | |
| **Family** | | **Version** | 0.1 | **User-defined ID** | |

| Name | Data type | Default value | Retain |
|---|---|---|---|
| ▼ Input | | | |
| JogAxis | DInt | 0 | Non-retain |
| Speed | Real | 0.0 | Non-retain |
| Accel | Real | 0.0 | Non-retain |
| Decel | Real | 0.0 | Non-retain |
| Output | | | |
| ▼ InOut | | | |
| Ref_ServoAxis | TO_PositioningAxis | | |
| ▼ Static | | | |
| Sts_JogFault | Bool | false | Non-retain |
| Err_MC_ErrorID | Word | 16#0 | Non-retain |
| Wrk_Jog_Permissive | Bool | false | Non-retain |
| Wrk_MC_ManualJog | MC_MOVEJOG | | |
| Wrk_MC_Jog_Invelocity | Bool | false | Non-retain |
| Wrk_MC_Jog_Busy | Bool | false | Non-retain |
| Wrk_MC_Jog_CommandAborted | Bool | false | Non-retain |
| Wrk_MC_Jog_Error | Bool | false | Non-retain |
| Temp | | | |
| Constant | | | |

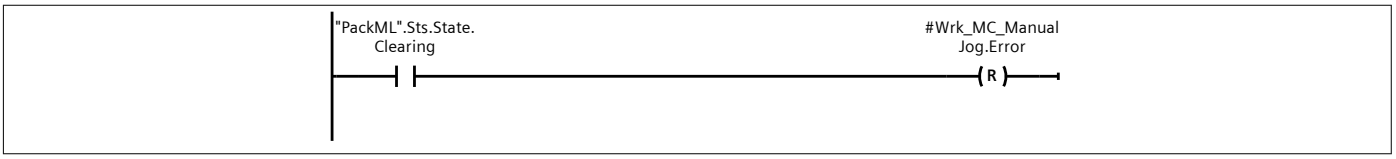
### Network 2: RELEASE JOG FUNCTION (-> SELECT EM NUMBER VIA HMI)



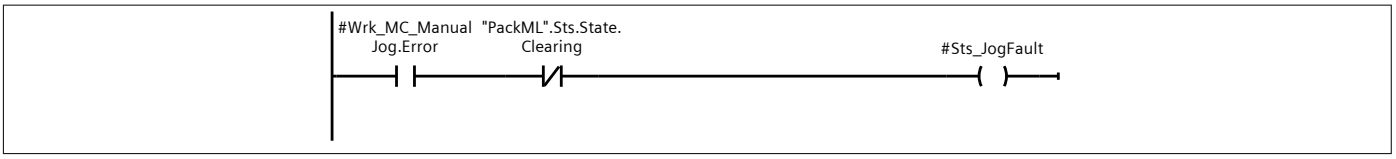

### Network 3: JOG SERVO AXIS



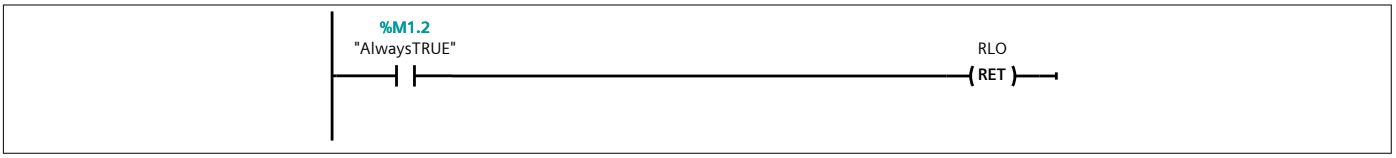

## Network 4: Fault Reset




## Network 5:




## Network 6: END: Update the ENO Output. (DO NOT REMOVE. Must be last rung)



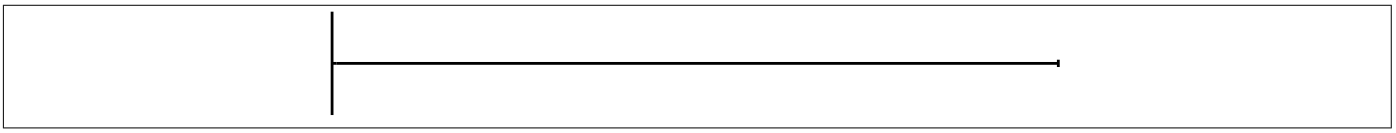
# DeltaSpiralConv [CPU 1515T-2 PN] / Program blocks / EM01_DeltaXYZR

## EM01_SR20_Initialize [FB211]

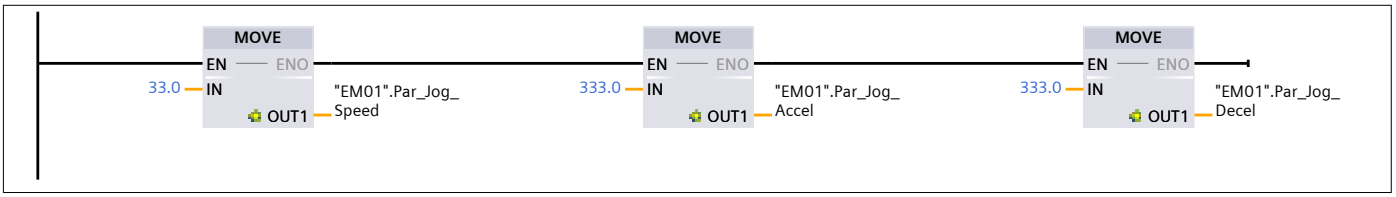
| EM01_SR20_Initialize Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | EM01_SR20_Initialize | **Number** | 211 | **Type** | FB |
| **Language** | LAD | **Numbering** | Manual | | |
| **Information** | | | | | |
| **Title** | Initialization for EM | **Author** | | **Comment** | |
| **Family** | | **Version** | 0.1 | **User-defined ID** | |

| Name | Data type | Default value | Retain |
|---|---|---|---|
| Input | | | |
| Output | | | |
| InOut | | | |
| Static | | | |
| Temp_Dint | DInt | 0 | Non-retain |
| Temp | | | |
| Constant | | | |

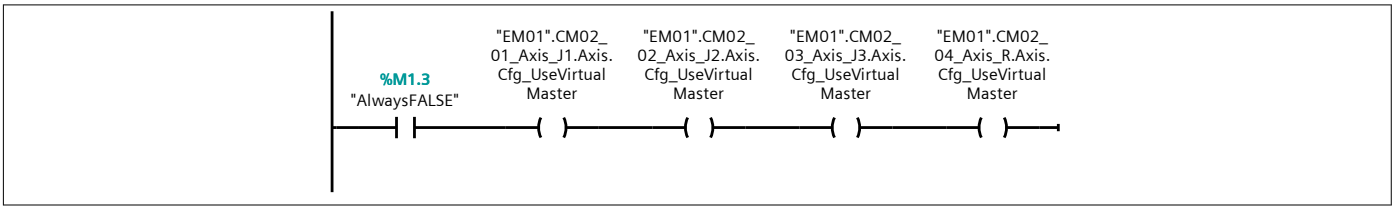
### Network 1:



### Network 2:

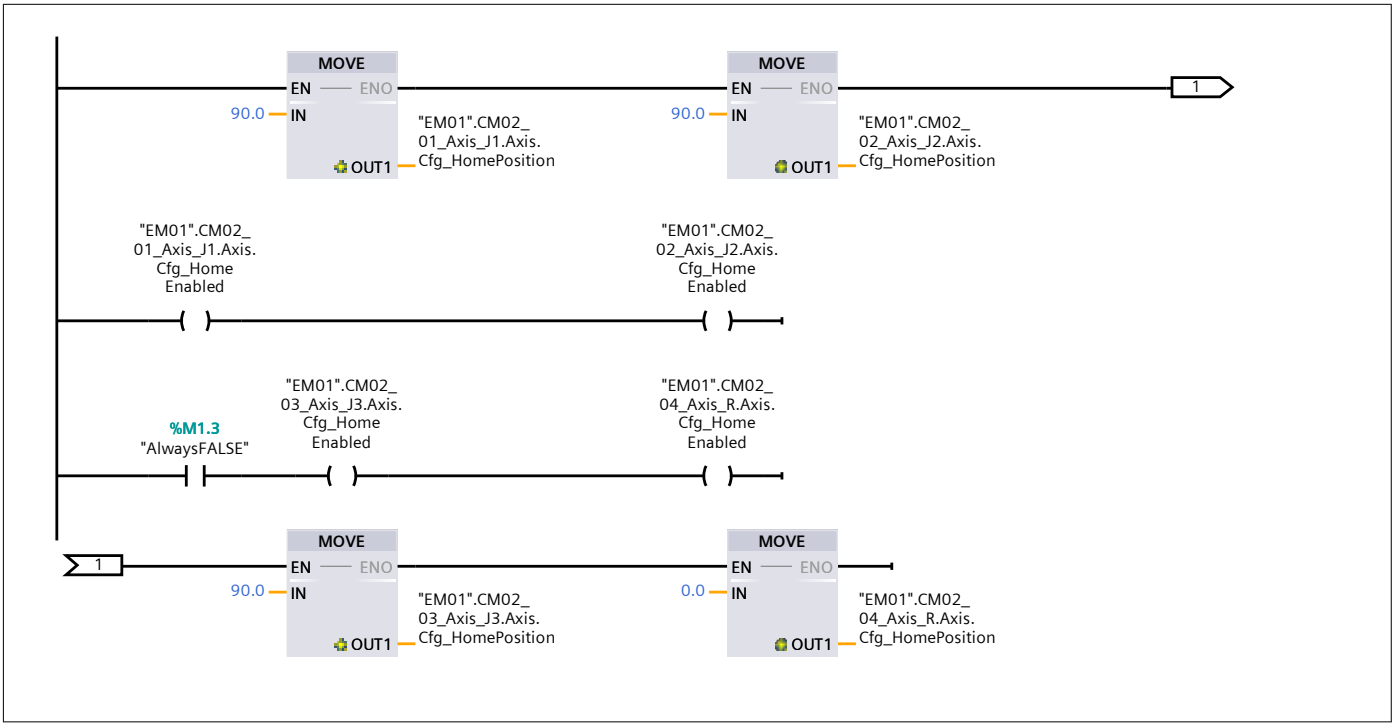



### Network 3: All axes do not use a virtual master



## Network 4: Home position is 90 degrees for joint axes, zero for rotation.

J1 and J2 have home switches. J3 and R have no home switches



# DeltaSpiralConv [CPU 1515T-2 PN] / Program blocks / EM01_DeltaXYZR

## EM01 [DB200]

| EM01 Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | EM01 | **Number** | 200 | **Type** | DB |
| **Language** | DB | **Numbering** | Manual | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | 0.1 | **User-defined ID** | |

| Name | Data type | Start value | Retain |
|---|---|---|---|
| Input | | | |
| Output | | | |
| InOut | | | |
| ▼ Static | | | |
| Cfg_EM_Number | Int | 1 | False |
| Par_Jog_Accel | Real | 200.0 | False |
| Par_Jog_Decel | Real | 200.0 | False |
| Par_Jog_Speed | Real | 10.0 | False |
| CM00_EM_Procedure | "EM01_CM00_Procedure" | | False |
| CM01_EMConditions | "EM01_CM01_EMConditions" | | False |
| CM02_01_Axis_J1 | "EM01_CM02_ServoAxisObject" | | False |
| CM02_02_Axis_J2 | "EM01_CM02_ServoAxisObject" | | False |
| CM02_03_Axis_J3 | "EM01_CM02_ServoAxisObject" | | False |
| CM02_04_Axis_R | "EM01_CM02_ServoAxisObject" | | False |
| CM03_01_AxisJog_J1 | "EM01_CM03_ServoAxisJog" | | False |
| CM03_02_AxisJog_J2 | "EM01_CM03_ServoAxisJog" | | False |
| CM03_03_AxisJog_J3 | "EM01_CM03_ServoAxisJog" | | False |
| CM03_04_AxisJog_R | "EM01_CM03_ServoAxisJog" | | False |
| CM04_05_Kinetics_XYZR | "EM01_CM04_ServoKinObject" | | False |
| CM05_05_KinJog_XYZR | "EM01_CM05_ServoKinJog" | | False |
| SR03_FaultHandler | "EM01_SR03_FaultHandler" | | False |
| SR20_Initialize | "EM01_SR20_Initialize" | | False |
| SR30_Simulate | "EM01_SR30_Simulate" | | False |
| Wrk_Temp_Bit | Bool | false | False |

| Name | Data type | Start value | Retain |
|---|---|---|---|
| KinStatusError | Int | 0 | False |
| TypeOfKin | DInt | 0 | False |
| A1_Type | DInt | 0 | False |
| A1_Status | DWord | 16#0 | False |

# DeltaSpiralConv [CPU 1515T-2 PN] / Program blocks / EM01_DeltaXYZR

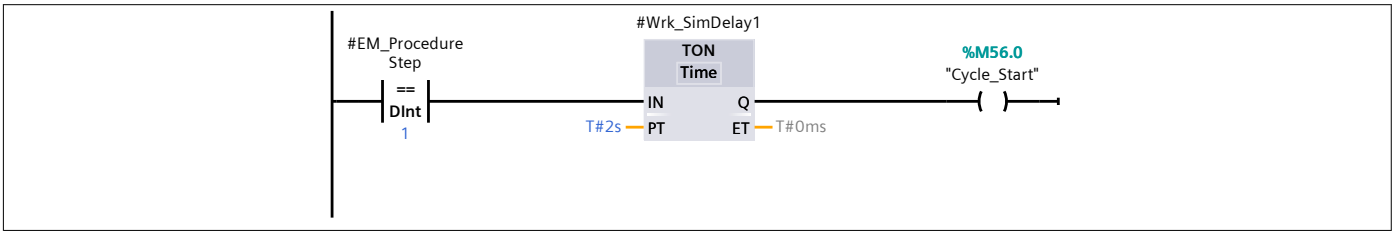
## EM01_SR30_Simulate [FB212]

| EM01_SR30_Simulate Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | EM01_SR30_Simulate | **Number** | 212 | **Type** | FB |
| **Language** | LAD | **Numbering** | Manual | | |
| **Information** | | | | | |
| **Title** | Simulate Cycle_Start and Cycle_Finish for EM procedure | **Author** | | **Comment** | |
| **Family** | | **Version** | 0.1 | **User-defined ID** | |

| Name | Data type | Default value | Retain |
|---|---|---|---|
| ▼ Input | | | |
| EM_ProcedureStep | DInt | 0 | Non-retain |
| Output | | | |
| InOut | | | |
| ▼ Static | | | |
| Wrk_SimDelay1 | TON_TIME | | Non-retain |
| Wrk_SimDelay2 | TON_TIME | | Non-retain |
| Wrk_VacDelay | TON_TIME | | Non-retain |
| Temp | | | |
| Constant | | | |

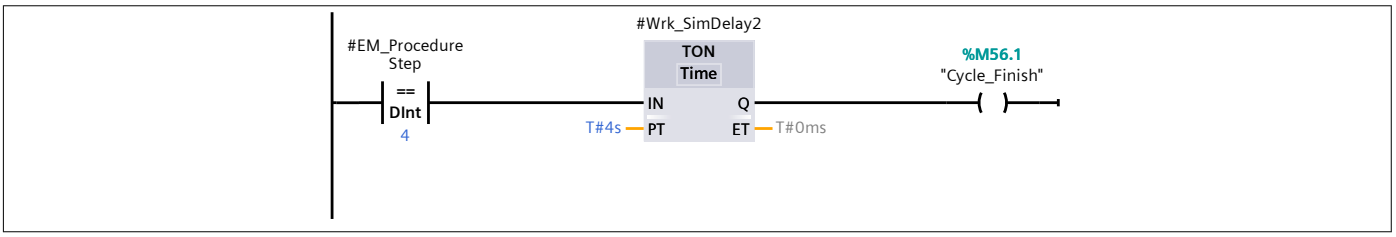
### Network 1: Cycle_Start simulation

Turn on when procedure step 1 for 2 secs



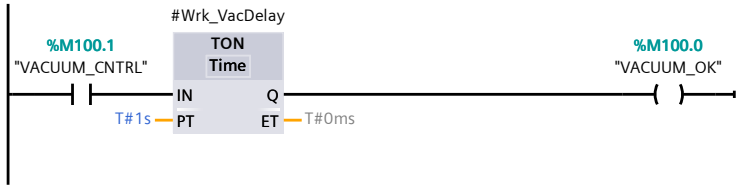

### Network 2: Cycle_Finish simulation

Turn on when procedure step 4 for 4 secs




### Network 3: Simulate Vacuum.

Turn on sensor 1 second after control is active


#Wrk_VacDelay
%M100.1
"VACUUM_CNTRL"
TON
Time
IN
Q
T#1s
PT
ET
T#0ms
%M100.0
"VACUUM_OK"

# DeltaSpiralConv [CPU 1515T-2 PN] / Program blocks / EM01_DeltaXYZR

## EM01_CM01_EMConditions [FB202]

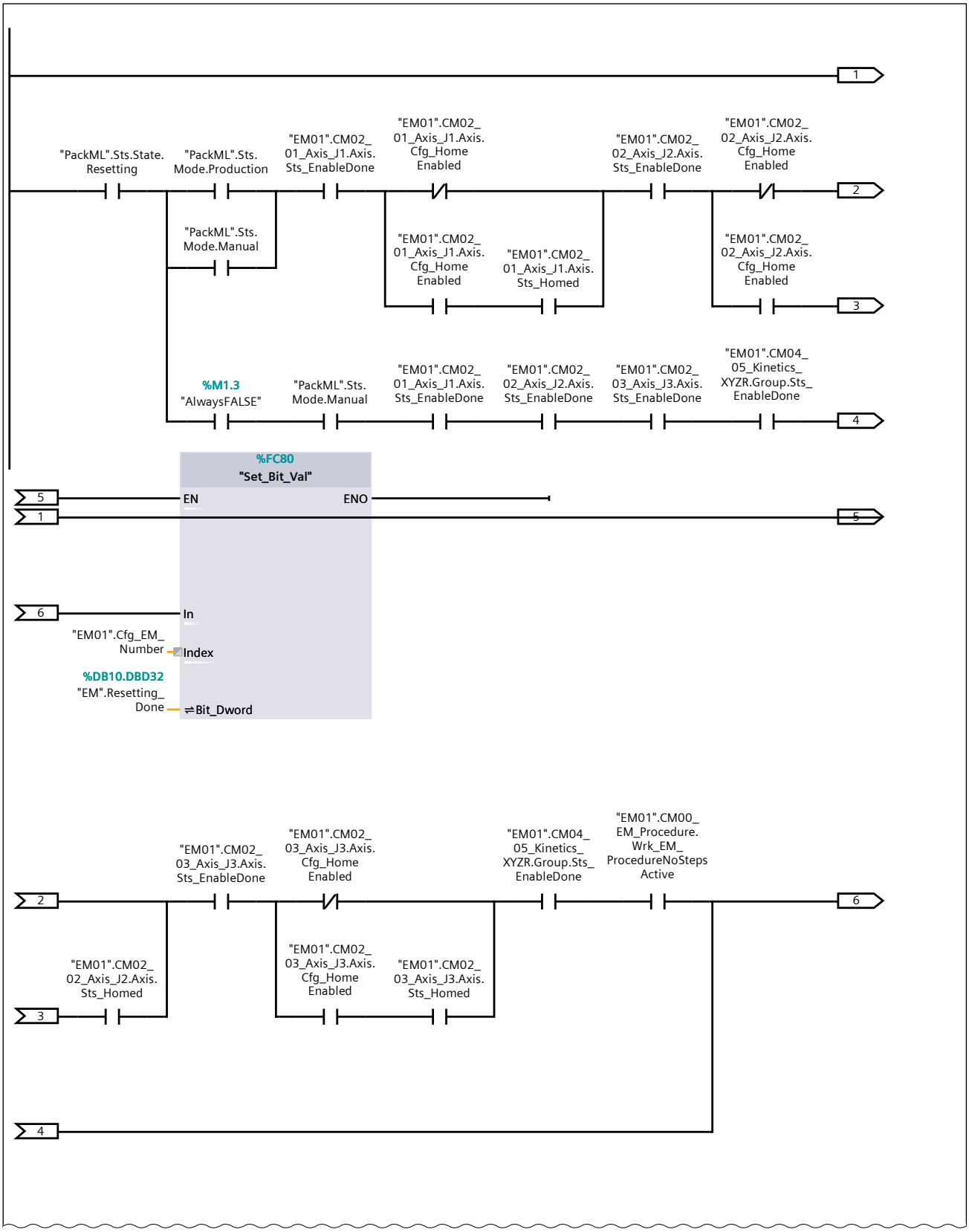
| EM01_CM01_EMConditions Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | EM01_CM01_EMCondi-tions | **Number** | 202 | **Type** | FB |
| **Language** | LAD | **Numbering** | Manual | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | 0.1 | **User-defined ID** | |

| Name | Data type | Default value | Retain |
|---|---|---|---|
| Input | | | |
| Output | | | |
| InOut | | | |
| ▼ Static | | | |
| Wrk_Temp | DInt | 0 | Non-retain |
| Temp | | | |
| Constant | | | |

### Network 1: Handles EM state complete conditions

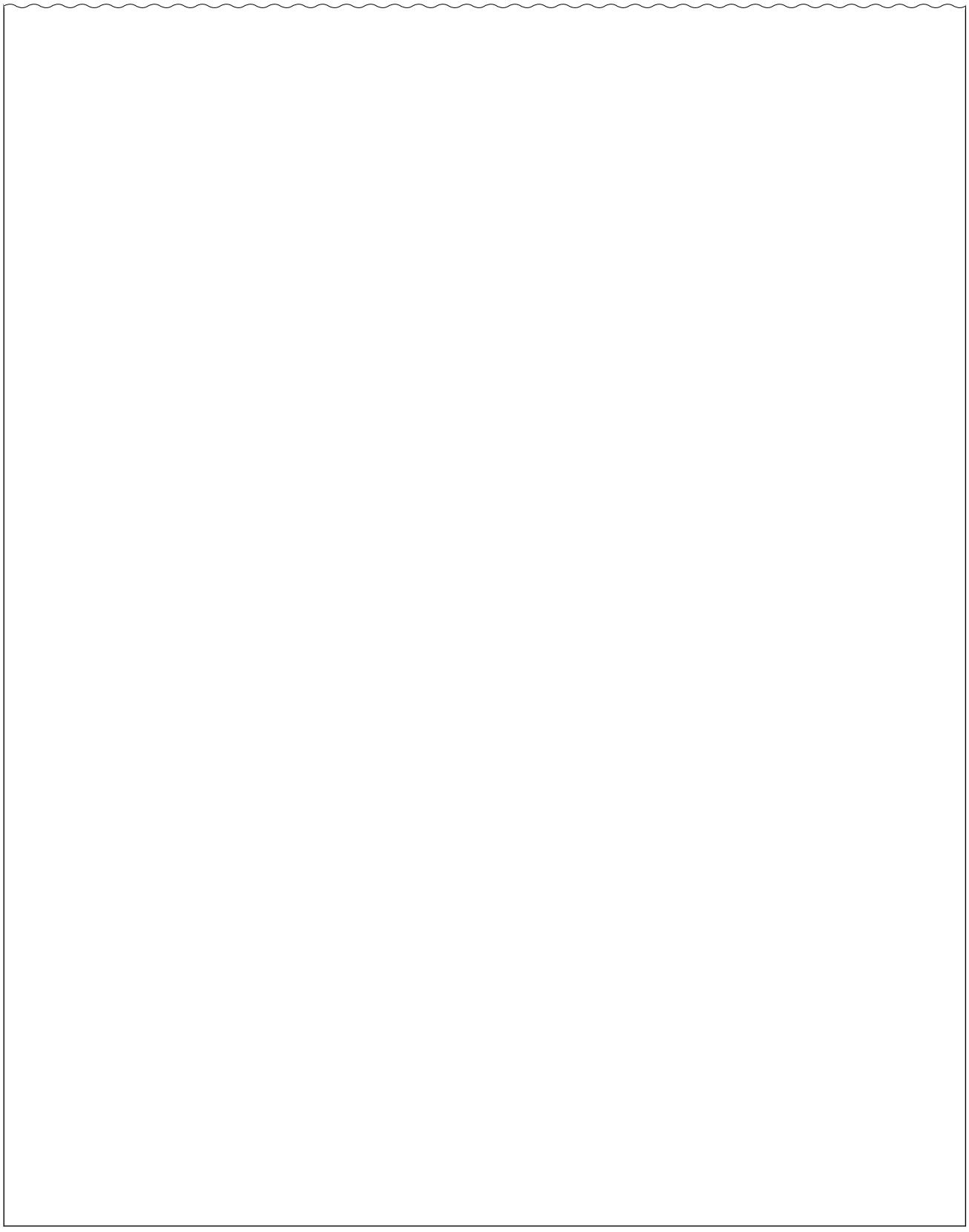
### Network 2: Resetting state

## Network 2: Resetting state (1.1 / 2.1)

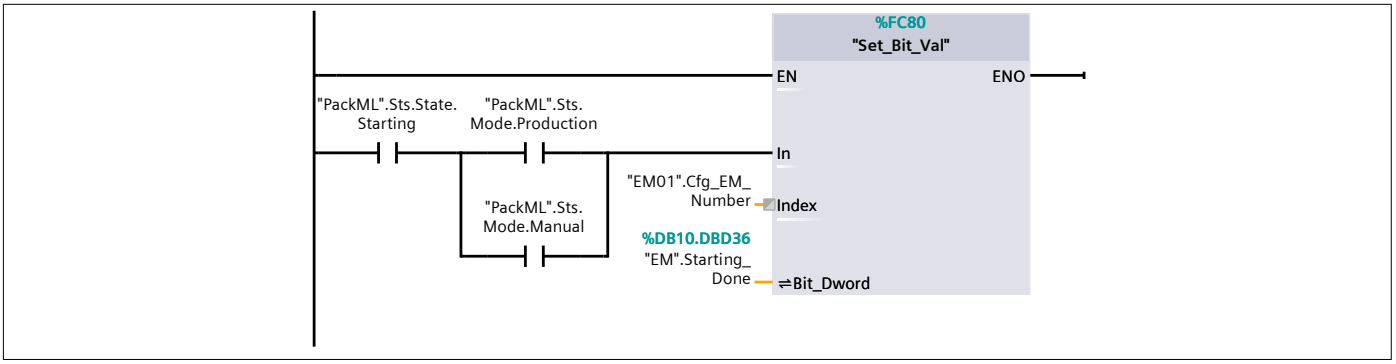


**Network 2: Resetting state (2.1 / 2.1)**

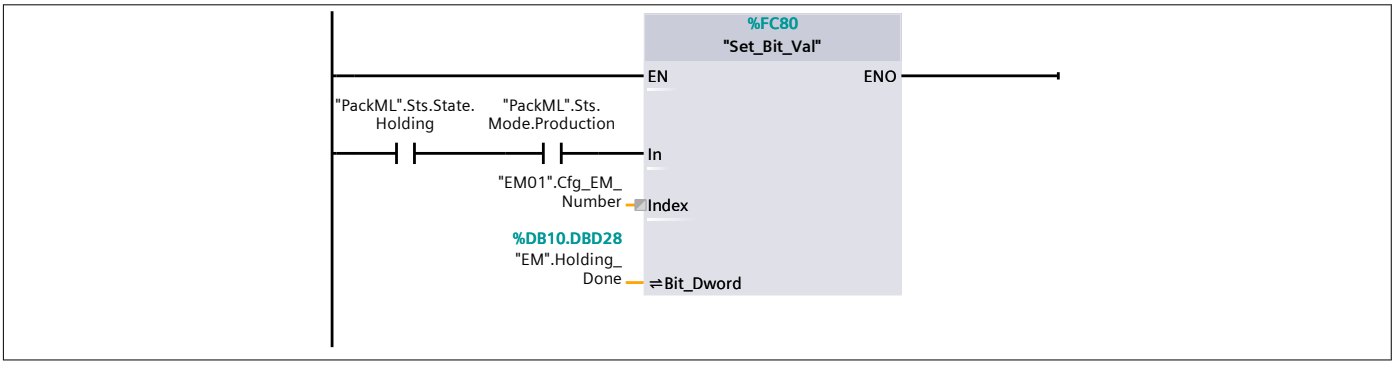
1.1 ( Page39 - 2)



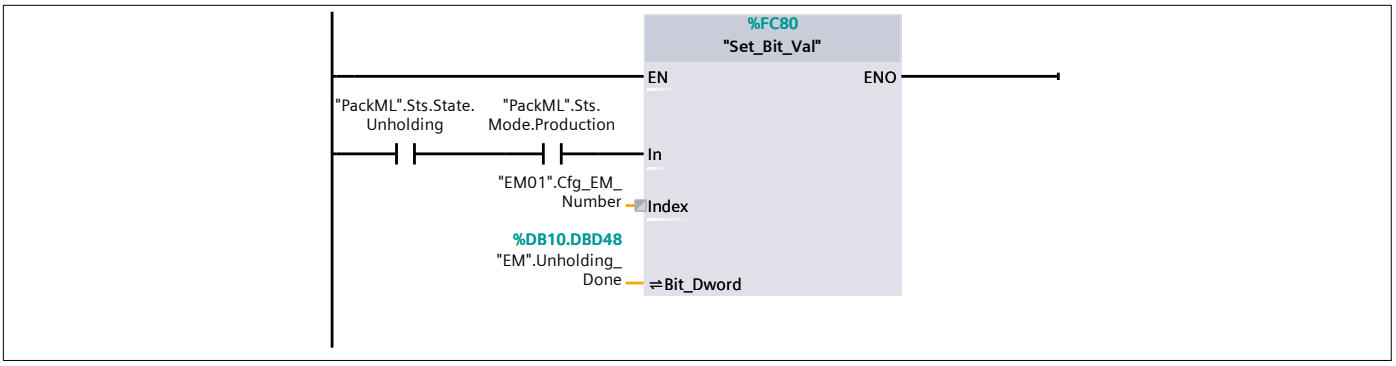
## Network 3: Starting state



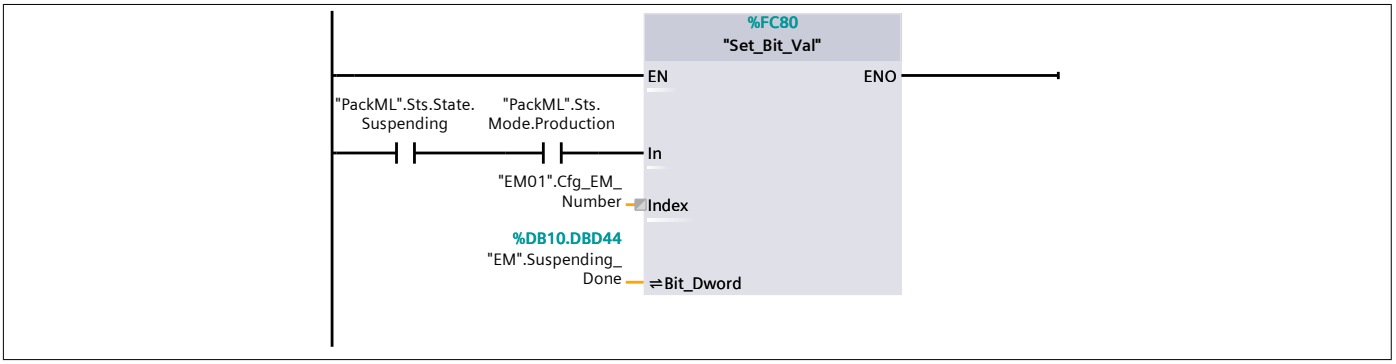

## Network 4: Holding state



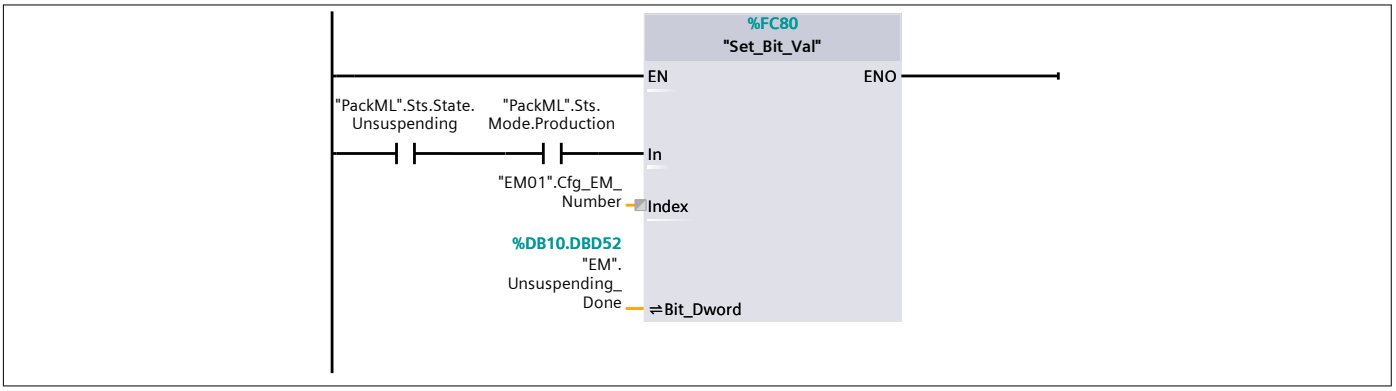

## Network 5: Unholding



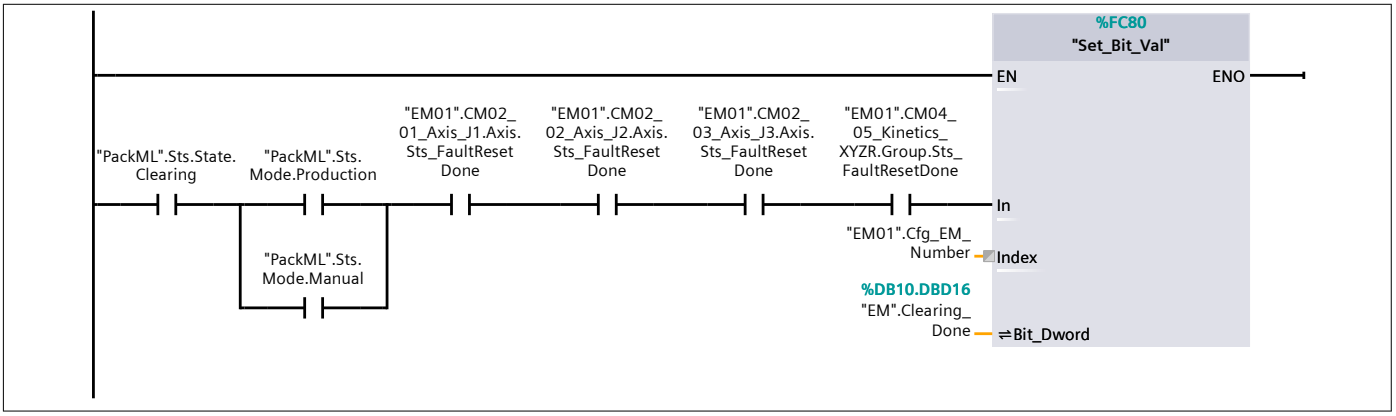

## Network 6: Suspending state



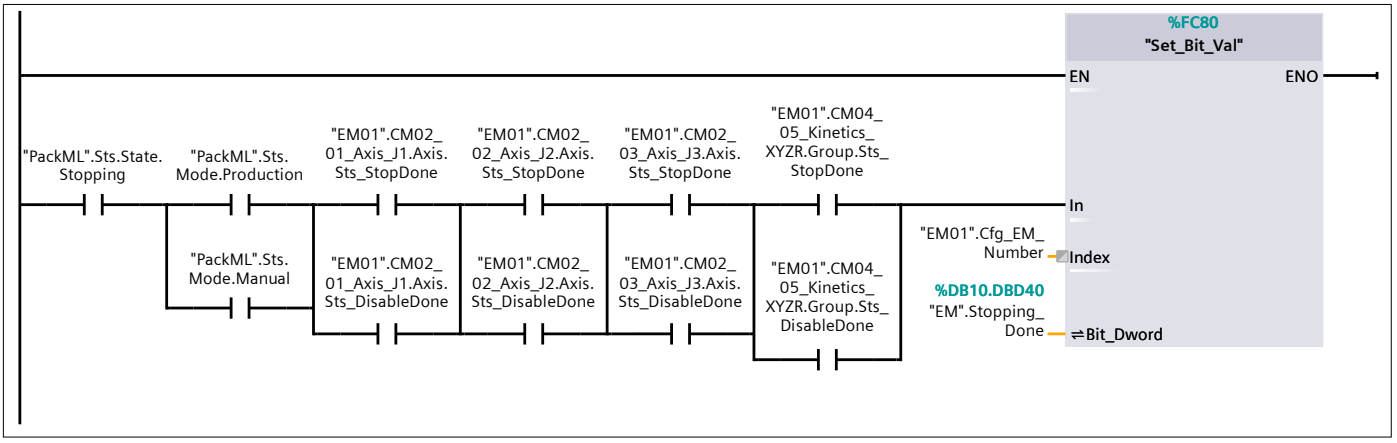

## Network 7: Unsuspending



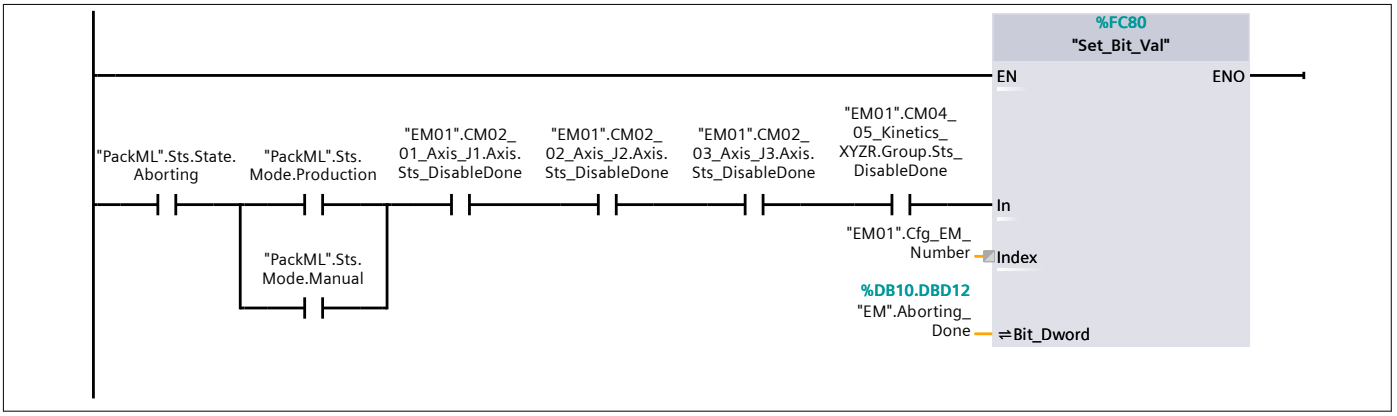

## Network 8: Clearing state



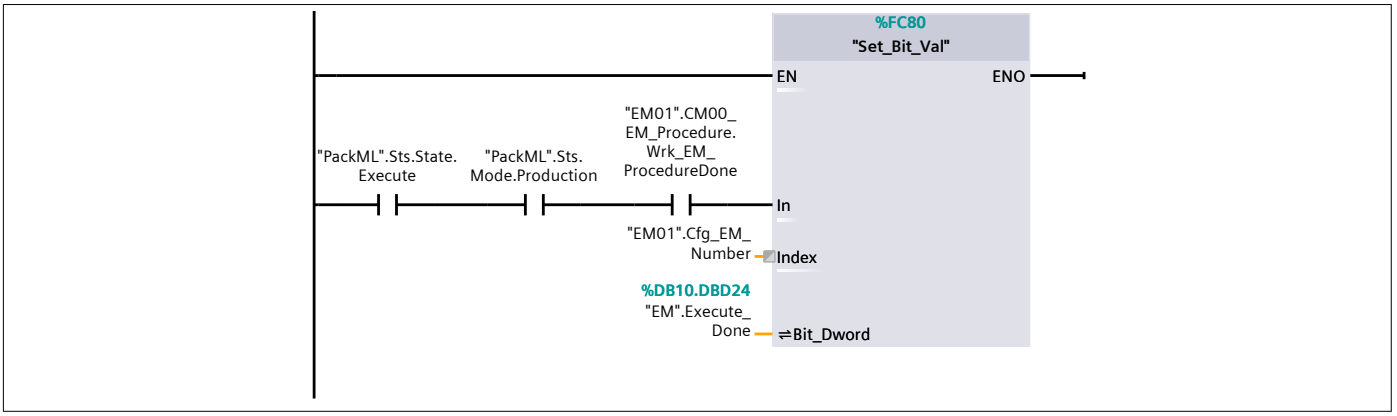

## Network 9: Stopping state



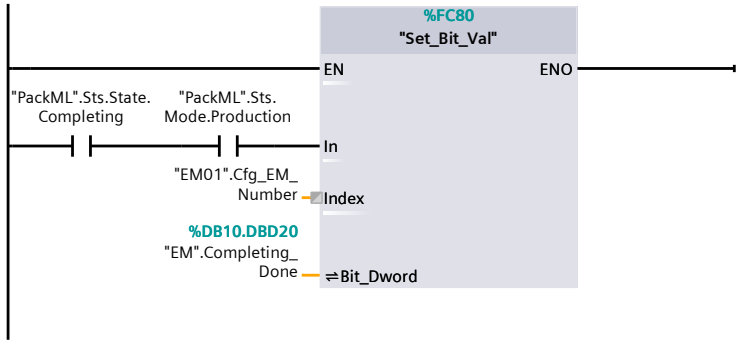

## Network 10: Aborting state




## Network 11: Execute state




## Network 12: Completing State


%FC80
"Set_Bit_Val"
EN
ENO
"PackML".Sts.State.
Completing
"PackML".Sts.
Mode.Production
In
"EM01".Cfg_EM_
Number
Index
%DB10.DBD20
"EM".Completing_
Done
⇌Bit_Dword

# DeltaSpiralConv [CPU 1515T-2 PN] / Program blocks / EM01_DeltaXYZR

## EM01_SR03_FaultHandler [FB210]

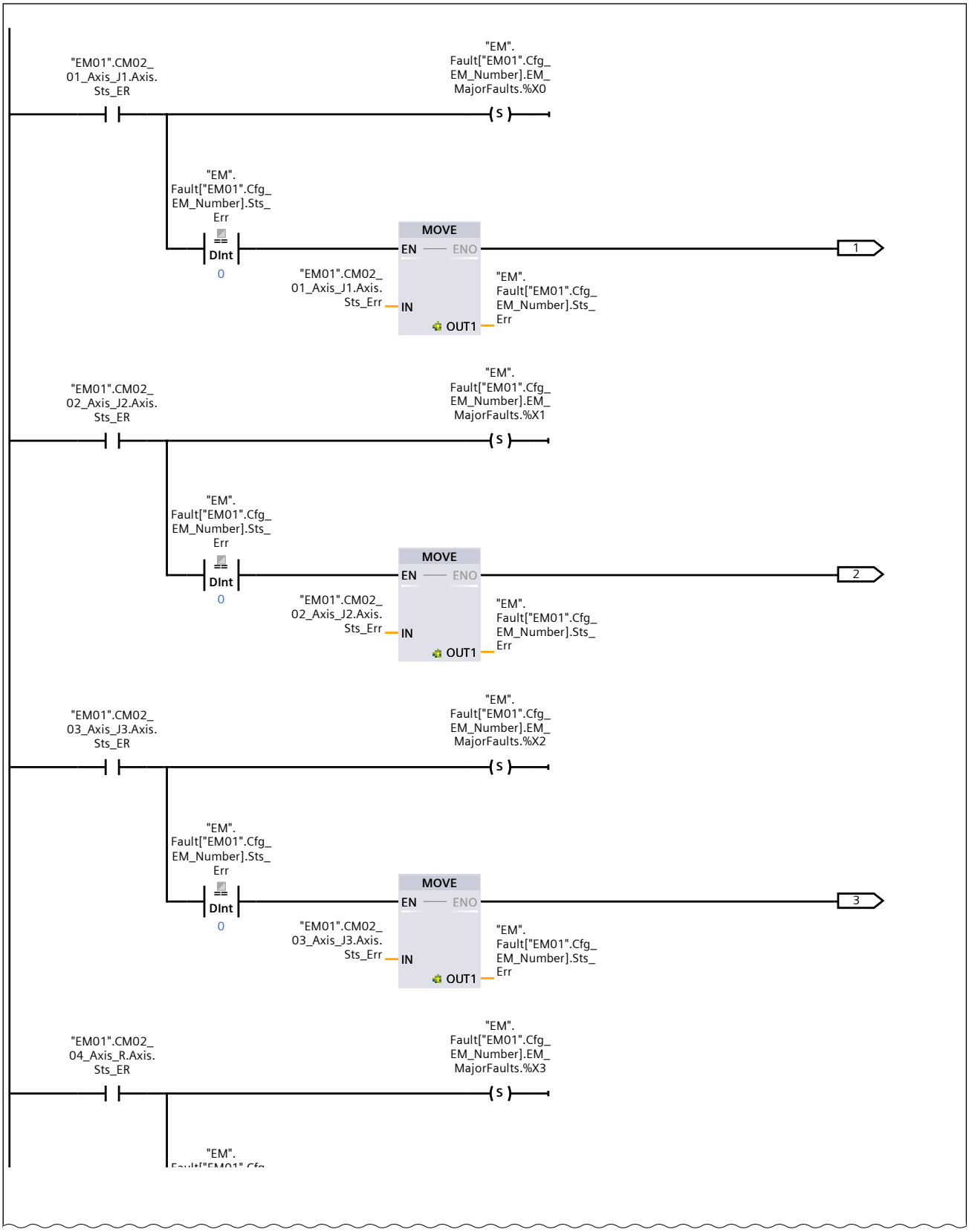
| EM01_SR03_FaultHandler Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | EM01_SR03_FaultHandler | **Number** | 210 | **Type** | FB |
| **Language** | LAD | **Numbering** | Manual | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | 0.1 | **User-defined ID** | |

| Name | Data type | Default value | Retain |
|---|---|---|---|
| Input | | | |
| Output | | | |
| InOut | | | |
| ▼ Static | | | |
| Wrk_Temp | DInt | 0 | Non-retain |
| Wrk_Temp_Bit | Bool | false | Non-retain |
| Temp | | | |
| Constant | | | |

### Network 2: Map axis errors, procedure motion errors, and jogging errors into bits of the EM_Major-Faults

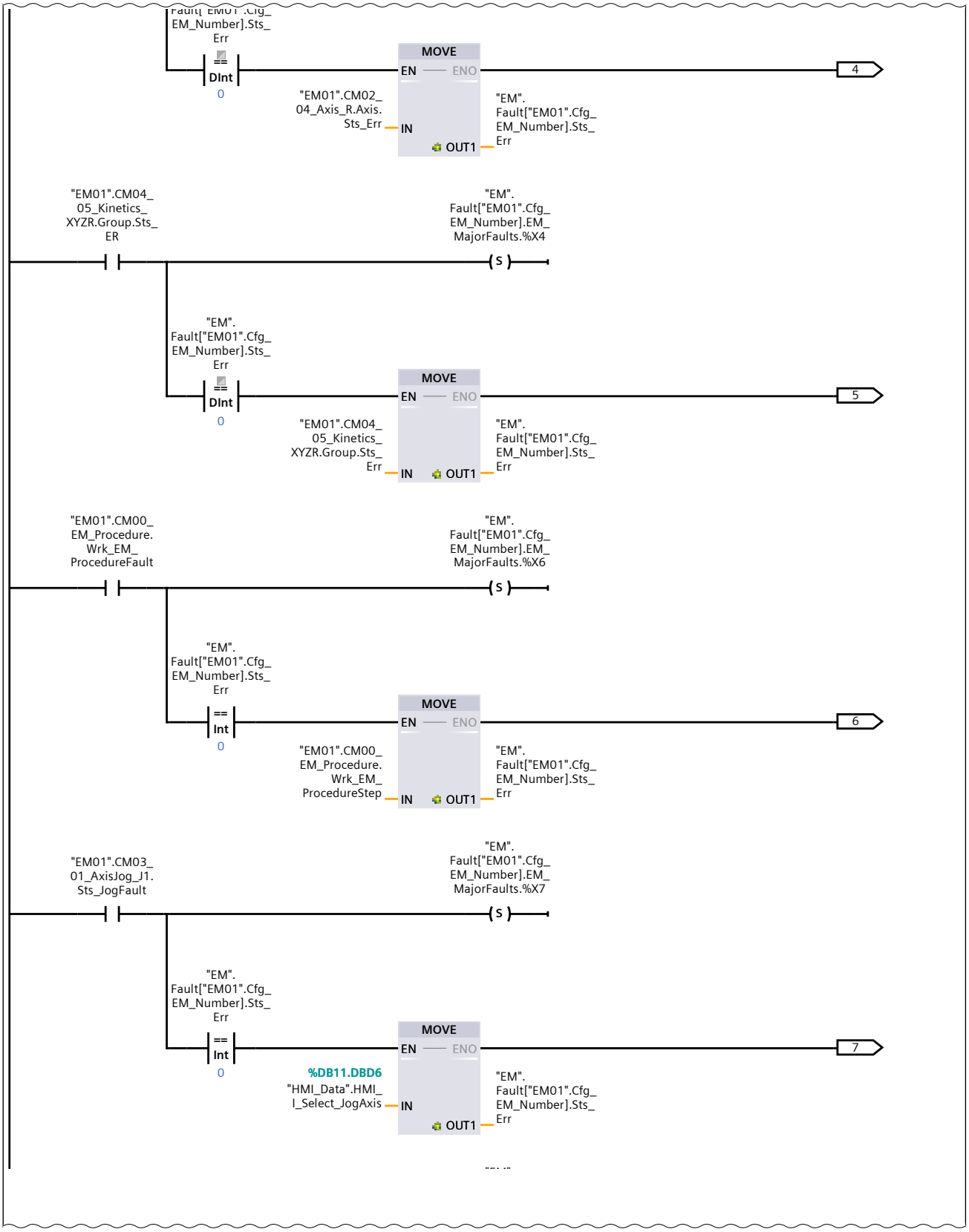
Modified 7/26/2019 for up to 4 axes + kinematics system, though only 3 used for now

**Network 2: Map axis errors, procedure motion errors, and jogging errors into bits of the EM_MajorFaults (1.1 / 7.1)**



**Network 2: Map axis errors, procedure motion errors, and jogging errors into bits of the EM_MajorFaults (2.1 / 7.1)**

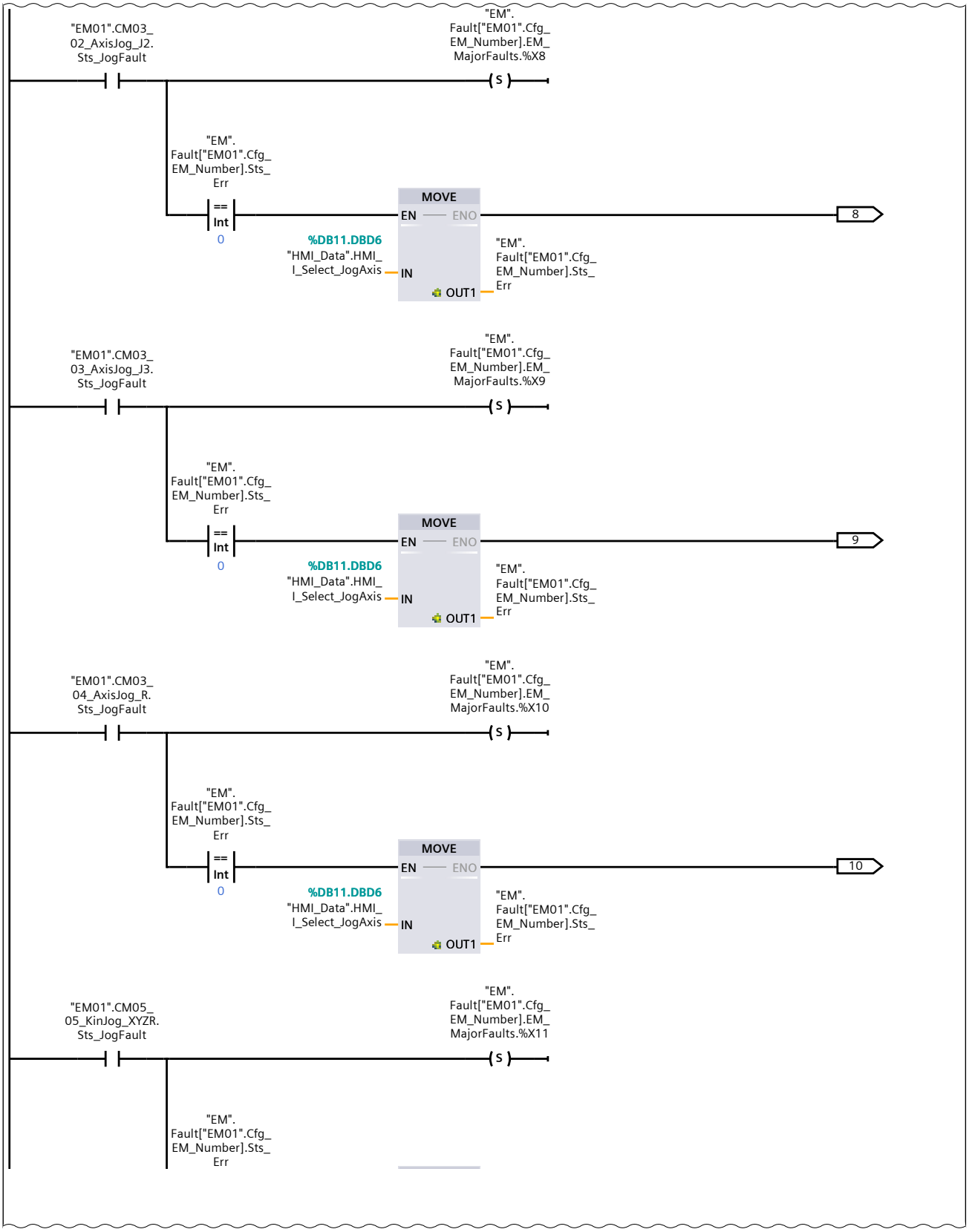
1.1 ( Page40 - 2)




3.1 ( Page40 - 4)

**Network 2: Map axis errors, procedure motion errors, and jogging errors into bits of the EM_MajorFaults (3.1 / 7.1)**

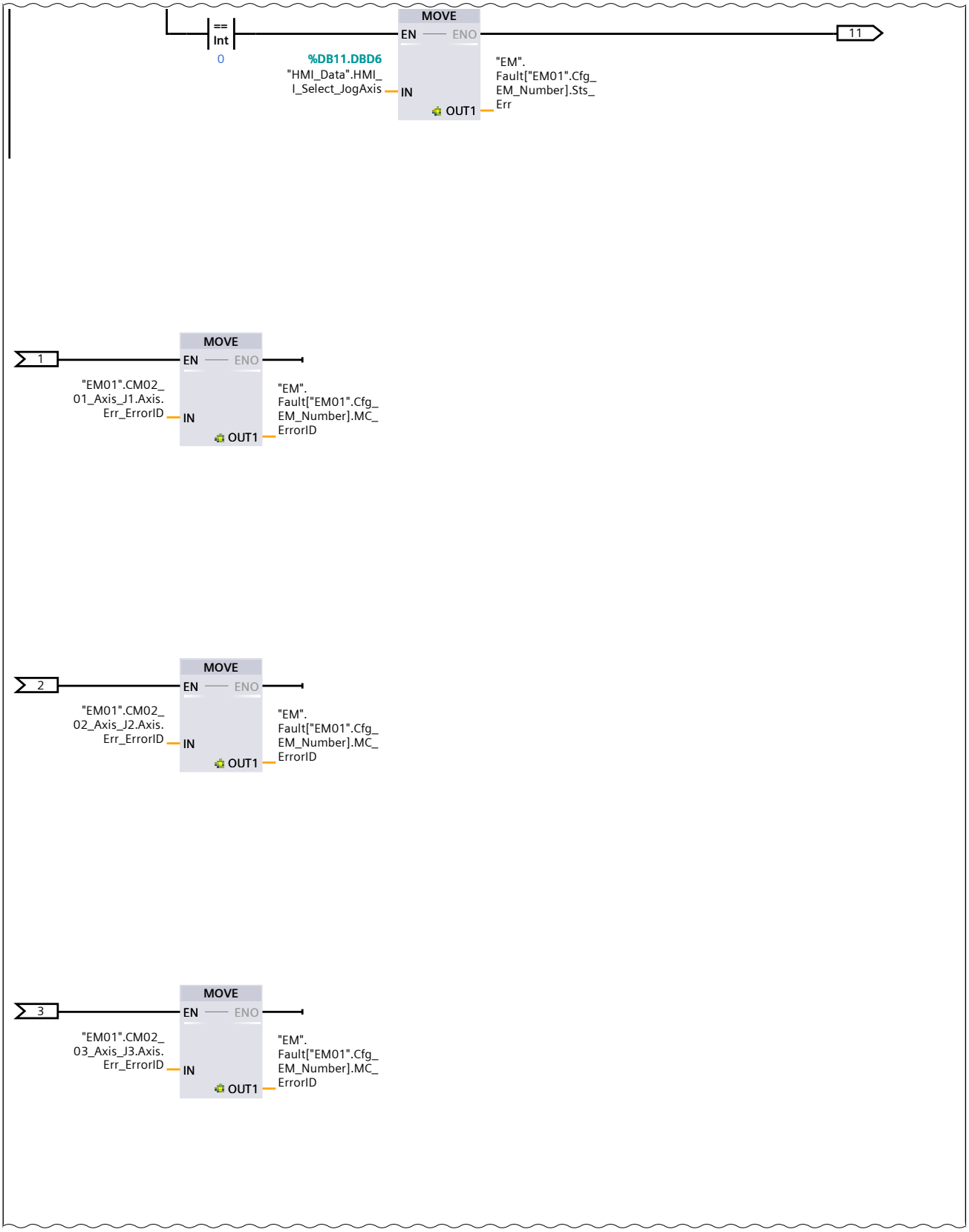
2.1 ( Page40 - 3)




4.1 ( Page40 - 5)

**Network 2: Map axis errors, procedure motion errors, and jogging errors into bits of the EM_MajorFaults (4.1 / 7.1)**

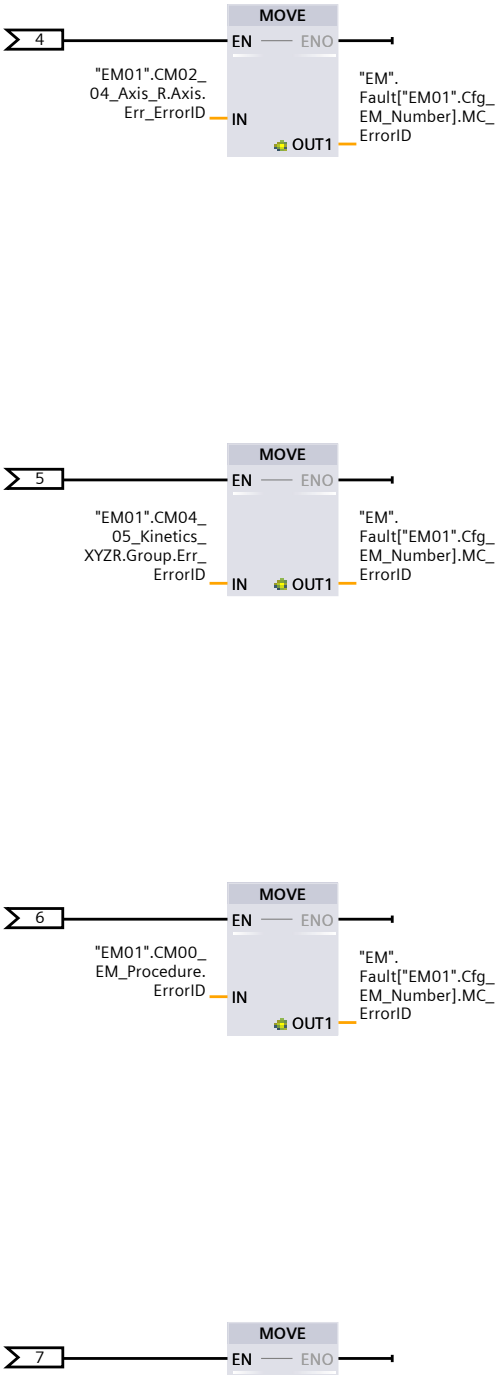
3.1 ( Page40 - 4)




5.1 ( Page40 - 6)

**Network 2: Map axis errors, procedure motion errors, and jogging errors into bits of the EM_MajorFaults (5.1 / 7.1)**

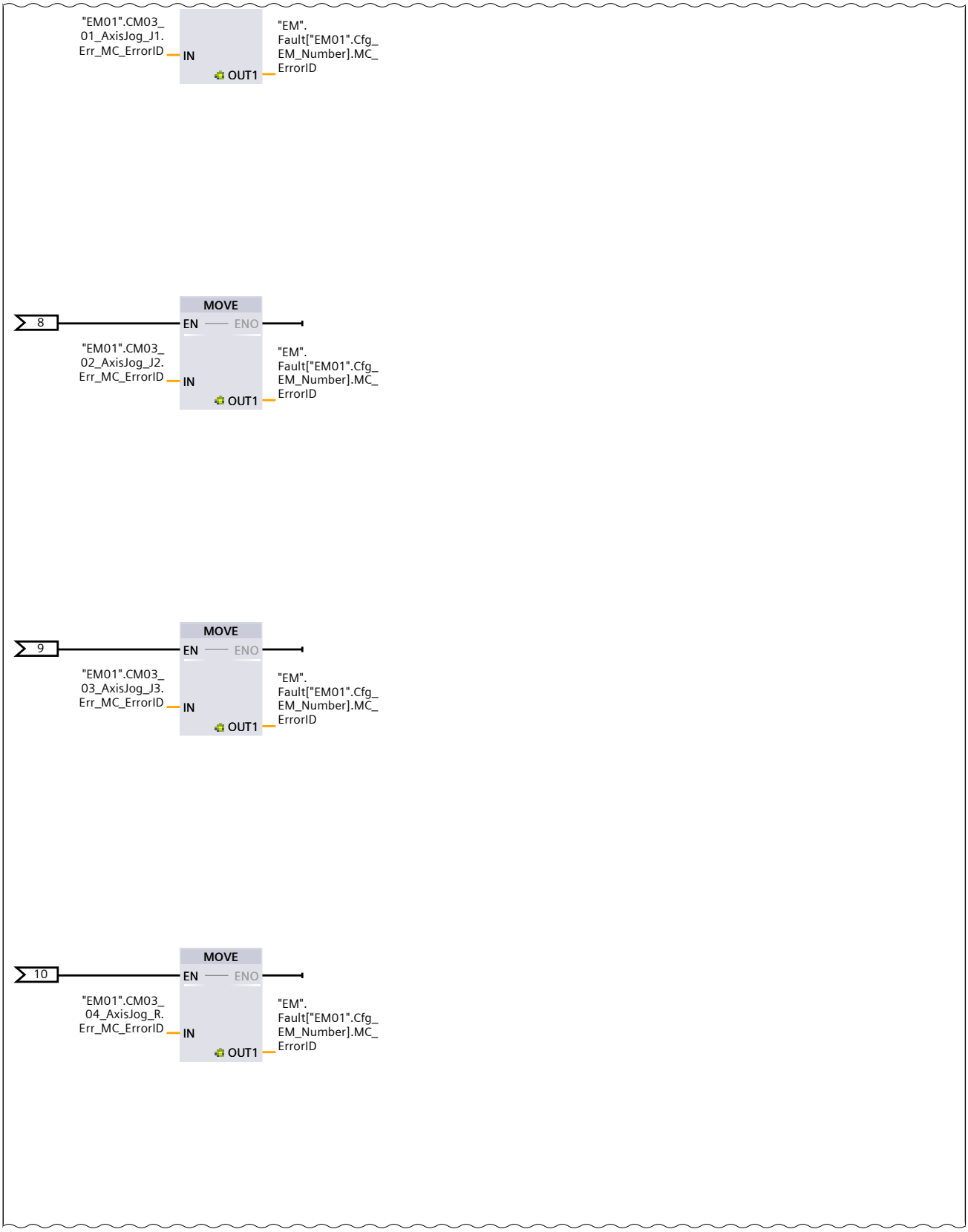
4.1 ( Page40 - 5)




6.1 ( Page40 - 7)

**Network 2: Map axis errors, procedure motion errors, and jogging errors into bits of the EM_MajorFaults (6.1 / 7.1)**

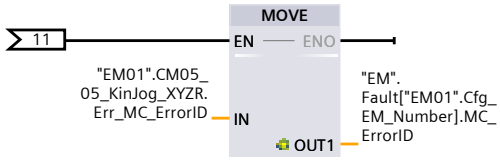
5.1 ( Page40 - 6)



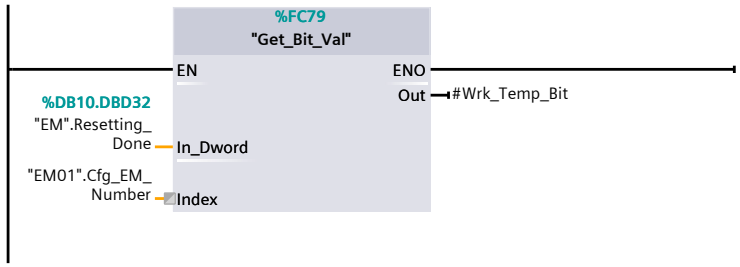

7.1 ( Page40 - 8)

**Network 2: Map axis errors, procedure motion errors, and jogging errors into bits of the EM_MajorFaults (7.1 / 7.1)**

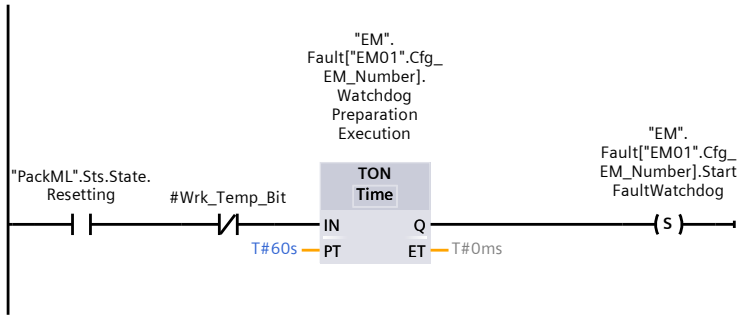
6.1 ( Page40 - 7)



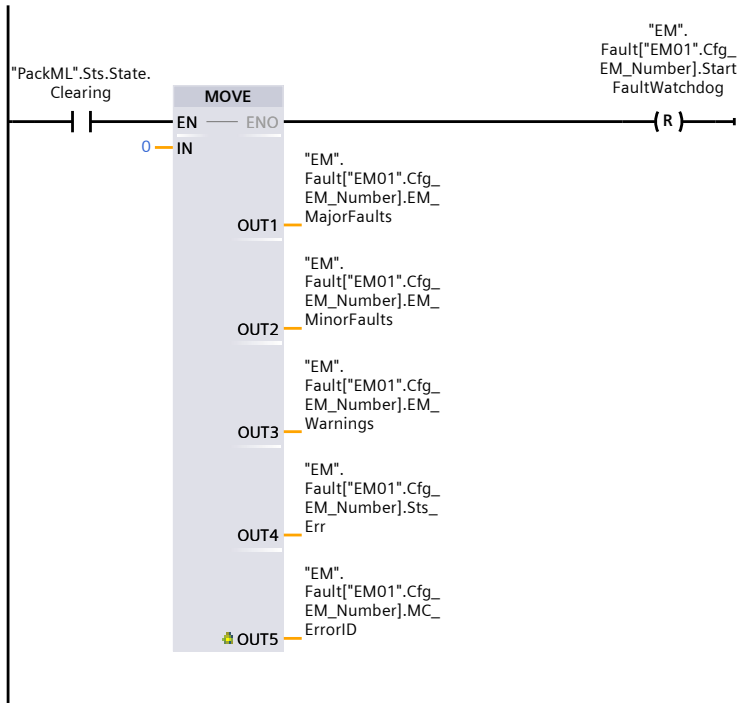
## Network 3: Get resetting status for this EM



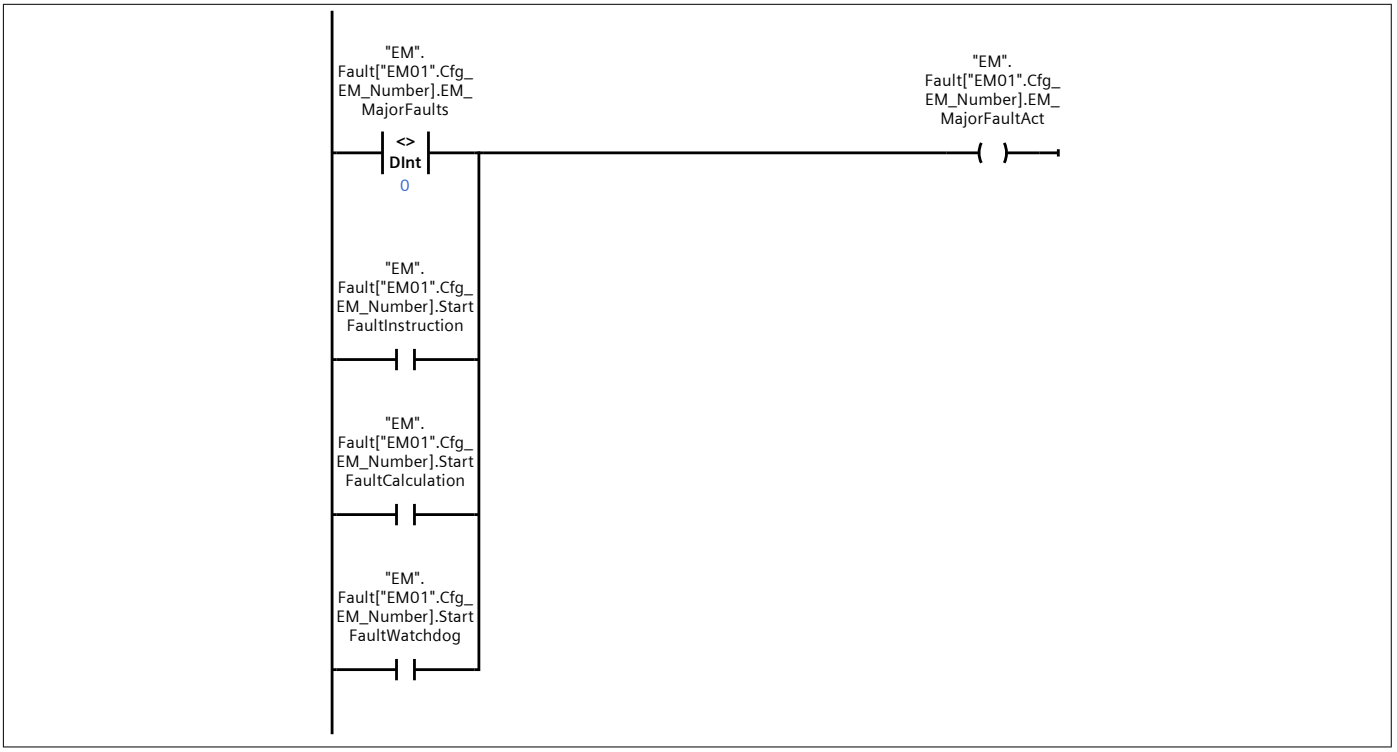

## Network 4: Watchdog for resetting - Creat an error if timeout occurs




## Network 5: Clear watchdog fault and instruction fault error details



## Network 6: Summary of EM faults




## Network 7:


## Network 8:

# DeltaSpiralConv [CPU 1515T-2 PN] / Program blocks / EM01_DeltaXYZR

## EM01_KinStatus [FC220]

| EM01_KinStatus Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | EM01_KinStatus | **Number** | 220 | **Type** | FC |
| **Language** | SCL | **Numbering** | Manual | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | 0.1 | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| ▼ Input | | |
| AxesGroup | TO_Kinematics | |
| A1 | DB_ANY | |
| ▼ Output | | |
| TypeOfKinematics | DInt | |
| A1_Type | DInt | |
| Error | Int | |
| Status | DWord | |
| InOut | | |
| ▼ Temp | | |
| a | Variant | |
| Constant | | |
| ▼ Return | | |
| EM01_KinStatus | Void | |

```
0001 // The AxesGroup.KinematicsAxis.A1, etc. are DB numbers
0002 // Have not figured out how to address the information in the data block
0003 //
0004 #TypeOfKinematics := #AxesGroup.Kinematics.TypeOfKinematics;
0005
0006 //#a := DB_ANY_TO_VARIANT(in := #AxesGroup.KinematicsAxis.A1, err => #Error);
0007 //#a := DB_ANY_TO_VARIANT(in := #A1, err => #Error);
0008 CASE TypeOf(#A1) OF
0009   TO_PositioningAxis:
0010     #A1_Type := 1;
0011   TO_SynchronousAxis:
0012     #A1_Type := 2;
0013   TO_SpeedAxis:
0014     #A1_Type := 3;
0015   ELSE
0016     #A1_Type := 99;
0017 END_CASE;
0018
0019
0020
0021
```

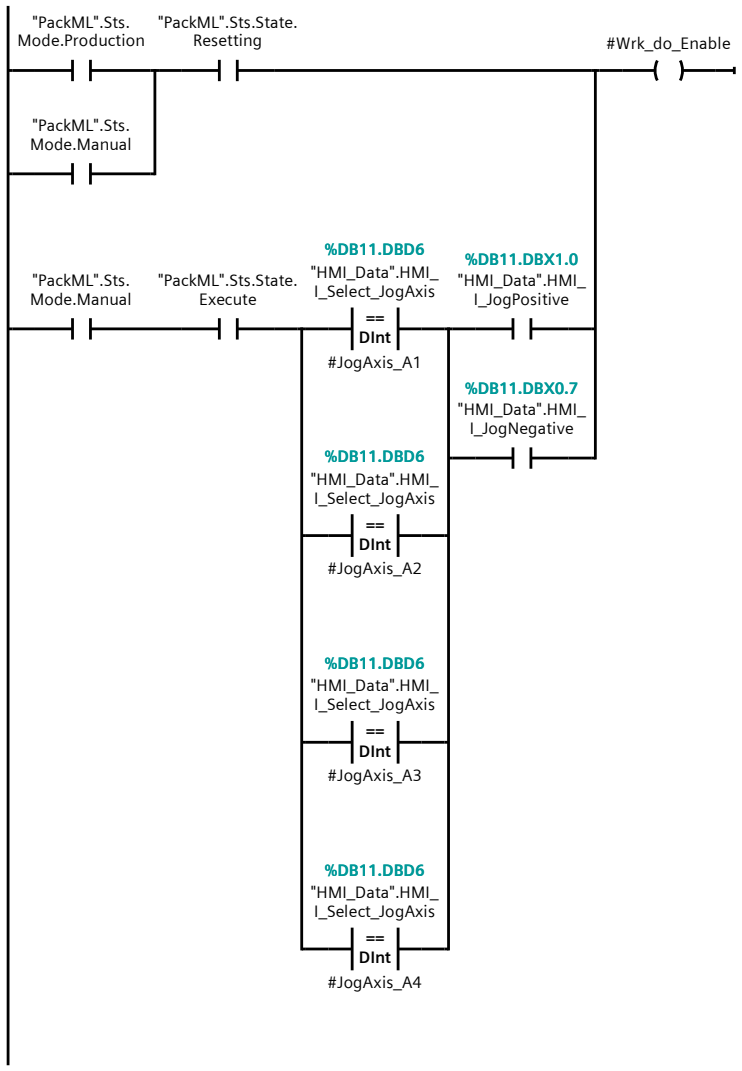
# DeltaSpiralConv [CPU 1515T-2 PN] / Program blocks / EM01_DeltaXYZR

## EM01_CM04_ServoKinObject [FB205]

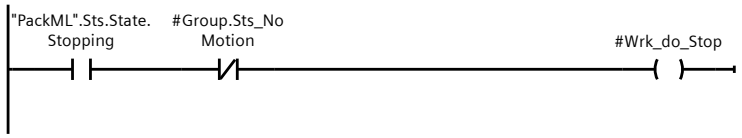
| EM01_CM04_ServoKinObject Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | EM01_CM04_ServoKinObject | **Number** | 205 | **Type** | FB |
| **Language** | LAD | **Numbering** | Manual | | |
| **Information** | | | | | |
| **Title** | Kinematics Servo Axis object | **Author** | | **Comment** | |
| **Family** | | **Version** | 0.1 | **User-defined ID** | |

| Name | Data type | Default value | Retain |
|---|---|---|---|
| ▼ Input | | | |
| JogAxis_A1 | DInt | 0 | Non-retain |
| JogAxis_A2 | DInt | 0 | Non-retain |
| JogAxis_A3 | DInt | 0 | Non-retain |
| JogAxis_A4 | DInt | 0 | Non-retain |
| Output | | | |
| ▼ InOut | | | |
| Ref_AxesGroup | TO_Kinematics | | |
| ▼ Static | | | |
| Group | "Axis_ObjectKin" | | |
| GroupStatusWord | DWord | 16#0 | Non-retain |
| Wrk_DisableDelay | TON_TIME | | Non-retain |
| Wrk_DisableDelay_IN | Bool | false | Non-retain |
| Wrk_do_Enable | Bool | false | Non-retain |
| Wrk_do_Home | Bool | false | Non-retain |
| Wrk_do_Stop | Bool | false | Non-retain |
| Wrk_do_Disable | Bool | false | Non-retain |
| Wrk_Temp_Bit | Bool | false | Non-retain |
| Temp | | | |
| Constant | | | |

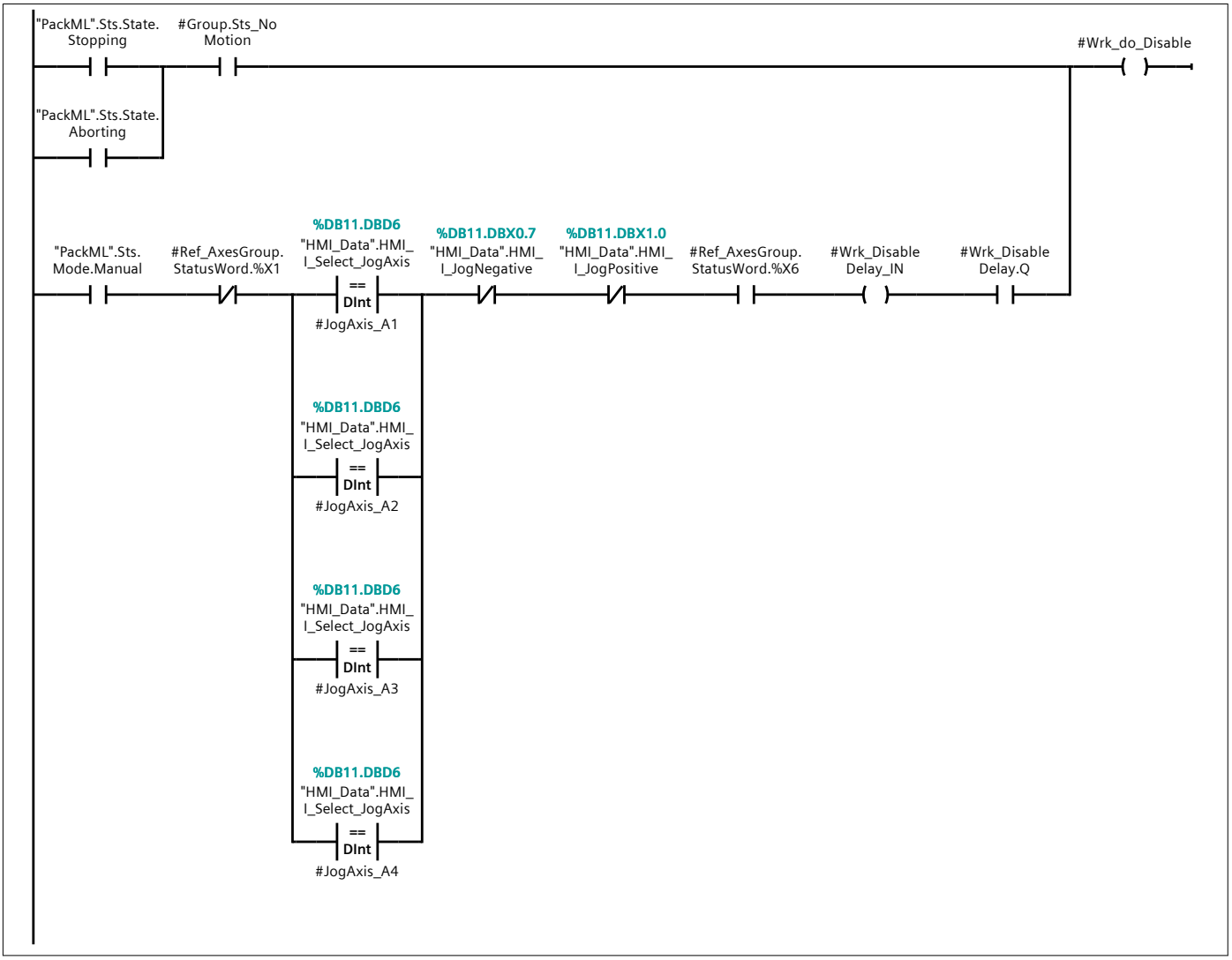
### Network 1: Enable logic for production only and manual (jogging)



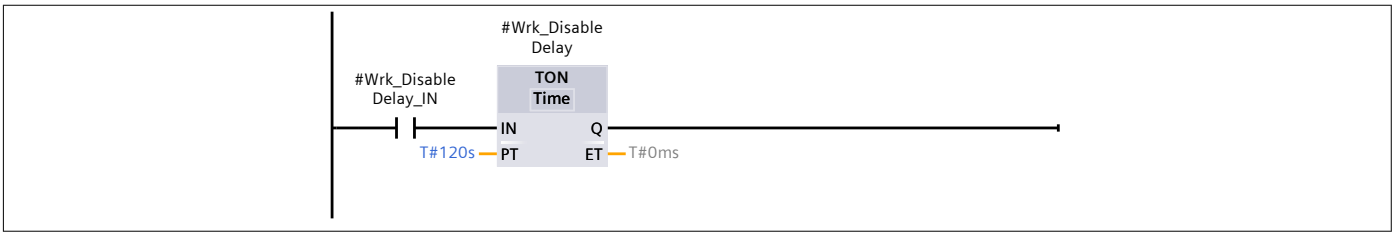

## Network 2: Stop logic



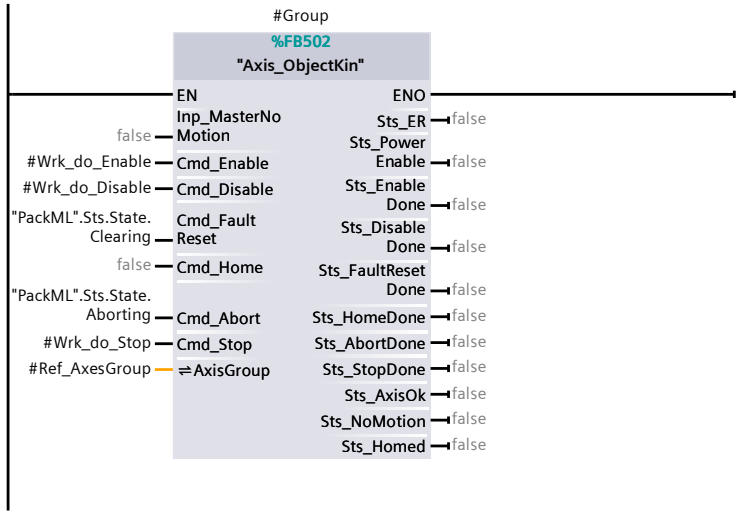

## Network 3: Do_Disable logic




## Network 4: Disable delay timer for manual mode - if no jogging for 2 min, disable axis




## Network 5:




## Network 6: END: Update the ENO Output. (DO NOT REMOVE. Must be last rung)

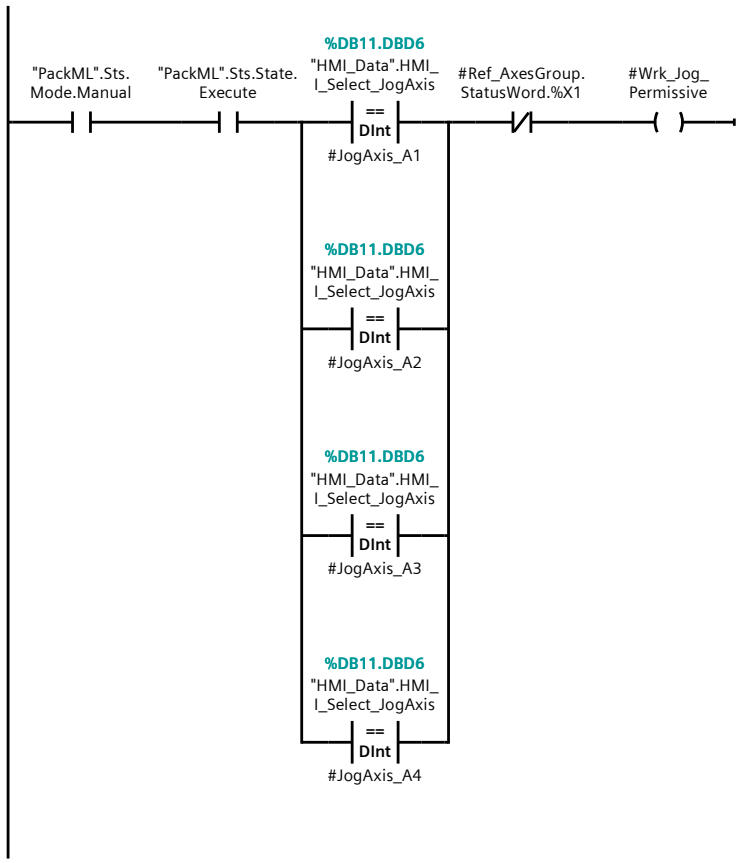
# DeltaSpiralConv [CPU 1515T-2 PN] / Program blocks / EM01_DeltaXYZR

## EM01_CM05_ServoKinJog [FB206]

| EM01_CM05_ServoKinJog Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | EM01_CM05_ServoKinJog | **Number** | 206 | **Type** | FB |
| **Language** | LAD | **Numbering** | Manual | | |
| **Information** | | | | | |
| **Title** | Jog servo axis in manual mode | **Author** | | **Comment** | |
| **Family** | | **Version** | 0.1 | **User-defined ID** | |

| Name | Data type | Default value | Retain |
|---|---|---|---|
| ▼ Input | | | |
| JogAxis_A1 | DInt | 0 | Non-retain |
| JogAxis_A2 | DInt | 0 | Non-retain |
| JogAxis_A3 | DInt | 0 | Non-retain |
| JogAxis_A4 | DInt | 0 | Non-retain |
| Speed | Real | 0.0 | Non-retain |
| Accel | Real | 0.0 | Non-retain |
| Decel | Real | 0.0 | Non-retain |
| Output | | | |
| ▼ InOut | | | |
| Ref_AxesGroup | TO_Kinematics | | |
| ▼ Static | | | |
| Sts_JogFault | Bool | false | Non-retain |
| Err_MC_ErrorID | Word | 16#0 | Non-retain |
| Wrk_Jog_Permissive | Bool | false | Non-retain |
| Wrk_MC_Move | MC_MOVELINEAR-RELATIVE | | |
| Wrk_MC_GroupStop | MC_GROUPSTOP | | |
| Wrk_MC_Move_Done | Bool | false | Non-retain |
| Wrk_MC_Move_Busy | Bool | false | Non-retain |
| Wrk_MC_Move_CommandAborted | Bool | false | Non-retain |
| Wrk_MC_Move_Error | Bool | false | Non-retain |
| Wrk_Move | Array[1..6] of LReal | | Non-retain |
| Permissive_Trans | Bool | false | Non-retain |
| Stop_Trans | Bool | false | Non-retain |
| Err_StopTrans | Bool | false | Non-retain |
| Err_MoveTrans | Bool | false | Non-retain |
| Trans_Param | Array[1..5] of LReal | | Non-retain |
| Temp | | | |
| Constant | | | |

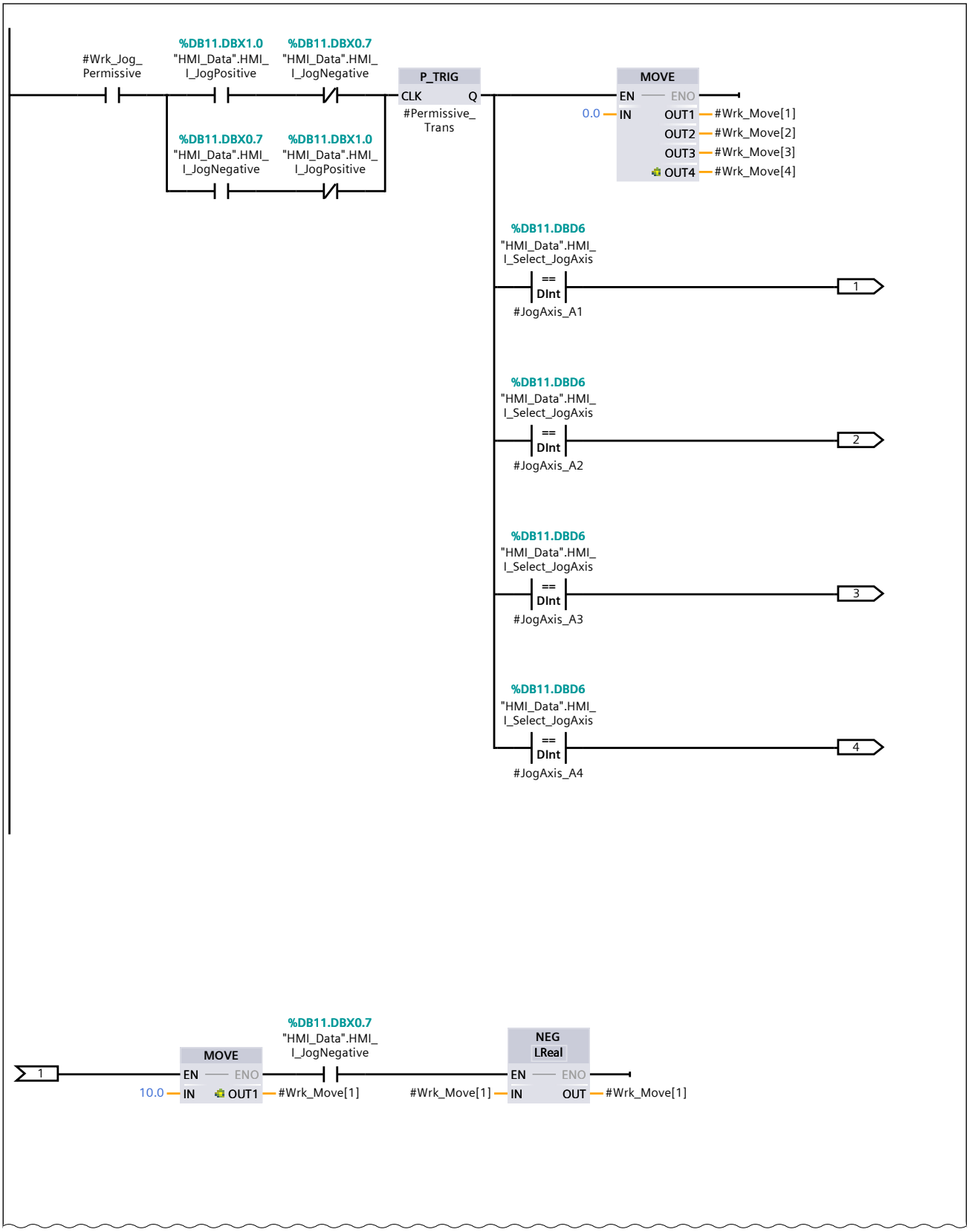
**Network 2: RELEASE JOG FUNCTION (-> SELECT EM NUMBER VIA HMI)**




## Network 3: Set move coordinates

When move command transitions on, clear all move coordinates. Set distance on axis to 10 units. Negate distance if jogging negative

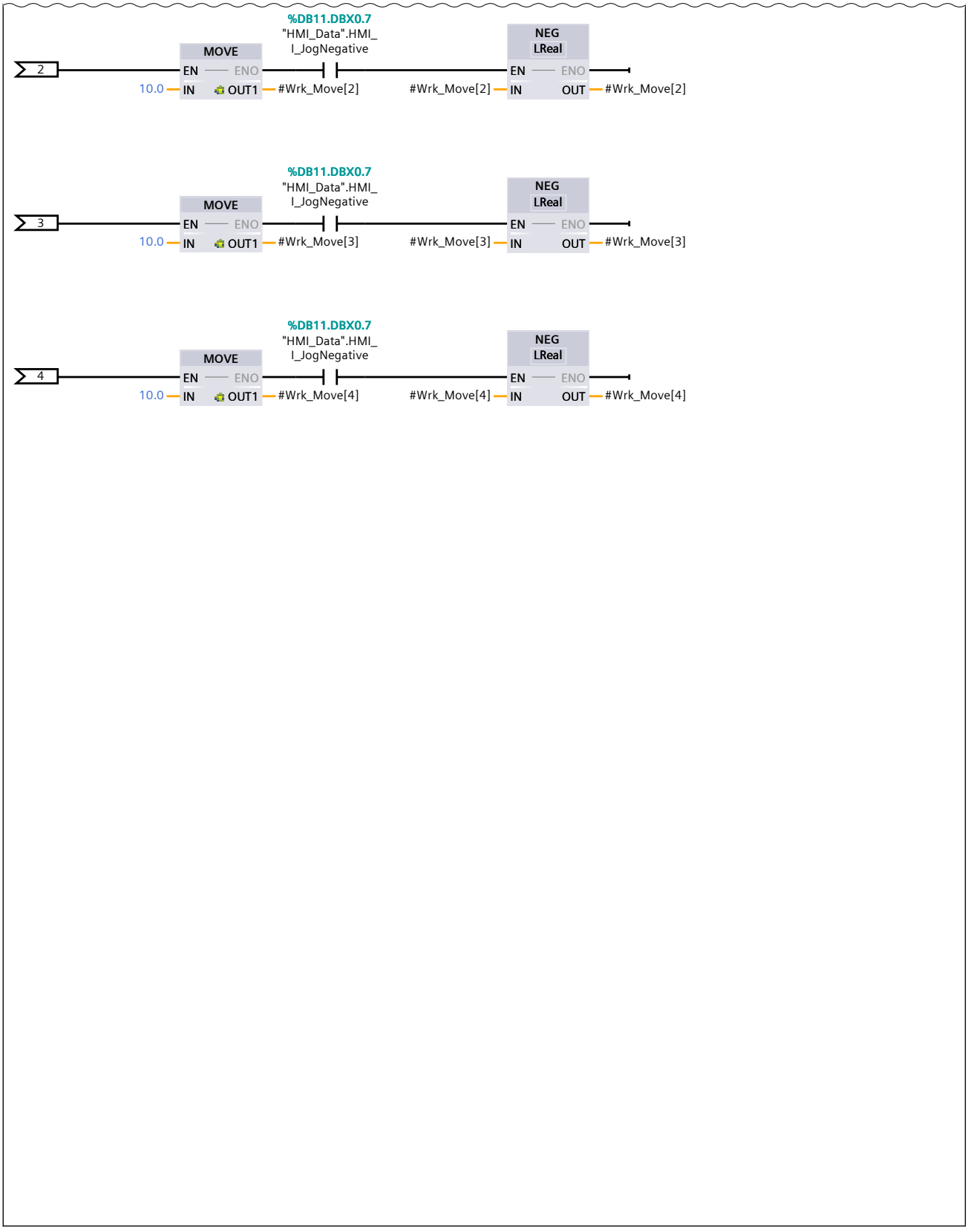
## Network 3: Set move coordinates (1.1 / 2.1)



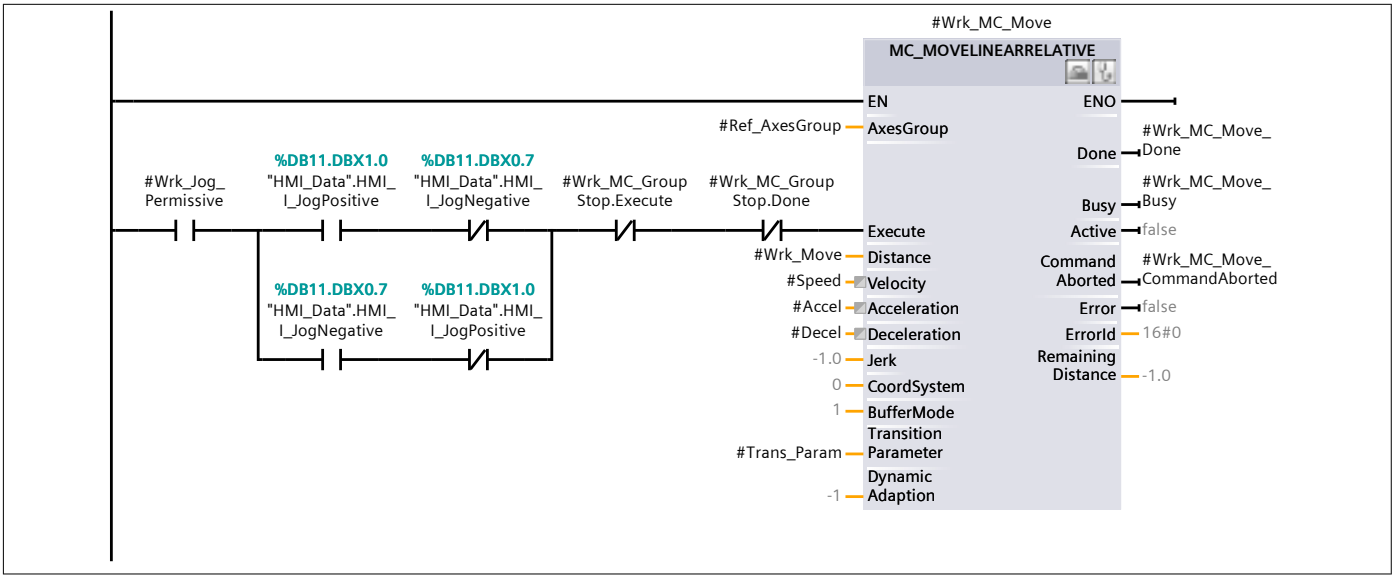

2.1 ( Page43 - 4)

## Network 3: Set move coordinates (2.1 / 2.1)

1.1 ( Page43 - 3)

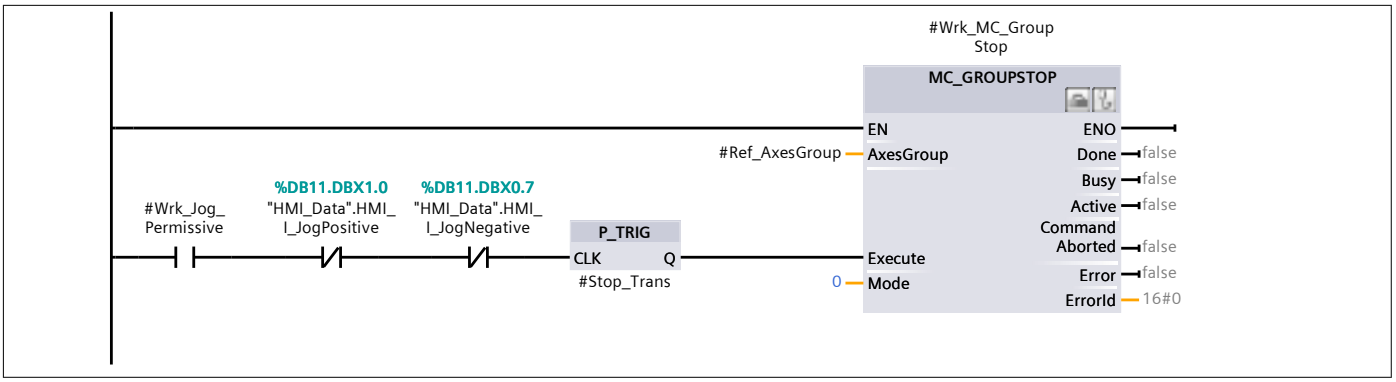


## Network 4: Use block to do a linear move along one axis

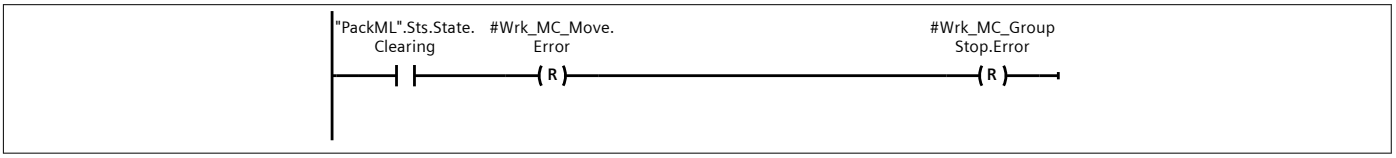



## Network 5: Stop axis

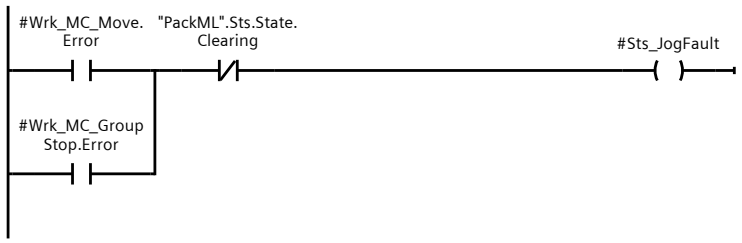
Stop if neither button pressed.



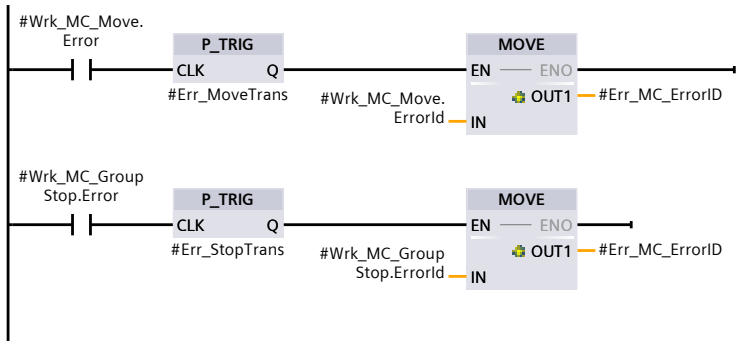

## Network 6: Fault Reset



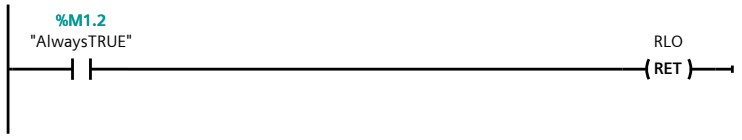

## Network 7:




## Network 8: Report errors




## Network 9: END: Update the ENO Output. (DO NOT REMOVE. Must be last rung)



# DeltaSpiralConv [CPU 1515T-2 PN] / Program blocks / EM01_DeltaXYZR

## CalcMoveDynamics [FC221]

| CalcMoveDynamics Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | CalcMoveDynamics | **Number** | 221 | **Type** | FC |
| **Language** | SCL | **Numbering** | Manual | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | 0.1 | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| ▼ Input | | |
| Coor | Array[1..6] of LReal | |
| MoveSpeed | LReal | |
| JerkTime | LReal | |
| ▼ Output | | |
| AccelDecel | LReal | |
| Jerk | LReal | |
| InOut | | |
| ▼ Temp | | |
| Distance | LReal | |
| Constant | | |
| ▼ Return | | |
| CalcMoveDynamics | Void | |

```
0001 // Calculate accel/decel and jerk based on move coordinates and jerk time in
     percent
0002 // For relative moves
0003 #Distance := SQRT(#Coor[1] ** 2 + #Coor[2] ** 2 + #Coor[3] ** 2);
0004 //
0005 #AccelDecel := (#MoveSpeed ** 2) / ((#JerkTime / 200.0) * #Distance);
0006 //
0007 #Jerk := ((#AccelDecel ** 2) / #MoveSpeed) * (200.0 / #JerkTime - 1);
0008
```

# DeltaSpiralConv [CPU 1515T-2 PN] / Program blocks / EM01_DeltaXYZR

## EM01_CalcNextSpiralPoint [FC222]

| EM01_CalcNextSpiralPoint Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | EM01_CalcNextSpiralPoint | **Number** | 222 | **Type** | FC |
| **Language** | SCL | **Numbering** | Manual | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | 0.1 | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| ▼ Input | | |
| RadiusEnd | Real | |
| NumRevs | Real | |
| NumPoints | Int | |
| Index | Int | |
| SpiralOrigin | Array[1..6] of LReal | |
| ▼ Output | | |
| MoveAbsolute | Array[1..6] of LReal | |
| MoveRelative | Array[1..6] of LReal | |
| RDistance | Real | |
| InOut | | |
| ▼ Temp | | |
| i | Int | |
| NumOfPoints | Int | |
| R | LReal | |
| pi | LReal | |
| Theta | LReal | |
| SpiralEndRadius | LReal | |
| NumOfRevs | LReal | |
| NextX | LReal | |
| NextY | LReal | |
| PrevTheta | LReal | |
| PrevX | LReal | |
| PrevY | LReal | |
| Constant | | |
| ▼ Return | | |
| EM01_CalcNextSpiralPoint | Void | |

```
0001 // Generate spiral move point in absolute units for X and Y coordinates
0002 // Also calculate difference from previous point for jerk calculation.
0003 // Basically linear segments.
0004 // Position units are assumed in mm
0005 //
0006 #pi := 3.14156;
0007 //
0008 // Copy inputs and range-check
```

```
0009 #SpiralEndRadius := #RadiusEnd;
0010 IF #SpiralEndRadius > 1000.0 THEN
0011   #SpiralEndRadius := 1000.0;
0012 END_IF;
0013
0014 #NumOfRevs := #NumRevs;
0015 IF #NumOfRevs <= 0.0 THEN
0016   #NumOfRevs := 1.0;
0017 END_IF;
0018
0019 #NumOfPoints := #NumPoints;
0020 IF #NumOfPoints < 5 THEN
0021   #NumOfPoints := 5;
0022 END_IF;
0023 IF #NumOfPoints > 1000 THEN
0024   #NumOfPoints := 1000;
0025 END_IF;
0026
0027 #i := #Index;
0028 IF #i < 1 THEN
0029   #i := 1;
0030 END_IF;
0031 IF #i > #NumOfPoints THEN
0032   #i := #NumOfPoints;
0033 END_IF;
0034
0035 #R := #SpiralEndRadius / (2.0*#pi*#NumOfRevs);
0036
0037 #PrevTheta := (#i - 1) * (2 * #NumOfRevs * #pi) / #NumOfPoints;
0038 #PrevX := #R * #PrevTheta * COS(#PrevTheta);
0039 #PrevY := #R * #PrevTheta * SIN(#PrevTheta);
0040
0041 #Theta := (#i) * (2*#NumOfRevs * #pi) / #NumOfPoints;
0042 #NextX := #R * #Theta * COS(#Theta);
0043 #NextY := #R * #Theta * SIN(#Theta);
0044
0045 // Move is absolute, so calculate point X and Y based on spiral origin
0046 #MoveAbsolute[1] := #SpiralOrigin[1] + #NextX;
0047 #MoveAbsolute[2] := #SpiralOrigin[2] + #NextY;
0048 #MoveAbsolute[3] := #SpiralOrigin[3];
0049 #MoveAbsolute[4] := #SpiralOrigin[4];
0050 //
0051 // Calculate relative x and y distances for jerk calculations
0052 #MoveRelative[1] := #NextX - #PrevX;
0053 #MoveRelative[2] := #NextY - #PrevY;
0054 #MoveRelative[3] := 0.0;
0055 #MoveRelative[4] := 0.0;
0056 //
0057 // Rounding distance should be no greater than one fourth of the distance
0058 #RDistance := 0.25*(SQRT(SQR(#MoveRelative[1]) + SQR(#MoveRelative[2])));
0059 //
```

# DeltaSpiralConv [CPU 1515T-2 PN] / Program blocks / LPMLV30

## LPMLV30_ConfigureDisabledStates [FC30101]

| LPMLV30_ConfigureDisabledStates Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | LPMLV30_ConfigureDisa-bledStates | **Number** | 30101 | **Type** | FC |
| **Language** | SCL | **Numbering** | Automatic | | |
| **Information** | | | | | |
| **Title** | LPMLV30_ConfigureDisa-bledStates | **Author** | APC_ERLF | **Comment** | Support: tech.team.mo-tioncontrol@siemens.com Fax: +49 (0) 9131/98-1297 |
| **Family** | OMAC | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| ▼ Input | | |
| HoldingDisable | Bool | |
| HeldDisable | Bool | |
| UnholdingDisable | Bool | |
| SuspendingDisable | Bool | |
| SuspendedDisable | Bool | |
| UnsuspendingDisable | Bool | |
| CompletingDisable | Bool | |
| CompleteDisable | Bool | |
| ▼ Output | | |
| disabledStates | DInt | |
| InOut | | |
| Temp | | |
| ▼ Constant | | |
| DISABLE_ALL_STATES | DWord | 16#FFFF_FFFF |
| ▼ Return | | |
| LPMLV30_ConfigureDisabledStates | Void | |

```
0001 //
     ============================================================================
     ============================
0002 // SIEMENS AG
0003 // (c)Copyright 2015 All Rights Reserved
0004 //----------------------------------------------------------------------------
     ----------------------------
0005 // Library: LPMLV30
0006 // Tested with: S7-1200 with FW version V4.1, S7-1500 with FW version V1.7
0007 // Engineering: TIA Portal V13 SP1
0008 // Restrictions: ---
0009 // Requirements: S7-1200 / S7-1500
0010 // Functionality: The function generates a double integer value which represents
     the state configuration
0011 // for one unit mode.
```

```
0012 //-----------------------------------------------------------------------------
     ----------------------------
0013 // Change log table:
0014 // Version Date Expert in charge Changes applied
0015 // 03.00.01 29.05.2015 RK First released version
0016 //
     ============================================================================
     ============================
0017 // Function: LPMLV30_ConfigureDisabledStates
0018 //
     ============================================================================
     ============================
0019
0020 #disabledStates := DWORD_TO_DINT(#DISABLE_ALL_STATES);
0021
0022 #disabledStates.%X0  := FALSE; // Undefined state is mandatory
0023 #disabledStates.%X1  := FALSE; // Clearing state is mandatory
0024 #disabledStates.%X2  := FALSE; // Stopped state is mandatory
0025 #disabledStates.%X3  := FALSE; // Starting state is mandatory
0026 #disabledStates.%X4  := FALSE; // Idle state is mandatory
0027 #disabledStates.%X5  := #SuspendedDisable;
0028 #disabledStates.%X6  := FALSE; // Execute state is mandatory
0029 #disabledStates.%X7  := FALSE; // Stopping state is mandatory
0030 #disabledStates.%X8  := FALSE; // Aborting state is mandatory
0031 #disabledStates.%X9  := FALSE; // Aborted state is mandatory
0032 #disabledStates.%X10 := #HoldingDisable;
0033 #disabledStates.%X11 := #HeldDisable;
0034 #disabledStates.%X12 := #UnholdingDisable;
0035 #disabledStates.%X13 := #SuspendingDisable;
0036 #disabledStates.%X14 := #UnsuspendingDisable;
0037 #disabledStates.%X15 := FALSE; // Resetting state is mandatory
0038 #disabledStates.%X16 := #CompletingDisable;
0039 #disabledStates.%X17 := #CompleteDisable;
0040
0041 //
     ============================================================================
     ============================
0042 // End of function: LPMLV30_ConfigureDisabledStates
0043 //
     ============================================================================
     ============================
```

# DeltaSpiralConv [CPU 1515T-2 PN] / Program blocks / LPMLV30

## LPMLV30_ConfigureDisabledUnitModes [FC30100]

| LPMLV30_ConfigureDisabledUnitModes Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | LPMLV30_ConfigureDisabledUnitModes | **Number** | 30100 | **Type** | FC |
| **Language** | SCL | **Numbering** | Automatic | | |
| **Information** | | | | | |
| **Title** | LPMLV30_ConfigureDisabledUnitModes | **Author** | APC_ERLF | **Comment** | Support: tech.team.motioncontrol@siemens.com Fax: +49 (0) 9131/98-1297 |
| **Family** | OMAC | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| ▼ Input | | |
| ProductionModeDisable | Bool | |
| MaintenanceModeDisable | Bool | |
| UserMode01Disable | Bool | |
| UserMode02Disable | Bool | |
| UserMode03Disable | Bool | |
| UserMode04Disable | Bool | |
| UserMode05Disable | Bool | |
| UserMode06Disable | Bool | |
| UserMode07Disable | Bool | |
| UserMode08Disable | Bool | |
| ▼ Output | | |
| disabledUnitModes | Array[0.."LPMLV30_MAX_MODES_UPPER_LIM"] of Bool | |
| InOut | | |
| ▼ Temp | | |
| tempI | Int | |
| Constant | | |
| ▼ Return | | |
| LPMLV30_ConfigureDisabledUnitModes | Void | |

```
0001 //
     ============================================================================================
     ============================
0002 // SIEMENS AG
0003 // (c)Copyright 2015 All Rights Reserved
0004 //--------------------------------------------------------------------------------
     ----------------------------
0005 // Library: LPMLV30
0006 // Tested with: S7-1200 with FW version V4.1, S7-1500 with FW version V1.7
0007 // Engineering: TIA Portal V13 SP1
```

```
0008 // Restrictions: ---
0009 // Requirements: S7-1200 / S7-1500
0010 // Functionality: The function generates the unit mode configuration as Array[] of Bool.
0011 //-----------------------------------------------------------------------------------------------
0012 // Change log table:
0013 // Version Date Expert in charge Changes applied
0014 // 03.00.01 29.05.2015 RK First released version
0015 //
     ================================================================================================
0016 // Function: LPMLV30_ConfigureDisabledUnitModes
0017 //
     ================================================================================================
0018
0019 // Initialize unitMode configuration
0020 FOR #tempI := 0 TO "LPMLV30_MAX_MODES_UPPER_LIM" DO
0021   #disabledUnitModes[#tempI] := TRUE;
0022 END_FOR;
0023
0024 // Set unitMode configuration
0025 #disabledUnitModes["LPMLV30_MODE_INVALID"]      := FALSE;
0026 #disabledUnitModes["LPMLV30_MODE_PRODUCTION"]   := #ProductionModeDisable;
0027 #disabledUnitModes["LPMLV30_MODE_MAINTENANCE"] := #MaintenanceModeDisable;
0028 #disabledUnitModes["LPMLV30_MODE_MANUAL"]       := FALSE;
0029 #disabledUnitModes["LPMLV30_MODE_USER_01"]      := #UserMode01Disable;
0030 #disabledUnitModes["LPMLV30_MODE_USER_02"]      := #UserMode02Disable;
0031 #disabledUnitModes["LPMLV30_MODE_USER_03"]      := #UserMode03Disable;
0032 #disabledUnitModes["LPMLV30_MODE_USER_04"]      := #UserMode04Disable;
0033 #disabledUnitModes["LPMLV30_MODE_USER_05"]      := #UserMode05Disable;
0034 #disabledUnitModes["LPMLV30_MODE_USER_06"]      := #UserMode06Disable;
0035 #disabledUnitModes["LPMLV30_MODE_USER_07"]      := #UserMode07Disable;
0036 #disabledUnitModes["LPMLV30_MODE_USER_08"]      := #UserMode08Disable;
0037
0038 //
     ================================================================================================
0039 // End of function: LPMLV30_ConfigureDisabledUnitModes
0040 //
     ================================================================================================
```

# DeltaSpiralConv [CPU 1515T-2 PN] / Program blocks / LPMLV30

## LPMLV30_GetUnitModeStateNamesAsString [FC30102]

| LPMLV30_GetUnitModeStateNamesAsString Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | LPMLV30_GetUnitModeS-tateNamesAsString | **Number** | 30102 | **Type** | FC |
| **Language** | SCL | **Numbering** | Automatic | | |
| **Information** | | | | | |
| **Title** | LPMLV30_GetUnitModeS-tateNamesAsString | **Author** | APC_ERLF | **Comment** | Support: tech.team.mo-tioncontrol@siemens.com Fax: +49 (0) 9131/98-1297 |
| **Family** | OMAC | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| ▼ Input | | |
| UnitModeCurrent | DInt | |
| StateCurrent | DInt | |
| language | Int | |
| namesConfiguration | "typeLPMLV30_Name-sConfiguration" | |
| ▼ Output | | |
| unitModeCurrentName | String | |
| stateCurrentName | String | |
| InOut | | |
| ▼ Temp | | |
| tempUnitModeCurrent | DInt | |
| tempStateCurrent | DInt | |
| tempLanguage | Int | |
| Constant | | |
| ▼ Return | | |
| LPMLV30_GetUnitModeStateNamesAsString | Void | |

```
0001 //
     ============================================================================
     ============================
0002 // SIEMENS AG
0003 // (c)Copyright 2015 All Rights Reserved
0004 //----------------------------------------------------------------------------
     ----------------------------
0005 // Library: LPMLV30
0006 // Tested with: S7-1200 with FW version V4.1, S7-1500 with FW version V1.7
0007 // Engineering: TIA Portal V13 SP1
0008 // Restrictions: ---
0009 // Requirements: S7-1200 / S7-1500
0010 // Functionality: Gets the names for current unit mode and state in one language
0011 // corresponding to the names configuration
0012 //----------------------------------------------------------------------------
     ----------------------------
```

```
0013 // Change log table:
0014 // Version Date Expert in charge Changes applied
0015 // 03.00.01 29.05.2015 RK First released version
0016 //
     ================================================================================
     ============================
0017 // Function: LPMLV30_GetUnitModeStateNamesAsString
0018 //
     ================================================================================
     ============================
0019
0020 #tempUnitModeCurrent := #UnitModeCurrent;
0021 #tempStateCurrent    := #StateCurrent;
0022 #tempLanguage        := #language;
0023
0024 IF #tempUnitModeCurrent < 0 OR #tempUnitModeCurrent > "LPMLV30_MODES_UP-
     PER_LIM" THEN
0025   #tempUnitModeCurrent := "LPMLV30_MODE_INVALID";
0026 END_IF;
0027 IF #tempStateCurrent < 0 OR #tempStateCurrent > "LPMLV30_STATES_UPPER_LIM" THEN
0028   #tempStateCurrent := "LPMLV30_STATE_UNDEFINED";
0029 END_IF;
0030 IF #tempLanguage < 0 OR #tempLanguage > "LPMLV30_LANGUAGES_UPPER_LIM" THEN
0031   #tempLanguage := "LPMLV30_LANGUAGE_1";
0032 END_IF;
0033
0034 #unitModeCurrentName := #namesConfiguration.unitModesNames[#tempLanguage, #tempU-
     nitModeCurrent];
0035 #stateCurrentName    := #namesConfiguration.statesNames[#tempLanguage, #tempSta-
     teCurrent];
0036
0037 //
     ================================================================================
     ============================
0038 // End of function: LPMLV30_GetUnitModeStateNamesAsString
0039 //
     ================================================================================
     ============================
```

# DeltaSpiralConv [CPU 1515T-2 PN] / Program blocks / LPMLV30

## LPMLV30_UnitModeStateManager [FB30100]

| LPMLV30_UnitModeStateManager Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | LPMLV30_UnitModeState-Manager | **Number** | 30100 | **Type** | FB |
| **Language** | SCL | **Numbering** | Automatic | | |
| **Information** | | | | | |
| **Title** | LPMLV30_UnitModeState-Manager | **Author** | APC_ERLF | **Comment** | Support: tech.team.mo-tioncontrol@siemens.com Fax: +49 (0) 9131/98-1297 |
| **Family** | OMAC | **Version** | | **User-defined ID** | |

| Name | Data type | Default value | Retain |
|---|---|---|---|
| ▼ Input | | | |
| UnitMode | DInt | "LPMLV30_MODE_INVALID" | Non-retain |
| UnitModeChangeRequest | Bool | false | Non-retain |
| CntrlCmd | DInt | "LPMLV30_CMD_UNDEFINED" | Non-retain |
| CmdChangeRequest | Bool | false | Non-retain |
| enableBooleanInterface | Bool | false | Non-retain |
| ProductionModeRequest | Bool | false | Non-retain |
| MaintenanceModeRequest | Bool | false | Non-retain |
| ManualModeRequest | Bool | false | Non-retain |
| UserMode01Request | Bool | false | Non-retain |
| UserMode02Request | Bool | false | Non-retain |
| UserMode03Request | Bool | false | Non-retain |
| UserMode04Request | Bool | false | Non-retain |
| UserMode05Request | Bool | false | Non-retain |
| UserMode06Request | Bool | false | Non-retain |
| UserMode07Request | Bool | false | Non-retain |
| UserMode08Request | Bool | false | Non-retain |
| ResetCmdRequest | Bool | false | Non-retain |
| StartCmdRequest | Bool | false | Non-retain |
| StopCmdRequest | Bool | false | Non-retain |
| HoldCmdRequest | Bool | false | Non-retain |
| UnholdCmdRequest | Bool | false | Non-retain |
| SuspendCmdRequest | Bool | false | Non-retain |
| UnsuspendCmdRequest | Bool | false | Non-retain |
| AbortCmdRequest | Bool | false | Non-retain |
| ClearCmdRequest | Bool | false | Non-retain |
| CompleteCmdRequest | Bool | false | Non-retain |
| SC | Bool | false | Non-retain |
| configuration | "typeLPMLV30_Configuration" | | Non-retain |
| ▼ Output | | | |
| UnitModeCurrent | DInt | "LPMLV30_MODE_MANUAL" | Non-retain |

| Name | Data type | Default value | Retain |
|---|---|---|---|
| UnitModeRequested | DInt | 0 | Non-retain |
| UnitModeChangeInProcess | Bool | false | Non-retain |
| StateCurrent | DInt | "LPMLV30_STATE_STOPPED" | Non-retain |
| StateRequested | DInt | 0 | Non-retain |
| StateChangeInProcess | Bool | false | Non-retain |
| ProductionModeActive | Bool | false | Non-retain |
| MaintenanceModeActive | Bool | false | Non-retain |
| ManualModeActive | Bool | false | Non-retain |
| UserMode01Active | Bool | false | Non-retain |
| UserMode02Active | Bool | false | Non-retain |
| UserMode03Active | Bool | false | Non-retain |
| UserMode04Active | Bool | false | Non-retain |
| UserMode05Active | Bool | false | Non-retain |
| UserMode06Active | Bool | false | Non-retain |
| UserMode07Active | Bool | false | Non-retain |
| UserMode08Active | Bool | false | Non-retain |
| ClearingStateActive | Bool | false | Non-retain |
| StoppedStateActive | Bool | false | Non-retain |
| StartingStateActive | Bool | false | Non-retain |
| IdleStateActive | Bool | false | Non-retain |
| SuspendedStateActive | Bool | false | Non-retain |
| ExecuteStateActive | Bool | false | Non-retain |
| StoppingStateActive | Bool | false | Non-retain |
| AbortingStateActive | Bool | false | Non-retain |
| AbortedStateActive | Bool | false | Non-retain |
| HoldingStateActive | Bool | false | Non-retain |
| HeldStateActive | Bool | false | Non-retain |
| UnholdingStateActive | Bool | false | Non-retain |
| SuspendingStateActive | Bool | false | Non-retain |
| UnsuspendingStateActive | Bool | false | Non-retain |
| ResettingStateActive | Bool | false | Non-retain |
| CompletingStateActive | Bool | false | Non-retain |
| CompleteStateActive | Bool | false | Non-retain |
| StatesDisabled | DInt | 0 | Non-retain |
| diagnostics | "typeLPMLV30_Di-agnostics" | | Non-retain |
| InOut | | | |
| ▼ Static | | | |
| statConfiguration | "typeLPMLV30_Con figuration" | | Non-retain |
| statUnitModeChangeRequest | Bool | false | Non-retain |
| statCmdChangeRequest | Bool | false | Non-retain |
| statFirstCycle | Bool | true | Non-retain |
| statSCOld | Bool | false | Non-retain |
| statUnitMode | DInt | "LPMLV30_MODE_MANUAL" | Non-retain |
| statUnitModeOld | DInt | "LPMLV30_MODE_MANUAL" | Non-retain |
| statUnitModeCurrentInternal | DInt | "LPMLV30_MODE_MANUAL" | Non-retain |
| statUnitModeCurrentInternalOld | DInt | "LPMLV30_MODE_INVALID" | Non-retain |
| statStateCurrentOld | DInt | "LPMLV30_STATE_STOPPED" | Non-retain |

| Name | Data type | Default value | Retain |
|---|---|---|---|
| statStateInternal | DInt | "LPMLV30_STATE_STOPPED" | Non-retain |
| statStateInternalOld | DInt | "LPMLV30_STATE_UNDEFINED" | Non-retain |
| statCntrlCmdOld | DInt | "LPMLV30_CMD_UNDEFINED" | Non-retain |
| statStatesInCurrentMode | Struct | | Non-retain |
| statBooleanInterfaceModeOld | DWord | 16#0 | Non-retain |
| statBooleanInterfaceCmdOld | Word | 16#0 | Non-retain |
| statCmdChangeRequestOld | Bool | false | Non-retain |
| statUnitModeChangeRequestOld | Bool | false | Non-retain |
| ▼ Temp | | | |
| tempCntrlCmd | DInt | | |
| tempBooleanInterfaceMode | DWord | | |
| tempBooleanInterfaceCmd | Word | | |
| tempSCInternal | Bool | | |
| tempRetVal | Int | | |
| tempDiagnosticsBufferIndex | Int | | |
| tempDiagnosticsBufferIndexSC | Int | | |
| tempDiagnosticsBufferIndexCmd | Int | | |
| ▼ Constant | | | |
| MSG_NO_MESSAGE | Byte | 16#00 | |
| MSG_MODE_CHANGED_SUCCESSFUL-LY | Byte | 16#01 | |
| MSG_STATE_CHANGED_SUCCESSFUL-LY | Byte | 16#02 | |
| MSG_MODE_ALREADY_ACTIVE | Byte | 16#03 | |
| MSG_MODE_NOT_DEFINED | Byte | 16#80 | |
| MSG_CMD_NOT_DEFINED | Byte | 16#81 | |
| MSG_REQ_MODE_NOT_CONFIGURED | Byte | 16#82 | |
| MSG_MODE_TRANSITION_NOT_AL-LOWED | Byte | 16#83 | |
| MSG_CMD_NOT_ALLOWED | Byte | 16#84 | |
| MSG_SC_NOT_ALLOWED | Byte | 16#85 | |
| MSG_STATE_CONFIG_FORCED | Byte | 16#86 | |

```
0001 //
     ============================================================================
     ============================
0002 // SIEMENS AG
0003 // (c)Copyright 2015 All Rights Reserved
0004 //----------------------------------------------------------------------------
     ----------------------------
0005 // Library: LPMLV30
0006 // Tested with: S7-1200 with FW version V4.1, S7-1500 with FW version V1.7
0007 // Engineering: TIA Portal V13 SP1
0008 // Restrictions: ---
0009 // Requirements: S7-1200 / S7-1500
0010 // Functionality: Management of unit modes and states according to ISA
     TR88.00.02 - June 4, 2014
0011 //----------------------------------------------------------------------------
     ----------------------------
0012 // Change log table:
0013 // Version Date Expert in charge Changes applied
```

```
0014 // 03.00.01 29.05.2015 RK First released version
0015 //
     ================================================================================
     ============================
0016 // Function block: LPMLV30_UnitModeStateManager
0017 //
     ================================================================================
     ============================
0018
0019 IF NOT #statCmdChangeRequest AND #statCmdChangeRequestOld THEN // Falling edge
     CmdChangeRequest
0020   #statCntrlCmdOld := "LPMLV30_CMD_UNDEFINED";
0021 END_IF;
0022 #statCmdChangeRequestOld := #statCmdChangeRequest;
0023
0024 IF NOT #statUnitModeChangeRequest AND #statUnitModeChangeRequestOld THEN // Fall-
     ing edge UnitModeChangeRequest
0025   #statUnitModeOld := "LPMLV30_MODE_INVALID";
0026 END_IF;
0027 #statUnitModeChangeRequestOld := #statUnitModeChangeRequest;
0028
0029 #tempDiagnosticsBufferIndex    := #diagnostics.bufferIndex; // Work with tempora-
     ry variable during block execution
0030 #tempDiagnosticsBufferIndexSC  := -1;
0031 #tempDiagnosticsBufferIndexCmd := -1;
0032
0033 IF #statFirstCycle THEN // Initialize values in first cycle
0034   #tempDiagnosticsBufferIndex := -1;
0035
0036   #statConfiguration := #configuration; // Copy configuration from input
0037   #statConfiguration.disabledUnitModes["LPMLV30_MODE_MANUAL"] := FALSE; // Unit
     mode Manual is mandatory
0038
0039   // Initialize unit mode
0040   #statUnitMode                    := "LPMLV30_MODE_MANUAL";
0041   #statUnitModeOld                 := "LPMLV30_MODE_MANUAL";
0042   #UnitModeCurrent                 := "LPMLV30_MODE_MANUAL";
0043   #statUnitModeCurrentInternal     := "LPMLV30_MODE_MANUAL";
0044   #statUnitModeCurrentInternalOld := "LPMLV30_MODE_INVALID";
0045   #statBooleanInterfaceModeOld     := 0;
0046
0047   // Initialize state
0048   #StateCurrent          := "LPMLV30_STATE_STOPPED";
0049   #StateRequested        := "LPMLV30_STATE_STOPPED";
0050   #statStateInternal     := "LPMLV30_STATE_STOPPED";
0051   #statStateInternalOld := "LPMLV30_STATE_UNDEFINED";
0052   #statStateCurrentOld   := "LPMLV30_STATE_STOPPED";
0053
0054   // Initialize control command
0055   #tempCntrlCmd                := "LPMLV30_CMD_UNDEFINED";
0056   #statCntrlCmdOld             := "LPMLV30_CMD_UNDEFINED";
0057   #statBooleanInterfaceCmdOld := 0;
0058 END_IF; // End: Initialize values in first cycle
0059
```

```
0060 //-----------------------------------------------------------------------------
     ------------------
0061 // Evaluation of input parameters -> UnitMode, CntrlCmd
0062 //-----------------------------------------------------------------------------
     ------------------
0063 IF NOT #statFirstCycle THEN // As from second cycle
0064   IF NOT #enableBooleanInterface THEN // Set unit mode and control command ac-
     cording to input parameters
0065   #statUnitMode := #UnitMode;
0066   #tempCntrlCmd := #CntrlCmd;
0067
0068   // Set change requests from input
0069   #statUnitModeChangeRequest := #UnitModeChangeRequest;
0070   #statCmdChangeRequest      := #CmdChangeRequest;
0071   ELSE // Read boolean interface inputs
0072   #statUnitModeChangeRequest := TRUE; // Change request static TRUE
0073   #statUnitMode              := "LPMLV30_MODE_INVALID";
0074   #tempBooleanInterfaceMode  := 0;
0075
0076   // Collect unit mode from boolean inputs
0077   #tempBooleanInterfaceMode.%X1  := #ProductionModeRequest;
0078   #tempBooleanInterfaceMode.%X2  := #MaintenanceModeRequest;
0079   #tempBooleanInterfaceMode.%X3  := #ManualModeRequest;
0080   #tempBooleanInterfaceMode.%X4  := #UserMode01Request;
0081   #tempBooleanInterfaceMode.%X5  := #UserMode02Request;
0082   #tempBooleanInterfaceMode.%X6  := #UserMode03Request;
0083   #tempBooleanInterfaceMode.%X7  := #UserMode04Request;
0084   #tempBooleanInterfaceMode.%X8  := #UserMode05Request;
0085   #tempBooleanInterfaceMode.%X9  := #UserMode06Request;
0086   #tempBooleanInterfaceMode.%X10 := #UserMode07Request;
0087   #tempBooleanInterfaceMode.%X11 := #UserMode08Request;
0088   // #tempBooleanInterfaceMode.%X12 := #UserMode09Request;
0089   // #tempBooleanInterfaceMode.%X13 := #UserMode10Request;
0090   // #tempBooleanInterfaceMode.%X14 := #UserMode11Request;
0091   // #tempBooleanInterfaceMode.%X15 := #UserMode12Request;
0092   // #tempBooleanInterfaceMode.%X16 := #UserMode13Request;
0093   // #tempBooleanInterfaceMode.%X17 := #UserMode14Request;
0094   // #tempBooleanInterfaceMode.%X18 := #UserMode15Request;
0095   // #tempBooleanInterfaceMode.%X19 := #UserMode16Request;
0096   // #tempBooleanInterfaceMode.%X20 := #UserMode17Request;
0097   // #tempBooleanInterfaceMode.%X21 := #UserMode18Request;
0098   // #tempBooleanInterfaceMode.%X22 := #UserMode19Request;
0099   // #tempBooleanInterfaceMode.%X23 := #UserMode20Request;
0100   // #tempBooleanInterfaceMode.%X24 := #UserMode21Request;
0101   // #tempBooleanInterfaceMode.%X25 := #UserMode22Request;
0102   // #tempBooleanInterfaceMode.%X26 := #UserMode23Request;
0103   // #tempBooleanInterfaceMode.%X27 := #UserMode24Request;
0104   // #tempBooleanInterfaceMode.%X28 := #UserMode25Request;
0105   // #tempBooleanInterfaceMode.%X29 := #UserMode26Request;
0106   // #tempBooleanInterfaceMode.%X30 := #UserMode27Request;
0107   // #tempBooleanInterfaceMode.%X31 := #UserMode28Request;
0108
0109   // Selection indicator: Rising edge at input, Priority (in case of multiple
     selection): Manual, Maintenance, User Mode 01..28, Production
```

```
0110    IF #tempBooleanInterfaceMode.%X3  AND NOT #statBooleanInterfaceMo-
      deOld.%X3  THEN
0111      #statUnitMode := "LPMLV30_MODE_MANUAL";
0112    ELSIF #tempBooleanInterfaceMode.%X2  AND NOT #statBooleanInterfaceMo-
      deOld.%X2  THEN
0113      #statUnitMode := "LPMLV30_MODE_MAINTENANCE";
0114    ELSIF #tempBooleanInterfaceMode.%X4  AND NOT #statBooleanInterfaceMo-
      deOld.%X4  THEN
0115      #statUnitMode := "LPMLV30_MODE_USER_01";
0116    ELSIF #tempBooleanInterfaceMode.%X5  AND NOT #statBooleanInterfaceMo-
      deOld.%X5  THEN
0117      #statUnitMode := "LPMLV30_MODE_USER_02";
0118    ELSIF #tempBooleanInterfaceMode.%X6  AND NOT #statBooleanInterfaceMo-
      deOld.%X6  THEN
0119      #statUnitMode := "LPMLV30_MODE_USER_03";
0120    ELSIF #tempBooleanInterfaceMode.%X7  AND NOT #statBooleanInterfaceMo-
      deOld.%X7  THEN
0121      #statUnitMode := "LPMLV30_MODE_USER_04";
0122    ELSIF #tempBooleanInterfaceMode.%X8  AND NOT #statBooleanInterfaceMo-
      deOld.%X8  THEN
0123      #statUnitMode := "LPMLV30_MODE_USER_05";
0124    ELSIF #tempBooleanInterfaceMode.%X9  AND NOT #statBooleanInterfaceMo-
      deOld.%X9  THEN
0125      #statUnitMode := "LPMLV30_MODE_USER_06";
0126    ELSIF #tempBooleanInterfaceMode.%X10 AND NOT #statBooleanInterfaceMo-
      deOld.%X10 THEN
0127      #statUnitMode := "LPMLV30_MODE_USER_07";
0128    ELSIF #tempBooleanInterfaceMode.%X11 AND NOT #statBooleanInterfaceMo-
      deOld.%X11 THEN
0129      #statUnitMode := "LPMLV30_MODE_USER_08";
0130    ELSIF #tempBooleanInterfaceMode.%X12 AND NOT #statBooleanInterfaceMo-
      deOld.%X12 THEN
0131      #statUnitMode := "LPMLV30_MODE_USER_09";
0132    ELSIF #tempBooleanInterfaceMode.%X13 AND NOT #statBooleanInterfaceMo-
      deOld.%X13 THEN
0133      #statUnitMode := "LPMLV30_MODE_USER_10";
0134    ELSIF #tempBooleanInterfaceMode.%X14 AND NOT #statBooleanInterfaceMo-
      deOld.%X14 THEN
0135      #statUnitMode := "LPMLV30_MODE_USER_11";
0136    ELSIF #tempBooleanInterfaceMode.%X15 AND NOT #statBooleanInterfaceMo-
      deOld.%X15 THEN
0137      #statUnitMode := "LPMLV30_MODE_USER_12";
0138    ELSIF #tempBooleanInterfaceMode.%X16 AND NOT #statBooleanInterfaceMo-
      deOld.%X16 THEN
0139      #statUnitMode := "LPMLV30_MODE_USER_13";
0140    ELSIF #tempBooleanInterfaceMode.%X17 AND NOT #statBooleanInterfaceMo-
      deOld.%X17 THEN
0141      #statUnitMode := "LPMLV30_MODE_USER_14";
0142    ELSIF #tempBooleanInterfaceMode.%X18 AND NOT #statBooleanInterfaceMo-
      deOld.%X18 THEN
0143      #statUnitMode := "LPMLV30_MODE_USER_15";
0144    ELSIF #tempBooleanInterfaceMode.%X19 AND NOT #statBooleanInterfaceMo-
      deOld.%X19 THEN
0145      #statUnitMode := "LPMLV30_MODE_USER_16";
```

```
0146   ELSIF #tempBooleanInterfaceMode.%X20 AND NOT #statBooleanInterfaceMo-
       deOld.%X20 THEN
0147     #statUnitMode := "LPMLV30_MODE_USER_17";
0148   ELSIF #tempBooleanInterfaceMode.%X21 AND NOT #statBooleanInterfaceMo-
       deOld.%X21 THEN
0149     #statUnitMode := "LPMLV30_MODE_USER_18";
0150   ELSIF #tempBooleanInterfaceMode.%X22 AND NOT #statBooleanInterfaceMo-
       deOld.%X22 THEN
0151     #statUnitMode := "LPMLV30_MODE_USER_19";
0152   ELSIF #tempBooleanInterfaceMode.%X23 AND NOT #statBooleanInterfaceMo-
       deOld.%X23 THEN
0153     #statUnitMode := "LPMLV30_MODE_USER_20";
0154   ELSIF #tempBooleanInterfaceMode.%X24 AND NOT #statBooleanInterfaceMo-
       deOld.%X24 THEN
0155     #statUnitMode := "LPMLV30_MODE_USER_21";
0156   ELSIF #tempBooleanInterfaceMode.%X25 AND NOT #statBooleanInterfaceMo-
       deOld.%X25 THEN
0157     #statUnitMode := "LPMLV30_MODE_USER_22";
0158   ELSIF #tempBooleanInterfaceMode.%X26 AND NOT #statBooleanInterfaceMo-
       deOld.%X26 THEN
0159     #statUnitMode := "LPMLV30_MODE_USER_23";
0160   ELSIF #tempBooleanInterfaceMode.%X27 AND NOT #statBooleanInterfaceMo-
       deOld.%X27 THEN
0161     #statUnitMode := "LPMLV30_MODE_USER_24";
0162   ELSIF #tempBooleanInterfaceMode.%X28 AND NOT #statBooleanInterfaceMo-
       deOld.%X28 THEN
0163     #statUnitMode := "LPMLV30_MODE_USER_25";
0164   ELSIF #tempBooleanInterfaceMode.%X29 AND NOT #statBooleanInterfaceMo-
       deOld.%X29 THEN
0165     #statUnitMode := "LPMLV30_MODE_USER_26";
0166   ELSIF #tempBooleanInterfaceMode.%X30 AND NOT #statBooleanInterfaceMo-
       deOld.%X30 THEN
0167     #statUnitMode := "LPMLV30_MODE_USER_27";
0168   ELSIF #tempBooleanInterfaceMode.%X31 AND NOT #statBooleanInterfaceMo-
       deOld.%X31 THEN
0169     #statUnitMode := "LPMLV30_MODE_USER_28";
0170   ELSIF    #tempBooleanInterfaceMode.%X1  AND NOT #statBooleanInterfaceMo-
       deOld.%X1  THEN
0171     #statUnitMode := "LPMLV30_MODE_PRODUCTION";
0172   END_IF;
0173   #statBooleanInterfaceModeOld := #tempBooleanInterfaceMode; // Save values for
       edge detection
0174
0175   // Evaluate CntrlCmd in boolean interface; priority descending: abort, stop,
       other commands
0176   #statCmdChangeRequest    := TRUE; // Change request static TRUE
0177   #tempBooleanInterfaceCmd := 0;
0178
0179   #tempBooleanInterfaceCmd.%X1  := #ResetCmdRequest;
0180   #tempBooleanInterfaceCmd.%X2  := #StartCmdRequest;
0181   #tempBooleanInterfaceCmd.%X4  := #HoldCmdRequest;
0182   #tempBooleanInterfaceCmd.%X5  := #UnholdCmdRequest;
0183   #tempBooleanInterfaceCmd.%X6  := #SuspendCmdRequest;
0184   #tempBooleanInterfaceCmd.%X7  := #UnsuspendCmdRequest;
0185   #tempBooleanInterfaceCmd.%X9  := #ClearCmdRequest;
```

```
0186   #tempBooleanInterfaceCmd.%X10 := #CompleteCmdRequest; // Remember, complete
       command is not specified in the OMAC standard
0187
0188   IF #AbortCmdRequest THEN
0189     #tempCntrlCmd := "LPMLV30_CMD_ABORT";
0190   ELSIF #StopCmdRequest THEN
0191     #tempCntrlCmd := "LPMLV30_CMD_STOP";
0192   ELSE
0193     #tempCntrlCmd := "LPMLV30_CMD_UNDEFINED";
0194
0195     // Selection indicator: Rising edge at input, Priority (in case of multiple
       selection): complete, reset, start, hold, unhold, suspend, unsuspend, clear
0196     IF    #tempBooleanInterfaceCmd.%X10 AND NOT #statBooleanInterfaceCm-
       dOld.%X10 THEN
0197     #tempCntrlCmd := "LPMLV30_CMD_COMPLETE";
0198     ELSIF #tempBooleanInterfaceCmd.%X1  AND NOT #statBooleanInterfaceCm-
       dOld.%X1  THEN
0199     #tempCntrlCmd := "LPMLV30_CMD_RESET";
0200     ELSIF #tempBooleanInterfaceCmd.%X2  AND NOT #statBooleanInterfaceCm-
       dOld.%X2  THEN
0201     #tempCntrlCmd := "LPMLV30_CMD_START";
0202     ELSIF #tempBooleanInterfaceCmd.%X4  AND NOT #statBooleanInterfaceCm-
       dOld.%X4  THEN
0203     #tempCntrlCmd := "LPMLV30_CMD_HOLD";
0204     ELSIF #tempBooleanInterfaceCmd.%X5  AND NOT #statBooleanInterfaceCm-
       dOld.%X5  THEN
0205     #tempCntrlCmd := "LPMLV30_CMD_UNHOLD";
0206     ELSIF #tempBooleanInterfaceCmd.%X6  AND NOT #statBooleanInterfaceCm-
       dOld.%X6  THEN
0207     #tempCntrlCmd := "LPMLV30_CMD_SUSPEND";
0208     ELSIF #tempBooleanInterfaceCmd.%X7  AND NOT #statBooleanInterfaceCm-
       dOld.%X7  THEN
0209     #tempCntrlCmd := "LPMLV30_CMD_UNSUSPEND";
0210     ELSIF #tempBooleanInterfaceCmd.%X9  AND NOT #statBooleanInterfaceCm-
       dOld.%X9  THEN
0211     #tempCntrlCmd := "LPMLV30_CMD_CLEAR";
0212     END_IF;
0213   END_IF; // End: abort or stop cmd
0214
0215   #statBooleanInterfaceCmdOld := #tempBooleanInterfaceCmd; // Save values for
       edge detection
0216   END_IF; // End: boolean interface
0217 END_IF; // End: As from second cycle
0218 // End: Evaluation of input parameters -> UnitMode, CntrlCmd
0219
0220 //-------------------------------------------------------------------------
       -------------------
0221 // Unit mode manager
0222 //-------------------------------------------------------------------------
       -------------------
0223 IF NOT #statFirstCycle THEN // As from second cycle
0224   //-----------------------------------------------
0225   //Message handling for mode manager: head part
0226   //-----------------------------------------------
```

```
0227   IF #statUnitModeChangeRequest AND #statUnitMode <> #statUnitModeOld AND #statU-
     nitMode <> "LPMLV30_MODE_INVALID" THEN
0228   #tempDiagnosticsBufferIndex := #tempDiagnosticsBufferIndex + 1; // Next buffer
     index
0229   IF #tempDiagnosticsBufferIndex > "LPMLV30_DIAG_BUFFER_UPPER_LIM" THEN
0230     #tempDiagnosticsBufferIndex := 0;
0231   END_IF;
0232   // Check for defined unit modes
0233   #tempRetVal := RD_SYS_T(#diagnostics.buffer[#tempDiagnosticsBufferIndex].time-
     stamp);
0234   #diagnostics.buffer[#tempDiagnosticsBufferIndex].UnitModeCur-
     rent := DINT_TO_BYTE(#UnitModeCurrent);
0235   #diagnostics.buffer[#tempDiagnosticsBufferIndex].StateCur-
     rent    := DINT_TO_BYTE(#StateCurrent);
0236   #diagnostics.buffer[#tempDiagnosticsBufferIndex].Uni-
     tMode := DINT_TO_BYTE(#statUnitMode);
0237   #diagnostics.buffer[#tempDiagnosticsBufferIn-
     dex].CntrlCmd := DINT_TO_BYTE(#tempCntrlCmd);
0238   #diagnostics.buffer[#tempDiagnosticsBufferIndex].SC := #SC;
0239   #diagnostics.buffer[#tempDiagnosticsBufferIndex].message := #MSG_NO_MESSAGE;
0240
0241   IF #statUnitMode < "LPMLV30_MODE_INVALID" OR #statUnit-
     Mode > "LPMLV30_MODE_USER_28" THEN
0242     #diagnostics.buffer[#tempDiagnosticsBufferIndex].message := #MSG_MODE_NOT_DE-
     FINED;
0243   ELSIF #statUnitMode = #statUnitModeCurrentInternal THEN
0244     #diagnostics.buffer[#tempDiagnosticsBufferIndex].message := #MSG_MODE_AL-
     READY_ACTIVE;
0245   END_IF;
0246   END_IF; // End: message handling for mode manager: head part
0247 END_IF; // End: As from second cycle
0248
0249 //-----------------------------------------------
0250 // Unit mode machine
0251 //-----------------------------------------------
0252 // Check if unit mode has to be changed
0253 IF (#statUnitModeChangeRequest AND
0254   #statUnitMode <> #statUnitModeCurrentInternal AND
0255   #statUnitMode <> #statUnitModeOld AND
0256   #statUnitMode > "LPMLV30_MODE_INVALID" AND
0257   #statUnitMode <= "LPMLV30_MODE_USER_28"
0258   ) OR
0259   #statFirstCycle
0260 THEN
0261   // Check if state is available
0262   IF #statStateInternal = "LPMLV30_STATE_EXECUTE" OR // Every state but not in
     execute
0263   #statStateInternal <> #StateRequested // Means to be in wait state or target
     state
0264   THEN
0265   #diagnostics.buffer[#tempDiagnosticsBufferIndex].message := #MSG_MODE_TRANSI-
     TION_NOT_ALLOWED;
0266   ELSE
0267   IF #statConfiguration.disabledUnitModes[#statUnitMode] = FALSE THEN
0268     // State in target unit mode available
```

```
0269     IF ((NOT #statConfiguration.disabledStatesInUnitModes[#statUnit-
     Mode].%X17 = FALSE) AND (#statStateInternal = "LPMLV30_STATE_COMPLETE")) OR
0270     ((NOT #statConfiguration.disabledStatesInUnitModes[#statUnit-
     Mode].%X11 = FALSE) AND (#statStateInternal = "LPMLV30_STATE_HELD")) OR
0271     ((NOT #statConfiguration.disabledStatesInUnitModes[#statUnit-
     Mode].%X5 = FALSE) AND (#statStateInternal = "LPMLV30_STATE_SUSPENDED"))
0272     THEN
0273     #diagnostics.buffer[#tempDiagnosticsBufferIndex].message := #MSG_MODE_TRANSI-
     TION_NOT_ALLOWED;
0274     ELSE
0275     // Set outputs
0276     #UnitModeChangeInProcess := TRUE;
0277     #UnitModeRequested := #statUnitMode;
0278     // Set internal variable
0279     #statUnitModeCurrentInternal := #statUnitMode;
0280
0281     // Read current configuration for state
0282     #statStatesInCurrentMode.clearing := NOT #statConfiguration.disabledStatesI-
     nUnitModes[#statUnitMode].%X1;
0283     #statStatesInCurrentMode.stopped := NOT #statConfiguration.disabledStatesInU-
     nitModes[#statUnitMode].%X2;
0284     #statStatesInCurrentMode.starting := NOT #statConfiguration.disabledStatesI-
     nUnitModes[#statUnitMode].%X3;
0285     #statStatesInCurrentMode.idle := NOT #statConfiguration.disabledStatesInU-
     nitModes[#statUnitMode].%X4;
0286     #statStatesInCurrentMode.suspended := NOT #statConfiguration.disabledStatesI-
     nUnitModes[#statUnitMode].%X5;
0287     #statStatesInCurrentMode.execute := NOT #statConfiguration.disabledStatesInU-
     nitModes[#statUnitMode].%X6;
0288     #statStatesInCurrentMode.stopping := NOT #statConfiguration.disabledStatesI-
     nUnitModes[#statUnitMode].%X7;
0289     #statStatesInCurrentMode.aborting := NOT #statConfiguration.disabledStatesI-
     nUnitModes[#statUnitMode].%X8;
0290     #statStatesInCurrentMode.aborted := NOT #statConfiguration.disabledStatesInU-
     nitModes[#statUnitMode].%X9;
0291     #statStatesInCurrentMode.holding := NOT #statConfiguration.disabledStatesInU-
     nitModes[#statUnitMode].%X10;
0292     #statStatesInCurrentMode.held := NOT #statConfiguration.disabledStatesInU-
     nitModes[#statUnitMode].%X11;
0293     #statStatesInCurrentMode.unholding := NOT #statConfiguration.disabledStatesI-
     nUnitModes[#statUnitMode].%X12;
0294     #statStatesInCurrentMode.suspending := NOT #statConfiguration.disabledState-
     sInUnitModes[#statUnitMode].%X13;
0295     #statStatesInCurrentMode.unsuspending := NOT #statConfiguration.disabledSta-
     tesInUnitModes[#statUnitMode].%X14;
0296     #statStatesInCurrentMode.resetting := NOT #statConfiguration.disabledStatesI-
     nUnitModes[#statUnitMode].%X15;
0297     #statStatesInCurrentMode.completing := NOT #statConfiguration.disabledState-
     sInUnitModes[#statUnitMode].%X16;
0298     #statStatesInCurrentMode.complete := NOT #statConfiguration.disabledStatesI-
     nUnitModes[#statUnitMode].%X17;
0299     END_IF; // End: state in target unit mode available
0300   ELSE
0301     #diagnostics.buffer[#tempDiagnosticsBufferIndex].mes-
     sage := #MSG_REQ_MODE_NOT_CONFIGURED;
```

```
0302    END_IF;
0303    END_IF;
0304
0305    // Set the minimum required states for every unit mode
0306    IF NOT #statStatesInCurrentMode.stopped OR
0307    NOT #statStatesInCurrentMode.idle OR
0308    NOT #statStatesInCurrentMode.execute OR
0309    NOT #statStatesInCurrentMode.aborted OR
0310    NOT #statStatesInCurrentMode.resetting OR
0311    NOT #statStatesInCurrentMode.starting OR
0312    NOT #statStatesInCurrentMode.stopping OR
0313    NOT #statStatesInCurrentMode.clearing OR
0314    NOT #statStatesInCurrentMode.aborting OR
0315    (NOT #statStatesInCurrentMode.complete AND #statStatesInCurrentMode.complet-
      ing) OR
0316    (NOT #statStatesInCurrentMode.suspended AND (#statStatesInCurrentMode.suspend-
      ing OR #statStatesInCurrentMode.unsuspending)) OR
0317    (NOT #statStatesInCurrentMode.held AND (#statStatesInCurrentMode.hold-
      ing OR #statStatesInCurrentMode.unholding))
0318    THEN
0319    #statStatesInCurrentMode.stopped := TRUE;
0320    #statStatesInCurrentMode.idle := TRUE;
0321    #statStatesInCurrentMode.execute := TRUE;
0322    #statStatesInCurrentMode.aborted := TRUE;
0323
0324    #statStatesInCurrentMode.resetting := TRUE;
0325    #statStatesInCurrentMode.starting := TRUE;
0326    #statStatesInCurrentMode.aborting := TRUE;
0327    #statStatesInCurrentMode.stopping := TRUE;
0328    #statStatesInCurrentMode.clearing := TRUE;
0329
0330    // Held
0331    IF NOT #statStatesInCurrentMode.held
0332      AND (#statStatesInCurrentMode.holding OR #statStatesInCurrentMode.unholding)
0333    THEN
0334      #statStatesInCurrentMode.held := TRUE;
0335      #statStatesInCurrentMode.holding := TRUE;
0336      #statStatesInCurrentMode.unholding := TRUE;
0337    END_IF;
0338    // Suspended
0339    IF NOT #statStatesInCurrentMode.suspended
0340      AND (#statStatesInCurrentMode.suspending OR #statStatesInCurrentMode.unsus-
      pending)
0341    THEN
0342      #statStatesInCurrentMode.suspended := TRUE;
0343      #statStatesInCurrentMode.suspending := TRUE;
0344      #statStatesInCurrentMode.unsuspending := TRUE;
0345    END_IF;
0346    // Complete
0347    IF NOT #statStatesInCurrentMode.complete
0348      AND #statStatesInCurrentMode.completing
0349    THEN
0350      #statStatesInCurrentMode.complete := TRUE;
0351      #statStatesInCurrentMode.completing := TRUE;
0352    END_IF;
```

```
0353
0354    #tempDiagnosticsBufferIndex := #tempDiagnosticsBufferIndex + 1; // Next buffer
        index
0355    IF #tempDiagnosticsBufferIndex > "LPMLV30_DIAG_BUFFER_UPPER_LIM" THEN
0356      #tempDiagnosticsBufferIndex := 0;
0357    END_IF;
0358
0359    // Write diagnostics
0360    #tempRetVal := RD_SYS_T(#diagnostics.buffer[#tempDiagnosticsBufferIndex].time-
        stamp);
0361    #diagnostics.buffer[#tempDiagnosticsBufferIndex].UnitModeCur-
        rent := DINT_TO_BYTE(#UnitModeCurrent);
0362    #diagnostics.buffer[#tempDiagnosticsBufferIndex].StateCur-
        rent    := DINT_TO_BYTE(#StateCurrent);
0363    #diagnostics.buffer[#tempDiagnosticsBufferIndex].Uni-
        tMode := DINT_TO_BYTE(#statUnitMode);
0364    #diagnostics.buffer[#tempDiagnosticsBufferIn-
        dex].CntrlCmd := DINT_TO_BYTE(#tempCntrlCmd);
0365    #diagnostics.buffer[#tempDiagnosticsBufferIndex].SC := #SC;
0366    #diagnostics.buffer[#tempDiagnosticsBufferIndex].message := #MSG_STATE_CON-
        FIG_FORCED;
0367    END_IF; // End: set the minimum required states for every unit mode
0368
0369    #UnitModeCurrent := #statUnitModeCurrentInternal; // Write current unit mode
        on output
0370
0371    // Write correct state configuration of current mode
0372    #StatesDisabled.%X1 := NOT #statStatesInCurrentMode.clearing;
0373    #StatesDisabled.%X2 := NOT #statStatesInCurrentMode.stopped;
0374    #StatesDisabled.%X3 := NOT #statStatesInCurrentMode.starting;
0375    #StatesDisabled.%X4 := NOT #statStatesInCurrentMode.idle;
0376    #StatesDisabled.%X5 := NOT #statStatesInCurrentMode.suspended;
0377    #StatesDisabled.%X6 := NOT #statStatesInCurrentMode.execute;
0378    #StatesDisabled.%X7 := NOT #statStatesInCurrentMode.stopping;
0379    #StatesDisabled.%X8 := NOT #statStatesInCurrentMode.aborting;
0380    #StatesDisabled.%X9 := NOT #statStatesInCurrentMode.aborted;
0381    #StatesDisabled.%X10 := NOT #statStatesInCurrentMode.holding;
0382    #StatesDisabled.%X11 := NOT #statStatesInCurrentMode.held;
0383    #StatesDisabled.%X12 := NOT #statStatesInCurrentMode.unholding;
0384    #StatesDisabled.%X13 := NOT #statStatesInCurrentMode.suspending;
0385    #StatesDisabled.%X14 := NOT #statStatesInCurrentMode.unsuspending;
0386    #StatesDisabled.%X15 := NOT #statStatesInCurrentMode.resetting;
0387    #StatesDisabled.%X16 := NOT #statStatesInCurrentMode.completing;
0388    #StatesDisabled.%X17 := NOT #statStatesInCurrentMode.complete;
0389
0390    //-----------------------------------------------
0391    // Message handling for mode manager: foot part
0392    //-----------------------------------------------
0393    IF NOT #statFirstCycle THEN
0394    IF #diagnostics.buffer[#tempDiagnosticsBufferIndex].message = #MSG_NO_MES-
        SAGE THEN // ELSE: Unit mode wasn´t changed successfully
0395      #diagnostics.buffer[#tempDiagnosticsBufferIndex].mes-
        sage := #MSG_MODE_CHANGED_SUCCESSFULLY;
0396    END_IF;
0397    END_IF;
```

```
0398 ELSE
0399   #UnitModeChangeInProcess := FALSE; // No unit mode change
0400 END_IF;// End: check if unit mode has to be changed
0401 // End: Unit mode manager
0402
0403 //------------------------------------------------------------------------------
     -------------------
0404 // State manager
0405 //------------------------------------------------------------------------------
     -------------------
0406 IF NOT #statFirstCycle THEN // As from second cycle
0407   IF #SC AND NOT #statSCOld THEN // Detect a rising edge at state complete signal
0408   #tempSCInternal := TRUE;
0409   ELSE
0410   #tempSCInternal := FALSE;
0411   END_IF;
0412   #statSCOld := #SC; // End: Detect a rising edge at state complete signal
0413
0414   //-------------------------------------------------------------------
0415   // Message handling for state manager: head part
0416   //-------------------------------------------------------------------
0417   IF #tempSCInternal THEN // Check if rising edge of SC was detected
0418   #tempDiagnosticsBufferIndex := #tempDiagnosticsBufferIndex + 1; // Next buffer
     index
0419   IF #tempDiagnosticsBufferIndex > "LPMLV30_DIAG_BUFFER_UPPER_LIM" THEN
0420     #tempDiagnosticsBufferIndex := 0;
0421   END_IF;
0422   #tempDiagnosticsBufferIndexSC := #tempDiagnosticsBufferIndex;
0423
0424   // Check current state to use SC
0425   IF #statStateInternal = "LPMLV30_STATE_CLEARING"    OR
0426     #statStateInternal = "LPMLV30_STATE_STARTING"     OR
0427     #statStateInternal = "LPMLV30_STATE_STOPPING"     OR
0428     #statStateInternal = "LPMLV30_STATE_ABORTING"     OR
0429     #statStateInternal = "LPMLV30_STATE_HOLDING"      OR
0430     #statStateInternal = "LPMLV30_STATE_UNHOLDING"    OR
0431     #statStateInternal = "LPMLV30_STATE_SUSPENDING"   OR
0432     #statStateInternal = "LPMLV30_STATE_UNSUSPENDING" OR
0433     #statStateInternal = "LPMLV30_STATE_RESETTING"    OR
0434     #statStateInternal = "LPMLV30_STATE_COMPLETING"   OR
0435     #statStateInternal = "LPMLV30_STATE_EXECUTE"
0436   THEN // Write diagnostics
0437     #tempRetVal := RD_SYS_T(#diagnostics.buffer[#tempDiagnosticsBufferIn-
     dex].timestamp);
0438     #diagnostics.buffer[#tempDiagnosticsBufferIndex].UnitModeCur-
     rent := DINT_TO_BYTE(#UnitModeCurrent);
0439     #diagnostics.buffer[#tempDiagnosticsBufferIndex].StateCur-
     rent    := DINT_TO_BYTE(#StateCurrent);
0440     #diagnostics.buffer[#tempDiagnosticsBufferIndex].Uni-
     tMode := DINT_TO_BYTE(#statUnitMode);
0441     #diagnostics.buffer[#tempDiagnosticsBufferIn-
     dex].CntrlCmd := DINT_TO_BYTE(#tempCntrlCmd);
0442     #diagnostics.buffer[#tempDiagnosticsBufferIndex].SC := #SC;
0443     #diagnostics.buffer[#tempDiagnosticsBufferIndex].message := #MSG_NO_MESSAGE;
0444   ELSE // Write diagnostics
```

```
0445      #tempRetVal := RD_SYS_T(#diagnostics.buffer[#tempDiagnosticsBufferIn-
      dex].timestamp);
0446      #diagnostics.buffer[#tempDiagnosticsBufferIndex].UnitModeCur-
      rent := DINT_TO_BYTE(#UnitModeCurrent);
0447      #diagnostics.buffer[#tempDiagnosticsBufferIndex].StateCur-
      rent     := DINT_TO_BYTE(#StateCurrent);
0448      #diagnostics.buffer[#tempDiagnosticsBufferIndex].Uni-
      tMode := DINT_TO_BYTE(#statUnitMode);
0449      #diagnostics.buffer[#tempDiagnosticsBufferIn-
      dex].CntrlCmd := DINT_TO_BYTE(#tempCntrlCmd);
0450      #diagnostics.buffer[#tempDiagnosticsBufferIndex].SC := #SC;
0451      #diagnostics.buffer[#tempDiagnosticsBufferIndex].message := #MSG_SC_NOT_AL-
      LOWED;
0452    END_IF; // End: Check current state to use SC
0453    END_IF;
0454
0455    // Check if defined control command was sent correctly
0456    IF #statCmdChangeRequest AND #tempCntrlCmd <> #statCntrlCm-
      dOld AND #tempCntrlCmd <> "LPMLV30_CMD_UNDEFINED" THEN
0457    IF #tempCntrlCmd = "LPMLV30_CMD_RESET"      OR
0458       #tempCntrlCmd = "LPMLV30_CMD_START"      OR
0459       #tempCntrlCmd = "LPMLV30_CMD_STOP"       OR
0460       #tempCntrlCmd = "LPMLV30_CMD_HOLD"       OR
0461       #tempCntrlCmd = "LPMLV30_CMD_UNHOLD"     OR
0462       #tempCntrlCmd = "LPMLV30_CMD_SUSPEND"    OR
0463       #tempCntrlCmd = "LPMLV30_CMD_UNSUSPEND" OR
0464       #tempCntrlCmd = "LPMLV30_CMD_ABORT"      OR
0465       #tempCntrlCmd = "LPMLV30_CMD_CLEAR"      OR
0466       #tempCntrlCmd = "LPMLV30_CMD_COMPLETE" // Info: Complete command not in the
      OMAC standard
0467    THEN
0468      #tempDiagnosticsBufferIndex := #tempDiagnosticsBufferIndex + 1; // Next buf-
      fer index
0469      IF #tempDiagnosticsBufferIndex > "LPMLV30_DIAG_BUFFER_UPPER_LIM" THEN
0470      #tempDiagnosticsBufferIndex := 0;
0471      END_IF;
0472      #tempDiagnosticsBufferIndexCmd := #tempDiagnosticsBufferIndex;
0473
0474      // Write diagnostics
0475      #tempRetVal := RD_SYS_T(#diagnostics.buffer[#tempDiagnosticsBufferIn-
      dex].timestamp);
0476      #diagnostics.buffer[#tempDiagnosticsBufferIndex].UnitModeCur-
      rent := DINT_TO_BYTE(#UnitModeCurrent);
0477      #diagnostics.buffer[#tempDiagnosticsBufferIndex].StateCur-
      rent     := DINT_TO_BYTE(#StateCurrent);
0478      #diagnostics.buffer[#tempDiagnosticsBufferIndex].Uni-
      tMode := DINT_TO_BYTE(#statUnitMode);
0479      #diagnostics.buffer[#tempDiagnosticsBufferIn-
      dex].CntrlCmd := DINT_TO_BYTE(#tempCntrlCmd);
0480      #diagnostics.buffer[#tempDiagnosticsBufferIndex].SC := #SC;
0481      #diagnostics.buffer[#tempDiagnosticsBufferIndex].message := #MSG_NO_MESSAGE;
0482      // Write message if CntrlCmd is not allowed
0483      IF ((#statStateInternal = "LPMLV30_STATE_CLEARING" OR
0484      #statStateInternal = "LPMLV30_STATE_STARTING" OR
0485      #statStateInternal = "LPMLV30_STATE_STOPPING" OR
```

```
0486      #statStateInternal = "LPMLV30_STATE_ABORTING" OR
0487      #statStateInternal = "LPMLV30_STATE_HOLDING" OR
0488      #statStateInternal = "LPMLV30_STATE_UNHOLDING" OR
0489      #statStateInternal = "LPMLV30_STATE_SUSPENDING" OR
0490      #statStateInternal = "LPMLV30_STATE_UNSUSPENDING" OR
0491      #statStateInternal = "LPMLV30_STATE_RESETTING" OR
0492      #statStateInternal = "LPMLV30_STATE_COMPLETING") AND
0493      NOT (#tempCntrlCmd = "LPMLV30_CMD_ABORT") AND NOT (#tempCntrlCmd =
    "LPMLV30_CMD_STOP")) OR
0494      (#statStateInternal = "LPMLV30_STATE_ABOR-
    TED" AND (#tempCntrlCmd = "LPMLV30_CMD_ABORT"))
0495      THEN
0496      #diagnostics.buffer[#tempDiagnosticsBufferIndex].message := #MSG_CMD_NOT_AL-
    LOWED;
0497      END_IF;
0498    ELSE
0499      // Not defined control command was sent
0500      #tempDiagnosticsBufferIndex := #tempDiagnosticsBufferIndex + 1; // Next buf-
    fer index
0501      IF #tempDiagnosticsBufferIndex > "LPMLV30_DIAG_BUFFER_UPPER_LIM" THEN
0502      #tempDiagnosticsBufferIndex := 0;
0503      END_IF;
0504      #tempDiagnosticsBufferIndexCmd := #tempDiagnosticsBufferIndex;
0505
0506      // Write diagnostics
0507      #tempRetVal := RD_SYS_T(#diagnostics.buffer[#tempDiagnosticsBufferIn-
    dex].timestamp);
0508      #diagnostics.buffer[#tempDiagnosticsBufferIndex].UnitModeCur-
    rent := DINT_TO_BYTE(#UnitModeCurrent);
0509      #diagnostics.buffer[#tempDiagnosticsBufferIndex].StateCur-
    rent     := DINT_TO_BYTE(#StateCurrent);
0510      #diagnostics.buffer[#tempDiagnosticsBufferIndex].Uni-
    tMode := DINT_TO_BYTE(#statUnitMode);
0511      #diagnostics.buffer[#tempDiagnosticsBufferIn-
    dex].CntrlCmd := DINT_TO_BYTE(#tempCntrlCmd);
0512      #diagnostics.buffer[#tempDiagnosticsBufferIndex].SC := #SC;
0513      #diagnostics.buffer[#tempDiagnosticsBufferIndex].message := #MSG_CMD_NOT_DE-
    FINED;
0514    END_IF;
0515    END_IF; // End: message handling for state manager: head part
0516
0517    //-----------------------------------------------------------------
0518    // State machine
0519    //-----------------------------------------------------------------
0520    IF #statCmdChangeRequest AND #tempCntrlCmd <> #statCntrlCm-
    dOld AND #tempCntrlCmd = "LPMLV30_CMD_ABORT" AND // Check if
    abort command was sent correctly
0521    #statStateInternal <> "LPMLV30_STATE_ABORTED" AND
0522    #statStateInternal <> "LPMLV30_STATE_ABORTING"
0523    THEN
0524    // Abort command was sent correctly
0525    #StateChangeInProcess := TRUE;
0526    #StateRequested := "LPMLV30_STATE_ABORTED";
0527    // Select next state
0528    IF #statStatesInCurrentMode.aborting THEN
```

```
0529      #statStateInternal := "LPMLV30_STATE_ABORTING";
0530    ELSE
0531      #statStateInternal := "LPMLV30_STATE_ABORTED";
0532    END_IF;
0533
0534    ELSIF #statCmdChangeRequest AND #tempCntrlCmd <> #statCntrlCm-
      dOld AND #tempCntrlCmd = "LPMLV30_CMD_STOP" AND // Check if
      correct stop command was sent
0535    #statStateInternal <> "LPMLV30_STATE_ABORTED"  AND
0536    #statStateInternal <> "LPMLV30_STATE_ABORTING" AND
0537    #statStateInternal <> "LPMLV30_STATE_CLEARING" AND
0538    #statStateInternal <> "LPMLV30_STATE_STOPPING" AND
0539    #statStateInternal <> "LPMLV30_STATE_STOPPED"
0540    THEN
0541    // Stop command was sent correctly
0542    #StateChangeInProcess := TRUE;
0543    #StateRequested := "LPMLV30_STATE_STOPPED";
0544    // Select next state
0545    IF #statStatesInCurrentMode.stopping THEN
0546      #statStateInternal := "LPMLV30_STATE_STOPPING";
0547    ELSE
0548      #statStateInternal := "LPMLV30_STATE_STOPPED";
0549    END_IF;
0550
0551    ELSE // Internal state machine
0552    CASE #statStateInternal OF
0553      "LPMLV30_STATE_EXECUTE":
0554      #StateChangeInProcess := FALSE;
0555      // Check if state is completed
0556      IF #tempSCInternal AND #statStatesInCurrentMode.completing THEN // ELSE:
      Wait for SC (state complete)
0557        #StateChangeInProcess := TRUE;
0558        #StateRequested    := "LPMLV30_STATE_COMPLETE";
0559        #statStateInternal := "LPMLV30_STATE_COMPLETING";
0560      ELSIF #tempSCInternal AND #statStatesInCurrentMode.complete THEN
0561        #StateChangeInProcess := TRUE;
0562        #StateRequested    := "LPMLV30_STATE_COMPLETE";
0563        #statStateInternal := "LPMLV30_STATE_COMPLETE";
0564      ELSIF #tempSCInternal AND NOT #statStatesInCurrentMode.complet-
      ing AND NOT #statStatesInCurrentMode.complete THEN
0565        #diagnostics.buffer[#tempDiagnosticsBufferIndexSC].mes-
      sage := #MSG_SC_NOT_ALLOWED;
0566      END_IF;
0567
0568      IF #statCmdChangeRequest AND #tempCntrlCmd <> #statCntrlCm-
      dOld AND #tempCntrlCmd <> "LPMLV30_CMD_UNDEFINED" AND
0569        NOT (#tempSCInternal AND (#statStatesInCurrentMode.completing OR #statSta-
      tesInCurrentMode.complete))
0570      THEN // Check if state change is requested
0571        CASE #tempCntrlCmd OF // Check control command
0572        "LPMLV30_CMD_COMPLETE": // Remember, the Complete command is not specified
      in the OMAC standard
0573          // Check if valid state for command is in use by current unit mode
0574          IF #statStatesInCurrentMode.completing THEN
0575          #StateChangeInProcess := TRUE;
```

```
0576          #StateRequested    := "LPMLV30_STATE_COMPLETE";
0577          #statStateInternal := "LPMLV30_STATE_COMPLETING";
0578          ELSIF #statStatesInCurrentMode.complete THEN
0579          #StateChangeInProcess := TRUE;
0580          #StateRequested    := "LPMLV30_STATE_COMPLETE";
0581          #statStateInternal := "LPMLV30_STATE_COMPLETE";
0582          ELSE
0583          #diagnostics.buffer[#tempDiagnosticsBufferIndexCmd].mes-
      sage := #MSG_CMD_NOT_ALLOWED;
0584          END_IF;
0585
0586        "LPMLV30_CMD_RESET":
0587          IF NOT #statStatesInCurrentMode.completing AND NOT #statStatesInCurrent-
      Mode.complete THEN
0588          // Check if valid state for command is in use by current unit mode
0589          IF #statStatesInCurrentMode.resetting THEN
0590            #StateChangeInProcess := TRUE;
0591            #StateRequested    := "LPMLV30_STATE_IDLE";
0592            #statStateInternal := "LPMLV30_STATE_RESETTING";
0593          ELSIF #statStatesInCurrentMode.idle THEN
0594            #StateChangeInProcess := TRUE;
0595            #StateRequested    := "LPMLV30_STATE_IDLE";
0596            #statStateInternal := "LPMLV30_STATE_IDLE";
0597          ELSE
0598            #diagnostics.buffer[#tempDiagnosticsBufferIndexCmd].mes-
      sage := #MSG_CMD_NOT_ALLOWED;
0599          END_IF;
0600          END_IF;
0601
0602        "LPMLV30_CMD_HOLD":
0603          // Check if valid state for command is in use by current unit mode
0604          IF #statStatesInCurrentMode.holding THEN
0605          #StateChangeInProcess := TRUE;
0606          #StateRequested    := "LPMLV30_STATE_HELD";
0607          #statStateInternal := "LPMLV30_STATE_HOLDING";
0608          ELSIF #statStatesInCurrentMode.held THEN
0609          #StateChangeInProcess := TRUE;
0610          #StateRequested    := "LPMLV30_STATE_HELD";
0611          #statStateInternal := "LPMLV30_STATE_HELD";
0612          ELSE
0613          #diagnostics.buffer[#tempDiagnosticsBufferIndexCmd].mes-
      sage := #MSG_CMD_NOT_ALLOWED;
0614          END_IF;
0615
0616        "LPMLV30_CMD_SUSPEND":
0617          // Check if valid state for command is in use by current unit mode
0618          IF #statStatesInCurrentMode.suspending THEN
0619          #StateChangeInProcess := TRUE;
0620          #StateRequested    := "LPMLV30_STATE_SUSPENDED";
0621          #statStateInternal := "LPMLV30_STATE_SUSPENDING";
0622          ELSIF #statStatesInCurrentMode.suspended THEN
0623          #StateChangeInProcess := TRUE;
0624          #StateRequested    := "LPMLV30_STATE_SUSPENDED";
0625          #statStateInternal := "LPMLV30_STATE_SUSPENDED";
0626          ELSE
```

```
0627          #diagnostics.buffer[#tempDiagnosticsBufferIndexCmd].mes-
      sage := #MSG_CMD_NOT_ALLOWED;
0628          END_IF;
0629        ELSE
0630          IF #diagnostics.buffer[#tempDiagnosticsBufferIndexCmd].mes-
      sage = #MSG_NO_MESSAGE THEN // ELSE: Message was already
      written in head part of message handling
0631          #diagnostics.buffer[#tempDiagnosticsBufferIndexCmd].mes-
      sage := #MSG_CMD_NOT_ALLOWED;
0632          END_IF;
0633        END_CASE;
0634      END_IF;
0635
0636      "LPMLV30_STATE_COMPLETING":
0637      // Check if state is completed
0638      IF #tempSCInternal AND #statStatesInCurrentMode.complete THEN
0639        #statStateInternal := "LPMLV30_STATE_COMPLETE";
0640      ELSIF #tempSCInternal AND NOT #statStatesInCurrentMode.complete THEN
0641        #diagnostics.buffer[#tempDiagnosticsBufferIndexSC].mes-
      sage := #MSG_SC_NOT_ALLOWED;
0642      END_IF;
0643
0644      "LPMLV30_STATE_COMPLETE":
0645      #StateChangeInProcess := FALSE;
0646      IF #statCmdChangeRequest AND #tempCntrlCmd <> #statCntrlCm-
      dOld AND #tempCntrlCmd <> "LPMLV30_CMD_UNDEFINED" THEN // Check
      if state change is requested
0647        CASE #tempCntrlCmd OF // Check control command
0648        "LPMLV30_CMD_RESET":
0649          // Check if valid state for command is in use by current unit mode
0650          IF #statStatesInCurrentMode.resetting THEN
0651          #StateChangeInProcess := TRUE;
0652          #StateRequested    := "LPMLV30_STATE_IDLE";
0653          #statStateInternal := "LPMLV30_STATE_RESETTING";
0654          ELSIF #statStatesInCurrentMode.idle THEN
0655          #StateChangeInProcess := TRUE;
0656          #StateRequested    := "LPMLV30_STATE_IDLE";
0657          #statStateInternal := "LPMLV30_STATE_IDLE";
0658          ELSE
0659          #diagnostics.buffer[#tempDiagnosticsBufferIndexCmd].mes-
      sage := #MSG_CMD_NOT_ALLOWED;
0660          END_IF;
0661
0662        "LPMLV30_CMD_START":
0663          // Check if valid state for command is in use by current unit mode
0664          IF NOT #statStatesInCurrentMode.resetting AND NOT #statStatesInCurrent-
      Mode.idle THEN
0665          #StateChangeInProcess := TRUE;
0666          #StateRequested := "LPMLV30_STATE_EXECUTE";
0667          // Check if valid state for command is in use by current unit mode
0668          IF #statStatesInCurrentMode.starting THEN
0669            #statStateInternal := "LPMLV30_STATE_STARTING";
0670          ELSE
0671            #statStateInternal := "LPMLV30_STATE_EXECUTE";
0672          END_IF;
```

```
0673          ELSE
0674          #diagnostics.buffer[#tempDiagnosticsBufferIndexCmd].mes-
      sage := #MSG_CMD_NOT_ALLOWED;
0675          END_IF;
0676        ELSE
0677          IF #diagnostics.buffer[#tempDiagnosticsBufferIndexCmd].mes-
      sage = #MSG_NO_MESSAGE THEN // ELSE: Message was already
      written in head part of message handling
0678          #diagnostics.buffer[#tempDiagnosticsBufferIndexCmd].mes-
      sage := #MSG_CMD_NOT_ALLOWED;
0679          END_IF;
0680        END_CASE;
0681      END_IF;
0682
0683      "LPMLV30_STATE_RESETTING":
0684      // Check if state is completed
0685      // No message handling needed -> Idle is minimum required state
0686      IF #tempSCInternal THEN // ELSE: Wait for state complete signal
0687        #statStateInternal := "LPMLV30_STATE_IDLE";
0688      END_IF;
0689
0690      "LPMLV30_STATE_IDLE":
0691      #StateChangeInProcess := FALSE;
0692      // No message handling needed -> Execute is minimum required state
0693      // Check if valid command is sent
0694      IF #statCmdChangeRequest AND #tempCntrlCmd <> #statCntrlCm-
      dOld AND #tempCntrlCmd <> "LPMLV30_CMD_UNDEFINED" THEN // Check
      if state change is requested
0695        CASE #tempCntrlCmd OF // Check control command
0696        "LPMLV30_CMD_START":
0697          #StateChangeInProcess := TRUE;
0698          #StateRequested := "LPMLV30_STATE_EXECUTE";
0699          // Check if valid state for command is in use by current mode
0700          IF #statStatesInCurrentMode.starting THEN
0701          #statStateInternal := "LPMLV30_STATE_STARTING";
0702          ELSE
0703          #statStateInternal := "LPMLV30_STATE_EXECUTE";
0704          END_IF;
0705        ELSE
0706          IF #diagnostics.buffer[#tempDiagnosticsBufferIndexCmd].mes-
      sage = #MSG_NO_MESSAGE THEN // ELSE: Message was already
      written in head part of message handling
0707          #diagnostics.buffer[#tempDiagnosticsBufferIndexCmd].mes-
      sage := #MSG_CMD_NOT_ALLOWED;
0708          END_IF;
0709        END_CASE;
0710      END_IF;
0711
0712      "LPMLV30_STATE_STARTING",
0713      "LPMLV30_STATE_UNHOLDING",
0714      "LPMLV30_STATE_UNSUSPENDING":
0715      // Check if state is completed
0716      IF #tempSCInternal THEN // ELSE: Wait for state complete signal
0717        #statStateInternal := "LPMLV30_STATE_EXECUTE";
0718      END_IF;
```

```
0719
0720      "LPMLV30_STATE_HOLDING":
0721      // Check if state is completed
0722      IF #tempSCInternal AND #statStatesInCurrentMode.held THEN // ELSE: Wait for
          state complete signal
0723        #statStateInternal := "LPMLV30_STATE_HELD";
0724      ELSIF #tempSCInternal AND NOT #statStatesInCurrentMode.held THEN
0725        #diagnostics.buffer[#tempDiagnosticsBufferIndexSC].mes-
          sage := #MSG_SC_NOT_ALLOWED;
0726      END_IF;
0727
0728      "LPMLV30_STATE_HELD":
0729      #StateChangeInProcess := FALSE;
0730      // Check if valid command is sent
0731      IF #statCmdChangeRequest AND #tempCntrlCmd <> #statCntrlCm-
          dOld AND #tempCntrlCmd <> "LPMLV30_CMD_UNDEFINED" THEN // Check
          if state change is requested
0732        CASE #tempCntrlCmd OF // Check control command
0733        "LPMLV30_CMD_UNHOLD":
0734          #StateChangeInProcess := TRUE;
0735          #StateRequested := "LPMLV30_STATE_EXECUTE";
0736          // Check if valid state for command is in use by current mode
0737          IF #statStatesInCurrentMode.unholding THEN
0738          #statStateInternal := "LPMLV30_STATE_UNHOLDING";
0739          ELSE
0740          #statStateInternal := "LPMLV30_STATE_EXECUTE";
0741          END_IF;
0742        ELSE
0743          IF #diagnostics.buffer[#tempDiagnosticsBufferIndexCmd].mes-
          sage = #MSG_NO_MESSAGE THEN // ELSE: Message was already
          written in head part of message handling
0744          #diagnostics.buffer[#tempDiagnosticsBufferIndexCmd].mes-
          sage := #MSG_CMD_NOT_ALLOWED;
0745          END_IF;
0746        END_CASE;
0747      END_IF;
0748
0749      "LPMLV30_STATE_SUSPENDING":
0750      // Check if state is completed
0751      IF #tempSCInternal AND #statStatesInCurrentMode.suspended THEN // ELSE: Wait
          for state complete signal
0752        #statStateInternal := "LPMLV30_STATE_SUSPENDED";
0753      ELSIF #tempSCInternal AND NOT #statStatesInCurrentMode.suspended THEN
0754        #diagnostics.buffer[#tempDiagnosticsBufferIndexSC].mes-
          sage := #MSG_SC_NOT_ALLOWED;
0755      END_IF;
0756
0757      "LPMLV30_STATE_SUSPENDED":
0758      #StateChangeInProcess := FALSE;
0759      // Check if valid command is sent
0760      IF #statCmdChangeRequest AND #tempCntrlCmd <> #statCntrlCm-
          dOld AND #tempCntrlCmd <> "LPMLV30_CMD_UNDEFINED" THEN // Check
          if state change is requested
0761        CASE #tempCntrlCmd OF // Check control command
0762        "LPMLV30_CMD_UNSUSPEND":
```

```
0763          #StateChangeInProcess := TRUE;
0764          #StateRequested := "LPMLV30_STATE_EXECUTE";
0765          // Check if valid state for command is in use by current mode
0766          IF #statStatesInCurrentMode.unsuspending THEN
0767          #statStateInternal := "LPMLV30_STATE_UNSUSPENDING";
0768          ELSE
0769          #statStateInternal := "LPMLV30_STATE_EXECUTE";
0770          END_IF;
0771        ELSE
0772          IF #diagnostics.buffer[#tempDiagnosticsBufferIndexCmd].mes-
      sage = #MSG_NO_MESSAGE THEN // ELSE: Message was already
      written in head part of message handling
0773          #diagnostics.buffer[#tempDiagnosticsBufferIndexCmd].mes-
      sage := #MSG_CMD_NOT_ALLOWED;
0774          END_IF;
0775        END_CASE;
0776      END_IF;
0777
0778      "LPMLV30_STATE_ABORTING":
0779      // Check if state is completed
0780      IF #tempSCInternal THEN // ELSE: Wait for state complete signal
0781        #statStateInternal := "LPMLV30_STATE_ABORTED";
0782      END_IF;
0783
0784      "LPMLV30_STATE_ABORTED":
0785      #StateChangeInProcess := FALSE;
0786      // Check if valid command is sent
0787      IF #statCmdChangeRequest AND #tempCntrlCmd <> #statCntrlCm-
      dOld AND #tempCntrlCmd <> "LPMLV30_CMD_UNDEFINED" THEN // Check
      if state change is requested
0788        CASE #tempCntrlCmd OF // Check control command
0789        "LPMLV30_CMD_CLEAR":
0790          #StateChangeInProcess := TRUE;
0791          #StateRequested := "LPMLV30_STATE_STOPPED";
0792          // Check if valid state for command is in use by current mode
0793          IF #statStatesInCurrentMode.clearing THEN
0794          #statStateInternal := "LPMLV30_STATE_CLEARING";
0795          ELSE
0796          #statStateInternal := "LPMLV30_STATE_STOPPED";
0797          END_IF;
0798        ELSE
0799          IF #diagnostics.buffer[#tempDiagnosticsBufferIndexCmd].mes-
      sage = #MSG_NO_MESSAGE THEN // ELSE: Message was already
      written in head part of message handling
0800          #diagnostics.buffer[#tempDiagnosticsBufferIndexCmd].mes-
      sage := #MSG_CMD_NOT_ALLOWED;
0801          END_IF;
0802        END_CASE;
0803      END_IF;
0804
0805      "LPMLV30_STATE_CLEARING",
0806      "LPMLV30_STATE_STOPPING":
0807      // Check if state is completed
0808      IF #tempSCInternal THEN // ELSE: Wait for state complete signal
0809        #statStateInternal := "LPMLV30_STATE_STOPPED";
```

```
0810      END_IF;
0811
0812      "LPMLV30_STATE_STOPPED":
0813      #StateChangeInProcess := FALSE;
0814      IF #statCmdChangeRequest AND #tempCntrlCmd <> #statCntrlCm-
      dOld AND #tempCntrlCmd <> "LPMLV30_CMD_UNDEFINED" THEN // Check
      if state change is requested
0815        // Check if valid command is sent
0816        CASE #tempCntrlCmd OF
0817        "LPMLV30_CMD_RESET":
0818          // Check if valid state for command is in use by current unit mode
0819          IF #statStatesInCurrentMode.resetting THEN
0820          #StateChangeInProcess := TRUE;
0821          #StateRequested    := "LPMLV30_STATE_IDLE";
0822          #statStateInternal := "LPMLV30_STATE_RESETTING";
0823          ELSIF #statStatesInCurrentMode.idle THEN
0824          #StateChangeInProcess := TRUE;
0825          #StateRequested    := "LPMLV30_STATE_IDLE";
0826          #statStateInternal := "LPMLV30_STATE_IDLE";
0827          ELSE
0828          #diagnostics.buffer[#tempDiagnosticsBufferIndexCmd].mes-
      sage := #MSG_CMD_NOT_ALLOWED;
0829          END_IF;
0830
0831        "LPMLV30_CMD_START":
0832          IF NOT #statStatesInCurrentMode.resetting AND NOT #statStatesInCurrent-
      Mode.idle THEN
0833          #StateChangeInProcess := TRUE;
0834          #StateRequested := "LPMLV30_STATE_EXECUTE";
0835          // Check if valid state for command is in use by current mode
0836          IF #statStatesInCurrentMode.starting THEN
0837            #statStateInternal := "LPMLV30_STATE_STARTING";
0838          ELSE
0839            #statStateInternal := "LPMLV30_STATE_EXECUTE";
0840          END_IF;
0841          ELSE
0842          #diagnostics.buffer[#tempDiagnosticsBufferIndexCmd].mes-
      sage := #MSG_CMD_NOT_ALLOWED;
0843          END_IF;
0844        ELSE
0845          IF #diagnostics.buffer[#tempDiagnosticsBufferIndexCmd].mes-
      sage = #MSG_NO_MESSAGE THEN // ELSE: Message was already
      written in head part of message handling
0846          #diagnostics.buffer[#tempDiagnosticsBufferIndexCmd].mes-
      sage := #MSG_CMD_NOT_ALLOWED;
0847          END_IF;
0848        END_CASE;
0849      END_IF;
0850
0851      "LPMLV30_STATE_UNDEFINED":
0852      #StateChangeInProcess := FALSE;
0853      #StateRequested    := "LPMLV30_STATE_STOPPED";
0854      #statStateInternal := "LPMLV30_STATE_STOPPED";
0855      ELSE
0856      ; // Undefined state
```

```
0857    END_CASE;
0858    END_IF; // End: state machine
0859
0860    //-------------------------------------------------
0861    // Message handling for state manager: foot part
0862    //-------------------------------------------------
0863    IF #statStateInternal <> #statStateCurrentOld THEN // ELSE: States were not
        changed
0864    IF #tempDiagnosticsBufferIndexCmd >= 0 AND #tempDiagnosticsBufferIn-
        dexCmd <= "LPMLV30_DIAG_BUFFER_UPPER_LIM" THEN
0865      IF #diagnostics.buffer[#tempDiagnosticsBufferIndexCmd].message = #MSG_NO_MES-
          SAGE THEN
0866      #diagnostics.buffer[#tempDiagnosticsBufferIndexCmd].mes-
          sage := #MSG_STATE_CHANGED_SUCCESSFULLY;
0867      END_IF;
0868    END_IF;
0869    IF #tempDiagnosticsBufferIndexSC >= 0 AND #tempDiagnosticsBufferIn-
        dexSC <= "LPMLV30_DIAG_BUFFER_UPPER_LIM" THEN
0870      IF #diagnostics.buffer[#tempDiagnosticsBufferIndexSC].message = #MSG_NO_MES-
          SAGE THEN
0871      #diagnostics.buffer[#tempDiagnosticsBufferIndexSC].mes-
          sage := #MSG_STATE_CHANGED_SUCCESSFULLY;
0872      END_IF;
0873    END_IF;
0874    END_IF; // End: message handling for state manager: foot part
0875  END_IF; // End: As from second cycle
0876  // End: State manager
0877
0878  //-------------------------------------------------------------------------------
        -------------------
0879  // Write outputs including boolean interface outputs
0880  //-------------------------------------------------------------------------------
        -------------------
0881  IF #statUnitModeCurrentInternal <> #statUnitModeCurrentInternalOld THEN // Check
        if new unit mode is selected
0882    #ProductionModeActive  := FALSE;
0883    #MaintenanceModeActive := FALSE;
0884    #ManualModeActive      := FALSE;
0885    #UserMode01Active      := FALSE;
0886    #UserMode02Active      := FALSE;
0887    #UserMode03Active      := FALSE;
0888    #UserMode04Active      := FALSE;
0889    #UserMode05Active      := FALSE;
0890    #UserMode06Active      := FALSE;
0891    #UserMode07Active      := FALSE;
0892    #UserMode08Active      := FALSE;
0893    // #UserMode09Active := FALSE;
0894    // #UserMode10Active := FALSE;
0895    // #UserMode11Active := FALSE;
0896    // #UserMode13Active := FALSE;
0897    // #UserMode14Active := FALSE;
0898    // #UserMode15Active := FALSE;
0899    // #UserMode16Active := FALSE;
0900    // #UserMode17Active := FALSE;
0901    // #UserMode18Active := FALSE;
```

```
0902    // #UserMode19Active := FALSE;
0903    // #UserMode20Active := FALSE;
0904    // #UserMode21Active := FALSE;
0905    // #UserMode22Active := FALSE;
0906    // #UserMode23Active := FALSE;
0907    // #UserMode24Active := FALSE;
0908    // #UserMode25Active := FALSE;
0909    // #UserMode26Active := FALSE;
0910    // #UserMode27Active := FALSE;
0911    // #UserMode28Active := FALSE;
0912
0913    CASE #statUnitModeCurrentInternal OF // Set new bit for current unit mode
0914    "LPMLV30_MODE_PRODUCTION":
0915      #ProductionModeActive := TRUE;
0916    "LPMLV30_MODE_MAINTENANCE":
0917      #MaintenanceModeActive := TRUE;
0918    "LPMLV30_MODE_MANUAL":
0919      #ManualModeActive := TRUE;
0920    "LPMLV30_MODE_USER_01":
0921      #UserMode01Active := TRUE;
0922    "LPMLV30_MODE_USER_02":
0923      #UserMode02Active := TRUE;
0924    "LPMLV30_MODE_USER_03":
0925      #UserMode03Active := TRUE;
0926    "LPMLV30_MODE_USER_04":
0927      #UserMode04Active := TRUE;
0928    "LPMLV30_MODE_USER_05":
0929      #UserMode05Active := TRUE;
0930    "LPMLV30_MODE_USER_06":
0931      #UserMode06Active := TRUE;
0932    "LPMLV30_MODE_USER_07":
0933      #UserMode07Active := TRUE;
0934    "LPMLV30_MODE_USER_08":
0935      #UserMode08Active := TRUE;
0936    // LPMLV30_MODE_USER_09:
0937    // #UserMode09Active := TRUE;
0938    // LPMLV30_MODE_USER_10:
0939    // #UserMode10Active := TRUE;
0940    // LPMLV30_MODE_USER_11:
0941    // #UserMode11Active := TRUE;
0942    // LPMLV30_MODE_USER_12:
0943    // #UserMode12Active := TRUE;
0944    // LPMLV30_MODE_USER_13:
0945    // #UserMode13Active := TRUE;
0946    // LPMLV30_MODE_USER_14:
0947    // #UserMode14Active := TRUE;
0948    // LPMLV30_MODE_USER_15:
0949    // #UserMode15Active := TRUE;
0950    // LPMLV30_MODE_USER_16:
0951    // #UserMode16Active := TRUE;
0952    // LPMLV30_MODE_USER_17:
0953    // #UserMode17Active := TRUE;
0954    // LPMLV30_MODE_USER_18:
0955    // #UserMode18Active := TRUE;
0956    // LPMLV30_MODE_USER_19:
```

```
0957    // #UserMode19Active := TRUE;
0958    // LPMLV30_MODE_USER_20:
0959    // #UserMode20Active := TRUE;
0960    // LPMLV30_MODE_USER_21:
0961    // #UserMode21Active := TRUE;
0962    // LPMLV30_MODE_USER_22:
0963    // #UserMode22Active := TRUE;
0964    // LPMLV30_MODE_USER_23:
0965    // #UserMode23Active := TRUE;
0966    // LPMLV30_MODE_USER_24:
0967    // #UserMode25Active := TRUE;
0968    // LPMLV30_MODE_USER_25:
0969    // #UserMode25Active := TRUE;
0970    // LPMLV30_MODE_USER_26:
0971    // #UserMode26Active := TRUE;
0972    // LPMLV30_MODE_USER_27:
0973    // #UserMode27Active := TRUE;
0974    // LPMLV30_MODE_USER_28:
0975    // #UserMode28Active := TRUE;
0976    ELSE
0977      ; // No bit is set
0978    END_CASE;
0979
0980    #statUnitModeCurrentInternalOld := #statUnitModeCurrentInternal;
0981  END_IF;
0982
0983  IF #statStateInternal <> #statStateInternalOld THEN // Check if new state is se-
      lected
0984    #StateCurrent := #statStateInternal; // Set output
0985
0986    // Set states of boolean interface out
0987    // Delete old state
0988    #ClearingStateActive     := FALSE;
0989    #StoppedStateActive      := FALSE;
0990    #StartingStateActive     := FALSE;
0991    #IdleStateActive         := FALSE;
0992    #SuspendedStateActive    := FALSE;
0993    #ExecuteStateActive      := FALSE;
0994    #StoppingStateActive     := FALSE;
0995    #AbortingStateActive     := FALSE;
0996    #AbortedStateActive      := FALSE;
0997    #HoldingStateActive      := FALSE;
0998    #HeldStateActive         := FALSE;
0999    #UnholdingStateActive    := FALSE;
1000    #SuspendingStateActive   := FALSE;
1001    #UnsuspendingStateActive := FALSE;
1002    #ResettingStateActive    := FALSE;
1003    #CompletingStateActive   := FALSE;
1004    #CompleteStateActive     := FALSE;
1005
1006    // Set new state
1007    CASE #statStateInternal OF
1008    "LPMLV30_STATE_CLEARING":
1009      #ClearingStateActive := TRUE;
1010    "LPMLV30_STATE_STOPPED":
```

```
1011      #StoppedStateActive := TRUE;
1012    "LPMLV30_STATE_STARTING":
1013      #StartingStateActive := TRUE;
1014    "LPMLV30_STATE_IDLE":
1015      #IdleStateActive := TRUE;
1016    "LPMLV30_STATE_SUSPENDED":
1017      #SuspendedStateActive := TRUE;
1018    "LPMLV30_STATE_EXECUTE":
1019      #ExecuteStateActive := TRUE;
1020    "LPMLV30_STATE_STOPPING":
1021      #StoppingStateActive := TRUE;
1022    "LPMLV30_STATE_ABORTING":
1023      #AbortingStateActive := TRUE;
1024    "LPMLV30_STATE_ABORTED":
1025      #AbortedStateActive := TRUE;
1026    "LPMLV30_STATE_HOLDING":
1027      #HoldingStateActive := TRUE;
1028    "LPMLV30_STATE_HELD":
1029      #HeldStateActive := TRUE;
1030    "LPMLV30_STATE_UNHOLDING":
1031      #UnholdingStateActive := TRUE;
1032    "LPMLV30_STATE_SUSPENDING":
1033      #SuspendingStateActive := TRUE;
1034    "LPMLV30_STATE_UNSUSPENDING":
1035      #UnsuspendingStateActive := TRUE;
1036    "LPMLV30_STATE_RESETTING":
1037      #ResettingStateActive := TRUE;
1038    "LPMLV30_STATE_COMPLETING":
1039      #CompletingStateActive := TRUE;
1040    "LPMLV30_STATE_COMPLETE":
1041      #CompleteStateActive := TRUE;
1042    ELSE
1043      ;
1044    END_CASE; // End: Set new state
1045
1046    #statStateInternalOld := #statStateInternal;
1047  END_IF;// End: Write boolean interface outputs
1048
1049  #diagnostics.bufferIndex := #tempDiagnosticsBufferIndex; // Temporary variable
      is used during block execution -> Copy back/Set output
1050  IF #statFirstCycle THEN
1051    #statFirstCycle := FALSE;
1052  END_IF;
1053
1054  // Save values for edge detection
1055  IF #statUnitModeChangeRequest THEN
1056    #statUnitModeOld := #statUnitMode;
1057  END_IF;
1058  IF #statCmdChangeRequest THEN
1059    #statCntrlCmdOld := #tempCntrlCmd;
1060  END_IF;
1061  IF #statStateInternal <> #statStateCurrentOld THEN
1062    #statStateCurrentOld := #statStateInternal;
1063  END_IF;
1064
```

```
1065 //
     ============================================================================================
     ============================
1066 // End of function block: LPMLV30_UnitModeStateManager
1067 //
     ============================================================================================
     ============================
```

# DeltaSpiralConv [CPU 1515T-2 PN] / Program blocks / LPMLV30

## LPMLV30_UnitModeStateTimes [FB30101]

| LPMLV30_UnitModeStateTimes Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | LPMLV30_UnitModeState-Times | **Number** | 30101 | **Type** | FB |
| **Language** | SCL | **Numbering** | Automatic | | |
| **Information** | | | | | |
| **Title** | LPMLV30_UnitModeState-Times | **Author** | APC_ERLF | **Comment** | Support: tech.team.mo-tioncontrol@siemens.com Fax: +49 (0) 9131/98-1297 |
| **Family** | OMAC | **Version** | | **User-defined ID** | |

| Name | Data type | Default value | Retain |
|---|---|---|---|
| ▼ Input | | | |
| UnitModeCurrent | DInt | "LPMLV30_MODE_INVALID" | Non-retain |
| StateCurrent | DInt | "LPMLV30_STATE_UNDEFINED" | Non-retain |
| resetTimes | Bool | false | Non-retain |
| ▼ Output | | | |
| ModeCurrentTime | Array[0.."LPMLV30_MODES_UPPER_LIM"] of DInt | | Non-retain |
| ModeCumulativeTime | Array[0.."LPMLV30_MODES_UPPER_LIM"] of DInt | | Retain |
| StateCurrentTime | Array[0.."LPMLV30_MODES_UPPER_LIM", 0.."LPMLV30_STATES_UPPER_LIM"] of DInt | | Non-retain |
| StateCumulativeTime | Array[0.."LPMLV30_MODES_UPPER_LIM", 0.."LPMLV30_STATES_UPPER_LIM"] of DInt | | Retain |
| actualTimeCurrentMode | DInt | 0 | Non-retain |
| cumulativeTimeCurrentMode | DInt | 0 | Non-retain |
| actualTimeCurrentStates | Array[0.."LPMLV30_STATES_UPPER_LIM"] of DInt | | Non-retain |
| cumulativeTimeCurrentStates | Array[0.."LPMLV30_STATES_UPPER_LIM"] of DInt | | Non-retain |
| AccTimeSinceReset | DInt | 0 | Retain |
| InOut | | | |

| Name | Data type | Default value | Retain |
|---|---|---|---|
| Static | | | |
| statUnitModeCurrentOld | DInt | "LPMLV30_MODE_INVALID" | Non-retain |
| statStateCurrentOld | DInt | "LPMLV30_STATE_UNDEFINED" | Non-retain |
| statResetTimesOld | Bool | false | Non-retain |
| statStartingPointMeasureRuntime | LReal | 0.0 | Non-retain |
| statRuntime | LReal | 0.0 | Non-retain |
| statFirstCycle | Bool | true | Non-retain |
| Temp | | | |
| tempI | Int | | |
| tempJ | Int | | |
| tempMeasuredRuntime | LReal | | |
| tempRuntimeIntegerPart | DInt | | |
| tempUnitModeCurrent | DInt | | |
| tempStateCurrent | DInt | | |
| Constant | | | |

```
0001 //
     ============================================================================
     ============================
0002 // SIEMENS AG
0003 // (c)Copyright 2015 All Rights Reserved
0004 //----------------------------------------------------------------------------
     ----------------------------
0005 // Library: LPMLV30
0006 // Tested with: S7-1200 with FW version V4.1, S7-1500 with FW version V1.7
0007 // Engineering: TIA Portal V13 SP1
0008 // Restrictions: ---
0009 // Requirements: S7-1200 / S7-1500
0010 // Functionality: Determination of unit modes and states times (current and also
     cumulative times)
0011 //----------------------------------------------------------------------------
     ----------------------------
0012 // Change log table:
0013 // Version Date Expert in charge Changes applied
0014 // 03.00.01 29.05.2015 RK First released version
0015 //
     ============================================================================
     ============================
0016 // Function block: LPMLV30_UnitModeStateTimes
0017 //
     ============================================================================
     ============================
0018
0019 IF #statFirstCycle OR (#resetTimes AND NOT #statResetTimesOld) THEN
0020   // Reset times structures
0021   FOR #tempI := "LPMLV30_MODE_INVALID" TO "LPMLV30_MODES_UPPER_LIM" DO
0022   #ModeCurrentTime[#tempI] := 0;
0023   IF NOT #statFirstCycle THEN // Do only with rising edge at resetTimes
0024     #ModeCumulativeTime[#tempI] := 0;
0025   END_IF;
0026   FOR #tempJ := "LPMLV30_STATE_UNDEFINED" TO "LPMLV30_STATES_UPPER_LIM" DO
0027     #StateCurrentTime[#tempI, #tempJ] := 0;
```

```
0028      IF NOT #statFirstCycle THEN // Do only with rising edge at resetTimes
0029      #StateCumulativeTime[#tempI, #tempJ] := 0;
0030      END_IF;
0031    END_FOR;
0032    END_FOR;
0033    IF NOT #statFirstCycle THEN // Do only with rising edge at resetTimes
0034    #AccTimeSinceReset := 0;
0035    END_IF;
0036
0037    // Reset additional outputs
0038    #actualTimeCurrentMode := 0;
0039    IF NOT #statFirstCycle THEN // Do only with rising edge at resetTimes
0040    #cumulativeTimeCurrentMode := 0;
0041    END_IF;
0042    FOR #tempI := "LPMLV30_STATE_UNDEFINED" TO "LPMLV30_STATES_UPPER_LIM" DO
0043    #actualTimeCurrentStates[#tempI] := 0;
0044    IF NOT #statFirstCycle THEN // Do only with rising edge at resetTimes
0045      #cumulativeTimeCurrentStates[#tempI] := 0;
0046    END_IF;
0047    END_FOR;
0048
0049    // Set starting point for calculation of elapsed seconds
0050    #tempMeasuredRuntime := RUNTIME(#statStartingPointMeasureRuntime);
0051    #statRuntime := 0.0;
0052
0053    IF #statFirstCycle THEN
0054    #statFirstCycle := FALSE;
0055    RETURN; // Nothing else in this cycle to avoid runtime peaks
0056    END_IF;
0057  END_IF;
0058
0059  // Inputs UnitModeCurrent and StateCurrent
0060  #tempUnitModeCurrent := #UnitModeCurrent;
0061  #tempStateCurrent    := #StateCurrent;
0062
0063  // Measure program runtime
0064  #tempMeasuredRuntime := RUNTIME(#statStartingPointMeasureRuntime);
0065  IF #tempMeasuredRuntime > 0.0 THEN //value OK
0066    #statRuntime := #statRuntime + #tempMeasuredRuntime;
0067  END_IF;
0068
0069  // Check if at least one second has been reached
0070  IF #statRuntime > 1.0 THEN
0071    #tempRuntimeIntegerPart := TRUNC_DINT(#statRuntime);
0072
0073    IF #statUnitModeCurrentOld >= "LPMLV30_MODE_INVALID" AND #statUnitModeCurren-
      tOld <= "LPMLV30_MODES_UPPER_LIM" THEN
0074    //DINT overflow is not taken into account, because DINT in seconds means ap-
      prox. 68 years
0075    #ModeCurrentTime[#statUnitModeCurrentOld]    := #ModeCurrentTime[#statUnitMode-
      CurrentOld]    + #tempRuntimeIntegerPart;
0076    #ModeCumulativeTime[#statUnitModeCurrentOld] := #ModeCumulativeTime[#statUnit-
      ModeCurrentOld] + #tempRuntimeIntegerPart;
0077
```

```
0078   IF #statStateCurrentOld >= "LPMLV30_STATE_UNDEFINED" AND #statStateCurren-
       tOld <= "LPMLV30_STATES_UPPER_LIM" THEN
0079     //DINT overflow is not taken into account, because DINT in seconds means
       approx. 68 years
0080     #StateCurrentTime[#statUnitModeCurrentOld, #statStateCurren-
       tOld]    := #StateCurrentTime[#statUnitModeCurrentOld, #statStateCurren-
       tOld]    + #tempRuntimeIntegerPart;
0081     #StateCumulativeTime[#statUnitModeCurrentOld, #statStateCurren-
       tOld] := #StateCumulativeTime[#statUnitModeCurrentOld, #statStateCurren-
       tOld] + #tempRuntimeIntegerPart;
0082   END_IF;
0083   END_IF;
0084
0085   //DINT overflow is not taken into account, because DINT in seconds means ap-
       prox. 68 years
0086   #AccTimeSinceReset := #AccTimeSinceReset + #tempRuntimeIntegerPart;
0087
0088   #statRuntime := #statRuntime - #tempRuntimeIntegerPart; //fractional part of
       runtime variable for next cycle
0089 END_IF;
0090
0091 // Check if new unitMode is selected
0092 IF #tempUnitModeCurrent <> #statUnitModeCurrentOld THEN
0093   IF #tempUnitModeCurrent >= "LPMLV30_MODE_INVALID" AND #tempUnitModeCur-
       rent <= "LPMLV30_MODES_UPPER_LIM" THEN
0094   #ModeCurrentTime[#tempUnitModeCurrent] := 0;
0095   IF #tempStateCurrent >= "LPMLV30_STATE_UNDEFINED" AND #tempStateCur-
       rent <= "LPMLV30_STATES_UPPER_LIM" THEN
0096     #StateCurrentTime[#tempUnitModeCurrent, #tempStateCurrent] := 0;
0097   END_IF;
0098   END_IF;
0099
0100 // Check if new state is selected
0101 ELSIF #tempStateCurrent <> #statStateCurrentOld THEN
0102   IF #tempUnitModeCurrent >= "LPMLV30_MODE_INVALID"    AND #tempUnitModeCur-
       rent <= "LPMLV30_MODES_UPPER_LIM" AND
0103    #tempStateCurrent    >= "LPMLV30_STATE_UNDEFINED" AND #tempStateCur-
       rent    <= "LPMLV30_STATES_UPPER_LIM"
0104   THEN
0105   #StateCurrentTime[#tempUnitModeCurrent, #tempStateCurrent] := 0;
0106   END_IF;
0107 END_IF;
0108
0109 // Update additional outputs
0110 IF #tempUnitModeCurrent >= "LPMLV30_MODE_INVALID" AND #tempUnitModeCur-
       rent <= "LPMLV30_MODES_UPPER_LIM" THEN
0111   #actualTimeCurrentMode     := #ModeCurrentTime[#tempUnitModeCurrent];
0112   #cumulativeTimeCurrentMode := #ModeCumulativeTime[#tempUnitModeCurrent];
0113   IF #tempStateCurrent >= "LPMLV30_STATE_UNDEFINED" AND #tempStateCur-
       rent <= "LPMLV30_STATES_UPPER_LIM" THEN
0114   #actualTimeCurrentStates     := #StateCurrentTime[#tempUnitModeCurrent];
0115   #cumulativeTimeCurrentStates := #StateCumulativeTime[#tempUnitModeCurrent];
0116   ELSE
0117   FOR #tempI := "LPMLV30_STATE_UNDEFINED" TO "LPMLV30_STATES_UPPER_LIM" DO
0118     #actualTimeCurrentStates[#tempI] := 0;
```

```
0119      #cumulativeTimeCurrentStates[#tempI] := 0;
0120    END_FOR;
0121    END_IF;
0122  ELSE
0123    #actualTimeCurrentMode     := 0;
0124    #cumulativeTimeCurrentMode := 0;
0125
0126    FOR #tempI := "LPMLV30_STATE_UNDEFINED" TO "LPMLV30_STATES_UPPER_LIM" DO
0127    #actualTimeCurrentStates[#tempI]     := 0;
0128    #cumulativeTimeCurrentStates[#tempI] := 0;
0129    END_FOR;
0130  END_IF;
0131
0132  // Save values for state change detection
0133  #statResetTimesOld      := #resetTimes;
0134  #statUnitModeCurrentOld := #tempUnitModeCurrent;
0135  #statStateCurrentOld    := #tempStateCurrent;
0136
0137  //
      ============================================================================
      ============================
0138  // End of Function block: LPMLV30_UnitModeStateTimes
0139  //
      ============================================================================
      ============================
```

# DeltaSpiralConv [CPU 1515T-2 PN] / Program blocks / Servo_Control

## Axis_ObjectKin [FB502]

| Axis_ObjectKin Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | Axis_ObjectKin | **Number** | 502 | **Type** | FB |
| **Language** | LAD | **Numbering** | Manual | | |
| **Information** | | | | | |
| **Title** | Kinematics Axis object | **Author** | | **Comment** | Derived from Axis_Object-POS block |
| **Family** | | **Version** | 0.1 | **User-defined ID** | |

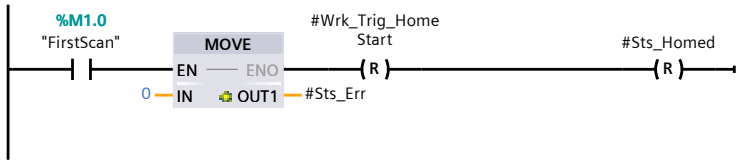
| Name | Data type | Default value | Retain |
|---|---|---|---|
| ▼ Input | | | |
| Inp_MasterNoMotion | Bool | false | Non-retain |
| Cmd_Enable | Bool | false | Non-retain |
| Cmd_Disable | Bool | false | Non-retain |
| Cmd_FaultReset | Bool | false | Non-retain |
| Cmd_Home | Bool | false | Non-retain |
| Cmd_Abort | Bool | false | Non-retain |
| Cmd_Stop | Bool | false | Non-retain |
| ▼ Output | | | |
| Sts_ER | Bool | false | Non-retain |
| Sts_PowerEnable | Bool | false | Non-retain |
| Sts_EnableDone | Bool | false | Non-retain |
| Sts_DisableDone | Bool | false | Non-retain |
| Sts_FaultResetDone | Bool | false | Non-retain |
| Sts_HomeDone | Bool | false | Non-retain |
| Sts_AbortDone | Bool | false | Non-retain |
| Sts_StopDone | Bool | false | Non-retain |
| Sts_AxisOk | Bool | false | Non-retain |
| Sts_NoMotion | Bool | false | Non-retain |
| Sts_Homed | Bool | false | Non-retain |
| ▼ InOut | | | |
| AxisGroup | TO_Kinematics | | |
| ▼ Static | | | |
| Cfg_UseVirtualMaster | Bool | false | Non-retain |
| Cfg_HomeEnabled | Bool | true | Non-retain |
| Cfg_StopEnabled | Bool | true | Non-retain |
| Cfg_AbortEnabled | Bool | true | Non-retain |
| Cfg_ZeroSpeedTolerance | Real | 0.1 | Non-retain |
| Cfg_AbortRamp | Real | 100.0 | Non-retain |
| Cfg_StopRamp | Real | 20.0 | Non-retain |
| Sts_Err | DInt | 0 | Non-retain |
| Err_MCBlockFault | Bool | false | Non-retain |
| Err_ErrorID | Word | 16#0 | Non-retain |
| Out_StatusWord | DWord | 16#0 | Non-retain |

| Name | Data type | Default value | Retain |
|---|---|---|---|
| Out_ErrorWord | DWord | 16#0 | Non-retain |
| Out_WarnWord | DWord | 16#0 | Non-retain |
| Wrk_DecelRate | Real | 0.0 | Non-retain |
| Wrk_TempR | Real | 0.0 | Non-retain |
| Wrk_Velocity | Real | 0.0 | Non-retain |
| Wrk_MaskedStillStatus | Real | 0.0 | Non-retain |
| Wrk_ER_Trig | Bool | false | Non-retain |
| Wrk_Trig_HomeStart | Bool | false | Non-retain |
| Wrk_AtHome1 | Bool | false | Non-retain |
| Wrk_AtHome2 | Bool | false | Non-retain |
| Wrk_HomeSwPresent | Bool | false | Non-retain |
| Wrk_HomeJogFwd | Bool | false | Non-retain |
| Wrk_Trig_Init | Bool | false | Non-retain |
| Wrk_HaltEnable | Bool | false | Non-retain |
| Wrk_Sts_ER | Bool | false | Non-retain |
| Wrk_StatusWord_Homed | Bool | false | Non-retain |
| Wrk_Sts_NoMotion | Bool | false | Non-retain |
| Wrk_Trig_UnlatchHomeStatus | Bool | false | Non-retain |
| Wrk_FaultReset_Delay | TON_TIME | | Non-retain |
| Wrk_DisabWatchdog | TON_TIME | | Non-retain |
| Wrk_EnabWatchdog | TON_TIME | | Non-retain |
| Wrk_HomeSequence | DInt | 0 | Non-retain |
| Wrk_HomeMode | Int | 0 | Non-retain |
| Wrk_StatusWord | DWord | 16#0 | Non-retain |
| Wrk_ErrorWord | DWord | 16#0 | Non-retain |
| Wrk_StatusMasked | DWord | 16#0 | Non-retain |
| MC_Power_Enable | Bool | false | Retain |
| MC_Power_Status | Bool | false | Non-retain |
| MC_Power_Busy | Bool | false | Non-retain |
| MC_Power_CommandAborted | Bool | false | Non-retain |
| MC_Power_Error | Bool | false | Non-retain |
| MC_Power_ErrorID | Word | 16#0 | Non-retain |
| MC_Halt_Execute | Bool | false | Non-retain |
| MC_Halt_Done | Bool | false | Non-retain |
| MC_Halt_Busy | Bool | false | Non-retain |
| MC_Halt_CommandAborted | Bool | false | Non-retain |
| MC_Halt_Error | Bool | false | Non-retain |
| MC_Halt_ErrorID | Word | 16#0 | Non-retain |
| MC_Reset_Execute | Bool | false | Non-retain |
| MC_Reset_Done | Bool | false | Non-retain |
| MC_Reset_Busy | Bool | false | Non-retain |
| MC_Reset_CommandAborted | Bool | false | Non-retain |
| MC_Reset_Error | Bool | false | Non-retain |
| MC_Reset_ErrorID | Word | 16#0 | Non-retain |
| MC_Home_Done | Bool | false | Non-retain |
| MC_Home_Busy | Bool | false | Non-retain |
| MC_Home_CommandAborted | Bool | false | Non-retain |
| MC_Home_Error | Bool | false | Non-retain |
| MC_Home_ErrorID | Word | 16#0 | Non-retain |

| Name | Data type | Default value | Retain |
|---|---|---|---|
| MC_Jog_InVelocity | Bool | false | Non-retain |
| MC_Jog_Busy | Bool | false | Non-retain |
| MC_Jog_CommandAborted | Bool | false | Non-retain |
| MC_Jog_Error | Bool | false | Non-retain |
| MC_Jog_ErrorID | Word | 16#0 | Non-retain |
| Wrk_MC_Power | MC_POWER | | |
| Wrk_MC_Halt | MC_GROUPSTOP | | |
| Wrk_MC_Home | MC_HOME | | |
| Wrk_MC_Reset | MC_RESET | | |
| Wrk_MC_Jog | MC_MOVEJOG | | |
| ▼ Temp | | | |
| Temp_Axis | TO_Struct_Kinematics_KinematicsAxis | | |
| Constant | | | |

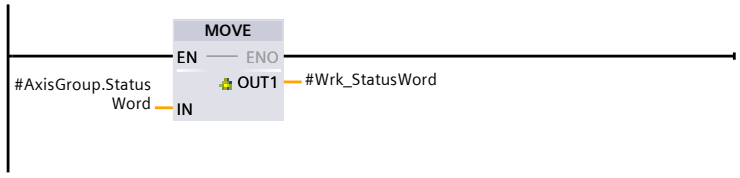
## Network 2: First scan initialization

Initialize homing and fault errors



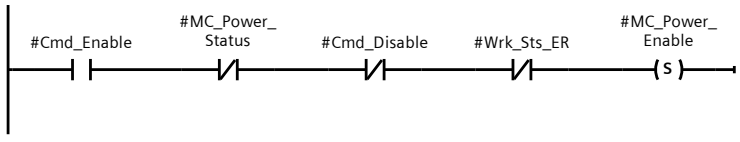

## Network 3: Get axis state

To avoid warning when using outputs as contacts keep some statuses in static area of DB.
Homed and NoMotion not valid on kinematics system



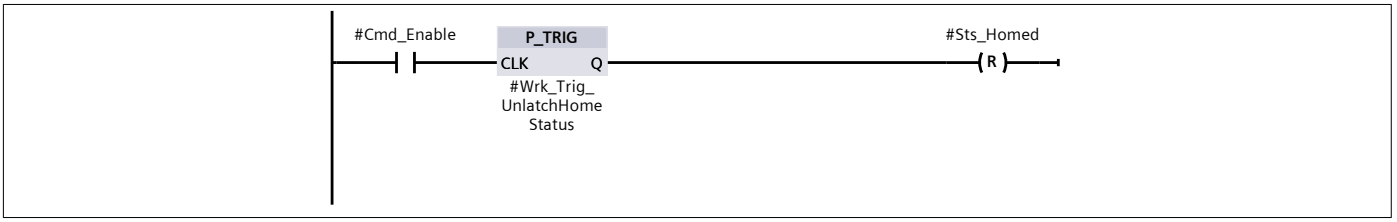

## Network 4: - SECTION AXIS ENABLE

MC_POWER not applicable for kinematics system

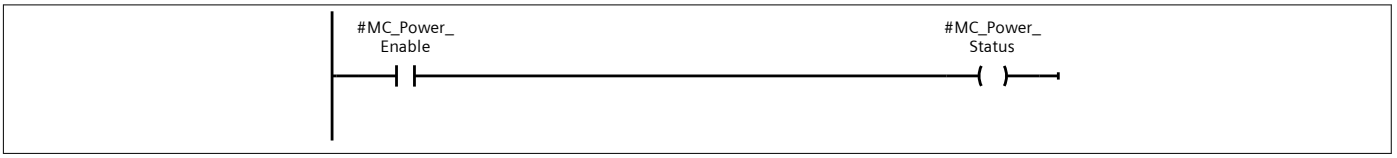



## Network 5: Reset homed status

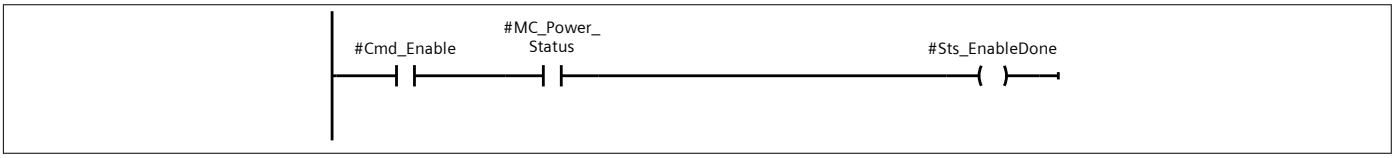
Reset when axis enabled




## Network 6: MC_Power for axis

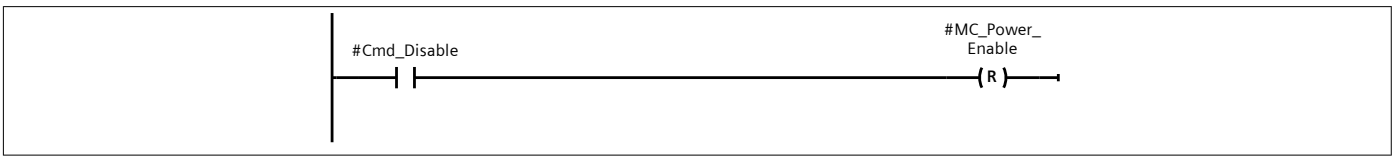



## Network 7: Enable status for block output

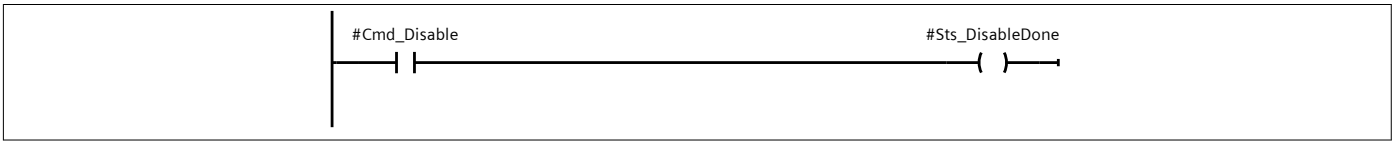



## Network 8: - SECTION AXIS DISABLE

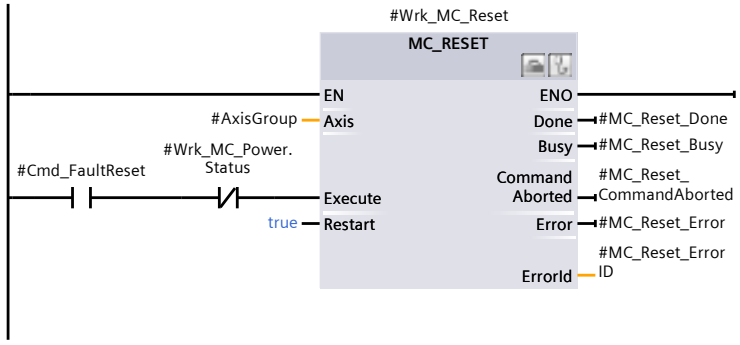
Turn off enable input to MC_POWER block




## Network 9: Disable status for block output

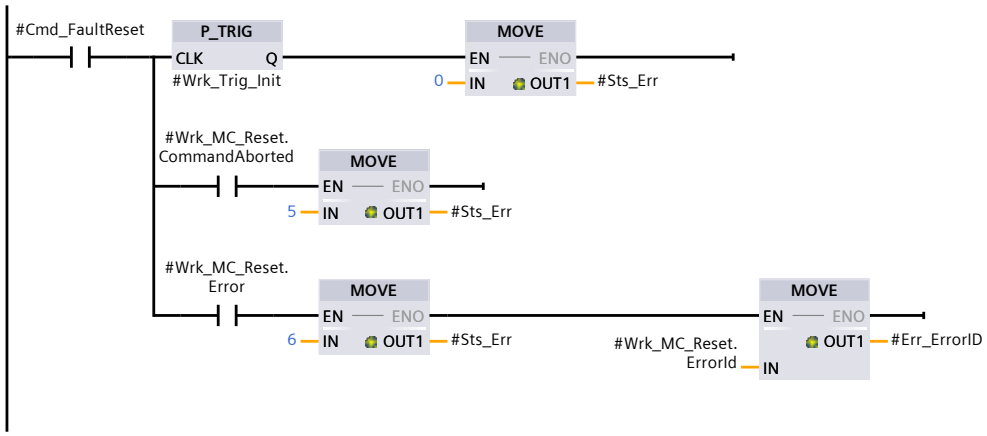



## Network 10: - SECTION AXIS FAULT RESET

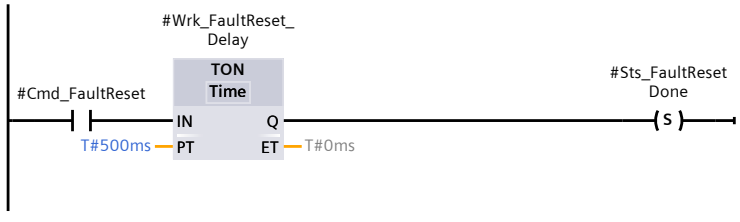



## Network 11: Fault clearing indications

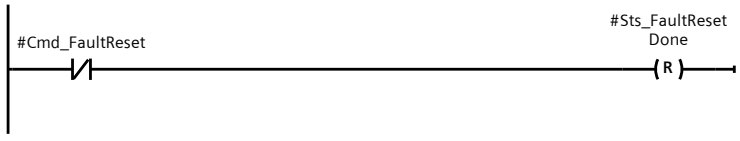
Error status output bits reset on earlier network




## Network 12: Fault Reset done / handshake



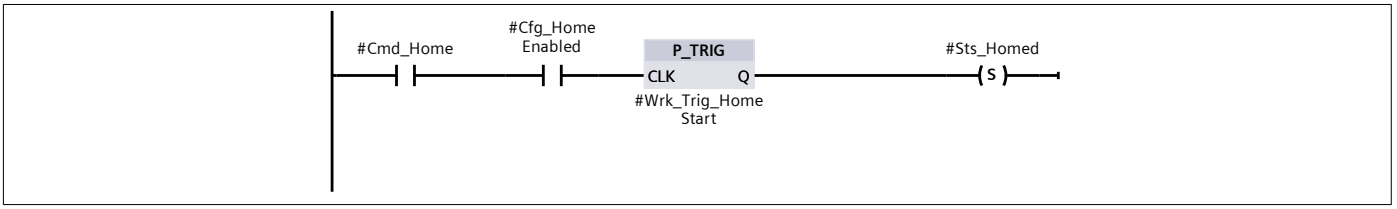

## Network 13:



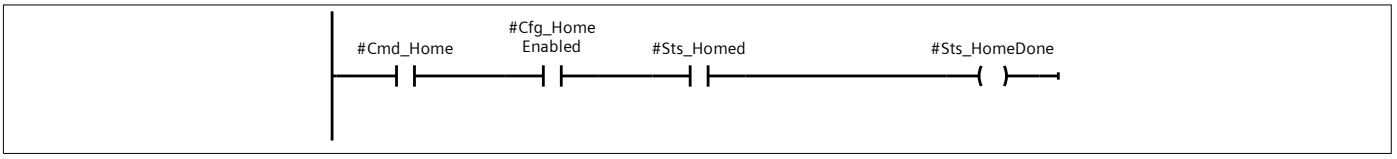

## Network 14: - SECTION AXIS HOMING

Home command, there is no homing for kinematics system
If incremental encoder, use mode=3 and home position is 0.0. MC_HOME block implements homing.

If absolute or cyclic absolute encoder, use mode=7 and home position is set to 0.0. If active homing configured to use a switch, jog to position before setting position to zero.
Assumes encoder is [0].



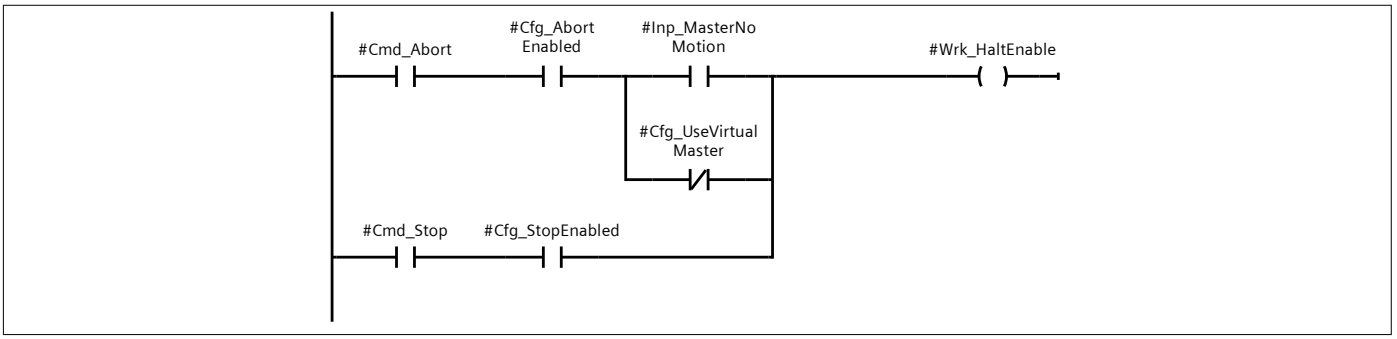

## Network 15: Home done handshake




## Network 16: - SECTION AXIS STOP

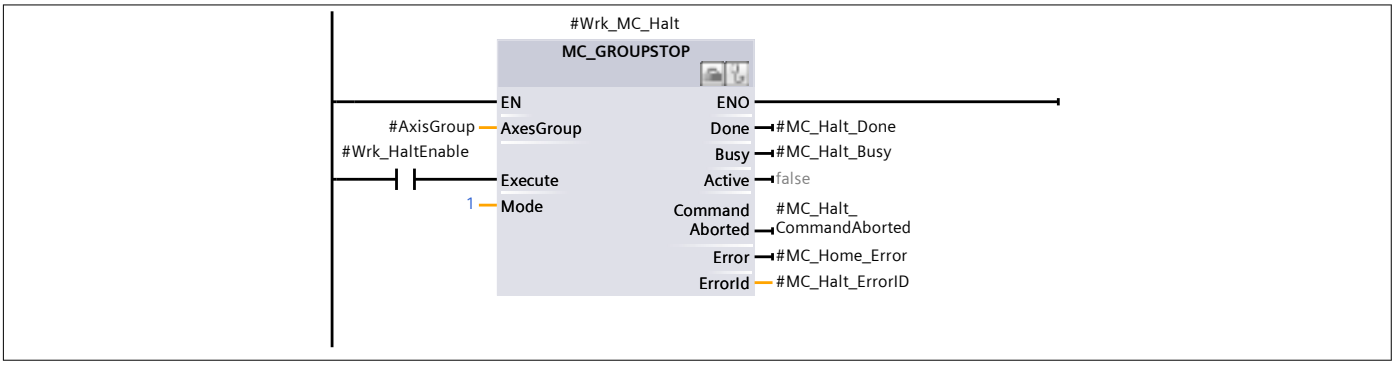
Whenever the machine enters either the stopping or aborting state, stop the axis
-If stopping, all axes are stopped AFTER the virtual stops, providing a coordinated stop
-Aborting causes all axes

Deceleration as percent of maximum, obtained from axis structure
Jerk set to max

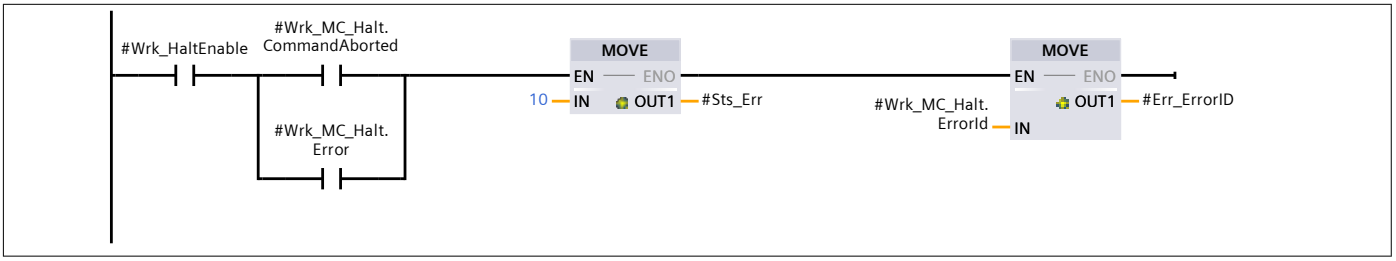



## Network 17: MC_GroupStop (Halt) block

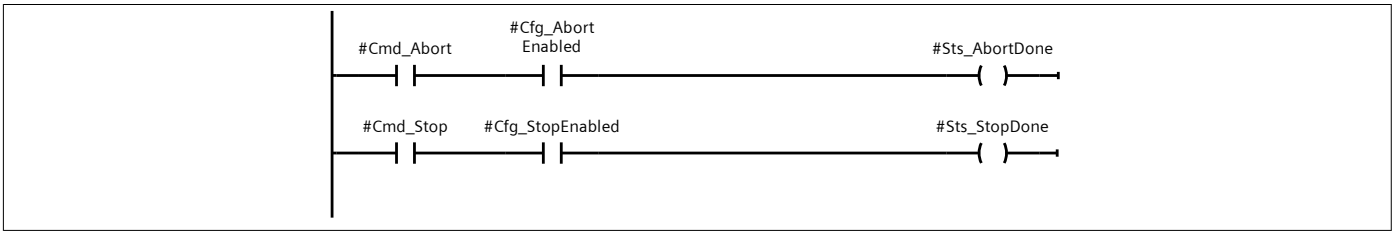
Halt with maximum dynamics



**Network 18:**




**Network 19: Stop done handshake**




**Network 20: - SECTION STATUS BIT UPDATE**

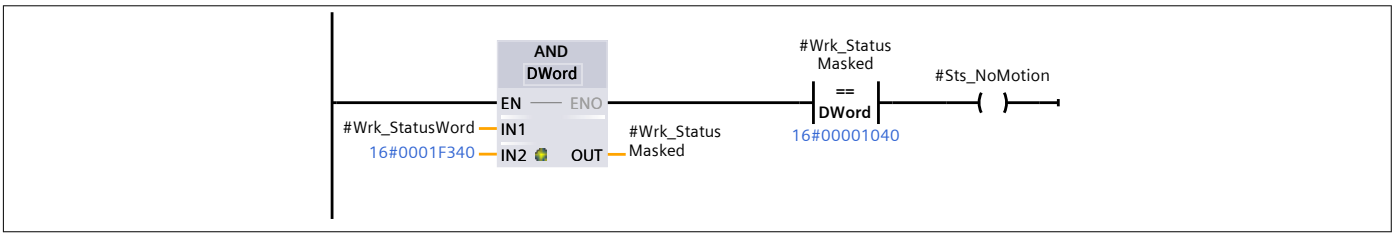
Check for no axis movement. Will need to wait until can access status from individual axes in group

Status word relevant bits - x if relevant to no motion check
Bit 00 reserved
Bit 01 1 error present
Bit 02 1 restart active
Bit 03 1 online start tags changed
Bit 04 1 control panel active
Bit 05 reserved
Bit 06 x 1 if no motion job running
Bit 07 reserved
Bit 08 x 0 no linear motion running
Bit 09 x 0 no circular motion running
Bit 10 reserved
Bit 11 reserved
Bit 12 x 1 axis running at constant velocity or at standstill
Bit 13 x 0 No acceleration
Bit 14 x 0 No deceleration
Bit 15 x 0 No orientation motion
Bit 16 x 0 MC_GroupStop job inactive
Bit 17 1 kinematics object is interrupted
BIt 18 1 blending

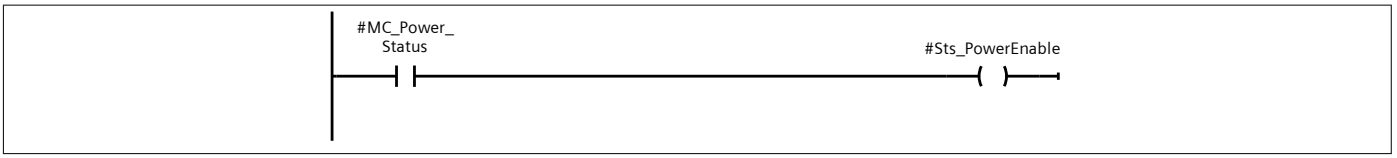
Mask = DW#16#0001F340
Value to check is = DW#16#00001040

Err_Sts Values
1 = MC_Power error
2 = more than 500 msecs for axis to enable

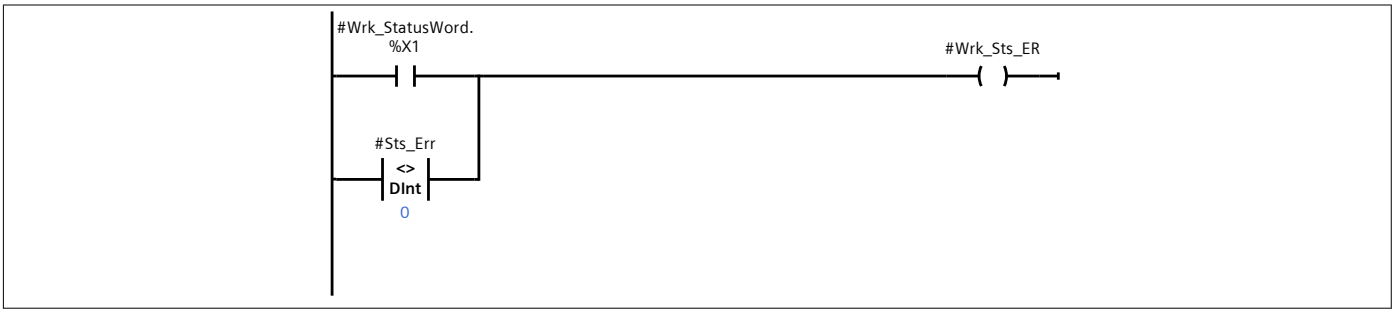
4 = more than 250 msecs for axis to disable
5 = MC_Reset command aborted
6 = MC_Reset error
7 = MC_MOVEJOG when homing error
8 = MC_HOME error
9 = MC_HALT error



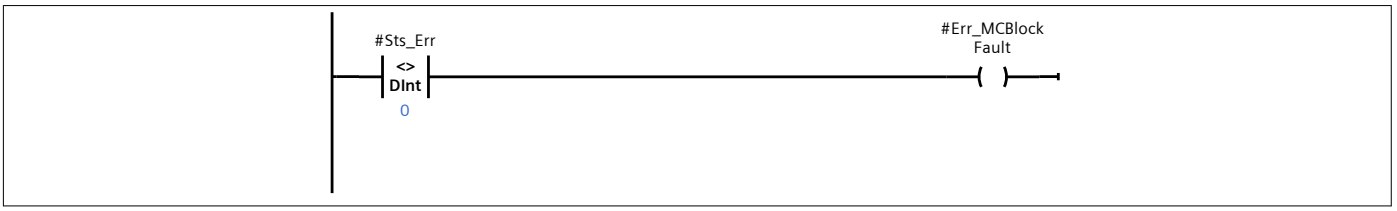

## Network 21:



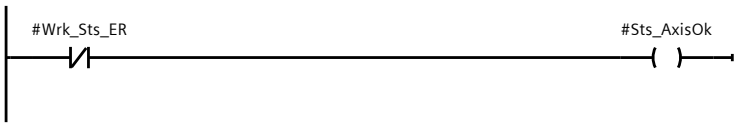

## Network 22: General error



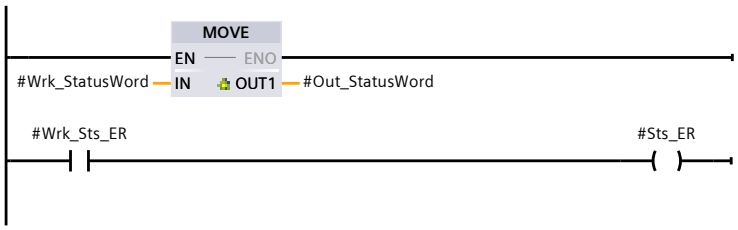

## Network 23:



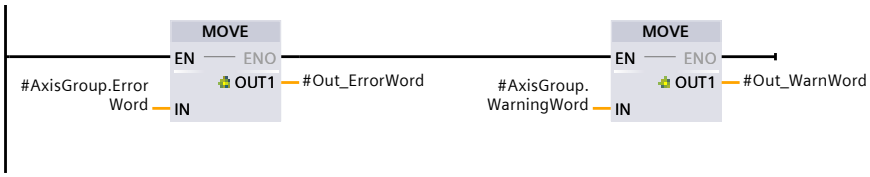

## Network 24: Axis is okay and ready




## Network 25: Copy working statuses to block outputs




## Network 26: Copy axis error and warnings to outputs



# DeltaSpiralConv [CPU 1515T-2 PN] / Program blocks / Servo_Control

## Axis_ObjectPOS [FB501]

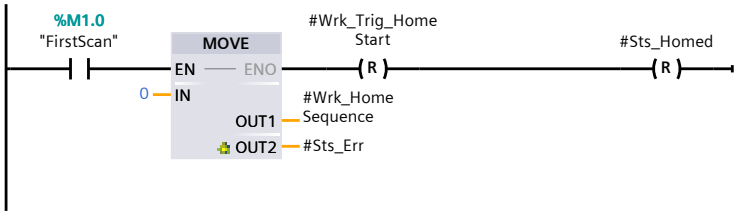
| Axis_ObjectPOS Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | Axis_ObjectPOS | **Number** | 501 | **Type** | FB |
| **Language** | LAD | **Numbering** | Manual | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | 0.1 | **User-defined ID** | |

| Name | Data type | Default value | Retain |
|---|---|---|---|
| ▼ Input | | | |
| Inp_MasterNoMotion | Bool | false | Non-retain |
| Cmd_Enable | Bool | false | Non-retain |
| Cmd_Disable | Bool | false | Non-retain |
| Cmd_FaultReset | Bool | false | Non-retain |
| Cmd_Home | Bool | false | Non-retain |
| Cmd_Abort | Bool | false | Non-retain |
| Cmd_Stop | Bool | false | Non-retain |
| ▼ Output | | | |
| Sts_ER | Bool | false | Non-retain |
| Sts_PowerEnable | Bool | false | Non-retain |
| Sts_EnableDone | Bool | false | Non-retain |
| Sts_DisableDone | Bool | false | Non-retain |
| Sts_FaultResetDone | Bool | false | Non-retain |
| Sts_HomeDone | Bool | false | Non-retain |
| Sts_AbortDone | Bool | false | Non-retain |
| Sts_StopDone | Bool | false | Non-retain |
| Sts_AxisOk | Bool | false | Non-retain |
| Sts_NoMotion | Bool | false | Non-retain |
| Sts_Homed | Bool | false | Non-retain |
| ▼ InOut | | | |
| Ref_Axis | TO_PositioningAxis | | |
| ▼ Static | | | |
| Cfg_UseVirtualMaster | Bool | false | Non-retain |
| Cfg_HomeEnabled | Bool | true | Non-retain |
| Cfg_StopEnabled | Bool | true | Non-retain |
| Cfg_AbortEnabled | Bool | true | Non-retain |
| Cfg_ZeroSpeedTolerance | Real | 0.1 | Non-retain |
| Cfg_AbortRamp | Real | 100.0 | Non-retain |
| Cfg_StopRamp | Real | 20.0 | Non-retain |
| Cfg_HomePosition | Real | 0.0 | Non-retain |
| Sts_Err | DInt | 0 | Non-retain |
| Err_MCBlockFault | Bool | false | Non-retain |
| Err_ErrorID | Word | 16#0 | Non-retain |
| Out_StatusWord | DWord | 16#0 | Non-retain |

| Name | Data type | Default value | Retain |
|---|---|---|---|
| Out_ErrorWord | DWord | 16#0 | Non-retain |
| Out_WarnWord | DWord | 16#0 | Non-retain |
| Wrk_DecelRate | Real | 0.0 | Non-retain |
| Wrk_TempR | Real | 0.0 | Non-retain |
| Wrk_Velocity | Real | 0.0 | Non-retain |
| Wrk_MaskedStillStatus | Real | 0.0 | Non-retain |
| Wrk_ER_Trig | Bool | false | Non-retain |
| Wrk_Trig_HomeStart | Bool | false | Non-retain |
| Wrk_AtHome1 | Bool | false | Non-retain |
| Wrk_AtHome2 | Bool | false | Non-retain |
| Wrk_AtHome3 | Bool | false | Non-retain |
| Wrk_HomeSwPresent | Bool | false | Non-retain |
| Wrk_HomeJogFwd | Bool | false | Non-retain |
| Wrk_Trig_Init | Bool | false | Non-retain |
| Wrk_HaltEnable | Bool | false | Non-retain |
| Wrk_Sts_ER | Bool | false | Non-retain |
| Wrk_StatusWord_Homed | Bool | false | Non-retain |
| Wrk_Sts_NoMotion | Bool | false | Non-retain |
| Wrk_Trig_UnlatchHomeStatus | Bool | false | Non-retain |
| Wrk_FaultReset_Delay | TON_TIME | | Non-retain |
| Wrk_DisabWatchdog | TON_TIME | | Non-retain |
| Wrk_EnabWatchdog | TON_TIME | | Non-retain |
| Wrk_HomeSequence | DInt | 0 | Non-retain |
| Wrk_HomeMode | Int | 0 | Non-retain |
| Wrk_StatusWord | DWord | 16#0 | Non-retain |
| Wrk_ErrorWord | DWord | 16#0 | Non-retain |
| Wrk_MC_Power | MC_POWER | | |
| Wrk_MC_Halt | MC_HALT | | |
| Wrk_MC_Home | MC_HOME | | |
| Wrk_MC_Reset | MC_RESET | | |
| Wrk_MC_Jog | MC_MOVEJOG | | |
| Wrk_Jog_Velocity | LReal | 0.0 | Non-retain |
| MC_Power_Enable | Bool | false | Non-retain |
| Temp | | | |
| Constant | | | |

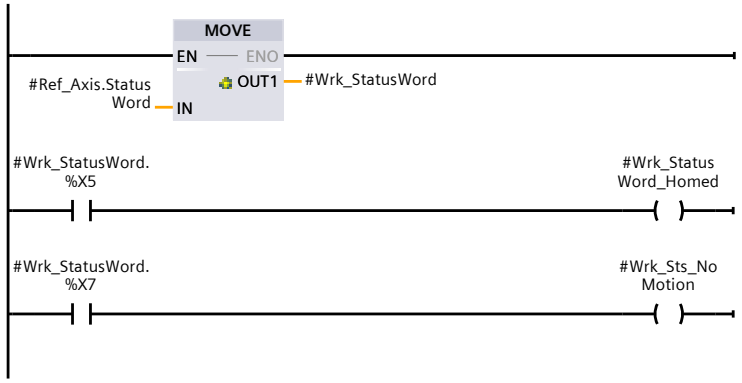
## Network 1: First scan initialization

Initialize homing and fault errors



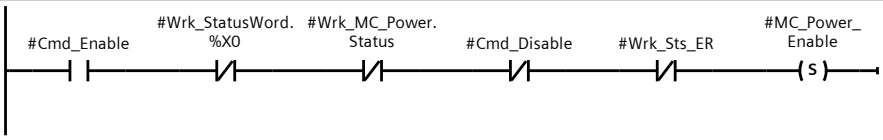

## Network 2: Get axis state

To avoid warning when using outputs as contacts keep some statuses in static area of DB



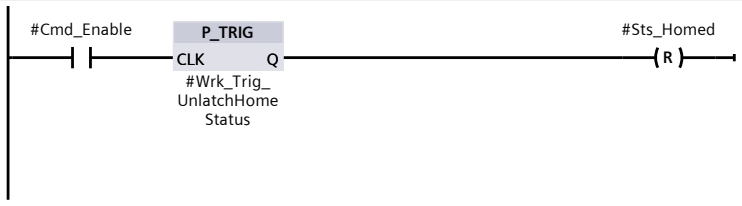

## Network 3: - SECTION AXIS ENABLE

Enable axis indicated by result of MC_POWER

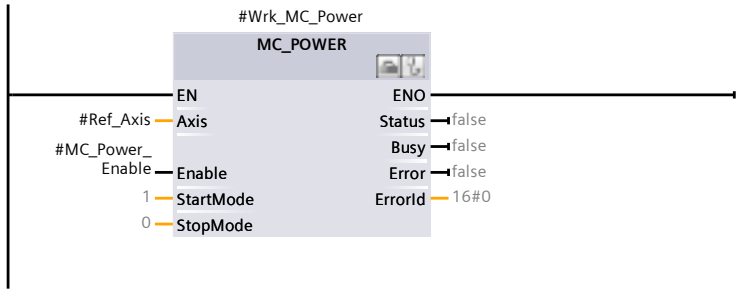



## Network 4: Reset homed status

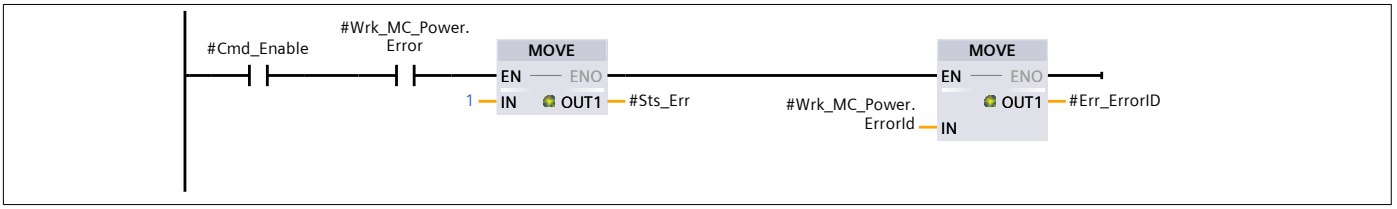
Reset when axis enabled



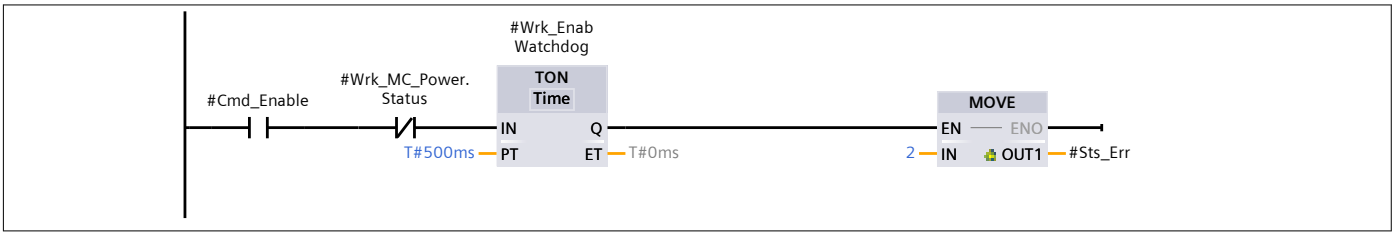

## Network 5: MC_Power for axis



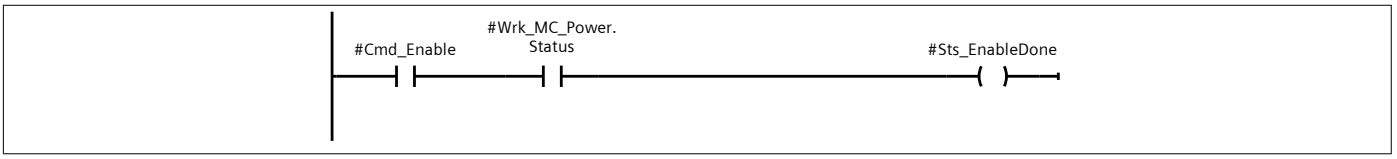

## Network 6:




## Network 7: Axis enable watchdog

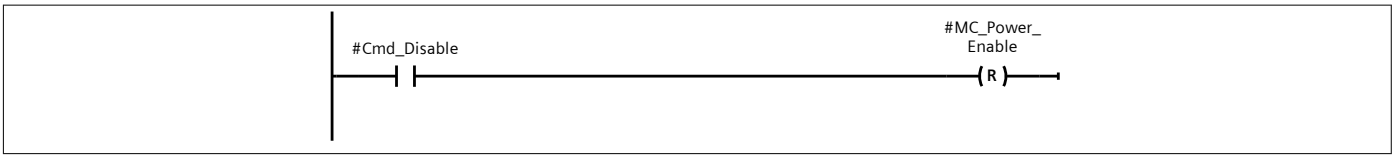



## Network 8: Enable status for block output

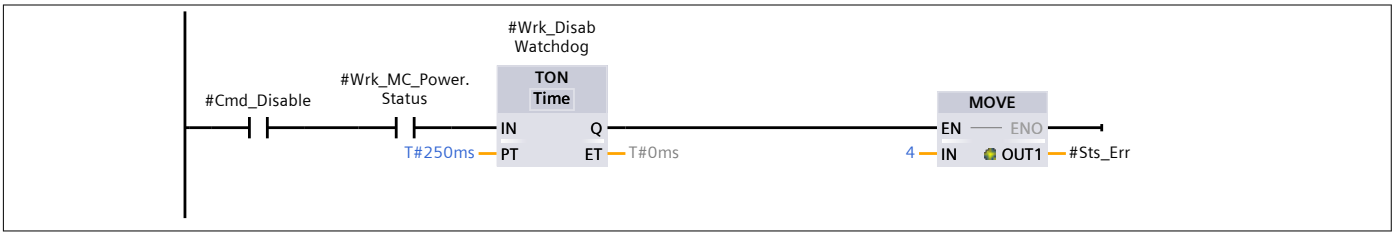



## Network 9: - SECTION AXIS DISABLE

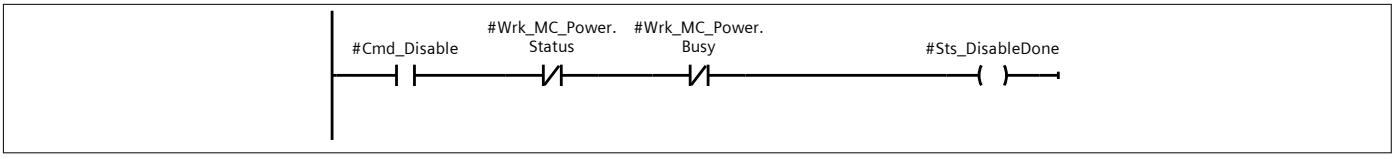
Turn off enable input to MC_POWER block



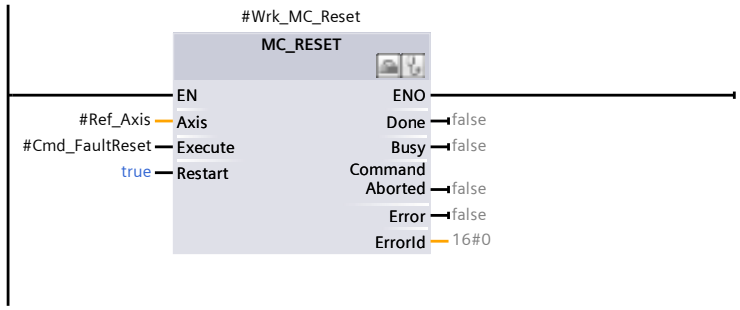

## Network 10:




## Network 11: Disable status for block output

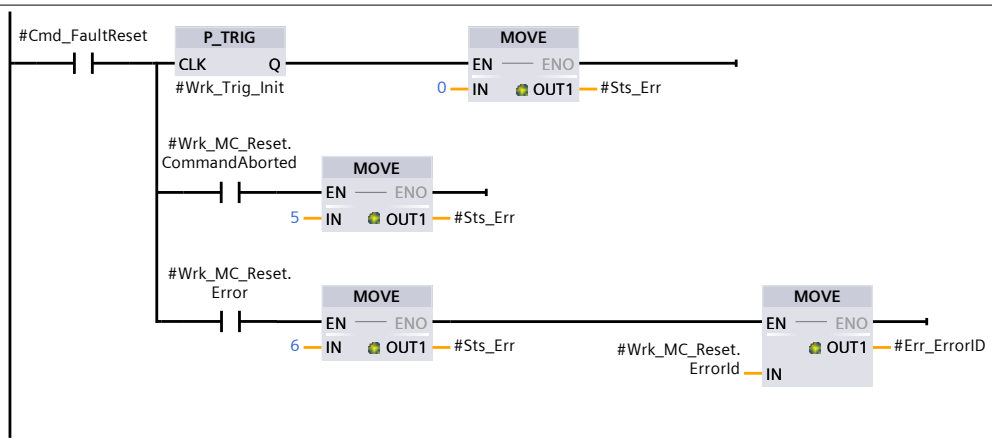


## Network 12: - SECTION AXIS FAULT RESET

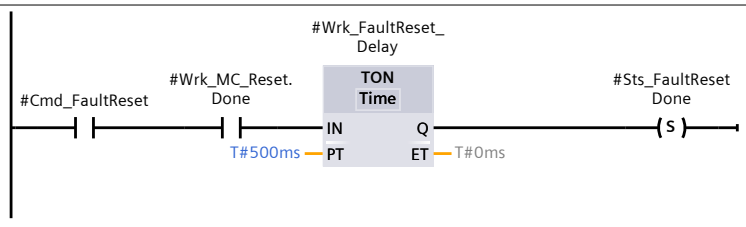



## Network 13: Fault clearing indications

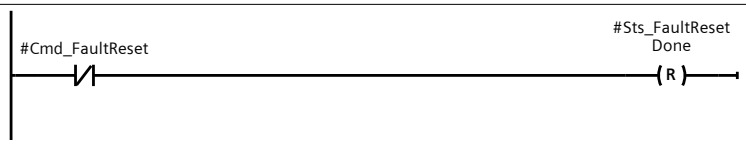
Error status output bits reset on earlier network.
Network reports errors from MC_Reset execution




## Network 14: Fault Reset done / handshake

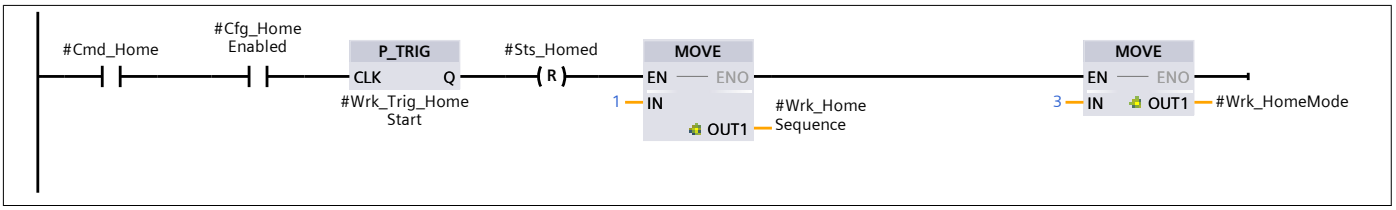



## Network 15:

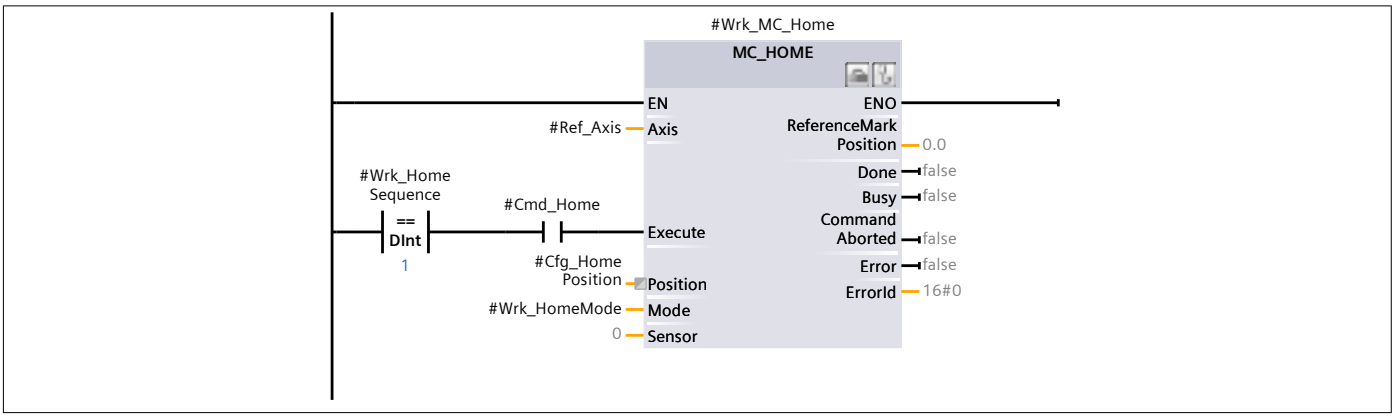


## Network 16: - SECTION AXIS HOMING

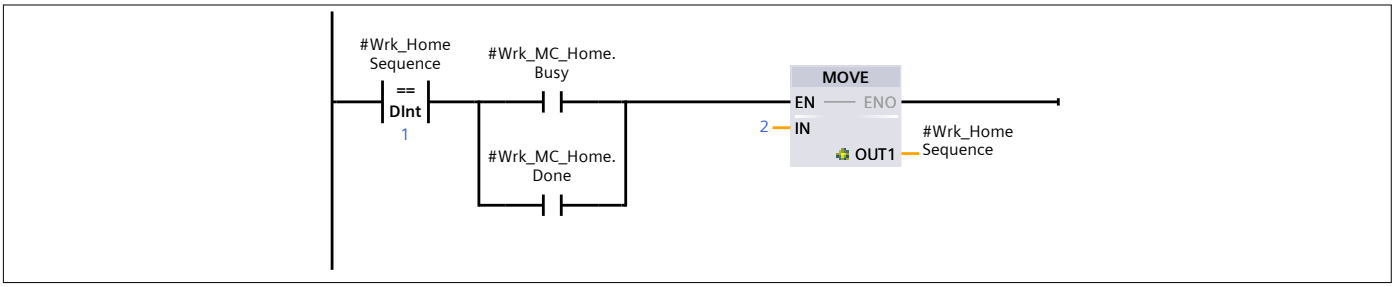
Home command, initiate sequence
Starting with V7.0, Mode=3 works for both incremental and absolute encoders.



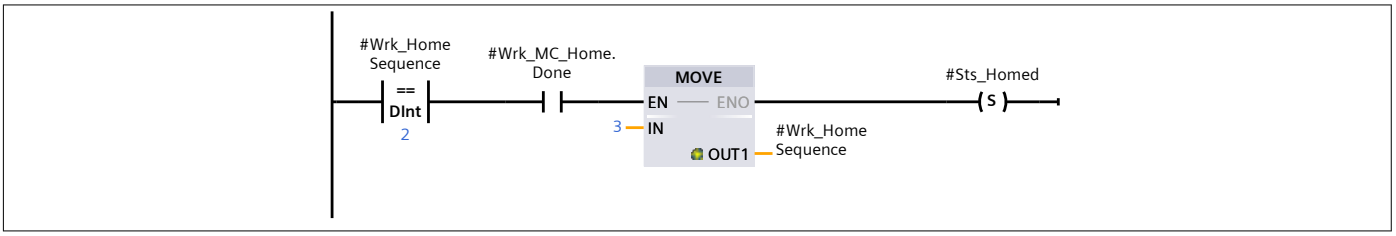

## Network 17: Home sequence execution - Step 1 initiates Home command



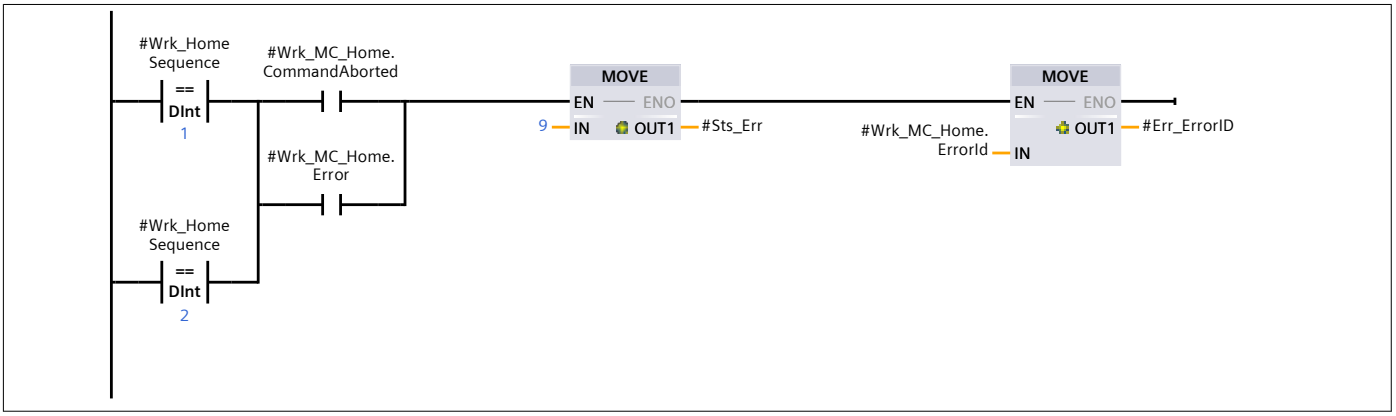

## Network 18: Home sequence execution - When busy, go to step 2 and wait for finished



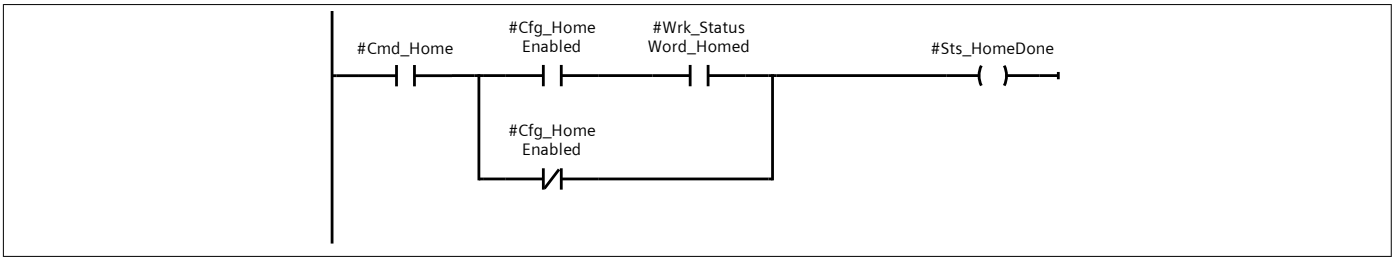

## Network 19: Axis is homed




## Network 20: Home error handling for MC_HOME



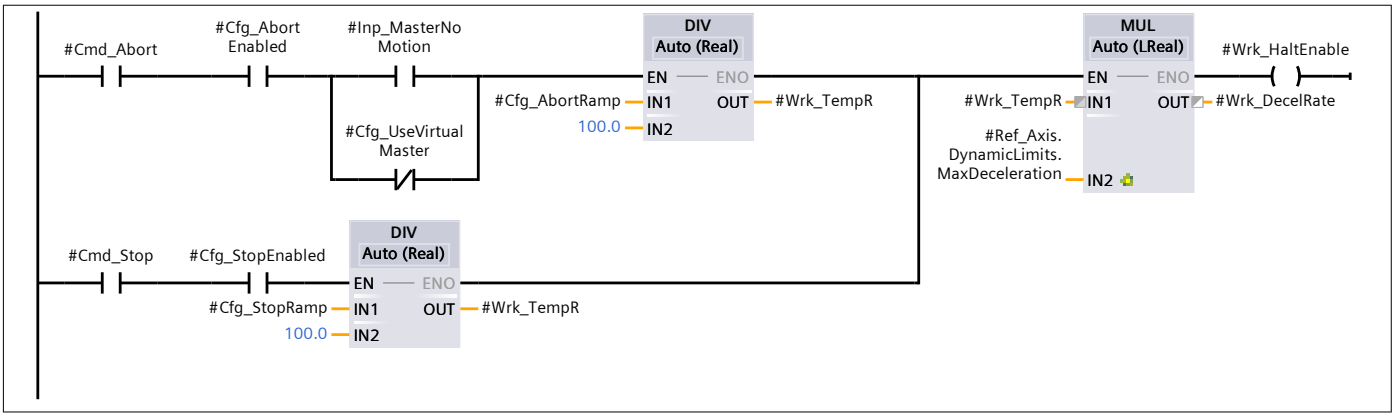

## Network 21: Home done handshake



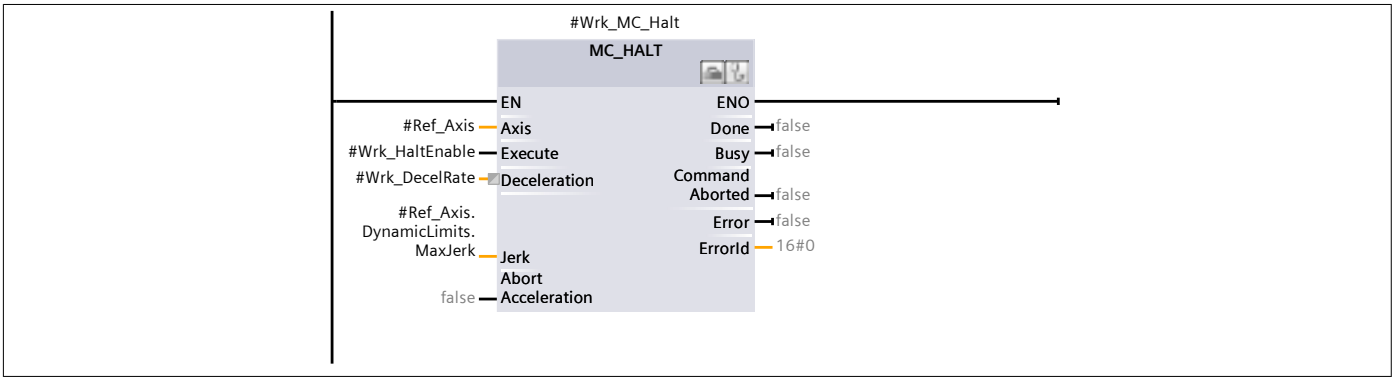

## Network 22: - SECTION AXIS STOP

Whenever the machine enters either the stopping or aborting state, stop the axis
-If stopping, all axes are stopped AFTER the virtual stops, providing a coordinated stop
-Aborting causes all axes

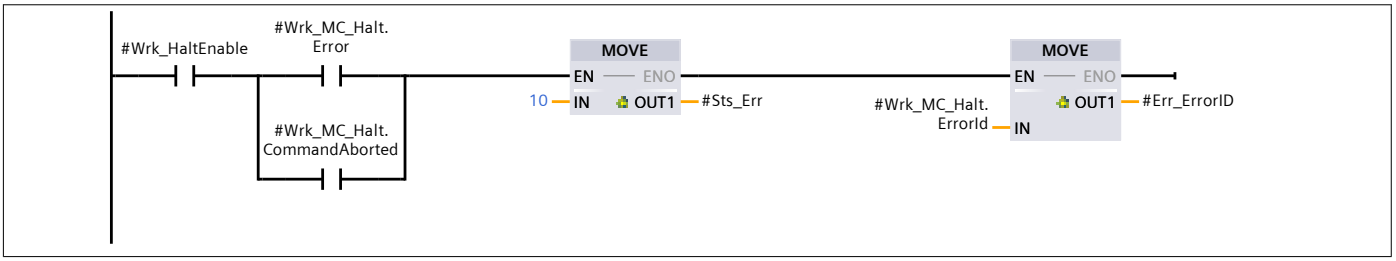
Deceleration as percent of maximum, obtained from axis structure
Jerk set to max



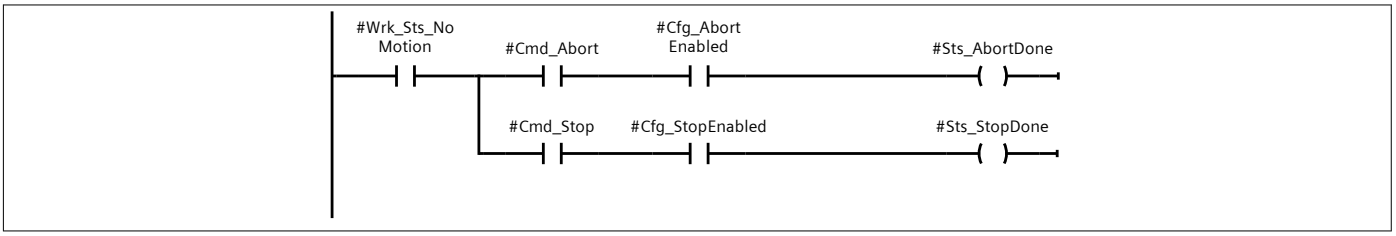

## Network 23: MC_Halt block




## Network 24:




## Network 25: Stop done handshake




## Network 26: - SECTION STATUS BIT UPDATE

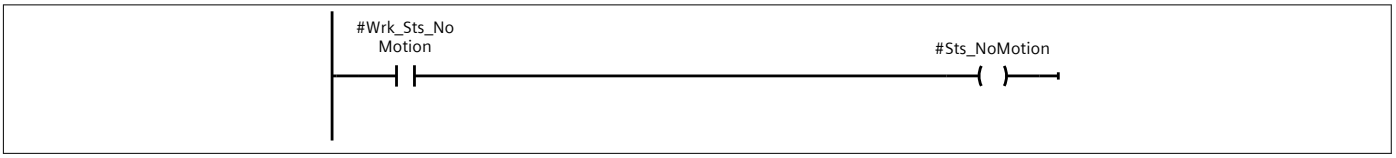
Check for no axis movement

Status word relevant bits - x if relevant to no motion check
Bit 00 1 if enabled
Bit 01 1 error present
Bit 02 1 restart active
Bit 03 1 restart tags changed
Bit 04 1 control panel active
Bit 05 1 axis homed
Bit 06 x 1 if no motion job running
Bit 07 x 1 at standstill
Bit 08 x 0 no positioning job running
Bit 09 x 0 no jog job running
Bit 10 x 0 no MoveVelocity running
Bit 11 x 0 no Home job running
Bit 12 x 1 axis running at constant velocity or at stanstill
Bit 13 x 0 No acceleration

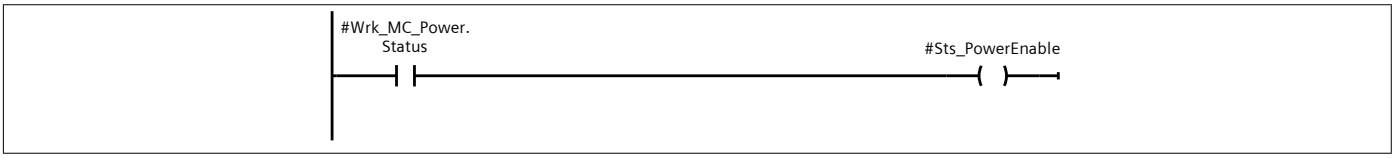
Bit 14 x 0 No deceleration
Bit 21 x 0 Axis not being synchronized to leading value
Bit 22 x 0 Axis is not moving synchronously
BIt 23 x 0 No superimposed motion active
Bit 24 x 0 No motion control instruction for leading value shift is active

Mask = DW#16#01E07FC0
Value to check is = DW#16#000010C0

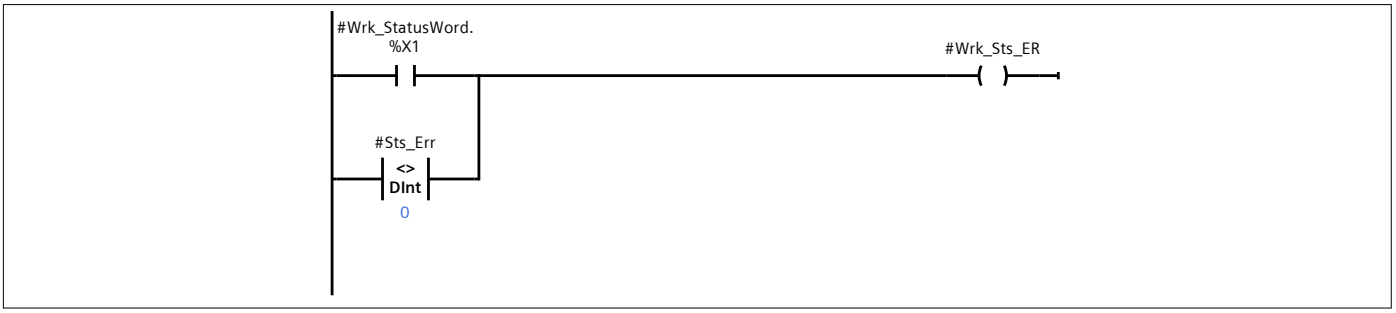
Err_Sts Values
1 = MC_Power error
2 = more than 500 msecs for axis to enable
4 = more than 250 msecs for axis to disable
5 = MC_Reset command aborted
6 = MC_Reset error
7 = MC_MOVEJOG when homing error
8 = MC_HOME error
9 = MC_HALT error



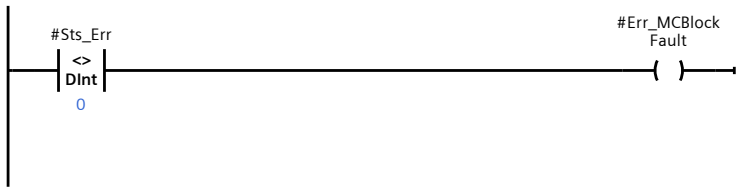

**Network 27:**




**Network 28: General error**

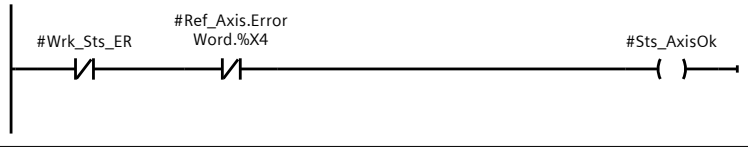



**Network 29: Summary of motion block errors**

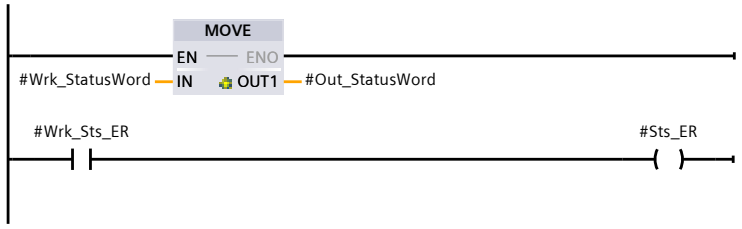



## Network 30: Axis is okay and ready

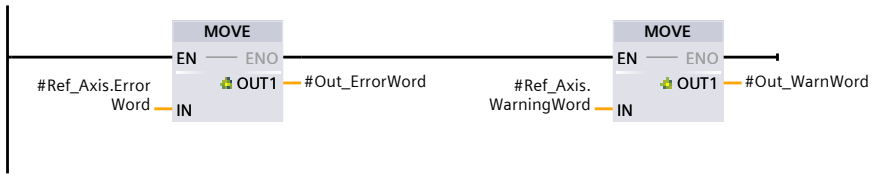
Bit 4 in ErrorWord is drive fault




## Network 31: Copy working statuses to block outputs




## Network 32: Copy axis error and warnings to outputs



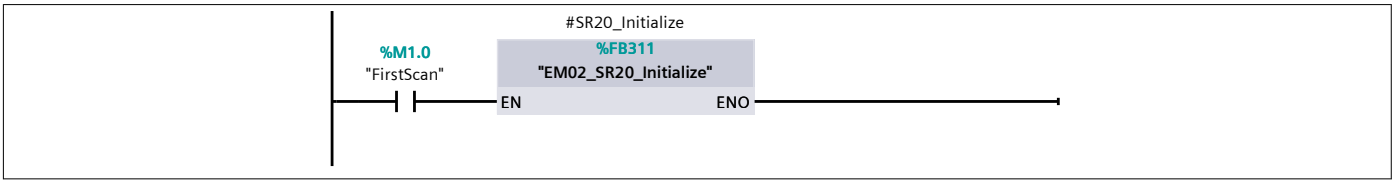
# DeltaSpiralConv [CPU 1515T-2 PN] / Program blocks / EM02_Conveyor

## EM02_00_Main [FB300]

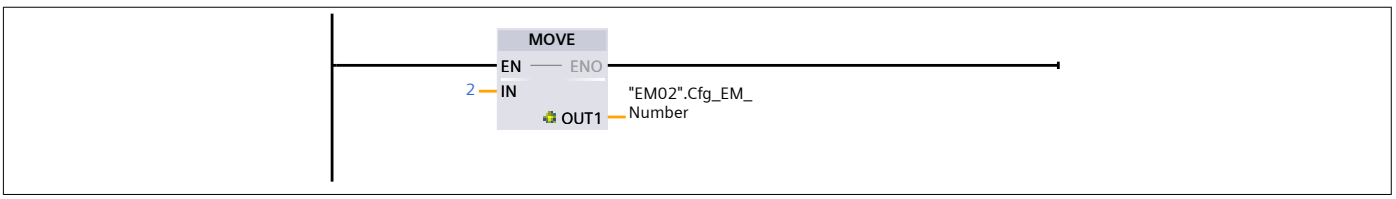
| EM02_00_Main Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | EM02_00_Main | **Number** | 300 | **Type** | FB |
| **Language** | LAD | **Numbering** | Manual | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | 0.1 | **User-defined ID** | |

| Name | Data type | Default value | Retain |
|---|---|---|---|
| Input | | | |
| Output | | | |
| InOut | | | |
| ▼ Static | | | |
| Cfg_EM_Number | Int | 0 | Non-retain |
| Par_Jog_Accel | Real | 0.0 | Non-retain |
| Par_Jog_Decel | Real | 0.0 | Non-retain |
| Par_Jog_Speed | Real | 0.0 | Non-retain |
| CM00_EM_Procedure | "EM02_CM00_Procedure" | | |
| CM02_10_Conveyor | "EM02_CM02_ServoAxisObject" | | |
| CM03_10_AxisJog_Conveyor | "EM02_CM03_ServoAxisJog" | | |
| SR20_Initialize | "EM02_SR20_Initialize" | | |
| Wrk_Temp_Bit | Bool | false | Non-retain |
| Temp | | | |
| Constant | | | |

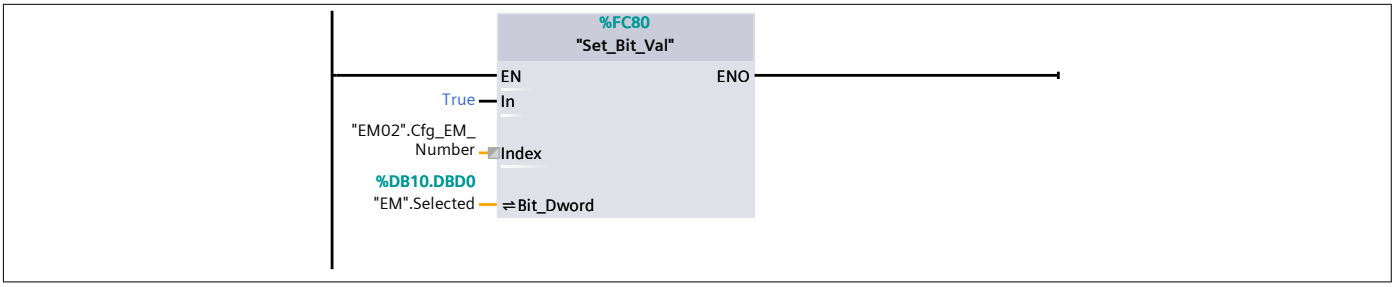
### Network 2:



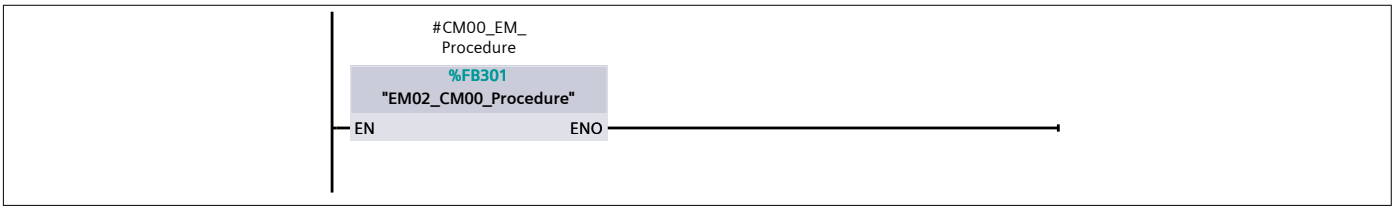

### Network 3: Set EM number



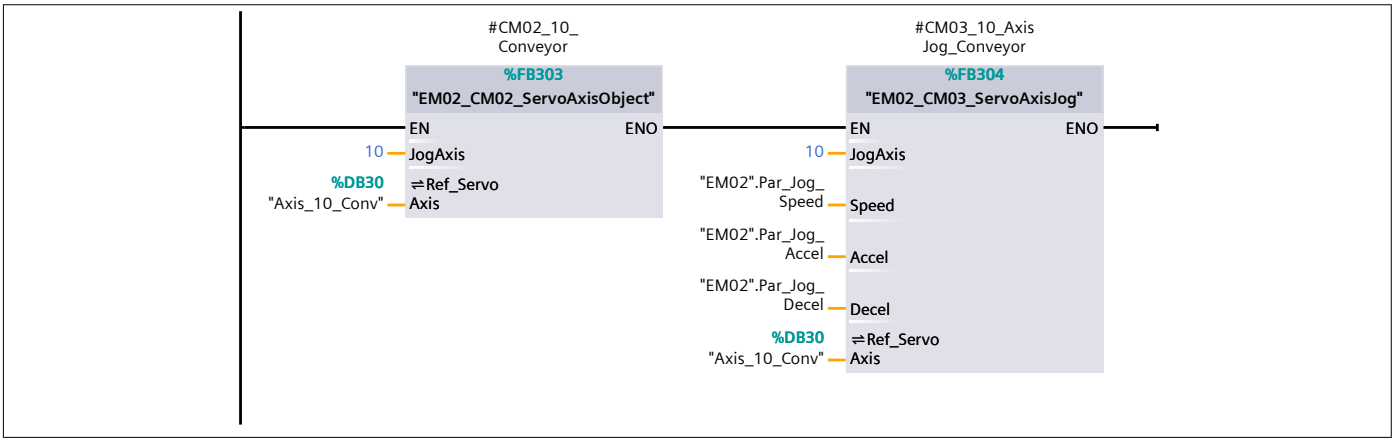
## Network 4: Equipment module is selected and active



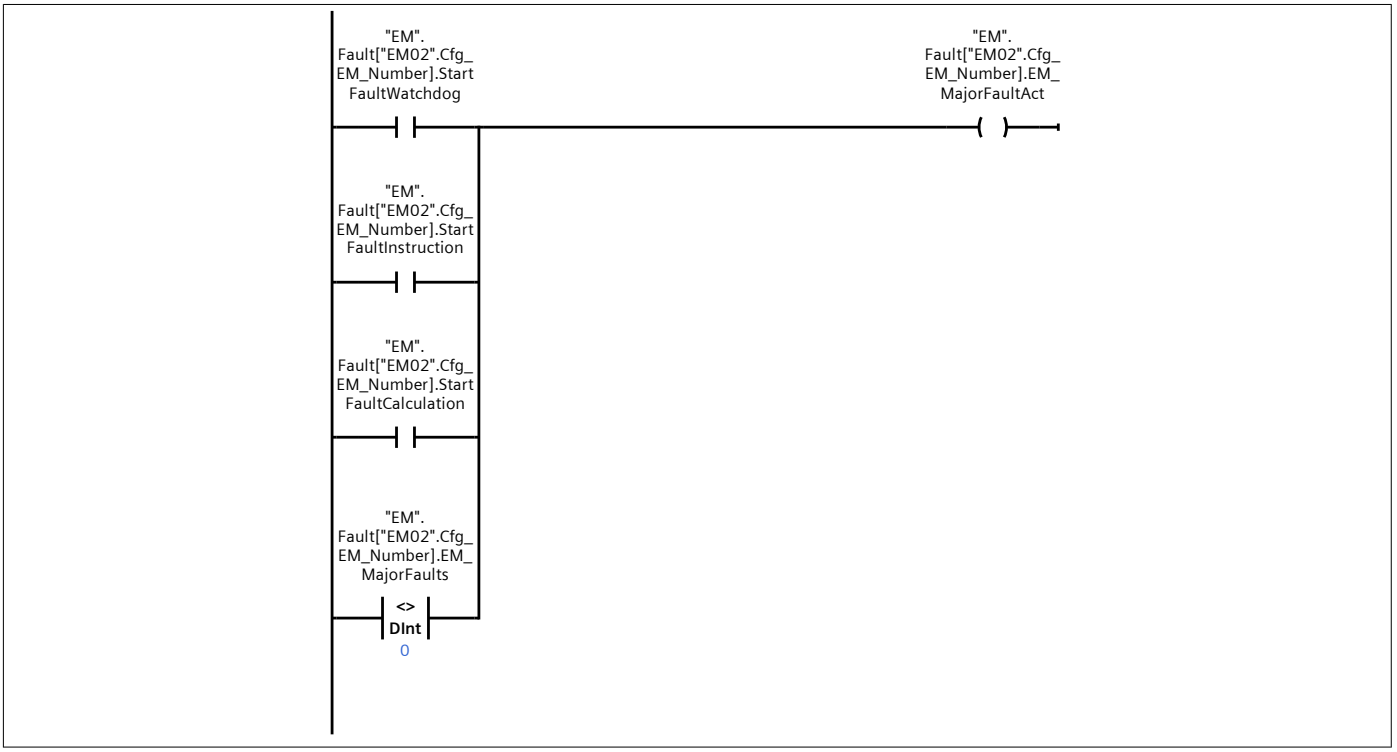

## Network 5:




## Network 6:

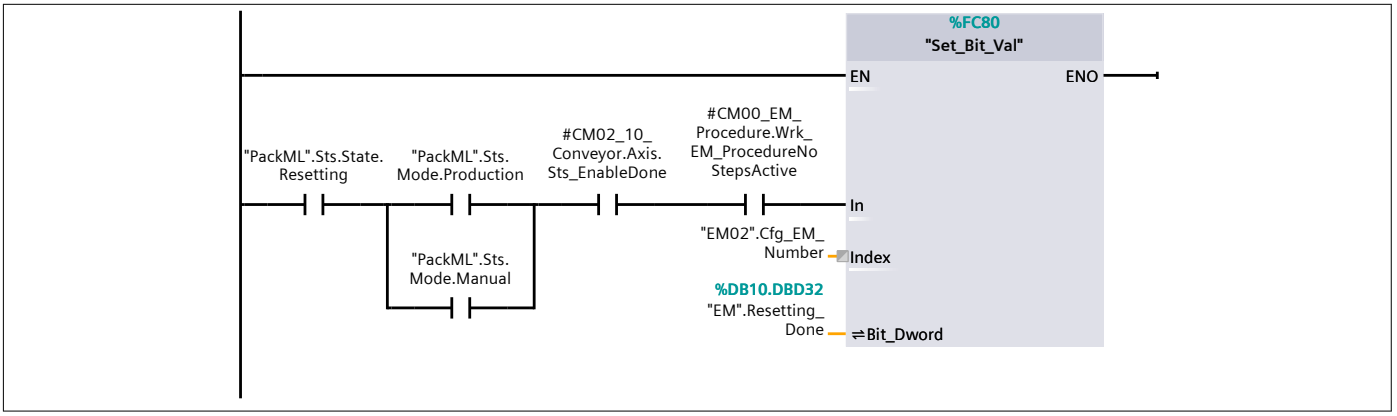



## Network 7:

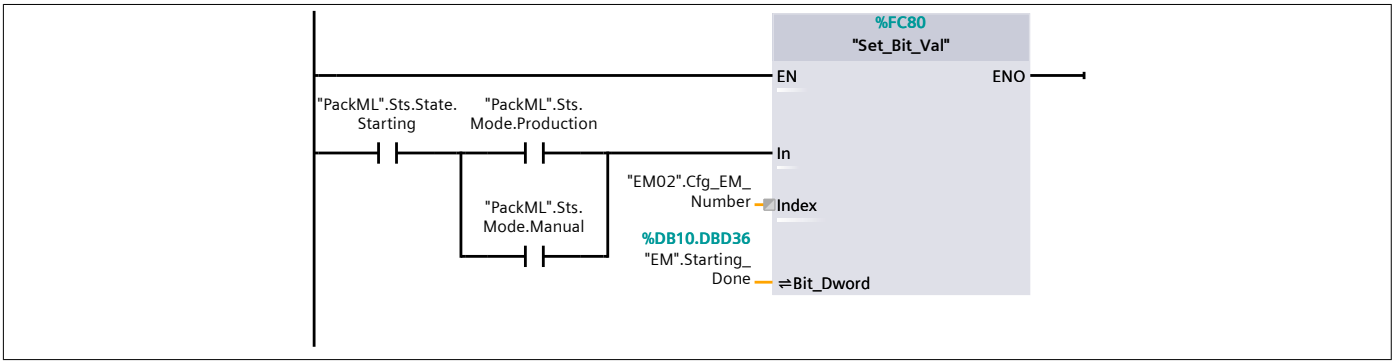



## Network 8: SECTION EQUIPMENT MODULE STATE COMPLETE HANDLING - SET DONE BITS

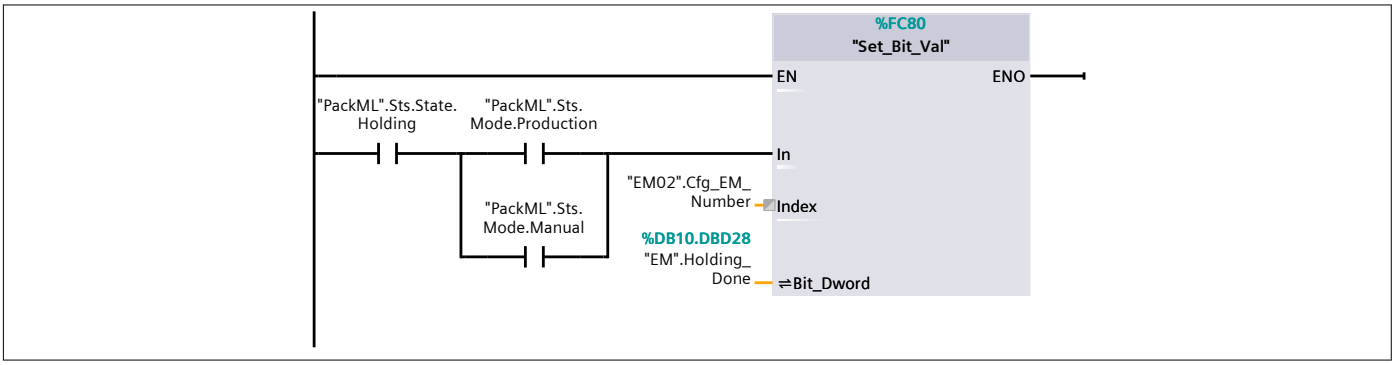
## Network 9: Resetting state



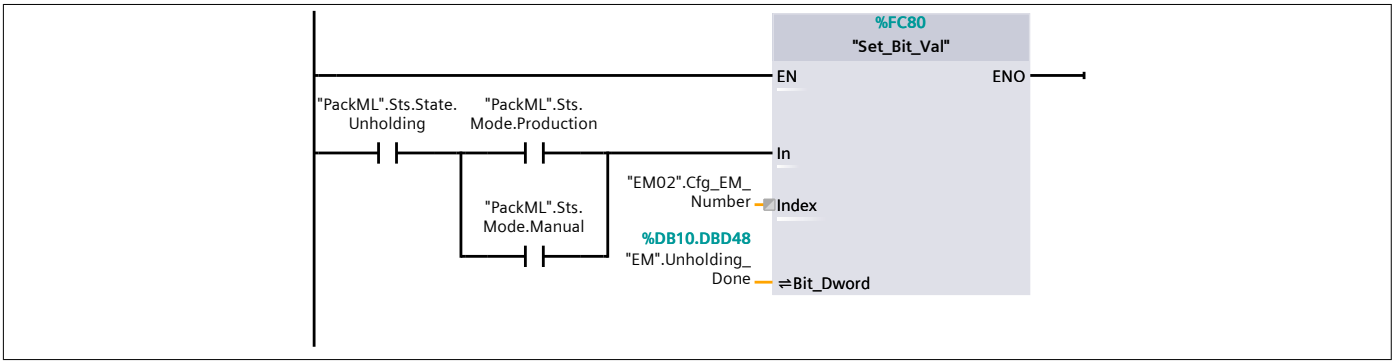

## Network 10: Starting state



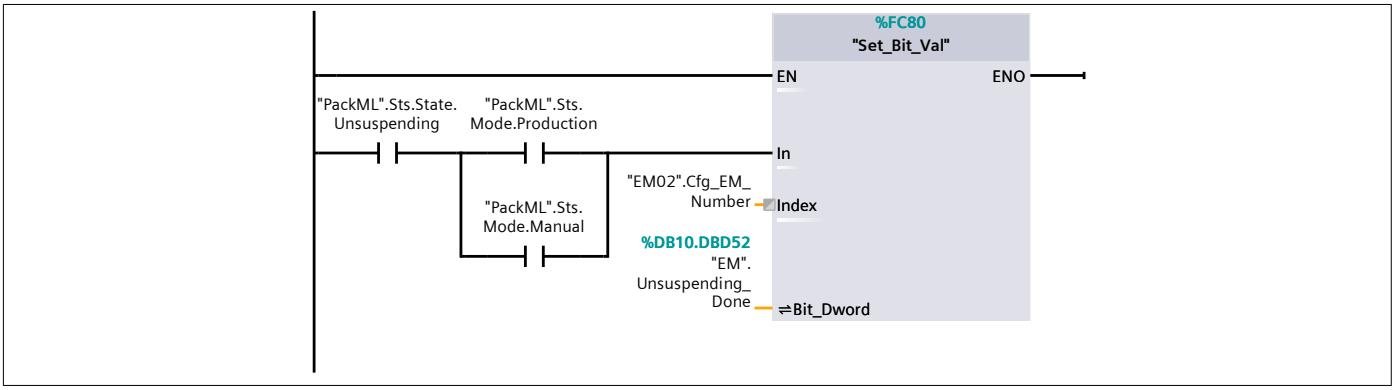

## Network 11: Holding state



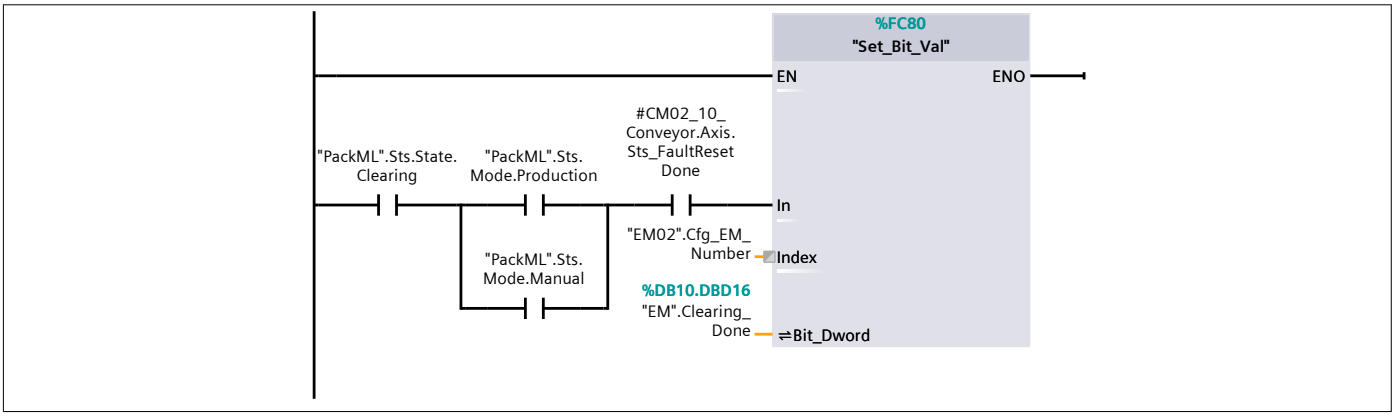

## Network 12: Unholding



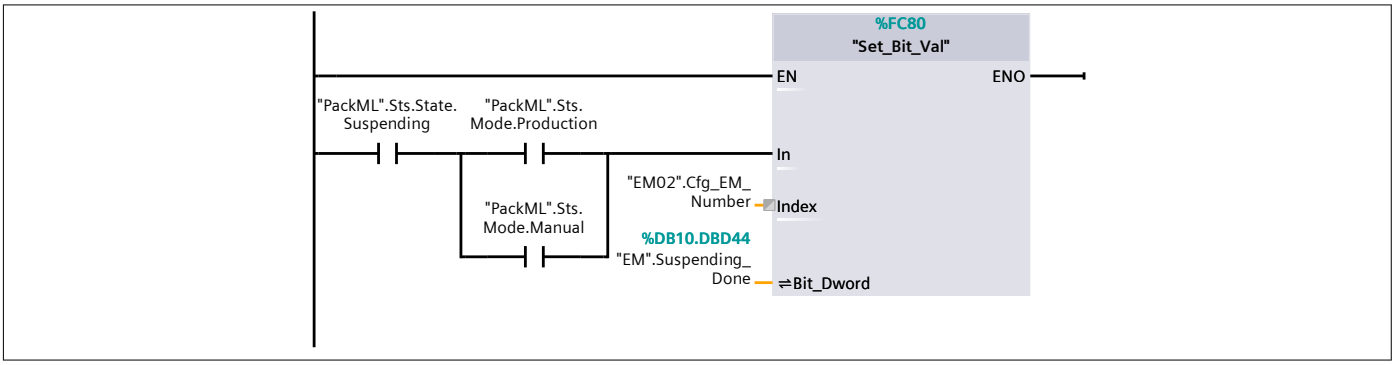

## Network 13: Unsuspending



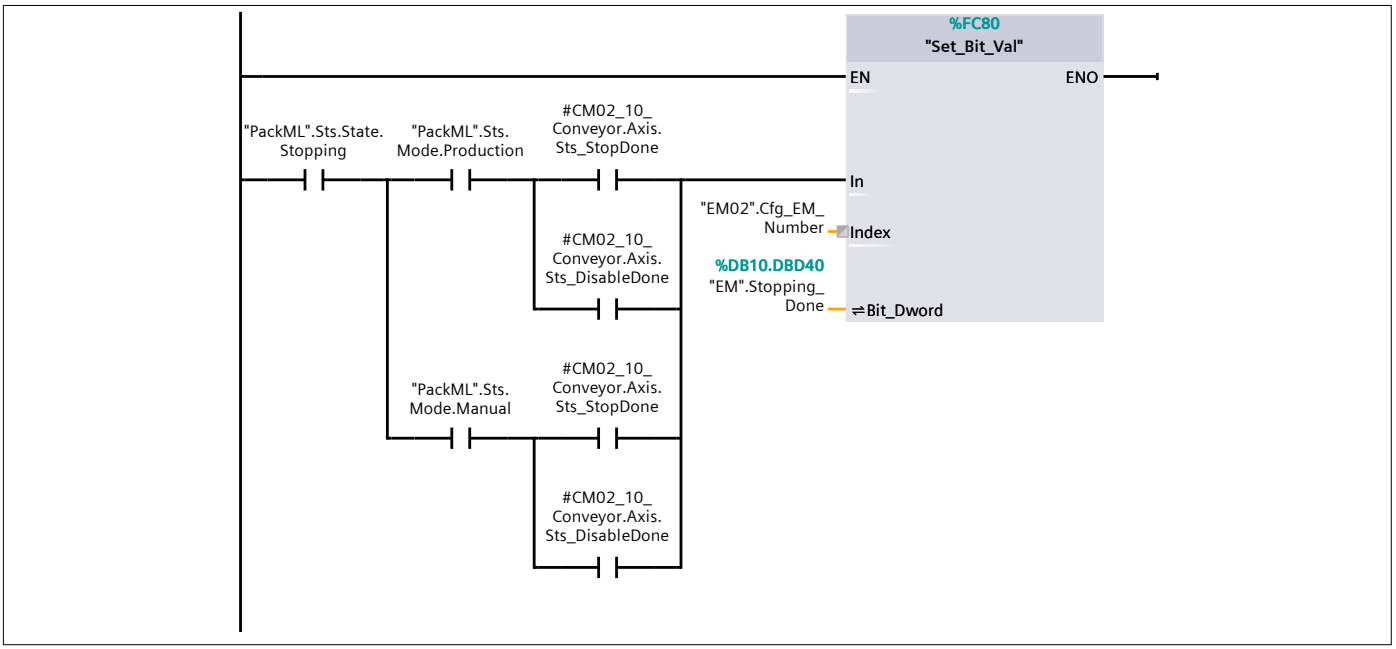

## Network 14: Clearing state



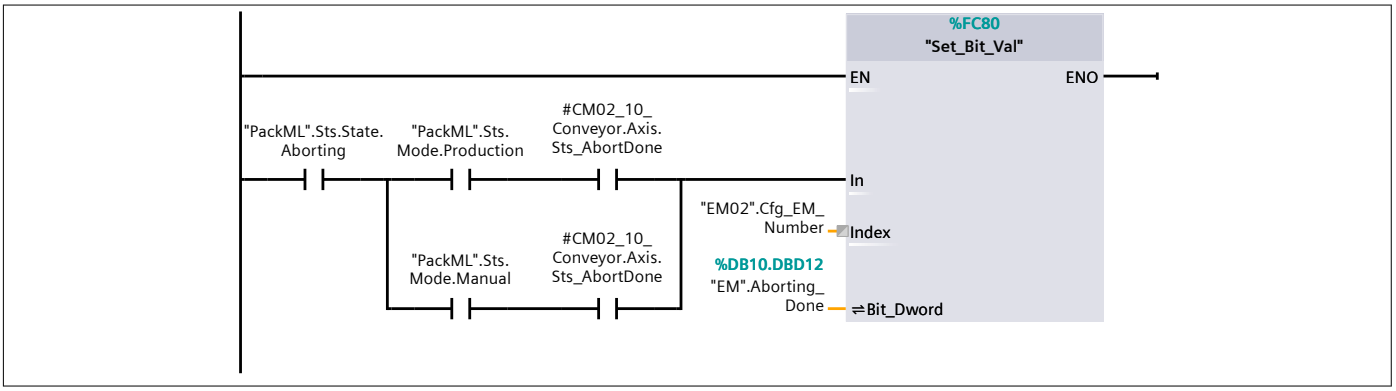

## Network 15: Suspending state



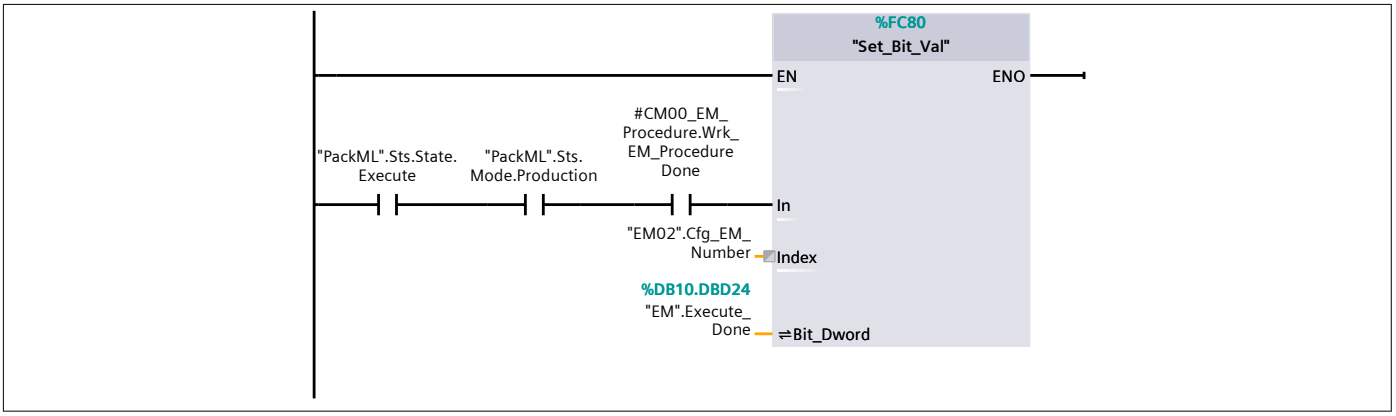

## Network 16: Stopping state



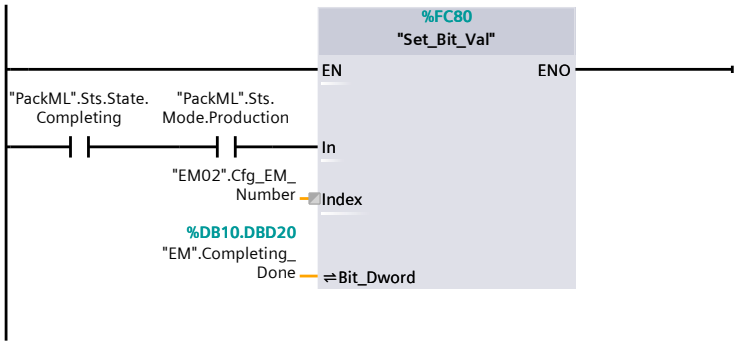

## Network 17: Aborting state



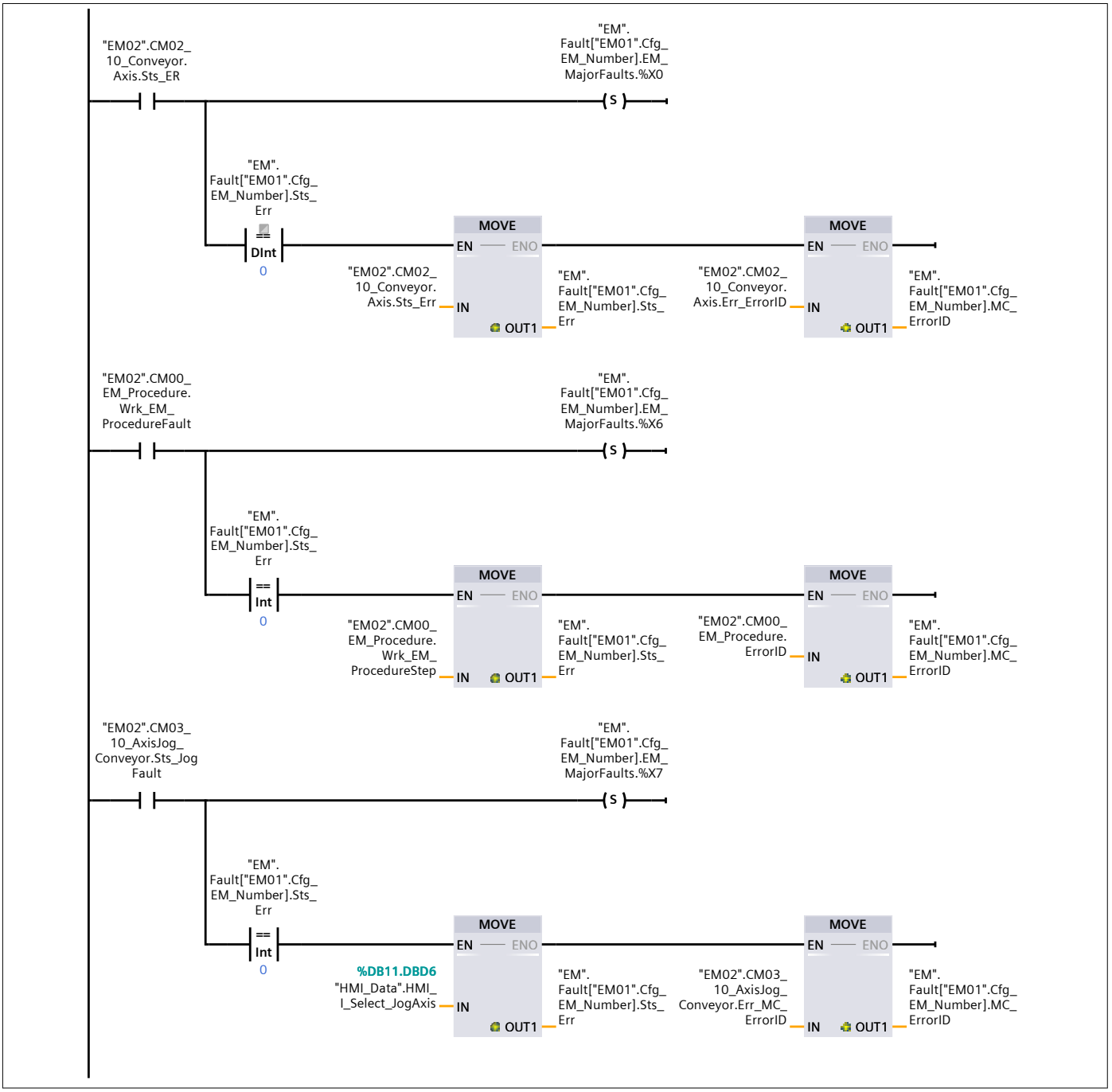

## Network 18: Execute state



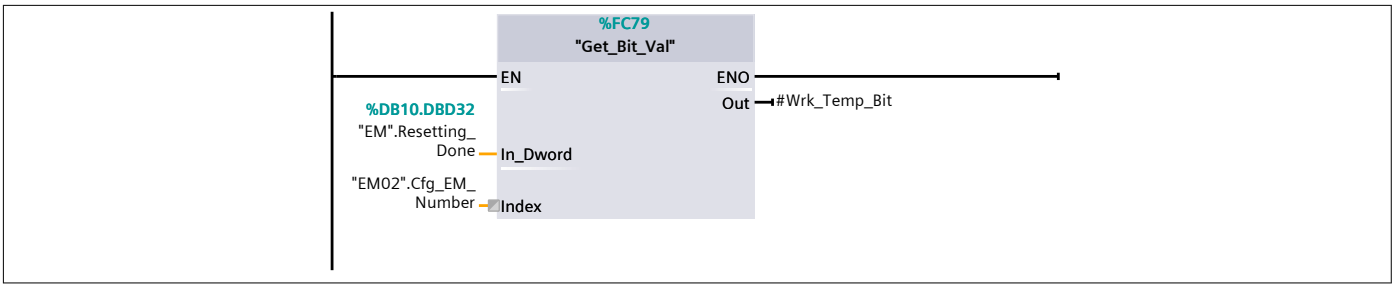
## Network 19: Completing State



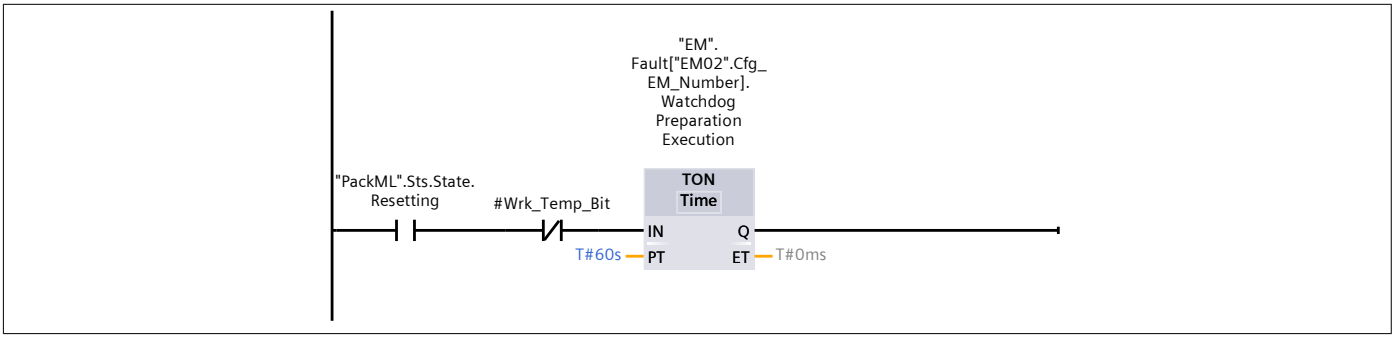

## Network 20: Map axis errors, procedure motion errors, and jogging errors into bits of the EM_Major-Faults



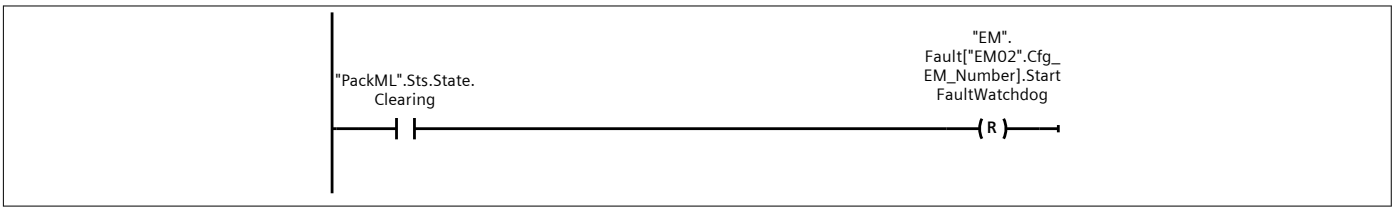

## Network 21: Get resetting status for this EM



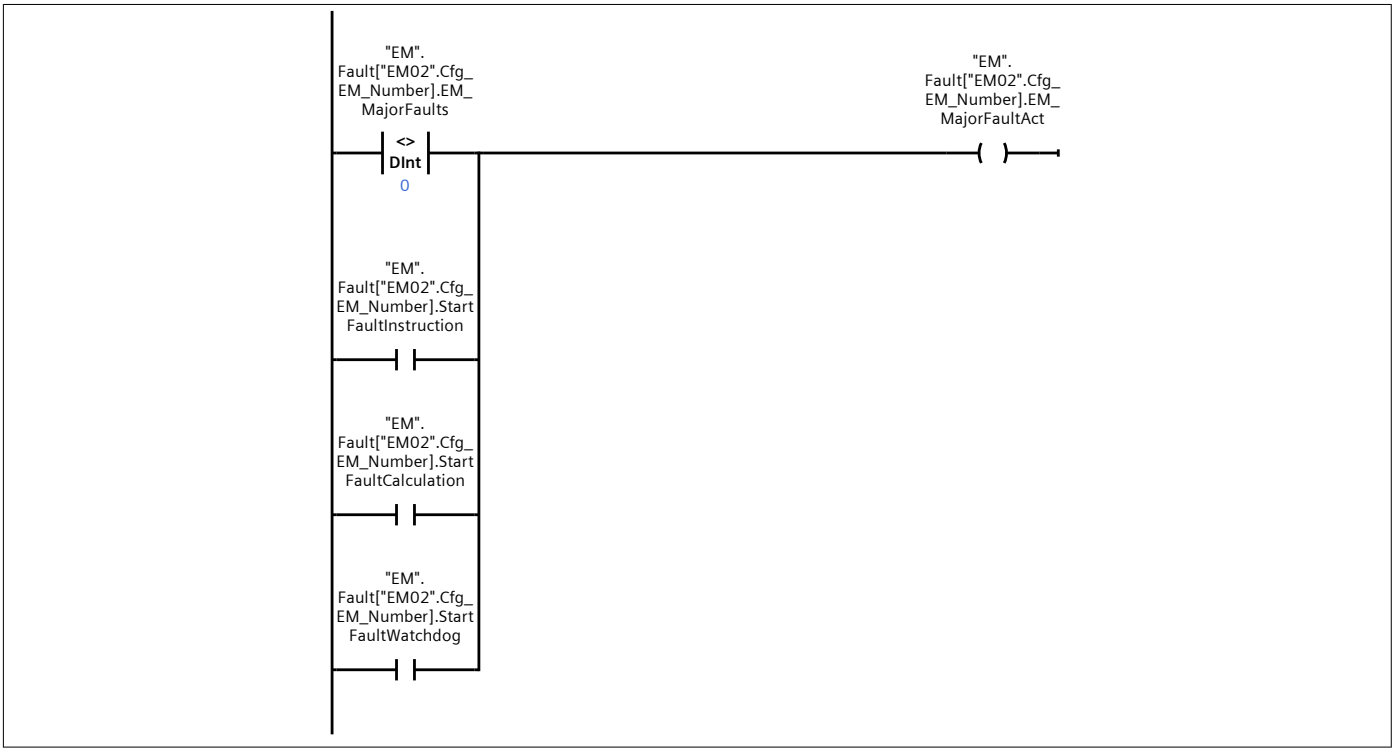
## Network 22: Watchdog for resetting - CREATE AN ERROR IF TIMEOUT OCCURS




## Network 23: Error cleared in clearing state




## Network 24: Summary of EM faults




## Network 25:


"EM".
Fault["EM02".Cfg_
EM_Number].EM_
MinorFaults
<>
DInt
0
"EM".
Fault["EM02".Cfg_
EM_Number].EM_
MinorFaultAct

**Network 26:**


"EM".
Fault["EM02".Cfg_
EM_Number].EM_
Warnings
<>
DInt
0
"EM".
Fault["EM02".Cfg_
EM_Number].EM_
WarningAct

# DeltaSpiralConv [CPU 1515T-2 PN] / Program blocks / EM02_Conveyor

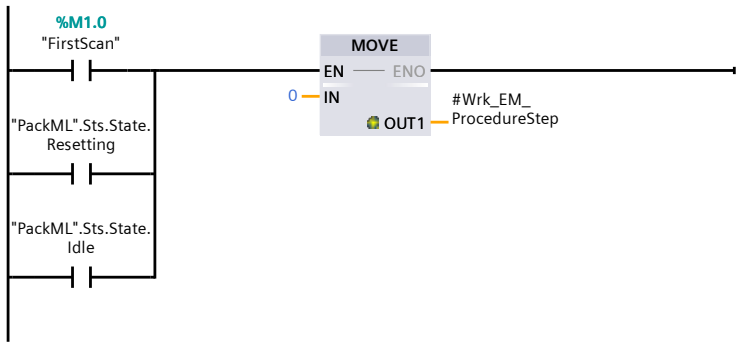
## EM02_CM00_Procedure [FB301]

| EM02_CM00_Procedure Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | EM02_CM00_Procedure | **Number** | 301 | **Type** | FB |
| **Language** | LAD | **Numbering** | Manual | | |
| **Information** | | | | | |
| **Title** | EM Procedure Sequence | **Author** | | **Comment** | |
| **Family** | | **Version** | 0.1 | **User-defined ID** | |

| Name | Data type | Default value | Retain |
|---|---|---|---|
| Input | | | |
| Output | | | |
| InOut | | | |
| ▼ Static | | | |
| ErrorID | Word | 16#0 | Non-retain |
| Sts_Err | Int | 0 | Non-retain |
| Wrk_EM_ProcedureStep | DInt | 0 | Non-retain |
| Wrk_EM_ProcedureNoStepsActive | Bool | false | Non-retain |
| Wrk_EM_ProcedureDone | Bool | false | Non-retain |
| Wrk_EM_ProcedureFault | Bool | false | Non-retain |
| Wrk_MC_MoveConv | MC_MOVEVELOCI-TY | | |
| MC_MoveRel1_Done | Bool | false | Non-retain |
| MC_MoveRel1_Busy | Bool | false | Non-retain |
| MC_MoveRel1_CommandAborted | Bool | false | Non-retain |
| MC_MoveRel1_Error | Bool | false | Non-retain |
| MC_MoveRel1_ErrorID | Word | 16#0 | Non-retain |
| MC_MoveRel2_Done | Bool | false | Non-retain |
| MC_MoveRel2_Busy | Bool | false | Non-retain |
| MC_MoveRel2_CommandAborted | Bool | false | Non-retain |
| MC_MoveRel2_Error | Bool | false | Non-retain |
| MC_MoveRel2_ErrorID | Word | 16#0 | Non-retain |
| MC_Home_Done | Bool | false | Non-retain |
| MC_Home_Busy | Bool | false | Non-retain |
| MC_Home_CommandAborted | Bool | false | Non-retain |
| MC_Home_Error | Bool | false | Non-retain |
| MC_Home_ErrorID | Word | 16#0 | Non-retain |
| Wrk_Trans_MoveConv | Bool | false | Non-retain |
| Temp | | | |
| Constant | | | |

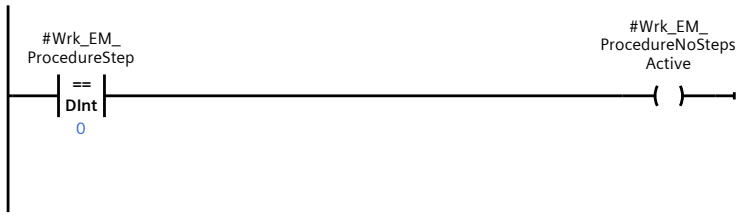
### Network 1: Reset step number

First scan or resetting or idle - clear all steps



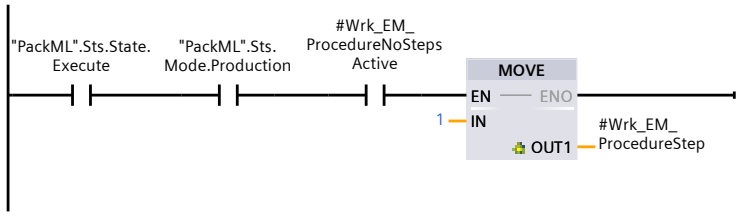

## Network 2: Indication that all steps reset

Used by RESETTING state and initial execute step

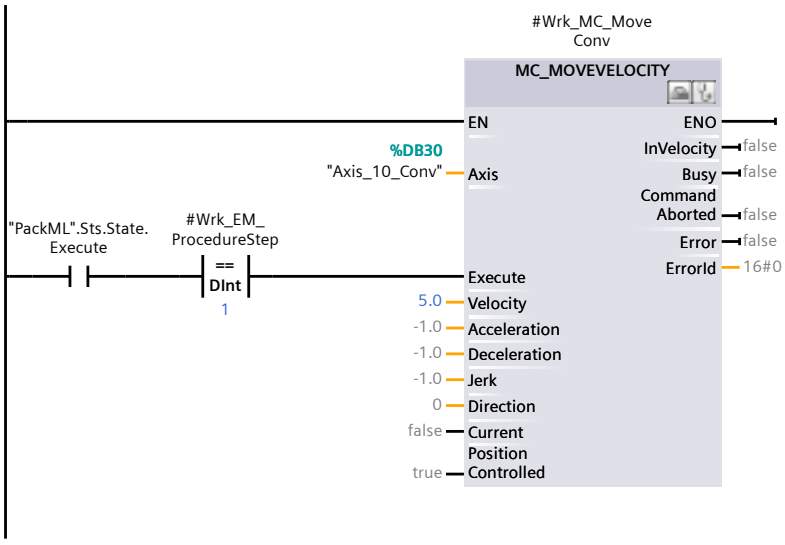



## Network 3: EXECUTE - Disabled

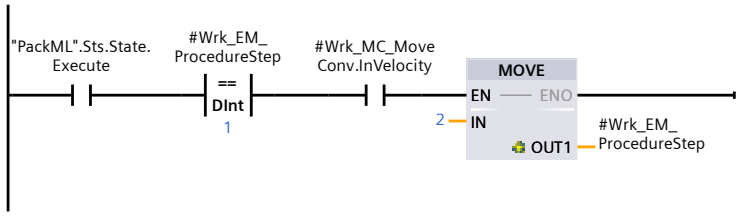
If no steps active go to step 1




## Network 4: EM Procedure step 1 - Start conveyor belt

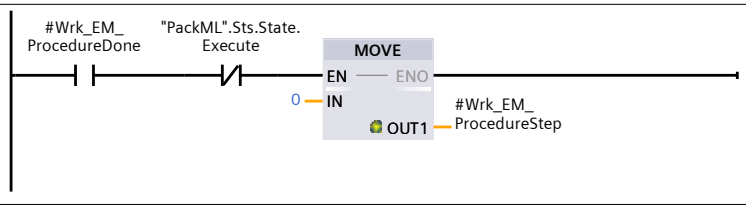


## Network 5: EM Procedure Step 1 done when conveyor moving

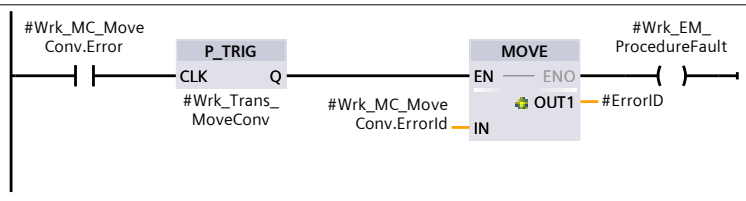



## Network 6: Last step - set done


## Network 7: When done, wait for out of execute step, then set step back to zero so can restart without resetting




## Network 8: Error handling for Axis



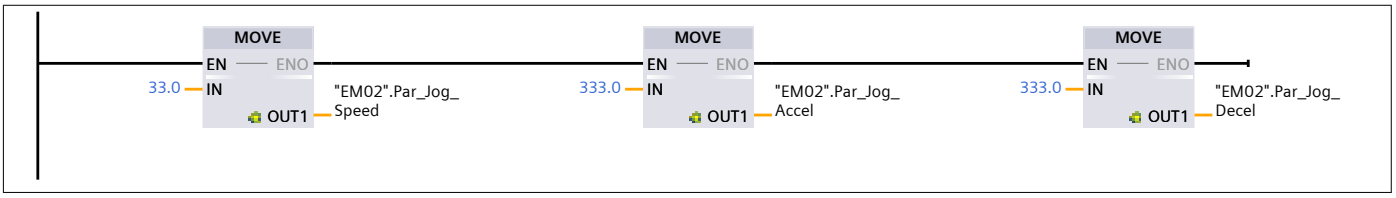
# DeltaSpiralConv [CPU 1515T-2 PN] / Program blocks / EM02_Conveyor

## EM02_SR20_Initialize [FB311]

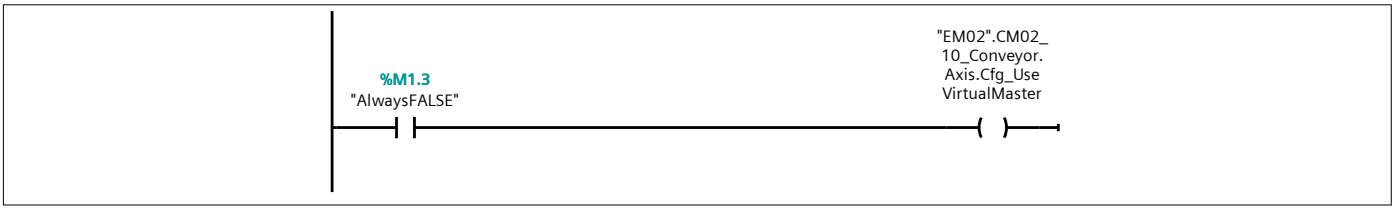
| EM02_SR20_Initialize Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | EM02_SR20_Initialize | **Number** | 311 | **Type** | FB |
| **Language** | LAD | **Numbering** | Manual | | |
| **Information** | | | | | |
| **Title** | Initialization for EM | **Author** | | **Comment** | |
| **Family** | | **Version** | 0.1 | **User-defined ID** | |

| Name | Data type | Default value | Retain |
|---|---|---|---|
| Input | | | |
| Output | | | |
| InOut | | | |
| Static | | | |
| Temp_Dint | DInt | 0 | Non-retain |
| Temp | | | |
| Constant | | | |

### Network 2:




### Network 3: All axes do not use a virtual master



# DeltaSpiralConv [CPU 1515T-2 PN] / Program blocks / EM02_Conveyor

## EM02 [DB300]

| EM02 Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | EM02 | **Number** | 300 | **Type** | DB |
| **Language** | DB | **Numbering** | Manual | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | 0.1 | **User-defined ID** | |

| Name | Data type | Start value | Retain |
|---|---|---|---|
| Input | | | |
| Output | | | |
| InOut | | | |
| ▼ Static | | | |
| Cfg_EM_Number | Int | 0 | False |
| Par_Jog_Accel | Real | 0.0 | False |
| Par_Jog_Decel | Real | 0.0 | False |
| Par_Jog_Speed | Real | 0.0 | False |
| CM00_EM_Procedure | "EM02_CM00_Procedure" | | False |
| CM02_10_Conveyor | "EM02_CM02_ServoAxisObject" | | False |
| CM03_10_AxisJog_Conveyor | "EM02_CM03_ServoAxisJog" | | False |
| SR20_Initialize | "EM02_SR20_Initialize" | | False |
| Wrk_Temp_Bit | Bool | false | False |

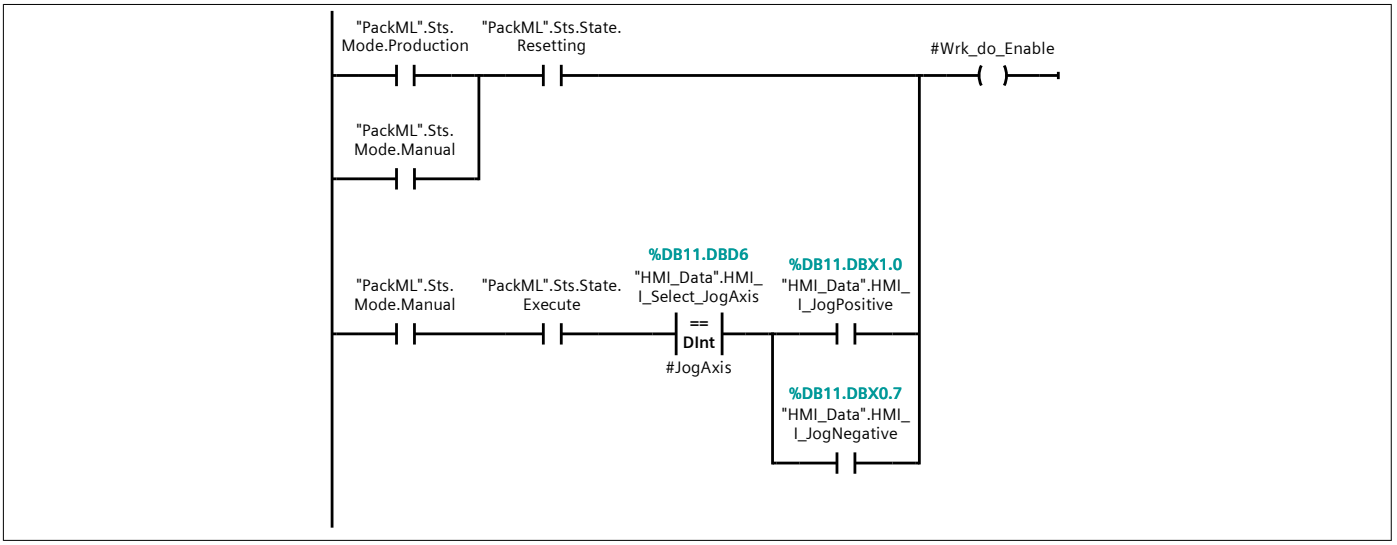
# DeltaSpiralConv [CPU 1515T-2 PN] / Program blocks / EM02_Conveyor

## EM02_CM02_ServoAxisObject [FB303]

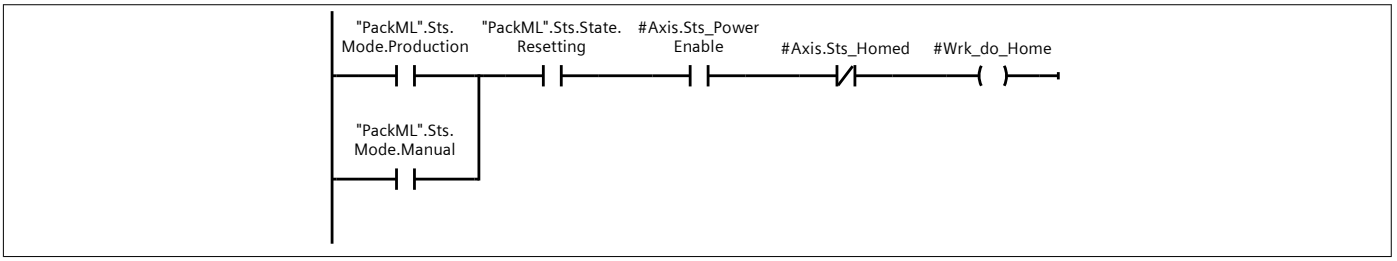
| EM02_CM02_ServoAxisObject Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | EM02_CM02_ServoAxisObject | **Number** | 303 | **Type** | FB |
| **Language** | LAD | **Numbering** | Manual | | |
| **Information** | | | | | |
| **Title** | Servo Axis object for X axis | **Author** | | **Comment** | |
| **Family** | | **Version** | 0.1 | **User-defined ID** | |

| Name | Data type | Default value | Retain |
|---|---|---|---|
| ▼ Input | | | |
| JogAxis | DInt | 0 | Non-retain |
| Output | | | |
| ▼ InOut | | | |
| Ref_ServoAxis | TO_PositioningAxis | | |
| ▼ Static | | | |
| Axis | "Axis_ObjectPOS" | | |
| Wrk_DisableDelay | TON_TIME | | Non-retain |
| Wrk_DisableDelay_IN | Bool | false | Non-retain |
| Wrk_do_Enable | Bool | false | Non-retain |
| Wrk_do_Home | Bool | false | Non-retain |
| Wrk_do_Stop | Bool | false | Non-retain |
| Wrk_do_Disable | Bool | false | Non-retain |
| Wrk_Temp_Bit | Bool | false | Non-retain |
| Temp | | | |
| Constant | | | |

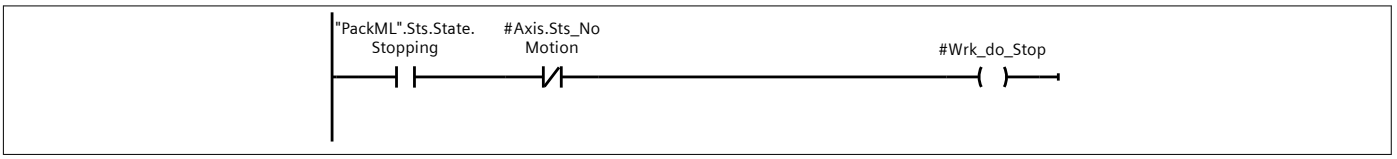
### Network 1: Enable logic for production and manual (jogging)



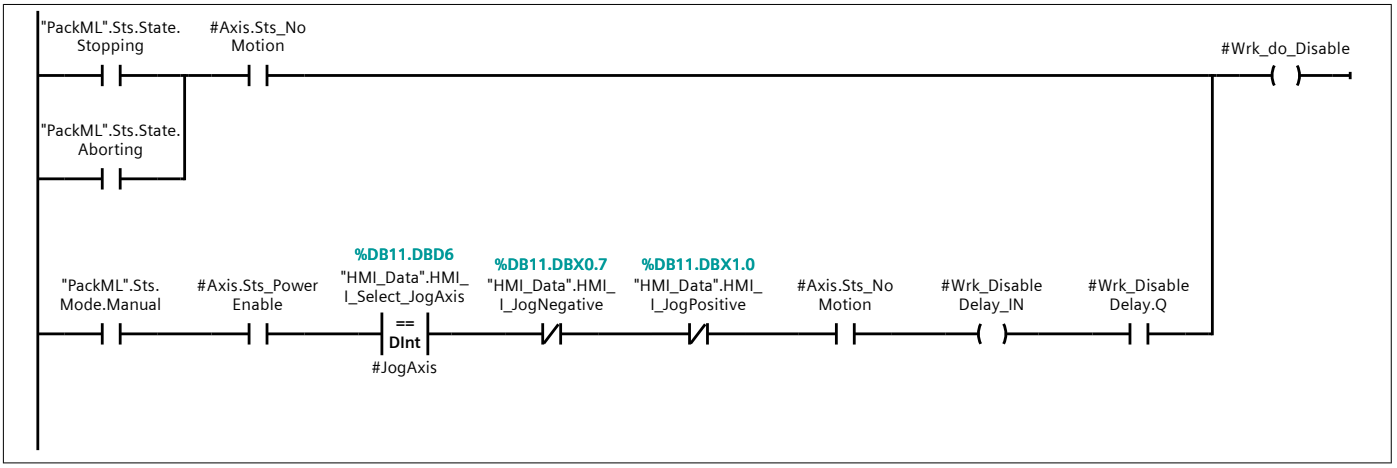

## Network 2: Homing logic



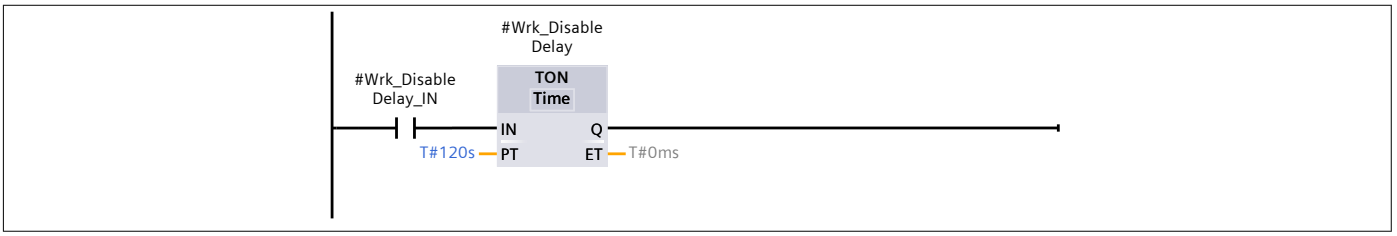

## Network 3: Stop logic



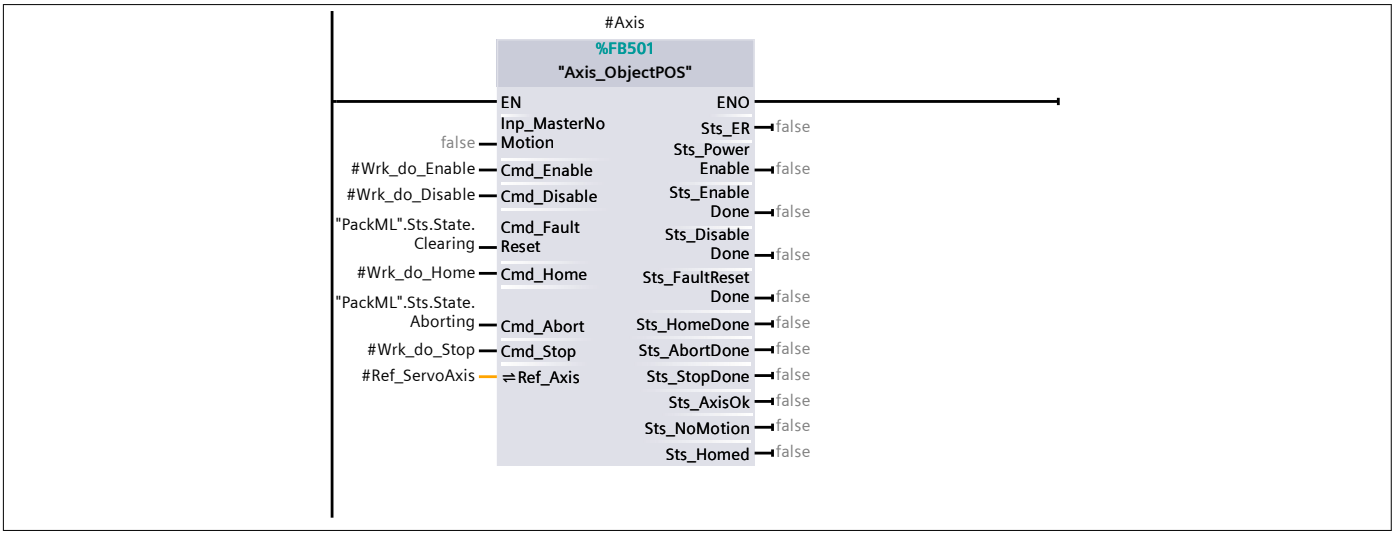

## Network 4: Do_Disable logic



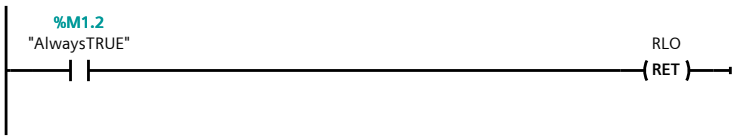

**Network 5: Disable delay timer for manual mode - if no jogging for 2 min, disable axis**




**Network 6:**




**Network 7: END: Update the ENO Output. (DO NOT REMOVE. Must be last rung)**


%M1.2
"AlwaysTRUE"
RLO
RET

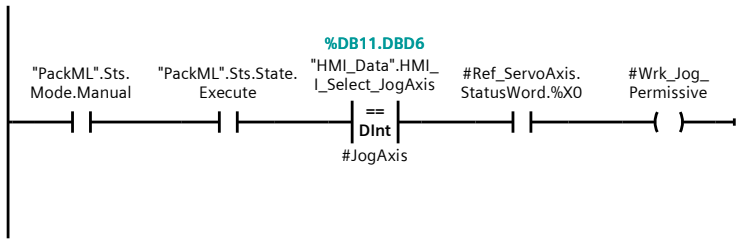
# DeltaSpiralConv [CPU 1515T-2 PN] / Program blocks / EM02_Conveyor

## EM02_CM03_ServoAxisJog [FB304]

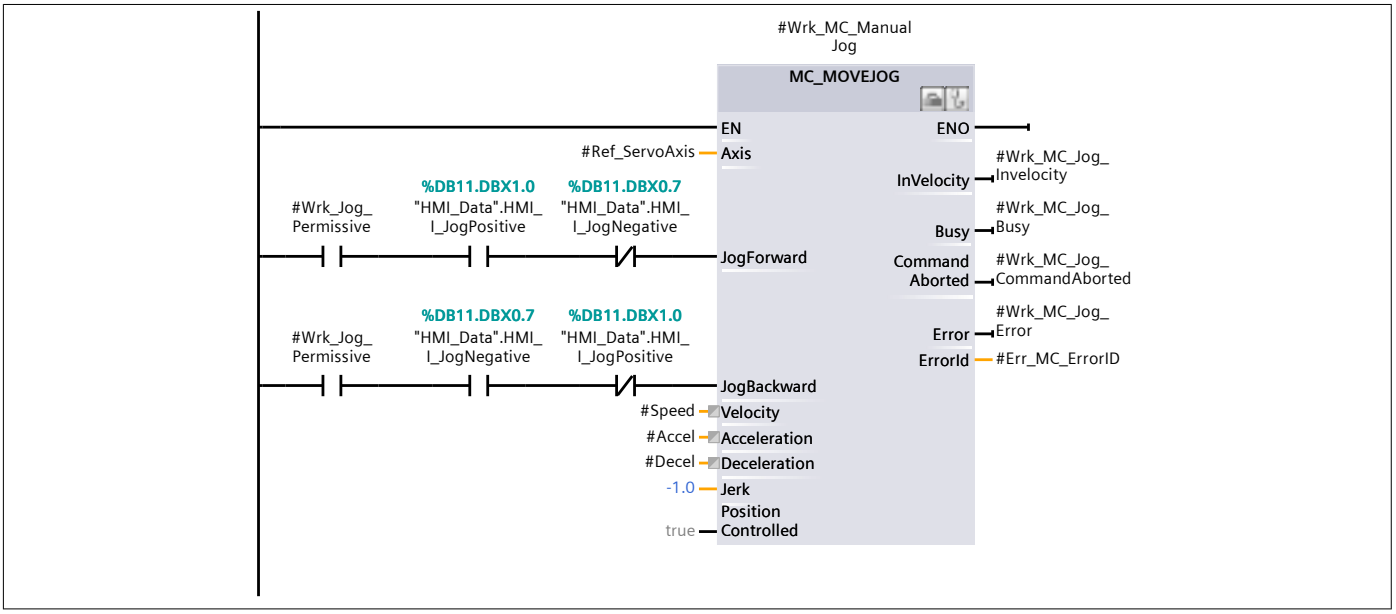
| EM02_CM03_ServoAxisJog Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | EM02_CM03_ServoAxis-Jog | **Number** | 304 | **Type** | FB |
| **Language** | LAD | **Numbering** | Manual | | |
| **Information** | | | | | |
| **Title** | Jog servo axis in manual mode | **Author** | | **Comment** | |
| **Family** | | **Version** | 0.1 | **User-defined ID** | |

| Name | Data type | Default value | Retain |
|---|---|---|---|
| ▼ Input | | | |
| JogAxis | DInt | 0 | Non-retain |
| Speed | Real | 0.0 | Non-retain |
| Accel | Real | 0.0 | Non-retain |
| Decel | Real | 0.0 | Non-retain |
| Output | | | |
| ▼ InOut | | | |
| Ref_ServoAxis | TO_PositioningAxis | | |
| ▼ Static | | | |
| Sts_JogFault | Bool | false | Non-retain |
| Err_MC_ErrorID | Word | 16#0 | Non-retain |
| Wrk_Jog_Permissive | Bool | false | Non-retain |
| Wrk_MC_ManualJog | MC_MOVEJOG | | |
| Wrk_MC_Jog_Invelocity | Bool | false | Non-retain |
| Wrk_MC_Jog_Busy | Bool | false | Non-retain |
| Wrk_MC_Jog_CommandAborted | Bool | false | Non-retain |
| Wrk_MC_Jog_Error | Bool | false | Non-retain |
| Temp | | | |
| Constant | | | |

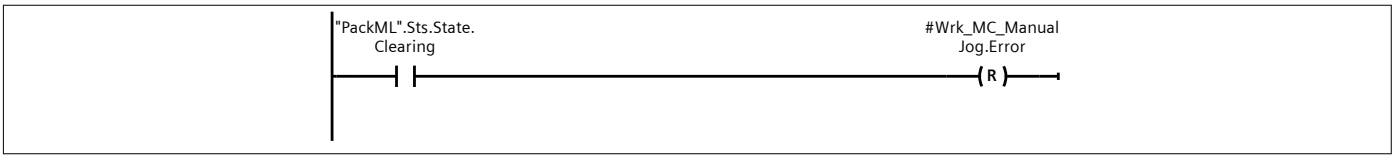
### Network 2: RELEASE JOG FUNCTION (-> SELECT EM NUMBER VIA HMI)



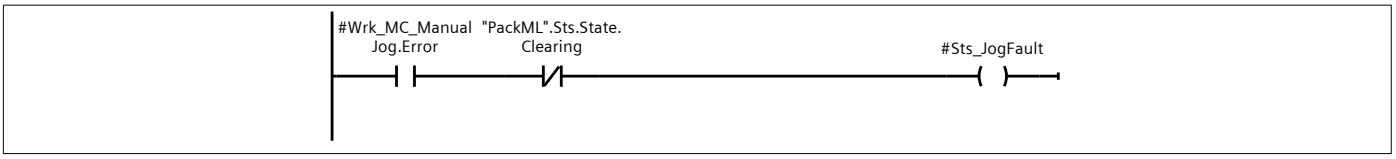

### Network 3: JOG SERVO AXIS



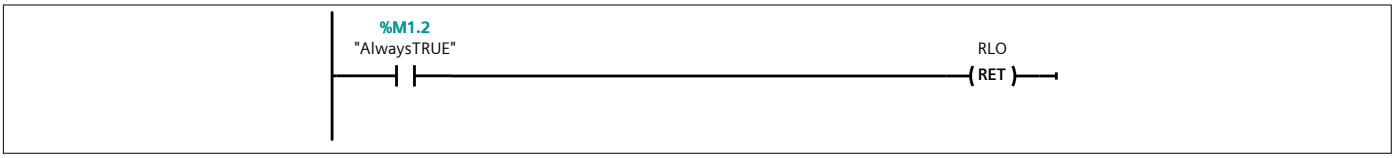

## Network 4: Fault Reset




## Network 5:




## Network 6: END: Update the ENO Output. (DO NOT REMOVE. Must be last rung)



# DeltaSpiralConv [CPU 1515T-2 PN] / Program blocks / 0_Organization Blocks

## MC-Interpolator [OB92]

| MC-Interpolator Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | MC-Interpolator | **Number** | 92 | **Type** | OB |
| **Language** | LAD | **Numbering** | Automatic | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | 1.0 | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| ▼ Input | | |
| Initial_Call | Bool | |
| PIP_Input | Bool | |
| PIP_Output | Bool | |
| IO_System | USInt | |
| Event_Count | Int | |
| Reduction | UInt | |

# DeltaSpiralConv [CPU 1515T-2 PN] / Program blocks / 0_Organization Blocks

## MC-Servo [OB91]

| MC-Servo Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | MC-Servo | **Number** | 91 | **Type** | OB |
| **Language** | LAD | **Numbering** | Automatic | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | 1.0 | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| ▼ Input | | |
| Initial_Call | Bool | |
| PIP_Input | Bool | |
| PIP_Output | Bool | |
| IO_System | USInt | |
| Event_Count | Int | |
| Synchronous | Bool | |

# DeltaSpiralConv [CPU 1515T-2 PN] / Program blocks / 0_Organization Blocks

## Startup [OB100]

| Startup Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | Startup | **Number** | 100 | **Type** | OB |
| **Language** | LAD | **Numbering** | Automatic | | |
| **Information** | | | | | |
| **Title** | "Complete Restart" | **Author** | | **Comment** | |
| **Family** | | **Version** | 0.1 | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| ▼ Input | | |
| LostRetentive | Bool | |
| LostRTC | Bool | |
| Temp | | |
| Constant | | |

# DeltaSpiralConv [CPU 1515T-2 PN] / Program blocks / Misc Blocks

## States_Disabled_Decode [FC82]

| States_Disabled_Decode Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | States_Disabled_Decode | **Number** | 82 | **Type** | FC |
| **Language** | SCL | **Numbering** | Manual | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | 0.1 | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| ▼ Input | | |
| Disabled_States | DInt | |
| ▼ Output | | |
| ClearingEnabled | Bool | |
| StoppedEnabled | Bool | |
| StartingEnabled | Bool | |
| IdleEnabled | Bool | |
| SuspendedEnabled | Bool | |
| ExecuteEnabled | Bool | |
| StoppingEnabled | Bool | |
| AbortingEnabled | Bool | |
| AbortedEnabled | Bool | |
| HoldingEnabled | Bool | |
| HeldEnabled | Bool | |
| UnholdingEnabled | Bool | |
| SuspendingEnabled | Bool | |
| UnsuspendingEnabled | Bool | |
| ResettingEnabled | Bool | |
| CompletingEnabled | Bool | |
| CompleteEnabled | Bool | |
| InOut | | |
| Temp | | |
| Constant | | |
| ▼ Return | | |
| States_Disabled_Decode | Void | |

```
0001 // Decode StatesDisabled Dint output from LPMLV30_UnitModeStateManager FB
0002 // Disabled states are "1" bits in the Dint.
0003 // Decode into individual enable Booleans that are "1" if state is enabled
0004 //
0005 #ClearingEnabled := NOT #Disabled_States.%X1;
0006 #StoppedEnabled := NOT #Disabled_States.%X2;
0007 #StartingEnabled := NOT #Disabled_States.%X3;
0008 #IdleEnabled := NOT #Disabled_States.%X4;
0009 #SuspendedEnabled := NOT #Disabled_States.%X5;
0010 #ExecuteEnabled := NOT #Disabled_States.%X6;
```

```
0011 #StoppingEnabled := NOT #Disabled_States.%X7;
0012 #AbortingEnabled := NOT #Disabled_States.%X8;
0013 #AbortedEnabled := NOT #Disabled_States.%X9;
0014 #HoldingEnabled := NOT #Disabled_States.%X10;
0015 #HeldEnabled := NOT #Disabled_States.%X11;
0016 #UnholdingEnabled := NOT #Disabled_States.%X12;
0017 #SuspendingEnabled := NOT #Disabled_States.%X13;
0018 #UnsuspendingEnabled := NOT #Disabled_States.%X14;
0019 #ResettingEnabled := NOT #Disabled_States.%X15;
0020 #CompletingEnabled := NOT #Disabled_States.%X16;
0021 #CompleteEnabled := NOT #Disabled_States.%X17;
```

# DeltaSpiralConv [CPU 1515T-2 PN] / Program blocks / Misc Blocks

## Set_Bit_Val [FC80]

| Set_Bit_Val Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | Set_Bit_Val | **Number** | 80 | **Type** | FC |
| **Language** | SCL | **Numbering** | Manual | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | 0.1 | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| ▼ Input | | |
| In | Bool | |
| Index | DInt | |
| Output | | |
| ▼ InOut | | |
| Bit_Dword | DWord | |
| Temp | | |
| Constant | | |
| ▼ Return | | |
| Set_Bit_Val | Void | |

```
0001 // Places boolean value in bit of Dword
0002 CASE #Index OF
0003   0:
0004     #Bit_Dword.%X0 := #In;
0005   1:
0006     #Bit_Dword.%X1 := #In;
0007   2:
0008     #Bit_Dword.%X2 := #In;
0009   3:
0010     #Bit_Dword.%X3 := #In;
0011   4:
0012     #Bit_Dword.%X4 := #In;
0013   5:
0014     #Bit_Dword.%X5 := #In;
0015   6:
0016     #Bit_Dword.%X6 := #In;
0017   7:
0018     #Bit_Dword.%X7 := #In;
0019   8:
0020     #Bit_Dword.%X8 := #In;
0021   9:
0022     #Bit_Dword.%X9 := #In;
0023   10:
0024     #Bit_Dword.%X10 := #In;
0025   11:
0026     #Bit_Dword.%X11 := #In;
0027   12:
```

```
0028      #Bit_Dword.%X12 := #In;
0029    13:
0030      #Bit_Dword.%X13 := #In;
0031    14:
0032      #Bit_Dword.%X14 := #In;
0033    15:
0034      #Bit_Dword.%X15 := #In;
0035    16:
0036      #Bit_Dword.%X16 := #In;
0037    17:
0038      #Bit_Dword.%X17 := #In;
0039    18:
0040      #Bit_Dword.%X18 := #In;
0041    19:
0042      #Bit_Dword.%X19 := #In;
0043    20:
0044      #Bit_Dword.%X20 := #In;
0045    21:
0046      #Bit_Dword.%X21 := #In;
0047    22:
0048      #Bit_Dword.%X22 := #In;
0049    23:
0050      #Bit_Dword.%X23 := #In;
0051    24:
0052      #Bit_Dword.%X24 := #In;
0053    25:
0054      #Bit_Dword.%X25 := #In;
0055    26:
0056      #Bit_Dword.%X26 := #In;
0057    27:
0058      #Bit_Dword.%X27 := #In;
0059    28:
0060      #Bit_Dword.%X28 := #In;
0061    29:
0062      #Bit_Dword.%X29 := #In;
0063    30:
0064      #Bit_Dword.%X30 := #In;
0065    31:
0066      #Bit_Dword.%X31 := #In;
0067  END_CASE;
0068
```

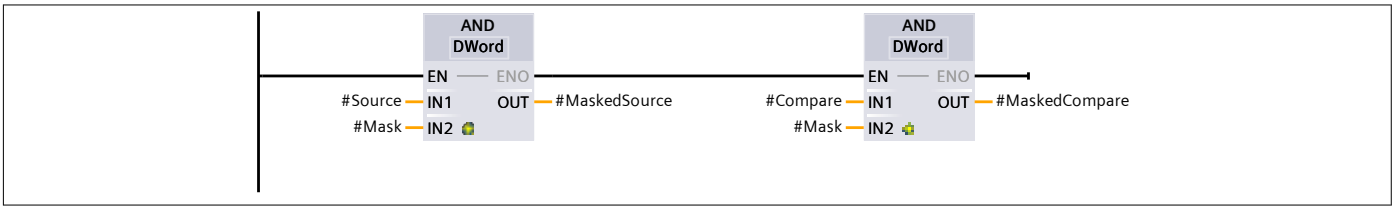
# DeltaSpiralConv [CPU 1515T-2 PN] / Program blocks / Misc Blocks

## MEQ_DWORD [FC81]

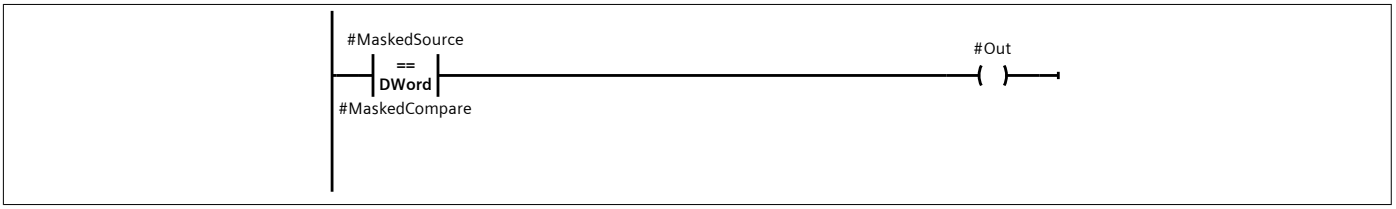
| MEQ_DWORD Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | MEQ_DWORD | **Number** | 81 | **Type** | FC |
| **Language** | LAD | **Numbering** | Manual | | |
| **Information** | | | | | |
| **Title** | Masked Equal for DWord | **Author** | | **Comment** | |
| **Family** | | **Version** | 0.1 | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| ▼ Input | | |
| Source | DWord | |
| Mask | DWord | |
| Compare | DWord | |
| ▼ Output | | |
| Out | Bool | |
| InOut | | |
| ▼ Temp | | |
| MaskedSource | DWord | |
| MaskedCompare | DWord | |
| Constant | | |
| ▼ Return | | |
| MEQ_DWORD | Void | |

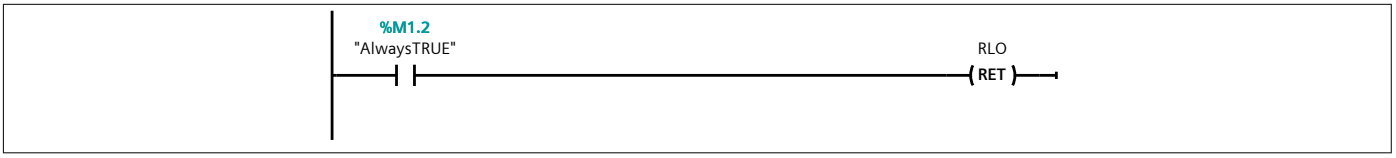
### Network 1: Do masking




### Network 2: Compare



## Network 3: Always sets ENO true



# DeltaSpiralConv [CPU 1515T-2 PN] / Program blocks / Misc Blocks

## Get_Bit_Val [FC79]

| Get_Bit_Val Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | Get_Bit_Val | **Number** | 79 | **Type** | FC |
| **Language** | SCL | **Numbering** | Manual | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | 0.1 | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| ▼ Input | | |
| In_Dword | DWord | |
| Index | DInt | |
| ▼ Output | | |
| Out | Bool | |
| InOut | | |
| Temp | | |
| Constant | | |
| ▼ Return | | |
| Get_Bit_Val | Void | |

```
0001 // Gets value of bit of Dword
0002 CASE #Index OF
0003   0:
0004     #Out := #In_Dword.%X0;
0005   1:
0006     #Out := #In_Dword.%X1;
0007   2:
0008     #Out := #In_Dword.%X2;
0009   3:
0010     #Out := #In_Dword.%X3;
0011   4:
0012     #Out := #In_Dword.%X4;
0013   5:
0014     #Out := #In_Dword.%X5;
0015   6:
0016     #Out := #In_Dword.%X6;
0017   7:
0018     #Out := #In_Dword.%X7;
0019   8:
0020     #Out := #In_Dword.%X8;
0021   9:
0022     #Out := #In_Dword.%X9;
0023   10:
0024     #Out := #In_Dword.%X10;
0025   11:
0026     #Out := #In_Dword.%X11;
0027   12:
```

```
0028      #Out := #In_Dword.%X12;
0029    13:
0030      #Out := #In_Dword.%X13;
0031    14:
0032      #Out := #In_Dword.%X14;
0033    15:
0034      #Out := #In_Dword.%X15;
0035    16:
0036      #Out := #In_Dword.%X16;
0037    17:
0038      #Out := #In_Dword.%X17;
0039    18:
0040      #Out := #In_Dword.%X18;
0041    19:
0042      #Out := #In_Dword.%X19;
0043    20:
0044      #Out := #In_Dword.%X20;
0045    21:
0046      #Out := #In_Dword.%X21;
0047    22:
0048      #Out := #In_Dword.%X22;
0049    23:
0050      #Out := #In_Dword.%X23;
0051    24:
0052      #Out := #In_Dword.%X24;
0053    25:
0054      #Out := #In_Dword.%X25;
0055    26:
0056      #Out := #In_Dword.%X26;
0057    27:
0058      #Out := #In_Dword.%X27;
0059    28:
0060      #Out := #In_Dword.%X28;
0061    29:
0062      #Out := #In_Dword.%X29;
0063    30:
0064      #Out := #In_Dword.%X30;
0065    31:
0066      #Out := #In_Dword.%X31;
0067  END_CASE;
```

# DeltaSpiralConv [CPU 1515T-2 PN] / Program blocks / Misc Blocks

## Axis_Status_Decode [FC70]

| Axis_Status_Decode Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | Axis_Status_Decode | **Number** | 70 | **Type** | FC |
| **Language** | SCL | **Numbering** | Manual | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | 0.1 | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| ▼ Input | | |
| Status_Word | DWord | |
| Error_Word | DWord | |
| Warning_Word | DWord | |
| ▼ Output | | |
| Decoded_Status | "Servo_StatusWord_Type" | |
| Decoded_Error | "Servo_ErrorWord_Type" | |
| Decoded_Warning | "Servo_Warning-Word_Type" | |
| InOut | | |
| Temp | | |
| Constant | | |
| ▼ Return | | |
| Axis_Status_Decode | Void | |

```
0001 // Decodes servo status words into booleans.
0002 //
0003 // Inputs are the 3 status Dwords from the technology object.
0004 // Outputs are data types that have the DWord and the individual booleans.
0005 //
0006 #Decoded_Status.TO_DWord                  := #Status_Word;
0007 #Decoded_Status.Enable                    := #Decoded_Status.TO_DWord.%X0;
0008 #Decoded_Status.Error                     := #Decoded_Status.TO_DWord.%X1;
0009 #Decoded_Status.RestartActive             := #Decoded_Status.TO_DWord.%X2;
0010 #Decoded_Status.OnlineStartValuesChanged  := #Decoded_Status.TO_DWord.%X3;
0011 #Decoded_Status.ControlPanelActive        := #Decoded_Status.TO_DWord.%X4;
0012 #Decoded_Status.HomingDone                := #Decoded_Status.TO_DWord.%X5;
0013 #Decoded_Status.Done                      := #Decoded_Status.TO_DWord.%X6;
0014 #Decoded_Status.Standstill               := #Decoded_Status.TO_DWord.%X7;
0015 #Decoded_Status.PositioningCommand        := #Decoded_Status.TO_DWord.%X8;
0016 #Decoded_Status.JogCommand               := #Decoded_Status.TO_DWord.%X9;
0017 #Decoded_Status.VelocityCommand           := #Decoded_Status.TO_DWord.%X10;
0018 #Decoded_Status.HomingCommand             := #Decoded_Status.TO_DWord.%X11;
0019 #Decoded_Status.ConstantVelocity          := #Decoded_Status.TO_DWord.%X12;
0020 #Decoded_Status.Accelerating             := #Decoded_Status.TO_DWord.%X13;
0021 #Decoded_Status.Decelerating             := #Decoded_Status.TO_DWord.%X14;
0022 #Decoded_Status.SWLimitMinActive         := #Decoded_Status.TO_DWord.%X15;
0023 #Decoded_Status.SWLimitMaxActive         := #Decoded_Status.TO_DWord.%X16;
```

```
0024 #Decoded_Status.HWLimitMinActive          := #Decoded_Status.TO_DWord.%X17;
0025 #Decoded_Status.HWLimitMaxActive          := #Decoded_Status.TO_DWord.%X18;
0026 #Decoded_Status.Synchronizing             := #Decoded_Status.TO_DWord.%X21;
0027 #Decoded_Status.Synchronous                := #Decoded_Status.TO_DWord.%X22;
0028 #Decoded_Status.SuperimposedMotionCommand := #Decoded_Status.TO_DWord.%X23;
0029 //
0030 //
0031 #Decoded_Error.TO_DWord                    := #Error_Word;
0032 #Decoded_Error.SystemFault                 := #Decoded_Error.TO_DWord.%X0;
0033 #Decoded_Error.ConfigurationFault          := #Decoded_Error.TO_DWord.%X1;
0034 #Decoded_Error.UserFault                   := #Decoded_Error.TO_DWord.%X2;
0035 #Decoded_Error.CommandNotAccepted          := #Decoded_Error.TO_DWord.%X3;
0036 #Decoded_Error.DriveFault                  := #Decoded_Error.TO_DWord.%X4;
0037 #Decoded_Error.SensorFault                 := #Decoded_Error.TO_DWord.%X5;
0038 #Decoded_Error.DynamicError                := #Decoded_Error.TO_DWord.%X6;
0039 #Decoded_Error.CommunicationFault          := #Decoded_Error.TO_DWord.%X7;
0040 #Decoded_Error.SWLimit                     := #Decoded_Error.TO_DWord.%X8;
0041 #Decoded_Error.HWLimit                     := #Decoded_Error.TO_DWord.%X9;
0042 #Decoded_Error.HomingFault                 := #Decoded_Error.TO_DWord.%X10;
0043 #Decoded_Error.FollowingErrorFault         := #Decoded_Error.TO_DWord.%X11;
0044 #Decoded_Error.PositioningFault            := #Decoded_Error.TO_DWord.%X12;
0045 #Decoded_Error.PeripheralError             := #Decoded_Error.TO_DWord.%X13;
0046 #Decoded_Error.SynchronousError            := #Decoded_Error.TO_DWord.%X14;
0047 //
0048 //
0049 #Decoded_Warning.TO_Dword                  := #Warning_Word;
0050 #Decoded_Warning.ConfigurationFault        := #Decoded_Warning.TO_Dword.%X1;
0051 #Decoded_Warning.CommandNotAccepted        := #Decoded_Warning.TO_Dword.%X3;
0052 #Decoded_Warning.DynamicError              := #Decoded_Warning.TO_Dword.%X6;
0053 #Decoded_Warning.FollowingErrorWarning     := #Decoded_Warning.TO_Dword.%X11;
```

# DeltaSpiralConv [CPU 1515T-2 PN] / Technology objects

## Cart_Delt [DB25]

| Cart_Delt properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | Cart_Delt | **Number** | 25 | **Type** | DB |
| **Language** | Motion_DB | **Numbering** | manual | | |
| **Information** | | | | | |
| **Title** | | **Author** | SIMATIC | **Comment** | |
| **Family** | MC_1500 | **Version** | 8.0 | **User-defined ID** | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| ▼ Tcp | Struct | | | |
| x | LREAL | 0 | mm | |
| y | LREAL | 0 | mm | |
| z | LREAL | 0 | mm | |
| a | LREAL | 0 | ° | |
| b | LREAL | 0 | ° | |
| c | LREAL | 0 | ° | |
| ▼ Kinematics | Struct | | | |
| TypeOfKinematics | DINT | DELTAPICKER_3D | | |
| ▼ Parameter | Array[] | | | |
| Parameter[1] | LREAL | 100 | mm | |
| Parameter[2] | LREAL | 150 | mm | |
| Parameter[3] | LREAL | 400 | mm | |
| Parameter[4] | LREAL | 40 | mm | |
| Parameter[5] | LREAL | 120 | ° | |
| Parameter[6] | LREAL | 120 | ° | |
| Parameter[7] | LREAL | 60 | mm | |
| Parameter[8] | LREAL | 0 | | |
| Parameter[9] | LREAL | 0 | | |
| Parameter[10] | LREAL | 0 | | |
| Parameter[11] | LREAL | 0 | | |
| Parameter[12] | LREAL | 0 | | |
| Parameter[13] | LREAL | 0 | | |
| Parameter[14] | LREAL | 0 | | |
| Parameter[15] | LREAL | 0 | | |
| Parameter[16] | LREAL | 0 | | |
| Parameter[17] | LREAL | 0 | | |
| Parameter[18] | LREAL | 0 | | |
| Parameter[19] | LREAL | 0 | | |
| Parameter[20] | LREAL | 0 | | |
| Parameter[21] | LREAL | 0 | | |
| Parameter[22] | LREAL | 0 | | |
| Parameter[23] | LREAL | 0 | | |
| Parameter[24] | LREAL | 0 | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| Parameter[25] | LREAL | 0 | | |
| Parameter[26] | LREAL | 0 | | |
| Parameter[27] | LREAL | 0 | | |
| Parameter[28] | LREAL | 0 | | |
| Parameter[29] | LREAL | 0 | | |
| Parameter[30] | LREAL | 0 | | |
| Parameter[31] | LREAL | 0 | | |
| Parameter[32] | LREAL | 0 | | |
| KcsFrame | Struct | | | |
| x | LREAL | 0 | mm | |
| y | LREAL | 0 | mm | |
| z | LREAL | 0 | mm | |
| a | LREAL | 0 | ° | |
| b | LREAL | 0 | ° | |
| c | LREAL | 0 | ° | |
| OcsFrame | Array[] | | | |
| OcsFrame[1] | Struct | | | |
| x | LREAL | 100 | mm | |
| y | LREAL | 100 | mm | |
| z | LREAL | 90 | mm | |
| a | LREAL | 0 | ° | |
| b | LREAL | 0 | ° | |
| c | LREAL | 0 | ° | |
| OcsFrame[2] | Struct | | | |
| x | LREAL | 0 | mm | |
| y | LREAL | 0 | mm | |
| z | LREAL | 0 | mm | |
| a | LREAL | 0 | ° | |
| b | LREAL | 0 | ° | |
| c | LREAL | 0 | ° | |
| OcsFrame[3] | Struct | | | |
| x | LREAL | 0 | mm | |
| y | LREAL | 0 | mm | |
| z | LREAL | 0 | mm | |
| a | LREAL | 0 | ° | |
| b | LREAL | 0 | ° | |
| c | LREAL | 0 | ° | |
| Tool | Array[] | | | |
| Tool[1] | Struct | | | |
| Frame | Struct | | | |
| x | LREAL | 0 | mm | |
| y | LREAL | 0 | mm | |
| z | LREAL | 0 | mm | |
| a | LREAL | 0 | ° | |
| b | LREAL | 0 | ° | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| c | LREAL | 0 | ° | |
| Tool[2] | Struct | | | |
| Frame | Struct | | | |
| x | LREAL | 0 | mm | |
| y | LREAL | 0 | mm | |
| z | LREAL | 0 | mm | |
| a | LREAL | 0 | ° | |
| b | LREAL | 0 | ° | |
| c | LREAL | 0 | ° | |
| Tool[3] | Struct | | | |
| Frame | Struct | | | |
| x | LREAL | 0 | mm | |
| y | LREAL | 0 | mm | |
| z | LREAL | 0 | mm | |
| a | LREAL | 0 | ° | |
| b | LREAL | 0 | ° | |
| c | LREAL | 0 | ° | |
| DynamicDefaults | Struct | | | |
| Path | Struct | | | |
| Velocity | LREAL | 100 | mm/s | |
| Acceleration | LREAL | 1000 | mm/s² | |
| Deceleration | LREAL | 1000 | mm/s² | |
| Jerk | LREAL | 1000000 | mm/s³ | |
| Orientation | Struct | | | |
| Velocity | LREAL | 100 | °/s | |
| Acceleration | LREAL | 1000 | °/s² | |
| Deceleration | LREAL | 1000 | °/s² | |
| Jerk | LREAL | 1000000 | °/s³ | |
| DynamicAdaption | DINT | ADAPTION_ACTIVE_CONSTANT_LIMITS | | |
| MoveDirect | Struct | | | |
| VelocityFactor | LREAL | 0.1 | | |
| AccelerationFactor | LREAL | 0.1 | | |
| DecelerationFactor | LREAL | 0.1 | | |
| JerkFactor | LREAL | 0.5 | | |
| DynamicLimits | Struct | | | |
| Path | Struct | | | |
| Velocity | LREAL | 100 | mm/s | |
| Acceleration | LREAL | 1000 | mm/s² | |
| Deceleration | LREAL | 1000 | mm/s² | |
| Jerk | LREAL | 1000000 | mm/s³ | |
| Orientation | Struct | | | |
| Velocity | LREAL | 100 | °/s | |
| Acceleration | LREAL | 1000 | °/s² | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| Deceleration | LREAL | 1000 | °/s² | |
| Jerk | LREAL | 1000000 | °/s³ | |
| ▼ Joint | Struct | | | |
| ▼ J | Array[] | | | |
| ▼ J[1] | Struct | | | |
| InverseDirection | BOOL | False | | |
| Offset | LREAL | 0 | ° | |
| LowerLimit | LREAL | -500000000000 | ° | |
| UpperLimit | LREAL | 500000000000 | ° | |
| ▼ J[2] | Struct | | | |
| InverseDirection | BOOL | False | | |
| Offset | LREAL | 0 | ° | |
| LowerLimit | LREAL | -500000000000 | ° | |
| UpperLimit | LREAL | 500000000000 | ° | |
| ▼ J[3] | Struct | | | |
| InverseDirection | BOOL | False | | |
| Offset | LREAL | 0 | ° | |
| LowerLimit | LREAL | -500000000000 | ° | |
| UpperLimit | LREAL | 500000000000 | ° | |
| ▼ J[4] | Struct | | | |
| InverseDirection | BOOL | False | | |
| Offset | LREAL | 0 | | |
| LowerLimit | LREAL | -500000000000 | | |
| UpperLimit | LREAL | 500000000000 | | |
| ▼ J[5] | Struct | | | |
| InverseDirection | BOOL | False | | |
| Offset | LREAL | 0 | | |
| LowerLimit | LREAL | -500000000000 | | |
| UpperLimit | LREAL | 500000000000 | | |
| ▼ J[6] | Struct | | | |
| InverseDirection | BOOL | False | | |
| Offset | LREAL | 0 | | |
| LowerLimit | LREAL | -500000000000 | | |
| UpperLimit | LREAL | 500000000000 | | |
| ▼ AxisCoupling | Struct | | | |
| ▼ N | Array[] | | | |
| ▼ N[1] | Struct | | | |
| Enable | BOOL | False | | |
| CausingAxis | UDINT | 1 | | |
| AffectedAxis | UDINT | 1 | | |
| Factor | LREAL | 0 | | |
| ▼ N[2] | Struct | | | |
| Enable | BOOL | False | | |
| CausingAxis | UDINT | 1 | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| AffectedAxis | UDINT | 1 | | |
| Factor | LREAL | 0 | | |
| N[3] | Struct | | | |
| Enable | BOOL | False | | |
| CausingAxis | UDINT | 1 | | |
| AffectedAxis | UDINT | 1 | | |
| Factor | LREAL | 0 | | |
| N[4] | Struct | | | |
| Enable | BOOL | False | | |
| CausingAxis | UDINT | 1 | | |
| AffectedAxis | UDINT | 1 | | |
| Factor | LREAL | 0 | | |
| N[5] | Struct | | | |
| Enable | BOOL | False | | |
| CausingAxis | UDINT | 1 | | |
| AffectedAxis | UDINT | 1 | | |
| Factor | LREAL | 0 | | |
| MotionQueue | Struct | | | |
| MaxNumberOfCommands | DINT | 5 | | |
| Transition | Struct | | | |
| FactorBlendingLength | LREAL | 50 | % | |
| Override | Struct | | | |
| Velocity | LREAL | 100 | % | |
| Conveyor | Struct | | | |
| DynamicReserve | Array[] | | | |
| DynamicReserve[1] | LREAL | 30 | % | |
| WorkspaceZone | Array[] | | | |
| WorkspaceZone[1] | Struct | | | |
| Active | BOOL | False | | |
| Valid | BOOL | False | | |
| Type | DINT | WORKING_ZONE | | |
| ReferenceSystem | DINT | WCS_CRDS | | |
| Frame | Struct | | | |
| x | LREAL | 0 | mm | |
| y | LREAL | 0 | mm | |
| z | LREAL | 0 | mm | |
| a | LREAL | 0 | ° | |
| b | LREAL | 0 | ° | |
| c | LREAL | 0 | ° | |
| Geometry | Struct | | | |
| Type | DINT | CUBOID_ZONE | | |
| Parameter | Array[] | | | |
| Parameter[1] | LREAL | 500 | mm | |
| Parameter[2] | LREAL | 500 | mm | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| Parameter[3] | LREAL | 500 | mm | |
| WorkspaceZone[2] | Struct | | | |
| Active | BOOL | False | | |
| Valid | BOOL | False | | |
| Type | DINT | WORKING_ZONE | | |
| ReferenceSystem | DINT | WCS_CRDS | | |
| Frame | Struct | | | |
| x | LREAL | 0 | mm | |
| y | LREAL | 0 | mm | |
| z | LREAL | 0 | mm | |
| a | LREAL | 0 | ° | |
| b | LREAL | 0 | ° | |
| c | LREAL | 0 | ° | |
| Geometry | Struct | | | |
| Type | DINT | CUBOID_ZONE | | |
| Parameter | Array[] | | | |
| Parameter[1] | LREAL | 500 | mm | |
| Parameter[2] | LREAL | 500 | mm | |
| Parameter[3] | LREAL | 500 | mm | |
| WorkspaceZone[3] | Struct | | | |
| Active | BOOL | False | | |
| Valid | BOOL | False | | |
| Type | DINT | WORKING_ZONE | | |
| ReferenceSystem | DINT | WCS_CRDS | | |
| Frame | Struct | | | |
| x | LREAL | 0 | mm | |
| y | LREAL | 0 | mm | |
| z | LREAL | 0 | mm | |
| a | LREAL | 0 | ° | |
| b | LREAL | 0 | ° | |
| c | LREAL | 0 | ° | |
| Geometry | Struct | | | |
| Type | DINT | CUBOID_ZONE | | |
| Parameter | Array[] | | | |
| Parameter[1] | LREAL | 500 | mm | |
| Parameter[2] | LREAL | 500 | mm | |
| Parameter[3] | LREAL | 500 | mm | |
| WorkspaceZone[4] | Struct | | | |
| Active | BOOL | False | | |
| Valid | BOOL | False | | |
| Type | DINT | WORKING_ZONE | | |
| ReferenceSystem | DINT | WCS_CRDS | | |
| Frame | Struct | | | |
| x | LREAL | 0 | mm | |
| y | LREAL | 0 | mm | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| z | LREAL | 0 | mm | |
| a | LREAL | 0 | ° | |
| b | LREAL | 0 | ° | |
| c | LREAL | 0 | ° | |
| Geometry | Struct | | | |
| Type | DINT | CUBOID_ZONE | | |
| Parameter | Array[] | | | |
| Parameter[1] | LREAL | 500 | mm | |
| Parameter[2] | LREAL | 500 | mm | |
| Parameter[3] | LREAL | 500 | mm | |
| WorkspaceZone[5] | Struct | | | |
| Active | BOOL | False | | |
| Valid | BOOL | False | | |
| Type | DINT | WORKING_ZONE | | |
| ReferenceSystem | DINT | WCS_CRDS | | |
| Frame | Struct | | | |
| x | LREAL | 0 | mm | |
| y | LREAL | 0 | mm | |
| z | LREAL | 0 | mm | |
| a | LREAL | 0 | ° | |
| b | LREAL | 0 | ° | |
| c | LREAL | 0 | ° | |
| Geometry | Struct | | | |
| Type | DINT | CUBOID_ZONE | | |
| Parameter | Array[] | | | |
| Parameter[1] | LREAL | 500 | mm | |
| Parameter[2] | LREAL | 500 | mm | |
| Parameter[3] | LREAL | 500 | mm | |
| WorkspaceZone[6] | Struct | | | |
| Active | BOOL | False | | |
| Valid | BOOL | False | | |
| Type | DINT | WORKING_ZONE | | |
| ReferenceSystem | DINT | WCS_CRDS | | |
| Frame | Struct | | | |
| x | LREAL | 0 | mm | |
| y | LREAL | 0 | mm | |
| z | LREAL | 0 | mm | |
| a | LREAL | 0 | ° | |
| b | LREAL | 0 | ° | |
| c | LREAL | 0 | ° | |
| Geometry | Struct | | | |
| Type | DINT | CUBOID_ZONE | | |
| Parameter | Array[] | | | |
| Parameter[1] | LREAL | 500 | mm | |
| Parameter[2] | LREAL | 500 | mm | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| Parameter[3] | LREAL | 500 | mm | |
| WorkspaceZone[7] | Struct | | | |
| Active | BOOL | False | | |
| Valid | BOOL | False | | |
| Type | DINT | WORKING_ZONE | | |
| ReferenceSystem | DINT | WCS_CRDS | | |
| Frame | Struct | | | |
| x | LREAL | 0 | mm | |
| y | LREAL | 0 | mm | |
| z | LREAL | 0 | mm | |
| a | LREAL | 0 | ° | |
| b | LREAL | 0 | ° | |
| c | LREAL | 0 | ° | |
| Geometry | Struct | | | |
| Type | DINT | CUBOID_ZONE | | |
| Parameter | Array[] | | | |
| Parameter[1] | LREAL | 500 | mm | |
| Parameter[2] | LREAL | 500 | mm | |
| Parameter[3] | LREAL | 500 | mm | |
| WorkspaceZone[8] | Struct | | | |
| Active | BOOL | False | | |
| Valid | BOOL | False | | |
| Type | DINT | WORKING_ZONE | | |
| ReferenceSystem | DINT | WCS_CRDS | | |
| Frame | Struct | | | |
| x | LREAL | 0 | mm | |
| y | LREAL | 0 | mm | |
| z | LREAL | 0 | mm | |
| a | LREAL | 0 | ° | |
| b | LREAL | 0 | ° | |
| c | LREAL | 0 | ° | |
| Geometry | Struct | | | |
| Type | DINT | CUBOID_ZONE | | |
| Parameter | Array[] | | | |
| Parameter[1] | LREAL | 500 | mm | |
| Parameter[2] | LREAL | 500 | mm | |
| Parameter[3] | LREAL | 500 | mm | |
| WorkspaceZone[9] | Struct | | | |
| Active | BOOL | False | | |
| Valid | BOOL | False | | |
| Type | DINT | WORKING_ZONE | | |
| ReferenceSystem | DINT | WCS_CRDS | | |
| Frame | Struct | | | |
| x | LREAL | 0 | mm | |
| y | LREAL | 0 | mm | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| z | LREAL | 0 | mm | |
| a | LREAL | 0 | ° | |
| b | LREAL | 0 | ° | |
| c | LREAL | 0 | ° | |
| Geometry | Struct | | | |
| Type | DINT | CUBOID_ZONE | | |
| Parameter | Array[] | | | |
| Parameter[1] | LREAL | 500 | mm | |
| Parameter[2] | LREAL | 500 | mm | |
| Parameter[3] | LREAL | 500 | mm | |
| WorkspaceZone[10] | Struct | | | |
| Active | BOOL | False | | |
| Valid | BOOL | False | | |
| Type | DINT | WORKING_ZONE | | |
| ReferenceSystem | DINT | WCS_CRDS | | |
| Frame | Struct | | | |
| x | LREAL | 0 | mm | |
| y | LREAL | 0 | mm | |
| z | LREAL | 0 | mm | |
| a | LREAL | 0 | ° | |
| b | LREAL | 0 | ° | |
| c | LREAL | 0 | ° | |
| Geometry | Struct | | | |
| Type | DINT | CUBOID_ZONE | | |
| Parameter | Array[] | | | |
| Parameter[1] | LREAL | 500 | mm | |
| Parameter[2] | LREAL | 500 | mm | |
| Parameter[3] | LREAL | 500 | mm | |
| KinematicsZone | Array[] | | | |
| KinematicsZone[2] | Struct | | | |
| Active | BOOL | False | | |
| Valid | BOOL | False | | |
| ReferenceSystem | DINT | FCS_CRDS | | |
| Frame | Struct | | | |
| x | LREAL | 0 | mm | |
| y | LREAL | 0 | mm | |
| z | LREAL | 0 | mm | |
| a | LREAL | 0 | ° | |
| b | LREAL | 0 | ° | |
| c | LREAL | 0 | ° | |
| Geometry | Struct | | | |
| Type | DINT | CUBOID_ZONE | | |
| Parameter | Array[] | | | |
| Parameter[1] | LREAL | 500 | mm | |
| Parameter[2] | LREAL | 500 | mm | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| Parameter[3] | LREAL | 500 | mm | |
| KinematicsZone[3] | Struct | | | |
| Active | BOOL | False | | |
| Valid | BOOL | False | | |
| ReferenceSystem | DINT | FCS_CRDS | | |
| Frame | Struct | | | |
| x | LREAL | 0 | mm | |
| y | LREAL | 0 | mm | |
| z | LREAL | 0 | mm | |
| a | LREAL | 0 | ° | |
| b | LREAL | 0 | ° | |
| c | LREAL | 0 | ° | |
| Geometry | Struct | | | |
| Type | DINT | CUBOID_ZONE | | |
| Parameter | Array[] | | | |
| Parameter[1] | LREAL | 500 | mm | |
| Parameter[2] | LREAL | 500 | mm | |
| Parameter[3] | LREAL | 500 | mm | |
| KinematicsZone[4] | Struct | | | |
| Active | BOOL | False | | |
| Valid | BOOL | False | | |
| ReferenceSystem | DINT | FCS_CRDS | | |
| Frame | Struct | | | |
| x | LREAL | 0 | mm | |
| y | LREAL | 0 | mm | |
| z | LREAL | 0 | mm | |
| a | LREAL | 0 | ° | |
| b | LREAL | 0 | ° | |
| c | LREAL | 0 | ° | |
| Geometry | Struct | | | |
| Type | DINT | CUBOID_ZONE | | |
| Parameter | Array[] | | | |
| Parameter[1] | LREAL | 500 | mm | |
| Parameter[2] | LREAL | 500 | mm | |
| Parameter[3] | LREAL | 500 | mm | |
| KinematicsZone[5] | Struct | | | |
| Active | BOOL | False | | |
| Valid | BOOL | False | | |
| ReferenceSystem | DINT | FCS_CRDS | | |
| Frame | Struct | | | |
| x | LREAL | 0 | mm | |
| y | LREAL | 0 | mm | |
| z | LREAL | 0 | mm | |
| a | LREAL | 0 | ° | |
| b | LREAL | 0 | ° | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| c | LREAL | 0 | ° | |
| Geometry | Struct | | | |
| Type | DINT | CUBOID_ZONE | | |
| Parameter | Array[] | | | |
| Parameter[1] | LREAL | 500 | mm | |
| Parameter[2] | LREAL | 500 | mm | |
| Parameter[3] | LREAL | 500 | mm | |
| KinematicsZone[6] | Struct | | | |
| Active | BOOL | False | | |
| Valid | BOOL | False | | |
| ReferenceSystem | DINT | FCS_CRDS | | |
| Frame | Struct | | | |
| x | LREAL | 0 | mm | |
| y | LREAL | 0 | mm | |
| z | LREAL | 0 | mm | |
| a | LREAL | 0 | ° | |
| b | LREAL | 0 | ° | |
| c | LREAL | 0 | ° | |
| Geometry | Struct | | | |
| Type | DINT | CUBOID_ZONE | | |
| Parameter | Array[] | | | |
| Parameter[1] | LREAL | 500 | mm | |
| Parameter[2] | LREAL | 500 | mm | |
| Parameter[3] | LREAL | 500 | mm | |
| KinematicsZone[7] | Struct | | | |
| Active | BOOL | False | | |
| Valid | BOOL | False | | |
| ReferenceSystem | DINT | FCS_CRDS | | |
| Frame | Struct | | | |
| x | LREAL | 0 | mm | |
| y | LREAL | 0 | mm | |
| z | LREAL | 0 | mm | |
| a | LREAL | 0 | ° | |
| b | LREAL | 0 | ° | |
| c | LREAL | 0 | ° | |
| Geometry | Struct | | | |
| Type | DINT | CUBOID_ZONE | | |
| Parameter | Array[] | | | |
| Parameter[1] | LREAL | 500 | mm | |
| Parameter[2] | LREAL | 500 | mm | |
| Parameter[3] | LREAL | 500 | mm | |
| KinematicsZone[8] | Struct | | | |
| Active | BOOL | False | | |
| Valid | BOOL | False | | |
| ReferenceSystem | DINT | FCS_CRDS | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| Frame | Struct | | | |
| x | LREAL | 0 | mm | |
| y | LREAL | 0 | mm | |
| z | LREAL | 0 | mm | |
| a | LREAL | 0 | ° | |
| b | LREAL | 0 | ° | |
| c | LREAL | 0 | ° | |
| Geometry | Struct | | | |
| Type | DINT | CUBOID_ZONE | | |
| Parameter | Array[] | | | |
| Parameter[1] | LREAL | 500 | mm | |
| Parameter[2] | LREAL | 500 | mm | |
| Parameter[3] | LREAL | 500 | mm | |
| KinematicsZone[9] | Struct | | | |
| Active | BOOL | False | | |
| Valid | BOOL | False | | |
| ReferenceSystem | DINT | FCS_CRDS | | |
| Frame | Struct | | | |
| x | LREAL | 0 | mm | |
| y | LREAL | 0 | mm | |
| z | LREAL | 0 | mm | |
| a | LREAL | 0 | ° | |
| b | LREAL | 0 | ° | |
| c | LREAL | 0 | ° | |
| Geometry | Struct | | | |
| Type | DINT | CUBOID_ZONE | | |
| Parameter | Array[] | | | |
| Parameter[1] | LREAL | 500 | mm | |
| Parameter[2] | LREAL | 500 | mm | |
| Parameter[3] | LREAL | 500 | mm | |
| KinematicsZone[10] | Struct | | | |
| Active | BOOL | False | | |
| Valid | BOOL | False | | |
| ReferenceSystem | DINT | FCS_CRDS | | |
| Frame | Struct | | | |
| x | LREAL | 0 | mm | |
| y | LREAL | 0 | mm | |
| z | LREAL | 0 | mm | |
| a | LREAL | 0 | ° | |
| b | LREAL | 0 | ° | |
| c | LREAL | 0 | ° | |
| Geometry | Struct | | | |
| Type | DINT | CUBOID_ZONE | | |
| Parameter | Array[] | | | |
| Parameter[1] | LREAL | 500 | mm | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| Parameter[2] | LREAL | 500 | mm | |
| Parameter[3] | LREAL | 500 | mm | |
| StatusPath | Struct | | | |
| CoordSystem | DINT | 0 | | |
| Velocity | LREAL | 0 | mm/s | |
| Acceleration | LREAL | 0 | mm/s² | |
| OrientationVelocity | LREAL | 0 | °/s | |
| DynamicAdaption | DINT | ADAPTION_INACTIVE | | |
| TotalPathLength | LREAL | 0 | mm | |
| AccumulatedPathLength | LREAL | 0 | mm | |
| TcpInWcs | Struct | | | |
| x | Struct | | | |
| Acceleration | LREAL | 0 | mm/s² | |
| Position | LREAL | 0 | mm | |
| Velocity | LREAL | 0 | mm/s | |
| y | Struct | | | |
| Acceleration | LREAL | 0 | mm/s² | |
| Position | LREAL | 0 | mm | |
| Velocity | LREAL | 0 | mm/s | |
| z | Struct | | | |
| Acceleration | LREAL | 0 | mm/s² | |
| Position | LREAL | 0 | mm | |
| Velocity | LREAL | 0 | mm/s | |
| a | Struct | | | |
| Acceleration | LREAL | 0 | °/s² | |
| Position | LREAL | 0 | ° | |
| Velocity | LREAL | 0 | °/s | |
| b | Struct | | | |
| Acceleration | LREAL | 0 | °/s² | |
| Position | LREAL | 0 | ° | |
| Velocity | LREAL | 0 | °/s | |
| c | Struct | | | |
| Acceleration | LREAL | 0 | °/s² | |
| Position | LREAL | 0 | ° | |
| Velocity | LREAL | 0 | °/s | |
| TcpInOcs | Array[] | | | |
| TcpInOcs[1] | Struct | | | |
| x | Struct | | | |
| Acceleration | LREAL | 0 | mm/s² | |
| Position | LREAL | 0 | mm | |
| Velocity | LREAL | 0 | mm/s | |
| y | Struct | | | |
| Acceleration | LREAL | 0 | mm/s² | |
| Position | LREAL | 0 | mm | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| Velocity | LREAL | 0 | mm/s | |
| ▼ z | Struct | | | |
| Acceleration | LREAL | 0 | mm/s² | |
| Position | LREAL | 0 | mm | |
| Velocity | LREAL | 0 | mm/s | |
| ▼ a | Struct | | | |
| Acceleration | LREAL | 0 | °/s² | |
| Position | LREAL | 0 | ° | |
| Velocity | LREAL | 0 | °/s | |
| ▼ b | Struct | | | |
| Acceleration | LREAL | 0 | °/s² | |
| Position | LREAL | 0 | ° | |
| Velocity | LREAL | 0 | °/s | |
| ▼ c | Struct | | | |
| Acceleration | LREAL | 0 | °/s² | |
| Position | LREAL | 0 | ° | |
| Velocity | LREAL | 0 | °/s | |
| ▼ TcpInOcs[2] | Struct | | | |
| ▼ x | Struct | | | |
| Acceleration | LREAL | 0 | mm/s² | |
| Position | LREAL | 0 | mm | |
| Velocity | LREAL | 0 | mm/s | |
| ▼ y | Struct | | | |
| Acceleration | LREAL | 0 | mm/s² | |
| Position | LREAL | 0 | mm | |
| Velocity | LREAL | 0 | mm/s | |
| ▼ z | Struct | | | |
| Acceleration | LREAL | 0 | mm/s² | |
| Position | LREAL | 0 | mm | |
| Velocity | LREAL | 0 | mm/s | |
| ▼ a | Struct | | | |
| Acceleration | LREAL | 0 | °/s² | |
| Position | LREAL | 0 | ° | |
| Velocity | LREAL | 0 | °/s | |
| ▼ b | Struct | | | |
| Acceleration | LREAL | 0 | °/s² | |
| Position | LREAL | 0 | ° | |
| Velocity | LREAL | 0 | °/s | |
| ▼ c | Struct | | | |
| Acceleration | LREAL | 0 | °/s² | |
| Position | LREAL | 0 | ° | |
| Velocity | LREAL | 0 | °/s | |
| ▼ TcpInOcs[3] | Struct | | | |
| ▼ x | Struct | | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| Acceleration | LREAL | 0 | mm/s² | |
| Position | LREAL | 0 | mm | |
| Velocity | LREAL | 0 | mm/s | |
| ▼ y | Struct | | | |
| Acceleration | LREAL | 0 | mm/s² | |
| Position | LREAL | 0 | mm | |
| Velocity | LREAL | 0 | mm/s | |
| ▼ z | Struct | | | |
| Acceleration | LREAL | 0 | mm/s² | |
| Position | LREAL | 0 | mm | |
| Velocity | LREAL | 0 | mm/s | |
| ▼ a | Struct | | | |
| Acceleration | LREAL | 0 | °/s² | |
| Position | LREAL | 0 | ° | |
| Velocity | LREAL | 0 | °/s | |
| ▼ b | Struct | | | |
| Acceleration | LREAL | 0 | °/s² | |
| Position | LREAL | 0 | ° | |
| Velocity | LREAL | 0 | °/s | |
| ▼ c | Struct | | | |
| Acceleration | LREAL | 0 | °/s² | |
| Position | LREAL | 0 | ° | |
| Velocity | LREAL | 0 | °/s | |
| ▼ StatusOcsFrame | Array[] | | | |
| ▼ StatusOcsFrame[1] | Struct | | | |
| x | LREAL | 0 | mm | |
| y | LREAL | 0 | mm | |
| z | LREAL | 0 | mm | |
| a | LREAL | 0 | ° | |
| b | LREAL | 0 | ° | |
| c | LREAL | 0 | ° | |
| ▼ StatusOcsFrame[2] | Struct | | | |
| x | LREAL | 0 | mm | |
| y | LREAL | 0 | mm | |
| z | LREAL | 0 | mm | |
| a | LREAL | 0 | ° | |
| b | LREAL | 0 | ° | |
| c | LREAL | 0 | ° | |
| ▼ StatusOcsFrame[3] | Struct | | | |
| x | LREAL | 0 | mm | |
| y | LREAL | 0 | mm | |
| z | LREAL | 0 | mm | |
| a | LREAL | 0 | ° | |
| b | LREAL | 0 | ° | |
| c | LREAL | 0 | ° | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| StatusKinematics | Struct | | | |
| Type5D6D | BOOL | False | | |
| Valid | BOOL | False | | |
| LinkConstellation | DWORD | 0 | | |
| AxesData | Struct | | | |
| A | Array[] | | | |
| A[1] | Struct | | | |
| Position | LREAL | 0 | ° | |
| Velocity | LREAL | 0 | °/s | |
| Acceleration | LREAL | 0 | °/s² | |
| A[2] | Struct | | | |
| Position | LREAL | 0 | ° | |
| Velocity | LREAL | 0 | °/s | |
| Acceleration | LREAL | 0 | °/s² | |
| A[3] | Struct | | | |
| Position | LREAL | 0 | ° | |
| Velocity | LREAL | 0 | °/s | |
| Acceleration | LREAL | 0 | °/s² | |
| A[4] | Struct | | | |
| Position | LREAL | 0 | | |
| Velocity | LREAL | 0 | | |
| Acceleration | LREAL | 0 | | |
| A[5] | Struct | | | |
| Position | LREAL | 0 | | |
| Velocity | LREAL | 0 | | |
| Acceleration | LREAL | 0 | | |
| A[6] | Struct | | | |
| Position | LREAL | 0 | | |
| Velocity | LREAL | 0 | | |
| Acceleration | LREAL | 0 | | |
| JointData | Struct | | | |
| J | Array[] | | | |
| J[1] | Struct | | | |
| Acceleration | LREAL | 0 | °/s² | |
| Position | LREAL | 0 | ° | |
| Velocity | LREAL | 0 | °/s | |
| J[2] | Struct | | | |
| Acceleration | LREAL | 0 | °/s² | |
| Position | LREAL | 0 | ° | |
| Velocity | LREAL | 0 | °/s | |
| J[3] | Struct | | | |
| Acceleration | LREAL | 0 | °/s² | |
| Position | LREAL | 0 | ° | |
| Velocity | LREAL | 0 | °/s | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| J[4] | Struct | | | |
| Acceleration | LREAL | 0 | | |
| Position | LREAL | 0 | | |
| Velocity | LREAL | 0 | | |
| J[5] | Struct | | | |
| Acceleration | LREAL | 0 | | |
| Position | LREAL | 0 | | |
| Velocity | LREAL | 0 | | |
| J[6] | Struct | | | |
| Acceleration | LREAL | 0 | | |
| Position | LREAL | 0 | | |
| Velocity | LREAL | 0 | | |
| FlangeInKcs | Struct | | | |
| x | Struct | | | |
| Acceleration | LREAL | 0 | mm/s² | |
| Position | LREAL | 0 | mm | |
| Velocity | LREAL | 0 | mm/s | |
| y | Struct | | | |
| Acceleration | LREAL | 0 | mm/s² | |
| Position | LREAL | 0 | mm | |
| Velocity | LREAL | 0 | mm/s | |
| z | Struct | | | |
| Acceleration | LREAL | 0 | mm/s² | |
| Position | LREAL | 0 | mm | |
| Velocity | LREAL | 0 | mm/s | |
| a | Struct | | | |
| Acceleration | LREAL | 0 | °/s² | |
| Position | LREAL | 0 | ° | |
| Velocity | LREAL | 0 | °/s | |
| b | Struct | | | |
| Acceleration | LREAL | 0 | °/s² | |
| Position | LREAL | 0 | ° | |
| Velocity | LREAL | 0 | °/s | |
| c | Struct | | | |
| Acceleration | LREAL | 0 | °/s² | |
| Position | LREAL | 0 | ° | |
| Velocity | LREAL | 0 | °/s | |
| StatusTool | Struct | | | |
| ActiveTool | DINT | 0 | | |
| Frame | Array[] | | | |
| Frame[1] | Struct | | | |
| x | LREAL | 0 | mm | |
| y | LREAL | 0 | mm | |
| z | LREAL | 0 | mm | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| a | LREAL | 0 | ° | |
| b | LREAL | 0 | ° | |
| c | LREAL | 0 | ° | |
| Frame[2] | Struct | | | |
| x | LREAL | 0 | mm | |
| y | LREAL | 0 | mm | |
| z | LREAL | 0 | mm | |
| a | LREAL | 0 | ° | |
| b | LREAL | 0 | ° | |
| c | LREAL | 0 | ° | |
| Frame[3] | Struct | | | |
| x | LREAL | 0 | mm | |
| y | LREAL | 0 | mm | |
| z | LREAL | 0 | mm | |
| a | LREAL | 0 | ° | |
| b | LREAL | 0 | ° | |
| c | LREAL | 0 | ° | |
| StatusConveyor | Array[] | | | |
| StatusConveyor[1] | Struct | | | |
| ConveyorBelt | DB_ANY | 0 | | |
| BeltPosition | LREAL | 0 | | |
| ObjectPosition | Struct | | | |
| x | LREAL | 0 | mm | |
| y | LREAL | 0 | mm | |
| z | LREAL | 0 | mm | |
| a | LREAL | 0 | ° | |
| b | LREAL | 0 | ° | |
| c | LREAL | 0 | ° | |
| TrackingState | DINT | NO_CONVEYOR | | |
| StatusConveyor[2] | Struct | | | |
| ConveyorBelt | DB_ANY | 0 | | |
| BeltPosition | LREAL | 0 | | |
| ObjectPosition | Struct | | | |
| x | LREAL | 0 | mm | |
| y | LREAL | 0 | mm | |
| z | LREAL | 0 | mm | |
| a | LREAL | 0 | ° | |
| b | LREAL | 0 | ° | |
| c | LREAL | 0 | ° | |
| TrackingState | DINT | NO_CONVEYOR | | |
| StatusConveyor[3] | Struct | | | |
| ConveyorBelt | DB_ANY | 0 | | |
| BeltPosition | LREAL | 0 | | |
| ObjectPosition | Struct | | | |
| x | LREAL | 0 | mm | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| y | LREAL | 0 | mm | |
| z | LREAL | 0 | mm | |
| a | LREAL | 0 | ° | |
| b | LREAL | 0 | ° | |
| c | LREAL | 0 | ° | |
| TrackingState | DINT | NO_CONVEYOR | | |
| StatusWorkspaceZone | Array[] | | | |
| StatusWorkspaceZone[1] | Struct | | | |
| Active | BOOL | False | | |
| Valid | BOOL | False | | |
| Type | DINT | BLOCKED_ZONE | | |
| ReferenceSystem | DINT | WCS_CRDS | | |
| Frame | Struct | | | |
| x | LREAL | 0 | mm | |
| y | LREAL | 0 | mm | |
| z | LREAL | 0 | mm | |
| a | LREAL | 0 | ° | |
| b | LREAL | 0 | ° | |
| c | LREAL | 0 | ° | |
| Geometry | Struct | | | |
| Type | DINT | CUBOID_ZONE | | |
| Parameter | Array[] | | | |
| Parameter[1] | LREAL | 0 | | |
| Parameter[2] | LREAL | 0 | | |
| Parameter[3] | LREAL | 0 | | |
| StatusWorkspaceZone[2] | Struct | | | |
| Active | BOOL | False | | |
| Valid | BOOL | False | | |
| Type | DINT | BLOCKED_ZONE | | |
| ReferenceSystem | DINT | WCS_CRDS | | |
| Frame | Struct | | | |
| x | LREAL | 0 | mm | |
| y | LREAL | 0 | mm | |
| z | LREAL | 0 | mm | |
| a | LREAL | 0 | ° | |
| b | LREAL | 0 | ° | |
| c | LREAL | 0 | ° | |
| Geometry | Struct | | | |
| Type | DINT | CUBOID_ZONE | | |
| Parameter | Array[] | | | |
| Parameter[1] | LREAL | 0 | | |
| Parameter[2] | LREAL | 0 | | |
| Parameter[3] | LREAL | 0 | | |
| StatusWorkspaceZone[3] | Struct | | | |
| Active | BOOL | False | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| Valid | BOOL | False | | |
| Type | DINT | BLOCKED_ZONE | | |
| ReferenceSystem | DINT | WCS_CRDS | | |
| ▼ Frame | Struct | | | |
| x | LREAL | 0 | mm | |
| y | LREAL | 0 | mm | |
| z | LREAL | 0 | mm | |
| a | LREAL | 0 | ° | |
| b | LREAL | 0 | ° | |
| c | LREAL | 0 | ° | |
| ▼ Geometry | Struct | | | |
| Type | DINT | CUBOID_ZONE | | |
| ▼ Parameter | Array[] | | | |
| Parameter[1] | LREAL | 0 | | |
| Parameter[2] | LREAL | 0 | | |
| Parameter[3] | LREAL | 0 | | |
| ▼ StatusWorkspaceZone[4] | Struct | | | |
| Active | BOOL | False | | |
| Valid | BOOL | False | | |
| Type | DINT | BLOCKED_ZONE | | |
| ReferenceSystem | DINT | WCS_CRDS | | |
| ▼ Frame | Struct | | | |
| x | LREAL | 0 | mm | |
| y | LREAL | 0 | mm | |
| z | LREAL | 0 | mm | |
| a | LREAL | 0 | ° | |
| b | LREAL | 0 | ° | |
| c | LREAL | 0 | ° | |
| ▼ Geometry | Struct | | | |
| Type | DINT | CUBOID_ZONE | | |
| ▼ Parameter | Array[] | | | |
| Parameter[1] | LREAL | 0 | | |
| Parameter[2] | LREAL | 0 | | |
| Parameter[3] | LREAL | 0 | | |
| ▼ StatusWorkspaceZone[5] | Struct | | | |
| Active | BOOL | False | | |
| Valid | BOOL | False | | |
| Type | DINT | BLOCKED_ZONE | | |
| ReferenceSystem | DINT | WCS_CRDS | | |
| ▼ Frame | Struct | | | |
| x | LREAL | 0 | mm | |
| y | LREAL | 0 | mm | |
| z | LREAL | 0 | mm | |
| a | LREAL | 0 | ° | |
| b | LREAL | 0 | ° | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| c | LREAL | 0 | ° | |
| Geometry | Struct | | | |
| Type | DINT | CUBOID_ZONE | | |
| Parameter | Array[] | | | |
| Parameter[1] | LREAL | 0 | | |
| Parameter[2] | LREAL | 0 | | |
| Parameter[3] | LREAL | 0 | | |
| StatusWorkspaceZone[6] | Struct | | | |
| Active | BOOL | False | | |
| Valid | BOOL | False | | |
| Type | DINT | BLOCKED_ZONE | | |
| ReferenceSystem | DINT | WCS_CRDS | | |
| Frame | Struct | | | |
| x | LREAL | 0 | mm | |
| y | LREAL | 0 | mm | |
| z | LREAL | 0 | mm | |
| a | LREAL | 0 | ° | |
| b | LREAL | 0 | ° | |
| c | LREAL | 0 | ° | |
| Geometry | Struct | | | |
| Type | DINT | CUBOID_ZONE | | |
| Parameter | Array[] | | | |
| Parameter[1] | LREAL | 0 | | |
| Parameter[2] | LREAL | 0 | | |
| Parameter[3] | LREAL | 0 | | |
| StatusWorkspaceZone[7] | Struct | | | |
| Active | BOOL | False | | |
| Valid | BOOL | False | | |
| Type | DINT | BLOCKED_ZONE | | |
| ReferenceSystem | DINT | WCS_CRDS | | |
| Frame | Struct | | | |
| x | LREAL | 0 | mm | |
| y | LREAL | 0 | mm | |
| z | LREAL | 0 | mm | |
| a | LREAL | 0 | ° | |
| b | LREAL | 0 | ° | |
| c | LREAL | 0 | ° | |
| Geometry | Struct | | | |
| Type | DINT | CUBOID_ZONE | | |
| Parameter | Array[] | | | |
| Parameter[1] | LREAL | 0 | | |
| Parameter[2] | LREAL | 0 | | |
| Parameter[3] | LREAL | 0 | | |
| StatusWorkspaceZone[8] | Struct | | | |
| Active | BOOL | False | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| Valid | BOOL | False | | |
| Type | DINT | BLOCKED_ZONE | | |
| ReferenceSystem | DINT | WCS_CRDS | | |
| ▼ Frame | Struct | | | |
| x | LREAL | 0 | mm | |
| y | LREAL | 0 | mm | |
| z | LREAL | 0 | mm | |
| a | LREAL | 0 | ° | |
| b | LREAL | 0 | ° | |
| c | LREAL | 0 | ° | |
| ▼ Geometry | Struct | | | |
| Type | DINT | CUBOID_ZONE | | |
| ▼ Parameter | Array[] | | | |
| Parameter[1] | LREAL | 0 | | |
| Parameter[2] | LREAL | 0 | | |
| Parameter[3] | LREAL | 0 | | |
| ▼ StatusWorkspaceZone[9] | Struct | | | |
| Active | BOOL | False | | |
| Valid | BOOL | False | | |
| Type | DINT | BLOCKED_ZONE | | |
| ReferenceSystem | DINT | WCS_CRDS | | |
| ▼ Frame | Struct | | | |
| x | LREAL | 0 | mm | |
| y | LREAL | 0 | mm | |
| z | LREAL | 0 | mm | |
| a | LREAL | 0 | ° | |
| b | LREAL | 0 | ° | |
| c | LREAL | 0 | ° | |
| ▼ Geometry | Struct | | | |
| Type | DINT | CUBOID_ZONE | | |
| ▼ Parameter | Array[] | | | |
| Parameter[1] | LREAL | 0 | | |
| Parameter[2] | LREAL | 0 | | |
| Parameter[3] | LREAL | 0 | | |
| ▼ StatusWorkspaceZone[10] | Struct | | | |
| Active | BOOL | False | | |
| Valid | BOOL | False | | |
| Type | DINT | BLOCKED_ZONE | | |
| ReferenceSystem | DINT | WCS_CRDS | | |
| ▼ Frame | Struct | | | |
| x | LREAL | 0 | mm | |
| y | LREAL | 0 | mm | |
| z | LREAL | 0 | mm | |
| a | LREAL | 0 | ° | |
| b | LREAL | 0 | ° | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| c | LREAL | 0 | ° | |
| Geometry | Struct | | | |
| Type | DINT | CUBOID_ZONE | | |
| Parameter | Array[] | | | |
| Parameter[1] | LREAL | 0 | | |
| Parameter[2] | LREAL | 0 | | |
| Parameter[3] | LREAL | 0 | | |
| StatusKinematicsZone | Array[] | | | |
| StatusKinematicsZone[2] | Struct | | | |
| Active | BOOL | False | | |
| Valid | BOOL | False | | |
| ReferenceSystem | DINT | FCS_CRDS | | |
| Frame | Struct | | | |
| x | LREAL | 0 | mm | |
| y | LREAL | 0 | mm | |
| z | LREAL | 0 | mm | |
| a | LREAL | 0 | ° | |
| b | LREAL | 0 | ° | |
| c | LREAL | 0 | ° | |
| Geometry | Struct | | | |
| Type | DINT | CUBOID_ZONE | | |
| Parameter | Array[] | | | |
| Parameter[1] | LREAL | 0 | | |
| Parameter[2] | LREAL | 0 | | |
| Parameter[3] | LREAL | 0 | | |
| StatusKinematicsZone[3] | Struct | | | |
| Active | BOOL | False | | |
| Valid | BOOL | False | | |
| ReferenceSystem | DINT | FCS_CRDS | | |
| Frame | Struct | | | |
| x | LREAL | 0 | mm | |
| y | LREAL | 0 | mm | |
| z | LREAL | 0 | mm | |
| a | LREAL | 0 | ° | |
| b | LREAL | 0 | ° | |
| c | LREAL | 0 | ° | |
| Geometry | Struct | | | |
| Type | DINT | CUBOID_ZONE | | |
| Parameter | Array[] | | | |
| Parameter[1] | LREAL | 0 | | |
| Parameter[2] | LREAL | 0 | | |
| Parameter[3] | LREAL | 0 | | |
| StatusKinematicsZone[4] | Struct | | | |
| Active | BOOL | False | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| Valid | BOOL | False | | |
| ReferenceSystem | DINT | FCS_CRDS | | |
| Frame | Struct | | | |
| x | LREAL | 0 | mm | |
| y | LREAL | 0 | mm | |
| z | LREAL | 0 | mm | |
| a | LREAL | 0 | ° | |
| b | LREAL | 0 | ° | |
| c | LREAL | 0 | ° | |
| Geometry | Struct | | | |
| Type | DINT | CUBOID_ZONE | | |
| Parameter | Array[] | | | |
| Parameter[1] | LREAL | 0 | | |
| Parameter[2] | LREAL | 0 | | |
| Parameter[3] | LREAL | 0 | | |
| StatusKinematicsZone[5] | Struct | | | |
| Active | BOOL | False | | |
| Valid | BOOL | False | | |
| ReferenceSystem | DINT | FCS_CRDS | | |
| Frame | Struct | | | |
| x | LREAL | 0 | mm | |
| y | LREAL | 0 | mm | |
| z | LREAL | 0 | mm | |
| a | LREAL | 0 | ° | |
| b | LREAL | 0 | ° | |
| c | LREAL | 0 | ° | |
| Geometry | Struct | | | |
| Type | DINT | CUBOID_ZONE | | |
| Parameter | Array[] | | | |
| Parameter[1] | LREAL | 0 | | |
| Parameter[2] | LREAL | 0 | | |
| Parameter[3] | LREAL | 0 | | |
| StatusKinematicsZone[6] | Struct | | | |
| Active | BOOL | False | | |
| Valid | BOOL | False | | |
| ReferenceSystem | DINT | FCS_CRDS | | |
| Frame | Struct | | | |
| x | LREAL | 0 | mm | |
| y | LREAL | 0 | mm | |
| z | LREAL | 0 | mm | |
| a | LREAL | 0 | ° | |
| b | LREAL | 0 | ° | |
| c | LREAL | 0 | ° | |
| Geometry | Struct | | | |
| Type | DINT | CUBOID_ZONE | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| Parameter | Array[] | | | |
| Parameter[1] | LREAL | 0 | | |
| Parameter[2] | LREAL | 0 | | |
| Parameter[3] | LREAL | 0 | | |
| StatusKinematicsZone[7] | Struct | | | |
| Active | BOOL | False | | |
| Valid | BOOL | False | | |
| ReferenceSystem | DINT | FCS_CRDS | | |
| Frame | Struct | | | |
| x | LREAL | 0 | mm | |
| y | LREAL | 0 | mm | |
| z | LREAL | 0 | mm | |
| a | LREAL | 0 | ° | |
| b | LREAL | 0 | ° | |
| c | LREAL | 0 | ° | |
| Geometry | Struct | | | |
| Type | DINT | CUBOID_ZONE | | |
| Parameter | Array[] | | | |
| Parameter[1] | LREAL | 0 | | |
| Parameter[2] | LREAL | 0 | | |
| Parameter[3] | LREAL | 0 | | |
| StatusKinematicsZone[8] | Struct | | | |
| Active | BOOL | False | | |
| Valid | BOOL | False | | |
| ReferenceSystem | DINT | FCS_CRDS | | |
| Frame | Struct | | | |
| x | LREAL | 0 | mm | |
| y | LREAL | 0 | mm | |
| z | LREAL | 0 | mm | |
| a | LREAL | 0 | ° | |
| b | LREAL | 0 | ° | |
| c | LREAL | 0 | ° | |
| Geometry | Struct | | | |
| Type | DINT | CUBOID_ZONE | | |
| Parameter | Array[] | | | |
| Parameter[1] | LREAL | 0 | | |
| Parameter[2] | LREAL | 0 | | |
| Parameter[3] | LREAL | 0 | | |
| StatusKinematicsZone[9] | Struct | | | |
| Active | BOOL | False | | |
| Valid | BOOL | False | | |
| ReferenceSystem | DINT | FCS_CRDS | | |
| Frame | Struct | | | |
| x | LREAL | 0 | mm | |
| y | LREAL | 0 | mm | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| z | LREAL | 0 | mm | |
| a | LREAL | 0 | ° | |
| b | LREAL | 0 | ° | |
| c | LREAL | 0 | ° | |
| Geometry | Struct | | | |
| Type | DINT | CUBOID_ZONE | | |
| Parameter | Array[] | | | |
| Parameter[1] | LREAL | 0 | | |
| Parameter[2] | LREAL | 0 | | |
| Parameter[3] | LREAL | 0 | | |
| StatusKinematicsZone[10] | Struct | | | |
| Active | BOOL | False | | |
| Valid | BOOL | False | | |
| ReferenceSystem | DINT | FCS_CRDS | | |
| Frame | Struct | | | |
| x | LREAL | 0 | mm | |
| y | LREAL | 0 | mm | |
| z | LREAL | 0 | mm | |
| a | LREAL | 0 | ° | |
| b | LREAL | 0 | ° | |
| c | LREAL | 0 | ° | |
| Geometry | Struct | | | |
| Type | DINT | CUBOID_ZONE | | |
| Parameter | Array[] | | | |
| Parameter[1] | LREAL | 0 | | |
| Parameter[2] | LREAL | 0 | | |
| Parameter[3] | LREAL | 0 | | |
| StatusZoneMonitoring | Struct | | | |
| WorkingZones | DWORD | 0 | | |
| BlockedZones | DWORD | 0 | | |
| SignalizingZones | DWORD | 0 | | |
| KinematicsZones | DWORD | 0 | | |
| StatusMotionQueue | Struct | | | |
| NumberOfCommands | DINT | 0 | | |
| NumberOfPreparedCom-mands | DINT | 0 | | |
| KinematicsAxis | Struct | | | |
| A1 | DB_ANY | 0 | | |
| A2 | DB_ANY | 0 | | |
| A3 | DB_ANY | 0 | | |
| A4 | DB_ANY | 0 | | |
| A5 | DB_ANY | 0 | | |
| A6 | DB_ANY | 0 | | |
| Units | Struct | | | |
| LengthUnit | UDINT | 0 | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| LengthVelocityUnit | UDINT | 0 | | |
| AngleUnit | UDINT | 0 | | |
| AngleVelocityUnit | UDINT | 0 | | |
| StatusInterpreterMotion | Struct | | | |
| StatusWord | DWORD | 0 | | |
| StatusWord | DWORD | 0 | | |
| ErrorWord | DWORD | 0 | | |
| ErrorDetail | Struct | | | |
| Number | UDINT | 0 | | |
| Reaction | DINT | NONE | | |
| WarningWord | DWORD | 0 | | |
| ControlPanel | Struct | | | |
| Input | Struct | | | |
| TimeOut | LREAL | 2000 | ms | |
| EsLifeSign | UDINT | 0 | | |
| Command | Array[] | | | |
| Command[1] | Struct | | | |
| ReqCounter | UDINT | 0 | | |
| Type | UDINT | 0 | | |
| Position | Array[] | | | |
| Position[1] | LREAL | 0 | | |
| Position[2] | LREAL | 0 | | |
| Position[3] | LREAL | 0 | | |
| Position[4] | LREAL | 0 | | |
| Position[5] | LREAL | 0 | | |
| Position[6] | LREAL | 0 | | |
| Velocity | Array[] | | | |
| Velocity[1] | LREAL | 0 | | |
| Velocity[2] | LREAL | 0 | | |
| Acceleration | Array[] | | | |
| Acceleration[1] | LREAL | 0 | | |
| Acceleration[2] | LREAL | 0 | | |
| Deceleration | Array[] | | | |
| Deceleration[1] | LREAL | 0 | | |
| Deceleration[2] | LREAL | 0 | | |
| Jerk | Array[] | | | |
| Jerk[1] | LREAL | 0 | | |
| Jerk[2] | LREAL | 0 | | |
| Param | Array[] | | | |
| Param[1] | LREAL | 0 | | |
| Param[2] | LREAL | 0 | | |
| Param[3] | LREAL | 0 | | |
| Param[4] | LREAL | 0 | | |
| Param[5] | LREAL | 0 | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| Param[6] | LREAL | 0 | | |
| Param[7] | LREAL | 0 | | |
| Param[8] | LREAL | 0 | | |
| Param[9] | LREAL | 0 | | |
| CoordinateSystem | UDINT | 0 | | |
| ToolNumber | UDINT | 0 | | |
| Command[2] | Struct | | | |
| ReqCounter | UDINT | 0 | | |
| Type | UDINT | 0 | | |
| Position | Array[] | | | |
| Position[1] | LREAL | 0 | | |
| Position[2] | LREAL | 0 | | |
| Position[3] | LREAL | 0 | | |
| Position[4] | LREAL | 0 | | |
| Position[5] | LREAL | 0 | | |
| Position[6] | LREAL | 0 | | |
| Velocity | Array[] | | | |
| Velocity[1] | LREAL | 0 | | |
| Velocity[2] | LREAL | 0 | | |
| Acceleration | Array[] | | | |
| Acceleration[1] | LREAL | 0 | | |
| Acceleration[2] | LREAL | 0 | | |
| Deceleration | Array[] | | | |
| Deceleration[1] | LREAL | 0 | | |
| Deceleration[2] | LREAL | 0 | | |
| Jerk | Array[] | | | |
| Jerk[1] | LREAL | 0 | | |
| Jerk[2] | LREAL | 0 | | |
| Param | Array[] | | | |
| Param[1] | LREAL | 0 | | |
| Param[2] | LREAL | 0 | | |
| Param[3] | LREAL | 0 | | |
| Param[4] | LREAL | 0 | | |
| Param[5] | LREAL | 0 | | |
| Param[6] | LREAL | 0 | | |
| Param[7] | LREAL | 0 | | |
| Param[8] | LREAL | 0 | | |
| Param[9] | LREAL | 0 | | |
| CoordinateSystem | UDINT | 0 | | |
| ToolNumber | UDINT | 0 | | |
| Command[3] | Struct | | | |
| ReqCounter | UDINT | 0 | | |
| Type | UDINT | 0 | | |
| Position | Array[] | | | |
| Position[1] | LREAL | 0 | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| Position[2] | LREAL | 0 | | |
| Position[3] | LREAL | 0 | | |
| Position[4] | LREAL | 0 | | |
| Position[5] | LREAL | 0 | | |
| Position[6] | LREAL | 0 | | |
| Velocity | Array[] | | | |
| Velocity[1] | LREAL | 0 | | |
| Velocity[2] | LREAL | 0 | | |
| Acceleration | Array[] | | | |
| Acceleration[1] | LREAL | 0 | | |
| Acceleration[2] | LREAL | 0 | | |
| Deceleration | Array[] | | | |
| Deceleration[1] | LREAL | 0 | | |
| Deceleration[2] | LREAL | 0 | | |
| Jerk | Array[] | | | |
| Jerk[1] | LREAL | 0 | | |
| Jerk[2] | LREAL | 0 | | |
| Param | Array[] | | | |
| Param[1] | LREAL | 0 | | |
| Param[2] | LREAL | 0 | | |
| Param[3] | LREAL | 0 | | |
| Param[4] | LREAL | 0 | | |
| Param[5] | LREAL | 0 | | |
| Param[6] | LREAL | 0 | | |
| Param[7] | LREAL | 0 | | |
| Param[8] | LREAL | 0 | | |
| Param[9] | LREAL | 0 | | |
| CoordinateSystem | UDINT | 0 | | |
| ToolNumber | UDINT | 0 | | |
| Output | Struct | | | |
| RtLifeSign | UDINT | 0 | | |
| Command | Array[] | | | |
| Command[1] | Struct | | | |
| AckCounter | UDINT | 0 | | |
| Error | BOOL | False | | |
| ErrorID | WORD | 0 | | |
| Done | BOOL | False | | |
| Aborted | BOOL | False | | |
| Command[2] | Struct | | | |
| AckCounter | UDINT | 0 | | |
| Error | BOOL | False | | |
| ErrorID | WORD | 0 | | |
| Done | BOOL | False | | |
| Aborted | BOOL | False | | |
| Command[3] | Struct | | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| AckCounter | UDINT | 0 | | |
| Error | BOOL | False | | |
| ErrorID | WORD | 0 | | |
| Done | BOOL | False | | |
| Aborted | BOOL | False | | |
| InternalToTrace | Array[] | | | |
| InternalToTrace[1] | Struct | | | |
| Id | DINT | 0 | | |
| Value | LREAL | 0 | | |
| InternalToTrace[2] | Struct | | | |
| Id | DINT | 0 | | |
| Value | LREAL | 0 | | |
| InternalToTrace[3] | Struct | | | |
| Id | DINT | 0 | | |
| Value | LREAL | 0 | | |
| InternalToTrace[4] | Struct | | | |
| Id | DINT | 0 | | |
| Value | LREAL | 0 | | |

# DeltaSpiralConv [CPU 1515T-2 PN] / Technology objects

## Axis_01_J1 [DB21]

| Axis_01_J1 properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | Axis_01_J1 | **Number** | 21 | **Type** | DB |
| **Language** | Motion_DB | **Numbering** | manual | | |
| **Information** | | | | | |
| **Title** | | **Author** | SIMATIC | **Comment** | |
| **Family** | MC_1500 | **Version** | 8.0 | **User-defined ID** | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| Velocity | LREAL | 0 | °/s | |
| Acceleration | LREAL | 0 | °/s² | |
| ActualSpeed | LREAL | 0 | 1/min | |
| VelocitySetpoint | LREAL | 0 | °/s | |
| ▼ Actor | Struct | | | |
| Type | DINT | PROFIDRIVE | | |
| InverseDirection | BOOL | False | | |
| DataAdaption | DINT | ACTOR_DATA_ADAP-TION_NO | | |
| Efficiency | LREAL | 1 | | |
| MotorType | DINT | STANDARD_MOTOR-TYPE | | |
| LoadInertia | LREAL | 0 | kgm² | |
| RemoveEnableReaction | WORD | 7 | | |
| ▼ Interface | Struct | | | |
| ▼ AddressIn | Struct | | | |
| RID | DWORD | 34080538 | | |
| AREA | BYTE | 129 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 32 | | |
| ▼ AddressOut | Struct | | | |
| RID | DWORD | 34080539 | | |
| AREA | BYTE | 130 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 64 | | |
| EnableDriveOutput | BOOL | False | | |
| ▼ EnableDriveOutputAddress | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| DriveReadyInput | BOOL | False | | |
| ▼ DriveReadyInputAddress | Struct | | | |
| RID | DWORD | 0 | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| EnableTorqueData | BOOL | False | | |
| TorqueDataAddressIn | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| TorqueDataAddressOut | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| DriveParameter | Struct | | | |
| ReferenceSpeed | LREAL | 3000 | 1/min | |
| MaxSpeed | LREAL | 3000 | 1/min | |
| ReferenceTorque | LREAL | 3.2 | Nm | |
| MotorInertia | LREAL | 0 | kgm² | |
| LinearMotorDriveParameter | Struct | | | |
| ReferenceVelocity | LREAL | 120 | m/min | |
| MaxVelocity | LREAL | 120 | m/min | |
| ReferenceForce | LREAL | 100 | N | |
| MotorMass | LREAL | 0 | kg | |
| TorqueLimiting | Struct | | | |
| LimitBase | DINT | TORQUELIMIT_LIMIT-BASE_LOAD | | |
| PositionBasedMonitorings | DINT | TORQUELI-MIT_POS_BASED_MONITORING_NO | | |
| LimitDefaults | Struct | | | |
| Torque | LREAL | 0 | Nm | |
| Force | LREAL | 0 | N | |
| LoadGear | Struct | | | |
| Numerator | UDINT | 1 | | |
| Denominator | UDINT | 1 | | |
| DynamicLimits | Struct | | | |
| MaxVelocity | LREAL | 18000 | °/s | |
| Velocity | LREAL | 1000000000000 | °/s | |
| MaxAcceleration | LREAL | 360000 | °/s² | |
| MaxDeceleration | LREAL | 360000 | °/s² | |
| MaxJerk | LREAL | 7200000 | °/s³ | |
| DynamicDefaults | Struct | | | |
| Velocity | LREAL | 3600 | °/s | |
| Acceleration | LREAL | 72000 | °/s² | |
| Deceleration | LREAL | 72000 | °/s² | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| Jerk | LREAL | 1440000 | °/s³ | |
| EmergencyDeceleration | LREAL | 360000 | °/s² | |
| ▼ Override | Struct | | | |
| Velocity | LREAL | 100 | % | |
| ▼ Units | Struct | | | |
| LengthUnit | UDINT | 0 | | |
| VelocityUnit | UDINT | 0 | | |
| TimeUnit | UDINT | 0 | | |
| TorqueUnit | UDINT | 0 | | |
| ForceUnit | UDINT | 0 | | |
| MassUnit | UDINT | 0 | | |
| InertiaUnit | UDINT | 0 | | |
| ▼ StatusDrive | Struct | | | |
| InOperation | BOOL | False | | |
| CommunicationOK | BOOL | False | | |
| Error | BOOL | False | | |
| AdaptionState | DINT | NOT_ADAPTED | | |
| ▼ StatusTorqueData | Struct | | | |
| CommandAdditiveTorqueActive | DINT | ADDITIVE_TORQUE_ACTIVE_NO | | |
| CommandTorqueRangeActive | DINT | TORQUE_RANGE_ACTIVE_NO | | |
| ActualTorque | LREAL | 0 | Nm | |
| ActualForce | LREAL | 0 | N | |
| TotalTorqueAdditive | LREAL | 0 | Nm | |
| TotalForceAdditive | LREAL | 0 | N | |
| ▼ StatusMotionIn | Struct | | | |
| FunctionState | DINT | MOTIONIN_INAKTIV | | |
| StatusWord | DWORD | 0 | | |
| ▼ StatusInterpreterMotion | Struct | | | |
| Interpreter | DB_ANY | 0 | | |
| StatusWord | DWORD | 0 | | |
| StatusWord | DWORD | 0 | | |
| StatusWord2 | DWORD | 0 | | |
| ErrorWord | DWORD | 0 | | |
| ▼ ErrorDetail | Struct | | | |
| Number | UDINT | 0 | | |
| Reaction | DINT | NONE | | |
| WarningWord | DWORD | 0 | | |
| ▼ ControlPanel | Struct | | | |
| ▼ Input | Struct | | | |
| ▼ Command | Array[] | | | |
| ▼ Command[1] | Struct | | | |
| ReqCounter | UDINT | 0 | | |
| Type | UDINT | 0 | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| Position | LREAL | 0 | ° | |
| Velocity | LREAL | 0 | °/s | |
| Acceleration | LREAL | 0 | °/s² | |
| Deceleration | LREAL | 0 | °/s² | |
| Jerk | LREAL | 0 | °/s³ | |
| Param | LREAL | 0 | | |
| ▼ Command[2] | Struct | | | |
| ReqCounter | UDINT | 0 | | |
| Type | UDINT | 0 | | |
| Position | LREAL | 0 | ° | |
| Velocity | LREAL | 0 | °/s | |
| Acceleration | LREAL | 0 | °/s² | |
| Deceleration | LREAL | 0 | °/s² | |
| Jerk | LREAL | 0 | °/s³ | |
| Param | LREAL | 0 | | |
| ▼ Command[3] | Struct | | | |
| ReqCounter | UDINT | 0 | | |
| Type | UDINT | 0 | | |
| Position | LREAL | 0 | ° | |
| Velocity | LREAL | 0 | °/s | |
| Acceleration | LREAL | 0 | °/s² | |
| Deceleration | LREAL | 0 | °/s² | |
| Jerk | LREAL | 0 | °/s³ | |
| Param | LREAL | 0 | | |
| TimeOut | LREAL | 2000 | ms | |
| EsLifeSign | UDINT | 0 | | |
| ▼ Output | Struct | | | |
| ▼ Command | Array[] | | | |
| ▼ Command[1] | Struct | | | |
| AckCounter | UDINT | 0 | | |
| Error | BOOL | False | | |
| ErrorID | WORD | 0 | | |
| Done | BOOL | False | | |
| Aborted | BOOL | False | | |
| ▼ Command[2] | Struct | | | |
| AckCounter | UDINT | 0 | | |
| Error | BOOL | False | | |
| ErrorID | WORD | 0 | | |
| Done | BOOL | False | | |
| Aborted | BOOL | False | | |
| ▼ Command[3] | Struct | | | |
| AckCounter | UDINT | 0 | | |
| Error | BOOL | False | | |
| ErrorID | WORD | 0 | | |
| Done | BOOL | False | | |
| Aborted | BOOL | False | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| RtLifeSign | UDINT | 0 | | |
| InternalToTrace | Array[] | | | |
| InternalToTrace[1] | Struct | | | |
| Id | DINT | 0 | | |
| Value | LREAL | 0 | | |
| InternalToTrace[2] | Struct | | | |
| Id | DINT | 0 | | |
| Value | LREAL | 0 | | |
| InternalToTrace[3] | Struct | | | |
| Id | DINT | 0 | | |
| Value | LREAL | 0 | | |
| InternalToTrace[4] | Struct | | | |
| Id | DINT | 0 | | |
| Value | LREAL | 0 | | |
| VirtualAxis | Struct | | | |
| Mode | UDINT | 0 | | |
| Simulation | Struct | | | |
| Mode | UDINT | 0 | | |
| Position | LREAL | 0 | ° | |
| ActualPosition | LREAL | 0 | ° | |
| ActualVelocity | LREAL | 0 | °/s | |
| ActualAcceleration | LREAL | 0 | °/s² | |
| OperativeSensor | UDINT | 0 | | |
| ModuloCycle | DINT | 0 | | |
| ActualModuloCycle | DINT | 0 | | |
| Clamping | Struct | | | |
| FollowingErrorDeviation | LREAL | 360 | ° | |
| PositionTolerance | LREAL | 360 | ° | |
| Sensor | Array[] | | | |
| Sensor[1] | Struct | | | |
| Existent | BOOL | True | | |
| Type | DINT | ABSOLUTE | | |
| InverseDirection | BOOL | False | | |
| System | DINT | ROTATORY | | |
| MountingMode | DINT | DRIVE | | |
| DataAdaption | DINT | SENSOR_DATA_ADAP-TION_NO | | |
| ActualVelocityMode | DINT | STANDARD | | |
| Interface | Struct | | | |
| AddressIn | Struct | | | |
| RID | DWORD | 34080538 | | |
| AREA | BYTE | 129 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 32 | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| AddressOut | Struct | | | |
| RID | DWORD | 34080539 | | |
| AREA | BYTE | 130 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 64 | | |
| Number | UDINT | 1 | | |
| Parameter | Struct | | | |
| Resolution | LREAL | 0.001 | ° | |
| StepsPerRevolution | UDINT | 512 | | |
| FineResolutionXist1 | UDINT | 11 | | |
| FineResolutionXist2 | UDINT | 9 | | |
| DeterminableRevolu-tions | UDINT | 4096 | | |
| DistancePerRevolution | LREAL | 100 | ° | |
| BehaviorGx_XIST1 | DINT | SEN-SOR_GX_XIST1_NO | | |
| ReferenceSpeed | LREAL | 3000 | 1/min | |
| ReferenceVelocity | LREAL | 120 | m/min | |
| Backlash | Struct | | | |
| Enable | BOOL | False | | |
| Size | LREAL | 0 | ° | |
| Velocity | LREAL | 0 | °/s | |
| DirectionAbsoluteHom-ing | DINT | SENSOR_BACK-LASH_POSITIVE | | |
| ActiveHoming | Struct | | | |
| Mode | DINT | DIGITAL_INPUT | | |
| SideInput | BOOL | True | | |
| Direction | DINT | POSITIVE | | |
| HomePositionOffset | LREAL | 0 | ° | |
| DigitalInputAddress | Struct | | | |
| RID | DWORD | 33554433 | | |
| AREA | BYTE | 129 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 8 | | |
| SwitchLevel | BOOL | True | | |
| PassiveHoming | Struct | | | |
| Mode | DINT | ZERO_MARK | | |
| SideInput | BOOL | True | | |
| Direction | DINT | ACTUAL | | |
| DigitalInputAddress | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| SwitchLevel | BOOL | True | | |
| MeasuringGear | Struct | | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| Numerator | UDINT | 1 | | |
| Denominator | UDINT | 1 | | |
| Sensor[2] | Struct | | | |
| Existent | BOOL | False | | |
| Type | DINT | INCREMENTAL | | |
| InverseDirection | BOOL | False | | |
| System | DINT | ROTATORY | | |
| MountingMode | DINT | DRIVE | | |
| DataAdaption | DINT | SENSOR_DATA_ADAP-TION_NO | | |
| ActualVelocityMode | DINT | STANDARD | | |
| Interface | Struct | | | |
| AddressIn | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| AddressOut | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| Number | UDINT | 1 | | |
| Parameter | Struct | | | |
| Resolution | LREAL | 0.001 | ° | |
| StepsPerRevolution | UDINT | 2048 | | |
| FineResolutionXist1 | UDINT | 11 | | |
| FineResolutionXist2 | UDINT | 9 | | |
| DeterminableRevolu-tions | UDINT | 1 | | |
| DistancePerRevolution | LREAL | 100 | ° | |
| BehaviorGx_XIST1 | DINT | SEN-SOR_GX_XIST1_NO | | |
| ReferenceSpeed | LREAL | 3000 | 1/min | |
| ReferenceVelocity | LREAL | 120 | m/min | |
| Backlash | Struct | | | |
| Enable | BOOL | False | | |
| Size | LREAL | 0 | ° | |
| Velocity | LREAL | 0 | °/s | |
| DirectionAbsoluteHom-ing | DINT | SENSOR_BACK-LASH_POSITIVE | | |
| ActiveHoming | Struct | | | |
| Mode | DINT | ZERO_MARK | | |
| SideInput | BOOL | True | | |
| Direction | DINT | POSITIVE | | |
| HomePositionOffset | LREAL | 0 | ° | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| DigitalInputAddress | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| SwitchLevel | BOOL | True | | |
| PassiveHoming | Struct | | | |
| Mode | DINT | ZERO_MARK | | |
| SideInput | BOOL | True | | |
| Direction | DINT | ACTUAL | | |
| DigitalInputAddress | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| SwitchLevel | BOOL | True | | |
| MeasuringGear | Struct | | | |
| Numerator | UDINT | 1 | | |
| Denominator | UDINT | 1 | | |
| Sensor[3] | Struct | | | |
| Existent | BOOL | False | | |
| Type | DINT | INCREMENTAL | | |
| InverseDirection | BOOL | False | | |
| System | DINT | ROTATORY | | |
| MountingMode | DINT | DRIVE | | |
| DataAdaption | DINT | SENSOR_DATA_ADAP-TION_NO | | |
| ActualVelocityMode | DINT | STANDARD | | |
| Interface | Struct | | | |
| AddressIn | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| AddressOut | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| Number | UDINT | 1 | | |
| Parameter | Struct | | | |
| Resolution | LREAL | 0.001 | ° | |
| StepsPerRevolution | UDINT | 2048 | | |
| FineResolutionXist1 | UDINT | 11 | | |
| FineResolutionXist2 | UDINT | 9 | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| DeterminableRevolutions | UDINT | 1 | | |
| DistancePerRevolution | LREAL | 100 | ° | |
| BehaviorGx_XIST1 | DINT | SENSOR_GX_XIST1_NO | | |
| ReferenceSpeed | LREAL | 3000 | 1/min | |
| ReferenceVelocity | LREAL | 120 | m/min | |
| Backlash | Struct | | | |
| Enable | BOOL | False | | |
| Size | LREAL | 0 | ° | |
| Velocity | LREAL | 0 | °/s | |
| DirectionAbsoluteHoming | DINT | SENSOR_BACKLASH_POSITIVE | | |
| ActiveHoming | Struct | | | |
| Mode | DINT | ZERO_MARK | | |
| SideInput | BOOL | True | | |
| Direction | DINT | POSITIVE | | |
| HomePositionOffset | LREAL | 0 | ° | |
| DigitalInputAddress | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| SwitchLevel | BOOL | True | | |
| PassiveHoming | Struct | | | |
| Mode | DINT | ZERO_MARK | | |
| SideInput | BOOL | True | | |
| Direction | DINT | ACTUAL | | |
| DigitalInputAddress | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| SwitchLevel | BOOL | True | | |
| MeasuringGear | Struct | | | |
| Numerator | UDINT | 1 | | |
| Denominator | UDINT | 1 | | |
| Sensor[4] | Struct | | | |
| Existent | BOOL | False | | |
| Type | DINT | INCREMENTAL | | |
| InverseDirection | BOOL | False | | |
| System | DINT | ROTATORY | | |
| MountingMode | DINT | DRIVE | | |
| DataAdaption | DINT | SENSOR_DATA_ADAPTION_NO | | |
| ActualVelocityMode | DINT | STANDARD | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| Interface | Struct | | | |
| AddressIn | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| AddressOut | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| Number | UDINT | 1 | | |
| Parameter | Struct | | | |
| Resolution | LREAL | 0.001 | ° | |
| StepsPerRevolution | UDINT | 2048 | | |
| FineResolutionXist1 | UDINT | 11 | | |
| FineResolutionXist2 | UDINT | 9 | | |
| DeterminableRevolu-tions | UDINT | 1 | | |
| DistancePerRevolution | LREAL | 100 | ° | |
| BehaviorGx_XIST1 | DINT | SEN-SOR_GX_XIST1_NO | | |
| ReferenceSpeed | LREAL | 3000 | 1/min | |
| ReferenceVelocity | LREAL | 120 | m/min | |
| Backlash | Struct | | | |
| Enable | BOOL | False | | |
| Size | LREAL | 0 | ° | |
| Velocity | LREAL | 0 | °/s | |
| DirectionAbsoluteHom-ing | DINT | SENSOR_BACK-LASH_POSITIVE | | |
| ActiveHoming | Struct | | | |
| Mode | DINT | ZERO_MARK | | |
| SideInput | BOOL | True | | |
| Direction | DINT | POSITIVE | | |
| HomePositionOffset | LREAL | 0 | ° | |
| DigitalInputAddress | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| SwitchLevel | BOOL | True | | |
| PassiveHoming | Struct | | | |
| Mode | DINT | ZERO_MARK | | |
| SideInput | BOOL | True | | |
| Direction | DINT | ACTUAL | | |
| DigitalInputAddress | Struct | | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| SwitchLevel | BOOL | True | | |
| ▼ MeasuringGear | Struct | | | |
| Numerator | UDINT | 1 | | |
| Denominator | UDINT | 1 | | |
| ▼ Extrapolation | Struct | | | |
| LeadingAxisDependentTime | LREAL | 0 | s | |
| FollowingAxisDependentTime | LREAL | 0 | s | |
| ▼ Settings | Struct | | | |
| SystemDefinedExtrapolation | DINT | SYSTEM_DEFINED_EXTRAPOLATION_ACTIVE | | |
| ExtrapolatedVelocityMode | DINT | EXTRAPOLATED_VELOCITY_MODE_DIFFERENTIATION | | |
| ▼ PositionFilter | Struct | | | |
| T1 | LREAL | 0 | s | |
| T2 | LREAL | 0 | s | |
| ▼ VelocityFilter | Struct | | | |
| T1 | LREAL | 0 | s | |
| T2 | LREAL | 0 | s | |
| ▼ VelocityTolerance | Struct | | | |
| Range | LREAL | 0 | °/s | |
| ▼ Hysteresis | Struct | | | |
| Value | LREAL | 0 | ° | |
| ▼ Mechanics | Struct | | | |
| LeadScrew | LREAL | 10 | mm/rot | |
| ▼ Properties | Struct | | | |
| MotionType | DINT | ROT_MOTION | | |
| ▼ Modulo | Struct | | | |
| Enable | BOOL | False | | |
| Length | LREAL | 360 | ° | |
| StartValue | LREAL | 0 | ° | |
| ▼ PositionLimits_SW | Struct | | | |
| Active | BOOL | False | | |
| MinPosition | LREAL | -1000000000000 | ° | |
| MaxPosition | LREAL | 1000000000000 | ° | |
| LimitReachedBehavior | DINT | STOP_WITH_MAX_DYNAMICS | | |
| LimitExceededBehavior | DINT | AXIS_DISABLE | | |
| ▼ PositionLimits_HW | Struct | | | |
| Active | BOOL | False | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| Mode | DINT | SWITCH_TRAVERSA-BLE | | |
| MinSwitchLevel | BOOL | True | | |
| MinSwitchAddress | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| MaxSwitchLevel | BOOL | True | | |
| MaxSwitchAddress | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| ApproachBehavior | DINT | AXIS_DISABLE | | |
| Homing | Struct | | | |
| AutoReversal | BOOL | False | | |
| ApproachDirection | BOOL | True | | |
| ApproachVelocity | LREAL | 100 | °/s | |
| ReferencingVelocity | LREAL | 5 | °/s | |
| HomePosition | LREAL | 90 | ° | |
| PositionControl | Struct | | | |
| Kv | LREAL | 10 | 1/s | |
| Kpc | LREAL | 100 | % | |
| EnableDSC | BOOL | True | | |
| SmoothingTimeByChangeDif-ference | LREAL | 0 | s | |
| InitialOperativeSensor | UDINT | 1 | | |
| ControlDifferenceQuantiza-tion | Struct | | | |
| Mode | DINT | REFER_TO_AC-TUAL_SENSOR_VAL-UE_RESOLUTION | | |
| Value | LREAL | 0.001 | ° | |
| VelocityModePowerOn | DINT | RAMP_TO_VE-LO_ZERO | | |
| TorquePreControl | Struct | | | |
| Mode | DINT | TORQUE_PRE_CON-TROL_OFF | | |
| Scale | LREAL | 100 | % | |
| SetpointFilter | Struct | | | |
| DynamicFilter | Struct | | | |
| Mode | DINT | OFF | | |
| T1 | LREAL | 0 | s | |
| T2 | LREAL | 0 | s | |
| Tt | LREAL | 0 | s | |
| DynamicAxisModel | Struct | | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| VelocityTimeConstant | LREAL | 0 | s | |
| AdditionalPositionTimeConst-ant | LREAL | 0 | s | |
| CurrentTimeConstant | LREAL | 0 | s | |
| ▼ FollowingError | Struct | | | |
| EnableMonitoring | BOOL | True | | |
| MinValue | LREAL | 360 | ° | |
| MaxValue | LREAL | 3600 | ° | |
| MinVelocity | LREAL | 360 | °/s | |
| WarningLevel | LREAL | 70 | % | |
| AdditionalSetpointDelayTime | LREAL | 0 | s | |
| ▼ CrossPlcSynchronousOperation | Struct | | | |
| ▼ Interface | Array[] | | | |
| ▼ Interface[1] | Struct | | | |
| EnableLeadingValueOut-put | BOOL | False | | |
| ▼ AddressOut | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| ▼ Interface[2] | Struct | | | |
| EnableLeadingValueOut-put | BOOL | False | | |
| ▼ AddressOut | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| ▼ Interface[3] | Struct | | | |
| EnableLeadingValueOut-put | BOOL | False | | |
| ▼ AddressOut | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| ▼ Interface[4] | Struct | | | |
| EnableLeadingValueOut-put | BOOL | False | | |
| ▼ AddressOut | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| Interface[5] | Struct | | | |
| EnableLeadingValueOut-put | BOOL | False | | |
| AddressOut | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| Interface[6] | Struct | | | |
| EnableLeadingValueOut-put | BOOL | False | | |
| AddressOut | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| Interface[7] | Struct | | | |
| EnableLeadingValueOut-put | BOOL | False | | |
| AddressOut | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| Interface[8] | Struct | | | |
| EnableLeadingValueOut-put | BOOL | False | | |
| AddressOut | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| LocalLeadingValueDelayTime | LREAL | 0 | s | |
| PositioningMonitoring | Struct | | | |
| ToleranceTime | LREAL | 1 | s | |
| MinDwellTime | LREAL | 0.1 | s | |
| Window | LREAL | 360 | ° | |
| StandstillSignal | Struct | | | |
| VelocityThreshold | LREAL | 180 | °/s | |
| MinDwellTime | LREAL | 0.01 | s | |
| StatusPositioning | Struct | | | |
| Distance | LREAL | 0 | ° | |
| TargetPosition | LREAL | 0 | ° | |
| TargetPositionModuloCycle | DINT | 0 | | |
| FollowingError | LREAL | 0 | ° | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| SetpointExecutionTime | LREAL | 0 | s | |
| SuperimposedDistance | LREAL | 0 | ° | |
| StatusServo | Struct | | | |
| BalancedPosition | LREAL | 0 | ° | |
| ControlDifference | LREAL | 0 | ° | |
| PositionAfterDynamicFilter | LREAL | 0 | ° | |
| StatusProvidedLeadingValue | Struct | | | |
| DelayedLeadingValue | Struct | | | |
| Position | LREAL | 0 | ° | |
| Velocity | LREAL | 0 | °/s | |
| Acceleration | LREAL | 0 | °/s² | |
| StatusSensor | Array[] | | | |
| StatusSensor[1] | Struct | | | |
| State | DINT | NOT_VALID | | |
| CommunicationOK | BOOL | False | | |
| Error | BOOL | False | | |
| AbsEncoderOffset | LREAL | 0 | ° | |
| Control | BOOL | False | | |
| Position | LREAL | 0 | ° | |
| Velocity | LREAL | 0 | °/s | |
| AdaptionState | DINT | NOT_ADAPTED | | |
| ModuloCycle | DINT | 0 | | |
| Adjusted | DINT | NOT_ADJUSTED | | |
| StatusSensor[2] | Struct | | | |
| State | DINT | NOT_VALID | | |
| CommunicationOK | BOOL | False | | |
| Error | BOOL | False | | |
| AbsEncoderOffset | LREAL | 0 | ° | |
| Control | BOOL | False | | |
| Position | LREAL | 0 | ° | |
| Velocity | LREAL | 0 | °/s | |
| AdaptionState | DINT | NOT_ADAPTED | | |
| ModuloCycle | DINT | 0 | | |
| Adjusted | DINT | NOT_ADJUSTED | | |
| StatusSensor[3] | Struct | | | |
| State | DINT | NOT_VALID | | |
| CommunicationOK | BOOL | False | | |
| Error | BOOL | False | | |
| AbsEncoderOffset | LREAL | 0 | ° | |
| Control | BOOL | False | | |
| Position | LREAL | 0 | ° | |
| Velocity | LREAL | 0 | °/s | |
| AdaptionState | DINT | NOT_ADAPTED | | |
| ModuloCycle | DINT | 0 | | |
| Adjusted | DINT | NOT_ADJUSTED | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| StatusSensor[4] | Struct | | | |
| State | DINT | NOT_VALID | | |
| CommunicationOK | BOOL | False | | |
| Error | BOOL | False | | |
| AbsEncoderOffset | LREAL | 0 | ° | |
| Control | BOOL | False | | |
| Position | LREAL | 0 | ° | |
| Velocity | LREAL | 0 | °/s | |
| AdaptionState | DINT | NOT_ADAPTED | | |
| ModuloCycle | DINT | 0 | | |
| Adjusted | DINT | NOT_ADJUSTED | | |
| StatusExtrapolation | Struct | | | |
| FilteredPosition | LREAL | 0 | ° | |
| FilteredVelocity | LREAL | 0 | °/s | |
| ExtrapolatedPosition | LREAL | 0 | ° | |
| ExtrapolatedVelocity | LREAL | 0 | °/s | |
| StatusKinematicsMotion | Struct | | | |
| StatusWord | DWORD | 0 | | |

# DeltaSpiralConv [CPU 1515T-2 PN] / Technology objects

## Axis_02_J2 [DB22]

| Axis_02_J2 properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | Axis_02_J2 | **Number** | 22 | **Type** | DB |
| **Language** | Motion_DB | **Numbering** | manual | | |
| **Information** | | | | | |
| **Title** | | **Author** | SIMATIC | **Comment** | |
| **Family** | MC_1500 | **Version** | 8.0 | **User-defined ID** | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| Velocity | LREAL | 0 | °/s | |
| Acceleration | LREAL | 0 | °/s² | |
| ActualSpeed | LREAL | 0 | 1/min | |
| VelocitySetpoint | LREAL | 0 | °/s | |
| ▼ Actor | Struct | | | |
| Type | DINT | PROFIDRIVE | | |
| InverseDirection | BOOL | False | | |
| DataAdaption | DINT | ACTOR_DATA_ADAP-TION_NO | | |
| Efficiency | LREAL | 1 | | |
| MotorType | DINT | STANDARD_MOTOR-TYPE | | |
| LoadInertia | LREAL | 0 | kgm² | |
| RemoveEnableReaction | WORD | 7 | | |
| ▼ Interface | Struct | | | |
| ▼ AddressIn | Struct | | | |
| RID | DWORD | 34080538 | | |
| AREA | BYTE | 129 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 176 | | |
| ▼ AddressOut | Struct | | | |
| RID | DWORD | 34080539 | | |
| AREA | BYTE | 130 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 208 | | |
| EnableDriveOutput | BOOL | False | | |
| ▼ EnableDriveOutputAddress | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| DriveReadyInput | BOOL | False | | |
| ▼ DriveReadyInputAddress | Struct | | | |
| RID | DWORD | 0 | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| EnableTorqueData | BOOL | False | | |
| TorqueDataAddressIn | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| TorqueDataAddressOut | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| DriveParameter | Struct | | | |
| ReferenceSpeed | LREAL | 3000 | 1/min | |
| MaxSpeed | LREAL | 3000 | 1/min | |
| ReferenceTorque | LREAL | 3.2 | Nm | |
| MotorInertia | LREAL | 0 | kgm² | |
| LinearMotorDriveParameter | Struct | | | |
| ReferenceVelocity | LREAL | 120 | m/min | |
| MaxVelocity | LREAL | 120 | m/min | |
| ReferenceForce | LREAL | 100 | N | |
| MotorMass | LREAL | 0 | kg | |
| TorqueLimiting | Struct | | | |
| LimitBase | DINT | TORQUELIMIT_LIMIT-BASE_LOAD | | |
| PositionBasedMonitorings | DINT | TORQUELI-MIT_POS_BASED_MONITORING_NO | | |
| LimitDefaults | Struct | | | |
| Torque | LREAL | 0 | Nm | |
| Force | LREAL | 0 | N | |
| LoadGear | Struct | | | |
| Numerator | UDINT | 1 | | |
| Denominator | UDINT | 1 | | |
| DynamicLimits | Struct | | | |
| MaxVelocity | LREAL | 18000 | °/s | |
| Velocity | LREAL | 1000000000000 | °/s | |
| MaxAcceleration | LREAL | 360000 | °/s² | |
| MaxDeceleration | LREAL | 360000 | °/s² | |
| MaxJerk | LREAL | 7200000 | °/s³ | |
| DynamicDefaults | Struct | | | |
| Velocity | LREAL | 3600 | °/s | |
| Acceleration | LREAL | 72000 | °/s² | |
| Deceleration | LREAL | 72000 | °/s² | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| Jerk | LREAL | 1440000 | °/s³ | |
| EmergencyDeceleration | LREAL | 360000 | °/s² | |
| ▼ Override | Struct | | | |
| Velocity | LREAL | 100 | % | |
| ▼ Units | Struct | | | |
| LengthUnit | UDINT | 0 | | |
| VelocityUnit | UDINT | 0 | | |
| TimeUnit | UDINT | 0 | | |
| TorqueUnit | UDINT | 0 | | |
| ForceUnit | UDINT | 0 | | |
| MassUnit | UDINT | 0 | | |
| InertiaUnit | UDINT | 0 | | |
| ▼ StatusDrive | Struct | | | |
| InOperation | BOOL | False | | |
| CommunicationOK | BOOL | False | | |
| Error | BOOL | False | | |
| AdaptionState | DINT | NOT_ADAPTED | | |
| ▼ StatusTorqueData | Struct | | | |
| CommandAdditiveTorqueActive | DINT | ADDITIVE_TORQUE_ACTIVE_NO | | |
| CommandTorqueRangeActive | DINT | TORQUE_RANGE_ACTIVE_NO | | |
| ActualTorque | LREAL | 0 | Nm | |
| ActualForce | LREAL | 0 | N | |
| TotalTorqueAdditive | LREAL | 0 | Nm | |
| TotalForceAdditive | LREAL | 0 | N | |
| ▼ StatusMotionIn | Struct | | | |
| FunctionState | DINT | MOTIONIN_INAKTIV | | |
| StatusWord | DWORD | 0 | | |
| ▼ StatusInterpreterMotion | Struct | | | |
| Interpreter | DB_ANY | 0 | | |
| StatusWord | DWORD | 0 | | |
| StatusWord | DWORD | 0 | | |
| StatusWord2 | DWORD | 0 | | |
| ErrorWord | DWORD | 0 | | |
| ▼ ErrorDetail | Struct | | | |
| Number | UDINT | 0 | | |
| Reaction | DINT | NONE | | |
| WarningWord | DWORD | 0 | | |
| ▼ ControlPanel | Struct | | | |
| ▼ Input | Struct | | | |
| ▼ Command | Array[] | | | |
| ▼ Command[1] | Struct | | | |
| ReqCounter | UDINT | 0 | | |
| Type | UDINT | 0 | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| Position | LREAL | 0 | ° | |
| Velocity | LREAL | 0 | °/s | |
| Acceleration | LREAL | 0 | °/s² | |
| Deceleration | LREAL | 0 | °/s² | |
| Jerk | LREAL | 0 | °/s³ | |
| Param | LREAL | 0 | | |
| ▼ Command[2] | Struct | | | |
| ReqCounter | UDINT | 0 | | |
| Type | UDINT | 0 | | |
| Position | LREAL | 0 | ° | |
| Velocity | LREAL | 0 | °/s | |
| Acceleration | LREAL | 0 | °/s² | |
| Deceleration | LREAL | 0 | °/s² | |
| Jerk | LREAL | 0 | °/s³ | |
| Param | LREAL | 0 | | |
| ▼ Command[3] | Struct | | | |
| ReqCounter | UDINT | 0 | | |
| Type | UDINT | 0 | | |
| Position | LREAL | 0 | ° | |
| Velocity | LREAL | 0 | °/s | |
| Acceleration | LREAL | 0 | °/s² | |
| Deceleration | LREAL | 0 | °/s² | |
| Jerk | LREAL | 0 | °/s³ | |
| Param | LREAL | 0 | | |
| TimeOut | LREAL | 2000 | ms | |
| EsLifeSign | UDINT | 0 | | |
| ▼ Output | Struct | | | |
| ▼ Command | Array[] | | | |
| ▼ Command[1] | Struct | | | |
| AckCounter | UDINT | 0 | | |
| Error | BOOL | False | | |
| ErrorID | WORD | 0 | | |
| Done | BOOL | False | | |
| Aborted | BOOL | False | | |
| ▼ Command[2] | Struct | | | |
| AckCounter | UDINT | 0 | | |
| Error | BOOL | False | | |
| ErrorID | WORD | 0 | | |
| Done | BOOL | False | | |
| Aborted | BOOL | False | | |
| ▼ Command[3] | Struct | | | |
| AckCounter | UDINT | 0 | | |
| Error | BOOL | False | | |
| ErrorID | WORD | 0 | | |
| Done | BOOL | False | | |
| Aborted | BOOL | False | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| RtLifeSign | UDINT | 0 | | |
| InternalToTrace | Array[] | | | |
| InternalToTrace[1] | Struct | | | |
| Id | DINT | 0 | | |
| Value | LREAL | 0 | | |
| InternalToTrace[2] | Struct | | | |
| Id | DINT | 0 | | |
| Value | LREAL | 0 | | |
| InternalToTrace[3] | Struct | | | |
| Id | DINT | 0 | | |
| Value | LREAL | 0 | | |
| InternalToTrace[4] | Struct | | | |
| Id | DINT | 0 | | |
| Value | LREAL | 0 | | |
| VirtualAxis | Struct | | | |
| Mode | UDINT | 0 | | |
| Simulation | Struct | | | |
| Mode | UDINT | 0 | | |
| Position | LREAL | 0 | ° | |
| ActualPosition | LREAL | 0 | ° | |
| ActualVelocity | LREAL | 0 | °/s | |
| ActualAcceleration | LREAL | 0 | °/s² | |
| OperativeSensor | UDINT | 0 | | |
| ModuloCycle | DINT | 0 | | |
| ActualModuloCycle | DINT | 0 | | |
| Clamping | Struct | | | |
| FollowingErrorDeviation | LREAL | 360 | ° | |
| PositionTolerance | LREAL | 360 | ° | |
| Sensor | Array[] | | | |
| Sensor[1] | Struct | | | |
| Existent | BOOL | True | | |
| Type | DINT | ABSOLUTE | | |
| InverseDirection | BOOL | False | | |
| System | DINT | ROTATORY | | |
| MountingMode | DINT | DRIVE | | |
| DataAdaption | DINT | SENSOR_DATA_ADAP-TION_NO | | |
| ActualVelocityMode | DINT | STANDARD | | |
| Interface | Struct | | | |
| AddressIn | Struct | | | |
| RID | DWORD | 34080538 | | |
| AREA | BYTE | 129 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 176 | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| AddressOut | Struct | | | |
| RID | DWORD | 34080539 | | |
| AREA | BYTE | 130 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 208 | | |
| Number | UDINT | 1 | | |
| Parameter | Struct | | | |
| Resolution | LREAL | 0.001 | ° | |
| StepsPerRevolution | UDINT | 512 | | |
| FineResolutionXist1 | UDINT | 11 | | |
| FineResolutionXist2 | UDINT | 9 | | |
| DeterminableRevolu-tions | UDINT | 4096 | | |
| DistancePerRevolution | LREAL | 100 | ° | |
| BehaviorGx_XIST1 | DINT | SEN-SOR_GX_XIST1_NO | | |
| ReferenceSpeed | LREAL | 3000 | 1/min | |
| ReferenceVelocity | LREAL | 120 | m/min | |
| Backlash | Struct | | | |
| Enable | BOOL | False | | |
| Size | LREAL | 0 | ° | |
| Velocity | LREAL | 0 | °/s | |
| DirectionAbsoluteHom-ing | DINT | SENSOR_BACK-LASH_POSITIVE | | |
| ActiveHoming | Struct | | | |
| Mode | DINT | DIGITAL_INPUT | | |
| SideInput | BOOL | True | | |
| Direction | DINT | POSITIVE | | |
| HomePositionOffset | LREAL | 0 | ° | |
| DigitalInputAddress | Struct | | | |
| RID | DWORD | 33554433 | | |
| AREA | BYTE | 129 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 9 | | |
| SwitchLevel | BOOL | True | | |
| PassiveHoming | Struct | | | |
| Mode | DINT | ZERO_MARK | | |
| SideInput | BOOL | True | | |
| Direction | DINT | ACTUAL | | |
| DigitalInputAddress | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| SwitchLevel | BOOL | True | | |
| MeasuringGear | Struct | | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| Numerator | UDINT | 1 | | |
| Denominator | UDINT | 1 | | |
| Sensor[2] | Struct | | | |
| Existent | BOOL | False | | |
| Type | DINT | INCREMENTAL | | |
| InverseDirection | BOOL | False | | |
| System | DINT | ROTATORY | | |
| MountingMode | DINT | DRIVE | | |
| DataAdaption | DINT | SENSOR_DATA_ADAP-TION_NO | | |
| ActualVelocityMode | DINT | STANDARD | | |
| Interface | Struct | | | |
| AddressIn | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| AddressOut | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| Number | UDINT | 1 | | |
| Parameter | Struct | | | |
| Resolution | LREAL | 0.001 | ° | |
| StepsPerRevolution | UDINT | 2048 | | |
| FineResolutionXist1 | UDINT | 11 | | |
| FineResolutionXist2 | UDINT | 9 | | |
| DeterminableRevolu-tions | UDINT | 1 | | |
| DistancePerRevolution | LREAL | 100 | ° | |
| BehaviorGx_XIST1 | DINT | SEN-SOR_GX_XIST1_NO | | |
| ReferenceSpeed | LREAL | 3000 | 1/min | |
| ReferenceVelocity | LREAL | 120 | m/min | |
| Backlash | Struct | | | |
| Enable | BOOL | False | | |
| Size | LREAL | 0 | ° | |
| Velocity | LREAL | 0 | °/s | |
| DirectionAbsoluteHom-ing | DINT | SENSOR_BACK-LASH_POSITIVE | | |
| ActiveHoming | Struct | | | |
| Mode | DINT | ZERO_MARK | | |
| SideInput | BOOL | True | | |
| Direction | DINT | POSITIVE | | |
| HomePositionOffset | LREAL | 0 | ° | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| DigitalInputAddress | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| SwitchLevel | BOOL | True | | |
| PassiveHoming | Struct | | | |
| Mode | DINT | ZERO_MARK | | |
| SideInput | BOOL | True | | |
| Direction | DINT | ACTUAL | | |
| DigitalInputAddress | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| SwitchLevel | BOOL | True | | |
| MeasuringGear | Struct | | | |
| Numerator | UDINT | 1 | | |
| Denominator | UDINT | 1 | | |
| Sensor[3] | Struct | | | |
| Existent | BOOL | False | | |
| Type | DINT | INCREMENTAL | | |
| InverseDirection | BOOL | False | | |
| System | DINT | ROTATORY | | |
| MountingMode | DINT | DRIVE | | |
| DataAdaption | DINT | SENSOR_DATA_ADAP-TION_NO | | |
| ActualVelocityMode | DINT | STANDARD | | |
| Interface | Struct | | | |
| AddressIn | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| AddressOut | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| Number | UDINT | 1 | | |
| Parameter | Struct | | | |
| Resolution | LREAL | 0.001 | ° | |
| StepsPerRevolution | UDINT | 2048 | | |
| FineResolutionXist1 | UDINT | 11 | | |
| FineResolutionXist2 | UDINT | 9 | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| DeterminableRevolutions | UDINT | 1 | | |
| DistancePerRevolution | LREAL | 100 | ° | |
| BehaviorGx_XIST1 | DINT | SENSOR_GX_XIST1_NO | | |
| ReferenceSpeed | LREAL | 3000 | 1/min | |
| ReferenceVelocity | LREAL | 120 | m/min | |
| Backlash | Struct | | | |
| Enable | BOOL | False | | |
| Size | LREAL | 0 | ° | |
| Velocity | LREAL | 0 | °/s | |
| DirectionAbsoluteHoming | DINT | SENSOR_BACKLASH_POSITIVE | | |
| ActiveHoming | Struct | | | |
| Mode | DINT | ZERO_MARK | | |
| SideInput | BOOL | True | | |
| Direction | DINT | POSITIVE | | |
| HomePositionOffset | LREAL | 0 | ° | |
| DigitalInputAddress | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| SwitchLevel | BOOL | True | | |
| PassiveHoming | Struct | | | |
| Mode | DINT | ZERO_MARK | | |
| SideInput | BOOL | True | | |
| Direction | DINT | ACTUAL | | |
| DigitalInputAddress | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| SwitchLevel | BOOL | True | | |
| MeasuringGear | Struct | | | |
| Numerator | UDINT | 1 | | |
| Denominator | UDINT | 1 | | |
| Sensor[4] | Struct | | | |
| Existent | BOOL | False | | |
| Type | DINT | INCREMENTAL | | |
| InverseDirection | BOOL | False | | |
| System | DINT | ROTATORY | | |
| MountingMode | DINT | DRIVE | | |
| DataAdaption | DINT | SENSOR_DATA_ADAPTION_NO | | |
| ActualVelocityMode | DINT | STANDARD | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| Interface | Struct | | | |
| AddressIn | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| AddressOut | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| Number | UDINT | 1 | | |
| Parameter | Struct | | | |
| Resolution | LREAL | 0.001 | ° | |
| StepsPerRevolution | UDINT | 2048 | | |
| FineResolutionXist1 | UDINT | 11 | | |
| FineResolutionXist2 | UDINT | 9 | | |
| DeterminableRevolu-tions | UDINT | 1 | | |
| DistancePerRevolution | LREAL | 100 | ° | |
| BehaviorGx_XIST1 | DINT | SEN-SOR_GX_XIST1_NO | | |
| ReferenceSpeed | LREAL | 3000 | 1/min | |
| ReferenceVelocity | LREAL | 120 | m/min | |
| Backlash | Struct | | | |
| Enable | BOOL | False | | |
| Size | LREAL | 0 | ° | |
| Velocity | LREAL | 0 | °/s | |
| DirectionAbsoluteHom-ing | DINT | SENSOR_BACK-LASH_POSITIVE | | |
| ActiveHoming | Struct | | | |
| Mode | DINT | ZERO_MARK | | |
| SideInput | BOOL | True | | |
| Direction | DINT | POSITIVE | | |
| HomePositionOffset | LREAL | 0 | ° | |
| DigitalInputAddress | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| SwitchLevel | BOOL | True | | |
| PassiveHoming | Struct | | | |
| Mode | DINT | ZERO_MARK | | |
| SideInput | BOOL | True | | |
| Direction | DINT | ACTUAL | | |
| DigitalInputAddress | Struct | | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| SwitchLevel | BOOL | True | | |
| ▼ MeasuringGear | Struct | | | |
| Numerator | UDINT | 1 | | |
| Denominator | UDINT | 1 | | |
| ▼ Extrapolation | Struct | | | |
| LeadingAxisDependentTime | LREAL | 0 | s | |
| FollowingAxisDependentTime | LREAL | 0 | s | |
| ▼ Settings | Struct | | | |
| SystemDefinedExtrapolation | DINT | SYSTEM_DEFINED_EXTRAPOLATION_ACTIVE | | |
| ExtrapolatedVelocityMode | DINT | EXTRAPOLATED_VELOCITY_MODE_DIFFERENTIATION | | |
| ▼ PositionFilter | Struct | | | |
| T1 | LREAL | 0 | s | |
| T2 | LREAL | 0 | s | |
| ▼ VelocityFilter | Struct | | | |
| T1 | LREAL | 0 | s | |
| T2 | LREAL | 0 | s | |
| ▼ VelocityTolerance | Struct | | | |
| Range | LREAL | 0 | °/s | |
| ▼ Hysteresis | Struct | | | |
| Value | LREAL | 0 | ° | |
| ▼ Mechanics | Struct | | | |
| LeadScrew | LREAL | 10 | mm/rot | |
| ▼ Properties | Struct | | | |
| MotionType | DINT | ROT_MOTION | | |
| ▼ Modulo | Struct | | | |
| Enable | BOOL | False | | |
| Length | LREAL | 360 | ° | |
| StartValue | LREAL | 0 | ° | |
| ▼ PositionLimits_SW | Struct | | | |
| Active | BOOL | False | | |
| MinPosition | LREAL | -1000000000000 | ° | |
| MaxPosition | LREAL | 1000000000000 | ° | |
| LimitReachedBehavior | DINT | STOP_WITH_MAX_DYNAMICS | | |
| LimitExceededBehavior | DINT | AXIS_DISABLE | | |
| ▼ PositionLimits_HW | Struct | | | |
| Active | BOOL | False | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| Mode | DINT | SWITCH_TRAVERSA-BLE | | |
| MinSwitchLevel | BOOL | True | | |
| MinSwitchAddress | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| MaxSwitchLevel | BOOL | True | | |
| MaxSwitchAddress | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| ApproachBehavior | DINT | AXIS_DISABLE | | |
| Homing | Struct | | | |
| AutoReversal | BOOL | False | | |
| ApproachDirection | BOOL | True | | |
| ApproachVelocity | LREAL | 20 | °/s | |
| ReferencingVelocity | LREAL | 5 | °/s | |
| HomePosition | LREAL | 90 | ° | |
| PositionControl | Struct | | | |
| Kv | LREAL | 10 | 1/s | |
| Kpc | LREAL | 100 | % | |
| EnableDSC | BOOL | True | | |
| SmoothingTimeByChangeDif-ference | LREAL | 0 | s | |
| InitialOperativeSensor | UDINT | 1 | | |
| ControlDifferenceQuantiza-tion | Struct | | | |
| Mode | DINT | REFER_TO_AC-TUAL_SENSOR_VAL-UE_RESOLUTION | | |
| Value | LREAL | 0.001 | ° | |
| VelocityModePowerOn | DINT | RAMP_TO_VE-LO_ZERO | | |
| TorquePreControl | Struct | | | |
| Mode | DINT | TORQUE_PRE_CON-TROL_OFF | | |
| Scale | LREAL | 100 | % | |
| SetpointFilter | Struct | | | |
| DynamicFilter | Struct | | | |
| Mode | DINT | OFF | | |
| T1 | LREAL | 0 | s | |
| T2 | LREAL | 0 | s | |
| Tt | LREAL | 0 | s | |
| DynamicAxisModel | Struct | | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| VelocityTimeConstant | LREAL | 0 | s | |
| AdditionalPositionTimeConst-ant | LREAL | 0 | s | |
| CurrentTimeConstant | LREAL | 0 | s | |
| FollowingError | Struct | | | |
| EnableMonitoring | BOOL | True | | |
| MinValue | LREAL | 360 | ° | |
| MaxValue | LREAL | 3600 | ° | |
| MinVelocity | LREAL | 360 | °/s | |
| WarningLevel | LREAL | 70 | % | |
| AdditionalSetpointDelayTime | LREAL | 0 | s | |
| CrossPlcSynchronousOperation | Struct | | | |
| Interface | Array[] | | | |
| Interface[1] | Struct | | | |
| EnableLeadingValueOut-put | BOOL | False | | |
| AddressOut | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| Interface[2] | Struct | | | |
| EnableLeadingValueOut-put | BOOL | False | | |
| AddressOut | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| Interface[3] | Struct | | | |
| EnableLeadingValueOut-put | BOOL | False | | |
| AddressOut | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| Interface[4] | Struct | | | |
| EnableLeadingValueOut-put | BOOL | False | | |
| AddressOut | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| Interface[5] | Struct | | | |
| EnableLeadingValueOut-put | BOOL | False | | |
| AddressOut | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| Interface[6] | Struct | | | |
| EnableLeadingValueOut-put | BOOL | False | | |
| AddressOut | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| Interface[7] | Struct | | | |
| EnableLeadingValueOut-put | BOOL | False | | |
| AddressOut | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| Interface[8] | Struct | | | |
| EnableLeadingValueOut-put | BOOL | False | | |
| AddressOut | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| LocalLeadingValueDelayTime | LREAL | 0 | s | |
| PositioningMonitoring | Struct | | | |
| ToleranceTime | LREAL | 1 | s | |
| MinDwellTime | LREAL | 0.1 | s | |
| Window | LREAL | 360 | ° | |
| StandstillSignal | Struct | | | |
| VelocityThreshold | LREAL | 180 | °/s | |
| MinDwellTime | LREAL | 0.01 | s | |
| StatusPositioning | Struct | | | |
| Distance | LREAL | 0 | ° | |
| TargetPosition | LREAL | 0 | ° | |
| TargetPositionModuloCycle | DINT | 0 | | |
| FollowingError | LREAL | 0 | ° | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| SetpointExecutionTime | LREAL | 0 | s | |
| SuperimposedDistance | LREAL | 0 | ° | |
| StatusServo | Struct | | | |
| BalancedPosition | LREAL | 0 | ° | |
| ControlDifference | LREAL | 0 | ° | |
| PositionAfterDynamicFilter | LREAL | 0 | ° | |
| StatusProvidedLeadingValue | Struct | | | |
| DelayedLeadingValue | Struct | | | |
| Position | LREAL | 0 | ° | |
| Velocity | LREAL | 0 | °/s | |
| Acceleration | LREAL | 0 | °/s² | |
| StatusSensor | Array[] | | | |
| StatusSensor[1] | Struct | | | |
| State | DINT | NOT_VALID | | |
| CommunicationOK | BOOL | False | | |
| Error | BOOL | False | | |
| AbsEncoderOffset | LREAL | 0 | ° | |
| Control | BOOL | False | | |
| Position | LREAL | 0 | ° | |
| Velocity | LREAL | 0 | °/s | |
| AdaptionState | DINT | NOT_ADAPTED | | |
| ModuloCycle | DINT | 0 | | |
| Adjusted | DINT | NOT_ADJUSTED | | |
| StatusSensor[2] | Struct | | | |
| State | DINT | NOT_VALID | | |
| CommunicationOK | BOOL | False | | |
| Error | BOOL | False | | |
| AbsEncoderOffset | LREAL | 0 | ° | |
| Control | BOOL | False | | |
| Position | LREAL | 0 | ° | |
| Velocity | LREAL | 0 | °/s | |
| AdaptionState | DINT | NOT_ADAPTED | | |
| ModuloCycle | DINT | 0 | | |
| Adjusted | DINT | NOT_ADJUSTED | | |
| StatusSensor[3] | Struct | | | |
| State | DINT | NOT_VALID | | |
| CommunicationOK | BOOL | False | | |
| Error | BOOL | False | | |
| AbsEncoderOffset | LREAL | 0 | ° | |
| Control | BOOL | False | | |
| Position | LREAL | 0 | ° | |
| Velocity | LREAL | 0 | °/s | |
| AdaptionState | DINT | NOT_ADAPTED | | |
| ModuloCycle | DINT | 0 | | |
| Adjusted | DINT | NOT_ADJUSTED | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| StatusSensor[4] | Struct | | | |
| State | DINT | NOT_VALID | | |
| CommunicationOK | BOOL | False | | |
| Error | BOOL | False | | |
| AbsEncoderOffset | LREAL | 0 | ° | |
| Control | BOOL | False | | |
| Position | LREAL | 0 | ° | |
| Velocity | LREAL | 0 | °/s | |
| AdaptionState | DINT | NOT_ADAPTED | | |
| ModuloCycle | DINT | 0 | | |
| Adjusted | DINT | NOT_ADJUSTED | | |
| StatusExtrapolation | Struct | | | |
| FilteredPosition | LREAL | 0 | ° | |
| FilteredVelocity | LREAL | 0 | °/s | |
| ExtrapolatedPosition | LREAL | 0 | ° | |
| ExtrapolatedVelocity | LREAL | 0 | °/s | |
| StatusKinematicsMotion | Struct | | | |
| StatusWord | DWORD | 0 | | |

# DeltaSpiralConv [CPU 1515T-2 PN] / Technology objects

## Axis_03_J3 [DB23]

| Axis_03_J3 properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | Axis_03_J3 | **Number** | 23 | **Type** | DB |
| **Language** | Motion_DB | **Numbering** | manual | | |
| **Information** | | | | | |
| **Title** | | **Author** | SIMATIC | **Comment** | |
| **Family** | MC_1500 | **Version** | 8.0 | **User-defined ID** | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| Velocity | LREAL | 0 | °/s | |
| Acceleration | LREAL | 0 | °/s² | |
| ActualSpeed | LREAL | 0 | 1/min | |
| VelocitySetpoint | LREAL | 0 | °/s | |
| ▼ Actor | Struct | | | |
| Type | DINT | PROFIDRIVE | | |
| InverseDirection | BOOL | False | | |
| DataAdaption | DINT | ACTOR_DATA_ADAP-TION_NO | | |
| Efficiency | LREAL | 1 | | |
| MotorType | DINT | STANDARD_MOTOR-TYPE | | |
| LoadInertia | LREAL | 0 | kgm² | |
| RemoveEnableReaction | WORD | 7 | | |
| ▼ Interface | Struct | | | |
| ▼ AddressIn | Struct | | | |
| RID | DWORD | 34080538 | | |
| AREA | BYTE | 129 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 320 | | |
| ▼ AddressOut | Struct | | | |
| RID | DWORD | 34080539 | | |
| AREA | BYTE | 130 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 352 | | |
| EnableDriveOutput | BOOL | False | | |
| ▼ EnableDriveOutputAddress | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| DriveReadyInput | BOOL | False | | |
| ▼ DriveReadyInputAddress | Struct | | | |
| RID | DWORD | 0 | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| EnableTorqueData | BOOL | False | | |
| TorqueDataAddressIn | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| TorqueDataAddressOut | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| DriveParameter | Struct | | | |
| ReferenceSpeed | LREAL | 3000 | 1/min | |
| MaxSpeed | LREAL | 3000 | 1/min | |
| ReferenceTorque | LREAL | 3.2 | Nm | |
| MotorInertia | LREAL | 0 | kgm² | |
| LinearMotorDriveParameter | Struct | | | |
| ReferenceVelocity | LREAL | 120 | m/min | |
| MaxVelocity | LREAL | 120 | m/min | |
| ReferenceForce | LREAL | 100 | N | |
| MotorMass | LREAL | 0 | kg | |
| TorqueLimiting | Struct | | | |
| LimitBase | DINT | TORQUELIMIT_LIMIT-BASE_LOAD | | |
| PositionBasedMonitorings | DINT | TORQUELI-MIT_POS_BASED_MONITORING_NO | | |
| LimitDefaults | Struct | | | |
| Torque | LREAL | 0 | Nm | |
| Force | LREAL | 0 | N | |
| LoadGear | Struct | | | |
| Numerator | UDINT | 1 | | |
| Denominator | UDINT | 1 | | |
| DynamicLimits | Struct | | | |
| MaxVelocity | LREAL | 18000 | °/s | |
| Velocity | LREAL | 1000000000000 | °/s | |
| MaxAcceleration | LREAL | 360000 | °/s² | |
| MaxDeceleration | LREAL | 360000 | °/s² | |
| MaxJerk | LREAL | 7200000 | °/s³ | |
| DynamicDefaults | Struct | | | |
| Velocity | LREAL | 3600 | °/s | |
| Acceleration | LREAL | 72000 | °/s² | |
| Deceleration | LREAL | 72000 | °/s² | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| Jerk | LREAL | 1440000 | °/s³ | |
| EmergencyDeceleration | LREAL | 360000 | °/s² | |
| ▼ Override | Struct | | | |
| Velocity | LREAL | 100 | % | |
| ▼ Units | Struct | | | |
| LengthUnit | UDINT | 0 | | |
| VelocityUnit | UDINT | 0 | | |
| TimeUnit | UDINT | 0 | | |
| TorqueUnit | UDINT | 0 | | |
| ForceUnit | UDINT | 0 | | |
| MassUnit | UDINT | 0 | | |
| InertiaUnit | UDINT | 0 | | |
| ▼ StatusDrive | Struct | | | |
| InOperation | BOOL | False | | |
| CommunicationOK | BOOL | False | | |
| Error | BOOL | False | | |
| AdaptionState | DINT | NOT_ADAPTED | | |
| ▼ StatusTorqueData | Struct | | | |
| CommandAdditiveTorqueActive | DINT | ADDITIVE_TORQUE_ACTIVE_NO | | |
| CommandTorqueRangeActive | DINT | TORQUE_RANGE_ACTIVE_NO | | |
| ActualTorque | LREAL | 0 | Nm | |
| ActualForce | LREAL | 0 | N | |
| TotalTorqueAdditive | LREAL | 0 | Nm | |
| TotalForceAdditive | LREAL | 0 | N | |
| ▼ StatusMotionIn | Struct | | | |
| FunctionState | DINT | MOTIONIN_INAKTIV | | |
| StatusWord | DWORD | 0 | | |
| ▼ StatusInterpreterMotion | Struct | | | |
| Interpreter | DB_ANY | 0 | | |
| StatusWord | DWORD | 0 | | |
| StatusWord | DWORD | 0 | | |
| StatusWord2 | DWORD | 0 | | |
| ErrorWord | DWORD | 0 | | |
| ▼ ErrorDetail | Struct | | | |
| Number | UDINT | 0 | | |
| Reaction | DINT | NONE | | |
| WarningWord | DWORD | 0 | | |
| ▼ ControlPanel | Struct | | | |
| ▼ Input | Struct | | | |
| ▼ Command | Array[] | | | |
| ▼ Command[1] | Struct | | | |
| ReqCounter | UDINT | 0 | | |
| Type | UDINT | 0 | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| Position | LREAL | 0 | ° | |
| Velocity | LREAL | 0 | °/s | |
| Acceleration | LREAL | 0 | °/s² | |
| Deceleration | LREAL | 0 | °/s² | |
| Jerk | LREAL | 0 | °/s³ | |
| Param | LREAL | 0 | | |
| ▼ Command[2] | Struct | | | |
| ReqCounter | UDINT | 0 | | |
| Type | UDINT | 0 | | |
| Position | LREAL | 0 | ° | |
| Velocity | LREAL | 0 | °/s | |
| Acceleration | LREAL | 0 | °/s² | |
| Deceleration | LREAL | 0 | °/s² | |
| Jerk | LREAL | 0 | °/s³ | |
| Param | LREAL | 0 | | |
| ▼ Command[3] | Struct | | | |
| ReqCounter | UDINT | 0 | | |
| Type | UDINT | 0 | | |
| Position | LREAL | 0 | ° | |
| Velocity | LREAL | 0 | °/s | |
| Acceleration | LREAL | 0 | °/s² | |
| Deceleration | LREAL | 0 | °/s² | |
| Jerk | LREAL | 0 | °/s³ | |
| Param | LREAL | 0 | | |
| TimeOut | LREAL | 2000 | ms | |
| EsLifeSign | UDINT | 0 | | |
| ▼ Output | Struct | | | |
| ▼ Command | Array[] | | | |
| ▼ Command[1] | Struct | | | |
| AckCounter | UDINT | 0 | | |
| Error | BOOL | False | | |
| ErrorID | WORD | 0 | | |
| Done | BOOL | False | | |
| Aborted | BOOL | False | | |
| ▼ Command[2] | Struct | | | |
| AckCounter | UDINT | 0 | | |
| Error | BOOL | False | | |
| ErrorID | WORD | 0 | | |
| Done | BOOL | False | | |
| Aborted | BOOL | False | | |
| ▼ Command[3] | Struct | | | |
| AckCounter | UDINT | 0 | | |
| Error | BOOL | False | | |
| ErrorID | WORD | 0 | | |
| Done | BOOL | False | | |
| Aborted | BOOL | False | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| RtLifeSign | UDINT | 0 | | |
| InternalToTrace | Array[] | | | |
| InternalToTrace[1] | Struct | | | |
| Id | DINT | 0 | | |
| Value | LREAL | 0 | | |
| InternalToTrace[2] | Struct | | | |
| Id | DINT | 0 | | |
| Value | LREAL | 0 | | |
| InternalToTrace[3] | Struct | | | |
| Id | DINT | 0 | | |
| Value | LREAL | 0 | | |
| InternalToTrace[4] | Struct | | | |
| Id | DINT | 0 | | |
| Value | LREAL | 0 | | |
| VirtualAxis | Struct | | | |
| Mode | UDINT | 0 | | |
| Simulation | Struct | | | |
| Mode | UDINT | 0 | | |
| Position | LREAL | 0 | ° | |
| ActualPosition | LREAL | 0 | ° | |
| ActualVelocity | LREAL | 0 | °/s | |
| ActualAcceleration | LREAL | 0 | °/s² | |
| OperativeSensor | UDINT | 0 | | |
| ModuloCycle | DINT | 0 | | |
| ActualModuloCycle | DINT | 0 | | |
| Clamping | Struct | | | |
| FollowingErrorDeviation | LREAL | 360 | ° | |
| PositionTolerance | LREAL | 360 | ° | |
| Sensor | Array[] | | | |
| Sensor[1] | Struct | | | |
| Existent | BOOL | True | | |
| Type | DINT | ABSOLUTE | | |
| InverseDirection | BOOL | False | | |
| System | DINT | ROTATORY | | |
| MountingMode | DINT | DRIVE | | |
| DataAdaption | DINT | SENSOR_DATA_ADAP-TION_NO | | |
| ActualVelocityMode | DINT | STANDARD | | |
| Interface | Struct | | | |
| AddressIn | Struct | | | |
| RID | DWORD | 34080538 | | |
| AREA | BYTE | 129 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 320 | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| AddressOut | Struct | | | |
| RID | DWORD | 34080539 | | |
| AREA | BYTE | 130 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 352 | | |
| Number | UDINT | 1 | | |
| Parameter | Struct | | | |
| Resolution | LREAL | 0.001 | ° | |
| StepsPerRevolution | UDINT | 512 | | |
| FineResolutionXist1 | UDINT | 11 | | |
| FineResolutionXist2 | UDINT | 9 | | |
| DeterminableRevolu-tions | UDINT | 4096 | | |
| DistancePerRevolution | LREAL | 100 | ° | |
| BehaviorGx_XIST1 | DINT | SEN-SOR_GX_XIST1_NO | | |
| ReferenceSpeed | LREAL | 3000 | 1/min | |
| ReferenceVelocity | LREAL | 120 | m/min | |
| Backlash | Struct | | | |
| Enable | BOOL | False | | |
| Size | LREAL | 0 | ° | |
| Velocity | LREAL | 0 | °/s | |
| DirectionAbsoluteHom-ing | DINT | SENSOR_BACK-LASH_POSITIVE | | |
| ActiveHoming | Struct | | | |
| Mode | DINT | ZERO_MARK | | |
| SideInput | BOOL | True | | |
| Direction | DINT | POSITIVE | | |
| HomePositionOffset | LREAL | 0 | ° | |
| DigitalInputAddress | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| SwitchLevel | BOOL | True | | |
| PassiveHoming | Struct | | | |
| Mode | DINT | ZERO_MARK | | |
| SideInput | BOOL | True | | |
| Direction | DINT | ACTUAL | | |
| DigitalInputAddress | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| SwitchLevel | BOOL | True | | |
| MeasuringGear | Struct | | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| Numerator | UDINT | 1 | | |
| Denominator | UDINT | 1 | | |
| Sensor[2] | Struct | | | |
| Existent | BOOL | False | | |
| Type | DINT | INCREMENTAL | | |
| InverseDirection | BOOL | False | | |
| System | DINT | ROTATORY | | |
| MountingMode | DINT | DRIVE | | |
| DataAdaption | DINT | SENSOR_DATA_ADAP-TION_NO | | |
| ActualVelocityMode | DINT | STANDARD | | |
| Interface | Struct | | | |
| AddressIn | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| AddressOut | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| Number | UDINT | 1 | | |
| Parameter | Struct | | | |
| Resolution | LREAL | 0.001 | ° | |
| StepsPerRevolution | UDINT | 2048 | | |
| FineResolutionXist1 | UDINT | 11 | | |
| FineResolutionXist2 | UDINT | 9 | | |
| DeterminableRevolu-tions | UDINT | 1 | | |
| DistancePerRevolution | LREAL | 100 | ° | |
| BehaviorGx_XIST1 | DINT | SEN-SOR_GX_XIST1_NO | | |
| ReferenceSpeed | LREAL | 3000 | 1/min | |
| ReferenceVelocity | LREAL | 120 | m/min | |
| Backlash | Struct | | | |
| Enable | BOOL | False | | |
| Size | LREAL | 0 | ° | |
| Velocity | LREAL | 0 | °/s | |
| DirectionAbsoluteHom-ing | DINT | SENSOR_BACK-LASH_POSITIVE | | |
| ActiveHoming | Struct | | | |
| Mode | DINT | ZERO_MARK | | |
| SideInput | BOOL | True | | |
| Direction | DINT | POSITIVE | | |
| HomePositionOffset | LREAL | 0 | ° | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| DigitalInputAddress | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| SwitchLevel | BOOL | True | | |
| PassiveHoming | Struct | | | |
| Mode | DINT | ZERO_MARK | | |
| SideInput | BOOL | True | | |
| Direction | DINT | ACTUAL | | |
| DigitalInputAddress | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| SwitchLevel | BOOL | True | | |
| MeasuringGear | Struct | | | |
| Numerator | UDINT | 1 | | |
| Denominator | UDINT | 1 | | |
| Sensor[3] | Struct | | | |
| Existent | BOOL | False | | |
| Type | DINT | INCREMENTAL | | |
| InverseDirection | BOOL | False | | |
| System | DINT | ROTATORY | | |
| MountingMode | DINT | DRIVE | | |
| DataAdaption | DINT | SENSOR_DATA_ADAP-TION_NO | | |
| ActualVelocityMode | DINT | STANDARD | | |
| Interface | Struct | | | |
| AddressIn | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| AddressOut | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| Number | UDINT | 1 | | |
| Parameter | Struct | | | |
| Resolution | LREAL | 0.001 | ° | |
| StepsPerRevolution | UDINT | 2048 | | |
| FineResolutionXist1 | UDINT | 11 | | |
| FineResolutionXist2 | UDINT | 9 | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| DeterminableRevolutions | UDINT | 1 | | |
| DistancePerRevolution | LREAL | 100 | ° | |
| BehaviorGx_XIST1 | DINT | SENSOR_GX_XIST1_NO | | |
| ReferenceSpeed | LREAL | 3000 | 1/min | |
| ReferenceVelocity | LREAL | 120 | m/min | |
| Backlash | Struct | | | |
| Enable | BOOL | False | | |
| Size | LREAL | 0 | ° | |
| Velocity | LREAL | 0 | °/s | |
| DirectionAbsoluteHoming | DINT | SENSOR_BACKLASH_POSITIVE | | |
| ActiveHoming | Struct | | | |
| Mode | DINT | ZERO_MARK | | |
| SideInput | BOOL | True | | |
| Direction | DINT | POSITIVE | | |
| HomePositionOffset | LREAL | 0 | ° | |
| DigitalInputAddress | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| SwitchLevel | BOOL | True | | |
| PassiveHoming | Struct | | | |
| Mode | DINT | ZERO_MARK | | |
| SideInput | BOOL | True | | |
| Direction | DINT | ACTUAL | | |
| DigitalInputAddress | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| SwitchLevel | BOOL | True | | |
| MeasuringGear | Struct | | | |
| Numerator | UDINT | 1 | | |
| Denominator | UDINT | 1 | | |
| Sensor[4] | Struct | | | |
| Existent | BOOL | False | | |
| Type | DINT | INCREMENTAL | | |
| InverseDirection | BOOL | False | | |
| System | DINT | ROTATORY | | |
| MountingMode | DINT | DRIVE | | |
| DataAdaption | DINT | SENSOR_DATA_ADAPTION_NO | | |
| ActualVelocityMode | DINT | STANDARD | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| Interface | Struct | | | |
| AddressIn | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| AddressOut | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| Number | UDINT | 1 | | |
| Parameter | Struct | | | |
| Resolution | LREAL | 0.001 | ° | |
| StepsPerRevolution | UDINT | 2048 | | |
| FineResolutionXist1 | UDINT | 11 | | |
| FineResolutionXist2 | UDINT | 9 | | |
| DeterminableRevolu-tions | UDINT | 1 | | |
| DistancePerRevolution | LREAL | 100 | ° | |
| BehaviorGx_XIST1 | DINT | SEN-SOR_GX_XIST1_NO | | |
| ReferenceSpeed | LREAL | 3000 | 1/min | |
| ReferenceVelocity | LREAL | 120 | m/min | |
| Backlash | Struct | | | |
| Enable | BOOL | False | | |
| Size | LREAL | 0 | ° | |
| Velocity | LREAL | 0 | °/s | |
| DirectionAbsoluteHom-ing | DINT | SENSOR_BACK-LASH_POSITIVE | | |
| ActiveHoming | Struct | | | |
| Mode | DINT | ZERO_MARK | | |
| SideInput | BOOL | True | | |
| Direction | DINT | POSITIVE | | |
| HomePositionOffset | LREAL | 0 | ° | |
| DigitalInputAddress | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| SwitchLevel | BOOL | True | | |
| PassiveHoming | Struct | | | |
| Mode | DINT | ZERO_MARK | | |
| SideInput | BOOL | True | | |
| Direction | DINT | ACTUAL | | |
| DigitalInputAddress | Struct | | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| SwitchLevel | BOOL | True | | |
| ▼ MeasuringGear | Struct | | | |
| Numerator | UDINT | 1 | | |
| Denominator | UDINT | 1 | | |
| ▼ Extrapolation | Struct | | | |
| LeadingAxisDependentTime | LREAL | 0 | s | |
| FollowingAxisDependentTime | LREAL | 0 | s | |
| ▼ Settings | Struct | | | |
| SystemDefinedExtrapola-tion | DINT | SYSTEM_DE-FINED_EXTRAPOLA-TION_ACTIVE | | |
| ExtrapolatedVelocityMode | DINT | EXTRAPOLATED_VE-LOCITY_MODE_DIF-FERENTIATION | | |
| ▼ PositionFilter | Struct | | | |
| T1 | LREAL | 0 | s | |
| T2 | LREAL | 0 | s | |
| ▼ VelocityFilter | Struct | | | |
| T1 | LREAL | 0 | s | |
| T2 | LREAL | 0 | s | |
| ▼ VelocityTolerance | Struct | | | |
| Range | LREAL | 0 | °/s | |
| ▼ Hysteresis | Struct | | | |
| Value | LREAL | 0 | ° | |
| ▼ Mechanics | Struct | | | |
| LeadScrew | LREAL | 10 | mm/rot | |
| ▼ Properties | Struct | | | |
| MotionType | DINT | ROT_MOTION | | |
| ▼ Modulo | Struct | | | |
| Enable | BOOL | False | | |
| Length | LREAL | 360 | ° | |
| StartValue | LREAL | 0 | ° | |
| ▼ PositionLimits_SW | Struct | | | |
| Active | BOOL | False | | |
| MinPosition | LREAL | -1000000000000 | ° | |
| MaxPosition | LREAL | 1000000000000 | ° | |
| LimitReachedBehavior | DINT | STOP_WITH_MAX_DY-NAMICS | | |
| LimitExceededBehavior | DINT | AXIS_DISABLE | | |
| ▼ PositionLimits_HW | Struct | | | |
| Active | BOOL | False | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| Mode | DINT | SWITCH_TRAVERSA-BLE | | |
| MinSwitchLevel | BOOL | True | | |
| MinSwitchAddress | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| MaxSwitchLevel | BOOL | True | | |
| MaxSwitchAddress | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| ApproachBehavior | DINT | AXIS_DISABLE | | |
| Homing | Struct | | | |
| AutoReversal | BOOL | False | | |
| ApproachDirection | BOOL | False | | |
| ApproachVelocity | LREAL | 3600 | °/s | |
| ReferencingVelocity | LREAL | 900 | °/s | |
| HomePosition | LREAL | 90 | ° | |
| PositionControl | Struct | | | |
| Kv | LREAL | 10 | 1/s | |
| Kpc | LREAL | 100 | % | |
| EnableDSC | BOOL | True | | |
| SmoothingTimeByChangeDif-ference | LREAL | 0 | s | |
| InitialOperativeSensor | UDINT | 1 | | |
| ControlDifferenceQuantiza-tion | Struct | | | |
| Mode | DINT | REFER_TO_AC-TUAL_SENSOR_VAL-UE_RESOLUTION | | |
| Value | LREAL | 0.001 | ° | |
| VelocityModePowerOn | DINT | RAMP_TO_VE-LO_ZERO | | |
| TorquePreControl | Struct | | | |
| Mode | DINT | TORQUE_PRE_CON-TROL_OFF | | |
| Scale | LREAL | 100 | % | |
| SetpointFilter | Struct | | | |
| DynamicFilter | Struct | | | |
| Mode | DINT | OFF | | |
| T1 | LREAL | 0 | s | |
| T2 | LREAL | 0 | s | |
| Tt | LREAL | 0 | s | |
| DynamicAxisModel | Struct | | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| VelocityTimeConstant | LREAL | 0 | s | |
| AdditionalPositionTimeConst-ant | LREAL | 0 | s | |
| CurrentTimeConstant | LREAL | 0 | s | |
| ▼ FollowingError | Struct | | | |
| EnableMonitoring | BOOL | True | | |
| MinValue | LREAL | 360 | ° | |
| MaxValue | LREAL | 3600 | ° | |
| MinVelocity | LREAL | 360 | °/s | |
| WarningLevel | LREAL | 70 | % | |
| AdditionalSetpointDelayTime | LREAL | 0 | s | |
| ▼ CrossPlcSynchronousOperation | Struct | | | |
| ▼ Interface | Array[] | | | |
| ▼ Interface[1] | Struct | | | |
| EnableLeadingValueOut-put | BOOL | False | | |
| ▼ AddressOut | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| ▼ Interface[2] | Struct | | | |
| EnableLeadingValueOut-put | BOOL | False | | |
| ▼ AddressOut | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| ▼ Interface[3] | Struct | | | |
| EnableLeadingValueOut-put | BOOL | False | | |
| ▼ AddressOut | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| ▼ Interface[4] | Struct | | | |
| EnableLeadingValueOut-put | BOOL | False | | |
| ▼ AddressOut | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| Interface[5] | Struct | | | |
| EnableLeadingValueOut-put | BOOL | False | | |
| AddressOut | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| Interface[6] | Struct | | | |
| EnableLeadingValueOut-put | BOOL | False | | |
| AddressOut | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| Interface[7] | Struct | | | |
| EnableLeadingValueOut-put | BOOL | False | | |
| AddressOut | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| Interface[8] | Struct | | | |
| EnableLeadingValueOut-put | BOOL | False | | |
| AddressOut | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| LocalLeadingValueDelayTime | LREAL | 0 | s | |
| PositioningMonitoring | Struct | | | |
| ToleranceTime | LREAL | 1 | s | |
| MinDwellTime | LREAL | 0.1 | s | |
| Window | LREAL | 360 | ° | |
| StandstillSignal | Struct | | | |
| VelocityThreshold | LREAL | 180 | °/s | |
| MinDwellTime | LREAL | 0.01 | s | |
| StatusPositioning | Struct | | | |
| Distance | LREAL | 0 | ° | |
| TargetPosition | LREAL | 0 | ° | |
| TargetPositionModuloCycle | DINT | 0 | | |
| FollowingError | LREAL | 0 | ° | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| SetpointExecutionTime | LREAL | 0 | s | |
| SuperimposedDistance | LREAL | 0 | ° | |
| StatusServo | Struct | | | |
| BalancedPosition | LREAL | 0 | ° | |
| ControlDifference | LREAL | 0 | ° | |
| PositionAfterDynamicFilter | LREAL | 0 | ° | |
| StatusProvidedLeadingValue | Struct | | | |
| DelayedLeadingValue | Struct | | | |
| Position | LREAL | 0 | ° | |
| Velocity | LREAL | 0 | °/s | |
| Acceleration | LREAL | 0 | °/s² | |
| StatusSensor | Array[] | | | |
| StatusSensor[1] | Struct | | | |
| State | DINT | NOT_VALID | | |
| CommunicationOK | BOOL | False | | |
| Error | BOOL | False | | |
| AbsEncoderOffset | LREAL | 0 | ° | |
| Control | BOOL | False | | |
| Position | LREAL | 0 | ° | |
| Velocity | LREAL | 0 | °/s | |
| AdaptionState | DINT | NOT_ADAPTED | | |
| ModuloCycle | DINT | 0 | | |
| Adjusted | DINT | NOT_ADJUSTED | | |
| StatusSensor[2] | Struct | | | |
| State | DINT | NOT_VALID | | |
| CommunicationOK | BOOL | False | | |
| Error | BOOL | False | | |
| AbsEncoderOffset | LREAL | 0 | ° | |
| Control | BOOL | False | | |
| Position | LREAL | 0 | ° | |
| Velocity | LREAL | 0 | °/s | |
| AdaptionState | DINT | NOT_ADAPTED | | |
| ModuloCycle | DINT | 0 | | |
| Adjusted | DINT | NOT_ADJUSTED | | |
| StatusSensor[3] | Struct | | | |
| State | DINT | NOT_VALID | | |
| CommunicationOK | BOOL | False | | |
| Error | BOOL | False | | |
| AbsEncoderOffset | LREAL | 0 | ° | |
| Control | BOOL | False | | |
| Position | LREAL | 0 | ° | |
| Velocity | LREAL | 0 | °/s | |
| AdaptionState | DINT | NOT_ADAPTED | | |
| ModuloCycle | DINT | 0 | | |
| Adjusted | DINT | NOT_ADJUSTED | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| StatusSensor[4] | Struct | | | |
| State | DINT | NOT_VALID | | |
| CommunicationOK | BOOL | False | | |
| Error | BOOL | False | | |
| AbsEncoderOffset | LREAL | 0 | ° | |
| Control | BOOL | False | | |
| Position | LREAL | 0 | ° | |
| Velocity | LREAL | 0 | °/s | |
| AdaptionState | DINT | NOT_ADAPTED | | |
| ModuloCycle | DINT | 0 | | |
| Adjusted | DINT | NOT_ADJUSTED | | |
| StatusExtrapolation | Struct | | | |
| FilteredPosition | LREAL | 0 | ° | |
| FilteredVelocity | LREAL | 0 | °/s | |
| ExtrapolatedPosition | LREAL | 0 | ° | |
| ExtrapolatedVelocity | LREAL | 0 | °/s | |
| StatusKinematicsMotion | Struct | | | |
| StatusWord | DWORD | 0 | | |

# DeltaSpiralConv [CPU 1515T-2 PN] / Technology objects

## Axis_04_R [DB24]

| Axis_04_R properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | Axis_04_R | **Number** | 24 | **Type** | DB |
| **Language** | Motion_DB | **Numbering** | manual | | |
| **Information** | | | | | |
| **Title** | | **Author** | SIMATIC | **Comment** | |
| **Family** | MC_1500 | **Version** | 8.0 | **User-defined ID** | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| Velocity | LREAL | 0 | °/s | |
| Acceleration | LREAL | 0 | °/s² | |
| ActualSpeed | LREAL | 0 | 1/min | |
| VelocitySetpoint | LREAL | 0 | °/s | |
| ▼ Actor | Struct | | | |
| Type | DINT | PROFIDRIVE | | |
| InverseDirection | BOOL | False | | |
| DataAdaption | DINT | ACTOR_DATA_ADAP-TION_NO | | |
| Efficiency | LREAL | 1 | | |
| MotorType | DINT | STANDARD_MOTOR-TYPE | | |
| LoadInertia | LREAL | 0 | kgm² | |
| RemoveEnableReaction | WORD | 7 | | |
| ▼ Interface | Struct | | | |
| ▼ AddressIn | Struct | | | |
| RID | DWORD | 34080538 | | |
| AREA | BYTE | 129 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 464 | | |
| ▼ AddressOut | Struct | | | |
| RID | DWORD | 34080539 | | |
| AREA | BYTE | 130 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 496 | | |
| EnableDriveOutput | BOOL | False | | |
| ▼ EnableDriveOutputAddress | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| DriveReadyInput | BOOL | False | | |
| ▼ DriveReadyInputAddress | Struct | | | |
| RID | DWORD | 0 | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| EnableTorqueData | BOOL | False | | |
| TorqueDataAddressIn | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| TorqueDataAddressOut | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| DriveParameter | Struct | | | |
| ReferenceSpeed | LREAL | 3000 | 1/min | |
| MaxSpeed | LREAL | 3000 | 1/min | |
| ReferenceTorque | LREAL | 3.2 | Nm | |
| MotorInertia | LREAL | 0 | kgm² | |
| LinearMotorDriveParameter | Struct | | | |
| ReferenceVelocity | LREAL | 120 | m/min | |
| MaxVelocity | LREAL | 120 | m/min | |
| ReferenceForce | LREAL | 100 | N | |
| MotorMass | LREAL | 0 | kg | |
| TorqueLimiting | Struct | | | |
| LimitBase | DINT | TORQUELIMIT_LIMIT-BASE_LOAD | | |
| PositionBasedMonitorings | DINT | TORQUELI-MIT_POS_BASED_MONITORING_NO | | |
| LimitDefaults | Struct | | | |
| Torque | LREAL | 0 | Nm | |
| Force | LREAL | 0 | N | |
| LoadGear | Struct | | | |
| Numerator | UDINT | 1 | | |
| Denominator | UDINT | 1 | | |
| DynamicLimits | Struct | | | |
| MaxVelocity | LREAL | 18000 | °/s | |
| Velocity | LREAL | 1000000000000 | °/s | |
| MaxAcceleration | LREAL | 360000 | °/s² | |
| MaxDeceleration | LREAL | 360000 | °/s² | |
| MaxJerk | LREAL | 7200000 | °/s³ | |
| DynamicDefaults | Struct | | | |
| Velocity | LREAL | 3600 | °/s | |
| Acceleration | LREAL | 72000 | °/s² | |
| Deceleration | LREAL | 72000 | °/s² | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| Jerk | LREAL | 1440000 | °/s³ | |
| EmergencyDeceleration | LREAL | 360000 | °/s² | |
| ▼ Override | Struct | | | |
| Velocity | LREAL | 100 | % | |
| ▼ Units | Struct | | | |
| LengthUnit | UDINT | 0 | | |
| VelocityUnit | UDINT | 0 | | |
| TimeUnit | UDINT | 0 | | |
| TorqueUnit | UDINT | 0 | | |
| ForceUnit | UDINT | 0 | | |
| MassUnit | UDINT | 0 | | |
| InertiaUnit | UDINT | 0 | | |
| ▼ StatusDrive | Struct | | | |
| InOperation | BOOL | False | | |
| CommunicationOK | BOOL | False | | |
| Error | BOOL | False | | |
| AdaptionState | DINT | NOT_ADAPTED | | |
| ▼ StatusTorqueData | Struct | | | |
| CommandAdditiveTorqueActive | DINT | ADDITIVE_TORQUE_ACTIVE_NO | | |
| CommandTorqueRangeActive | DINT | TORQUE_RANGE_ACTIVE_NO | | |
| ActualTorque | LREAL | 0 | Nm | |
| ActualForce | LREAL | 0 | N | |
| TotalTorqueAdditive | LREAL | 0 | Nm | |
| TotalForceAdditive | LREAL | 0 | N | |
| ▼ StatusMotionIn | Struct | | | |
| FunctionState | DINT | MOTIONIN_INAKTIV | | |
| StatusWord | DWORD | 0 | | |
| ▼ StatusInterpreterMotion | Struct | | | |
| Interpreter | DB_ANY | 0 | | |
| StatusWord | DWORD | 0 | | |
| StatusWord | DWORD | 0 | | |
| StatusWord2 | DWORD | 0 | | |
| ErrorWord | DWORD | 0 | | |
| ▼ ErrorDetail | Struct | | | |
| Number | UDINT | 0 | | |
| Reaction | DINT | NONE | | |
| WarningWord | DWORD | 0 | | |
| ▼ ControlPanel | Struct | | | |
| ▼ Input | Struct | | | |
| ▼ Command | Array[] | | | |
| ▼ Command[1] | Struct | | | |
| ReqCounter | UDINT | 0 | | |
| Type | UDINT | 0 | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| Position | LREAL | 0 | ° | |
| Velocity | LREAL | 0 | °/s | |
| Acceleration | LREAL | 0 | °/s² | |
| Deceleration | LREAL | 0 | °/s² | |
| Jerk | LREAL | 0 | °/s³ | |
| Param | LREAL | 0 | | |
| ▼ Command[2] | Struct | | | |
| ReqCounter | UDINT | 0 | | |
| Type | UDINT | 0 | | |
| Position | LREAL | 0 | ° | |
| Velocity | LREAL | 0 | °/s | |
| Acceleration | LREAL | 0 | °/s² | |
| Deceleration | LREAL | 0 | °/s² | |
| Jerk | LREAL | 0 | °/s³ | |
| Param | LREAL | 0 | | |
| ▼ Command[3] | Struct | | | |
| ReqCounter | UDINT | 0 | | |
| Type | UDINT | 0 | | |
| Position | LREAL | 0 | ° | |
| Velocity | LREAL | 0 | °/s | |
| Acceleration | LREAL | 0 | °/s² | |
| Deceleration | LREAL | 0 | °/s² | |
| Jerk | LREAL | 0 | °/s³ | |
| Param | LREAL | 0 | | |
| TimeOut | LREAL | 2000 | ms | |
| EsLifeSign | UDINT | 0 | | |
| ▼ Output | Struct | | | |
| ▼ Command | Array[] | | | |
| ▼ Command[1] | Struct | | | |
| AckCounter | UDINT | 0 | | |
| Error | BOOL | False | | |
| ErrorID | WORD | 0 | | |
| Done | BOOL | False | | |
| Aborted | BOOL | False | | |
| ▼ Command[2] | Struct | | | |
| AckCounter | UDINT | 0 | | |
| Error | BOOL | False | | |
| ErrorID | WORD | 0 | | |
| Done | BOOL | False | | |
| Aborted | BOOL | False | | |
| ▼ Command[3] | Struct | | | |
| AckCounter | UDINT | 0 | | |
| Error | BOOL | False | | |
| ErrorID | WORD | 0 | | |
| Done | BOOL | False | | |
| Aborted | BOOL | False | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| RtLifeSign | UDINT | 0 | | |
| InternalToTrace | Array[] | | | |
| InternalToTrace[1] | Struct | | | |
| Id | DINT | 0 | | |
| Value | LREAL | 0 | | |
| InternalToTrace[2] | Struct | | | |
| Id | DINT | 0 | | |
| Value | LREAL | 0 | | |
| InternalToTrace[3] | Struct | | | |
| Id | DINT | 0 | | |
| Value | LREAL | 0 | | |
| InternalToTrace[4] | Struct | | | |
| Id | DINT | 0 | | |
| Value | LREAL | 0 | | |
| VirtualAxis | Struct | | | |
| Mode | UDINT | 0 | | |
| Simulation | Struct | | | |
| Mode | UDINT | 0 | | |
| Position | LREAL | 0 | ° | |
| ActualPosition | LREAL | 0 | ° | |
| ActualVelocity | LREAL | 0 | °/s | |
| ActualAcceleration | LREAL | 0 | °/s² | |
| OperativeSensor | UDINT | 0 | | |
| ModuloCycle | DINT | 0 | | |
| ActualModuloCycle | DINT | 0 | | |
| Clamping | Struct | | | |
| FollowingErrorDeviation | LREAL | 360 | ° | |
| PositionTolerance | LREAL | 360 | ° | |
| Sensor | Array[] | | | |
| Sensor[1] | Struct | | | |
| Existent | BOOL | True | | |
| Type | DINT | ABSOLUTE | | |
| InverseDirection | BOOL | False | | |
| System | DINT | ROTATORY | | |
| MountingMode | DINT | DRIVE | | |
| DataAdaption | DINT | SENSOR_DATA_ADAP-TION_NO | | |
| ActualVelocityMode | DINT | STANDARD | | |
| Interface | Struct | | | |
| AddressIn | Struct | | | |
| RID | DWORD | 34080538 | | |
| AREA | BYTE | 129 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 464 | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| AddressOut | Struct | | | |
| RID | DWORD | 34080539 | | |
| AREA | BYTE | 130 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 496 | | |
| Number | UDINT | 1 | | |
| Parameter | Struct | | | |
| Resolution | LREAL | 0.001 | ° | |
| StepsPerRevolution | UDINT | 512 | | |
| FineResolutionXist1 | UDINT | 11 | | |
| FineResolutionXist2 | UDINT | 9 | | |
| DeterminableRevolu-tions | UDINT | 4096 | | |
| DistancePerRevolution | LREAL | 100 | ° | |
| BehaviorGx_XIST1 | DINT | SEN-SOR_GX_XIST1_NO | | |
| ReferenceSpeed | LREAL | 3000 | 1/min | |
| ReferenceVelocity | LREAL | 120 | m/min | |
| Backlash | Struct | | | |
| Enable | BOOL | False | | |
| Size | LREAL | 0 | ° | |
| Velocity | LREAL | 0 | °/s | |
| DirectionAbsoluteHom-ing | DINT | SENSOR_BACK-LASH_POSITIVE | | |
| ActiveHoming | Struct | | | |
| Mode | DINT | ZERO_MARK | | |
| SideInput | BOOL | True | | |
| Direction | DINT | POSITIVE | | |
| HomePositionOffset | LREAL | 0 | ° | |
| DigitalInputAddress | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| SwitchLevel | BOOL | True | | |
| PassiveHoming | Struct | | | |
| Mode | DINT | ZERO_MARK | | |
| SideInput | BOOL | True | | |
| Direction | DINT | ACTUAL | | |
| DigitalInputAddress | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| SwitchLevel | BOOL | True | | |
| MeasuringGear | Struct | | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| Numerator | UDINT | 1 | | |
| Denominator | UDINT | 1 | | |
| Sensor[2] | Struct | | | |
| Existent | BOOL | False | | |
| Type | DINT | INCREMENTAL | | |
| InverseDirection | BOOL | False | | |
| System | DINT | ROTATORY | | |
| MountingMode | DINT | DRIVE | | |
| DataAdaption | DINT | SENSOR_DATA_ADAP-TION_NO | | |
| ActualVelocityMode | DINT | STANDARD | | |
| Interface | Struct | | | |
| AddressIn | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| AddressOut | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| Number | UDINT | 1 | | |
| Parameter | Struct | | | |
| Resolution | LREAL | 0.001 | ° | |
| StepsPerRevolution | UDINT | 2048 | | |
| FineResolutionXist1 | UDINT | 11 | | |
| FineResolutionXist2 | UDINT | 9 | | |
| DeterminableRevolu-tions | UDINT | 1 | | |
| DistancePerRevolution | LREAL | 100 | ° | |
| BehaviorGx_XIST1 | DINT | SEN-SOR_GX_XIST1_NO | | |
| ReferenceSpeed | LREAL | 3000 | 1/min | |
| ReferenceVelocity | LREAL | 120 | m/min | |
| Backlash | Struct | | | |
| Enable | BOOL | False | | |
| Size | LREAL | 0 | ° | |
| Velocity | LREAL | 0 | °/s | |
| DirectionAbsoluteHom-ing | DINT | SENSOR_BACK-LASH_POSITIVE | | |
| ActiveHoming | Struct | | | |
| Mode | DINT | ZERO_MARK | | |
| SideInput | BOOL | True | | |
| Direction | DINT | POSITIVE | | |
| HomePositionOffset | LREAL | 0 | ° | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| DigitalInputAddress | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| SwitchLevel | BOOL | True | | |
| PassiveHoming | Struct | | | |
| Mode | DINT | ZERO_MARK | | |
| SideInput | BOOL | True | | |
| Direction | DINT | ACTUAL | | |
| DigitalInputAddress | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| SwitchLevel | BOOL | True | | |
| MeasuringGear | Struct | | | |
| Numerator | UDINT | 1 | | |
| Denominator | UDINT | 1 | | |
| Sensor[3] | Struct | | | |
| Existent | BOOL | False | | |
| Type | DINT | INCREMENTAL | | |
| InverseDirection | BOOL | False | | |
| System | DINT | ROTATORY | | |
| MountingMode | DINT | DRIVE | | |
| DataAdaption | DINT | SENSOR_DATA_ADAP-TION_NO | | |
| ActualVelocityMode | DINT | STANDARD | | |
| Interface | Struct | | | |
| AddressIn | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| AddressOut | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| Number | UDINT | 1 | | |
| Parameter | Struct | | | |
| Resolution | LREAL | 0.001 | ° | |
| StepsPerRevolution | UDINT | 2048 | | |
| FineResolutionXist1 | UDINT | 11 | | |
| FineResolutionXist2 | UDINT | 9 | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| DeterminableRevolutions | UDINT | 1 | | |
| DistancePerRevolution | LREAL | 100 | ° | |
| BehaviorGx_XIST1 | DINT | SENSOR_GX_XIST1_NO | | |
| ReferenceSpeed | LREAL | 3000 | 1/min | |
| ReferenceVelocity | LREAL | 120 | m/min | |
| Backlash | Struct | | | |
| Enable | BOOL | False | | |
| Size | LREAL | 0 | ° | |
| Velocity | LREAL | 0 | °/s | |
| DirectionAbsoluteHoming | DINT | SENSOR_BACKLASH_POSITIVE | | |
| ActiveHoming | Struct | | | |
| Mode | DINT | ZERO_MARK | | |
| SideInput | BOOL | True | | |
| Direction | DINT | POSITIVE | | |
| HomePositionOffset | LREAL | 0 | ° | |
| DigitalInputAddress | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| SwitchLevel | BOOL | True | | |
| PassiveHoming | Struct | | | |
| Mode | DINT | ZERO_MARK | | |
| SideInput | BOOL | True | | |
| Direction | DINT | ACTUAL | | |
| DigitalInputAddress | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| SwitchLevel | BOOL | True | | |
| MeasuringGear | Struct | | | |
| Numerator | UDINT | 1 | | |
| Denominator | UDINT | 1 | | |
| Sensor[4] | Struct | | | |
| Existent | BOOL | False | | |
| Type | DINT | INCREMENTAL | | |
| InverseDirection | BOOL | False | | |
| System | DINT | ROTATORY | | |
| MountingMode | DINT | DRIVE | | |
| DataAdaption | DINT | SENSOR_DATA_ADAPTION_NO | | |
| ActualVelocityMode | DINT | STANDARD | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| Interface | Struct | | | |
| AddressIn | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| AddressOut | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| Number | UDINT | 1 | | |
| Parameter | Struct | | | |
| Resolution | LREAL | 0.001 | ° | |
| StepsPerRevolution | UDINT | 2048 | | |
| FineResolutionXist1 | UDINT | 11 | | |
| FineResolutionXist2 | UDINT | 9 | | |
| DeterminableRevolu-tions | UDINT | 1 | | |
| DistancePerRevolution | LREAL | 100 | ° | |
| BehaviorGx_XIST1 | DINT | SEN-SOR_GX_XIST1_NO | | |
| ReferenceSpeed | LREAL | 3000 | 1/min | |
| ReferenceVelocity | LREAL | 120 | m/min | |
| Backlash | Struct | | | |
| Enable | BOOL | False | | |
| Size | LREAL | 0 | ° | |
| Velocity | LREAL | 0 | °/s | |
| DirectionAbsoluteHom-ing | DINT | SENSOR_BACK-LASH_POSITIVE | | |
| ActiveHoming | Struct | | | |
| Mode | DINT | ZERO_MARK | | |
| SideInput | BOOL | True | | |
| Direction | DINT | POSITIVE | | |
| HomePositionOffset | LREAL | 0 | ° | |
| DigitalInputAddress | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| SwitchLevel | BOOL | True | | |
| PassiveHoming | Struct | | | |
| Mode | DINT | ZERO_MARK | | |
| SideInput | BOOL | True | | |
| Direction | DINT | ACTUAL | | |
| DigitalInputAddress | Struct | | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| SwitchLevel | BOOL | True | | |
| ▼ MeasuringGear | Struct | | | |
| Numerator | UDINT | 1 | | |
| Denominator | UDINT | 1 | | |
| ▼ Extrapolation | Struct | | | |
| LeadingAxisDependentTime | LREAL | 0 | s | |
| FollowingAxisDependentTime | LREAL | 0 | s | |
| ▼ Settings | Struct | | | |
| SystemDefinedExtrapola-tion | DINT | SYSTEM_DE-FINED_EXTRAPOLA-TION_ACTIVE | | |
| ExtrapolatedVelocityMode | DINT | EXTRAPOLATED_VE-LOCITY_MODE_DIF-FERENTIATION | | |
| ▼ PositionFilter | Struct | | | |
| T1 | LREAL | 0 | s | |
| T2 | LREAL | 0 | s | |
| ▼ VelocityFilter | Struct | | | |
| T1 | LREAL | 0 | s | |
| T2 | LREAL | 0 | s | |
| ▼ VelocityTolerance | Struct | | | |
| Range | LREAL | 0 | °/s | |
| ▼ Hysteresis | Struct | | | |
| Value | LREAL | 0 | ° | |
| ▼ Mechanics | Struct | | | |
| LeadScrew | LREAL | 10 | mm/rot | |
| ▼ Properties | Struct | | | |
| MotionType | DINT | ROT_MOTION | | |
| ▼ Modulo | Struct | | | |
| Enable | BOOL | False | | |
| Length | LREAL | 360 | ° | |
| StartValue | LREAL | 0 | ° | |
| ▼ PositionLimits_SW | Struct | | | |
| Active | BOOL | False | | |
| MinPosition | LREAL | -1000000000000 | ° | |
| MaxPosition | LREAL | 1000000000000 | ° | |
| LimitReachedBehavior | DINT | STOP_WITH_MAX_DY-NAMICS | | |
| LimitExceededBehavior | DINT | AXIS_DISABLE | | |
| ▼ PositionLimits_HW | Struct | | | |
| Active | BOOL | False | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| Mode | DINT | SWITCH_TRAVERSA-BLE | | |
| MinSwitchLevel | BOOL | True | | |
| MinSwitchAddress | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| MaxSwitchLevel | BOOL | True | | |
| MaxSwitchAddress | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| ApproachBehavior | DINT | AXIS_DISABLE | | |
| Homing | Struct | | | |
| AutoReversal | BOOL | False | | |
| ApproachDirection | BOOL | False | | |
| ApproachVelocity | LREAL | 3600 | °/s | |
| ReferencingVelocity | LREAL | 900 | °/s | |
| HomePosition | LREAL | 0 | ° | |
| PositionControl | Struct | | | |
| Kv | LREAL | 10 | 1/s | |
| Kpc | LREAL | 50 | % | |
| EnableDSC | BOOL | True | | |
| SmoothingTimeByChangeDif-ference | LREAL | 0 | s | |
| InitialOperativeSensor | UDINT | 1 | | |
| ControlDifferenceQuantiza-tion | Struct | | | |
| Mode | DINT | REFER_TO_AC-TUAL_SENSOR_VAL-UE_RESOLUTION | | |
| Value | LREAL | 0.001 | ° | |
| VelocityModePowerOn | DINT | RAMP_TO_VE-LO_ZERO | | |
| TorquePreControl | Struct | | | |
| Mode | DINT | TORQUE_PRE_CON-TROL_OFF | | |
| Scale | LREAL | 100 | % | |
| SetpointFilter | Struct | | | |
| DynamicFilter | Struct | | | |
| Mode | DINT | OFF | | |
| T1 | LREAL | 0 | s | |
| T2 | LREAL | 0 | s | |
| Tt | LREAL | 0 | s | |
| DynamicAxisModel | Struct | | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| VelocityTimeConstant | LREAL | 0 | s | |
| AdditionalPositionTimeConstant | LREAL | 0 | s | |
| CurrentTimeConstant | LREAL | 0 | s | |
| ▼ FollowingError | Struct | | | |
| EnableMonitoring | BOOL | True | | |
| MinValue | LREAL | 360 | ° | |
| MaxValue | LREAL | 3600 | ° | |
| MinVelocity | LREAL | 360 | °/s | |
| WarningLevel | LREAL | 70 | % | |
| AdditionalSetpointDelayTime | LREAL | 0 | s | |
| ▼ CrossPlcSynchronousOperation | Struct | | | |
| ▼ Interface | Array[] | | | |
| ▼ Interface[1] | Struct | | | |
| EnableLeadingValueOutput | BOOL | False | | |
| ▼ AddressOut | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| ▼ Interface[2] | Struct | | | |
| EnableLeadingValueOutput | BOOL | False | | |
| ▼ AddressOut | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| ▼ Interface[3] | Struct | | | |
| EnableLeadingValueOutput | BOOL | False | | |
| ▼ AddressOut | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| ▼ Interface[4] | Struct | | | |
| EnableLeadingValueOutput | BOOL | False | | |
| ▼ AddressOut | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| Interface[5] | Struct | | | |
| EnableLeadingValueOut-put | BOOL | False | | |
| AddressOut | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| Interface[6] | Struct | | | |
| EnableLeadingValueOut-put | BOOL | False | | |
| AddressOut | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| Interface[7] | Struct | | | |
| EnableLeadingValueOut-put | BOOL | False | | |
| AddressOut | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| Interface[8] | Struct | | | |
| EnableLeadingValueOut-put | BOOL | False | | |
| AddressOut | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| LocalLeadingValueDelayTime | LREAL | 0 | s | |
| PositioningMonitoring | Struct | | | |
| ToleranceTime | LREAL | 1 | s | |
| MinDwellTime | LREAL | 0.1 | s | |
| Window | LREAL | 360 | ° | |
| StandstillSignal | Struct | | | |
| VelocityThreshold | LREAL | 180 | °/s | |
| MinDwellTime | LREAL | 0.01 | s | |
| StatusPositioning | Struct | | | |
| Distance | LREAL | 0 | ° | |
| TargetPosition | LREAL | 0 | ° | |
| TargetPositionModuloCycle | DINT | 0 | | |
| FollowingError | LREAL | 0 | ° | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| SetpointExecutionTime | LREAL | 0 | s | |
| SuperimposedDistance | LREAL | 0 | ° | |
| StatusServo | Struct | | | |
| BalancedPosition | LREAL | 0 | ° | |
| ControlDifference | LREAL | 0 | ° | |
| PositionAfterDynamicFilter | LREAL | 0 | ° | |
| StatusProvidedLeadingValue | Struct | | | |
| DelayedLeadingValue | Struct | | | |
| Position | LREAL | 0 | ° | |
| Velocity | LREAL | 0 | °/s | |
| Acceleration | LREAL | 0 | °/s² | |
| StatusSensor | Array[] | | | |
| StatusSensor[1] | Struct | | | |
| State | DINT | NOT_VALID | | |
| CommunicationOK | BOOL | False | | |
| Error | BOOL | False | | |
| AbsEncoderOffset | LREAL | 0 | ° | |
| Control | BOOL | False | | |
| Position | LREAL | 0 | ° | |
| Velocity | LREAL | 0 | °/s | |
| AdaptionState | DINT | NOT_ADAPTED | | |
| ModuloCycle | DINT | 0 | | |
| Adjusted | DINT | NOT_ADJUSTED | | |
| StatusSensor[2] | Struct | | | |
| State | DINT | NOT_VALID | | |
| CommunicationOK | BOOL | False | | |
| Error | BOOL | False | | |
| AbsEncoderOffset | LREAL | 0 | ° | |
| Control | BOOL | False | | |
| Position | LREAL | 0 | ° | |
| Velocity | LREAL | 0 | °/s | |
| AdaptionState | DINT | NOT_ADAPTED | | |
| ModuloCycle | DINT | 0 | | |
| Adjusted | DINT | NOT_ADJUSTED | | |
| StatusSensor[3] | Struct | | | |
| State | DINT | NOT_VALID | | |
| CommunicationOK | BOOL | False | | |
| Error | BOOL | False | | |
| AbsEncoderOffset | LREAL | 0 | ° | |
| Control | BOOL | False | | |
| Position | LREAL | 0 | ° | |
| Velocity | LREAL | 0 | °/s | |
| AdaptionState | DINT | NOT_ADAPTED | | |
| ModuloCycle | DINT | 0 | | |
| Adjusted | DINT | NOT_ADJUSTED | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| StatusSensor[4] | Struct | | | |
| State | DINT | NOT_VALID | | |
| CommunicationOK | BOOL | False | | |
| Error | BOOL | False | | |
| AbsEncoderOffset | LREAL | 0 | ° | |
| Control | BOOL | False | | |
| Position | LREAL | 0 | ° | |
| Velocity | LREAL | 0 | °/s | |
| AdaptionState | DINT | NOT_ADAPTED | | |
| ModuloCycle | DINT | 0 | | |
| Adjusted | DINT | NOT_ADJUSTED | | |
| StatusExtrapolation | Struct | | | |
| FilteredPosition | LREAL | 0 | ° | |
| FilteredVelocity | LREAL | 0 | °/s | |
| ExtrapolatedPosition | LREAL | 0 | ° | |
| ExtrapolatedVelocity | LREAL | 0 | °/s | |
| StatusKinematicsMotion | Struct | | | |
| StatusWord | DWORD | 0 | | |

# DeltaSpiralConv [CPU 1515T-2 PN] / Technology objects

## Axis_10_Conv [DB30]

| Axis_10_Conv properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | Axis_10_Conv | **Number** | 30 | **Type** | DB |
| **Language** | Motion_DB | **Numbering** | manual | | |
| **Information** | | | | | |
| **Title** | | **Author** | SIMATIC | **Comment** | |
| **Family** | MC_1500 | **Version** | 8.0 | **User-defined ID** | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| Velocity | LREAL | 0 | mm/s | |
| Acceleration | LREAL | 0 | mm/s² | |
| ActualSpeed | LREAL | 0 | 1/min | |
| VelocitySetpoint | LREAL | 0 | mm/s | |
| ▼ Actor | Struct | | | |
| Type | DINT | PROFIDRIVE | | |
| InverseDirection | BOOL | False | | |
| DataAdaption | DINT | ACTOR_DATA_ADAP-TION_NO | | |
| Efficiency | LREAL | 1 | | |
| MotorType | DINT | STANDARD_MOTOR-TYPE | | |
| LoadInertia | LREAL | 0 | kg | |
| RemoveEnableReaction | WORD | 7 | | |
| ▼ Interface | Struct | | | |
| ▼ AddressIn | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| ▼ AddressOut | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| EnableDriveOutput | BOOL | False | | |
| ▼ EnableDriveOutputAddress | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| DriveReadyInput | BOOL | False | | |
| ▼ DriveReadyInputAddress | Struct | | | |
| RID | DWORD | 0 | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| EnableTorqueData | BOOL | False | | |
| TorqueDataAddressIn | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| TorqueDataAddressOut | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| DriveParameter | Struct | | | |
| ReferenceSpeed | LREAL | 3000 | 1/min | |
| MaxSpeed | LREAL | 3000 | 1/min | |
| ReferenceTorque | LREAL | 3.2 | Nm | |
| MotorInertia | LREAL | 0 | kgm² | |
| LinearMotorDriveParameter | Struct | | | |
| ReferenceVelocity | LREAL | 120 | m/min | |
| MaxVelocity | LREAL | 120 | m/min | |
| ReferenceForce | LREAL | 100 | N | |
| MotorMass | LREAL | 0 | kg | |
| TorqueLimiting | Struct | | | |
| LimitBase | DINT | TORQUELIMIT_LIMIT-BASE_LOAD | | |
| PositionBasedMonitorings | DINT | TORQUELI-MIT_POS_BASED_MONITORING_NO | | |
| LimitDefaults | Struct | | | |
| Torque | LREAL | 0 | Nm | |
| Force | LREAL | 0 | N | |
| LoadGear | Struct | | | |
| Numerator | UDINT | 1 | | |
| Denominator | UDINT | 1 | | |
| DynamicLimits | Struct | | | |
| MaxVelocity | LREAL | 500 | mm/s | |
| Velocity | LREAL | 1000000000000 | mm/s | |
| MaxAcceleration | LREAL | 10000 | mm/s² | |
| MaxDeceleration | LREAL | 10000 | mm/s² | |
| MaxJerk | LREAL | 200000 | mm/s³ | |
| DynamicDefaults | Struct | | | |
| Velocity | LREAL | 100 | mm/s | |
| Acceleration | LREAL | 2000 | mm/s² | |
| Deceleration | LREAL | 2000 | mm/s² | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| Jerk | LREAL | 40000 | mm/s³ | |
| EmergencyDeceleration | LREAL | 10000 | mm/s² | |
| ▼ Override | Struct | | | |
| Velocity | LREAL | 100 | % | |
| ▼ Units | Struct | | | |
| LengthUnit | UDINT | 0 | | |
| VelocityUnit | UDINT | 0 | | |
| TimeUnit | UDINT | 0 | | |
| TorqueUnit | UDINT | 0 | | |
| ForceUnit | UDINT | 0 | | |
| MassUnit | UDINT | 0 | | |
| InertiaUnit | UDINT | 0 | | |
| ▼ StatusDrive | Struct | | | |
| InOperation | BOOL | False | | |
| CommunicationOK | BOOL | False | | |
| Error | BOOL | False | | |
| AdaptionState | DINT | NOT_ADAPTED | | |
| ▼ StatusTorqueData | Struct | | | |
| CommandAdditiveTorqueActive | DINT | ADDITIVE_TORQUE_ACTIVE_NO | | |
| CommandTorqueRangeActive | DINT | TORQUE_RANGE_ACTIVE_NO | | |
| ActualTorque | LREAL | 0 | Nm | |
| ActualForce | LREAL | 0 | N | |
| TotalTorqueAdditive | LREAL | 0 | Nm | |
| TotalForceAdditive | LREAL | 0 | N | |
| ▼ StatusMotionIn | Struct | | | |
| FunctionState | DINT | MOTIONIN_INAKTIV | | |
| StatusWord | DWORD | 0 | | |
| ▼ StatusInterpreterMotion | Struct | | | |
| Interpreter | DB_ANY | 0 | | |
| StatusWord | DWORD | 0 | | |
| StatusWord | DWORD | 0 | | |
| StatusWord2 | DWORD | 0 | | |
| ErrorWord | DWORD | 0 | | |
| ▼ ErrorDetail | Struct | | | |
| Number | UDINT | 0 | | |
| Reaction | DINT | NONE | | |
| WarningWord | DWORD | 0 | | |
| ▼ ControlPanel | Struct | | | |
| ▼ Input | Struct | | | |
| ▼ Command | Array[] | | | |
| ▼ Command[1] | Struct | | | |
| ReqCounter | UDINT | 0 | | |
| Type | UDINT | 0 | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| Position | LREAL | 0 | mm | |
| Velocity | LREAL | 0 | mm/s | |
| Acceleration | LREAL | 0 | mm/s² | |
| Deceleration | LREAL | 0 | mm/s² | |
| Jerk | LREAL | 0 | mm/s³ | |
| Param | LREAL | 0 | | |
| ▼ Command[2] | Struct | | | |
| ReqCounter | UDINT | 0 | | |
| Type | UDINT | 0 | | |
| Position | LREAL | 0 | mm | |
| Velocity | LREAL | 0 | mm/s | |
| Acceleration | LREAL | 0 | mm/s² | |
| Deceleration | LREAL | 0 | mm/s² | |
| Jerk | LREAL | 0 | mm/s³ | |
| Param | LREAL | 0 | | |
| ▼ Command[3] | Struct | | | |
| ReqCounter | UDINT | 0 | | |
| Type | UDINT | 0 | | |
| Position | LREAL | 0 | mm | |
| Velocity | LREAL | 0 | mm/s | |
| Acceleration | LREAL | 0 | mm/s² | |
| Deceleration | LREAL | 0 | mm/s² | |
| Jerk | LREAL | 0 | mm/s³ | |
| Param | LREAL | 0 | | |
| TimeOut | LREAL | 2000 | ms | |
| EsLifeSign | UDINT | 0 | | |
| ▼ Output | Struct | | | |
| ▼ Command | Array[] | | | |
| ▼ Command[1] | Struct | | | |
| AckCounter | UDINT | 0 | | |
| Error | BOOL | False | | |
| ErrorID | WORD | 0 | | |
| Done | BOOL | False | | |
| Aborted | BOOL | False | | |
| ▼ Command[2] | Struct | | | |
| AckCounter | UDINT | 0 | | |
| Error | BOOL | False | | |
| ErrorID | WORD | 0 | | |
| Done | BOOL | False | | |
| Aborted | BOOL | False | | |
| ▼ Command[3] | Struct | | | |
| AckCounter | UDINT | 0 | | |
| Error | BOOL | False | | |
| ErrorID | WORD | 0 | | |
| Done | BOOL | False | | |
| Aborted | BOOL | False | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| RtLifeSign | UDINT | 0 | | |
| InternalToTrace | Array[] | | | |
| InternalToTrace[1] | Struct | | | |
| Id | DINT | 0 | | |
| Value | LREAL | 0 | | |
| InternalToTrace[2] | Struct | | | |
| Id | DINT | 0 | | |
| Value | LREAL | 0 | | |
| InternalToTrace[3] | Struct | | | |
| Id | DINT | 0 | | |
| Value | LREAL | 0 | | |
| InternalToTrace[4] | Struct | | | |
| Id | DINT | 0 | | |
| Value | LREAL | 0 | | |
| VirtualAxis | Struct | | | |
| Mode | UDINT | 1 | | |
| Simulation | Struct | | | |
| Mode | UDINT | 0 | | |
| Position | LREAL | 0 | mm | |
| ActualPosition | LREAL | 0 | mm | |
| ActualVelocity | LREAL | 0 | mm/s | |
| ActualAcceleration | LREAL | 0 | mm/s² | |
| OperativeSensor | UDINT | 0 | | |
| ModuloCycle | DINT | 0 | | |
| ActualModuloCycle | DINT | 0 | | |
| Clamping | Struct | | | |
| FollowingErrorDeviation | LREAL | 10 | mm | |
| PositionTolerance | LREAL | 10 | mm | |
| Sensor | Array[] | | | |
| Sensor[1] | Struct | | | |
| Existent | BOOL | True | | |
| Type | DINT | ABSOLUTE | | |
| InverseDirection | BOOL | False | | |
| System | DINT | ROTATORY | | |
| MountingMode | DINT | DRIVE | | |
| DataAdaption | DINT | SENSOR_DATA_ADAP-TION_NO | | |
| ActualVelocityMode | DINT | STANDARD | | |
| Interface | Struct | | | |
| AddressIn | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| AddressOut | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| Number | UDINT | 1 | | |
| Parameter | Struct | | | |
| Resolution | LREAL | 0.001 | mm | |
| StepsPerRevolution | UDINT | 512 | | |
| FineResolutionXist1 | UDINT | 11 | | |
| FineResolutionXist2 | UDINT | 9 | | |
| DeterminableRevolu-tions | UDINT | 4096 | | |
| DistancePerRevolution | LREAL | 100 | mm | |
| BehaviorGx_XIST1 | DINT | SEN-SOR_GX_XIST1_YES | | |
| ReferenceSpeed | LREAL | 3000 | 1/min | |
| ReferenceVelocity | LREAL | 120 | m/min | |
| Backlash | Struct | | | |
| Enable | BOOL | False | | |
| Size | LREAL | 0 | mm | |
| Velocity | LREAL | 0 | mm/s | |
| DirectionAbsoluteHom-ing | DINT | SENSOR_BACK-LASH_POSITIVE | | |
| ActiveHoming | Struct | | | |
| Mode | DINT | ZERO_MARK | | |
| SideInput | BOOL | True | | |
| Direction | DINT | POSITIVE | | |
| HomePositionOffset | LREAL | 0 | mm | |
| DigitalInputAddress | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| SwitchLevel | BOOL | True | | |
| PassiveHoming | Struct | | | |
| Mode | DINT | ZERO_MARK | | |
| SideInput | BOOL | True | | |
| Direction | DINT | ACTUAL | | |
| DigitalInputAddress | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| SwitchLevel | BOOL | True | | |
| MeasuringGear | Struct | | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| Numerator | UDINT | 1 | | |
| Denominator | UDINT | 1 | | |
| Sensor[2] | Struct | | | |
| Existent | BOOL | False | | |
| Type | DINT | INCREMENTAL | | |
| InverseDirection | BOOL | False | | |
| System | DINT | ROTATORY | | |
| MountingMode | DINT | DRIVE | | |
| DataAdaption | DINT | SENSOR_DATA_ADAP-TION_NO | | |
| ActualVelocityMode | DINT | STANDARD | | |
| Interface | Struct | | | |
| AddressIn | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| AddressOut | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| Number | UDINT | 1 | | |
| Parameter | Struct | | | |
| Resolution | LREAL | 0.001 | mm | |
| StepsPerRevolution | UDINT | 2048 | | |
| FineResolutionXist1 | UDINT | 11 | | |
| FineResolutionXist2 | UDINT | 9 | | |
| DeterminableRevolu-tions | UDINT | 1 | | |
| DistancePerRevolution | LREAL | 100 | mm | |
| BehaviorGx_XIST1 | DINT | SEN-SOR_GX_XIST1_YES | | |
| ReferenceSpeed | LREAL | 3000 | 1/min | |
| ReferenceVelocity | LREAL | 120 | m/min | |
| Backlash | Struct | | | |
| Enable | BOOL | False | | |
| Size | LREAL | 0 | mm | |
| Velocity | LREAL | 0 | mm/s | |
| DirectionAbsoluteHom-ing | DINT | SENSOR_BACK-LASH_POSITIVE | | |
| ActiveHoming | Struct | | | |
| Mode | DINT | ZERO_MARK | | |
| SideInput | BOOL | True | | |
| Direction | DINT | POSITIVE | | |
| HomePositionOffset | LREAL | 0 | mm | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| DigitalInputAddress | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| SwitchLevel | BOOL | True | | |
| PassiveHoming | Struct | | | |
| Mode | DINT | ZERO_MARK | | |
| SideInput | BOOL | True | | |
| Direction | DINT | ACTUAL | | |
| DigitalInputAddress | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| SwitchLevel | BOOL | True | | |
| MeasuringGear | Struct | | | |
| Numerator | UDINT | 1 | | |
| Denominator | UDINT | 1 | | |
| Sensor[3] | Struct | | | |
| Existent | BOOL | False | | |
| Type | DINT | INCREMENTAL | | |
| InverseDirection | BOOL | False | | |
| System | DINT | ROTATORY | | |
| MountingMode | DINT | DRIVE | | |
| DataAdaption | DINT | SENSOR_DATA_ADAP-TION_NO | | |
| ActualVelocityMode | DINT | STANDARD | | |
| Interface | Struct | | | |
| AddressIn | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| AddressOut | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| Number | UDINT | 1 | | |
| Parameter | Struct | | | |
| Resolution | LREAL | 0.001 | mm | |
| StepsPerRevolution | UDINT | 2048 | | |
| FineResolutionXist1 | UDINT | 11 | | |
| FineResolutionXist2 | UDINT | 9 | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| DeterminableRevolutions | UDINT | 1 | | |
| DistancePerRevolution | LREAL | 100 | mm | |
| BehaviorGx_XIST1 | DINT | SENSOR_GX_XIST1_YES | | |
| ReferenceSpeed | LREAL | 3000 | 1/min | |
| ReferenceVelocity | LREAL | 120 | m/min | |
| Backlash | Struct | | | |
| Enable | BOOL | False | | |
| Size | LREAL | 0 | mm | |
| Velocity | LREAL | 0 | mm/s | |
| DirectionAbsoluteHoming | DINT | SENSOR_BACKLASH_POSITIVE | | |
| ActiveHoming | Struct | | | |
| Mode | DINT | ZERO_MARK | | |
| SideInput | BOOL | True | | |
| Direction | DINT | POSITIVE | | |
| HomePositionOffset | LREAL | 0 | mm | |
| DigitalInputAddress | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| SwitchLevel | BOOL | True | | |
| PassiveHoming | Struct | | | |
| Mode | DINT | ZERO_MARK | | |
| SideInput | BOOL | True | | |
| Direction | DINT | ACTUAL | | |
| DigitalInputAddress | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| SwitchLevel | BOOL | True | | |
| MeasuringGear | Struct | | | |
| Numerator | UDINT | 1 | | |
| Denominator | UDINT | 1 | | |
| Sensor[4] | Struct | | | |
| Existent | BOOL | False | | |
| Type | DINT | INCREMENTAL | | |
| InverseDirection | BOOL | False | | |
| System | DINT | ROTATORY | | |
| MountingMode | DINT | DRIVE | | |
| DataAdaption | DINT | SENSOR_DATA_ADAPTION_NO | | |
| ActualVelocityMode | DINT | STANDARD | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| Interface | Struct | | | |
| AddressIn | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| AddressOut | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| Number | UDINT | 1 | | |
| Parameter | Struct | | | |
| Resolution | LREAL | 0.001 | mm | |
| StepsPerRevolution | UDINT | 2048 | | |
| FineResolutionXist1 | UDINT | 11 | | |
| FineResolutionXist2 | UDINT | 9 | | |
| DeterminableRevolu-tions | UDINT | 1 | | |
| DistancePerRevolution | LREAL | 100 | mm | |
| BehaviorGx_XIST1 | DINT | SEN-SOR_GX_XIST1_YES | | |
| ReferenceSpeed | LREAL | 3000 | 1/min | |
| ReferenceVelocity | LREAL | 120 | m/min | |
| Backlash | Struct | | | |
| Enable | BOOL | False | | |
| Size | LREAL | 0 | mm | |
| Velocity | LREAL | 0 | mm/s | |
| DirectionAbsoluteHom-ing | DINT | SENSOR_BACK-LASH_POSITIVE | | |
| ActiveHoming | Struct | | | |
| Mode | DINT | ZERO_MARK | | |
| SideInput | BOOL | True | | |
| Direction | DINT | POSITIVE | | |
| HomePositionOffset | LREAL | 0 | mm | |
| DigitalInputAddress | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| SwitchLevel | BOOL | True | | |
| PassiveHoming | Struct | | | |
| Mode | DINT | ZERO_MARK | | |
| SideInput | BOOL | True | | |
| Direction | DINT | ACTUAL | | |
| DigitalInputAddress | Struct | | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| SwitchLevel | BOOL | True | | |
| ▼ MeasuringGear | Struct | | | |
| Numerator | UDINT | 1 | | |
| Denominator | UDINT | 1 | | |
| ▼ Extrapolation | Struct | | | |
| LeadingAxisDependentTime | LREAL | 0 | s | |
| FollowingAxisDependentTime | LREAL | 0 | s | |
| ▼ Settings | Struct | | | |
| SystemDefinedExtrapolation | DINT | SYSTEM_DEFINED_EXTRAPOLATION_ACTIVE | | |
| ExtrapolatedVelocityMode | DINT | EXTRAPOLATED_VELOCITY_MODE_DIFFERENTIATION | | |
| ▼ PositionFilter | Struct | | | |
| T1 | LREAL | 0 | s | |
| T2 | LREAL | 0 | s | |
| ▼ VelocityFilter | Struct | | | |
| T1 | LREAL | 0 | s | |
| T2 | LREAL | 0 | s | |
| ▼ VelocityTolerance | Struct | | | |
| Range | LREAL | 0 | mm/s | |
| ▼ Hysteresis | Struct | | | |
| Value | LREAL | 0 | mm | |
| ▼ Mechanics | Struct | | | |
| LeadScrew | LREAL | 10 | mm/rot | |
| ▼ Properties | Struct | | | |
| MotionType | DINT | LIN_MOTION | | |
| ▼ Modulo | Struct | | | |
| Enable | BOOL | False | | |
| Length | LREAL | 1000 | mm | |
| StartValue | LREAL | 0 | mm | |
| ▼ PositionLimits_SW | Struct | | | |
| Active | BOOL | False | | |
| MinPosition | LREAL | -1000000000000 | mm | |
| MaxPosition | LREAL | 1000000000000 | mm | |
| LimitReachedBehavior | DINT | STOP_WITH_MAX_DYNAMICS | | |
| LimitExceededBehavior | DINT | AXIS_DISABLE | | |
| ▼ PositionLimits_HW | Struct | | | |
| Active | BOOL | False | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| Mode | DINT | SWITCH_TRAVERSA-BLE | | |
| MinSwitchLevel | BOOL | True | | |
| MinSwitchAddress | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| MaxSwitchLevel | BOOL | True | | |
| MaxSwitchAddress | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| ApproachBehavior | DINT | AXIS_DISABLE | | |
| Homing | Struct | | | |
| AutoReversal | BOOL | False | | |
| ApproachDirection | BOOL | False | | |
| ApproachVelocity | LREAL | 100 | mm/s | |
| ReferencingVelocity | LREAL | 25 | mm/s | |
| HomePosition | LREAL | 0 | mm | |
| PositionControl | Struct | | | |
| Kv | LREAL | 10 | 1/s | |
| Kpc | LREAL | 100 | % | |
| EnableDSC | BOOL | False | | |
| SmoothingTimeByChangeDif-ference | LREAL | 0 | s | |
| InitialOperativeSensor | UDINT | 1 | | |
| ControlDifferenceQuantiza-tion | Struct | | | |
| Mode | DINT | REFER_TO_AC-TUAL_SENSOR_VAL-UE_RESOLUTION | | |
| Value | LREAL | 0.001 | mm | |
| VelocityModePowerOn | DINT | RAMP_TO_VE-LO_ZERO | | |
| TorquePreControl | Struct | | | |
| Mode | DINT | TORQUE_PRE_CON-TROL_OFF | | |
| Scale | LREAL | 100 | % | |
| SetpointFilter | Struct | | | |
| DynamicFilter | Struct | | | |
| Mode | DINT | OFF | | |
| T1 | LREAL | 0 | s | |
| T2 | LREAL | 0 | s | |
| Tt | LREAL | 0 | s | |
| DynamicAxisModel | Struct | | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| VelocityTimeConstant | LREAL | 0 | s | |
| AdditionalPositionTimeConst-ant | LREAL | 0 | s | |
| CurrentTimeConstant | LREAL | 0 | s | |
| ▼ FollowingError | Struct | | | |
| EnableMonitoring | BOOL | True | | |
| MinValue | LREAL | 10 | mm | |
| MaxValue | LREAL | 100 | mm | |
| MinVelocity | LREAL | 10 | mm/s | |
| WarningLevel | LREAL | 70 | % | |
| AdditionalSetpointDelayTime | LREAL | 0 | s | |
| ▼ CrossPlcSynchronousOperation | Struct | | | |
| ▼ Interface | Array[] | | | |
| ▼ Interface[1] | Struct | | | |
| EnableLeadingValueOut-put | BOOL | False | | |
| ▼ AddressOut | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| ▼ Interface[2] | Struct | | | |
| EnableLeadingValueOut-put | BOOL | False | | |
| ▼ AddressOut | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| ▼ Interface[3] | Struct | | | |
| EnableLeadingValueOut-put | BOOL | False | | |
| ▼ AddressOut | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| ▼ Interface[4] | Struct | | | |
| EnableLeadingValueOut-put | BOOL | False | | |
| ▼ AddressOut | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| Interface[5] | Struct | | | |
| EnableLeadingValueOut-put | BOOL | False | | |
| AddressOut | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| Interface[6] | Struct | | | |
| EnableLeadingValueOut-put | BOOL | False | | |
| AddressOut | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| Interface[7] | Struct | | | |
| EnableLeadingValueOut-put | BOOL | False | | |
| AddressOut | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| Interface[8] | Struct | | | |
| EnableLeadingValueOut-put | BOOL | False | | |
| AddressOut | Struct | | | |
| RID | DWORD | 0 | | |
| AREA | BYTE | 0 | | |
| DB_NUMBER | UINT | 0 | | |
| OFFSET | UDINT | 0 | | |
| LocalLeadingValueDelayTime | LREAL | 0 | s | |
| PositioningMonitoring | Struct | | | |
| ToleranceTime | LREAL | 1 | s | |
| MinDwellTime | LREAL | 0.1 | s | |
| Window | LREAL | 1 | mm | |
| StandstillSignal | Struct | | | |
| VelocityThreshold | LREAL | 5 | mm/s | |
| MinDwellTime | LREAL | 0.01 | s | |
| StatusPositioning | Struct | | | |
| Distance | LREAL | 0 | mm | |
| TargetPosition | LREAL | 0 | mm | |
| TargetPositionModuloCycle | DINT | 0 | | |
| FollowingError | LREAL | 0 | mm | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| SetpointExecutionTime | LREAL | 0 | s | |
| SuperimposedDistance | LREAL | 0 | mm | |
| StatusServo | Struct | | | |
| BalancedPosition | LREAL | 0 | mm | |
| ControlDifference | LREAL | 0 | mm | |
| PositionAfterDynamicFilter | LREAL | 0 | mm | |
| StatusProvidedLeadingValue | Struct | | | |
| DelayedLeadingValue | Struct | | | |
| Position | LREAL | 0 | mm | |
| Velocity | LREAL | 0 | mm/s | |
| Acceleration | LREAL | 0 | mm/s² | |
| StatusSensor | Array[] | | | |
| StatusSensor[1] | Struct | | | |
| State | DINT | NOT_VALID | | |
| CommunicationOK | BOOL | False | | |
| Error | BOOL | False | | |
| AbsEncoderOffset | LREAL | 0 | mm | |
| Control | BOOL | False | | |
| Position | LREAL | 0 | mm | |
| Velocity | LREAL | 0 | mm/s | |
| AdaptionState | DINT | NOT_ADAPTED | | |
| ModuloCycle | DINT | 0 | | |
| Adjusted | DINT | NOT_ADJUSTED | | |
| StatusSensor[2] | Struct | | | |
| State | DINT | NOT_VALID | | |
| CommunicationOK | BOOL | False | | |
| Error | BOOL | False | | |
| AbsEncoderOffset | LREAL | 0 | mm | |
| Control | BOOL | False | | |
| Position | LREAL | 0 | mm | |
| Velocity | LREAL | 0 | mm/s | |
| AdaptionState | DINT | NOT_ADAPTED | | |
| ModuloCycle | DINT | 0 | | |
| Adjusted | DINT | NOT_ADJUSTED | | |
| StatusSensor[3] | Struct | | | |
| State | DINT | NOT_VALID | | |
| CommunicationOK | BOOL | False | | |
| Error | BOOL | False | | |
| AbsEncoderOffset | LREAL | 0 | mm | |
| Control | BOOL | False | | |
| Position | LREAL | 0 | mm | |
| Velocity | LREAL | 0 | mm/s | |
| AdaptionState | DINT | NOT_ADAPTED | | |
| ModuloCycle | DINT | 0 | | |
| Adjusted | DINT | NOT_ADJUSTED | | |

| Name | Data type | Start value project | Unit of measure | Comment |
|---|---|---|---|---|
| StatusSensor[4] | Struct | | | |
| State | DINT | NOT_VALID | | |
| CommunicationOK | BOOL | False | | |
| Error | BOOL | False | | |
| AbsEncoderOffset | LREAL | 0 | mm | |
| Control | BOOL | False | | |
| Position | LREAL | 0 | mm | |
| Velocity | LREAL | 0 | mm/s | |
| AdaptionState | DINT | NOT_ADAPTED | | |
| ModuloCycle | DINT | 0 | | |
| Adjusted | DINT | NOT_ADJUSTED | | |
| StatusExtrapolation | Struct | | | |
| FilteredPosition | LREAL | 0 | mm | |
| FilteredVelocity | LREAL | 0 | mm/s | |
| ExtrapolatedPosition | LREAL | 0 | mm | |
| ExtrapolatedVelocity | LREAL | 0 | mm/s | |
| StatusKinematicsMotion | Struct | | | |
| StatusWord | DWORD | 0 | | |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC tags / Default tag table [133]

## PLC tags

| PLC tags | | | | |
|---|---|---|---|---|
| | Name | Data type | Address | Retain |
| | RESET_SW | Bool | %I0.2 | False |
| | Tag_2 | Bool | %Q4.0 | False |
| | START_PB | Bool | %I0.0 | False |
| | STOP_PB | Bool | %I0.1 | False |
| | EM_Idle | Bool | %M70.0 | False |
| | EM_Starting | Bool | %M70.1 | False |
| | EM_Execute | Bool | %M70.2 | False |
| | EM_Aborting | Bool | %M70.3 | False |
| | EM_Aborted | Bool | %M70.4 | False |
| | EM_Resetting | Bool | %M70.5 | False |
| | Motion_Steps_Error | Bool | %M72.0 | False |
| | EM_Execute_Done | Bool | %M72.1 | False |
| | System_Byte | Byte | %MB1 | False |
| | FirstScan | Bool | %M1.0 | False |
| | DiagStatusUpdate | Bool | %M1.1 | False |
| | AlwaysTRUE | Bool | %M1.2 | False |
| | AlwaysFALSE | Bool | %M1.3 | False |
| | ▼ Axis_1_Actor_Interface_AddressIn | "PD_TEL5_IN" | %I4.0 | False |
| | ▼ ZSW1 | PD_ZSW1 | %I4.0 | |
| | NoSpeedDeviation | Bool | %I4.0 | |
| | ControlRequested | Bool | %I4.1 | |
| | SpeedComparisonValusReachedExeeded | Bool | %I4.2 | |
| | TorqueLimitNotReached | Bool | %I4.3 | |

| Name | Data type | Address | Retain |
|---|---|---|---|
| OpenHoldingBrake | Bool | %I4.4 | |
| NoMotorOvertemperature | Bool | %I4.5 | |
| ActualSpeedPositive | Bool | %I4.6 | |
| NoPowerUnitOvertemperature | Bool | %I4.7 | |
| ReadyToSwitchOn | Bool | %I5.0 | |
| ReadyToOperate | Bool | %I5.1 | |
| OperationEnabled | Bool | %I5.2 | |
| FaultPresent | Bool | %I5.3 | |
| NoCoastStopActivated | Bool | %I5.4 | |
| NoQuickStopActivated | Bool | %I5.5 | |
| SwitchingOnInhibited | Bool | %I5.6 | |
| AlarmPresent | Bool | %I5.7 | |
| NIST_B | DWord | %ID6 | |
| ZSW2 | PD_ZSW2 | %I10.0 | |
| TravelToFixedEndStopActive | Bool | %I10.0 | |
| Reserved_Bit09 | Bool | %I10.1 | |
| PulsesEnabled | Bool | %I10.2 | |
| MotorDataSetChangeoverActive | Bool | %I10.3 | |
| SlaveSignOfLifeBit0 | Bool | %I10.4 | |
| SlaveSignOfLifeBit1 | Bool | %I10.5 | |
| SlaveSignOfLifeBit2 | Bool | %I10.6 | |
| SlaveSignOfLifeBit3 | Bool | %I10.7 | |
| DriveDataSetEffectiveBit0 | Bool | %I11.0 | |
| DriveDataSetEffectiveBit1 | Bool | %I11.1 | |
| DriveDataSetEffectiveBit2 | Bool | %I11.2 | |
| DriveDataSetEffectiveBit3 | Bool | %I11.3 | |

| | Name | Data type | Address | Retain |
|---|---|---|---|---|
| | DriveDataSetEffectiveBit4 | Bool | %I11.4 | |
| | AlarmClassBit0 | Bool | %I11.5 | |
| | AlarmClassBit1 | Bool | %I11.6 | |
| | ParkingAxisActive | Bool | %I11.7 | |
| | ▼ G1_ZSW | PD_Gx_ZSW | %I12.0 | |
| | Probe1Deflected | Bool | %I12.0 | |
| | Probe2Deflected | Bool | %I12.1 | |
| | Reserved_Bit10 | Bool | %I12.2 | |
| | EncoderFaultAcknowledgeActive | Bool | %I12.3 | |
| | HomePositionExecuted | Bool | %I12.4 | |
| | AbsoluteValueCyclicallyExecuted | Bool | %I12.5 | |
| | ParkingSensorExecuted | Bool | %I12.6 | |
| | SensorError | Bool | %I12.7 | |
| | Function1Active | Bool | %I13.0 | |
| | Function2Active | Bool | %I13.1 | |
| | Function3Active | Bool | %I13.2 | |
| | Function4Active | Bool | %I13.3 | |
| | Value1Available | Bool | %I13.4 | |
| | Value2Available | Bool | %I13.5 | |
| | Value3Available | Bool | %I13.6 | |
| | Value4Available | Bool | %I13.7 | |
| | G1_XIST1 | DWord | %ID14 | |
| | G1_XIST2 | DWord | %ID18 | |
| | ▼ Axis_1_Actor_Interface_AddressOut | "PD_TEL5_OUT" | %Q8.0 | False |
| | ▼ STW1 | PD_STW1 | %Q8.0 | |
| | Reserved_Bit08 | Bool | %Q8.0 | |

| | Name | Data type | Address | Retain |
|---|---|---|---|---|
| | Reserved_Bit09 | Bool | %Q8.1 | |
| | ControlByPlc | Bool | %Q8.2 | |
| | SetpointInversion | Bool | %Q8.3 | |
| | OpenHoldingBrake | Bool | %Q8.4 | |
| | RaiseMotorizedPotentiometerSetpoint | Bool | %Q8.5 | |
| | LowerMotorizedPotentiometerSetpoint | Bool | %Q8.6 | |
| | Reserved_Bit15 | Bool | %Q8.7 | |
| | On | Bool | %Q9.0 | |
| | NoCoastStop | Bool | %Q9.1 | |
| | NoQuickStop | Bool | %Q9.2 | |
| | EnableOperation | Bool | %Q9.3 | |
| | EnableRampGenerator | Bool | %Q9.4 | |
| | UnfreezeRampGenerator | Bool | %Q9.5 | |
| | EnableSetpoint | Bool | %Q9.6 | |
| | FaultAcknowledge | Bool | %Q9.7 | |
| | NSOLL_B | DWord | %QD10 | |
| | STW2 | PD_STW2 | %Q14.0 | |
| | TravelToFixedEndstop | Bool | %Q14.0 | |
| | Reserved_Bit09 | Bool | %Q14.1 | |
| | Reserved_Bit10 | Bool | %Q14.2 | |
| | MotorSwitchoverFinished | Bool | %Q14.3 | |
| | MasterSignOfLifeBit0 | Bool | %Q14.4 | |
| | MasterSignOfLifeBit1 | Bool | %Q14.5 | |
| | MasterSignOfLifeBit2 | Bool | %Q14.6 | |
| | MasterSignOfLifeBit3 | Bool | %Q14.7 | |
| | DriveDataSetSelectionBit0 | Bool | %Q15.0 | |

| | Name | Data type | Address | Retain |
|---|---|---|---|---|
| | DriveDataSetSelectionBit1 | Bool | %Q15.1 | |
| | DriveDataSetSelectionBit2 | Bool | %Q15.2 | |
| | DriveDataSetSelectionBit3 | Bool | %Q15.3 | |
| | DriveDataSetSelectionBit4 | Bool | %Q15.4 | |
| | Reserved_Bit05 | Bool | %Q15.5 | |
| | Reserved_Bit06 | Bool | %Q15.6 | |
| | ParkingAxisSelection | Bool | %Q15.7 | |
| | ▼ G1_STW | PD_Gx_STW | %Q16.0 | |
| | Reserved_Bit08 | Bool | %Q16.0 | |
| | Reserved_Bit09 | Bool | %Q16.1 | |
| | Reserved_Bit10 | Bool | %Q16.2 | |
| | Reserved_Bit11 | Bool | %Q16.3 | |
| | Reserved_Bit12 | Bool | %Q16.4 | |
| | AbsoluteValueCyclically | Bool | %Q16.5 | |
| | RequestParkingEncoder | Bool | %Q16.6 | |
| | AcknowledgeError | Bool | %Q16.7 | |
| | Function1Request | Bool | %Q17.0 | |
| | Function2Request | Bool | %Q17.1 | |
| | Function3Request | Bool | %Q17.2 | |
| | Function4Request | Bool | %Q17.3 | |
| | Command0Request | Bool | %Q17.4 | |
| | Command1Request | Bool | %Q17.5 | |
| | Command2Request | Bool | %Q17.6 | |
| | Mode | Bool | %Q17.7 | |
| | XERR | DWord | %QD18 | |
| | KPC | DWord | %QD22 | |

| | Name | Data type | Address | Retain |
|---|---|---|---|---|
| | Clock_Byte | Byte | %MB0 | False |
| | Clock_10Hz | Bool | %M0.0 | False |
| | Clock_5Hz | Bool | %M0.1 | False |
| | Clock_2.5Hz | Bool | %M0.2 | False |
| | Clock_2Hz | Bool | %M0.3 | False |
| | Clock_1.25Hz | Bool | %M0.4 | False |
| | Clock_1Hz | Bool | %M0.5 | False |
| | Clock_0.625Hz | Bool | %M0.6 | False |
| | Clock_0.5Hz | Bool | %M0.7 | False |
| | ▼ Axis_02_Z_Actor_Interface_AddressIn | "PD_TEL5_IN" | %I22.0 | False |
| | ▼ ZSW1 | PD_ZSW1 | %I22.0 | |
| | NoSpeedDeviation | Bool | %I22.0 | |
| | ControlRequested | Bool | %I22.1 | |
| | SpeedComparisonValusReachedExeeded | Bool | %I22.2 | |
| | TorqueLimitNotReached | Bool | %I22.3 | |
| | OpenHoldingBrake | Bool | %I22.4 | |
| | NoMotorOvertemperature | Bool | %I22.5 | |
| | ActualSpeedPositive | Bool | %I22.6 | |
| | NoPowerUnitOvertemperature | Bool | %I22.7 | |
| | ReadyToSwitchOn | Bool | %I23.0 | |
| | ReadyToOperate | Bool | %I23.1 | |
| | OperationEnabled | Bool | %I23.2 | |
| | FaultPresent | Bool | %I23.3 | |
| | NoCoastStopActivated | Bool | %I23.4 | |
| | NoQuickStopActivated | Bool | %I23.5 | |
| | SwitchingOnInhibited | Bool | %I23.6 | |

| Name | Data type | Address | Retain |
|---|---|---|---|
| AlarmPresent | Bool | %I23.7 | |
| NIST_B | DWord | %ID24 | |
| ZSW2 | PD_ZSW2 | %I28.0 | |
| TravelToFixedEndStopActive | Bool | %I28.0 | |
| Reserved_Bit09 | Bool | %I28.1 | |
| PulsesEnabled | Bool | %I28.2 | |
| MotorDataSetChangeoverActive | Bool | %I28.3 | |
| SlaveSignOfLifeBit0 | Bool | %I28.4 | |
| SlaveSignOfLifeBit1 | Bool | %I28.5 | |
| SlaveSignOfLifeBit2 | Bool | %I28.6 | |
| SlaveSignOfLifeBit3 | Bool | %I28.7 | |
| DriveDataSetEffectiveBit0 | Bool | %I29.0 | |
| DriveDataSetEffectiveBit1 | Bool | %I29.1 | |
| DriveDataSetEffectiveBit2 | Bool | %I29.2 | |
| DriveDataSetEffectiveBit3 | Bool | %I29.3 | |
| DriveDataSetEffectiveBit4 | Bool | %I29.4 | |
| AlarmClassBit0 | Bool | %I29.5 | |
| AlarmClassBit1 | Bool | %I29.6 | |
| ParkingAxisActive | Bool | %I29.7 | |
| G1_ZSW | PD_Gx_ZSW | %I30.0 | |
| Probe1Deflected | Bool | %I30.0 | |
| Probe2Deflected | Bool | %I30.1 | |
| Reserved_Bit10 | Bool | %I30.2 | |
| EncoderFaultAcknowledgeActive | Bool | %I30.3 | |
| HomePositionExecuted | Bool | %I30.4 | |
| AbsoluteValueCyclicallyExecuted | Bool | %I30.5 | |

| Name | Data type | Address | Retain |
|---|---|---|---|
| ParkingSensorExecuted | Bool | %I30.6 | |
| SensorError | Bool | %I30.7 | |
| Function1Active | Bool | %I31.0 | |
| Function2Active | Bool | %I31.1 | |
| Function3Active | Bool | %I31.2 | |
| Function4Active | Bool | %I31.3 | |
| Value1Available | Bool | %I31.4 | |
| Value2Available | Bool | %I31.5 | |
| Value3Available | Bool | %I31.6 | |
| Value4Available | Bool | %I31.7 | |
| G1_XIST1 | DWord | %ID32 | |
| G1_XIST2 | DWord | %ID36 | |
| Axis_02_Z_Actor_Interface_AddressOut | "PD_TEL5_OUT" | %Q26.0 | False |
| STW1 | PD_STW1 | %Q26.0 | |
| Reserved_Bit08 | Bool | %Q26.0 | |
| Reserved_Bit09 | Bool | %Q26.1 | |
| ControlByPlc | Bool | %Q26.2 | |
| SetpointInversion | Bool | %Q26.3 | |
| OpenHoldingBrake | Bool | %Q26.4 | |
| RaiseMotorizedPotentiometerSetpoint | Bool | %Q26.5 | |
| LowerMotorizedPotentiometerSetpoint | Bool | %Q26.6 | |
| Reserved_Bit15 | Bool | %Q26.7 | |
| On | Bool | %Q27.0 | |
| NoCoastStop | Bool | %Q27.1 | |
| NoQuickStop | Bool | %Q27.2 | |
| EnableOperation | Bool | %Q27.3 | |

| | Name | Data type | Address | Retain |
|---|---|---|---|---|
| | EnableRampGenerator | Bool | %Q27.4 | |
| | UnfreezeRampGenerator | Bool | %Q27.5 | |
| | EnableSetpoint | Bool | %Q27.6 | |
| | FaultAcknowledge | Bool | %Q27.7 | |
| | NSOLL_B | DWord | %QD28 | |
| | STW2 | PD_STW2 | %Q32.0 | |
| | TravelToFixedEndstop | Bool | %Q32.0 | |
| | Reserved_Bit09 | Bool | %Q32.1 | |
| | Reserved_Bit10 | Bool | %Q32.2 | |
| | MotorSwitchoverFinished | Bool | %Q32.3 | |
| | MasterSignOfLifeBit0 | Bool | %Q32.4 | |
| | MasterSignOfLifeBit1 | Bool | %Q32.5 | |
| | MasterSignOfLifeBit2 | Bool | %Q32.6 | |
| | MasterSignOfLifeBit3 | Bool | %Q32.7 | |
| | DriveDataSetSelectionBit0 | Bool | %Q33.0 | |
| | DriveDataSetSelectionBit1 | Bool | %Q33.1 | |
| | DriveDataSetSelectionBit2 | Bool | %Q33.2 | |
| | DriveDataSetSelectionBit3 | Bool | %Q33.3 | |
| | DriveDataSetSelectionBit4 | Bool | %Q33.4 | |
| | Reserved_Bit05 | Bool | %Q33.5 | |
| | Reserved_Bit06 | Bool | %Q33.6 | |
| | ParkingAxisSelection | Bool | %Q33.7 | |
| | G1_STW | PD_Gx_STW | %Q34.0 | |
| | Reserved_Bit08 | Bool | %Q34.0 | |
| | Reserved_Bit09 | Bool | %Q34.1 | |
| | Reserved_Bit10 | Bool | %Q34.2 | |

| Name | Data type | Address | Retain |
|---|---|---|---|
| Reserved_Bit11 | Bool | %Q34.3 | |
| Reserved_Bit12 | Bool | %Q34.4 | |
| AbsoluteValueCyclically | Bool | %Q34.5 | |
| RequestParkingEncoder | Bool | %Q34.6 | |
| AcknowledgeError | Bool | %Q34.7 | |
| Function1Request | Bool | %Q35.0 | |
| Function2Request | Bool | %Q35.1 | |
| Function3Request | Bool | %Q35.2 | |
| Function4Request | Bool | %Q35.3 | |
| Command0Request | Bool | %Q35.4 | |
| Command1Request | Bool | %Q35.5 | |
| Command2Request | Bool | %Q35.6 | |
| Mode | Bool | %Q35.7 | |
| XERR | DWord | %QD36 | |
| KPC | DWord | %QD40 | |
| Tag_1 | Bool | %M2.0 | False |
| ▼ Axis_03_J3_Actor_Interface_AddressIn | "PD_TEL5_IN" | %I40.0 | False |
| ▼ ZSW1 | PD_ZSW1 | %I40.0 | |
| NoSpeedDeviation | Bool | %I40.0 | |
| ControlRequested | Bool | %I40.1 | |
| SpeedComparisonValusReachedExeeded | Bool | %I40.2 | |
| TorqueLimitNotReached | Bool | %I40.3 | |
| OpenHoldingBrake | Bool | %I40.4 | |
| NoMotorOvertemperature | Bool | %I40.5 | |
| ActualSpeedPositive | Bool | %I40.6 | |
| NoPowerUnitOvertemperature | Bool | %I40.7 | |

| Name | Data type | Address | Retain |
|---|---|---|---|
| ReadyToSwitchOn | Bool | %I41.0 | |
| ReadyToOperate | Bool | %I41.1 | |
| OperationEnabled | Bool | %I41.2 | |
| FaultPresent | Bool | %I41.3 | |
| NoCoastStopActivated | Bool | %I41.4 | |
| NoQuickStopActivated | Bool | %I41.5 | |
| SwitchingOnInhibited | Bool | %I41.6 | |
| AlarmPresent | Bool | %I41.7 | |
| NIST_B | DWord | %ID42 | |
| ZSW2 | PD_ZSW2 | %I46.0 | |
| TravelToFixedEndStopActive | Bool | %I46.0 | |
| Reserved_Bit09 | Bool | %I46.1 | |
| PulsesEnabled | Bool | %I46.2 | |
| MotorDataSetChangeoverActive | Bool | %I46.3 | |
| SlaveSignOfLifeBit0 | Bool | %I46.4 | |
| SlaveSignOfLifeBit1 | Bool | %I46.5 | |
| SlaveSignOfLifeBit2 | Bool | %I46.6 | |
| SlaveSignOfLifeBit3 | Bool | %I46.7 | |
| DriveDataSetEffectiveBit0 | Bool | %I47.0 | |
| DriveDataSetEffectiveBit1 | Bool | %I47.1 | |
| DriveDataSetEffectiveBit2 | Bool | %I47.2 | |
| DriveDataSetEffectiveBit3 | Bool | %I47.3 | |
| DriveDataSetEffectiveBit4 | Bool | %I47.4 | |
| AlarmClassBit0 | Bool | %I47.5 | |
| AlarmClassBit1 | Bool | %I47.6 | |
| ParkingAxisActive | Bool | %I47.7 | |

| | Name | Data type | Address | Retain |
|---|---|---|---|---|
| | G1_ZSW | PD_Gx_ZSW | %I48.0 | |
| | Probe1Deflected | Bool | %I48.0 | |
| | Probe2Deflected | Bool | %I48.1 | |
| | Reserved_Bit10 | Bool | %I48.2 | |
| | EncoderFaultAcknowledgeActive | Bool | %I48.3 | |
| | HomePositionExecuted | Bool | %I48.4 | |
| | AbsoluteValueCyclicallyExecuted | Bool | %I48.5 | |
| | ParkingSensorExecuted | Bool | %I48.6 | |
| | SensorError | Bool | %I48.7 | |
| | Function1Active | Bool | %I49.0 | |
| | Function2Active | Bool | %I49.1 | |
| | Function3Active | Bool | %I49.2 | |
| | Function4Active | Bool | %I49.3 | |
| | Value1Available | Bool | %I49.4 | |
| | Value2Available | Bool | %I49.5 | |
| | Value3Available | Bool | %I49.6 | |
| | Value4Available | Bool | %I49.7 | |
| | G1_XIST1 | DWord | %ID50 | |
| | G1_XIST2 | DWord | %ID54 | |
| | Axis_03_J3_Actor_Interface_AddressOut | "PD_TEL5_OUT" | %Q44.0 | False |
| | STW1 | PD_STW1 | %Q44.0 | |
| | Reserved_Bit08 | Bool | %Q44.0 | |
| | Reserved_Bit09 | Bool | %Q44.1 | |
| | ControlByPlc | Bool | %Q44.2 | |
| | SetpointInversion | Bool | %Q44.3 | |
| | OpenHoldingBrake | Bool | %Q44.4 | |

| | Name | Data type | Address | Retain |
|---|---|---|---|---|
| | RaiseMotorizedPotentiometerSetpoint | Bool | %Q44.5 | |
| | LowerMotorizedPotentiometerSetpoint | Bool | %Q44.6 | |
| | Reserved_Bit15 | Bool | %Q44.7 | |
| | On | Bool | %Q45.0 | |
| | NoCoastStop | Bool | %Q45.1 | |
| | NoQuickStop | Bool | %Q45.2 | |
| | EnableOperation | Bool | %Q45.3 | |
| | EnableRampGenerator | Bool | %Q45.4 | |
| | UnfreezeRampGenerator | Bool | %Q45.5 | |
| | EnableSetpoint | Bool | %Q45.6 | |
| | FaultAcknowledge | Bool | %Q45.7 | |
| | NSOLL_B | DWord | %QD46 | |
| | ▼ STW2 | PD_STW2 | %Q50.0 | |
| | TravelToFixedEndstop | Bool | %Q50.0 | |
| | Reserved_Bit09 | Bool | %Q50.1 | |
| | Reserved_Bit10 | Bool | %Q50.2 | |
| | MotorSwitchoverFinished | Bool | %Q50.3 | |
| | MasterSignOfLifeBit0 | Bool | %Q50.4 | |
| | MasterSignOfLifeBit1 | Bool | %Q50.5 | |
| | MasterSignOfLifeBit2 | Bool | %Q50.6 | |
| | MasterSignOfLifeBit3 | Bool | %Q50.7 | |
| | DriveDataSetSelectionBit0 | Bool | %Q51.0 | |
| | DriveDataSetSelectionBit1 | Bool | %Q51.1 | |
| | DriveDataSetSelectionBit2 | Bool | %Q51.2 | |
| | DriveDataSetSelectionBit3 | Bool | %Q51.3 | |
| | DriveDataSetSelectionBit4 | Bool | %Q51.4 | |

| | Name | Data type | Address | Retain |
|---|---|---|---|---|
| | Reserved_Bit05 | Bool | %Q51.5 | |
| | Reserved_Bit06 | Bool | %Q51.6 | |
| | ParkingAxisSelection | Bool | %Q51.7 | |
| | G1_STW | PD_Gx_STW | %Q52.0 | |
| | Reserved_Bit08 | Bool | %Q52.0 | |
| | Reserved_Bit09 | Bool | %Q52.1 | |
| | Reserved_Bit10 | Bool | %Q52.2 | |
| | Reserved_Bit11 | Bool | %Q52.3 | |
| | Reserved_Bit12 | Bool | %Q52.4 | |
| | AbsoluteValueCyclically | Bool | %Q52.5 | |
| | RequestParkingEncoder | Bool | %Q52.6 | |
| | AcknowledgeError | Bool | %Q52.7 | |
| | Function1Request | Bool | %Q53.0 | |
| | Function2Request | Bool | %Q53.1 | |
| | Function3Request | Bool | %Q53.2 | |
| | Function4Request | Bool | %Q53.3 | |
| | Command0Request | Bool | %Q53.4 | |
| | Command1Request | Bool | %Q53.5 | |
| | Command2Request | Bool | %Q53.6 | |
| | Mode | Bool | %Q53.7 | |
| | XERR | DWord | %QD54 | |
| | KPC | DWord | %QD58 | |
| | Axis_04_R_Actor_Interface_AddressIn | "PD_TEL5_IN" | %I58.0 | False |
| | ZSW1 | PD_ZSW1 | %I58.0 | |
| | NoSpeedDeviation | Bool | %I58.0 | |
| | ControlRequested | Bool | %I58.1 | |

| | Name | Data type | Address | Retain |
|---|---|---|---|---|
| | SpeedComparisonValusReachedExeeded | Bool | %I58.2 | |
| | TorqueLimitNotReached | Bool | %I58.3 | |
| | OpenHoldingBrake | Bool | %I58.4 | |
| | NoMotorOvertemperature | Bool | %I58.5 | |
| | ActualSpeedPositive | Bool | %I58.6 | |
| | NoPowerUnitOvertemperature | Bool | %I58.7 | |
| | ReadyToSwitchOn | Bool | %I59.0 | |
| | ReadyToOperate | Bool | %I59.1 | |
| | OperationEnabled | Bool | %I59.2 | |
| | FaultPresent | Bool | %I59.3 | |
| | NoCoastStopActivated | Bool | %I59.4 | |
| | NoQuickStopActivated | Bool | %I59.5 | |
| | SwitchingOnInhibited | Bool | %I59.6 | |
| | AlarmPresent | Bool | %I59.7 | |
| | NIST_B | DWord | %ID60 | |
| | ZSW2 | PD_ZSW2 | %I64.0 | |
| | TravelToFixedEndStopActive | Bool | %I64.0 | |
| | Reserved_Bit09 | Bool | %I64.1 | |
| | PulsesEnabled | Bool | %I64.2 | |
| | MotorDataSetChangeoverActive | Bool | %I64.3 | |
| | SlaveSignOfLifeBit0 | Bool | %I64.4 | |
| | SlaveSignOfLifeBit1 | Bool | %I64.5 | |
| | SlaveSignOfLifeBit2 | Bool | %I64.6 | |
| | SlaveSignOfLifeBit3 | Bool | %I64.7 | |
| | DriveDataSetEffectiveBit0 | Bool | %I65.0 | |
| | DriveDataSetEffectiveBit1 | Bool | %I65.1 | |

| | Name | Data type | Address | Retain |
|---|---|---|---|---|
| | DriveDataSetEffectiveBit2 | Bool | %I65.2 | |
| | DriveDataSetEffectiveBit3 | Bool | %I65.3 | |
| | DriveDataSetEffectiveBit4 | Bool | %I65.4 | |
| | AlarmClassBit0 | Bool | %I65.5 | |
| | AlarmClassBit1 | Bool | %I65.6 | |
| | ParkingAxisActive | Bool | %I65.7 | |
| | ▼ G1_ZSW | PD_Gx_ZSW | %I66.0 | |
| | Probe1Deflected | Bool | %I66.0 | |
| | Probe2Deflected | Bool | %I66.1 | |
| | Reserved_Bit10 | Bool | %I66.2 | |
| | EncoderFaultAcknowledgeActive | Bool | %I66.3 | |
| | HomePositionExecuted | Bool | %I66.4 | |
| | AbsoluteValueCyclicallyExecuted | Bool | %I66.5 | |
| | ParkingSensorExecuted | Bool | %I66.6 | |
| | SensorError | Bool | %I66.7 | |
| | Function1Active | Bool | %I67.0 | |
| | Function2Active | Bool | %I67.1 | |
| | Function3Active | Bool | %I67.2 | |
| | Function4Active | Bool | %I67.3 | |
| | Value1Available | Bool | %I67.4 | |
| | Value2Available | Bool | %I67.5 | |
| | Value3Available | Bool | %I67.6 | |
| | Value4Available | Bool | %I67.7 | |
| | G1_XIST1 | DWord | %ID68 | |
| | G1_XIST2 | DWord | %ID72 | |
| | ▼ Axis_04_R_Actor_Interface_AddressOut | "PD_TEL5_OUT" | %Q62.0 | False |

| | Name | Data type | Address | Retain |
|---|---|---|---|---|
| | STW1 | PD_STW1 | %Q62.0 | |
| | Reserved_Bit08 | Bool | %Q62.0 | |
| | Reserved_Bit09 | Bool | %Q62.1 | |
| | ControlByPlc | Bool | %Q62.2 | |
| | SetpointInversion | Bool | %Q62.3 | |
| | OpenHoldingBrake | Bool | %Q62.4 | |
| | RaiseMotorizedPotentiometerSetpoint | Bool | %Q62.5 | |
| | LowerMotorizedPotentiometerSetpoint | Bool | %Q62.6 | |
| | Reserved_Bit15 | Bool | %Q62.7 | |
| | On | Bool | %Q63.0 | |
| | NoCoastStop | Bool | %Q63.1 | |
| | NoQuickStop | Bool | %Q63.2 | |
| | EnableOperation | Bool | %Q63.3 | |
| | EnableRampGenerator | Bool | %Q63.4 | |
| | UnfreezeRampGenerator | Bool | %Q63.5 | |
| | EnableSetpoint | Bool | %Q63.6 | |
| | FaultAcknowledge | Bool | %Q63.7 | |
| | NSOLL_B | DWord | %QD64 | |
| | STW2 | PD_STW2 | %Q68.0 | |
| | TravelToFixedEndstop | Bool | %Q68.0 | |
| | Reserved_Bit09 | Bool | %Q68.1 | |
| | Reserved_Bit10 | Bool | %Q68.2 | |
| | MotorSwitchoverFinished | Bool | %Q68.3 | |
| | MasterSignOfLifeBit0 | Bool | %Q68.4 | |
| | MasterSignOfLifeBit1 | Bool | %Q68.5 | |
| | MasterSignOfLifeBit2 | Bool | %Q68.6 | |

| | Name | Data type | Address | Retain |
|---|---|---|---|---|
| | MasterSignOfLifeBit3 | Bool | %Q68.7 | |
| | DriveDataSetSelectionBit0 | Bool | %Q69.0 | |
| | DriveDataSetSelectionBit1 | Bool | %Q69.1 | |
| | DriveDataSetSelectionBit2 | Bool | %Q69.2 | |
| | DriveDataSetSelectionBit3 | Bool | %Q69.3 | |
| | DriveDataSetSelectionBit4 | Bool | %Q69.4 | |
| | Reserved_Bit05 | Bool | %Q69.5 | |
| | Reserved_Bit06 | Bool | %Q69.6 | |
| | ParkingAxisSelection | Bool | %Q69.7 | |
| | G1_STW | PD_Gx_STW | %Q70.0 | |
| | Reserved_Bit08 | Bool | %Q70.0 | |
| | Reserved_Bit09 | Bool | %Q70.1 | |
| | Reserved_Bit10 | Bool | %Q70.2 | |
| | Reserved_Bit11 | Bool | %Q70.3 | |
| | Reserved_Bit12 | Bool | %Q70.4 | |
| | AbsoluteValueCyclically | Bool | %Q70.5 | |
| | RequestParkingEncoder | Bool | %Q70.6 | |
| | AcknowledgeError | Bool | %Q70.7 | |
| | Function1Request | Bool | %Q71.0 | |
| | Function2Request | Bool | %Q71.1 | |
| | Function3Request | Bool | %Q71.2 | |
| | Function4Request | Bool | %Q71.3 | |
| | Command0Request | Bool | %Q71.4 | |
| | Command1Request | Bool | %Q71.5 | |
| | Command2Request | Bool | %Q71.6 | |
| | Mode | Bool | %Q71.7 | |

| | Name | Data type | Address | Retain |
|---|---|---|---|---|
| | XERR | DWord | %QD72 | |
| | KPC | DWord | %QD76 | |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC tags / Default tag table [133]

## User constants

| User constants | | | |
|---|---|---|---|
| | **Name** | **Data type** | **Value** |
| | c_Manual | Int | 3 |
| | c_Produce | Int | 1 |
| | LPMLV30_MAX_MODES_UPPER_LIM | Int | 31 |
| | LPMLV30_MODES_UPPER_LIM | Int | 11 |
| | LPMLV30_STATES_UPPER_LIM | Int | 17 |
| | LPMLV30_DIAG_BUFFER_UPPER_LIM | Int | 15 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC tags / Erickson_Constants [2]

## PLC tags

| PLC tags | | | | |
|---|---|---|---|---|
| | Name | Data type | Address | Retain |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC tags / Erickson_Constants [2]

## User constants

| User constants | | | |
|---|---|---|---|
| | **Name** | **Data type** | **Value** |
| | MAX_CM_PER_EM | Int | 5 |
| | MC_INCREM_ENCODER | DInt | 0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC tags / IO_Tags [33]

## PLC tags

| PLC tags | | | | |
|---|---|---|---|---|
| | Name | Data type | Address | Retain |
| | Inp_Hardwired_Start | Bool | %M50.0 | False |
| | Inp_Hardwired_Stop | Bool | %M50.1 | False |
| | Inp_Hardwired_Reset | Bool | %M50.2 | False |
| | Inp_Hardwired_Clear | Bool | %M50.3 | False |
| | Inp_Hardwired_Hold | Bool | %M50.4 | False |
| | Inp_Hardwired_UnHold | Bool | %M50.5 | False |
| | Inp_ESTOPButton1 | Bool | %M50.6 | False |
| | Inp_ESTOPButton2 | Bool | %M50.7 | False |
| | Inp_ESTOPButton3 | Bool | %M51.0 | False |
| | Inp_GuardDoor1 | Bool | %M51.1 | False |
| | Inp_GuardDoor2 | Bool | %M51.2 | False |
| | Inp_GuardDoor3 | Bool | %M51.3 | False |
| | Inp_LightCurtain1 | Bool | %M51.4 | False |
| | Inp_LightCurtain2 | Bool | %M51.5 | False |
| | Inp_LightCurtain3 | Bool | %M51.6 | False |
| | Inp_LowLubrication | Bool | %M51.7 | False |
| | Inp_LowMagazine | Bool | %M52.0 | False |
| | Inp_MachineJam_Infeed | Bool | %M52.1 | False |
| | Inp_MachineJam_Outfeed | Bool | %M52.2 | False |
| | Inp_DownstreamMaterialInterlock | Bool | %M52.3 | False |
| | Inp_UpstreamMaterialInterlock | Bool | %M52.4 | False |
| | Inp_Networks_OK | Bool | %M52.5 | False |
| | LA_IDLE | Bool | %M55.0 | False |

| | Name | Data type | Address | Retain |
|---|---|---|---|---|
| | LA_EXECUTE | Bool | %M55.1 | False |
| | LA_STOPPED | Bool | %M55.2 | False |
| | LA_ABORTED | Bool | %M55.3 | False |
| | Regist_Sensor | Bool | %I1.0 | False |
| | Home_Sensor | Bool | %I1.1 | False |
| | Cycle_Start | Bool | %M56.0 | False |
| | Cycle_Finish | Bool | %M56.1 | False |
| | LA_CLEARING | Bool | %M55.4 | False |
| | VACUUM_OK | Bool | %M100.0 | False |
| | VACUUM_CNTRL | Bool | %M100.1 | False |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC tags / IO_Tags [33]

## User constants

| User constants | | | |
|---|---|---|---|
| | Name | Data type | Value |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC tags / LPMLV30_Constants [68]

## PLC tags

| PLC tags | | | | |
|---|---|---|---|---|
| | Name | Data type | Address | Retain |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC tags / LPMLV30_Constants [68]

## User constants

| User constants | | | |
|---|---|---|---|
| | **Name** | **Data type** | **Value** |
| | LPMLV30_MODE_INVALID | DInt | 0 |
| | LPMLV30_MODE_PRODUCTION | DInt | 1 |
| | LPMLV30_MODE_MAINTENANCE | DInt | 2 |
| | LPMLV30_MODE_MANUAL | DInt | 3 |
| | LPMLV30_MODE_USER_01 | DInt | 4 |
| | LPMLV30_MODE_USER_02 | DInt | 5 |
| | LPMLV30_MODE_USER_03 | DInt | 6 |
| | LPMLV30_MODE_USER_04 | DInt | 7 |
| | LPMLV30_MODE_USER_05 | DInt | 8 |
| | LPMLV30_MODE_USER_06 | DInt | 9 |
| | LPMLV30_MODE_USER_07 | DInt | 10 |
| | LPMLV30_MODE_USER_08 | DInt | 11 |
| | LPMLV30_MODE_USER_09 | DInt | 12 |
| | LPMLV30_MODE_USER_10 | DInt | 13 |
| | LPMLV30_MODE_USER_11 | DInt | 14 |
| | LPMLV30_MODE_USER_12 | DInt | 15 |
| | LPMLV30_MODE_USER_13 | DInt | 16 |
| | LPMLV30_MODE_USER_14 | DInt | 17 |
| | LPMLV30_MODE_USER_15 | DInt | 18 |
| | LPMLV30_MODE_USER_16 | DInt | 19 |
| | LPMLV30_MODE_USER_17 | DInt | 20 |
| | LPMLV30_MODE_USER_18 | DInt | 21 |
| | LPMLV30_MODE_USER_19 | DInt | 22 |
| | LPMLV30_MODE_USER_20 | DInt | 23 |
| | LPMLV30_MODE_USER_21 | DInt | 24 |
| | LPMLV30_MODE_USER_22 | DInt | 25 |
| | LPMLV30_MODE_USER_23 | DInt | 26 |
| | LPMLV30_MODE_USER_24 | DInt | 27 |
| | LPMLV30_MODE_USER_25 | DInt | 28 |
| | LPMLV30_MODE_USER_26 | DInt | 29 |
| | LPMLV30_MODE_USER_27 | DInt | 30 |
| | LPMLV30_MODE_USER_28 | DInt | 31 |
| | LPMLV30_STATE_UNDEFINED | DInt | 0 |

| | Name | Data type | Value |
|---|---|---|---|
| | LPMLV30_STATE_CLEARING | DInt | 1 |
| | LPMLV30_STATE_STOPPED | DInt | 2 |
| | LPMLV30_STATE_STARTING | DInt | 3 |
| | LPMLV30_STATE_IDLE | DInt | 4 |
| | LPMLV30_STATE_SUSPENDED | DInt | 5 |
| | LPMLV30_STATE_EXECUTE | DInt | 6 |
| | LPMLV30_STATE_STOPPING | DInt | 7 |
| | LPMLV30_STATE_ABORTING | DInt | 8 |
| | LPMLV30_STATE_ABORTED | DInt | 9 |
| | LPMLV30_STATE_HOLDING | DInt | 10 |
| | LPMLV30_STATE_HELD | DInt | 11 |
| | LPMLV30_STATE_UNHOLDING | DInt | 12 |
| | LPMLV30_STATE_SUSPENDING | DInt | 13 |
| | LPMLV30_STATE_UNSUSPENDING | DInt | 14 |
| | LPMLV30_STATE_RESETTING | DInt | 15 |
| | LPMLV30_STATE_COMPLETING | DInt | 16 |
| | LPMLV30_STATE_COMPLETE | DInt | 17 |
| | LPMLV30_CMD_UNDEFINED | DInt | 0 |
| | LPMLV30_CMD_RESET | DInt | 1 |
| | LPMLV30_CMD_START | DInt | 2 |
| | LPMLV30_CMD_STOP | DInt | 3 |
| | LPMLV30_CMD_HOLD | DInt | 4 |
| | LPMLV30_CMD_UNHOLD | DInt | 5 |
| | LPMLV30_CMD_SUSPEND | DInt | 6 |
| | LPMLV30_CMD_UNSUSPEND | DInt | 7 |
| | LPMLV30_CMD_ABORT | DInt | 8 |
| | LPMLV30_CMD_CLEAR | DInt | 9 |
| | LPMLV30_CMD_COMPLETE | DInt | 10 |
| | LPMLV30_LANGUAGE_1 | Int | 0 |
| | LPMLV30_LANGUAGE_2 | Int | 1 |
| | LPMLV30_DIAG_BUFFER_UPPER_LIM(1) | Int | 15 |
| | LPMLV30_LANGUAGES_UPPER_LIM | Int | 1 |
| | LPMLV30_MODES_UPPER_LIM(1) | Int | 11 |
| | LPMLV30_STATES_UPPER_LIM(1) | Int | 17 |
| | LPMLV30_MAX_MODES_UPPER_LIM(1) | Int | 31 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types

## Servo_StatusWord_Type

| Servo_StatusWord_Type Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | Servo_StatusWord_Type | **Number** | 1 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| TO_DWord | DWord | 16#0 |
| Enable | Bool | false |
| Error | Bool | false |
| RestartActive | Bool | false |
| OnlineStartValuesChanged | Bool | false |
| ControlPanelActive | Bool | false |
| HomingDone | Bool | false |
| Done | Bool | false |
| Standstill | Bool | false |
| PositioningCommand | Bool | false |
| JogCommand | Bool | false |
| VelocityCommand | Bool | false |
| HomingCommand | Bool | false |
| ConstantVelocity | Bool | false |
| Accelerating | Bool | false |
| Decelerating | Bool | false |
| SWLimitMinActive | Bool | false |
| SWLimitMaxActive | Bool | false |
| HWLimitMinActive | Bool | false |
| HWLimitMaxActive | Bool | false |
| Reserved19 | Bool | false |
| Reserved20 | Bool | false |
| Synchronizing | Bool | false |
| Synchronous | Bool | false |
| SuperimposedMotionCommand | Bool | false |
| Reserved24 | Bool | false |
| Reserved25 | Bool | false |
| Reserved26 | Bool | false |
| Reserved27 | Bool | false |
| Reserved28 | Bool | false |
| Reserved29 | Bool | false |
| Reserved30 | Bool | false |
| Reserved31 | Bool | false |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types

## Servo_ErrorWord_Type

| Servo_ErrorWord_Type Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | Servo_ErrorWord_Type | **Number** | 2 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| TO_DWord | DWord | 16#0 |
| SystemFault | Bool | false |
| ConfigurationFault | Bool | false |
| UserFault | Bool | false |
| CommandNotAccepted | Bool | false |
| DriveFault | Bool | false |
| SensorFault | Bool | false |
| DynamicError | Bool | false |
| CommunicationFault | Bool | false |
| SWLimit | Bool | false |
| HWLimit | Bool | false |
| HomingFault | Bool | false |
| FollowingErrorFault | Bool | false |
| PositioningFault | Bool | false |
| PeripheralError | Bool | false |
| SynchronousError | Bool | false |
| Reserved15 | Bool | false |
| Reserved16 | Bool | false |
| Reserved17 | Bool | false |
| Reserved18 | Bool | false |
| Reserved19 | Bool | false |
| Reserved20 | Bool | false |
| Reserved21 | Bool | false |
| Reserved22 | Bool | false |
| Reserved23 | Bool | false |
| Reserved24 | Bool | false |
| Reserved25 | Bool | false |
| Reserved26 | Bool | false |
| Reserved27 | Bool | false |
| Reserved28 | Bool | false |
| Reserved29 | Bool | false |
| Reserved30 | Bool | false |
| Reserved31 | Bool | false |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types

## Servo_WarningWord_Type

| Servo_WarningWord_Type Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | Servo_WarningWord_Type | **Number** | 3 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| TO_Dword | DWord | 16#0 |
| Reserved0 | Bool | false |
| ConfigurationFault | Bool | false |
| Reserved2 | Bool | false |
| CommandNotAccepted | Bool | false |
| Reserved4 | Bool | false |
| Reserved5 | Bool | false |
| DynamicError | Bool | false |
| Reserved7 | Bool | false |
| Reserved8 | Bool | false |
| Reserved9 | Bool | false |
| Reserved10 | Bool | false |
| FollowingErrorWarning | Bool | false |
| Reserved12 | Bool | false |
| Reserved13 | Bool | false |
| Reserved14 | Bool | false |
| Reserved15 | Bool | false |
| Reserved16 | Bool | false |
| Reserved17 | Bool | false |
| Reserved18 | Bool | false |
| Reserved19 | Bool | false |
| Reserved20 | Bool | false |
| Reserved21 | Bool | false |
| Reserved22 | Bool | false |
| Reserved23 | Bool | false |
| Reserved24 | Bool | false |
| Reserved25 | Bool | false |
| Reserved26 | Bool | false |
| Reserved27 | Bool | false |
| Reserved28 | Bool | false |
| Reserved29 | Bool | false |
| Reserved30 | Bool | false |
| Reserved31 | Bool | false |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types

## typeLPMLV30_Configuration

| typeLPMLV30_Configuration Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | typeLPMLV30_Configuration | **Number** | 30100 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | typeLPMLV30_Configuration | **Author** | | **Comment** | Support: tech.team.motioncontrol@siemens.com Fax: +49 (0) 9131/98-1297 |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| disabledUnitModes | Array[0.."LPMLV30_MAX_MODES_UPPER_LIM"] of Bool | |
| disabledStatesInUnitModes | Array[0.."LPMLV30_MAX_MODES_UPPER_LIM"] of DInt | |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types

## typeLPMLV30_Diagnostics

| typeLPMLV30_Diagnostics Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | typeLPMLV30_Diagnostics | **Number** | 30102 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | typeLPMLV30_Diagnostics | **Author** | | **Comment** | Support: tech.team.motioncontrol@siemens.com Fax: +49 (0) 9131/98-1297 |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| bufferIndex | Int | -1 |
| buffer | Array[0.."LPMLV30_DIAG_BUFFER_UPPER_LIM"] of "typeLPMLV30_DiagnosticsEntry" | |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types

## typeLPMLV30_DiagnosticsEntry

| typeLPMLV30_DiagnosticsEntry Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | typeLPMLV30_Diagnostic-sEntry | **Number** | 30101 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | typeLPMLV30_Diagnostic-sEntry | **Author** | | **Comment** | Support: tech.team.mo-tioncontrol@siemens.com Fax: +49 (0) 9131/98-1297 |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| timestamp | DTL | DTL#1970-01-01-00:00:00 |
| UnitModeCurrent | Byte | 16#00 |
| StateCurrent | Byte | 16#00 |
| UnitMode | Byte | 16#00 |
| CntrlCmd | Byte | 16#00 |
| SC | Bool | false |
| message | Byte | 16#00 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types

## typeLPMLV30_NamesConfiguration

| typeLPMLV30_NamesConfiguration Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | typeLPMLV30_NamesCon-figuration | **Number** | 4 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | typeLPMLV30_NamesCon-figuration | **Author** | | **Comment** | Support: tech.team.mo-tioncontrol@siemens.com Fax: +49 (0) 9131/98-1297 |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| unitModesNames | Array[0.."LPMLV30_LANGUAG-ES_UPPER_LIM", 0.."LPMLV30_MODES_UPPER_LIM"] of String[18] | |
| statesNames | Array[0.."LPMLV30_LANGUAG-ES_UPPER_LIM", 0.."LPMLV30_STATES_UPPER_LIM"] of String[16] | |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types

## EM_Faults

| EM_Faults Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | EM_Faults | **Number** | 5 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| EM_MajorFaults | DInt | 0 |
| EM_MinorFaults | DInt | 0 |
| EM_Warnings | DInt | 0 |
| Sts_Err | Int | 0 |
| MC_ErrorID | Word | 16#0 |
| EM_MajorFaultAct | Bool | false |
| EM_MinorFaultAct | Bool | false |
| EM_WarningAct | Bool | false |
| StartFaultInstruction | Bool | false |
| StartFaultCalculation | Bool | false |
| StartFaultWatchdog | Bool | false |
| WatchdogPreparationExecution | TON_TIME | |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types

## CM_Data_Type

| CM_Data_Type Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | CM_Data_Type | **Number** | 6 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| Wrk_do_Enable | Bool | false |
| Wrk_do_Disable | Bool | false |
| Wrk_do_Stop | Bool | false |
| Wrk_do_Home | Bool | false |
| Wrk_do_Gear | Bool | false |
| Wrk_JogPermissive | Bool | false |
| Wrk_ONS_UnlatchHomeStatus | Bool | false |
| Wrk_PrepareExecutionDone | Bool | false |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_FunctionFollowingValue

| TO_Struct_FunctionFollowingValue Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_FunctionFollo-wingValue | **Number** | 2055 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| Position | LReal | 0.0 |
| Velocity | LReal | 0.0 |
| Acceleration | LReal | 0.0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_FunctionLeadingValue

| TO_Struct_FunctionLeadingValue Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_FunctionLeadingValue | **Number** | 2054 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| Position | LReal | 0.0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_EffectiveLeadingValue

| TO_Struct_EffectiveLeadingValue Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_EffectiveLeadingValue | **Number** | 2046 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| Position | LReal | 0.0 |
| Velocity | LReal | 0.0 |
| Acceleration | LReal | 0.0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_StatusSynchronizedMotion

| TO_Struct_StatusSynchronizedMotion Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_StatusSynchro-nizedMotion | **Number** | 1750 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| FunctionState | DInt | 0 |
| WaitingFunctionState | DInt | 0 |
| PhaseShift | LReal | 0.0 |
| ActualMaster | DB_ANY | 0 |
| ActualCam | DB_ANY | 0 |
| MasterOffset | LReal | 0.0 |
| MasterScaling | LReal | 0.0 |
| SlaveOffset | LReal | 0.0 |
| SlaveScaling | LReal | 0.0 |
| Offset | LReal | 0.0 |
| EffectiveLeadingValue | TO_Struct_EffectiveLeadingValue | |
| FunctionLeadingValue | TO_Struct_FunctionLeadingValue | |
| FunctionFollowingValue | TO_Struct_FunctionFollowingValue | |
| StatusWord | DWord | 16#0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_Actor

| TO_Struct_Actor Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_Actor | **Number** | 1700 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| Type | DInt | 0 |
| InverseDirection | Bool | false |
| DataAdaption | DInt | 0 |
| Efficiency | LReal | 0.0 |
| MotorType | DInt | 0 |
| LoadInertia | LReal | 0.0 |
| RemoveEnableReaction | Word | 16#0 |
| Interface | TO_Struct_ActorInterface | |
| DriveParameter | TO_Struct_ActorDriveParameter | |
| LinearMotorDriveParameter | TO_Struct_LinearMotorActorDrive-Parameter | |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_ActorInterface

| TO_Struct_ActorInterface Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_ActorInterface | **Number** | 1701 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| AddressIn | VREF | |
| AddressOut | VREF | |
| EnableDriveOutput | Bool | false |
| EnableDriveOutputAddress | VREF | |
| DriveReadyInput | Bool | false |
| DriveReadyInputAddress | VREF | |
| EnableTorqueData | Bool | false |
| TorqueDataAddressIn | VREF | |
| TorqueDataAddressOut | VREF | |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_ActorDriveParameter

| TO_Struct_ActorDriveParameter Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_ActorDrivePara-meter | **Number** | 1702 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| ReferenceSpeed | LReal | 0.0 |
| MaxSpeed | LReal | 0.0 |
| ReferenceTorque | LReal | 0.0 |
| MotorInertia | LReal | 0.0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_LinearMotorActorDriveParameter

| TO_Struct_LinearMotorActorDriveParameter Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_LinearMotorActorDriveParameter | **Number** | 2052 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| ReferenceVelocity | LReal | 0.0 |
| MaxVelocity | LReal | 0.0 |
| ReferenceForce | LReal | 0.0 |
| MotorMass | LReal | 0.0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_TorqueLimiting

| TO_Struct_TorqueLimiting Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_TorqueLimiting | **Number** | 1782 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| LimitBase | DInt | 0 |
| PositionBasedMonitorings | DInt | 0 |
| LimitDefaults | TO_Struct_TorqueLimitingLimitDefaults | |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_TorqueLimitingLimitDefaults

| TO_Struct_TorqueLimitingLimitDefaults Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_TorqueLimitin-gLimitDefaults | **Number** | 1783 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| Torque | LReal | 0.0 |
| Force | LReal | 0.0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_LoadGear

| TO_Struct_LoadGear Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_LoadGear | **Number** | 1744 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| Numerator | UDInt | 0 |
| Denominator | UDInt | 0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_DynamicLimits

| TO_Struct_DynamicLimits Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_DynamicLimits | **Number** | 1713 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| MaxVelocity | LReal | 0.0 |
| Velocity | LReal | 0.0 |
| MaxAcceleration | LReal | 0.0 |
| MaxDeceleration | LReal | 0.0 |
| MaxJerk | LReal | 0.0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_DynamicDefaults

| TO_Struct_DynamicDefaults Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_DynamicDe-faults | **Number** | 1714 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| Velocity | LReal | 0.0 |
| Acceleration | LReal | 0.0 |
| Deceleration | LReal | 0.0 |
| Jerk | LReal | 0.0 |
| EmergencyDeceleration | LReal | 0.0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_Override

| TO_Struct_Override Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_Override | **Number** | 1718 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| Velocity | LReal | 0.0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_Units

| TO_Struct_Units Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_Units | **Number** | 1708 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| LengthUnit | UDInt | 0 |
| VelocityUnit | UDInt | 0 |
| TimeUnit | UDInt | 0 |
| TorqueUnit | UDInt | 0 |
| ForceUnit | UDInt | 0 |
| MassUnit | UDInt | 0 |
| InertiaUnit | UDInt | 0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_StatusDrive

| TO_Struct_StatusDrive Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_StatusDrive | **Number** | 1724 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| InOperation | Bool | false |
| CommunicationOK | Bool | false |
| Error | Bool | false |
| AdaptionState | DInt | 0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_StatusTorqueData

| TO_Struct_StatusTorqueData Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_StatusTorque-Data | **Number** | 2036 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| CommandAdditiveTorqueActive | DInt | 0 |
| CommandTorqueRangeActive | DInt | 0 |
| ActualTorque | LReal | 0.0 |
| ActualForce | LReal | 0.0 |
| TotalTorqueAdditive | LReal | 0.0 |
| TotalForceAdditive | LReal | 0.0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_StatusMotionIn

| TO_Struct_StatusMotionIn Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_StatusMotionIn | **Number** | 2037 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| FunctionState | DInt | 0 |
| StatusWord | DWord | 16#0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_StatusInterpreterMotion

| TO_Struct_StatusInterpreterMotion Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_StatusInterpre-terMotion | **Number** | 2069 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| Interpreter | DB_ANY | 0 |
| StatusWord | DWord | 16#0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_ErrorDetail

| TO_Struct_ErrorDetail Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_ErrorDetail | **Number** | 1728 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| Number | UDInt | 0 |
| Reaction | DInt | 0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_ControlPanel

| TO_Struct_ControlPanel Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_ControlPanel | **Number** | 1729 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| Input | TO_Struct_ControlPanelInput | |
| Output | TO_Struct_ControlPanelOutput | |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_ControlPanelInput

| TO_Struct_ControlPanelInput Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_ControlPanelIn-put | **Number** | 1730 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| Command | Array[1..3] of TO_Struct_ControlPa-nelInputCmd | |
| TimeOut | LReal | 0.0 |
| EsLifeSign | UDInt | 0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_ControlPanelInputCmd

| TO_Struct_ControlPanelInputCmd Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_ControlPanelIn-putCmd | **Number** | 1731 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| ReqCounter | UDInt | 0 |
| Type | UDInt | 0 |
| Position | LReal | 0.0 |
| Velocity | LReal | 0.0 |
| Acceleration | LReal | 0.0 |
| Deceleration | LReal | 0.0 |
| Jerk | LReal | 0.0 |
| Param | LReal | 0.0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_ControlPanelOutput

| TO_Struct_ControlPanelOutput Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_ControlPanelOutput | **Number** | 1732 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| Command | Array[1..3] of TO_Struct_ControlPanelOutputCmd | |
| RtLifeSign | UDInt | 0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_ControlPanelOutputCmd

| TO_Struct_ControlPanelOutputCmd Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_ControlPane-lOutputCmd | **Number** | 1733 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| AckCounter | UDInt | 0 |
| Error | Bool | false |
| ErrorID | Word | 16#0 |
| Done | Bool | false |
| Aborted | Bool | false |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_Internal

| TO_Struct_Internal Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_Internal | **Number** | 1734 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| Id | DInt | 0 |
| Value | LReal | 0.0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_VirtualAxis

| TO_Struct_VirtualAxis Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_VirtualAxis | **Number** | 1792 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| Mode | UDInt | 0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_AxisSimulation

| TO_Struct_AxisSimulation Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_AxisSimulation | **Number** | 1739 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| Mode | UDInt | 0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_Clamping

| TO_Struct_Clamping Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_Clamping | **Number** | 1784 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| FollowingErrorDeviation | LReal | 0.0 |
| PositionTolerance | LReal | 0.0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_Sensor

| TO_Struct_Sensor Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_Sensor | **Number** | 1703 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| Existent | Bool | false |
| Type | DInt | 0 |
| InverseDirection | Bool | false |
| System | DInt | 0 |
| MountingMode | DInt | 0 |
| DataAdaption | DInt | 0 |
| ActualVelocityMode | DInt | 0 |
| Interface | TO_Struct_SensorInterface | |
| Parameter | TO_Struct_SensorParameter | |
| Backlash | TO_Struct_Backlash | |
| ActiveHoming | TO_Struct_SensorActiveHoming | |
| PassiveHoming | TO_Struct_SensorPassiveHoming | |
| MeasuringGear | TO_Struct_SensorMeasuringGear | |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_SensorInterface

| TO_Struct_SensorInterface Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_SensorInter-face | **Number** | 1704 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| AddressIn | VREF | |
| AddressOut | VREF | |
| Number | UDInt | 0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_SensorParameter

| TO_Struct_SensorParameter Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_SensorParame-ter | **Number** | 1705 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| Resolution | LReal | 0.0 |
| StepsPerRevolution | UDInt | 0 |
| FineResolutionXist1 | UDInt | 0 |
| FineResolutionXist2 | UDInt | 0 |
| DeterminableRevolutions | UDInt | 0 |
| DistancePerRevolution | LReal | 0.0 |
| BehaviorGx_XIST1 | DInt | 0 |
| ReferenceSpeed | LReal | 0.0 |
| ReferenceVelocity | LReal | 0.0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_Backlash

| TO_Struct_Backlash Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_Backlash | **Number** | 2053 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| Enable | Bool | false |
| Size | LReal | 0.0 |
| Velocity | LReal | 0.0 |
| DirectionAbsoluteHoming | DInt | 0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_SensorActiveHoming

| TO_Struct_SensorActiveHoming Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_SensorActive-Homing | **Number** | 1706 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| Mode | DInt | 0 |
| SideInput | Bool | false |
| Direction | DInt | 0 |
| HomePositionOffset | LReal | 0.0 |
| DigitalInputAddress | VREF | |
| SwitchLevel | Bool | false |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_SensorPassiveHoming

| TO_Struct_SensorPassiveHoming Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_SensorPassive-Homing | **Number** | 1707 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| Mode | DInt | 0 |
| SideInput | Bool | false |
| Direction | DInt | 0 |
| DigitalInputAddress | VREF | |
| SwitchLevel | Bool | false |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_SensorMeasuringGear

| TO_Struct_SensorMeasuringGear Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_SensorMeasur-ingGear | **Number** | 2087 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| Numerator | UDInt | 0 |
| Denominator | UDInt | 0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_Extrapolation

| TO_Struct_Extrapolation Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_Extrapolation | **Number** | 1785 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| LeadingAxisDependentTime | LReal | 0.0 |
| FollowingAxisDependentTime | LReal | 0.0 |
| Settings | TO_Struct_ExtrapolationSettings | |
| PositionFilter | TO_Struct_ExtrapolationPositionFilter | |
| VelocityFilter | TO_Struct_ExtrapolationVelocityFilter | |
| VelocityTolerance | TO_Struct_ExtrapolationVelocityTolerance | |
| Hysteresis | TO_Struct_ExtrapolationHysteresis | |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_ExtrapolationSettings

| TO_Struct_ExtrapolationSettings Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_Extrapolation-Settings | **Number** | 2043 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| SystemDefinedExtrapolation | DInt | 0 |
| ExtrapolatedVelocityMode | DInt | 0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_ExtrapolationPositionFilter

| TO_Struct_ExtrapolationPositionFilter Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_Extrapolation-PositionFilter | **Number** | 1786 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| T1 | LReal | 0.0 |
| T2 | LReal | 0.0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_ExtrapolationVelocityFilter

| TO_Struct_ExtrapolationVelocityFilter Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_Extrapolation-VelocityFilter | **Number** | 1787 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| T1 | LReal | 0.0 |
| T2 | LReal | 0.0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_ExtrapolationVelocityTolerance

| TO_Struct_ExtrapolationVelocityTolerance Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_Extrapolation-VelocityTolerance | **Number** | 1788 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| Range | LReal | 0.0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_ExtrapolationHysteresis

| TO_Struct_ExtrapolationHysteresis Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_Extrapolation-Hysteresis | **Number** | 1789 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| Value | LReal | 0.0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_Mechanics

| TO_Struct_Mechanics Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_Mechanics | **Number** | 1711 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| LeadScrew | LReal | 0.0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_Properties

| TO_Struct_Properties Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_Properties | **Number** | 1745 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| MotionType | DInt | 0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_Modulo

| TO_Struct_Modulo Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_Modulo | **Number** | 1712 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| Enable | Bool | false |
| Length | LReal | 0.0 |
| StartValue | LReal | 0.0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_PositionLimitsSW

| TO_Struct_PositionLimitsSW Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_PositionLimitsSW | **Number** | 1715 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| Active | Bool | false |
| MinPosition | LReal | 0.0 |
| MaxPosition | LReal | 0.0 |
| LimitReachedBehavior | DInt | 0 |
| LimitExceededBehavior | DInt | 0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_PositionLimitsHW

| TO_Struct_PositionLimitsHW Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_PositionLimitsHW | **Number** | 1716 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| Active | Bool | false |
| Mode | DInt | 0 |
| MinSwitchLevel | Bool | false |
| MinSwitchAddress | VREF | |
| MaxSwitchLevel | Bool | false |
| MaxSwitchAddress | VREF | |
| ApproachBehavior | DInt | 0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_Homing

| TO_Struct_Homing Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_Homing | **Number** | 1717 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| AutoReversal | Bool | false |
| ApproachDirection | Bool | false |
| ApproachVelocity | LReal | 0.0 |
| ReferencingVelocity | LReal | 0.0 |
| HomePosition | LReal | 0.0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_PositionControl

| TO_Struct_PositionControl Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_PositionControl | **Number** | 1719 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| Kv | LReal | 0.0 |
| Kpc | LReal | 0.0 |
| EnableDSC | Bool | false |
| SmoothingTimeByChangeDifference | LReal | 0.0 |
| InitialOperativeSensor | UDInt | 0 |
| ControlDifferenceQuantization | TO_Struct_PositionDifferenceQuantification | |
| VelocityModePowerOn | DInt | 0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_PositionDifferenceQuantification

| TO_Struct_PositionDifferenceQuantification Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_PositionDifferenceQuantification | **Number** | 1746 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| Mode | DInt | 0 |
| Value | LReal | 0.0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_TorquePreControl

| TO_Struct_TorquePreControl Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_TorquePreCon-trol | **Number** | 2088 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| Mode | DInt | 0 |
| Scale | LReal | 0.0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_SetpointFilter

| TO_Struct_SetpointFilter Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_SetpointFilter | **Number** | 2059 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| DynamicFilter | TO_Struct_DynamicFilter | |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_DynamicFilter

| TO_Struct_DynamicFilter Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_DynamicFilter | **Number** | 2060 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| Mode | DInt | 0 |
| T1 | LReal | 0.0 |
| T2 | LReal | 0.0 |
| Tt | LReal | 0.0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_DynamicAxisModel

| TO_Struct_DynamicAxisModel Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_DynamicAxis-Model | **Number** | 1747 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| VelocityTimeConstant | LReal | 0.0 |
| AdditionalPositionTimeConstant | LReal | 0.0 |
| CurrentTimeConstant | LReal | 0.0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_FollowingError

| TO_Struct_FollowingError Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_FollowingError | **Number** | 1720 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| EnableMonitoring | Bool | false |
| MinValue | LReal | 0.0 |
| MaxValue | LReal | 0.0 |
| MinVelocity | LReal | 0.0 |
| WarningLevel | LReal | 0.0 |
| AdditionalSetpointDelayTime | LReal | 0.0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_CrossPlcSynchronousOperation

| TO_Struct_CrossPlcSynchronousOperation Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_CrossPlcSynch-ronousOperation | **Number** | 2041 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| Interface | Array[1..8] of TO_Struct_Cross-PlcLeadingValueInterface | |
| LocalLeadingValueDelayTime | LReal | 0.0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_CrossPlcLeadingValueInterface

| TO_Struct_CrossPlcLeadingValueInterface Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_CrossPlcLeadingValueInterface | **Number** | 2042 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| EnableLeadingValueOutput | Bool | false |
| AddressOut | VREF | |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_PositioningMonitoring

| TO_Struct_PositioningMonitoring Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_PositioningMonitoring | **Number** | 1721 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| ToleranceTime | LReal | 0.0 |
| MinDwellTime | LReal | 0.0 |
| Window | LReal | 0.0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_StandstillSignal

| TO_Struct_StandstillSignal Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_StandstillSignal | **Number** | 1722 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| VelocityThreshold | LReal | 0.0 |
| MinDwellTime | LReal | 0.0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_StatusPositioning

| TO_Struct_StatusPositioning Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_StatusPosition-ing | **Number** | 1723 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| Distance | LReal | 0.0 |
| TargetPosition | LReal | 0.0 |
| TargetPositionModuloCycle | DInt | 0 |
| FollowingError | LReal | 0.0 |
| SetpointExecutionTime | LReal | 0.0 |
| SuperimposedDistance | LReal | 0.0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_StatusServo

| TO_Struct_StatusServo Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_StatusServo | **Number** | 1748 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| BalancedPosition | LReal | 0.0 |
| ControlDifference | LReal | 0.0 |
| PositionAfterDynamicFilter | LReal | 0.0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_StatusProvidedLeadingValue

| TO_Struct_StatusProvidedLeadingValue Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_StatusProvi-dedLeadingValue | **Number** | 2044 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| DelayedLeadingValue | TO_Struct_ProvidedLeadingValue | |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_ProvidedLeadingValue

| TO_Struct_ProvidedLeadingValue Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_ProvidedLeadingValue | **Number** | 2045 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| Position | LReal | 0.0 |
| Velocity | LReal | 0.0 |
| Acceleration | LReal | 0.0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_StatusSensor

| TO_Struct_StatusSensor Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_StatusSensor | **Number** | 1725 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| State | DInt | 0 |
| CommunicationOK | Bool | false |
| Error | Bool | false |
| AbsEncoderOffset | LReal | 0.0 |
| Control | Bool | false |
| Position | LReal | 0.0 |
| Velocity | LReal | 0.0 |
| AdaptionState | DInt | 0 |
| ModuloCycle | DInt | 0 |
| Adjusted | DInt | 0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_StatusExtrapolation

| TO_Struct_StatusExtrapolation Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_StatusExtrapo-lation | **Number** | 1790 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| FilteredPosition | LReal | 0.0 |
| FilteredVelocity | LReal | 0.0 |
| ExtrapolatedPosition | LReal | 0.0 |
| ExtrapolatedVelocity | LReal | 0.0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_StatusKinematicsMotion

| TO_Struct_StatusKinematicsMotion Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_StatusKinema-ticsMotion | **Number** | 2035 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| StatusWord | DWord | 16#0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_Kinematics_StatusKinematicsFrameTcp

| TO_Struct_Kinematics_StatusKinematicsFrameTcp Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_Kinematics_StatusKinematicsFrameTcp | **Number** | 2001 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| x | LReal | 0.0 |
| y | LReal | 0.0 |
| z | LReal | 0.0 |
| a | LReal | 0.0 |
| b | LReal | 0.0 |
| c | LReal | 0.0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_Kinematics_Kinematics

| TO_Struct_Kinematics_Kinematics Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_Kinemat-ics_Kinematics | **Number** | 2002 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| TypeOfKinematics | DInt | 0 |
| Parameter | Array[1..32] of LReal | |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_Kinematics_Frame

| TO_Struct_Kinematics_Frame Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_Kinemat-ics_Frame | **Number** | 2003 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| x | LReal | 0.0 |
| y | LReal | 0.0 |
| z | LReal | 0.0 |
| a | LReal | 0.0 |
| b | LReal | 0.0 |
| c | LReal | 0.0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_Kinematics_Tool

| TO_Struct_Kinematics_Tool Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_Kinemat-ics_Tool | **Number** | 2004 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| Frame | TO_Struct_Kinematics_Kinematics-Frame | |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_Kinematics_KinematicsFrame

| TO_Struct_Kinematics_KinematicsFrame Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_Kinemat-ics_KinematicsFrame | **Number** | 2005 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| x | LReal | 0.0 |
| y | LReal | 0.0 |
| z | LReal | 0.0 |
| a | LReal | 0.0 |
| b | LReal | 0.0 |
| c | LReal | 0.0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_Kinematics_DynamicDefaults

| TO_Struct_Kinematics_DynamicDefaults Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_Kinematics_DynamicDefaults | **Number** | 2006 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| Path | TO_Struct_Kinematics_Dynamics | |
| Orientation | TO_Struct_Kinematics_Orientation-Dynamics | |
| DynamicAdaption | DInt | 0 |
| MoveDirect | TO_Struct_Kinematics_MoveDirect-Dynamics | |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_Kinematics_Dynamics

| TO_Struct_Kinematics_Dynamics Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_Kinematics_Dynamics | **Number** | 2007 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| Velocity | LReal | 0.0 |
| Acceleration | LReal | 0.0 |
| Deceleration | LReal | 0.0 |
| Jerk | LReal | 0.0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_Kinematics_OrientationDynamics

| TO_Struct_Kinematics_OrientationDynamics Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_Kinemat-ics_OrientationDynamics | **Number** | 2038 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| Velocity | LReal | 0.0 |
| Acceleration | LReal | 0.0 |
| Deceleration | LReal | 0.0 |
| Jerk | LReal | 0.0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_Kinematics_MoveDirectDynamics

| TO_Struct_Kinematics_MoveDirectDynamics Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_Kinemat-ics_MoveDirectDynamics | **Number** | 2051 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| VelocityFactor | LReal | 0.0 |
| AccelerationFactor | LReal | 0.0 |
| DecelerationFactor | LReal | 0.0 |
| JerkFactor | LReal | 0.0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_Kinematics_DynamicLimits

| TO_Struct_Kinematics_DynamicLimits Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_Kinematics_DynamicLimits | **Number** | 2008 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| Path | TO_Struct_Kinematics_Dynamics | |
| Orientation | TO_Struct_Kinematics_Orientation-Dynamics | |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_Kinematics_Joint

| TO_Struct_Kinematics_Joint Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_Kinematics_Joint | **Number** | 2062 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| J | Array[1..6] of TO_Struct_Kinematics_JointParameters | |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_Kinematics_JointParameters

| TO_Struct_Kinematics_JointParameters Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_Kinemat-ics_JointParameters | **Number** | 2063 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| InverseDirection | Bool | false |
| Offset | LReal | 0.0 |
| LowerLimit | LReal | 0.0 |
| UpperLimit | LReal | 0.0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_Kinematics_AxisCoupling

| TO_Struct_Kinematics_AxisCoupling Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_Kinematics_AxisCoupling | **Number** | 2064 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| N | Array[1..5] of TO_Struct_Kinematics_AxisCouplingParameters | |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_Kinematics_AxisCouplingParameters

| TO_Struct_Kinematics_AxisCouplingParameters Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_Kinematics_AxisCouplingParameters | **Number** | 2065 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| Enable | Bool | false |
| CausingAxis | UDInt | 0 |
| AffectedAxis | UDInt | 0 |
| Factor | LReal | 0.0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_Kinematics_MotionQueue

| TO_Struct_Kinematics_MotionQueue Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_Kinemat-ics_MotionQueue | **Number** | 2009 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| MaxNumberOfCommands | DInt | 0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_Kinematics_Transition

| TO_Struct_Kinematics_Transition Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_Kinemat-ics_Transition | **Number** | 2056 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| FactorBlendingLength | LReal | 0.0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_Kinematics_Override

| TO_Struct_Kinematics_Override Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_Kinemat-ics_Override | **Number** | 2010 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| Velocity | LReal | 0.0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_Kinematics_Conveyor

| TO_Struct_Kinematics_Conveyor Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_Kinemat-ics_Conveyor | **Number** | 2089 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| DynamicReserve | Array[1..1] of LReal | |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_Kinematics_WorkSpaceZone

| TO_Struct_Kinematics_WorkSpaceZone Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_Kinematics_WorkSpaceZone | **Number** | 2011 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| Active | Bool | false |
| Valid | Bool | false |
| Type | DInt | 0 |
| ReferenceSystem | DInt | 0 |
| Frame | TO_Struct_Kinematics_Frame | |
| Geometry | TO_Struct_Kinematics_ZoneGeometry | |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_Kinematics_ZoneGeometry

| TO_Struct_Kinematics_ZoneGeometry Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_Kinematics_ZoneGeometry | **Number** | 2012 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| Type | DInt | 0 |
| Parameter | Array[1..3] of LReal | |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_Kinematics_KinematicsZone

| TO_Struct_Kinematics_KinematicsZone Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_Kinematics_KinematicsZone | **Number** | 2013 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| Active | Bool | false |
| Valid | Bool | false |
| ReferenceSystem | DInt | 0 |
| Frame | TO_Struct_Kinematics_Frame | |
| Geometry | TO_Struct_Kinematics_ZoneGeometry | |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_Kinematics_StatusPath

| TO_Struct_Kinematics_StatusPath Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_Kinematics_StatusPath | **Number** | 2016 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| CoordSystem | DInt | 0 |
| Velocity | LReal | 0.0 |
| Acceleration | LReal | 0.0 |
| OrientationVelocity | LReal | 0.0 |
| DynamicAdaption | DInt | 0 |
| TotalPathLength | LReal | 0.0 |
| AccumulatedPathLength | LReal | 0.0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_Kinematics_StatusKinematicsFrameWithDynamics

| TO_Struct_Kinematics_StatusKinematicsFrameWithDynamics Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_Kinematics_StatusKinematicsFrameWithDynamics | **Number** | 2017 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| x | TO_Struct_Kinematics_StatusMotionVector | |
| y | TO_Struct_Kinematics_StatusMotionVector | |
| z | TO_Struct_Kinematics_StatusMotionVector | |
| a | TO_Struct_Kinematics_StatusMotionVector | |
| b | TO_Struct_Kinematics_StatusMotionVector | |
| c | TO_Struct_Kinematics_StatusMotionVector | |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_Kinematics_StatusMotionVector

| TO_Struct_Kinematics_StatusMotionVector Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_Kinemat-ics_StatusMotionVector | **Number** | 2020 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| Acceleration | LReal | 0.0 |
| Position | LReal | 0.0 |
| Velocity | LReal | 0.0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_Kinematics_StatusKinematicsFrameWithDynamicsOcs

| TO_Struct_Kinematics_StatusKinematicsFrameWithDynamicsOcs Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_Kinematics_StatusKinematicsFrameWithDynamicsOcs | **Number** | 2018 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| x | TO_Struct_Kinematics_StatusMotionVectorOcs | |
| y | TO_Struct_Kinematics_StatusMotionVectorOcs | |
| z | TO_Struct_Kinematics_StatusMotionVectorOcs | |
| a | TO_Struct_Kinematics_StatusMotionVectorOcs | |
| b | TO_Struct_Kinematics_StatusMotionVectorOcs | |
| c | TO_Struct_Kinematics_StatusMotionVectorOcs | |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_Kinematics_StatusMotionVectorOcs

| TO_Struct_Kinematics_StatusMotionVectorOcs Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_Kinemat-ics_StatusMotionVector-Ocs | **Number** | 2015 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| Acceleration | LReal | 0.0 |
| Position | LReal | 0.0 |
| Velocity | LReal | 0.0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_Kinematics_StatusFrame

| TO_Struct_Kinematics_StatusFrame Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_Kinemat-ics_StatusFrame | **Number** | 2024 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| x | LReal | 0.0 |
| y | LReal | 0.0 |
| z | LReal | 0.0 |
| a | LReal | 0.0 |
| b | LReal | 0.0 |
| c | LReal | 0.0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_Kinematics_StatusKinematics

| TO_Struct_Kinematics_StatusKinematics Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_Kinemat-ics_StatusKinematics | **Number** | 2019 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| Type5D6D | Bool | false |
| Valid | Bool | false |
| LinkConstellation | DWord | 16#0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_Kinematics_AxesData

| TO_Struct_Kinematics_AxesData Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_Kinematics_AxesData | **Number** | 2057 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| A | Array[1..6] of TO_Struct_Kinematics_AxisMotionVector | |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_Kinematics_AxisMotionVector

| TO_Struct_Kinematics_AxisMotionVector Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_Kinematics_AxisMotionVector | **Number** | 2058 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| Position | LReal | 0.0 |
| Velocity | LReal | 0.0 |
| Acceleration | LReal | 0.0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_Kinematics_StatusJointData

| TO_Struct_Kinematics_StatusJointData Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_Kinematics_StatusJointData | **Number** | 2066 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| J | Array[1..6] of TO_Struct_Kinematics_StatusJointMotionVector | |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_Kinematics_StatusJointMotionVector

| TO_Struct_Kinematics_StatusJointMotionVector Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_Kinematics_StatusJointMotionVector | **Number** | 2067 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| Acceleration | LReal | 0.0 |
| Position | LReal | 0.0 |
| Velocity | LReal | 0.0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_Kinematics_StatusFlangeInKcs

| TO_Struct_Kinematics_StatusFlangeInKcs Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_Kinematics_StatusFlangeInKcs | **Number** | 2014 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| x | TO_Struct_Kinematics_StatusMotionVectorKcs | |
| y | TO_Struct_Kinematics_StatusMotionVectorKcs | |
| z | TO_Struct_Kinematics_StatusMotionVectorKcs | |
| a | TO_Struct_Kinematics_StatusMotionVectorKcs | |
| b | TO_Struct_Kinematics_StatusMotionVectorKcs | |
| c | TO_Struct_Kinematics_StatusMotionVectorKcs | |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_Kinematics_StatusMotionVectorKcs

| TO_Struct_Kinematics_StatusMotionVectorKcs Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_Kinematics_StatusMotionVectorKcs | **Number** | 2039 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| Acceleration | LReal | 0.0 |
| Position | LReal | 0.0 |
| Velocity | LReal | 0.0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_Kinematics_StatusTool

| TO_Struct_Kinematics_StatusTool Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_Kinematics_StatusTool | **Number** | 2021 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| ActiveTool | DInt | 0 |
| Frame | Array[1..3] of TO_Struct_Kinematics_StatusKinematicsFrame | |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_Kinematics_StatusKinematicsFrame

| TO_Struct_Kinematics_StatusKinematicsFrame Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_Kinematics_StatusKinematics-Frame | **Number** | 2022 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| x | LReal | 0.0 |
| y | LReal | 0.0 |
| z | LReal | 0.0 |
| a | LReal | 0.0 |
| b | LReal | 0.0 |
| c | LReal | 0.0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_Kinematics_StatusConveyor

| TO_Struct_Kinematics_StatusConveyor Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_Kinematics_StatusConveyor | **Number** | 2047 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| ConveyorBelt | DB_ANY | 0 |
| BeltPosition | LReal | 0.0 |
| ObjectPosition | TO_Struct_Kinematics_StatusFrame | |
| TrackingState | DInt | 0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_Kinematics_StatusWorkSpaceZone

| TO_Struct_Kinematics_StatusWorkSpaceZone Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_Kinematics_StatusWorkSpaceZone | **Number** | 2023 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| Active | Bool | false |
| Valid | Bool | false |
| Type | DInt | 0 |
| ReferenceSystem | DInt | 0 |
| Frame | TO_Struct_Kinematics_StatusFrame | |
| Geometry | TO_Struct_Kinematics_StatusZone-Geometry | |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_Kinematics_StatusZoneGeometry

| TO_Struct_Kinematics_StatusZoneGeometry Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_Kinemat-ics_StatusZoneGeometry | **Number** | 2025 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| Type | DInt | 0 |
| Parameter | Array[1..3] of LReal | |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_Kinematics_StatusKinematicsZone

| TO_Struct_Kinematics_StatusKinematicsZone Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_Kinematics_StatusKinematicsZone | **Number** | 2026 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| Active | Bool | false |
| Valid | Bool | false |
| ReferenceSystem | DInt | 0 |
| Frame | TO_Struct_Kinematics_StatusFrame | |
| Geometry | TO_Struct_Kinematics_StatusZone-Geometry | |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_Kinematics_StatusZoneMonitoring

| TO_Struct_Kinematics_StatusZoneMonitoring Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_Kinemat-ics_StatusZoneMonitoring | **Number** | 2027 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| WorkingZones | DWord | 16#0 |
| BlockedZones | DWord | 16#0 |
| SignalizingZones | DWord | 16#0 |
| KinematicsZones | DWord | 16#0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_Kinematics_StatusMotionQueue

| TO_Struct_Kinematics_StatusMotionQueue Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_Kinemat-ics_StatusMotionQueue | **Number** | 2028 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| NumberOfCommands | DInt | 0 |
| NumberOfPreparedCommands | DInt | 0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_Kinematics_KinematicsAxis

| TO_Struct_Kinematics_KinematicsAxis Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_Kinemat-ics_KinematicsAxis | **Number** | 2040 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| A1 | DB_ANY | 0 |
| A2 | DB_ANY | 0 |
| A3 | DB_ANY | 0 |
| A4 | DB_ANY | 0 |
| A5 | DB_ANY | 0 |
| A6 | DB_ANY | 0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_Kinematics_Units

| TO_Struct_Kinematics_Units Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_Kinemat-ics_Units | **Number** | 2029 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| LengthUnit | UDInt | 0 |
| LengthVelocityUnit | UDInt | 0 |
| AngleUnit | UDInt | 0 |
| AngleVelocityUnit | UDInt | 0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_Kinematics_StatusInterpreterMotion

| TO_Struct_Kinematics_StatusInterpreterMotion Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_Kinematics_StatusInterpreterMotion | **Number** | 2068 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| StatusWord | DWord | 16#0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_Kinematics_ControlPanel

| TO_Struct_Kinematics_ControlPanel Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_Kinematics_ControlPanel | **Number** | 2030 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| Input | TO_Struct_Kinematics_ControlPanelInput | |
| Output | TO_Struct_Kinematics_ControlPanelOutput | |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_Kinematics_ControlPanelInput

| TO_Struct_Kinematics_ControlPanelInput Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_Kinematics_ControlPanelInput | **Number** | 2031 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| TimeOut | LReal | 0.0 |
| EsLifeSign | UDInt | 0 |
| Command | Array[1..3] of TO_Struct_Kinematics_ControlPanelInputCmd | |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_Kinematics_ControlPanelInputCmd

| TO_Struct_Kinematics_ControlPanelInputCmd Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_Kinematics_ControlPanelInputCmd | **Number** | 2032 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| ReqCounter | UDInt | 0 |
| Type | UDInt | 0 |
| Position | Array[1..6] of LReal | |
| Velocity | Array[1..2] of LReal | |
| Acceleration | Array[1..2] of LReal | |
| Deceleration | Array[1..2] of LReal | |
| Jerk | Array[1..2] of LReal | |
| Param | Array[1..9] of LReal | |
| CoordinateSystem | UDInt | 0 |
| ToolNumber | UDInt | 0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_Kinematics_ControlPanelOutput

| TO_Struct_Kinematics_ControlPanelOutput Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_Kinematics_ControlPanelOutput | **Number** | 2033 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| RtLifeSign | UDInt | 0 |
| Command | Array[1..3] of TO_Struct_Kinematics_ControlPanelOutputCmd | |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## TO_Struct_Kinematics_ControlPanelOutputCmd

| TO_Struct_Kinematics_ControlPanelOutputCmd Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | TO_Struct_Kinematics_ControlPanelOutputCmd | **Number** | 2034 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| AckCounter | UDInt | 0 |
| Error | Bool | false |
| ErrorID | Word | 16#0 |
| Done | Bool | false |
| Aborted | Bool | false |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## PD_Gx_STW

| PD_Gx_STW Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | PD_Gx_STW | **Number** | 1814 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| Reserved_Bit08 | Bool | false |
| Reserved_Bit09 | Bool | false |
| Reserved_Bit10 | Bool | false |
| Reserved_Bit11 | Bool | false |
| Reserved_Bit12 | Bool | false |
| AbsoluteValueCyclically | Bool | false |
| RequestParkingEncoder | Bool | false |
| AcknowledgeError | Bool | false |
| Function1Request | Bool | false |
| Function2Request | Bool | false |
| Function3Request | Bool | false |
| Function4Request | Bool | false |
| Command0Request | Bool | false |
| Command1Request | Bool | false |
| Command2Request | Bool | false |
| Mode | Bool | false |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## PD_STW2

| PD_STW2 Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | PD_STW2 | **Number** | 1812 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| TravelToFixedEndstop | Bool | false |
| Reserved_Bit09 | Bool | false |
| Reserved_Bit10 | Bool | false |
| MotorSwitchoverFinished | Bool | false |
| MasterSignOfLifeBit0 | Bool | false |
| MasterSignOfLifeBit1 | Bool | false |
| MasterSignOfLifeBit2 | Bool | false |
| MasterSignOfLifeBit3 | Bool | false |
| DriveDataSetSelectionBit0 | Bool | false |
| DriveDataSetSelectionBit1 | Bool | false |
| DriveDataSetSelectionBit2 | Bool | false |
| DriveDataSetSelectionBit3 | Bool | false |
| DriveDataSetSelectionBit4 | Bool | false |
| Reserved_Bit05 | Bool | false |
| Reserved_Bit06 | Bool | false |
| ParkingAxisSelection | Bool | false |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## PD_STW1

| PD_STW1 Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | PD_STW1 | **Number** | 1810 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| Reserved_Bit08 | Bool | false |
| Reserved_Bit09 | Bool | false |
| ControlByPlc | Bool | false |
| SetpointInversion | Bool | false |
| OpenHoldingBrake | Bool | false |
| RaiseMotorizedPotentiometerSetpoint | Bool | false |
| LowerMotorizedPotentiometerSetpoint | Bool | false |
| Reserved_Bit15 | Bool | false |
| On | Bool | false |
| NoCoastStop | Bool | false |
| NoQuickStop | Bool | false |
| EnableOperation | Bool | false |
| EnableRampGenerator | Bool | false |
| UnfreezeRampGenerator | Bool | false |
| EnableSetpoint | Bool | false |
| FaultAcknowledge | Bool | false |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## PD_TEL5_OUT

| PD_TEL5_OUT Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | PD_TEL5_OUT | **Number** | 1819 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| STW1 | PD_STW1 | |
| NSOLL_B | DWord | 16#0 |
| STW2 | PD_STW2 | |
| G1_STW | PD_Gx_STW | |
| XERR | DWord | 16#0 |
| KPC | DWord | 16#0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## PD_Gx_ZSW

| PD_Gx_ZSW Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | PD_Gx_ZSW | **Number** | 1815 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| Probe1Deflected | Bool | false |
| Probe2Deflected | Bool | false |
| Reserved_Bit10 | Bool | false |
| EncoderFaultAcknowledgeActive | Bool | false |
| HomePositionExecuted | Bool | false |
| AbsoluteValueCyclicallyExecuted | Bool | false |
| ParkingSensorExecuted | Bool | false |
| SensorError | Bool | false |
| Function1Active | Bool | false |
| Function2Active | Bool | false |
| Function3Active | Bool | false |
| Function4Active | Bool | false |
| Value1Available | Bool | false |
| Value2Available | Bool | false |
| Value3Available | Bool | false |
| Value4Available | Bool | false |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## PD_ZSW2

| PD_ZSW2 Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | PD_ZSW2 | **Number** | 1813 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| TravelToFixedEndStopActive | Bool | false |
| Reserved_Bit09 | Bool | false |
| PulsesEnabled | Bool | false |
| MotorDataSetChangeoverActive | Bool | false |
| SlaveSignOfLifeBit0 | Bool | false |
| SlaveSignOfLifeBit1 | Bool | false |
| SlaveSignOfLifeBit2 | Bool | false |
| SlaveSignOfLifeBit3 | Bool | false |
| DriveDataSetEffectiveBit0 | Bool | false |
| DriveDataSetEffectiveBit1 | Bool | false |
| DriveDataSetEffectiveBit2 | Bool | false |
| DriveDataSetEffectiveBit3 | Bool | false |
| DriveDataSetEffectiveBit4 | Bool | false |
| AlarmClassBit0 | Bool | false |
| AlarmClassBit1 | Bool | false |
| ParkingAxisActive | Bool | false |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## PD_ZSW1

| PD_ZSW1 Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | PD_ZSW1 | **Number** | 1811 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| NoSpeedDeviation | Bool | false |
| ControlRequested | Bool | false |
| SpeedComparisonValusReachedExeeded | Bool | false |
| TorqueLimitNotReached | Bool | false |
| OpenHoldingBrake | Bool | false |
| NoMotorOvertemperature | Bool | false |
| ActualSpeedPositive | Bool | false |
| NoPowerUnitOvertemperature | Bool | false |
| ReadyToSwitchOn | Bool | false |
| ReadyToOperate | Bool | false |
| OperationEnabled | Bool | false |
| FaultPresent | Bool | false |
| NoCoastStopActivated | Bool | false |
| NoQuickStopActivated | Bool | false |
| SwitchingOnInhibited | Bool | false |
| AlarmPresent | Bool | false |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC data types / System data types

## PD_TEL5_IN

| PD_TEL5_IN Properties | | | | | |
|---|---|---|---|---|---|
| **General** | | | | | |
| **Name** | PD_TEL5_IN | **Number** | 1818 | **Type** | UDT |
| **Language** | | **Numbering** | | | |
| **Information** | | | | | |
| **Title** | | **Author** | | **Comment** | |
| **Family** | | **Version** | | **User-defined ID** | |

| Name | Data type | Default value |
|---|---|---|
| ZSW1 | PD_ZSW1 | |
| NIST_B | DWord | 16#0 |
| ZSW2 | PD_ZSW2 | |
| G1_ZSW | PD_Gx_ZSW | |
| G1_XIST1 | DWord | 16#0 |
| G1_XIST2 | DWord | 16#0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / Watch and force tables

## Force table

| Name | Address | Display format | Force value |
|---|---|---|---|

# DeltaSpiralConv [CPU 1515T-2 PN] / Watch and force tables

## Watch table_1

| Name | Address | Display format | Modify value |
|---|---|---|---|
| "HMI_Data".HMI_I_Start | %DB11.DBX0.0 | Bool | |
| "HMI_Data".HMI_I_Stop | %DB11.DBX0.1 | Bool | |
| "HMI_Data".HMI_I_Reset | %DB11.DBX0.3 | Bool | |
| "HMI_Data".HMI_I_Clear | %DB11.DBX0.2 | Bool | |
| "LA_IDLE" | %M55.0 | Bool | |
| "LA_EXECUTE" | %M55.1 | Bool | |
| "LA_STOPPED" | %M55.2 | Bool | |
| "LA_ABORTED" | %M55.3 | Bool | |
| "HMI_Data".HMI_I_Mode-ChangeReq | %DB11.DBX0.6 | Bool | |
| "HMI_Data".HMI_I_ModeCmd | %DB11.DBD2 | DEC+/- | |
| "HMI_Data".HMI_I_JogPosi-tive | %DB11.DBX1.0 | Bool | |
| "HMI_Data".HMI_I_JogNega-tive | %DB11.DBX0.7 | Bool | |
| "HMI_Data".HMI_I_Select_Jo-gAxis | %DB11.DBD6 | DEC+/- | |
| "HMI_Data".HMI_I_Move-Speed | %DB11.DBD18 | Floating-point number | 70.0 |
| "HMI_Data".HMI_I_JerkTime | %DB11.DBD22 | Floating-point number | 25.0 |
| "HMI_Data".HMI_O_Global-StateCurrentName | P#DB11.DBX308.0 | String | |
| "HMI_Data".HMI_O_Global-ModeCurrentName | P#DB11.DBX52.0 | String | |
| "UN01".UP00_Proce-dure.Push | | Bool | |
| "HMI_Data".HMI_I_Select_Jo-gAxis | %DB11.DBD6 | DEC+/- | |
| "EM".Fault[1].EM_Major-Faults | %DB10.DBD90 | Hex | 16#0000_0000 |
| "EM".Fault[1].Sts_Err | %DB10.DBW102 | DEC+/- | 0 |
| "EM".Fault[1].MC_ErrorID | %DB10.DBW104 | Hex | 16#0000 |
| "EM01".CM00_EM_Proce-dure.Move_Jerk | | Floating-point number | |
| "Axis_01_J1".ActualPosition | | Floating-point number | |
| "Axis_02_J2".ActualPosition | | Floating-point number | |
| "Axis_03_J3".ActualPosition | | Floating-point number | |
| "Cart_Delt".Tcp.x | | Floating-point number | |
| "Cart_Delt".Tcp.y | | Floating-point number | |
| "Cart_Delt".Tcp.z | | Floating-point number | |
| "EM01".CM00_EM_Proce-dure.Wrk_EM_ProcedureStep | | DEC+/- | |
| "EM01".CM00_EM_Proce-dure.SIndex | | DEC+/- | |
| "EM01".CM00_EM_Proce-dure.Push_It | | Bool | TRUE |
| "EM01".CM00_EM_Proce-dure.BufferMode | | DEC+/- | 5 |

| Name | Address | Display format | Modify value |
|---|---|---|---|
| "EM01".CM00_EM_Procedure.RoundingClearance | | Floating-point number | |
| "EM01".CM00_EM_Procedure.JerkTime | | Floating-point number | |
| "EM01".CM00_EM_Procedure.Wrk_Move1_Pos[1] | | Floating-point number | -80.0 |
| "EM01".CM00_EM_Procedure.Wrk_Move1_Pos[2] | | Floating-point number | |
| "EM01".CM00_EM_Procedure.Wrk_Move1_Pos[3] | | Floating-point number | -450.0 |
| "EM01".CM02_01_Axis_J1.Axis.Cfg_HomePosition | | Floating-point number | |
| "Axis_04_R".ActualVelocity | | Floating-point number | |
| "Axis_10_Conv".ActualVelocity | | Floating-point number | |
| "Axis_10_Conv".ActualPosition | | Floating-point number | |
| "Cart_Delt".ErrorDetail.Number | | DEC | |
| "Cart_Delt".StatusConveyor[1].TrackingState | | DEC+/- | |
| "EM01".CM00_EM_Procedure.Wrk_Move5_Pos[3] | | Floating-point number | 30.0 |

# DeltaSpiralConv [CPU 1515T-2 PN]

## Traces

| Name |
| --- |
| Move_xyz |
| Move_Trans_BusyActiveDone |
| Move_Trans |

# DeltaSpiralConv [CPU 1515T-2 PN] / Traces / Measurements

## Move_Buff Mode 2 Jerk 25 WrongJerkCalc

| Signals | | | | |
|---|---|---|---|---|
| **Name** | **Data type** | **Address** | **Unit** | **Comment** |
| "Cart_Delt".Tcp.x | LReal | | mm | |
| "Cart_Delt".Tcp.y | LReal | | mm | |
| "Cart_Delt".Tcp.z | LReal | | mm | |
| "Axis_04_R".ActualVelocity | LReal | | °/s | |

| Snapshots | | |
|---|---|---|
| **Name** | **Time stamp** | **Comment** |

# DeltaSpiralConv [CPU 1515T-2 PN] / Traces / Measurements

## Move_Buff Mode 5 Jerk 25 WrongJerkCalc

| Signals | | | | |
|---|---|---|---|---|
| **Name** | **Data type** | **Address** | **Unit** | **Comment** |
| "Cart_Delt".Tcp.x | LReal | | mm | |
| "Cart_Delt".Tcp.y | LReal | | mm | |
| "Cart_Delt".Tcp.z | LReal | | mm | |
| "Axis_04_R".ActualVe-locity | LReal | | °/s | |

| Snapshots | | |
|---|---|---|
| **Name** | **Time stamp** | **Comment** |

# DeltaSpiralConv [CPU 1515T-2 PN] / Traces / Measurements

## Move_Buff Mode 2 Jerk 50 WrongJerkCalc

| Signals | | | | |
|---|---|---|---|---|
| **Name** | **Data type** | **Address** | **Unit** | **Comment** |
| "Cart_Delt".Tcp.x | LReal | | mm | |
| "Cart_Delt".Tcp.y | LReal | | mm | |
| "Cart_Delt".Tcp.z | LReal | | mm | |
| "Axis_04_R".ActualVe-locity | LReal | | °/s | |

| Snapshots | | |
|---|---|---|
| **Name** | **Time stamp** | **Comment** |

# DeltaSpiralConv [CPU 1515T-2 PN] / Traces / Measurements

## Move_Buff Mode 5 Jerk 50 WrongJerkCalc

| Signals | | | | |
|---|---|---|---|---|
| **Name** | **Data type** | **Address** | **Unit** | **Comment** |
| "Cart_Delt".Tcp.x | LReal | | mm | |
| "Cart_Delt".Tcp.y | LReal | | mm | |
| "Cart_Delt".Tcp.z | LReal | | mm | |
| "Axis_04_R".ActualVe-locity | LReal | | °/s | |

| Snapshots | | |
|---|---|---|
| **Name** | **Time stamp** | **Comment** |

# DeltaSpiralConv [CPU 1515T-2 PN] / Traces / Measurements

## Move_Buff Mode 5 Jerk 50 Vel100 WrongJerkCalc

| Signals | | | | |
|---|---|---|---|---|
| **Name** | **Data type** | **Address** | **Unit** | **Comment** |
| "Cart_Delt".Tcp.x | LReal | | mm | |
| "Cart_Delt".Tcp.y | LReal | | mm | |
| "Cart_Delt".Tcp.z | LReal | | mm | |
| "Axis_04_R".ActualVe-locity | LReal | | °/s | |

| Snapshots | | |
|---|---|---|
| **Name** | **Time stamp** | **Comment** |

# DeltaSpiralConv [CPU 1515T-2 PN] / Traces / Measurements

## Move_Buff Mode 2 Jerk 50 Vel 100 WrongJerkCalc

| Signals | | | | |
|---|---|---|---|---|
| **Name** | **Data type** | **Address** | **Unit** | **Comment** |
| "Cart_Delt".Tcp.x | LReal | | mm | |
| "Cart_Delt".Tcp.y | LReal | | mm | |
| "Cart_Delt".Tcp.z | LReal | | mm | |
| "Axis_04_R".ActualVe-locity | LReal | | °/s | |

| Snapshots | | |
|---|---|---|
| **Name** | **Time stamp** | **Comment** |

# DeltaSpiralConv [CPU 1515T-2 PN] / Traces / Measurements

## Move_Buff Mode 1 Jerk 25 Vel 100 WrongJerkCalc

| Signals | | | | |
|---|---|---|---|---|
| **Name** | **Data type** | **Address** | **Unit** | **Comment** |
| "Cart_Delt".Tcp.x | LReal | | mm | |
| "Cart_Delt".Tcp.y | LReal | | mm | |
| "Cart_Delt".Tcp.z | LReal | | mm | |
| "Axis_04_R".ActualVe-locity | LReal | | °/s | |

| Snapshots | | |
|---|---|---|
| **Name** | **Time stamp** | **Comment** |

# DeltaSpiralConv [CPU 1515T-2 PN] / Traces / Measurements

## Move_Buff Mode 1 Jerk 25 Vel 120 WrongJerkCalc

| Signals | | | | |
|---|---|---|---|---|
| **Name** | **Data type** | **Address** | **Unit** | **Comment** |
| "Cart_Delt".Tcp.x | LReal | | mm | |
| "Cart_Delt".Tcp.y | LReal | | mm | |
| "Cart_Delt".Tcp.z | LReal | | mm | |
| "Axis_04_R".ActualVe-locity | LReal | | °/s | |

| Snapshots | | |
|---|---|---|
| **Name** | **Time stamp** | **Comment** |

# DeltaSpiralConv [CPU 1515T-2 PN] / Traces / Measurements

## Move_Buff Mode 1 Jerk 10 Vel 120 WrongJerkCalc

| Signals | | | | |
|---|---|---|---|---|
| **Name** | **Data type** | **Address** | **Unit** | **Comment** |
| "Cart_Delt".Tcp.x | LReal | | mm | |
| "Cart_Delt".Tcp.y | LReal | | mm | |
| "Cart_Delt".Tcp.z | LReal | | mm | |
| "Axis_04_R".ActualVe-locity | LReal | | °/s | |

| Snapshots | | |
|---|---|---|
| **Name** | **Time stamp** | **Comment** |

# DeltaSpiralConv [CPU 1515T-2 PN] / Traces / Measurements

## Move_Buff Mode 5 Jerk 50 Vel 70

| Signals | | | | |
|---|---|---|---|---|
| **Name** | **Data type** | **Address** | **Unit** | **Comment** |
| "Cart_Delt".Tcp.x | LReal | | mm | |
| "Cart_Delt".Tcp.y | LReal | | mm | |
| "Cart_Delt".Tcp.z | LReal | | mm | |
| "Axis_04_R".ActualVelocity | LReal | | °/s | |

| Snapshots | | |
|---|---|---|
| **Name** | **Time stamp** | **Comment** |

# DeltaSpiralConv [CPU 1515T-2 PN] / Traces / Measurements

## Move_Buff Mode 1 Jerk 25 Vel 70

| Signals | | | | |
|---|---|---|---|---|
| **Name** | **Data type** | **Address** | **Unit** | **Comment** |
| "Cart_Delt".Tcp.x | LReal | | mm | |
| "Cart_Delt".Tcp.y | LReal | | mm | |
| "Cart_Delt".Tcp.z | LReal | | mm | |
| "Axis_04_R".ActualVe-locity | LReal | | °/s | |

| Snapshots | | |
|---|---|---|
| **Name** | **Time stamp** | **Comment** |

# DeltaSpiralConv [CPU 1515T-2 PN] / Traces / Measurements

## Move_Buff Mode 5 Jerk 25 Vel 70

| Signals | | | | |
|---|---|---|---|---|
| **Name** | **Data type** | **Address** | **Unit** | **Comment** |
| "Cart_Delt".Tcp.x | LReal | | mm | |
| "Cart_Delt".Tcp.y | LReal | | mm | |
| "Cart_Delt".Tcp.z | LReal | | mm | |
| "Axis_04_R".ActualVe-locity | LReal | | °/s | |

| Snapshots | | |
|---|---|---|
| **Name** | **Time stamp** | **Comment** |

# DeltaSpiralConv [CPU 1515T-2 PN] / Traces / Measurements

## Move_Buff Mode 5 Jerk 25 Vel 70 Text Chap9 Example

| Signals | | | | |
|---|---|---|---|---|
| **Name** | **Data type** | **Address** | **Unit** | **Comment** |
| "Cart_Delt".Tcp.x | LReal | | mm | |
| "Cart_Delt".Tcp.y | LReal | | mm | |
| "Cart_Delt".Tcp.z | LReal | | mm | |
| "Axis_04_R".ActualVe-locity | LReal | | °/s | |

| Snapshots | | |
|---|---|---|
| **Name** | **Time stamp** | **Comment** |

# DeltaSpiralConv [CPU 1515T-2 PN] / Traces

## Combined measurements

| Name |
| --- |

# DeltaSpiralConv [CPU 1515T-2 PN] / Traces / Long-term traces

## Measurements

This folder is empty.

# DeltaSpiralConv [CPU 1515T-2 PN] / Traces / Long-term traces

## Combined measurements

This folder is empty.

# DeltaSpiralConv [CPU 1515T-2 PN] / OPC UA communication

## Server interfaces

This folder is empty.

# DeltaSpiralConv [CPU 1515T-2 PN] / OPC UA communication

## Client interfaces

This folder is empty.

# DeltaSpiralConv [CPU 1515T-2 PN]

## Web applications

This folder is empty.

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC supervisions & alarms

## Supervisions

This folder is empty.

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC supervisions & alarms

## PLC alarms

| PLC alarms | | | | | |
|---|---|---|---|---|---|
| Name | Type | ID | Alarm text | Info text | Information only |
| MC Alarm | PLC alarm | | MC Alarm @1W%d@: $$CpuName$$ @2W%t#496K@: @1W%t#240K@ | | False |
| MC Alarm | PLC alarm | 65 | MC Alarm @1W%d@: $$CpuName$$ @2W%t#496K@: @1W%t#240K@ | | False |
| MC Fatal Alarm | PLC alarm | | MC Fatal Alarm @1W%d@: $$CpuName$$ @2W%t#496K@: @1W%t#240K@ | | False |
| MC Fatal Alarm | PLC alarm | 64 | MC Fatal Alarm @1W%d@: $$CpuName$$ @2W%t#496K@: @1W%t#240K@ | | False |
| MC Warning | PLC alarm | | MC Warning @1W%d@: $$CpuName$$ @2W%t#496K@: @1W%t#240K@ | | False |
| MC Warning | PLC alarm | 66 | MC Warning @1W%d@: $$CpuName$$ @2W%t#496K@: @1W%t#240K@ | | False |
| MC Alarm | PLC alarm | | MC Alarm @1W%d@: $$CpuName$$ @2W%t#496K@: @1W%t#240K@ | | False |
| MC Alarm | PLC alarm | 54 | MC Alarm @1W%d@: $$CpuName$$ @2W%t#496K@: @1W%t#240K@ | | False |
| MC Alarm | PLC alarm | 59 | MC Alarm @1W%d@: $$CpuName$$ @2W%t#496K@: @1W%t#240K@ | | False |
| MC Alarm | PLC alarm | 62 | MC Alarm @1W%d@: $$CpuName$$ @2W%t#496K@: @1W%t#240K@ | | False |
| MC Alarm | PLC alarm | 68 | MC Alarm @1W%d@: $$CpuName$$ @2W%t#496K@: @1W%t#240K@ | | False |
| MC Alarm | PLC alarm | 71 | MC Alarm @1W%d@: $$CpuName$$ @2W%t#496K@: @1W%t#240K@ | | False |
| MC Fatal Alarm | PLC alarm | | MC Fatal Alarm @1W%d@: $$CpuName$$ @2W%t#496K@: @1W%t#240K@ | | False |
| MC Fatal Alarm | PLC alarm | 53 | MC Fatal Alarm @1W%d@: $$CpuName$$ @2W%t#496K@: @1W%t#240K@ | | False |
| MC Fatal Alarm | PLC alarm | 58 | MC Fatal Alarm @1W%d@: $$CpuName$$ @2W%t#496K@: @1W%t#240K@ | | False |
| MC Fatal Alarm | PLC alarm | 61 | MC Fatal Alarm @1W%d@: $$CpuName$$ @2W%t#496K@: @1W%t#240K@ | | False |
| MC Fatal Alarm | PLC alarm | 67 | MC Fatal Alarm @1W%d@: $$CpuName$$ @2W%t#496K@: @1W%t#240K@ | | False |
| MC Fatal Alarm | PLC alarm | 70 | MC Fatal Alarm @1W%d@: $$CpuName$$ @2W%t#496K@: @1W%t#240K@ | | False |

| Name | Type | ID | Alarm text | Info text | Information only |
|---|---|---|---|---|---|
| MC Warning | PLC alarm | | MC Warning @1W%d@: $$CpuName$$ @2W%t#496K@: @1W%t#240K@ | | False |
| MC Warning | PLC alarm | 55 | MC Warning @1W%d@: $$CpuName$$ @2W%t#496K@: @1W%t#240K@ | | False |
| MC Warning | PLC alarm | 60 | MC Warning @1W%d@: $$CpuName$$ @2W%t#496K@: @1W%t#240K@ | | False |
| MC Warning | PLC alarm | 63 | MC Warning @1W%d@: $$CpuName$$ @2W%t#496K@: @1W%t#240K@ | | False |
| MC Warning | PLC alarm | 69 | MC Warning @1W%d@: $$CpuName$$ @2W%t#496K@: @1W%t#240K@ | | False |
| MC Warning | PLC alarm | 72 | MC Warning @1W%d@: $$CpuName$$ @2W%t#496K@: @1W%t#240K@ | | False |
| MC Alarm | PLC alarm | | MC Alarm @1W%d@: $$CpuName$$ @2W%t#496K@: @1W%t#240K@ | | False |
| MC Fatal Alarm | PLC alarm | | MC Fatal Alarm @1W%d@: $$CpuName$$ @2W%t#496K@: @1W%t#240K@ | | False |
| MC Warning | PLC alarm | | MC Warning @1W%d@: $$CpuName$$ @2W%t#496K@: @1W%t#240K@ | | False |
| MC Alarm | PLC alarm | | MC Alarm @1W%d@: $$CpuName$$ @2W%t#496K@: @1W%t#240K@ | | False |
| MC Fatal Alarm | PLC alarm | | MC Fatal Alarm @1W%d@: $$CpuName$$ @2W%t#496K@: @1W%t#240K@ | | False |
| MC Warning | PLC alarm | | MC Warning @1W%d@: $$CpuName$$ @2W%t#496K@: @1W%t#240K@ | | False |

# DeltaSpiralConv [CPU 1515T-2 PN] / PLC supervisions & alarms

## System alarms

| System alarms | | | | | |
|---|---|---|---|---|---|
| **Name** | **Type** | **ID** | **Alarm text** | **Info text** | **Information only** |
| SDIAG_ALCAT_CPU_INFO_MSG_000F | PLC alarm | 1 | CPU info: @1W%t#7W@ @5W%t#7W@ @6W%t#257K@ / @6W%t#258K@ @6W%t#262K@ @6W%t#263K@ @8W%t#7W@ | Short name: @6W%t#260K@ Order number: @6W%t#265K@ | True |
| SDIAG_ALCAT_CPU_ERR_MSG_0010 | PLC alarm | 2 | CPU error: @1W%t#7W@ @5W%t#7W@ @6W%t#257K@ / @6W%t#258K@ @6W%t#262K@ @6W%t#263K@ @8W%t#7W@ | Short name: @6W%t#260K@ Order number: @6W%t#265K@ | True |
| SDIAG_ALCAT_CPU_ERR_MSG_0110 | PLC alarm | 3 | CPU error: @1W%t#7W@ @5W%t#7W@ @6W%t#257K@ / @6W%t#258K@ @6W%t#262K@ @6W%t#263K@ @8W%t#7W@ | Short name: @6W%t#260K@ Order number: @6W%t#265K@ | False |
| SDIAG_ALCAT_CPU_MD_MSG_0011 | PLC alarm | 4 | CPU maintenance demanded: @1W%t#7W@ @6W%t#257K@ / @5W%t#7W@ @6W%t#258K@ @6W%t#262K@ @6W%t#263K@ @8W%t#7W@ | Short name: @6W%t#260K@ Order number: @6W%t#265K@ | True |
| SDIAG_ALCAT_CPU_MD_MSG_0111 | PLC alarm | 5 | CPU maintenance demanded: @1W%t#7W@ @6W%t#257K@ / @5W%t#7W@ @6W%t#258K@ @6W%t#262K@ @6W%t#263K@ @8W%t#7W@ | Short name: @6W%t#260K@ Order number: @6W%t#265K@ | False |
| SDIAG_ALCAT_CPU_MR_MSG1_0012 | PLC alarm | 6 | CPU maintenance required: @1W%t#7W@ @6W%t#257K@ / @5W%t#7W@ @6W%t#258K@ @6W%t#262K@ @6W%t#263K@ @8W%t#7W@ | Short name: @6W%t#260K@ Order number: @6W%t#265K@ | True |
| SDIAG_ALCAT_CPU_MR_MSG1_0112 | PLC alarm | 7 | CPU maintenance required: @1W%t#7W@ @6W%t#257K@ / @5W%t#7W@ @6W%t#258K@ @6W%t#262K@ @6W%t#263K@ @8W%t#7W@ | Short name: @6W%t#260K@ Order number: @6W%t#265K@ | False |
| SDIAG_ALCAT_CPU_TMPERR_MSG_0013 | PLC alarm | 8 | Temporary CPU error: @1W%t#7W@ @5W%t#7W@ @6W%t#257K@ / @6W%t#258K@ @6W%t#262K@ @6W%t#263K@ @8W%t#7W@ | Short name: @6W%t#260K@ Order number: @6W%t#265K@ | True |
| SDIAG_ALCAT_RACK_MSG_0004 | PLC alarm | 9 | Error: @1W%t#7W@ @5W%t#7W@ @6W%t#257K@ @6W%t#262K@ @6W%t#263K@ | Short name: @6W%t#260K@ Order number: @6W%t#265K@ | True |
| SDIAG_ALCAT_RACK_MSG_0104 | PLC alarm | 10 | Error: @1W%t#7W@ @5W%t#7W@ @6W%t#257K@ @6W%t#262K@ @6W%t#263K@ | Short name: @6W%t#260K@ Order number: @6W%t#265K@ | False |
| SDIAG_ALCAT_DEVICE_MSG_0005 | PLC alarm | 11 | Error: @1W%t#7W@ @5W%t#7W@ @6W%t#257K@ @6W%t#262K@ @6W%t#263K@ @8W%t#7W@ | Short name: @6W%t#260K@ Order number: @6W%t#265K@ | True |
| SDIAG_ALCAT_DEVICE_MSG_0105 | PLC alarm | 12 | Error: @1W%t#7W@ @5W%t#7W@ @6W%t#257K@ @6W%t#262K@ @6W%t#263K@ @8W%t#7W@ | Short name: @6W%t#260K@ Order number: @6W%t#265K@ | False |

| Name | Type | ID | Alarm text | Info text | Information only |
|---|---|---|---|---|---|
| SDIAG_ALCAT_IOSYSTEM_MSG_0006 | PLC alarm | 13 | Error: @1W%t#7W@ @5W%t#7W@ @6W%t#276K@ @6W%t#262K@ @6W%t#263K@ @8W%t#7W@ | Short name: @6W%t#260K@ Order number: @6W%t#265K@ | True |
| SDIAG_ALCAT_IOSYSTEM_MSG_0106 | PLC alarm | 14 | Error: @1W%t#7W@ @5W%t#7W@ @6W%t#276K@ @6W%t#262K@ @6W%t#263K@ @8W%t#7W@ | Short name: @6W%t#260K@ Order number: @6W%t#265K@ | False |
| SDIAG_ALCAT_MODUL_MSG_0003 | PLC alarm | 15 | Error: @1W%t#7W@ @5W%t#7W@ @6W%t#257K@ / @6W%t#258K@ @6W%t#262K@ @6W%t#263K@ | Short name: @6W%t#260K@ Order number: @6W%t#265K@ | True |
| SDIAG_ALCAT_MODUL_MSG_0103 | PLC alarm | 16 | Error: @1W%t#7W@ @5W%t#7W@ @6W%t#257K@ / @6W%t#258K@ @6W%t#262K@ @6W%t#263K@ | Short name: @6W%t#260K@ Order number: @6W%t#265K@ | False |
| SDIAG_ALCAT_SUBMODUL_MSG_0002 | PLC alarm | 17 | Error: @1W%t#7W@ @5W%t#7W@ @6W%t#257K@ / @6W%t#258K@.@6W%t#259K@ @6W%t#262K@ @6W%t#263K@ | Short name: @6W%t#260K@ Order number: @6W%t#265K@ | True |
| SDIAG_ALCAT_SUBMODUL_MSG_0102 | PLC alarm | 18 | Error: @1W%t#7W@ @5W%t#7W@ @6W%t#257K@ / @6W%t#258K@.@6W%t#259K@ @6W%t#262K@ @6W%t#263K@ | Short name: @6W%t#260K@ Order number: @6W%t#265K@ | False |
| SDIAG_ALCAT_CPU_OST_MSG_000D | PLC alarm | 19 | CPU status message: @1W%t#7W@ @5W%t#7W@ @6W%t#257K@ / @6W%t#258K@ @6W%t#262K@ @6W%t#263K@ @8W%t#7W@ | Short name: @6W%t#260K@ Order number: @6W%t#265K@ | True |
| SDIAG_ALCAT_CPU_OST_MSG_010D | PLC alarm | 20 | CPU status message: @1W%t#7W@ @5W%t#7W@ @6W%t#257K@ / @6W%t#258K@ @6W%t#262K@ @6W%t#263K@ @8W%t#7W@ | Short name: @6W%t#260K@ Order number: @6W%t#265K@ | False |
| SDIAG_ALCAT_PLC_MSG_00FF | PLC alarm | 21 | PLC notification: @1W%t#7W@ @5W%t#7W@ @6W%t#256K@ @6W%t#262K@ @6W%t#263K@ | Short name: @6W%t#260K@ Order number: @6W%t#265K@ | True |
| SDIAG_ALCAT_PLC_MSG_01FF | PLC alarm | 22 | PLC notification: @1W%t#7W@ @5W%t#7W@ @6W%t#256K@ @6W%t#262K@ @6W%t#263K@ | Short name: @6W%t#260K@ Order number: @6W%t#265K@ | False |
| SDIAG_ALCAT_CONFIG_REPORT_0029 | PLC alarm | 23 | Info: @1W%t#7W@ - @5W%t#7W@ @6W%t#257K@ / @6W%t#258K@ @6W%t#262K@ @6W%t#263K@ | Short name: @6W%t#260K@ Order number: @6W%t#265K@ | True |
| SDIAG_ALCAT_USER_MSG_0080 | PLC alarm | 24 | User message: @1W%t#2W@ | Short name: @6W%t#260K@ Order number: @6W%t#265K@ | True |
| SDIAG_ALCAT_SECU_EV_MSG_005E | PLC alarm | 25 | Security event: @1W%t#7W@ @5W%t#7W@ @6W%t#258K@ @6W%t#262K@ @6W%t#263K@ @8W%t#7W@ | Short name: @6W%t#260K@ Order number: @6W%t#265K@ | True |
| SDIAG_ALCAT_SECU_EV_INFO_005F | PLC alarm | 26 | Security information: @1W%t#7W@ @5W%t#7W@ @6W%t#258K@ @6W%t#262K@ @6W%t#263K@ @8W%t#7W@ | Short name: @6W%t#260K@ Order number: @6W%t#265K@ | True |

| Name | Type | ID | Alarm text | Info text | Information only |
|---|---|---|---|---|---|
| SDIAG_ALCAT_SUB_ERR_MSG_001E | PLC alarm | 27 | Error: @1W%t#7W@ @6W%t#257K@ / @6W%t#258K@.@6W%t#259K@ @6W%t#262K@ @6W%t#263K@ | Short name: @6W%t#260K@ Order number: @6W%t#265K@ | True |
| SDIAG_ALCAT_SUB_ERR_MSG_011E | PLC alarm | 28 | Error: @1W%t#7W@ @6W%t#257K@ / @6W%t#258K@.@6W%t#259K@ @6W%t#262K@ @6W%t#263K@ | Short name: @6W%t#260K@ Order number: @6W%t#265K@ | False |
| SDIAG_ALCAT_SUB_MD_MSG_0021 | PLC alarm | 29 | Maintenance demanded: @1W%t#7W@ @6W%t#257K@ / @6W%t#258K@.@6W%t#259K@ @6W%t#262K@ @6W%t#263K@ | Short name: @6W%t#260K@ Order number: @6W%t#265K@ | True |
| SDIAG_ALCAT_SUB_MD_MSG_0121 | PLC alarm | 30 | Maintenance demanded: @1W%t#7W@ @6W%t#257K@ / @6W%t#258K@.@6W%t#259K@ @6W%t#262K@ @6W%t#263K@ | Short name: @6W%t#260K@ Order number: @6W%t#265K@ | False |
| SDIAG_ALCAT_SUB_MR_MSG_0024 | PLC alarm | 31 | Maintenance required: @1W%t#7W@ @6W%t#257K@ / @6W%t#258K@.@6W%t#259K@ @6W%t#262K@ @6W%t#263K@ | Short name: @6W%t#260K@ Order number: @6W%t#265K@ | True |
| SDIAG_ALCAT_SUB_MR_MSG_0124 | PLC alarm | 32 | Maintenance required: @1W%t#7W@ @6W%t#257K@ / @6W%t#258K@.@6W%t#259K@ @6W%t#262K@ @6W%t#263K@ | Short name: @6W%t#260K@ Order number: @6W%t#265K@ | False |
| SDIAG_ALCAT_CH_ERR_MSG_0015 | PLC alarm | 33 | Error: @1W%t#7W@ on @8W%t#280K@ @6W%t#257K@ / @6W%t#258K@.@6W%t#259K@ @6W%t#262K@ @6W%t#263K@ | Short name: @6W%t#260K@ Order number: @6W%t#265K@ | True |
| SDIAG_ALCAT_CH_ERR_MSG_0115 | PLC alarm | 34 | Error: @1W%t#7W@ on @8W%t#280K@ @6W%t#257K@ / @6W%t#258K@.@6W%t#259K@ @6W%t#262K@ @6W%t#263K@ | Short name: @6W%t#260K@ Order number: @6W%t#265K@ | False |
| SDIAG_ALCAT_CH_MD_MSG_0018 | PLC alarm | 35 | Maintenance demanded:@1W%t#7W@ on @8W%t#280K@ @6W%t#257K@ / @6W%t#258K@.@6W%t#259K@ @6W%t#262K@ @6W%t#263K@ | Short name: @6W%t#260K@ Order number: @6W%t#265K@ | True |
| SDIAG_ALCAT_CH_MD_MSG_0118 | PLC alarm | 36 | Maintenance demanded:@1W%t#7W@ on @8W%t#280K@ @6W%t#257K@ / @6W%t#258K@.@6W%t#259K@ @6W%t#262K@ @6W%t#263K@ | Short name: @6W%t#260K@ Order number: @6W%t#265K@ | False |
| SDIAG_ALCAT_CH_MR_MSG_001B | PLC alarm | 37 | Maintenance required:@1W%t#7W@ on @8W%t#280K@ @6W%t#257K@ / @6W%t#258K@.@6W%t#259K@ @6W%t#262K@ @6W%t#263K@ | Short name: @6W%t#260K@ Order number: @6W%t#265K@ | True |
| SDIAG_ALCAT_CH_MR_MSG_011B | PLC alarm | 38 | Maintenance required:@1W%t#7W@ on @8W%t#280K@ @6W%t#257K@ / @6W%t#258K@.@6W%t#259K@ @6W%t#262K@ @6W%t#263K@ | Short name: @6W%t#260K@ Order number: @6W%t#265K@ | False |
| SDIAG_ALCAT_CONFIG_INFO_0028 | PLC alarm | 39 | Info: @1W%t#7W@ - @5W%t#7W@ @6W%t#257K@ @6W%t#262K@ @6W%t#263K@ @8W%t#7W@ | Short name: @6W%t#260K@ Order number: @6W%t#265K@ | True |
| SDIAG_ALCAT_CONFIG_INFO_0128 | PLC alarm | 40 | Info: @1W%t#7W@ - @5W%t#7W@ @6W%t#257K@ @6W%t#262K@ @6W%t#263K@ @8W%t#7W@ | Short name: @6W%t#260K@ Order number: @6W%t#265K@ | False |

| Name | Type | ID | Alarm text | Info text | Information only |
|---|---|---|---|---|---|
| SDIAG_ALCAT_ESUB_ERR_MSG_001F | PLC alarm | 41 | Error: @1W%t#7W@ - @5W%t#7W@ @6W%t#257K@ / @6W%t#258K@.@6W%t#259K@ @6W%t#262K@ @6W%t#263K@ | Short name: @6W%t#260K@ Order number: @6W%t#265K@ | True |
| SDIAG_ALCAT_ESUB_ERR_MSG_011F | PLC alarm | 42 | Error: @1W%t#7W@ - @5W%t#7W@ @6W%t#257K@ / @6W%t#258K@.@6W%t#259K@ @6W%t#262K@ @6W%t#263K@ | Short name: @6W%t#260K@ Order number: @6W%t#265K@ | False |
| SDIAG_ALCAT_ESUB_MD_MSG_0022 | PLC alarm | 43 | Maintenance demanded: @1W%t#7W@ - @5W%t#7W@ @6W%t#257K@ / @6W%t#258K@.@6W%t#259K@ @6W%t#262K@ @6W%t#263K@ | Short name: @6W%t#260K@ Order number: @6W%t#265K@ | True |
| SDIAG_ALCAT_ESUB_MD_MSG_0122 | PLC alarm | 44 | Maintenance demanded: @1W%t#7W@ - @5W%t#7W@ @6W%t#257K@ / @6W%t#258K@.@6W%t#259K@ @6W%t#262K@ @6W%t#263K@ | Short name: @6W%t#260K@ Order number: @6W%t#265K@ | False |
| SDIAG_ALCAT_ESUB_MR_MSG_0025 | PLC alarm | 45 | Maintenance required: @1W%t#7W@ - @5W%t#7W@ @6W%t#257K@ / @6W%t#258K@.@6W%t#259K@ @6W%t#262K@ @6W%t#263K@ | Short name: @6W%t#260K@ Order number: @6W%t#265K@ | True |
| SDIAG_ALCAT_ESUB_MR_MSG_0125 | PLC alarm | 46 | Maintenance required: @1W%t#7W@ - @5W%t#7W@ @6W%t#257K@ / @6W%t#258K@.@6W%t#259K@ @6W%t#262K@ @6W%t#263K@ | Short name: @6W%t#260K@ Order number: @6W%t#265K@ | False |
| SDIAG_ALCAT_ECH_ERR_MSG_0016 | PLC alarm | 47 | Error: @1W%t#7W@ - @5W%t#7W@ on @8W%t#280K@ @6W%t#257K@ / @6W%t#258K@.@6W%t#259K@ @6W%t#262K@ @6W%t#263K@ | Short name: @6W%t#260K@ Order number: @6W%t#265K@ | True |
| SDIAG_ALCAT_ECH_ERR_MSG_0116 | PLC alarm | 48 | Error: @1W%t#7W@ - @5W%t#7W@ on @8W%t#280K@ @6W%t#257K@ / @6W%t#258K@.@6W%t#259K@ @6W%t#262K@ @6W%t#263K@ | Short name: @6W%t#260K@ Order number: @6W%t#265K@ | False |
| SDIAG_ALCAT_ECH_MD_MSG_0019 | PLC alarm | 49 | Maintenance demanded:@1W%t#7W@ - @5W%t#7W@ on @8W%t#280K@ @6W%t#257K@ / @6W%t#258K@.@6W%t#259K@ @6W%t#262K@ @6W%t#263K@ | Short name: @6W%t#260K@ Order number: @6W%t#265K@ | True |
| SDIAG_ALCAT_ECH_MD_MSG_0119 | PLC alarm | 50 | Maintenance demanded:@1W%t#7W@ - @5W%t#7W@ on @8W%t#280K@ @6W%t#257K@ / @6W%t#258K@.@6W%t#259K@ @6W%t#262K@ @6W%t#263K@ | Short name: @6W%t#260K@ Order number: @6W%t#265K@ | False |
| SDIAG_ALCAT_ECH_MR_MSG_001C | PLC alarm | 51 | Maintenance required:@1W%t#7W@ - @5W%t#7W@ on @8W%t#280K@ @6W%t#257K@ / @6W%t#258K@.@6W%t#259K@ @6W%t#262K@ @6W%t#263K@ | Short name: @6W%t#260K@ Order number: @6W%t#265K@ | True |
| SDIAG_ALCAT_ECH_MR_MSG_011C | PLC alarm | 52 | Maintenance required:@1W%t#7W@ - @5W%t#7W@ on @8W%t#280K@ @6W%t#257K@ / @6W%t#258K@.@6W%t#259K@ @6W%t#262K@ @6W%t#263K@ | Short name: @6W%t#260K@ Order number: @6W%t#265K@ | False |
| SDIAG_ALCAT_SUBMODUL_MAN_SPEC_002F | PLC alarm | 56 | Error (vendor-specific): @1W%t#7W@ @6W%t#257K@ / @6W%t#258K@.@6W%t#259K@ @6W%t#262K@ @6W%t#263K@ | Short name: @6W%t#260K@ Order number: @6W%t#265K@ | True |
| SDIAG_ALCAT_SUBMODUL_MAN_SPEC_012F | PLC alarm | 57 | Error (vendor-specific): @1W%t#7W@ @6W%t#257K@ / @6W%t#258K@.@6W%t#259K@ @6W%t#262K@ @6W%t#263K@ | Short name: @6W%t#260K@ Order number: @6W%t#265K@ | False |

# DeltaSpiralConv [CPU 1515T-2 PN]

## PLC alarm text lists

| SYSTEM_Motion_101_2 | | | |
|---|---|---|---|
| **Selection** | Decimal | **ID** | 4095 |
| **Comment** | | | |

**Text list entries of SYSTEM_Motion_101_2**

| Range from | Range to | Entry |
|---|---|---|
| 1 | 1 | Faulty load gear factors. |
| 2 | 2 | Illegal value in Actor.DriveParameter.MaxSpeed. |
| 3 | 3 | Illegal value in DynamicLimits.MaxVelocity. |
| 4 | 4 | Illegal value in DynamicLimits.MaxAcceleration. |
| 5 | 5 | Illegal value in Mechanics.Leadscrew. |
| 6 | 6 | Illegal combination for homing data with incremental encoder. |
| 7 | 7 | Illegal value in Sensor.MountingMode. |
| 8 | 8 | Illegal value in Sensor.Parameter.DistancePerRevolution. |
| 9 | 9 | Illegal value in Sensor.Parameter.Resolution. |
| 10 | 10 | Illegal value in Sensor.Parameter.StepsPerRevolution. |
| 11 | 11 | Illegal value in Sensor.Parameter.FineResolutionXist1. |
| 12 | 12 | Values in Sensor.Parameter.FineResolutionXist1 and p979 not equal. |
| 13 | 13 | Illegal value in Actor.Interface.Telegram. |
| 14 | 14 | Illegal value in Sensor.Type. |
| 15 | 15 | Illegal value in Sensor.System. |
| 16 | 16 | Illegal value in Sensor.ActiveHoming.HomePositionOffset. |
| 17 | 17 | Illegal value in PositioningMonitoring.MinDwellTime. |
| 18 | 18 | Illegal value in PositioningMonitoring.Window. |
| 19 | 19 | Illegal value in Sensor.ActiveHoming.Mode. |
| 20 | 20 | Illegal value in Sensor.PassiveHoming.Mode. |
| 21 | 21 | Illegal value in Sensor.Interface.Telegram. |
| 22 | 22 | Controller parameter is incorrect. |
| 23 | 23 | Illegal value for StandStillSignal.VelocityThreshold. |
| 24 | 24 | Illegal value in PositioningMonitoring.ToleranceTime. |
| 25 | 25 | Illegal value in Actor.Type. |
| 26 | 26 | PROFIBUS parameter assignment inconsistent. Sum of Ti and To greater than send clock. |
| 27 | 27 | Illegal value in StandStillSignal.MinDwellTime. |

| Range from | Range to | Entry |
|---|---|---|
| 28 | 28 | Illegal value in FollowingError.MinValue. |
| 29 | 29 | Drive or drive telegram type or encoder not suitable for DSC. |
| 30 | 30 | Illegal value in DynamicLimits.MaxJerk. |
| 31 | 31 | Illegal value in DynamicLimits.MaxDeceleration. |
| 32 | 32 | Illegal value in Modulo.Length. |
| 33 | 33 | Illegal value in Modulo.StartValue. |
| 34 | 34 | Illegal value in Actor.DriveParameter.ReferenceSpeed. |
| 35 | 35 | Illegal value in Sensor.Parameter.FineResolutionXist2. |
| 36 | 36 | Illegal value in Sensor.Parameter.DeterminableRevolutions. |
| 37 | 37 | Illegal value in Sensor.PassiveHoming.Direction. |
| 38 | 38 | Illegal value in DynamicDefaults.Velocity. |
| 39 | 39 | Illegal value in DynamicDefaults.Acceleration. |
| 40 | 40 | Illegal value in DynamicDefaults.Deceleration. |
| 41 | 41 | Illegal value in DynamicDefaults.Jerk. |
| 42 | 42 | Illegal value in DynamicDefaults.EmergencyDeceleration. |
| 43 | 43 | Illegal value in PositionLimits_SW.MinPosition. |
| 44 | 44 | Illegal value in PositionLimits_SW.MaxPosition. |
| 45 | 45 | Illegal value in Sensor.ActiveHoming.Direction. |
| 46 | 46 | Illegal value in Homing.ApproachVelocity. |
| 47 | 47 | Illegal value in Homing.ReferencingVelocity. |
| 48 | 48 | Illegal value in Homing.HomePosition. |
| 49 | 49 | Illegal value in FollowingError.MaxValue. |
| 50 | 50 | Illegal value in FollowingError.MinVelocity. |
| 51 | 51 | Illegal value in FollowingError.WarningLevel. |
| 52 | 52 | Illegal value in PositionControl.Kpc. |
| 53 | 53 | Parameter timeout outside limits. |
| 54 | 54 | Illegal value in Simulation. |
| 55 | 55 | Illegal value in Actor.Interface.AddressIn. |
| 56 | 56 | Illegal value in Actor.Interface.AddressIn.RID. |
| 57 | 57 | Illegal value in VREF Actor.Interface.AddressOut. |
| 58 | 58 | Illegal value in Actor.Interface.AddressOut.RID. |
| 59 | 59 | Telegram in Actor.Interface.AddressIn and AddressOut not equal. |
| 60 | 60 | Illegal value in Sensor[].Interface.AddressIn. |
| 61 | 61 | Illegal value in Sensor.Interface.AddressIn.RID. |

| Range from | Range to | Entry |
|---|---|---|
| 62 | 62 | Illegal value in Sensor[].Interface.AddressOut. |
| 63 | 63 | Illegal value in Sensor.Interface.AddressOut.RID. |
| 64 | 64 | Telegram in Sensor.Interface.AddressIn and AddressOut not equal. |
| 65 | 65 | Illegal value in Sensor.ActiveHoming.DigitalInputAddress. |
| 66 | 66 | Illegal value in Sensor.PassiveHoming.DigitalInputAddress. |
| 67 | 67 | Illegal value in PositionLimits_HW.MaxSwitchAddress. |
| 68 | 68 | Illegal value in PositionLimits_HW.MinSwitchAddress. |
| 69 | 69 | Illegal value in Actor.Interface.EnableDriveOutputAddress. |
| 70 | 70 | Illegal value in Actor.Interface.DriveReadyInputAddress. |
| 85 | 85 | Illegal value in Sensor[].DataAdaption. |
| 86 | 86 | Illegal value in Actor.DataAdaption. |
| 98 | 98 | Illegal value for the configuration data element Clamping.FollowingErrorDeviation. |
| 99 | 99 | Illegal value in Clamping.PositionTolerance. |
| 100 | 100 | Illegal value for VirtualAxis.Mode. |
| 101 | 101 | Illegal value for Actor.Efficiency. |
| 102 | 102 | Illegal value in Sensor.Interface.Number. |
| 103 | 103 | Illegal value in Actor.InitialOperativeSensor. |
| 104 | 104 | Illegal value in Sensor[N].Existent. |
| 105 | 105 | At least one encoder required. Sensor[].existent. |
| 106 | 106 | Sensor[1] must be configured for DSC. |
| 119 | 119 | Illegal value in PositionControl.ControlDifferenceQuantization.Mode. |
| 120 | 120 | Illegal value in PositionControl.ControlDifferenceQuantization.Value. |
| 121 | 121 | Illegal value in PositionControl.SmoothingTimeByChangeDifference. |
| 122 | 122 | Illegal value in Override.Velocity. |
| 123 | 123 | Illegal value in Actor.DriveParameter.ReferenceTorque. |
| 124 | 124 | Illegal value in TorqueLimiting.LimitBase. |
| 125 | 125 | Illegal value in TorqueLimiting.PositionBasedMonitorings. |
| 126 | 126 | Illegal value in TorqueLimiting.LimitDefaults.Force. |
| 127 | 127 | Illegal value in TorqueLimiting.LimitDefaults.Torque. |
| 128 | 128 | Illegal value in Extrapolation.FollowingAxisDependentTime. |
| 129 | 129 | Illegal value in Extrapolation.PositionFilter.T1. |
| 130 | 130 | Illegal value in Extrapolation.PositionFilter.T2. |

| Range from | Range to | Entry |
|---|---|---|
| 131 | 131 | Illegal value in Extrapolation.VelocityFilter.T1. |
| 132 | 132 | Illegal value in Extrapolation.Hysteresis.Value. |
| 133 | 133 | Illegal value in Extrapolation.VelocityTolerance.Range. |
| 134 | 134 | Illegal value in DynamicAxisModel.VelocityTimeConstant. |
| 135 | 135 | Encoder position cannot be displayed because of the encoder configuration/mechanics. |
| 487 | 487 | Invalid value in Actor.Interface.EnableTorqueData. |
| 488 | 488 | Invalid value in VREF Actor.Interface.TorqueDataAddressIn. |
| 489 | 489 | Invalid value in VREF Actor.Interface.TorqueDataAddressOut. |
| 490 | 490 | Illegal value in DynamicLimits.Velocity. |
| 491 | 491 | Technology data block is only possible with digital drive coupling. |
| 493 | 493 | The VREF of the analog output or the bit drivers are assigned multiple times. |
| 494 | 494 | Illegal value in Sensor[N].BehaviourGx_XIST1. |
| 495 | 495 | Illegal value in Extrapolation.Settings.SystemDefinedExtrapolation. |
| 496 | 496 | Illegal value in Extrapolation.Settings.ExtrapolatedVelocityMode. |
| 497 | 497 | Illegal value in Extrapolation.VelocityFilter.T2. |
| 498 | 498 | Illegal value in CrossPlcSynchronousOperation.Interface.EnableLeadingValueOutput. |
| 499 | 499 | Illegal value in CrossPlcSynchronousOperation.Interface.LocalLeadingValueDelayTime. |
| 500 | 500 | Illegal value in CrossPlcSynchronousOperation.Interface.AddressOut. |
| 504 | 504 | Value in Sensor.ActualVelocityMode invalid. |
| 505 | 505 | Value in Sensor.Parameter.ReferenceSpeed or .ReferenceVelocity invalid. |
| 506 | 506 | Value in Sensor.Backlash.<variable> invalid. |
| 507 | 507 | Backlash compensation not permitted with encoder on load side. |
| 508 | 508 | Illegal value in Sensor.Parameter.ActualVelocityMode or Sensor.Interface.Address[In,Out].Rid. Read actual speed value NIST with telegram 83. |
| 509 | 509 | Linear encoder on rotary drive system (Sensor.System) not permitted. |
| 564 | 564 | Illegal value for EmergencyDeceleration. |
| 578 | 578 | Illegal value in PositionLimits_HW.ApproachBehaviour |
| 579 | 579 | Illegal value in PositionLimits_HW.Mode |
| 580 | 580 | Illegal value in Actor.MotorType. |

| Range from | Range to | Entry |
|---|---|---|
| 581 | 581 | Illegal value in PositionLimits_SW.Limit-ReachedBehaviour. |
| 582 | 582 | Illegal value in PositionLimits_SW.LimitEx-ceededBehaviour. |
| 583 | 583 | Illegal value in SetpointFilter.DynamicFil-ter.Mode. |
| 584 | 584 | Illegal value in SetpointFilter.DynamicFil-ter.T1. |
| 585 | 585 | Illegal value in SetpointFilter.DynamicFil-ter.T2. |
| 586 | 586 | Illegal value in SetpointFilter.DynamicFil-ter.Tt. |
| 587 | 587 | Illegal value in PositionControl.VelocityMo-dePowerOn. |
| 588 | 588 | Illegal value in DynamicAxisModel.Additio-nalPositionTimeConstant. |
| 589 | 589 | Illegal value in FollowingError.Additional-SetpointDelayTime. |
| 590 | 590 | Illegal value in Actor.LinearMotorDrivePara-meter.ReferenceForce. |
| 592 | 592 | Illegal value in Actor.LinearMotorDrivePara-meter.ReferenceVelocity. |
| 593 | 593 | Illegal value in Actor.LinearMotorDrivePara-meter.MaxVelocity. |
| 619 | 619 | Illegal value in Sensor.MeasuringGear.Nu-merator |
| 620 | 620 | Illegal value in Actor.LoadInertia. |
| 621 | 621 | Illegal value in Actor.RemoveEnableReac-tion. |
| 622 | 622 | Illegal value in TorquePreControl.Mode. |
| 623 | 623 | Illegal value in TorquePreControl.Scale. |
| 625 | 625 | Illegal value in Actor.LinearmotorDriveDa-ta.MotorMass. |
| 626 | 626 | Illegal value in Actor.DriveData.MotorIner-tia |
| 627 | 627 | Illegal value in DynamicAxisModel.Current-TimeConstant. |
| 629 | 629 | Illegal value in Sensor.MeasuringGear.De-nominator |
| 885 | 885 | Incremental value range of the encod-er too large. Value in Sensor[N].Pa-rameter.Resolution or .FineResolutionXist1 or .DeterminableRevolutions invalid |
| 886 | 886 | Data length of the actual encoder value without fine resolution too large. Value in Sensor[N].Parameter.Resolution or .De-terminableRevolutions invalid |
| 152 | 152 | Illegal value for KcsFrame.x. |
| 153 | 153 | Illegal value for KcsFrame.y. |
| 154 | 154 | Illegal value for KcsFrame.z. |
| 155 | 155 | Illegal value for KcsFrame.a. |
| 156 | 156 | Illegal value for KcsFrame.b. |
| 157 | 157 | Illegal value for KcsFrame.c. |
| 158 | 158 | Illegal value for OcsFrame[1].x. |
| 159 | 159 | Illegal value for OcsFrame[1].y. |
| 160 | 160 | Illegal value for OcsFrame[1].z. |

| Range from | Range to | Entry |
|---|---|---|
| 161 | 161 | Illegal value for OcsFrame[1].a. |
| 162 | 162 | Illegal value for OcsFrame[1].b. |
| 163 | 163 | Illegal value for OcsFrame[1].c. |
| 164 | 164 | Illegal value for OcsFrame[2].x. |
| 165 | 165 | Illegal value for OcsFrame[2].y. |
| 166 | 166 | Illegal value for OcsFrame[2].z. |
| 167 | 167 | Illegal value for OcsFrame[2].a. |
| 168 | 168 | Illegal value for OcsFrame[2].b. |
| 169 | 169 | Illegal value for OcsFrame[2].c. |
| 170 | 170 | Illegal value for OcsFrame[3].x. |
| 171 | 171 | Illegal value for OcsFrame[3].y. |
| 172 | 172 | Illegal value for OcsFrame[3].z. |
| 173 | 173 | Illegal value for OcsFrame[3].a. |
| 174 | 174 | Illegal value for OcsFrame[3].b. |
| 175 | 175 | Illegal value for OcsFrame[3].c. |
| 176 | 176 | Illegal value for Tool[1].Frame.x. |
| 177 | 177 | Illegal value for Tool[1].Frame.y. |
| 178 | 178 | Illegal value for Tool[1].Frame.z. |
| 179 | 179 | Illegal value for Tool[1].Frame.a. |
| 180 | 180 | Illegal value for Tool[2].Frame.x. |
| 181 | 181 | Illegal value for Tool[2].Frame.y. |
| 182 | 182 | Illegal value for Tool[2].Frame.z. |
| 183 | 183 | Illegal value for Tool[2].Frame.a. |
| 184 | 184 | Illegal value for Tool[3].Frame.x. |
| 185 | 185 | Illegal value for Tool[3].Frame.y. |
| 186 | 186 | Illegal value for Tool[3].Frame.z. |
| 187 | 187 | Illegal value for Tool[3].Frame.a. |
| 188 | 188 | Illegal value for WorkspaceZone[1].Geometry.Parameter[1]. |
| 189 | 189 | Illegal value for WorkspaceZone[1].Geometry.Parameter[2]. |
| 190 | 190 | Illegal value for WorkspaceZone[1].Geometry.Parameter[3]. |
| 191 | 191 | Illegal value for WorkspaceZone[1].Frame.x. |
| 192 | 192 | Illegal value for WorkspaceZone[1].Frame.y. |
| 193 | 193 | Illegal value for WorkspaceZone[1].Frame.z. |
| 194 | 194 | Illegal value for WorkspaceZone[1].Frame.a. |
| 195 | 195 | Illegal value for WorkspaceZone[1].Frame.b. |
| 196 | 196 | Illegal value for WorkspaceZone[1].Frame.c. |
| 197 | 197 | Illegal value for WorkspaceZone[1].Valid. |
| 198 | 198 | Illegal value for WorkspaceZone[1].Type. |
| 199 | 199 | Illegal value for WorkspaceZone[1].Reference. |
| 200 | 200 | Illegal value for WorkspaceZone[1].Geometry.Type. |
| 201 | 201 | Illegal value for WorkspaceZone[1].Active. |
| 202 | 202 | Illegal value for WorkspaceZone[2].Geometry.Parameter[1]. |

| Range from | Range to | Entry |
|---|---|---|
| 203 | 203 | Illegal value for WorkspaceZone[2].Geometry.Parameter[2]. |
| 204 | 204 | Illegal value for WorkspaceZone[2].Geometry.Parameter[3]. |
| 205 | 205 | Illegal value for WorkspaceZone[2].Frame.x. |
| 206 | 206 | Illegal value for WorkspaceZone[2].Frame.y. |
| 207 | 207 | Illegal value for WorkspaceZone[2].Frame.z. |
| 208 | 208 | Illegal value for WorkspaceZone[2].Frame.a. |
| 209 | 209 | Illegal value for WorkspaceZone[2].Frame.b. |
| 210 | 210 | Illegal value for WorkspaceZone[2].Frame.c. |
| 211 | 211 | Illegal value for WorkspaceZone[2].Valid. |
| 212 | 212 | Illegal value for WorkspaceZone[2].Type. |
| 213 | 213 | Illegal value for WorkspaceZone[2].Reference. |
| 214 | 214 | Illegal value for WorkspaceZone[2].Geometry.Type. |
| 215 | 215 | Illegal value for WorkspaceZone[2].Active. |
| 216 | 216 | Illegal value for WorkspaceZone[3].Geometry.Parameter[1]. |
| 217 | 217 | Illegal value for WorkspaceZone[3].Geometry.Parameter[2]. |
| 218 | 218 | Illegal value for WorkspaceZone[3].Geometry.Parameter[3]. |
| 219 | 219 | Illegal value for WorkspaceZone[3].Frame.x. |
| 220 | 220 | Illegal value for WorkspaceZone[3].Frame.y. |
| 221 | 221 | Illegal value for WorkspaceZone[3].Frame.z. |
| 222 | 222 | Illegal value for WorkspaceZone[3].Frame.a. |
| 223 | 223 | Illegal value for WorkspaceZone[3].Frame.b. |
| 224 | 224 | Illegal value for WorkspaceZone[3].Frame.c. |
| 225 | 225 | Illegal value for WorkspaceZone[3].Valid. |
| 226 | 226 | Illegal value for WorkspaceZone[3].Type. |
| 227 | 227 | Illegal value for WorkspaceZone[3].Reference. |
| 228 | 228 | Illegal value for WorkspaceZone[3].Geometry.Type. |
| 229 | 229 | Illegal value for WorkspaceZone[3].Active. |
| 230 | 230 | Illegal value for WorkspaceZone[4].Geometry.Parameter[1]. |
| 231 | 231 | Illegal value for WorkspaceZone[4].Geometry.Parameter[2]. |
| 232 | 232 | Illegal value for WorkspaceZone[4].Geometry.Parameter[3]. |
| 233 | 233 | Illegal value for WorkspaceZone[4].Frame.x. |

| Range from | Range to | Entry |
|---|---|---|
| 234 | 234 | Illegal value for Workspace-Zone[4].Frame.y. |
| 235 | 235 | Illegal value for Workspace-Zone[4].Frame.z. |
| 236 | 236 | Illegal value for Workspace-Zone[4].Frame.a. |
| 237 | 237 | Illegal value for Workspace-Zone[4].Frame.b. |
| 238 | 238 | Illegal value for Workspace-Zone[4].Frame.c. |
| 239 | 239 | Illegal value for WorkspaceZone[4].Valid. |
| 240 | 240 | Illegal value for WorkspaceZone[4].Type. |
| 241 | 241 | Illegal value for WorkspaceZone[4].Refer-ence. |
| 242 | 242 | Illegal value for WorkspaceZone[4].Geome-try.Type. |
| 243 | 243 | Illegal value for WorkspaceZone[4].Active. |
| 244 | 244 | Illegal value for WorkspaceZone[5].Geome-try.Parameter[1]. |
| 245 | 245 | Illegal value for WorkspaceZone[5].Geome-try.Parameter[2]. |
| 246 | 246 | Illegal value for WorkspaceZone[5].Geome-try.Parameter[3]. |
| 247 | 247 | Illegal value for Workspace-Zone[5].Frame.x. |
| 248 | 248 | Illegal value for Workspace-Zone[5].Frame.y. |
| 249 | 249 | Illegal value for Workspace-Zone[5].Frame.z. |
| 250 | 250 | Illegal value for Workspace-Zone[5].Frame.a. |
| 251 | 251 | Illegal value for Workspace-Zone[5].Frame.b. |
| 252 | 252 | Illegal value for Workspace-Zone[5].Frame.c. |
| 253 | 253 | Illegal value for WorkspaceZone[5].Valid. |
| 254 | 254 | Illegal value for WorkspaceZone[5].Type. |
| 255 | 255 | Illegal value for WorkspaceZone[5].Refer-ence. |
| 256 | 256 | Illegal value for WorkspaceZone[5].Geome-try.Type. |
| 257 | 257 | Illegal value for WorkspaceZone[5].Active. |
| 258 | 258 | Illegal value for WorkspaceZone[6].Geome-try.Parameter[1]. |
| 259 | 259 | Illegal value for WorkspaceZone[6].Geome-try.Parameter[2]. |
| 260 | 260 | Illegal value for WorkspaceZone[6].Geome-try.Parameter[3]. |
| 261 | 261 | Illegal value for Workspace-Zone[6].Frame.x. |
| 262 | 262 | Illegal value for Workspace-Zone[6].Frame.y. |
| 263 | 263 | Illegal value for Workspace-Zone[6].Frame.z. |
| 264 | 264 | Illegal value for Workspace-Zone[6].Frame.a. |

| Range from | Range to | Entry |
|---|---|---|
| 265 | 265 | Illegal value for WorkspaceZone[6].Frame.b. |
| 266 | 266 | Illegal value for WorkspaceZone[6].Frame.c. |
| 267 | 267 | Illegal value for WorkspaceZone[6].Valid. |
| 268 | 268 | Illegal value for WorkspaceZone[6].Type. |
| 269 | 269 | Illegal value for WorkspaceZone[6].Reference. |
| 270 | 270 | Illegal value for WorkspaceZone[6].Geometry.Type. |
| 271 | 271 | Illegal value for WorkspaceZone[6].Active. |
| 272 | 272 | Illegal value for WorkspaceZone[7].Geometry.Parameter[1]. |
| 273 | 273 | Illegal value for WorkspaceZone[7].Geometry.Parameter[2]. |
| 274 | 274 | Illegal value for WorkspaceZone[7].Geometry.Parameter[3]. |
| 275 | 275 | Illegal value for WorkspaceZone[7].Frame.x. |
| 276 | 276 | Illegal value for WorkspaceZone[7].Frame.y. |
| 277 | 277 | Illegal value for WorkspaceZone[7].Frame.z. |
| 278 | 278 | Illegal value for WorkspaceZone[7].Frame.a. |
| 279 | 279 | Illegal value for WorkspaceZone[7].Frame.b. |
| 280 | 280 | Illegal value for WorkspaceZone[7].Frame.c. |
| 281 | 281 | Illegal value for WorkspaceZone[7].Valid. |
| 282 | 282 | Illegal value for WorkspaceZone[7].Type. |
| 283 | 283 | Illegal value for WorkspaceZone[7].Reference. |
| 284 | 284 | Illegal value for WorkspaceZone[7].Geometry.Type. |
| 285 | 285 | Illegal value for WorkspaceZone[7].Active. |
| 286 | 286 | Illegal value for WorkspaceZone[8].Geometry.Parameter[1]. |
| 287 | 287 | Illegal value for WorkspaceZone[8].Geometry.Parameter[2]. |
| 288 | 288 | Illegal value for WorkspaceZone[8].Geometry.Parameter[3]. |
| 289 | 289 | Illegal value for WorkspaceZone[8].Frame.x. |
| 290 | 290 | Illegal value for WorkspaceZone[8].Frame.y. |
| 291 | 291 | Illegal value for WorkspaceZone[8].Frame.z. |
| 292 | 292 | Illegal value for WorkspaceZone[8].Frame.a. |
| 293 | 293 | Illegal value for WorkspaceZone[8].Frame.b. |
| 294 | 294 | Illegal value for WorkspaceZone[8].Frame.c. |
| 295 | 295 | Illegal value for WorkspaceZone[8].Valid. |
| 296 | 296 | Illegal value for WorkspaceZone[8].Type. |

| Range from | Range to | Entry |
|---|---|---|
| 297 | 297 | Illegal value for WorkspaceZone[8].Reference. |
| 298 | 298 | Illegal value for WorkspaceZone[8].Geometry.Type. |
| 299 | 299 | Illegal value for WorkspaceZone[8].Active. |
| 300 | 300 | Illegal value for WorkspaceZone[9].Geometry.Parameter[1]. |
| 301 | 301 | Illegal value for WorkspaceZone[9].Geometry.Parameter[2]. |
| 302 | 302 | Illegal value for WorkspaceZone[9].Geometry.Parameter[3]. |
| 303 | 303 | Illegal value for WorkspaceZone[9].Frame.x. |
| 304 | 304 | Illegal value for WorkspaceZone[9].Frame.y. |
| 305 | 305 | Illegal value for WorkspaceZone[9].Frame.z. |
| 306 | 306 | Illegal value for WorkspaceZone[9].Frame.a. |
| 307 | 307 | Illegal value for WorkspaceZone[9].Frame.b. |
| 308 | 308 | Illegal value for WorkspaceZone[9].Frame.c. |
| 309 | 309 | Illegal value for WorkspaceZone[9].Valid. |
| 310 | 310 | Illegal value for WorkspaceZone[9].Type. |
| 311 | 311 | Illegal value for WorkspaceZone[9].Reference. |
| 312 | 312 | Illegal value for WorkspaceZone[9].Geometry.Type. |
| 313 | 313 | Illegal value for WorkspaceZone[9].Active. |
| 314 | 314 | Illegal value for WorkspaceZone[10].Geometry.Parameter[1]. |
| 315 | 315 | Illegal value for WorkspaceZone[10].Geometry.Parameter[2]. |
| 316 | 316 | Illegal value for WorkspaceZone[10].Geometry.Parameter[3]. |
| 317 | 317 | Illegal value for WorkspaceZone[10].Frame.x. |
| 318 | 318 | Illegal value for WorkspaceZone[10].Frame.y. |
| 319 | 319 | Illegal value for WorkspaceZone[10].Frame.z. |
| 320 | 320 | Illegal value for WorkspaceZone[10].Frame.a. |
| 321 | 321 | Illegal value for WorkspaceZone[10].Frame.b. |
| 322 | 322 | Illegal value for WorkspaceZone[10].Frame.c. |
| 323 | 323 | Illegal value for WorkspaceZone[10].Valid. |
| 324 | 324 | Illegal value for WorkspaceZone[10].Type. |
| 325 | 325 | Illegal value for WorkspaceZone[10].Reference. |
| 326 | 326 | Illegal value for WorkspaceZone[10].Geometry.Type. |
| 327 | 327 | Illegal value for WorkspaceZone[10].Active. |

| Range from | Range to | Entry |
|---|---|---|
| 328 | 328 | Illegal value for KinematicsZone[2].Geometry.Parameter[1]. |
| 329 | 329 | Illegal value for KinematicsZone[2].Geometry.Parameter[2]. |
| 330 | 330 | Illegal value for KinematicsZone[2].Geometry.Parameter[3]. |
| 331 | 331 | Illegal value for KinematicsZone[2].Frame.x. |
| 332 | 332 | Illegal value for KinematicsZone[2].Frame.y. |
| 333 | 333 | Illegal value for KinematicsZone[2].Frame.z. |
| 334 | 334 | Illegal value for KinematicsZone[2].Frame.a. |
| 335 | 335 | Illegal value for KinematicsZone[2].Frame.b. |
| 336 | 336 | Illegal value for KinematicsZone[2].Frame.c. |
| 337 | 337 | Illegal value for KinematicsZone[2].Valid. |
| 338 | 338 | Illegal value for KinematicsZone[2].Reference. |
| 339 | 339 | Illegal value for KinematicsZone[2].Geometry.Type. |
| 340 | 340 | Illegal value for KinematicsZone[2].Active. |
| 341 | 341 | Illegal value for KinematicsZone[3].Geometry.Parameter[1]. |
| 342 | 342 | Illegal value for KinematicsZone[3].Geometry.Parameter[2]. |
| 343 | 343 | Illegal value for KinematicsZone[3].Geometry.Parameter[3]. |
| 344 | 344 | Illegal value for KinematicsZone[3].Frame.x. |
| 345 | 345 | Illegal value for KinematicsZone[3].Frame.y. |
| 346 | 346 | Illegal value for KinematicsZone[3].Frame.z. |
| 347 | 347 | Illegal value for KinematicsZone[3].Frame.a. |
| 348 | 348 | Illegal value for KinematicsZone[3].Frame.b. |
| 349 | 349 | Illegal value for KinematicsZone[3].Frame.c. |
| 350 | 350 | Illegal value for KinematicsZone[3].Valid. |
| 351 | 351 | Illegal value for KinematicsZone[3].Reference. |
| 352 | 352 | Illegal value for KinematicsZone[3].Geometry.Type. |
| 353 | 353 | Illegal value for KinematicsZone[3].Active. |
| 354 | 354 | Illegal value for KinematicsZone[4].Geometry.Parameter[1]. |
| 355 | 355 | Illegal value for KinematicsZone[4].Geometry.Parameter[2]. |
| 356 | 356 | Illegal value for KinematicsZone[4].Geometry.Parameter[3]. |
| 357 | 357 | Illegal value for KinematicsZone[4].Frame.x. |

| Range from | Range to | Entry |
|---|---|---|
| 358 | 358 | Illegal value for Kinematics-Zone[4].Frame.y. |
| 359 | 359 | Illegal value for Kinematics-Zone[4].Frame.z. |
| 360 | 360 | Illegal value for Kinematics-Zone[4].Frame.a. |
| 361 | 361 | Illegal value for Kinematics-Zone[4].Frame.b. |
| 362 | 362 | Illegal value for Kinematics-Zone[4].Frame.c. |
| 363 | 363 | Illegal value for KinematicsZone[4].Valid. |
| 364 | 364 | Illegal value for KinematicsZone[4].Refer-ence. |
| 365 | 365 | Illegal value for KinematicsZone[4].Geome-try.Type. |
| 366 | 366 | Illegal value for KinematicsZone[4].Active. |
| 367 | 367 | Illegal value for KinematicsZone[5].Geome-try.Parameter[1]. |
| 368 | 368 | Illegal value for KinematicsZone[5].Geome-try.Parameter[2]. |
| 369 | 369 | Illegal value for KinematicsZone[5].Geome-try.Parameter[3]. |
| 370 | 370 | Illegal value for Kinematics-Zone[5].Frame.x. |
| 371 | 371 | Illegal value for Kinematics-Zone[5].Frame.y. |
| 372 | 372 | Illegal value for Kinematics-Zone[5].Frame.z. |
| 373 | 373 | Illegal value for Kinematics-Zone[5].Frame.a. |
| 374 | 374 | Illegal value for Kinematics-Zone[5].Frame.b. |
| 375 | 375 | Illegal value for Kinematics-Zone[5].Frame.c. |
| 376 | 376 | Illegal value for KinematicsZone[5].Valid. |
| 377 | 377 | Illegal value for KinematicsZone[5].Refer-ence. |
| 378 | 378 | Illegal value for KinematicsZone[5].Geome-try.Type. |
| 379 | 379 | Illegal value for KinematicsZone[5].Active. |
| 380 | 380 | Illegal value for KinematicsZone[6].Geome-try.Parameter[1]. |
| 381 | 381 | Illegal value for KinematicsZone[6].Geome-try.Parameter[2]. |
| 382 | 382 | Illegal value for KinematicsZone[6].Geome-try.Parameter[3]. |
| 383 | 383 | Illegal value for Kinematics-Zone[6].Frame.x. |
| 384 | 384 | Illegal value for Kinematics-Zone[6].Frame.y. |
| 385 | 385 | Illegal value for Kinematics-Zone[6].Frame.z. |
| 386 | 386 | Illegal value for Kinematics-Zone[6].Frame.a. |
| 387 | 387 | Illegal value for Kinematics-Zone[6].Frame.b. |

| Range from | Range to | Entry |
|---|---|---|
| 388 | 388 | Illegal value for Kinematics-Zone[6].Frame.c. |
| 389 | 389 | Illegal value for KinematicsZone[6].Valid. |
| 390 | 390 | Illegal value for KinematicsZone[6].Reference. |
| 391 | 391 | Illegal value for KinematicsZone[6].Geometry.Type. |
| 392 | 392 | Illegal value for KinematicsZone[6].Active. |
| 393 | 393 | Illegal value for KinematicsZone[7].Geometry.Parameter[1]. |
| 394 | 394 | Illegal value for KinematicsZone[7].Geometry.Parameter[2]. |
| 395 | 395 | Illegal value for KinematicsZone[7].Geometry.Parameter[3]. |
| 396 | 396 | Illegal value for Kinematics-Zone[7].Frame.x. |
| 397 | 397 | Illegal value for Kinematics-Zone[7].Frame.y. |
| 398 | 398 | Illegal value for Kinematics-Zone[7].Frame.z. |
| 399 | 399 | Illegal value for Kinematics-Zone[7].Frame.a. |
| 400 | 400 | Illegal value for Kinematics-Zone[7].Frame.b. |
| 401 | 401 | Illegal value for Kinematics-Zone[7].Frame.c. |
| 402 | 402 | Illegal value for KinematicsZone[7].Valid. |
| 403 | 403 | Illegal value for KinematicsZone[7].Reference. |
| 404 | 404 | Illegal value for KinematicsZone[7].Geometry.Type. |
| 405 | 405 | Illegal value for KinematicsZone[7].Active. |
| 406 | 406 | Illegal value for KinematicsZone[8].Geometry.Parameter[1]. |
| 407 | 407 | Illegal value for KinematicsZone[8].Geometry.Parameter[2]. |
| 408 | 408 | Illegal value for KinematicsZone[8].Geometry.Parameter[3]. |
| 409 | 409 | Illegal value for Kinematics-Zone[8].Frame.x. |
| 410 | 410 | Illegal value for Kinematics-Zone[8].Frame.y. |
| 411 | 411 | Illegal value for Kinematics-Zone[8].Frame.z. |
| 412 | 412 | Illegal value for Kinematics-Zone[8].Frame.a. |
| 413 | 413 | Illegal value for Kinematics-Zone[8].Frame.b. |
| 414 | 414 | Illegal value for Kinematics-Zone[8].Frame.c. |
| 415 | 415 | Illegal value for KinematicsZone[8].Valid. |
| 416 | 416 | Illegal value for KinematicsZone[8].Reference. |
| 417 | 417 | Illegal value for KinematicsZone[8].Geometry.Type. |
| 418 | 418 | Illegal value for KinematicsZone[8].Active. |

| Range from | Range to | Entry |
|---|---|---|
| 419 | 419 | Illegal value for KinematicsZone[9].Geometry.Parameter[1]. |
| 420 | 420 | Illegal value for KinematicsZone[9].Geometry.Parameter[2]. |
| 421 | 421 | Illegal value for KinematicsZone[9].Geometry.Parameter[3]. |
| 422 | 422 | Illegal value for KinematicsZone[9].Frame.x. |
| 423 | 423 | Illegal value for KinematicsZone[9].Frame.y. |
| 424 | 424 | Illegal value for KinematicsZone[9].Frame.z. |
| 425 | 425 | Illegal value for KinematicsZone[9].Frame.a. |
| 426 | 426 | Illegal value for KinematicsZone[9].Frame.b. |
| 427 | 427 | Illegal value for KinematicsZone[9].Frame.c. |
| 428 | 428 | Illegal value for KinematicsZone[9].Valid. |
| 429 | 429 | Illegal value for KinematicsZone[9].Reference. |
| 430 | 430 | Illegal value for KinematicsZone[9].Geometry.Type. |
| 431 | 431 | Illegal value for KinematicsZone[9].Active. |
| 432 | 432 | Illegal value for KinematicsZone[10].Geometry.Parameter[1]. |
| 433 | 433 | Illegal value for KinematicsZone[10].Geometry.Parameter[2]. |
| 434 | 434 | Illegal value for KinematicsZone[10].Geometry.Parameter[3]. |
| 435 | 435 | Illegal value for KinematicsZone[10].Frame.x. |
| 436 | 436 | Illegal value for KinematicsZone[10].Frame.y. |
| 437 | 437 | Illegal value for KinematicsZone[10].Frame.z. |
| 438 | 438 | Illegal value for KinematicsZone[10].Frame.a. |
| 439 | 439 | Illegal value for KinematicsZone[10].Frame.b. |
| 440 | 440 | Illegal value for KinematicsZone[10].Frame.c. |
| 441 | 441 | Illegal value for KinematicsZone[10].Valid. |
| 442 | 442 | Illegal value for KinematicsZone[10].Reference. |
| 443 | 443 | Illegal value for KinematicsZone[10].Geometry.Type. |
| 444 | 444 | Illegal value for KinematicsZone[10].Active. |
| 445 | 445 | Illegal value for Kinematics.TypeOfKinematics. |
| 446 | 446 | Illegal value for Kinematics.Parameter[1]. |
| 447 | 447 | Illegal value for Kinematics.Parameter[2]. |
| 448 | 448 | Illegal value for Kinematics.Parameter[3]. |
| 449 | 449 | Illegal value for Kinematics.Parameter[4]. |
| 450 | 450 | Illegal value for Kinematics.Parameter[5]. |

| Range from | Range to | Entry |
|---|---|---|
| 451 | 451 | Illegal value for Kinematics.Parameter[6]. |
| 452 | 452 | Illegal value for Kinematics.Parameter[7]. |
| 453 | 453 | Illegal value for Kinematics.Parameter[8]. |
| 454 | 454 | Illegal value for Kinematics.Parameter[9]. |
| 455 | 455 | Illegal value for Kinematics.Parameter[10]. |
| 456 | 456 | Illegal value for Kinematics.Parameter[11]. |
| 457 | 457 | Illegal value for Kinematics.Parameter[12]. |
| 458 | 458 | Illegal value for Kinematics.Parameter[13]. |
| 459 | 459 | Illegal value for Kinematics.Parameter[14]. |
| 460 | 460 | Illegal value for Kinematics.Parameter[15]. |
| 461 | 461 | Illegal value for Kinematics.Parameter[16]. |
| 462 | 462 | Illegal value for Kinematics.Parameter[17]. |
| 463 | 463 | Illegal value for Kinematics.Parameter[18]. |
| 464 | 464 | Illegal value for Kinematics.Parameter[19]. |
| 465 | 465 | Illegal value for Kinematics.Parameter[20]. |
| 466 | 466 | Illegal value for Kinematics.Parameter[21]. |
| 467 | 467 | Illegal value for Kinematics.Parameter[22]. |
| 468 | 468 | Illegal value for Kinematics.Parameter[23]. |
| 469 | 469 | Illegal value for Kinematics.Parameter[24]. |
| 470 | 470 | Illegal value for Kinematics.Parameter[25]. |
| 471 | 471 | Illegal value for Kinematics.Parameter[26]. |
| 472 | 472 | Illegal value for Kinematics.Parameter[27]. |
| 473 | 473 | Illegal value for Kinematics.Parameter[28]. |
| 474 | 474 | Illegal value for Kinematics.Parameter[29]. |
| 475 | 475 | Illegal value for Kinematics.Parameter[30]. |
| 476 | 476 | Illegal value for Kinematics.Parameter[31]. |
| 477 | 477 | Illegal value for Kinematics.Parameter[32]. |
| 478 | 478 | Invalid values in Kinematics.Parameter. |
| 479 | 479 | Kinematics axis A1 not interconnected. |
| 480 | 480 | Kinematics axis A2 not interconnected. |
| 481 | 481 | Kinematics axis A3 not interconnected. |
| 482 | 482 | Kinematics axis A4 not interconnected. |
| 483 | 483 | Delta Picker 2D: No formation of a closed parallel structure. |
| 484 | 484 | Delta Picker 3D: No formation of a closed parallel structure. |
| 485 | 485 | Delta Picker 3D: Angular offset does not permit a third arm. |
| 486 | 486 | Invalid arm distances. |
| 492 | 492 | Tripod: Angular offset does not allow a third arm. |
| 510 | 510 | Illegal value for Tool[1].Frame.b. |
| 511 | 511 | Illegal value for Tool[1].Frame.c. |
| 512 | 512 | Illegal value for Tool[2].Frame.b. |
| 513 | 513 | Illegal value for Tool[2].Frame.c. |
| 514 | 514 | Illegal value for Tool[3].Frame.b. |
| 515 | 515 | Illegal value for Tool[3].Frame.c. |
| 516 | 516 | Kinematics axis A5 not connected. |
| 517 | 517 | Kinematics axis A6 not interconnected. |
| 518 | 518 | Illegal value for Joint.J[1].InverseDirection. |
| 519 | 519 | Illegal value for Joint.J[1].Offset. |
| 520 | 520 | Illegal value for Joint.J[1].LowerLimit. |
| 521 | 521 | Illegal value for Joint.J[1].UpperLimit. |

| Range from | Range to | Entry |
|---|---|---|
| 522 | 522 | Illegal value for Joint.J[2].InverseDirection. |
| 523 | 523 | Illegal value for Joint.J[2].Offset. |
| 524 | 524 | Illegal value for Joint.J[2].LowerLimit. |
| 525 | 525 | Illegal value for Joint.J[2].UpperLimit. |
| 526 | 526 | Illegal value for Joint.J[3].InverseDirection. |
| 527 | 527 | Illegal value for Joint.J[3].Offset. |
| 528 | 528 | Illegal value for Joint.J[3].LowerLimit. |
| 529 | 529 | Illegal value for Joint.J[3].UpperLimit. |
| 530 | 530 | Illegal value for Joint.J[4].InverseDirection. |
| 531 | 531 | Illegal value for Joint.J[4].Offset. |
| 532 | 532 | Illegal value for Joint.J[4].LowerLimit. |
| 533 | 533 | Illegal value for Joint.J[4].UpperLimit. |
| 534 | 534 | Illegal value for Joint.J[5].InverseDirection. |
| 535 | 535 | Illegal value for Joint.J[5].Offset. |
| 536 | 536 | Illegal value for Joint.J[5].LowerLimit. |
| 537 | 537 | Illegal value for Joint.J[5].UpperLimit. |
| 538 | 538 | Illegal value for Joint.J[6].InverseDirection. |
| 539 | 539 | Illegal value for Joint.J[6].Offset. |
| 540 | 540 | Illegal value for Joint.J[6].LowerLimit. |
| 541 | 541 | Illegal value for Joint.J[6].UpperLimit. |
| 542 | 542 | Illegal value for AxisCoupling.N[1].Enable. |
| 543 | 543 | Illegal value for AxisCoupling.N[1].CausingAxis. |
| 544 | 544 | Illegal value for AxisCoupling.N[1].AffectedAxis. |
| 545 | 545 | Illegal value for AxisCoupling.N[1].Factor. |
| 546 | 546 | Illegal value for AxisCoupling.N[2].Enable. |
| 547 | 547 | Illegal value for AxisCoupling.N[2].CausingAxis. |
| 548 | 548 | Illegal value for AxisCoupling.N[2].AffectedAxis. |
| 549 | 549 | Illegal value for AxisCoupling.N[2].Factor. |
| 550 | 550 | Illegal value for AxisCoupling.N[3].Enable. |
| 551 | 551 | Illegal value for AxisCoupling.N[3].CausingAxis. |
| 552 | 552 | Illegal value for AxisCoupling.N[3].AffectedAxis. |
| 553 | 553 | Illegal value for AxisCoupling.N[3].Factor. |
| 554 | 554 | Illegal value for AxisCoupling.N[4].Enable. |
| 555 | 555 | Illegal value for AxisCoupling.N[4].CausingAxis. |
| 556 | 556 | Illegal value for AxisCoupling.N[4].AffectedAxis. |
| 557 | 557 | Illegal value for AxisCoupling.N[4].Factor. |
| 558 | 558 | Illegal value for AxisCoupling.N[5].Enable. |
| 559 | 559 | Illegal value for AxisCoupling.N[5].CausingAxis. |
| 560 | 560 | Illegal value for AxisCoupling.N[5].AffectedAxis. |
| 561 | 561 | Illegal value for AxisCoupling.N[5].Factor. |
| 562 | 562 | Same kinematics axis multiple times as AxisCoupling.N[].CausingAxis in effect." |
| 563 | 563 | Kinematics axes coupled in circle under AxisCoupling.N[]. |

| Range from | Range to | Entry |
|---|---|---|
| 591 | 591 | Illegal value in Override.Velocity. |
| 594 | 594 | Illegal value in DynamicDefaults.Path.Velocity. |
| 595 | 595 | Illegal value in DynamicDefaults.Path.Acceleration. |
| 596 | 596 | Illegal value in DynamicDefaults.Path.Deceleration. |
| 597 | 597 | Illegal value in DynamicDefaults.Path.Jerk. |
| 598 | 598 | Illegal value in DynamicDefaults.Orientation.Velocity. |
| 599 | 599 | Illegal value in DynamicDefaults.Orientation.Acceleration. |
| 600 | 600 | Illegal value in DynamicDefaults.Orientation.Deceleration. |
| 601 | 601 | Illegal value in DynamicDefaults.Orientation.Jerk. |
| 602 | 602 | Illegal value in DynamicDefaults.DynamicAdaption. |
| 603 | 603 | Illegal value in DynamicDefaults.MoveDirect.VelocityFactor. |
| 604 | 604 | Illegal value in DynamicDefaults.MoveDirect.AccelerationFactor. |
| 605 | 605 | Illegal value in DynamicDefaults.MoveDirect.DecelerationFactor. |
| 606 | 606 | Illegal value in DynamicDefaults.MoveDirect.JerkFactor. |
| 607 | 607 | Illegal value in DynamicLimits.Path.Velocity. |
| 608 | 608 | Illegal value in DynamicLimits.Path.Acceleration. |
| 609 | 609 | Illegal value in DynamicLimits.Path.Deceleration. |
| 610 | 610 | Illegal value in DynamicLimits.Path.Jerk. |
| 611 | 611 | Illegal value in DynamicLimits.Orientation.Velocity. |
| 612 | 612 | Illegal value in DynamicLimits.Orientation.Acceleration. |
| 613 | 613 | Illegal value in DynamicLimits.Orientation.Deceleration. |
| 614 | 614 | Illegal value in DynamicLimits.Orientation.Jerk. |
| 615 | 615 | Illegal value in MotionQueue.MaxNumberOfCommands. |
| 616 | 616 | Illegal value in Transition.FactorBlendingLength. |
| 617 | 617 | Illegal value in ControlPanel.Input.TimeOut. |
| 618 | 618 | Illegal value in Conveyor.DynamicReserve[1]. |

| SYSTEM_Motion_104_2 | | | |
|---|---|---|---|
| **Selection** | Decimal | **ID** | 4094 |
| **Comment** | | | |

| Text list entries of SYSTEM_Motion_104_2 | | |
|---|---|---|
| **Range from** | **Range to** | **Entry** |
| 1 | 1 | Neg. SW limit switch greater than pos. SW limit switch. |

| SYSTEM_Motion_105_3 | | | |
|---|---|---|---|
| **Selection** | Decimal | **ID** | 4093 |
| **Comment** | | | |

| Text list entries of SYSTEM_Motion_105_3 | | |
|---|---|---|
| **Range from** | **Range to** | **Entry** |
| 1 | 1 | HW configuration. |
| 2 | 2 | The TO needs a smaller servo cycle clock. |
| 3 | 3 | Error in internal communication. |
| 4 | 4 | Error in the parameter assignment of the frame for torque data. |
| 5 | 5 | Address overlap during drive interconnection. |

| SYSTEM_Motion_106_3 | | | |
|---|---|---|---|
| **Selection** | Decimal | **ID** | 4092 |
| **Comment** | | | |

| Text list entries of SYSTEM_Motion_106_3 | | |
|---|---|---|
| **Range from** | **Range to** | **Entry** |
| 2 | 2 | System has no communication with drive. |
| 3 | 3 | Drive not initialized during ramp-up. |

| SYSTEM_Motion_107_3 | | | |
|---|---|---|---|
| **Selection** | Decimal | **ID** | 4091 |
| **Comment** | | | |

| Text list entries of SYSTEM_Motion_107_3 | | |
|---|---|---|
| **Range from** | **Range to** | **Entry** |
| 1 | 1 | HW configuration. |
| 2 | 2 | The TO needs a smaller servo cycle clock. |
| 3 | 3 | Error in internal communication. |
| 4 | 4 | Address overlap during encoder interconnection. |

| SYSTEM_Motion_108_3 | | | |
|---|---|---|---|
| **Selection** | Decimal | **ID** | 4090 |
| **Comment** | | | |

| Text list entries of SYSTEM_Motion_108_3 | | |
|---|---|---|
| **Range from** | **Range to** | **Entry** |
| 2 | 2 | System without communication to encoder. |
| 3 | 3 | Encoder not initialized during ramp-up. |

| SYSTEM_Motion_109_2 | | | |
|---|---|---|---|
| **Selection** | Decimal | **ID** | 4089 |
| **Comment** | | | |

| Text list entries of SYSTEM_Motion_109_2 | | |
|---|---|---|
| **Range from** | **Range to** | **Entry** |
| 1 | 1 | Neg. HW limit switch. |

| Range from | Range to | Entry |
|---|---|---|
| 2 | 2 | Pos. HW limit switch. |
| 3 | 3 | Reference cam "Active homing". |
| 4 | 4 | Reference cam "Passive homing". |
| 5 | 5 | Enable bit for the analog drive interface. |
| 6 | 6 | DriveReady bit of the analog drive interface. |
| 7 | 7 | Measurement sensing input faulty. |
| 8 | 8 | Output cam output faulty. |
| 9 | 9 | Data exchange with the drive. |

| SYSTEM_Motion_110_2 | | | |
|---|---|---|---|
| **Selection** | Decimal | **ID** | 4088 |
| **Comment** | | | |

| Text list entries of SYSTEM_Motion_110_2 | | |
|---|---|---|
| **Range from** | **Range to** | **Entry** |
| 1 | 1 | Actor.DriveParameter.MaxSpeed is limited. |
| 2 | 2 | PositioningMonitoring.ToleranceTime is limited. |
| 3 | 3 | DynamicDefaults.EmergencyDeceleration is limited. |
| 7 | 7 | DriveParameter.ReferenceTorque is too low. |
| 8 | 8 | Sensor[].Backlash.Size is limited. |
| 9 | 9 | Sensor[].Backlash.Velocity is limited. |

| SYSTEM_Motion_204_2 | | | |
|---|---|---|---|
| **Selection** | Decimal | **ID** | 4087 |
| **Comment** | | | |

| Text list entries of SYSTEM_Motion_204_2 | | |
|---|---|---|
| **Range from** | **Range to** | **Entry** |
| 1 | 1 | Connection to the TIA Portal interrupted. |

| SYSTEM_Motion_305_2 | | | |
|---|---|---|---|
| **Selection** | Decimal | **ID** | 4086 |
| **Comment** | | | |

| Text list entries of SYSTEM_Motion_305_2 | | |
|---|---|---|
| **Range from** | **Range to** | **Entry** |
| 1 | 1 | acceleration |
| 2 | 2 | deceleration |

| SYSTEM_Motion_307_2 | | | |
|---|---|---|---|
| **Selection** | Decimal | **ID** | 4085 |
| **Comment** | | | |

| Text list entries of SYSTEM_Motion_307_2 | | |
|---|---|---|
| **Range from** | **Range to** | **Entry** |
| 1 | 1 | Negative |
| 2 | 2 | Positive |

| SYSTEM_Motion_308_2 | | | |
|---|---|---|---|
| **Selection** | Decimal | **ID** | 4084 |
| **Comment** | | | |

| Text list entries of SYSTEM_Motion_308_2 | | |
|---|---|---|
| **Range from** | **Range to** | **Entry** |
| 1 | 1 | Negative |
| 2 | 2 | Positive |

| SYSTEM_Motion_322_2 | | | |
|---|---|---|---|
| **Selection** | Decimal | **ID** | 4083 |
| **Comment** | | | |

| Text list entries of SYSTEM_Motion_322_2 | | |
|---|---|---|
| **Range from** | **Range to** | **Entry** |
| 1 | 1 | TO is not ready for restart. |
| 2 | 2 | Condition for TO restart not satisfied. |

| SYSTEM_Motion_341_2 | | | |
|---|---|---|---|
| **Selection** | Decimal | **ID** | 4082 |
| **Comment** | | | |

| Text list entries of SYSTEM_Motion_341_2 | | |
|---|---|---|
| **Range from** | **Range to** | **Entry** |
| 1 | 1 | Approach velocity is zero. |
| 2 | 2 | Homing velocity is zero. |

| SYSTEM_Motion_401_4 | | | |
|---|---|---|---|
| **Selection** | Decimal | **ID** | 4081 |
| **Comment** | | | |

| Text list entries of SYSTEM_Motion_401_4 | | |
|---|---|---|
| **Range from** | **Range to** | **Entry** |
| 1 | 1 | Address is invalid. |
| 2 | 2 | Input address is invalid. |
| 3 | 3 | Output address is invalid. |
| 4 | 4 | Error in the parameter assignment of the address area. |
| 5 | 5 | Address overlap during drive interconnection. |
| 6 | 6 | Address overlap during encoder interconnection. |

| SYSTEM_Motion_411_4 | | | |
|---|---|---|---|
| **Selection** | Decimal | **ID** | 4080 |
| **Comment** | | | |

| Text list entries of SYSTEM_Motion_411_4 | | |
|---|---|---|
| **Range from** | **Range to** | **Entry** |
| 1 | 1 | Alarm message from encoder. |
| 2 | 2 | Hardware error encoder. |
| 3 | 3 | Encoder dirty. |
| 4 | 4 | Read error encoder absolute value. |
| 5 | 5 | Zero mark monitoring encoder. |
| 6 | 6 | Encoder in parking state. |

| SYSTEM_Motion_412_2 | | | |
|---|---|---|---|
| **Selection** | Decimal | **ID** | 4079 |
| **Comment** | | | |

| Text list entries of SYSTEM_Motion_412_2 | | |
|---|---|---|
| **Range from** | **Range to** | **Entry** |
| 1 | 1 | Positive. |
| 2 | 2 | Negative. |
| 3 | 3 | Modulo length. |

| SYSTEM_Motion_421_3 | | | |
|---|---|---|---|
| **Selection** | Decimal | **ID** | 4078 |
| **Comment** | | | |

| Text list entries of SYSTEM_Motion_421_3 | | |
|---|---|---|
| **Range from** | **Range to** | **Entry** |
| 1 | 1 | Alarm message from drive. |
| 2 | 2 | No drive control required. |
| 3 | 3 | Drive has shut down. |
| 4 | 4 | Drive enable not possible. |
| 5 | 5 | Error controlling the PROFIdrive State Machine. |

| SYSTEM_Motion_431_4 | | | |
|---|---|---|---|
| **Selection** | Decimal | **ID** | 4077 |
| **Comment** | | | |

| Text list entries of SYSTEM_Motion_431_4 | | |
|---|---|---|
| **Range from** | **Range to** | **Entry** |
| 1 | 1 | Drive failed. |
| 2 | 2 | Signs of life of drive faulty. |
| 3 | 3 | Encoder failed. |
| 4 | 4 | Signs of life of encoder faulty. |

| SYSTEM_Motion_502_2 | | | |
|---|---|---|---|
| **Selection** | Decimal | **ID** | 4076 |
| **Comment** | | | |

| Text list entries of SYSTEM_Motion_502_2 | | |
|---|---|---|
| **Range from** | **Range to** | **Entry** |
| 1 | 1 | acceleration |
| 2 | 2 | deceleration |

| SYSTEM_Motion_531_2 | | | |
|---|---|---|---|
| **Selection** | Decimal | **ID** | 4075 |
| **Comment** | | | |

| Text list entries of SYSTEM_Motion_531_2 | | |
|---|---|---|
| **Range from** | **Range to** | **Entry** |
| 1 | 1 | Positive HW limit switch approached. |
| 2 | 2 | Negative HW limit switch approached. |
| 3 | 3 | Invalid retraction direction, HW limit switch active. |
| 4 | 4 | HW limit switch polarity reversed, retraction not possible. |
| 5 | 5 | Both HW limit switches active, retraction not possible. |
| 6 | 6 | Encoder error with triggered HW limit switch, no retraction possible. |

| SYSTEM_Motion_533_2 | | | |
|---|---|---|---|
| **Selection** | Decimal | **ID** | 4074 |
| **Comment** | | | |

| Text list entries of SYSTEM_Motion_533_2 | | |
|---|---|---|
| **Range from** | **Range to** | **Entry** |
| 1 | 1 | Negative |
| 2 | 2 | Positive |

| SYSTEM_Motion_534_2 | | | |
|---|---|---|---|
| **Selection** | Decimal | **ID** | 4073 |
| **Comment** | | | |

| Text list entries of SYSTEM_Motion_534_2 | | |
|---|---|---|
| **Range from** | **Range to** | **Entry** |
| 1 | 1 | Negative |
| 2 | 2 | Positive |

| SYSTEM_Motion_541_2 | | | |
|---|---|---|---|
| **Selection** | Decimal | **ID** | 4072 |
| **Comment** | | | |

| Text list entries of SYSTEM_Motion_541_2 | | |
|---|---|---|
| **Range from** | **Range to** | **Entry** |
| 1 | 1 | Target range not reached. |
| 2 | 2 | Exit target range again. |

| SYSTEM_Motion_102_2 | | | |
|---|---|---|---|
| **Selection** | Decimal | **ID** | 4071 |
| **Comment** | | | |

| Text list entries of SYSTEM_Motion_102_2 | | |
|---|---|---|
| **Range from** | **Range to** | **Entry** |
| 1 | 1 | Parameter P964 not supported by device or cannot be read. |
| 2 | 2 | Parameter does not exist, value unreadable or invalid. |
| 3 | 3 | Adaptation canceled due to insufficient resources. |
| 4 | 4 | Drive is not interconnected directly to I/O area. |

| SYSTEM_Motion_102_3 | | | |
|---|---|---|---|
| **Selection** | Decimal | **ID** | 4070 |
| **Comment** | | | |

| Text list entries of SYSTEM_Motion_102_3 | | |
|---|---|---|
| **Range from** | **Range to** | **Entry** |
| 1 | 1 | Maximum speed. |
| 2 | 2 | Maximum torque (p1520). |
| 3 | 3 | Maximum torque (p1521). |
| 4 | 4 | Fine resolution torque. |
| 5 | 5 | Rated speed. |
| 6 | 6 | Rated torque. |
| 7 | 7 | Motor type. |
| 8 | 8 | Unspecified. |

| SYSTEM_Motion_103_2 | | | |
|---|---|---|---|
| **Selection** | Decimal | **ID** | 4069 |
| **Comment** | | | |

| Text list entries of SYSTEM_Motion_103_2 | | |
|---|---|---|
| **Range from** | **Range to** | **Entry** |
| 1 | 1 | Parameter P964 not supported by device or cannot be read. |
| 2 | 2 | Parameter does not exist, value unreadable or invalid. |
| 3 | 3 | Adaptation canceled due to insufficient resources. |
| 4 | 4 | Encoder is not interconnected directly to I/O area. |

| SYSTEM_Motion_103_3 | | | |
|---|---|---|---|
| **Selection** | Decimal | **ID** | 4068 |
| **Comment** | | | |

| Text list entries of SYSTEM_Motion_103_3 | | |
|---|---|---|
| **Range from** | **Range to** | **Entry** |
| 1 | 1 | Encoder system |
| 2 | 2 | Encoder resolution |
| 3 | 3 | Encoder fine resolution Gx_XIST1 |
| 4 | 4 | Encoder fine resolution Gx_XIST2 |
| 5 | 5 | Encoder revolutions |
| 6 | 6 | Unspecified |
| 7 | 7 | Reference value NIST |

| SYSTEM_Motion_111_2 | | | |
|---|---|---|---|
| **Selection** | Decimal | **ID** | 4067 |
| **Comment** | | | |

| Text list entries of SYSTEM_Motion_111_2 | | |
|---|---|---|
| **Range from** | **Range to** | **Entry** |
| 1 | 1 | Different telegram type. |
| 2 | 2 | Incompatible torque resolution. |
| 3 | 3 | Application cycle of the drive and servo cycle are different. |
| 4 | 4 | Application cycle of the drive and processing cycle of the TO are different. |
| 5 | 5 | Linear motor configured. |

| SYSTEM_Motion_112_2 | | | |
|---|---|---|---|
| **Selection** | Decimal | **ID** | 4066 |
| **Comment** | | | |

| Text list entries of SYSTEM_Motion_112_2 | | |
|---|---|---|
| **Range from** | **Range to** | **Entry** |
| 1 | 1 | Different telegram type. |
| 2 | 2 | Encoder is not an absolute encoder. |
| 3 | 3 | Application cycle of the encoder and servo cycle are different. |
| 4 | 4 | Application cycle of the encoder and processing cycle of the TO are different. |
| 5 | 5 | Encoder is not an incremental encoder. |

| SYSTEM_Motion_552_2 | | | |
|---|---|---|---|
| **Selection** | Decimal | **ID** | 4065 |
| **Comment** | | | |

| Text list entries of SYSTEM_Motion_552_2 | | |
|---|---|---|
| **Range from** | **Range to** | **Entry** |
| 1 | 1 | Parameter P964 not supported by device or cannot be read. |
| 2 | 2 | Parameter does not exist, value unreadable or invalid. |
| 3 | 3 | Adaptation canceled due to insufficient resources. |
| 4 | 4 | Encoder is not interconnected directly to I/O area. |

| SYSTEM_Motion_552_3 | | | |
|---|---|---|---|
| **Selection** | Decimal | **ID** | 4064 |
| **Comment** | | | |

| Text list entries of SYSTEM_Motion_552_3 | | |
|---|---|---|
| **Range from** | **Range to** | **Entry** |
| 1 | 1 | Encoder system. |
| 2 | 2 | Encoder resolution. |
| 3 | 3 | Encoder fine resolution Gx_XIST1. |
| 4 | 4 | Encoder fine resolution Gx_XIST2. |
| 5 | 5 | Encoder revolutions. |
| 6 | 6 | Unspecified. |
| 7 | 7 | Reference value NIST. |

| SYSTEM_Motion_511_2 | | | |
|---|---|---|---|
| **Selection** | Decimal | **ID** | 4063 |
| **Comment** | | | |

| Text list entries of SYSTEM_Motion_511_2 | | |
|---|---|---|
| **Range from** | **Range to** | **Entry** |
| 1 | 1 | Velocity. |
| 2 | 2 | Acceleration. |
| 3 | 3 | Deceleration. |

| SYSTEM_Motion_352_2 | | | |
|---|---|---|---|
| **Selection** | Decimal | **ID** | 4062 |
| **Comment** | | | |

| Text list entries of SYSTEM_Motion_352_2 | | |
|---|---|---|
| **Range from** | **Range to** | **Entry** |
| 1 | 1 | Acceleration of the orientation motion |
| 2 | 2 | deceleration of the orientation |

| SYSTEM_Motion_562_2 | | | |
|---|---|---|---|
| **Selection** | Decimal | **ID** | 4061 |
| **Comment** | | | |

| Text list entries of SYSTEM_Motion_562_2 | | |
|---|---|---|
| **Range from** | **Range to** | **Entry** |
| 1 | 1 | acceleration |
| 2 | 2 | deceleration |

| SYSTEM_Motion_801_2 | | | |
|---|---|---|---|
| **Selection** | Decimal | **ID** | 4060 |
| **Comment** | | | |

| Text list entries of SYSTEM_Motion_801_2 | | |
|---|---|---|
| **Range from** | **Range to** | **Entry** |
| 1 | 1 | A1 |
| 2 | 2 | A2 |
| 3 | 3 | A3 |
| 4 | 4 | A4 |
| 5 | 5 | A5 |
| 6 | 6 | A6 |

| SYSTEM_Motion_801_3 | | | |
|---|---|---|---|
| **Selection** | Decimal | **ID** | 4059 |
| **Comment** | | | |

| Text list entries of SYSTEM_Motion_801_3 | | |
|---|---|---|
| **Range from** | **Range to** | **Entry** |
| 1 | 1 | Axis not released. |
| 2 | 2 | Axis job programmed. |
| 3 | 3 | Alarm at the axis. |

| SYSTEM_Motion_802_2 | | | |
|---|---|---|---|
| **Selection** | Decimal | **ID** | 4058 |
| **Comment** | | | |

| Text list entries of SYSTEM_Motion_802_2 | | |
|---|---|---|
| **Range from** | **Range to** | **Entry** |
| 1 | 1 | Radius is less than half the distance. |
| 2 | 2 | Start, intermediate or end point identical. |
| 3 | 3 | Intermediate point cannot be reached. |
| 4 | 4 | Start and end point identical. |
| 5 | 5 | Unable to execute dynamics adaptation. |
| 6 | 6 | Motion is outside the transformation area. |
| 7 | 7 | Transformation only works with PTP motions. |
| 8 | 8 | Not possible to approach tracked OCS. |
| 9 | 9 | Kinematics motion in the coupled OCS cannot be terminated by job configuration. |
| 10 | 10 | Change of the coordinate system is not possible with coupled OCS. |
| 11 | 11 | sPTP motion not possible with coupled OCS. |
| 12 | 12 | Active coordinate system cannot be changed with coupled OCS. |
| 13 | 13 | Dynamic values of user transformation not specified correctly. |
| 14 | 14 | The target joint position is outside the valid joint traversing range. |

| SYSTEM_Motion_803_2 | | | |
|---|---|---|---|
| **Selection** | Decimal | **ID** | 4057 |
| **Comment** | | | |

| Text list entries of SYSTEM_Motion_803_2 | | |
|---|---|---|
| **Range from** | **Range to** | **Entry** |
| 1 | 1 | Error during transformation of the axis coordinates into Cartesian coordinates. |
| 2 | 2 | Error during transformation of the Cartesian coordinates into axis coordinates. |

| SYSTEM_Motion_805_2 | | | |
|---|---|---|---|
| **Selection** | Decimal | **ID** | 4056 |
| **Comment** | | | |

| Text list entries of SYSTEM_Motion_805_2 | | |
|---|---|---|
| **Range from** | **Range to** | **Entry** |
| 1 | 1 | Velocity is limited to zero. |
| 2 | 2 | Acceleration/deceleration is limited to zero. |

| SYSTEM_Motion_809_2 | | | |
|---|---|---|---|
| **Selection** | Decimal | **ID** | 4055 |
| **Comment** | | | |

| Text list entries of SYSTEM_Motion_809_2 | | |
|---|---|---|
| **Range from** | **Range to** | **Entry** |
| 1 | 1 | Velocity is limited to zero. |
| 2 | 2 | Acceleration/deceleration is limited to zero. |

| SYSTEM_Motion_114_2 | | | |
|---|---|---|---|
| **Selection** | Decimal | **ID** | 4054 |
| **Comment** | | | |

| Text list entries of SYSTEM_Motion_114_2 | | |
|---|---|---|
| **Range from** | **Range to** | **Entry** |
| 1 | 1 | Configuration error. |

| SYSTEM_Motion_812_2 | | | |
|---|---|---|---|
| **Selection** | Decimal | **ID** | 4053 |
| **Comment** | | | |

| Text list entries of SYSTEM_Motion_812_2 | | |
|---|---|---|
| **Range from** | **Range to** | **Entry** |
| 1 | 1 | Kinematics has reached the singularity. |
| 2 | 2 | Too many singularities occur in the path command. |
| 3 | 3 | Singularity cannot be performed. |

| SYSTEM_Motion_820_2 | | | |
|---|---|---|---|
| **Selection** | Decimal | **ID** | 4052 |
| **Comment** | | | |

| Text list entries of SYSTEM_Motion_820_2 | | |
|---|---|---|
| **Range from** | **Range to** | **Entry** |
| 1 | 1 | Joint 1 |
| 2 | 2 | Joint 2 |
| 3 | 3 | Joint 3 |
| 4 | 4 | Joint 4 |
| 5 | 5 | Joint 5 |
| 6 | 6 | Joint 6 |

| SYSTEM_Motion_820_3 | | | |
|---|---|---|---|
| **Selection** | Decimal | **ID** | 4051 |
| **Comment** | | | |

| Text list entries of SYSTEM_Motion_820_3 | | |
|---|---|---|
| **Range from** | **Range to** | **Entry** |
| 1 | 1 | Upper |
| 2 | 2 | Lower |

# DeltaSpiralConv [CPU 1515T-2 PN] / Local modules

## PM 190W 120/230VAC

This folder is empty.

# DeltaSpiralConv [CPU 1515T-2 PN] / Local modules

## DeltaSpiralConv [CPU 1515T-2 PN]

| DeltaSpiralConv | | | |
|---|---|---|---|
| **General\Project information** | | | |
| **Name** | DeltaSpiralConv | **Author** | kte |
| **Comment** | | **Rack** | 0 |
| **Slot** | 1 | | |
| **General\Catalog information** | | | |
| **Short designation** | CPU 1515T-2 PN | **Description** | Technology CPU with display; work memory 1.5 MB code and 4.5 MB data; 6 ns bit operation time; 1st interface: PROFINET RT/IRT with 2 ports; 2nd interface: PROFINET RT; firmware V3.1 |
| **Article number** | 6ES7 515-2TN03-0AB0 | **Firmware version** | V3.1 |
| | False | | |
| **General\Identification & Maintenance** | | | |
| **Plant designation** | | **Location identifier** | |
| **Installation date** | 2015-01-06 20:58:20.206 | **Additional information** | |
| **General\Checksums** | | | |
| **Text lists** | E4 97 35 8D 1A 8D E6 89 | **Software** | E7 09 CF 95 9A 87 0A F7 |
| **Connection resources** | | | |

| | Station resources - Reserved - Maximum | Station resources - Reserved - Configured | Station resources - Dynamic - Configured | Module resources - DeltaSpiralConv [CPU 1515T-2 PN] - Configured |
|---|---|---|---|---|
| Maximum number of resources: | | 10 | 118 | 128 |
| | Maximum | Configured | Configured | Configured |
| PG communication: | 4 | - | - | - |
| HMI communication: | 4 | 0 | 0 | 0 |
| S7 communication: | 0 | - | 0 | 0 |
| Open user communication: | 0 | - | 0 | 0 |
| Web communication: | 2 | - | - | - |
| OPC UA client/server communication: | 0 | - | - | - |
| Other communication: | - | - | 0 | 0 |
| Total resources used: | | 0 | 0 | 0 |
| Available resources: | | 10 | 118 | 128 |

| **Overview of addresses\Overview of addresses\Overview of addresses** | | | |
|---|---|---|---|
| **Inputs** | True | **Outputs** | True |
| **Address gaps** | False | **Slot** | True |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Type** | I | **Addr. from** | 0 | **Addr. to** | 3 | **Module** | DI 32x24VDC HF_1 |
| **PIP** | Automatic update | **OB** | - | **Device name** | DeltaSpiralConv [CPU 1515T-2 PN] | **Device number** | - |
| **Size** | 4 Bytes | **Master / IO system** | - | **Rack** | 0 | **Slot** | 2 |
| **Type** | O | **Addr. from** | 4 | **Addr. to** | 7 | **Module** | DQ 32x24VDC/0.5A ST_1 |
| **PIP** | Automatic update | **OB** | - | **Device name** | DeltaSpiralConv [CPU 1515T-2 PN] | **Device number** | - |
| **Size** | 4 Bytes | **Master / IO system** | - | **Rack** | 0 | **Slot** | 3 |
| **Type** | I | **Addr. from** | 4 | **Addr. to** | 21 | **Module** | Standard telegram 5, PZD-9/9 |
| **PIP** | PIP OB Servo | **OB** | MC-Servo[OB91] | **Device name** | SINAMICS-S120-CU310-2PN_1 [SINAMICS S120 CU310-2 PN V4.7] | **Device number** | 1 |
| **Size** | 18 Bytes | **Master / IO system** | PROFINET IO-System [100] | **Rack** | 0 | **Slot** | 1 3 |
| **Type** | O | **Addr. from** | 8 | **Addr. to** | 25 | **Module** | Standard telegram 5, PZD-9/9 |
| **PIP** | PIP OB Servo | **OB** | MC-Servo[OB91] | **Device name** | SINAMICS-S120-CU310-2PN_1 [SINAMICS S120 CU310-2 PN V4.7] | **Device number** | 1 |
| **Size** | 18 Bytes | **Master / IO system** | PROFINET IO-System [100] | **Rack** | 0 | **Slot** | 1 3 |
| **Type** | I | **Addr. from** | 22 | **Addr. to** | 39 | **Module** | Standard telegram 5, PZD-9/9 |
| **PIP** | PIP OB Servo | **OB** | MC-Servo[OB91] | **Device name** | SINAMICS-S120-CU310-2PN_2 [SINAMICS S120 CU310-2 PN V4.7] | **Device number** | 2 |
| **Size** | 18 Bytes | **Master / IO system** | PROFINET IO-System [100] | **Rack** | 0 | **Slot** | 1 3 |
| **Type** | O | **Addr. from** | 26 | **Addr. to** | 43 | **Module** | Standard telegram 5, PZD-9/9 |
| **PIP** | PIP OB Servo | **OB** | MC-Servo[OB91] | **Device name** | SINAMICS-S120-CU310-2PN_2 [SINAMICS S120 CU310-2 PN V4.7] | **Device number** | 2 |
| **Size** | 18 Bytes | **Master / IO system** | PROFINET IO-System [100] | **Rack** | 0 | **Slot** | 1 3 |
| **Type** | I | **Addr. from** | 58 | **Addr. to** | 75 | **Module** | Standard telegram 5, PZD-9/9 |
| **PIP** | PIP OB Servo | **OB** | MC-Servo[OB91] | **Device name** | SINAMICS-S120-CU310-2PN_4 [SINAMICS S120 CU310-2 PN V4.7] | **Device number** | 3 |
| **Size** | 18 Bytes | **Master / IO system** | PROFINET IO-System [100] | **Rack** | 0 | **Slot** | 1 3 |
| **Type** | O | **Addr. from** | 62 | **Addr. to** | 79 | **Module** | Standard telegram 5, PZD-9/9 |
| **PIP** | PIP OB Servo | **OB** | MC-Servo[OB91] | **Device name** | SINAMICS-S120-CU310-2PN_4 [SINAMICS S120 CU310-2 PN V4.7] | **Device number** | 3 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Size** | 18 Bytes | **Master / IO system** | PROFINET IO-System [100] | **Rack** | 0 | **Slot** | 1 3 |
| **Type** | I | **Addr. from** | 40 | **Addr. to** | 57 | **Module** | Standard telegram 5, PZD-9/9 |
| **PIP** | PIP OB Servo | **OB** | MC-Servo[OB91] | **Device name** | SINAMICS-S120-CU310-2PN_3 [SINAMICS S120 CU310-2 PN V4.7] | **Device number** | 4 |
| **Size** | 18 Bytes | **Master / IO system** | PROFINET IO-System [100] | **Rack** | 0 | **Slot** | 1 3 |
| **Type** | O | **Addr. from** | 44 | **Addr. to** | 61 | **Module** | Standard telegram 5, PZD-9/9 |
| **PIP** | PIP OB Servo | **OB** | MC-Servo[OB91] | **Device name** | SINAMICS-S120-CU310-2PN_3 [SINAMICS S120 CU310-2 PN V4.7] | **Device number** | 4 |
| **Size** | 18 Bytes | **Master / IO system** | PROFINET IO-System [100] | **Rack** | 0 | **Slot** | 1 3 |

# DeltaSpiralConv [CPU 1515T-2 PN] / Local modules

## DI 32x24VDC HF_1

| DI 32x24VDC HF_1 | | | |
|---|---|---|---|
| **Name** | DI 32x24VDC HF_1 | **Rack** | 0 |
| **Slot** | 2 | **Article number** | 6ES7 521-1BL00-0AB0 |
| **Short designation** | DI 32x24VDC HF | **Firmware version** | V2.0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / Local modules

## DQ 32x24VDC/0.5A ST_1

| DQ 32x24VDC/0.5A ST_1 | | | |
|---|---|---|---|
| **Name** | DQ 32x24VDC/0.5A ST_1 | **Rack** | 0 |
| **Slot** | 3 | **Article number** | 6ES7 522-1BL00-0AB0 |
| **Short designation** | DQ 32x24VDC/0.5A ST | **Firmware version** | V2.0 |

# DeltaSpiralConv [CPU 1515T-2 PN] / Distributed I/O

## PROFINET IO-System (100): PN/IE_2

| PROFINET IO-System | | | |
|---|---|---|---|
| **General** | | | |
| **IO controller:** | DeltaSpiralConv | **Name:** | PROFINET IO-System |
| **Number:** | 100 | **Multiple use IO system** | False |
| **Use name as extension for the PROFINET device name.** | False | | |
| **Hardware identifier** | | | |
| **Hardware identifier** | 260 | | |
| **Overview of addresses\Overview of addresses\Overview of addresses** | | | |
| **Inputs** | True | **Outputs** | True |
| **Address gaps** | False | **Slot** | True |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Type** | I | **Addr. from** | 0 | **Addr. to** | 3 | **Module** | DI 32x24VDC HF_1 |
| **PIP** | Automatic update | **OB** | - | **Device name** | DeltaSpiralConv [CPU 1515T-2 PN] | **Device number** | - |
| **Size** | 4 Bytes | **Master / IO system** | - | **Rack** | 0 | **Slot** | 2 |
| **Type** | O | **Addr. from** | 4 | **Addr. to** | 7 | **Module** | DQ 32x24VDC/0.5A ST_1 |
| **PIP** | Automatic update | **OB** | - | **Device name** | DeltaSpiralConv [CPU 1515T-2 PN] | **Device number** | - |
| **Size** | 4 Bytes | **Master / IO system** | - | **Rack** | 0 | **Slot** | 3 |
| **Type** | I | **Addr. from** | 4 | **Addr. to** | 21 | **Module** | Standard telegram 5, PZD-9/9 |
| **PIP** | PIP OB Servo | **OB** | MC-Servo[OB91] | **Device name** | SINAMICS-S120-CU310-2PN_1 [SINAMICS S120 CU310-2 PN V4.7] | **Device number** | 1 |
| **Size** | 18 Bytes | **Master / IO system** | PROFINET IO-System [100] | **Rack** | 0 | **Slot** | 1 3 |
| **Type** | O | **Addr. from** | 8 | **Addr. to** | 25 | **Module** | Standard telegram 5, PZD-9/9 |
| **PIP** | PIP OB Servo | **OB** | MC-Servo[OB91] | **Device name** | SINAMICS-S120-CU310-2PN_1 [SINAMICS S120 CU310-2 PN V4.7] | **Device number** | 1 |
| **Size** | 18 Bytes | **Master / IO system** | PROFINET IO-System [100] | **Rack** | 0 | **Slot** | 1 3 |
| **Type** | I | **Addr. from** | 22 | **Addr. to** | 39 | **Module** | Standard telegram 5, PZD-9/9 |
| **PIP** | PIP OB Servo | **OB** | MC-Servo[OB91] | **Device name** | SINAMICS-S120-CU310-2PN_2 [SINAMICS S120 CU310-2 PN V4.7] | **Device number** | 2 |
| **Size** | 18 Bytes | **Master / IO system** | PROFINET IO-System [100] | **Rack** | 0 | **Slot** | 1 3 |
| **Type** | O | **Addr. from** | 26 | **Addr. to** | 43 | **Module** | Standard telegram 5, PZD-9/9 |
| **PIP** | PIP OB Servo | **OB** | MC-Servo[OB91] | **Device name** | SINAMICS-S120-CU310-2PN_2 [SINAMICS S120 CU310-2 PN V4.7] | **Device number** | 2 |
| **Size** | 18 Bytes | **Master / IO system** | PROFINET IO-System [100] | **Rack** | 0 | **Slot** | 1 3 |
| **Type** | I | **Addr. from** | 58 | **Addr. to** | 75 | **Module** | Standard telegram 5, PZD-9/9 |
| **PIP** | PIP OB Servo | **OB** | MC-Servo[OB91] | **Device name** | SINAMICS-S120-CU310-2PN_4 [SINAMICS S120 CU310-2 PN V4.7] | **Device number** | 3 |
| **Size** | 18 Bytes | **Master / IO system** | PROFINET IO-System [100] | **Rack** | 0 | **Slot** | 1 3 |
| **Type** | O | **Addr. from** | 62 | **Addr. to** | 79 | **Module** | Standard telegram 5, PZD-9/9 |
| **PIP** | PIP OB Servo | **OB** | MC-Servo[OB91] | **Device name** | SINAMICS-S120-CU310-2PN_4 [SINAMICS S120 CU310-2 PN V4.7] | **Device number** | 3 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Size** | 18 Bytes | **Master / IO system** | PROFINET IO-System [100] | **Rack** | 0 | **Slot** | 1 3 |
| **Type** | I | **Addr. from** | 40 | **Addr. to** | 57 | **Module** | Standard telegram 5, PZD-9/9 |
| **PIP** | PIP OB Servo | **OB** | MC-Servo[OB91] | **Device name** | SINAMICS-S120-CU310-2PN_3 [SINAMICS S120 CU310-2 PN V4.7] | **Device number** | 4 |
| **Size** | 18 Bytes | **Master / IO system** | PROFINET IO-System [100] | **Rack** | 0 | **Slot** | 1 3 |
| **Type** | O | **Addr. from** | 44 | **Addr. to** | 61 | **Module** | Standard telegram 5, PZD-9/9 |
| **PIP** | PIP OB Servo | **OB** | MC-Servo[OB91] | **Device name** | SINAMICS-S120-CU310-2PN_3 [SINAMICS S120 CU310-2 PN V4.7] | **Device number** | 4 |
| **Size** | 18 Bytes | **Master / IO system** | PROFINET IO-System [100] | **Rack** | 0 | **Slot** | 1 3 |

# DeltaSpiralConv [CPU 1515T-2 PN] / Distributed I/O / PROFINET IO-System (100): PN/IE_2

## SINAMICS-S120-CU310-2PN_1 [SINAMICS S120 CU310-2 PN V4.7]

| SINAMICS-S120-CU310-2PN_1 | | | |
|---|---|---|---|
| **General** | | | |
| **Name** | SINAMICS-S120-CU310-2PN_1 | **Author** | kte |
| **Comment** | | **Rack** | 0 |
| **Slot** | 0 | | |
| **General\Catalog information** | | | |
| **Short designation** | SINAMICS S120 CU310-2 PN V4.7 | **Description** | IO device SINAMICS S120 CU310-2 PN V4.7 with PROFINET-IO interface (RT, IRT and non-cyclic communications, clock cycle synchronization, PROFIsafe, Shared Device) |
| **Article number** | 6SL3 040-1LA01-0AAx | **Firmware version** | V4.70 |
| **HwVersion** | V2.0 | **GSD file** | gsdml-v2.3-siemens-sinam-ics_s_cu3x0-20140313.xml |

# DeltaSpiralConv [CPU 1515T-2 PN] / Distributed I/O / PROFINET IO-System (100): PN/IE_2

## SINAMICS-S120-CU310-2PN_2 [SINAMICS S120 CU310-2 PN V4.7]

| SINAMICS-S120-CU310-2PN_2 | | | |
|---|---|---|---|
| **General** | | | |
| **Name** | SINAMICS-S120-CU310-2PN_2 | **Author** | kte |
| **Comment** | | **Rack** | 0 |
| **Slot** | 0 | | |
| **General\Catalog information** | | | |
| **Short designation** | SINAMICS S120 CU310-2 PN V4.7 | **Description** | IO device SINAMICS S120 CU310-2 PN V4.7 with PROFINET-IO interface (RT, IRT and non-cyclic communications, clock cycle synchronization, PROFIsafe, Shared Device) |
| **Article number** | 6SL3 040-1LA01-0AAx | **Firmware version** | V4.70 |
| **HwVersion** | V2.0 | **GSD file** | gsdml-v2.3-siemens-sinam-ics_s_cu3x0-20140313.xml |

# DeltaSpiralConv [CPU 1515T-2 PN] / Distributed I/O / PROFINET IO-System (100): PN/IE_2

## SINAMICS-S120-CU310-2PN_3 [SINAMICS S120 CU310-2 PN V4.7]

| SINAMICS-S120-CU310-2PN_3 | | | |
|---|---|---|---|
| **General** | | | |
| **Name** | SINAMICS-S120-CU310-2PN_3 | **Author** | kte |
| **Comment** | | **Rack** | 0 |
| **Slot** | 0 | | |
| **General\Catalog information** | | | |
| **Short designation** | SINAMICS S120 CU310-2 PN V4.7 | **Description** | IO device SINAMICS S120 CU310-2 PN V4.7 with PROFINET-IO interface (RT, IRT and non-cyclic communications, clock cycle synchronization, PROFIsafe, Shared Device) |
| **Article number** | 6SL3 040-1LA01-0AAx | **Firmware version** | V4.70 |
| **HwVersion** | V2.0 | **GSD file** | gsdml-v2.3-siemens-sinam-ics_s_cu3x0-20140313.xml |

# DeltaSpiralConv [CPU 1515T-2 PN] / Distributed I/O / PROFINET IO-System (100): PN/IE_2

## SINAMICS-S120-CU310-2PN_4 [SINAMICS S120 CU310-2 PN V4.7]

| SINAMICS-S120-CU310-2PN_4 | | | |
|---|---|---|---|
| **General** | | | |
| **Name** | SINAMICS-S120-CU310-2PN_4 | **Author** | kte |
| **Comment** | | **Rack** | 0 |
| **Slot** | 0 | | |
| **General\Catalog information** | | | |
| **Short designation** | SINAMICS S120 CU310-2 PN V4.7 | **Description** | IO device SINAMICS S120 CU310-2 PN V4.7 with PROFINET-IO interface (RT, IRT and non-cyclic communications, clock cycle synchronization, PROFIsafe, Shared Device) |
| **Article number** | 6SL3 040-1LA01-0AAx | **Firmware version** | V4.70 |
| **HwVersion** | V2.0 | **GSD file** | gsdml-v2.3-siemens-sinam-ics_s_cu3x0-20140313.xml |