

Totally Integrated Automation Portal

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         | Test network |
| Family |                              | Version | 0.1 | User-defined ID |              |

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

Network 1: Machine with simplified PackML modes/states

%DB100  
"UN01"

%FB100  
"UN01\_00\_Main"

EN

ENO

Network 2: Axis 1

Servo axis, procedure and jogging

%DB200  
"EM01"

%FB200  
"EM01\_00\_Main"

EN

ENO

Network 3:

Reset first scan bit

%M0.0  
"AlwaysFalse"

%M0.2  
"First\_Scan"

# Program 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      |               |

# Program 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      |               |

# Program blocks

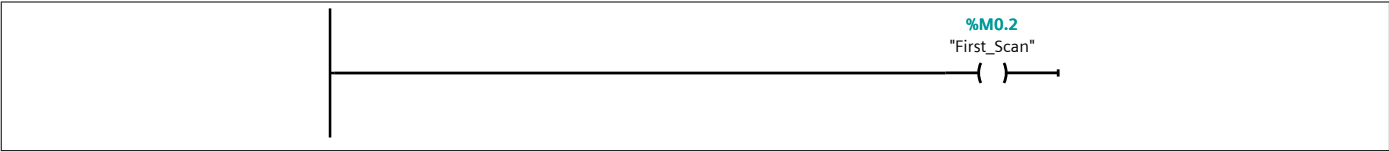
## Startup [OB100]

| 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 |    |

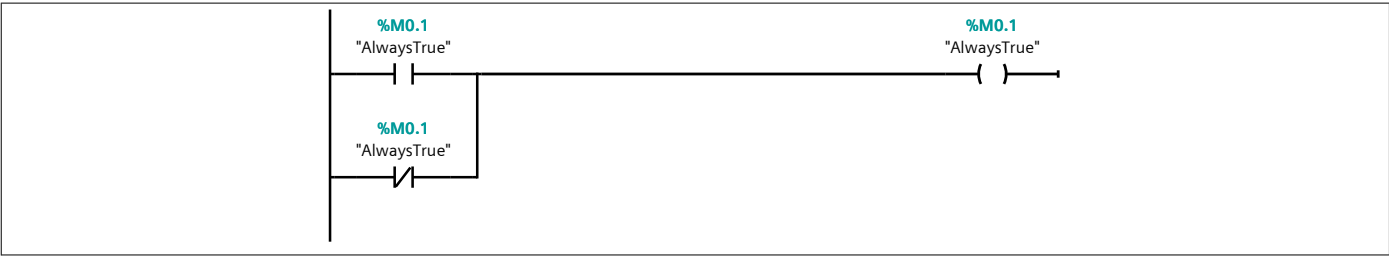
| Name          | Data type | Default value |
|---------------|-----------|---------------|
| ▼ Input       |           |               |
| LostRetentive | Bool      |               |
| LostRTC       | Bool      |               |
| Temp          |           |               |
| Constant      |       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

### Network 1:

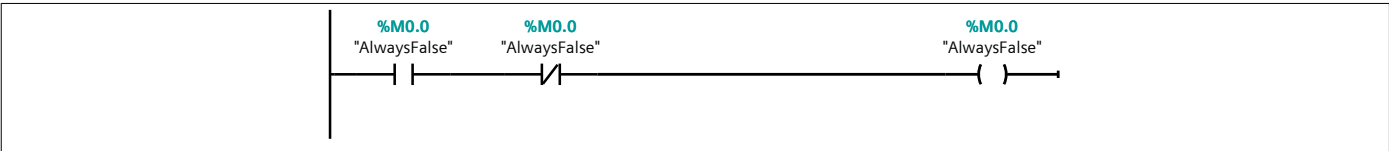
Cleared in last rung of OB1



### Network 2:



### Network 3:



# Program blocks

## FOB\_RTG1 [OB123]

| FOB_RTG1 Properties |          |           |           |                 |    |
|---------------------|----------|-----------|-----------|-----------------|----|
| General             |          |           |           |                 |    |
| Name                | FOB_RTG1 | Number    | 123       | Type            | OB |
| Language            | SCL      | Numbering | Automatic |                 |    |
| Information         |          |           |           |                 |    |
| Title               |          | Author    |           | Comment         |    |
| Family              |          | Version   | 0.1       | User-defined ID |    |
| Name                |          | Data type |           | Default value   |    |
| ▼ Input             |          |           |           |                 |    |
| Initial_Call        |          | Bool      |           |                 |    |
| Event_Count         |          | Int       |           |                 |    |

# Program blocks

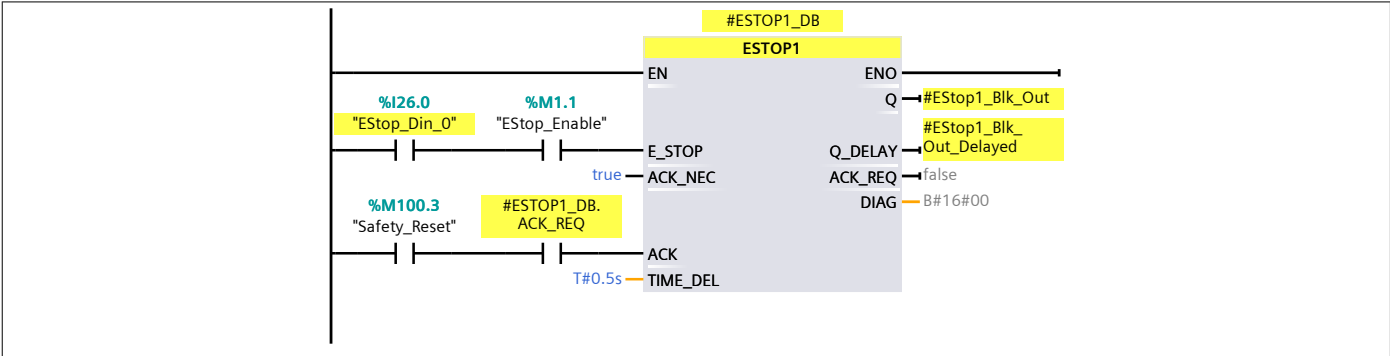
## Main\_Safety\_RTG1 [FB1]

### Main\_Safety\_RTG1 Properties

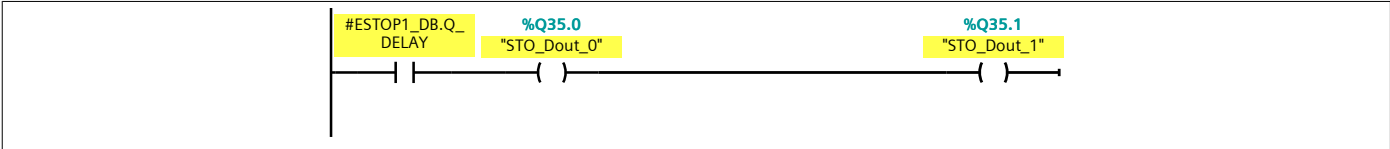
| General     |                  |           |        |                 |    |
|-------------|------------------|-----------|--------|-----------------|----|
| Name        | Main_Safety_RTG1 | Number    | 1      | Type            | FB |
| Language    | LAD              | Numbering | Manual |                 |    |
| Information |                  |           |        |                 |    |
| Title       |                  | Author    |        | Comment         |    |
| Family      |                  | Version   | 0.1    | User-defined ID |    |

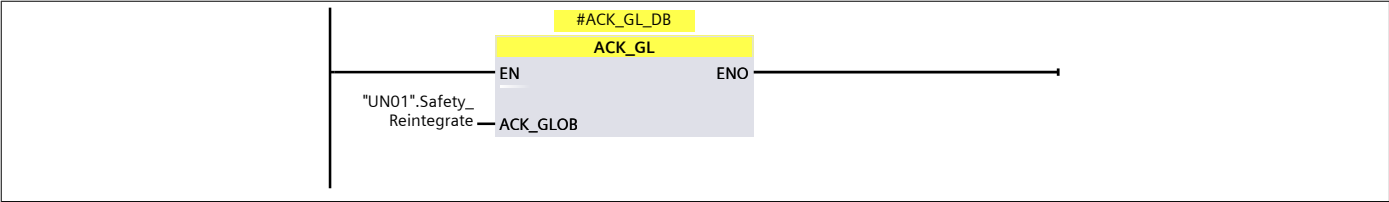
| Name                   | Data type | Default value | Retain     |
|------------------------|-----------|---------------|------------|
| Input                  |           |               |            |
| Output                 |           |               |            |
| InOut                  |           |               |            |
| ▼ Static               |           |               |            |
| ESTOP1_DB              | ESTOP1    |               |            |
| EStop1_Blк_Out         | Bool      | false         | Non-retain |
| EStop1_Blк_Out_Delayed | Bool      | false         | Non-retain |
| ACK_GL_DB              | ACK_GL    |               |            |
| Temp                   |           |               |            |
| Constant               |           |               |            |

### Network 1:



### Network 2: Delayed out drives STO



|                                                                                                                                                                                                                                                                                                                                                   |  |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| Totally Integrated Automation Portal                                                                                                                                                                                                                                                                                                              |  |  |
| <div>Network 3: Re-integration of F-IO to clear errors of channel faults</div> <div><pre>graph LR; UN01["UN01".Safety_Reintegrate] --&gt; EN; subgraph ACK_GL ["#ACK_GL_DB&lt;br/&gt;ACK_GL"]; EN --&gt; ENO; end; ENO --&gt; ACK_GLOB["ACK_GLOB"];</pre></div> |  |  |
| Safety information: FD525AC2 Consistent; STEP 7 Safety V20 Update 2;                                                                                                                                                                                                                                                                              |  |  |
|                                                                                                                                                                                                                                                                                                                                                   |  |  |

# Program blocks

## Main\_Safety\_RTG1\_DB [DB2]

| Main_Safety_RTG1_DB Properties |                     |           |           |                 |      |
|--------------------------------|---------------------|-----------|-----------|-----------------|------|
| General                        |                     |           |           |                 |      |
| Name                           | Main_Safety_RTG1_DB | Number    | 2         | Type            | DB   |
| Language                       | DB                  | Numbering | Automatic |                 |      |
| Information                    |                     |           |           |                 |      |
| Title                          |                     | Author    |           | Comment         |      |
| Family                         |                     | Version   | 0.1       | User-defined ID | FUSI |

| Name                   | Data type | Start value | Retain |
|------------------------|-----------|-------------|--------|
| Input                  |           |             |        |
| Output                 |           |             |        |
| InOut                  |           |             |        |
| ▼ Static               |           |             |        |
| ESTOP1_DB              | ESTOP1    |             | False  |
| EStop1_Blk_Out         | Bool      | false       | False  |
| EStop1_Blk_Out_Delayed | Bool      | false       | False  |
| ACK_GL_DB              | ACK_GL    |             | False  |

## Program blocks / System blocks / Program resources

## MC\_MOVERELATIVE [FB1204]

## MC\_MOVERELATIVE Properties

## General

|          |                 |           |           |      |    |
|----------|-----------------|-----------|-----------|------|----|
| Name     | MC_MOVERELATIVE | Number    | 1204      | Type | FB |
| Language | Motion_DB       | Numbering | Automatic |      |    |

## Information

|        |         |         |         |                 |  |
|--------|---------|---------|---------|-----------------|--|
| Title  |         | Author  | SIMATIC | Comment         |  |
| Family | MC_1500 | Version | 6.0     | User-defined ID |  |

| Name           | Data type          | Default value | Retain     |
|----------------|--------------------|---------------|------------|
| ▼ Input        |                    |               |            |
| Axis           | TO_PositioningAxis |               |            |
| Execute        | Bool               | false         | Non-retain |
| Distance       | LReal              | 0.0           | 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 |
| ▼ 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         |                    |               |            |

## 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 | 6.0     | 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    |           |               |            |

## 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 | 6.0     | 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            |              |               |            |

## Program blocks / System blocks / Program resources

### MC\_RESET [FB1207]

#### MC\_RESET Properties

##### General

|                 |           |                  |           |             |    |
|-----------------|-----------|------------------|-----------|-------------|----|
| <b>Name</b>     | MC_RESET  | <b>Number</b>    | 1207      | <b>Type</b> | FB |
| <b>Language</b> | Motion_DB | <b>Numbering</b> | Automatic |             |    |

##### Information

|               |         |                |         |                        |  |
|---------------|---------|----------------|---------|------------------------|--|
| <b>Title</b>  |         | <b>Author</b>  | SIMATIC | <b>Comment</b>         |  |
| <b>Family</b> | MC_1500 | <b>Version</b> | 6.0     | <b>User-defined ID</b> |  |

| 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         |           |               |            |

## 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 | 6.0     | 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             |              |               |            |

# Program blocks / System blocks / STEP 7 Safety

## RTG1SysInfo [DB30000]

| RTG1SysInfo Properties |             |           |           |                 |          |
|------------------------|-------------|-----------|-----------|-----------------|----------|
| General                |             |           |           |                 |          |
| Name                   | RTG1SysInfo | Number    | 30000     | Type            | DB       |
| Language               | DB          | Numbering | Automatic |                 |          |
| Information            |             |           |           |                 |          |
| Title                  |             | Author    | SafeSys   | Comment         |          |
| Family                 | F_CTRL      | Version   | 2.3       | User-defined ID | F_CTRL_1 |

| Name                | Data type | Start value | Retain |
|---------------------|-----------|-------------|--------|
| Input               |           |             |        |
| ▼ Output            |           |             |        |
| MODE                | Bool      | false       | False  |
| MODE_REMAINING_TIME | Time      | T#0ms       | False  |
| F_SYSINFO           | F_SYSINFO |             | False  |
| InOut               |           |             |        |
| Static              |           |             |        |

## Program blocks / System blocks / STEP 7 Safety

### F\_SystemInfo\_DB [DB30001]

#### F\_SystemInfo\_DB Properties

##### General

|                 |                 |                  |           |             |    |
|-----------------|-----------------|------------------|-----------|-------------|----|
| <b>Name</b>     | F_SystemInfo_DB | <b>Number</b>    | 30001     | <b>Type</b> | DB |
| <b>Language</b> | DB              | <b>Numbering</b> | Automatic |             |    |

##### Information

|               |  |                |     |                        |          |
|---------------|--|----------------|-----|------------------------|----------|
| <b>Title</b>  |  | <b>Author</b>  |     | <b>Comment</b>         |          |
| <b>Family</b> |  | <b>Version</b> | 0.1 | <b>User-defined ID</b> | F_GLOBDB |

| Name                          | Data type | Start value    | Retain |
|-------------------------------|-----------|----------------|--------|
| ▼ Static                      |           |                |        |
| FCCValue                      | DWord     | 16#0           | False  |
| HardwareSignature             | DWord     | DW#16#F8ED2327 | False  |
| SoftwareSignature             | DWord     | DW#16#465379B  | False  |
| CommunicationaddressSignature | DWord     | 16#0           | False  |

## Program blocks / System blocks / STEP 7 Safety

### F\_ACK\_GL [FB219]

#### F\_ACK\_GL Properties

##### General

|                 |          |                  |           |             |    |
|-----------------|----------|------------------|-----------|-------------|----|
| <b>Name</b>     | F_ACK_GL | <b>Number</b>    | 219       | <b>Type</b> | FB |
| <b>Language</b> | FBD      | <b>Numbering</b> | Automatic |             |    |

##### Information

|               |                                                                    |                |        |                        |          |
|---------------|--------------------------------------------------------------------|----------------|--------|------------------------|----------|
| <b>Title</b>  | F_: Global acknowledgement of all F-I/Os in an F-<br>Runtime group | <b>Author</b>  | Safety | <b>Comment</b>         |          |
| <b>Family</b> | F_FUNC                                                             | <b>Version</b> | 1.0    | <b>User-defined ID</b> | F_ACK_GL |

| Name     | Data type | Default value | Retain     |
|----------|-----------|---------------|------------|
| ▼ Input  |           |               |            |
| ACK_GLOB | Bool      | false         | Non-retain |
| Output   |           |               |            |
| InOut    |           |               |            |
| Static   |           |               |            |

## Program blocks / System blocks / STEP 7 Safety

## F\_ESTOP1 [FB215]

## F\_ESTOP1 Properties

## General

|          |          |           |           |      |    |
|----------|----------|-----------|-----------|------|----|
| Name     | F_ESTOP1 | Number    | 215       | Type | FB |
| Language | FBD      | Numbering | Automatic |      |    |

## Information

|        |                                          |         |        |                 |          |
|--------|------------------------------------------|---------|--------|-----------------|----------|
| Title  | F_: Emergency STOP up to stop category 1 | Author  | Safety | Comment         |          |
| Family | F_FUNC                                   | Version | 1.1    | User-defined ID | F_ESTOP1 |

| Name     | Data type | Default value | Retain     |
|----------|-----------|---------------|------------|
| ▼ Input  |           |               |            |
| E_STOP   | Bool      | false         | Non-retain |
| ACK_NEC  | Bool      | true          | Non-retain |
| ACK      | Bool      | false         | Non-retain |
| TIME_DEL | Time      | 0             | Non-retain |
| ▼ Output |           |               |            |
| Q        | Bool      | false         | Non-retain |
| Q_DELAY  | Bool      | false         | Non-retain |
| ACK_REQ  | Bool      | false         | Non-retain |
| DIAG     | Byte      | B#16#00       | Non-retain |
| InOut    |           |               |            |
| Static   |           |               |            |

## Program blocks / System blocks / STEP 7 Safety / Compiler blocks

## F\_PS\_IN\_2\_0\_0\_0\_0\_0\_2\_1\_0\_1\_23 [FB32768]

## F\_PS\_IN\_2\_0\_0\_0\_0\_0\_2\_1\_0\_1\_23 Properties

## General

|          |                                |           |           |      |    |
|----------|--------------------------------|-----------|-----------|------|----|
| Name     | F_PS_IN_2_0_0_0_0_0_2_1_0_1_23 | Number    | 32768     | Type | FB |
| Language | SCL                            | Numbering | Automatic |      |    |

## Information

|        |  |         |     |                 |  |
|--------|--|---------|-----|-----------------|--|
| Title  |  | Author  |     | Comment         |  |
| Family |  | Version | 0.1 | User-defined ID |  |

| Name     | Data type | Default value | Retain     |
|----------|-----------|---------------|------------|
| ▼ Input  |           |               |            |
| PASS_ON  | Bool      | false         | Non-retain |
| ACK_NEC  | Bool      | true          | Non-retain |
| ACK_REI  | Bool      | false         | Non-retain |
| IPAR_EN  | Bool      | false         | Non-retain |
| DISABLE  | Bool      | false         | Non-retain |
| ▼ Output |           |               |            |
| PASS_OUT | Bool      | true          | Non-retain |
| QBAD     | Bool      | true          | Non-retain |
| ACK_REQ  | Bool      | false         | Non-retain |
| IPAR_OK  | Bool      | false         | Non-retain |
| DIAG     | Byte      | 16#0          | Non-retain |
| DISABLED | Bool      | false         | Non-retain |
| InOut    |           |               |            |
| Static   |           |               |            |

## Program blocks / System blocks / STEP 7 Safety / Compiler blocks

### F\_PS\_OUT\_1\_0\_0\_0\_0\_1\_2\_1\_0\_1\_23 [FB32771]

#### F\_PS\_OUT\_1\_0\_0\_0\_0\_1\_2\_1\_0\_1\_23 Properties

##### General

|          |                                 |           |           |      |    |
|----------|---------------------------------|-----------|-----------|------|----|
| Name     | F_PS_OUT_1_0_0_0_0_1_2_1_0_1_23 | Number    | 32771     | Type | FB |
| Language | SCL                             | Numbering | Automatic |      |    |

##### Information

|        |  |         |     |                 |  |
|--------|--|---------|-----|-----------------|--|
| Title  |  | Author  |     | Comment         |  |
| Family |  | Version | 0.1 | User-defined ID |  |

| Name     | Data type | Default value | Retain     |
|----------|-----------|---------------|------------|
| ▼ Input  |           |               |            |
| PASS_ON  | Bool      | false         | Non-retain |
| ACK_NEC  | Bool      | true          | Non-retain |
| ACK_REI  | Bool      | false         | Non-retain |
| IPAR_EN  | Bool      | false         | Non-retain |
| DISABLE  | Bool      | false         | Non-retain |
| ▼ Output |           |               |            |
| PASS_OUT | Bool      | true          | Non-retain |
| QBAD     | Bool      | true          | Non-retain |
| ACK_REQ  | Bool      | false         | Non-retain |
| IPAR_OK  | Bool      | false         | Non-retain |
| DIAG     | Byte      | 16#0          | Non-retain |
| DISABLED | Bool      | false         | Non-retain |
| InOut    |           |               |            |
| Static   |           |               |            |

Program blocks / System blocks / STEP 7 Safety / Compiler blocks

FB1\_C [FB32776]

| FB1_C Properties |       |           |               |                 |        |
|------------------|-------|-----------|---------------|-----------------|--------|
| General          |       |           |               |                 |        |
| Name             | FB1_C | Number    | 32776         | Type            | FB     |
| Language         | SCL   | Numbering | Automatic     |                 |        |
| Information      |       |           |               |                 |        |
| Title            |       | Author    |               | Comment         |        |
| Family           |       | Version   | 0.1           | User-defined ID | FCOB   |
|                  |       |           |               |                 |        |
| Name             |       | Data type | Default value |                 | Retain |
| Input            |       |           |               |                 |        |
| Output           |       |           |               |                 |        |
| InOut            |       |           |               |                 |        |
| Static           |       |           |               |                 |        |

Program blocks / System blocks / STEP 7 Safety / Compiler blocks

DB2\_C [DB30004]

DB2\_C Properties

General

|          |       |           |           |      |    |
|----------|-------|-----------|-----------|------|----|
| Name     | DB2_C | Number    | 30004     | Type | DB |
| Language | DB    | Numbering | Automatic |      |    |

Information

|        |  |         |     |                 |      |
|--------|--|---------|-----|-----------------|------|
| Title  |  | Author  |     | Comment         |      |
| Family |  | Version | 0.1 | User-defined ID | FCDI |

| Name   | Data type | Start value | Retain |
|--------|-----------|-------------|--------|
| Input  |           |             |        |
| Output |           |             |        |
| InOut  |           |             |        |
| Static |           |             |        |

Program blocks / System blocks / STEP 7 Safety / Compiler blocks

FB32777\_IDB\_C [DB30005]

| FB32777_IDB_C Properties |               |           |           |                 |          |
|--------------------------|---------------|-----------|-----------|-----------------|----------|
| General                  |               |           |           |                 |          |
| Name                     | FB32777_IDB_C | Number    | 30005     | Type            | DB       |
| Language                 | DB            | Numbering | Automatic |                 |          |
| Information              |               |           |           |                 |          |
| Title                    |               | Author    | SafeSys   | Comment         |          |
| Family                   | F_CTRL        | Version   | 1.2       | User-defined ID | F_CTRL_D |

| Name     | Data type | Start value | Retain |
|----------|-----------|-------------|--------|
| Input    |           |             |        |
| ▼ Output |           |             |        |
| InD      | LInt      | 0           | False  |
| InOut    |           |             |        |
| Static   |           |             |        |

Program blocks / System blocks / STEP 7 Safety / Compiler blocks

FB32778\_IDB\_C [DB30006]

FB32778\_IDB\_C Properties

General

|          |               |           |           |      |    |
|----------|---------------|-----------|-----------|------|----|
| Name     | FB32778_IDB_C | Number    | 30006     | Type | DB |
| Language | DB            | Numbering | Automatic |      |    |

Information

|        |        |         |         |                 |          |
|--------|--------|---------|---------|-----------------|----------|
| Title  |        | Author  | SafeSys | Comment         |          |
| Family | F_CTRL | Version | 1.2     | User-defined ID | F_CTRL_2 |

| Name   | Data type | Start value | Retain |
|--------|-----------|-------------|--------|
| Input  |           |             |        |
| Output |           |             |        |
| InOut  |           |             |        |
| Static |           |             |        |

Program blocks / System blocks / STEP 7 Safety / Compiler blocks

FB32779\_IDB\_C [DB30007]

FB32779\_IDB\_C Properties

General

|          |               |           |           |      |    |
|----------|---------------|-----------|-----------|------|----|
| Name     | FB32779_IDB_C | Number    | 30007     | Type | DB |
| Language | DB            | Numbering | Automatic |      |    |

Information

|        |        |         |         |                 |         |
|--------|--------|---------|---------|-----------------|---------|
| Title  |        | Author  | SafeSys | Comment         |         |
| Family | F_CTRL | Version | 2.0     | User-defined ID | F_ET_LI |

| Name   | Data type | Start value | Retain |
|--------|-----------|-------------|--------|
| Input  |           |             |        |
| Output |           |             |        |
| InOut  |           |             |        |
| Static |           |             |        |

Program blocks / System blocks / STEP 7 Safety / Compiler blocks

FB32780\_IDB\_C [DB30008]

| FB32780_IDB_C Properties |               |           |             |                 |          |
|--------------------------|---------------|-----------|-------------|-----------------|----------|
| General                  |               |           |             |                 |          |
| Name                     | FB32780_IDB_C | Number    | 30008       | Type            | DB       |
| Language                 | DB            | Numbering | Automatic   |                 |          |
| Information              |               |           |             |                 |          |
| Title                    |               | Author    | SafeSys     | Comment         |          |
| Family                   | F_CTRL        | Version   | 1.0         | User-defined ID | F_CTRLRT |
|                          |               |           |             |                 |          |
| Name                     |               | Data type | Start value |                 | Retain   |
| Input                    |               |           |             |                 |          |
| Output                   |               |           |             |                 |          |
| InOut                    |               |           |             |                 |          |
| Static                   |               |           |             |                 |          |

## Program blocks / System blocks / STEP 7 Safety / Compiler blocks

### FOB\_GLOBAL\_1 [FC32767]

#### FOB\_GLOBAL\_1 Properties

##### General

|                 |              |                  |           |             |    |
|-----------------|--------------|------------------|-----------|-------------|----|
| <b>Name</b>     | FOB_GLOBAL_1 | <b>Number</b>    | 32767     | <b>Type</b> | FC |
| <b>Language</b> | SCL          | <b>Numbering</b> | Automatic |             |    |

##### Information

|               |  |                |     |                        |  |
|---------------|--|----------------|-----|------------------------|--|
| <b>Title</b>  |  | <b>Author</b>  |     | <b>Comment</b>         |  |
| <b>Family</b> |  | <b>Version</b> | 0.1 | <b>User-defined ID</b> |  |

| Name         | Data type | Default value |
|--------------|-----------|---------------|
| Input        |           |               |
| Output       |           |               |
| InOut        |           |               |
| ▼ Return     |           |               |
| FOB_GLOBAL_1 | Void      |               |

Program blocks / System blocks / STEP 7 Safety / Compiler blocks

FOB\_RTG1\_GCTX\_DB [DB30009]

| FOB_RTG1_GCTX_DB Properties |                  |           |             |                 |          |
|-----------------------------|------------------|-----------|-------------|-----------------|----------|
| General                     |                  |           |             |                 |          |
| Name                        | FOB_RTG1_GCTX_DB | Number    | 30009       | Type            | DB       |
| Language                    | DB               | Numbering | Automatic   |                 |          |
| Information                 |                  |           |             |                 |          |
| Title                       |                  | Author    |             | Comment         |          |
| Family                      |                  | Version   | 0.1         | User-defined ID | F_GLOBDB |
|                             |                  |           |             |                 |          |
| Name                        |                  | Data type | Start value |                 | Retain   |
| Static                      |                  |           |             |                 |          |

Program blocks / System blocks / STEP 7 Safety / Compiler blocks

FB1\_C\_GCTX\_DB [DB30010]

| FB1_C_GCTX_DB Properties |               |           |             |                 |          |
|--------------------------|---------------|-----------|-------------|-----------------|----------|
| General                  |               |           |             |                 |          |
| Name                     | FB1_C_GCTX_DB | Number    | 30010       | Type            | DB       |
| Language                 | DB            | Numbering | Automatic   |                 |          |
| Information              |               |           |             |                 |          |
| Title                    |               | Author    |             | Comment         |          |
| Family                   |               | Version   | 0.1         | User-defined ID | F_GLOBDB |
|                          |               |           |             |                 |          |
| Name                     |               | Data type | Start value |                 | Retain   |
| Static                   |               |           |             |                 |          |

Program blocks / System blocks / STEP 7 Safety / Compiler blocks

FGESTOP1\_GCTX\_DB [DB30011]

| FGESTOP1_GCTX_DB Properties |                  |           |             |                 |          |
|-----------------------------|------------------|-----------|-------------|-----------------|----------|
| General                     |                  |           |             |                 |          |
| Name                        | FGESTOP1_GCTX_DB | Number    | 30011       | Type            | DB       |
| Language                    | DB               | Numbering | Automatic   |                 |          |
| Information                 |                  |           |             |                 |          |
| Title                       |                  | Author    |             | Comment         |          |
| Family                      |                  | Version   | 0.1         | User-defined ID | F_GLOBDB |
|                             |                  |           |             |                 |          |
| Name                        |                  | Data type | Start value |                 | Retain   |
| Static                      |                  |           |             |                 |          |

Program blocks / System blocks / STEP 7 Safety / Compiler blocks

FGACK\_GL\_GCTX\_DB [DB30012]

| FGACK_GL_GCTX_DB Properties |                  |           |             |                 |          |
|-----------------------------|------------------|-----------|-------------|-----------------|----------|
| General                     |                  |           |             |                 |          |
| Name                        | FGACK_GL_GCTX_DB | Number    | 30012       | Type            | DB       |
| Language                    | DB               | Numbering | Automatic   |                 |          |
| Information                 |                  |           |             |                 |          |
| Title                       |                  | Author    |             | Comment         |          |
| Family                      |                  | Version   | 0.1         | User-defined ID | F_GLOBDB |
|                             |                  |           |             |                 |          |
| Name                        |                  | Data type | Start value |                 | Retain   |
| Static                      |                  |           |             |                 |          |

Program blocks / System blocks / STEP 7 Safety / Compiler blocks

SPLIT\_FOB\_1\_1 [FC32769]

SPLIT\_FOB\_1\_1 Properties

General

|          |               |           |           |      |    |
|----------|---------------|-----------|-----------|------|----|
| Name     | SPLIT_FOB_1_1 | Number    | 32769     | Type | FC |
| Language | SCL           | Numbering | Automatic |      |    |

Information

|        |  |         |     |                 |  |
|--------|--|---------|-----|-----------------|--|
| Title  |  | Author  |     | Comment         |  |
| Family |  | Version | 0.1 | User-defined ID |  |

| Name          | Data type | Default value |
|---------------|-----------|---------------|
| Input         |           |               |
| Output        |           |               |
| InOut         |           |               |
| ▼ Return      |           |               |
| SPLIT_FOB_1_1 | Void      |               |

## Program blocks / System blocks / STEP 7 Safety / Compiler blocks

### F\_JL\_CORR [FC32768]

#### F\_JL\_CORR Properties

##### General

|                 |           |                  |           |             |    |
|-----------------|-----------|------------------|-----------|-------------|----|
| <b>Name</b>     | F_JL_CORR | <b>Number</b>    | 32768     | <b>Type</b> | FC |
| <b>Language</b> | SCL       | <b>Numbering</b> | Automatic |             |    |

##### Information

|               |                                                                 |                |         |                            |          |
|---------------|-----------------------------------------------------------------|----------------|---------|----------------------------|----------|
| <b>Title</b>  | F_: Jmp label / Loop -<br>global correction imple-<br>mentation | <b>Author</b>  | SafeSys | <b>Comment</b>             |          |
| <b>Family</b> | F_SYSINS                                                        | <b>Version</b> | 1.0     | <b>User-defined<br/>ID</b> | F_JLCORR |

| Name              | Data type | Default value |
|-------------------|-----------|---------------|
| ▼ Input           |           |               |
| dnDB_NR_GCTX      | DInt      |               |
| dnBIT_OFFSET_GCTX | DInt      |               |
| dnDB_LEN_GCTX     | DInt      |               |
| InD_CORR          | LInt      |               |
| Output            |           |               |
| InOut             |           |               |
| ▼ Return          |           |               |
| Ret_Val           | Void      |               |

## Program blocks / System blocks / STEP 7 Safety / Compiler blocks

### F\_CTRL\_RT [FB32780]

#### F\_CTRL\_RT Properties

##### General

|                 |           |                  |           |             |    |
|-----------------|-----------|------------------|-----------|-------------|----|
| <b>Name</b>     | F_CTRL_RT | <b>Number</b>    | 32780     | <b>Type</b> | FB |
| <b>Language</b> | SCL       | <b>Numbering</b> | Automatic |             |    |

##### Information

|               |                                                |                |         |                        |          |
|---------------|------------------------------------------------|----------------|---------|------------------------|----------|
| <b>Title</b>  | F_: Measurement of current and longest runtime | <b>Author</b>  | SafeSys | <b>Comment</b>         |          |
| <b>Family</b> | F_CTRL                                         | <b>Version</b> | 1.0     | <b>User-defined ID</b> | F_CTRLRT |

| Name   | Data type | Default value | Retain |
|--------|-----------|---------------|--------|
| Input  |           |               |        |
| Output |           |               |        |
| InOut  |           |               |        |
| Static |           |               |        |

## Program blocks / System blocks / STEP 7 Safety / Compiler blocks

### F\_ET\_LI [FB32779]

#### F\_ET\_LI Properties

##### General

|                 |         |                  |           |             |    |
|-----------------|---------|------------------|-----------|-------------|----|
| <b>Name</b>     | F_ET_LI | <b>Number</b>    | 32779     | <b>Type</b> | FB |
| <b>Language</b> | SCL     | <b>Numbering</b> | Automatic |             |    |

##### Information

|               |                                 |                |         |                        |         |
|---------------|---------------------------------|----------------|---------|------------------------|---------|
| <b>Title</b>  | F_: Calculation of Elapsed Time | <b>Author</b>  | SafeSys | <b>Comment</b>         |         |
| <b>Family</b> | F_CTRL                          | <b>Version</b> | 2.0     | <b>User-defined ID</b> | F_ET_LI |

| Name   | Data type | Default value | Retain |
|--------|-----------|---------------|--------|
| Input  |           |               |        |
| Output |           |               |        |
| InOut  |           |               |        |
| Static |           |               |        |

Program blocks / System blocks / STEP 7 Safety / Compiler blocks

F\_CTRL\_2 [FB32778]

F\_CTRL\_2 Properties

General

|          |          |           |           |      |    |
|----------|----------|-----------|-----------|------|----|
| Name     | F_CTRL_2 | Number    | 32778     | Type | FB |
| Language | SCL      | Numbering | Automatic |      |    |

Information

|        |                                          |         |         |                 |          |
|--------|------------------------------------------|---------|---------|-----------------|----------|
| Title  | F_: Test Block and Programme Run Control | Author  | SafeSys | Comment         |          |
| Family | F_CTRL                                   | Version | 1.2     | User-defined ID | F_CTRL_2 |

| Name   | Data type | Default value | Retain |
|--------|-----------|---------------|--------|
| Input  |           |               |        |
| Output |           |               |        |
| InOut  |           |               |        |
| Static |           |               |        |

## Program blocks / System blocks / STEP 7 Safety / Compiler blocks

### F\_CTRL\_D [FB32777]

#### F\_CTRL\_D Properties

##### General

|                 |          |                  |           |             |    |
|-----------------|----------|------------------|-----------|-------------|----|
| <b>Name</b>     | F_CTRL_D | <b>Number</b>    | 32777     | <b>Type</b> | FB |
| <b>Language</b> | SCL      | <b>Numbering</b> | Automatic |             |    |

##### Information

|               |                                       |                |         |                        |          |
|---------------|---------------------------------------|----------------|---------|------------------------|----------|
| <b>Title</b>  | F_: cyclic calculation of D-signature | <b>Author</b>  | SafeSys | <b>Comment</b>         |          |
| <b>Family</b> | F_CTRL                                | <b>Version</b> | 1.2     | <b>User-defined ID</b> | F_CTRL_D |

| Name     | Data type | Default value | Retain     |
|----------|-----------|---------------|------------|
| Input    |           |               |            |
| ▼ Output |           |               |            |
| InD      | LInt      | 0             | Non-retain |
| InOut    |           |               |            |
| Static   |           |               |            |

Program blocks / System blocks / STEP 7 Safety / Compiler blocks

FGACK\_GL [FB32775]

| FGACK_GL Properties |          |           |               |                 |          |
|---------------------|----------|-----------|---------------|-----------------|----------|
| General             |          |           |               |                 |          |
| Name                | FGACK_GL | Number    | 32775         | Type            | FB       |
| Language            | SCL      | Numbering | Automatic     |                 |          |
| Information         |          |           |               |                 |          |
| Title               |          | Author    | Safety        | Comment         |          |
| Family              | F_IMAGE  | Version   | 1.0           | User-defined ID | FGACK_GL |
|                     |          |           |               |                 |          |
| Name                |          | Data type | Default value |                 | Retain   |
| Input               |          |           |               |                 |          |
| Output              |          |           |               |                 |          |
| InOut               |          |           |               |                 |          |
| Static              |          |           |               |                 |          |

## Program blocks / System blocks / STEP 7 Safety / Compiler blocks

### FGESTOP1 [FB32774]

#### FGESTOP1 Properties

##### General

|                 |          |                  |           |             |    |
|-----------------|----------|------------------|-----------|-------------|----|
| <b>Name</b>     | FGESTOP1 | <b>Number</b>    | 32774     | <b>Type</b> | FB |
| <b>Language</b> | SCL      | <b>Numbering</b> | Automatic |             |    |

##### Information

|               |         |                |        |                        |          |
|---------------|---------|----------------|--------|------------------------|----------|
| <b>Title</b>  |         | <b>Author</b>  | Safety | <b>Comment</b>         |          |
| <b>Family</b> | F_IMAGE | <b>Version</b> | 1.0    | <b>User-defined ID</b> | FGESTOP1 |

| Name   | Data type | Default value | Retain |
|--------|-----------|---------------|--------|
| Input  |           |               |        |
| Output |           |               |        |
| InOut  |           |               |        |
| Static |           |               |        |

## Program blocks / System blocks / STEP 7 Safety / Compiler blocks

### F\_8BOOL\_OUTPUT\_NC [FB32773]

#### F\_8BOOL\_OUTPUT\_NC Properties

##### General

|                 |                   |                  |           |             |    |
|-----------------|-------------------|------------------|-----------|-------------|----|
| <b>Name</b>     | F_8BOOL_OUTPUT_NC | <b>Number</b>    | 32773     | <b>Type</b> | FB |
| <b>Language</b> | SCL               | <b>Numbering</b> | Automatic |             |    |

##### Information

|               |                                                                   |                |         |                            |          |
|---------------|-------------------------------------------------------------------|----------------|---------|----------------------------|----------|
| <b>Title</b>  | F_: Channel Driver Block 8<br>BOOL Output not channel<br>granular | <b>Author</b>  | SafeSys | <b>Comment</b>             |          |
| <b>Family</b> | F_DRIVER                                                          | <b>Version</b> | 2.0     | <b>User-defined<br/>ID</b> | F_8BOUNC |

| Name   | Data type | Default value | Retain |
|--------|-----------|---------------|--------|
| Input  |           |               |        |
| Output |           |               |        |
| InOut  |           |               |        |
| Static |           |               |        |

## Program blocks / System blocks / STEP 7 Safety / Compiler blocks

### F\_8BOOL\_INPUT\_NC [FB32772]

#### F\_8BOOL\_INPUT\_NC Properties

##### General

|                 |                  |                  |           |             |    |
|-----------------|------------------|------------------|-----------|-------------|----|
| <b>Name</b>     | F_8BOOL_INPUT_NC | <b>Number</b>    | 32772     | <b>Type</b> | FB |
| <b>Language</b> | SCL              | <b>Numbering</b> | Automatic |             |    |

##### Information

|               |                                                                  |                |         |                            |          |
|---------------|------------------------------------------------------------------|----------------|---------|----------------------------|----------|
| <b>Title</b>  | F_: Channel Driver Block<br>8 BOOL Input not channel<br>granular | <b>Author</b>  | SafeSys | <b>Comment</b>             |          |
| <b>Family</b> | F_DRIVER                                                         | <b>Version</b> | 2.0     | <b>User-defined<br/>ID</b> | F_8BINNC |

| Name   | Data type | Default value | Retain |
|--------|-----------|---------------|--------|
| Input  |           |               |        |
| Output |           |               |        |
| InOut  |           |               |        |
| Static |           |               |        |

Program blocks / System blocks / STEP 7 Safety / Compiler blocks

F\_PS\_SEEDPASS\_SEND [FB32770]

| F_PS_SEEDPASS_SEND Properties |                                                                                      |           |               |                    |          |
|-------------------------------|--------------------------------------------------------------------------------------|-----------|---------------|--------------------|----------|
| General                       |                                                                                      |           |               |                    |          |
| Name                          | F_PS_SEEDPASS_SEND                                                                   | Number    | 32770         | Type               | FB       |
| Language                      | SCL                                                                                  | Numbering | Automatic     |                    |          |
| Information                   |                                                                                      |           |               |                    |          |
| Title                         | F_: Module Driver Block<br>Send PROFIsafe V2 + Pro-<br>toextension up to 13<br>Bytes | Author    | SafeSys       | Comment            |          |
| Family                        | F_DRIVER                                                                             | Version   | 2.1           | User-defined<br>ID | F_SEPA_S |
| Name                          |                                                                                      | Data type | Default value |                    | Retain   |
| Input                         |                                                                                      |           |               |                    |          |
| Output                        |                                                                                      |           |               |                    |          |
| InOut                         |                                                                                      |           |               |                    |          |
| Static                        |                                                                                      |           |               |                    |          |

## Program blocks / System blocks / STEP 7 Safety / Compiler blocks

### F\_PS\_SEEDPASS\_RCV [FB32769]

#### F\_PS\_SEEDPASS\_RCV Properties

##### General

|                 |                   |                  |           |             |    |
|-----------------|-------------------|------------------|-----------|-------------|----|
| <b>Name</b>     | F_PS_SEEDPASS_RCV | <b>Number</b>    | 32769     | <b>Type</b> | FB |
| <b>Language</b> | SCL               | <b>Numbering</b> | Automatic |             |    |

##### Information

|               |                                                                                           |                |         |                            |          |
|---------------|-------------------------------------------------------------------------------------------|----------------|---------|----------------------------|----------|
| <b>Title</b>  | F_: Module Driver Block<br>Receive PROFIsafe V2 +<br>Protocol extension up to<br>13 Bytes | <b>Author</b>  | SafeSys | <b>Comment</b>             |          |
| <b>Family</b> | F_DRIVER                                                                                  | <b>Version</b> | 2.2     | <b>User-defined<br/>ID</b> | F_SEPA_R |

| Name   | Data type | Default value | Retain |
|--------|-----------|---------------|--------|
| Input  |           |               |        |
| Output |           |               |        |
| InOut  |           |               |        |
| Static |           |               |        |

## Program blocks / System blocks / STEP 7 Safety / Compiler blocks

### F\_CTRL\_1 [FB32767]

#### F\_CTRL\_1 Properties

##### General

|                 |          |                  |           |             |    |
|-----------------|----------|------------------|-----------|-------------|----|
| <b>Name</b>     | F_CTRL_1 | <b>Number</b>    | 32767     | <b>Type</b> | FB |
| <b>Language</b> | SCL      | <b>Numbering</b> | Automatic |             |    |

##### Information

|               |                            |                |         |                        |          |
|---------------|----------------------------|----------------|---------|------------------------|----------|
| <b>Title</b>  | F_: Cycle Control and Mode | <b>Author</b>  | SafeSys | <b>Comment</b>         |          |
| <b>Family</b> | F_CTRL                     | <b>Version</b> | 2.3     | <b>User-defined ID</b> | F_CTRL_1 |

| Name                | Data type | Default value | Retain     |
|---------------------|-----------|---------------|------------|
| Input               |           |               |            |
| ▼ Output            |           |               |            |
| MODE                | Bool      | false         | Non-retain |
| MODE_REMAINING_TIME | Time      | T#0ms         | Non-retain |
| F_SYSINFO           | F_SYSINFO |               | Non-retain |
| InOut               |           |               |            |
| Static              |           |               |            |

## Program blocks / System blocks / STEP 7 Safety / F-I/O data blocks

## F00026\_F-DI16x24VDC\_1 [DB30002]

## F00026\_F-DI16x24VDC\_1 Properties

## General

|          |                       |           |           |      |    |
|----------|-----------------------|-----------|-----------|------|----|
| Name     | F00026_F-DI16x24VDC_1 | Number    | 30002     | Type | DB |
| Language | DB                    | Numbering | Automatic |      |    |

## Information

|        |  |         |     |                 |      |
|--------|--|---------|-----|-----------------|------|
| Title  |  | Author  |     | Comment         |      |
| Family |  | Version | 0.1 | User-defined ID | FDRI |

| Name     | Data type | Start value | Retain |
|----------|-----------|-------------|--------|
| ▼ Input  |           |             |        |
| PASS_ON  | Bool      | false       | False  |
| ACK_NEC  | Bool      | true        | False  |
| ACK_REI  | Bool      | false       | False  |
| IPAR_EN  | Bool      | false       | False  |
| DISABLE  | Bool      | false       | False  |
| ▼ Output |           |             |        |
| PASS_OUT | Bool      | true        | False  |
| QBAD     | Bool      | true        | False  |
| ACK_REQ  | Bool      | false       | False  |
| IPAR_OK  | Bool      | false       | False  |
| DIAG     | Byte      | 16#0        | False  |
| DISABLED | Bool      | false       | False  |
| InOut    |           |             |        |
| Static   |           |             |        |

## Program blocks / System blocks / STEP 7 Safety / F-I/O data blocks

## F00035\_F-DQ8x24VDC/2APPM\_1 [DB30003]

## F00035\_F-DQ8x24VDC/2APPM\_1 Properties

## General

|          |                                |           |           |      |    |
|----------|--------------------------------|-----------|-----------|------|----|
| Name     | F00035_F-DQ8x24VDC/<br>2APPM_1 | Number    | 30003     | Type | DB |
| Language | DB                             | Numbering | Automatic |      |    |

## Information

|        |  |         |     |                    |      |
|--------|--|---------|-----|--------------------|------|
| Title  |  | Author  |     | Comment            |      |
| Family |  | Version | 0.1 | User-defined<br>ID | FDRI |

| Name     | Data type | Start value | Retain |
|----------|-----------|-------------|--------|
| ▼ Input  |           |             |        |
| PASS_ON  | Bool      | false       | False  |
| ACK_NEC  | Bool      | true        | False  |
| ACK_REI  | Bool      | false       | False  |
| IPAR_EN  | Bool      | false       | False  |
| DISABLE  | Bool      | false       | False  |
| ▼ Output |           |             |        |
| PASS_OUT | Bool      | true        | False  |
| QBAD     | Bool      | true        | False  |
| ACK_REQ  | Bool      | false       | False  |
| IPAR_OK  | Bool      | false       | False  |
| DIAG     | Byte      | 16#0        | False  |
| DISABLED | Bool      | false       | False  |
| InOut    |           |             |        |
| Static   |           |             |        |

Program blocks / System blocks / STEP 7 Safety

Flexible F-Link

This folder is empty.

**Program blocks / System blocks / STEP 7 Safety**

**OPC UA Safety**

This folder is empty.

## Program blocks / 0\_UN01\_ExampleMachine

### UN01\_00\_Main [FB100]

#### UN01\_00\_Main Properties

##### General

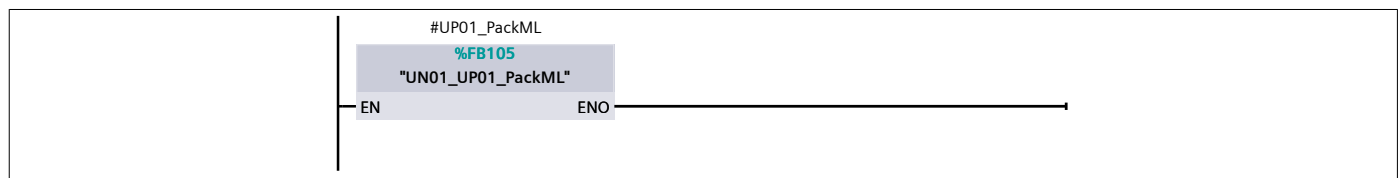
|          |              |           |        |      |    |
|----------|--------------|-----------|--------|------|----|
| Name     | UN01_00_Main | Number    | 100    | Type | FB |
| Language | LAD          | Numbering | Manual |      |    |

##### Information

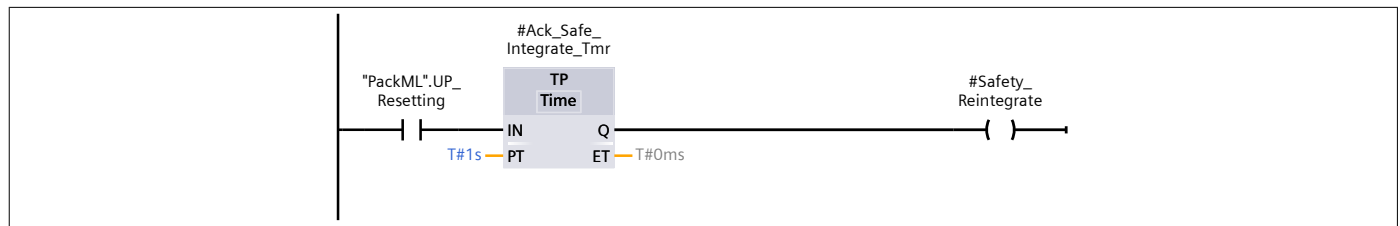
|        |                                       |         |     |                 |  |
|--------|---------------------------------------|---------|-----|-----------------|--|
| Title  | Example machine for simplified PackML | Author  |     | Comment         |  |
| Family |                                       | Version | 0.1 | User-defined ID |  |

| Name                   | Data type          | Default value | Retain     |
|------------------------|--------------------|---------------|------------|
| Input                  |                    |               |            |
| Output                 |                    |               |            |
| InOut                  |                    |               |            |
| ▼ Static               |                    |               |            |
| UP01_PackML            | "UN01_UP01_PackML" |               |            |
| Lamp_Flash_Tmr         | TON_TIME           |               | Non-retain |
| Lamp_Flash             | Bool               | false         | Non-retain |
| Ack_Safe_Integrate_Tmr | TP_TIME            |               | Non-retain |
| Safety_Reintegrate     | Bool               | false         | Non-retain |
| Temp                   |                    |               |            |
| Constant               |                    |               |            |

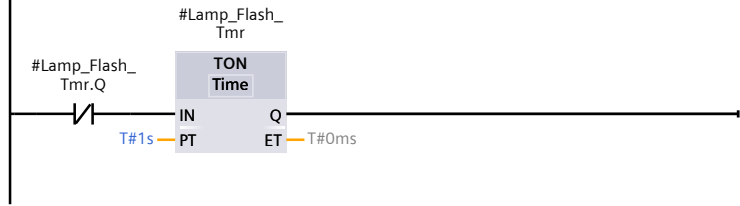
#### Network 1: PackML



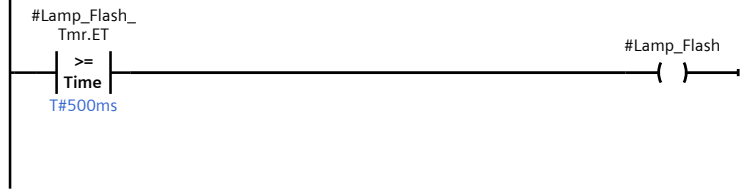
#### Network 2: Safety Re-intgrate



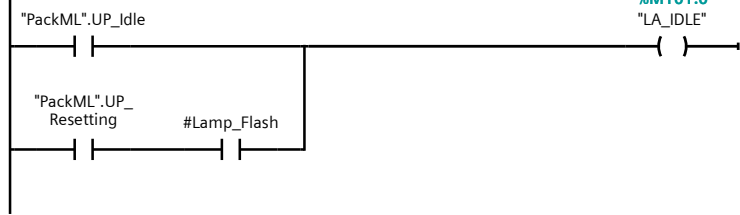
#### Network 3: Timer for flashing indicators



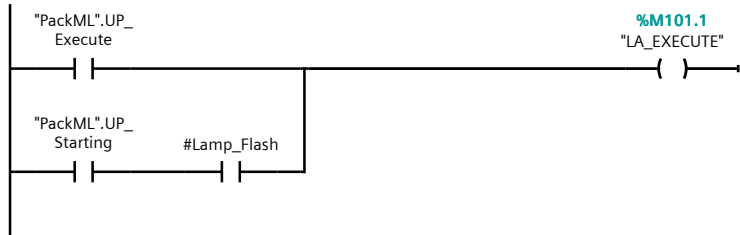
Network 4: Flash bit for flashing indicators



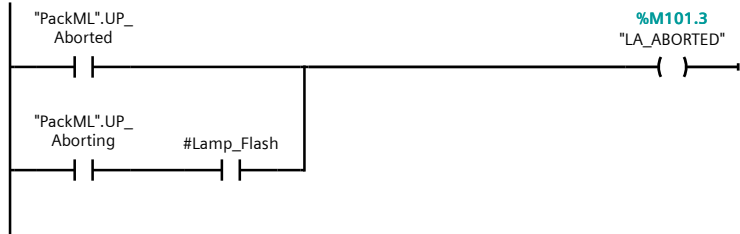
Network 5: Idle/Resetting state indicator



Network 6: Execute/Starting state indicator



Network 7: Aborted/Aborting state indicator



## Program blocks / 0\_UN01\_ExampleMachine

### UN01\_UP01\_PackML [FB105]

#### UN01\_UP01\_PackML Properties

##### General

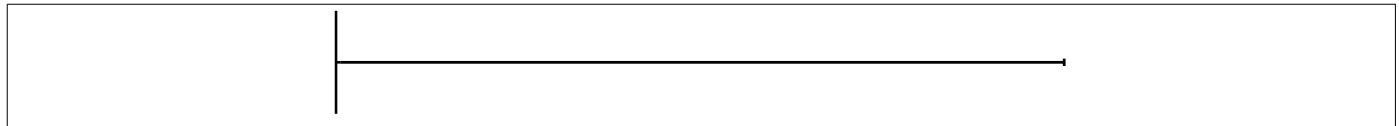
|          |                  |           |        |      |    |
|----------|------------------|-----------|--------|------|----|
| Name     | UN01_UP01_PackML | Number    | 105    | Type | FB |
| Language | LAD              | Numbering | Manual |      |    |

##### Information

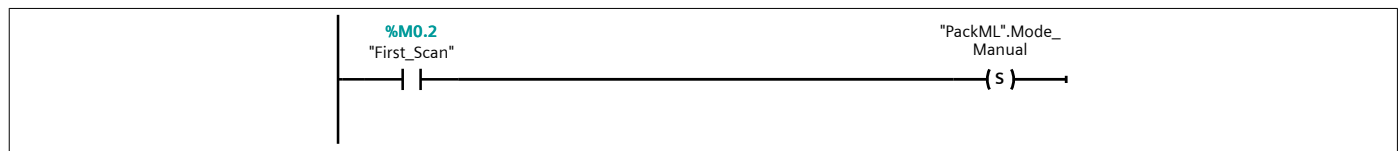
|        |  |         |     |                 |  |
|--------|--|---------|-----|-----------------|--|
| Title  |  | Author  |     | Comment         |  |
| Family |  | Version | 0.1 | User-defined ID |  |

| Name                | Data type            | Default value | Retain     |
|---------------------|----------------------|---------------|------------|
| Input               |                      |               |            |
| Output              |                      |               |            |
| InOut               |                      |               |            |
| ▼ Static            |                      |               |            |
| ModeChgTrans        | Bool                 | false         | Non-retain |
| ModeChg2Trans       | Bool                 | false         | Non-retain |
| Wrk_Instr_Err_Trans | Array[1..32] of Bool |               | Non-retain |
| Temp                |                      |               |            |
| Constant            |                      |               |            |

#### Network 1: Handle Mode

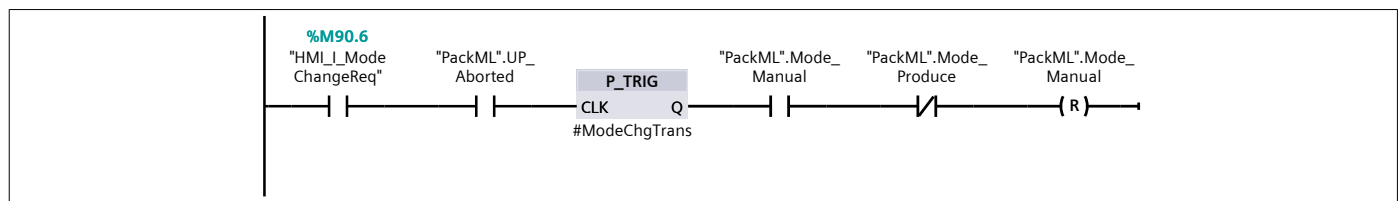


#### Network 2: On first scan - set to manual mode

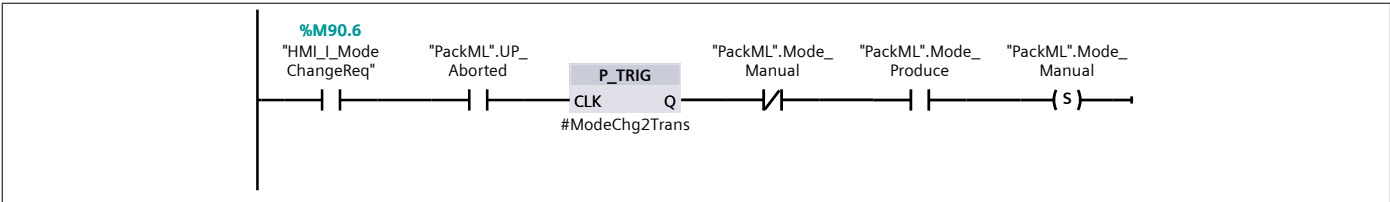


#### Network 3: Toggle between modes

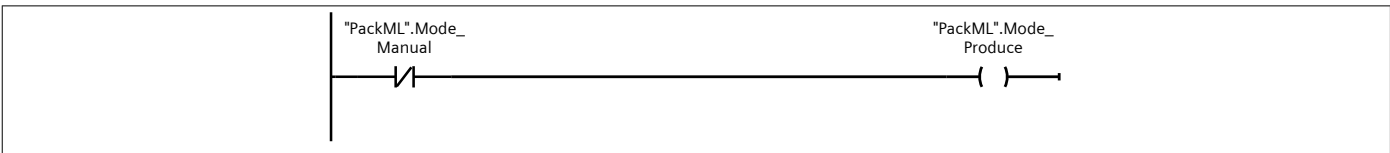
Only allowed when aborted



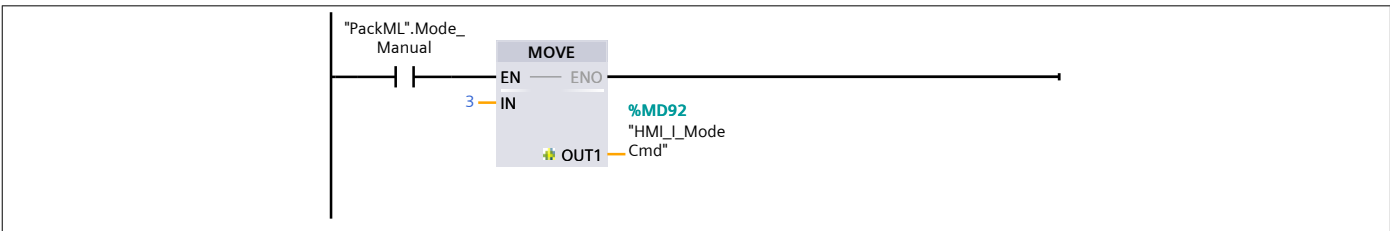
Network 4:



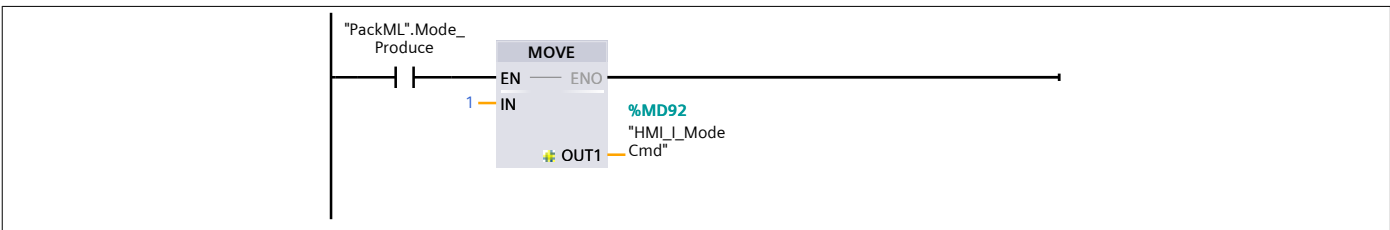
Network 5:



Network 6: Display mode for operator



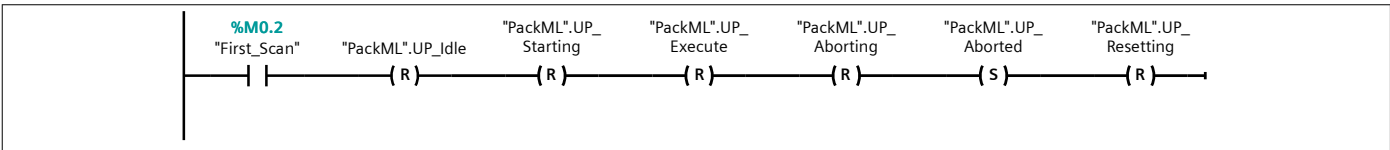
Network 7:



Network 8: Handle states

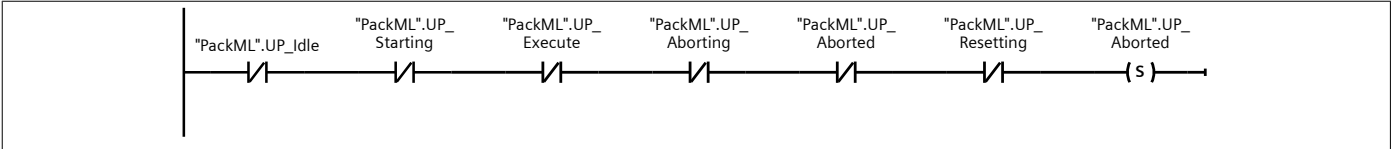
Network 9: First scan

First scan - set to ABORTED state



### Network 10: No states active

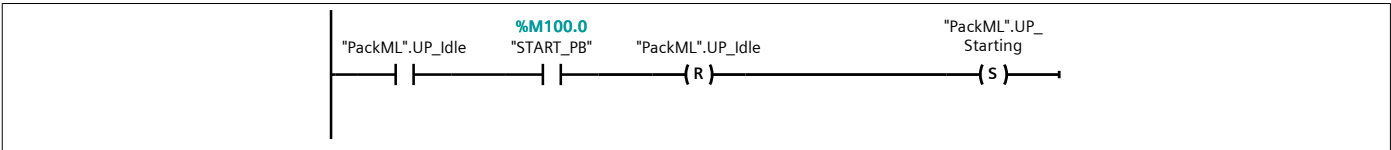
If no PackML states active, set to ABORTED. This happens if updated software is downloaded and processor does not transition from STOP to RUN



### Network 11: Transition from IDLE to STARTING

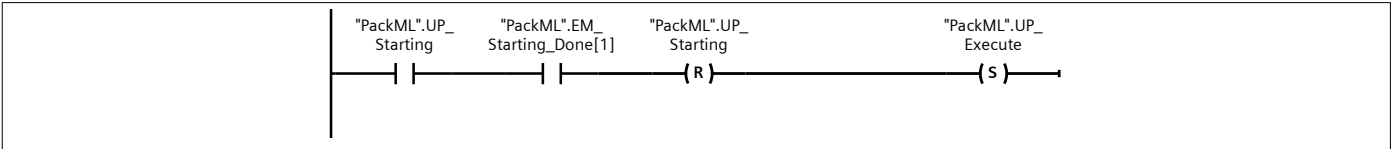
IDLE -  
Wait for start pushbutton press.

Next state is STARTING

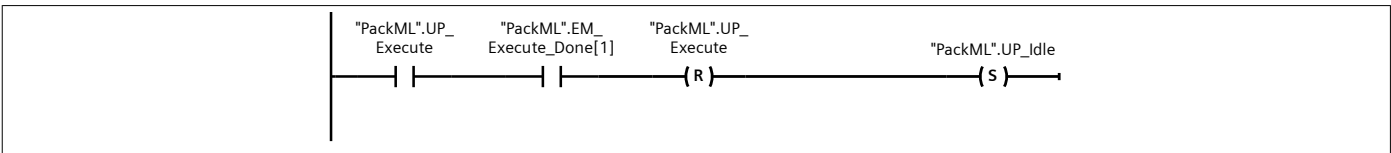


### Network 12: Transition from STARTING to EXECUTE

Wait for all axes to start.

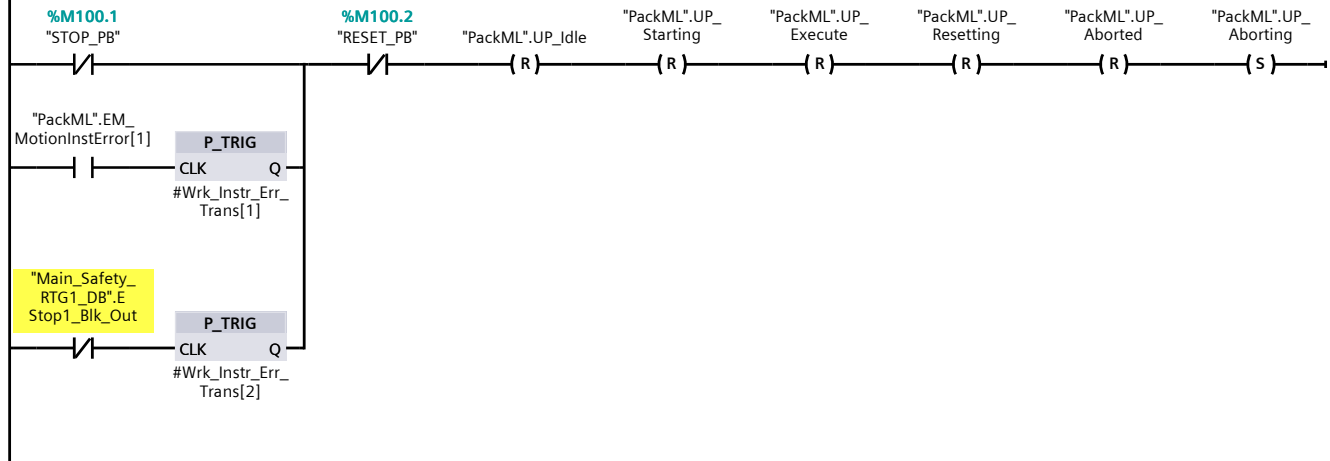


### Network 13: Transition from EXECUTE to IDLE



### Network 14: Transition to ABORTING

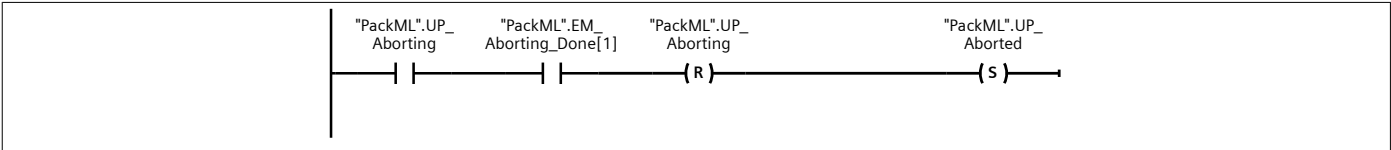
ABORTING -  
From any state if stop or error in motion blocks for any axis.  
On error transition so source of error can persist and not keep triggering Abort



**Network 15: Transtion from ABORTING to ABORTED**

Exit when all axes aborting complete

Next step is ABORTED

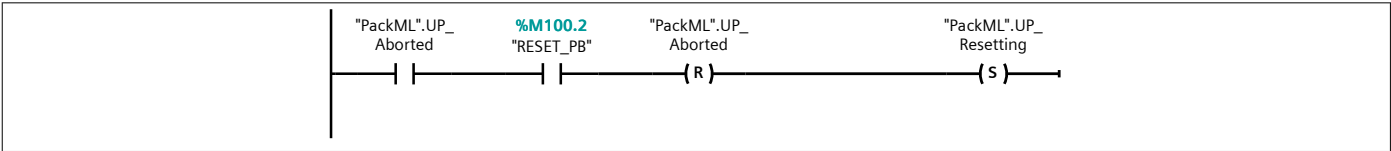


**Network 16: Transition from ABORTED to RESETTING**

ABORTED -

Stay in state until reset pressed.

Next state is RESETTING

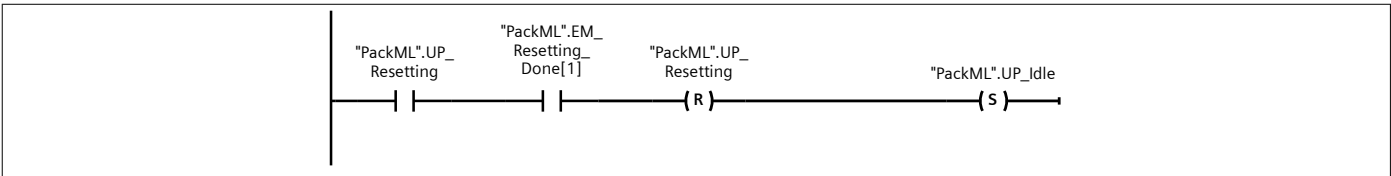


**Network 17: Transition from RESETTING to IDLE**

RESETTING -

Wait for all axes to finish resetting.

Next step IDLE



# 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               |                    |             |        |
| UP01_PackML            | "UN01_UP01_PackML" |             | False  |
| Lamp_Flash_Tmr         | TON_TIME           |             | False  |
| Lamp_Flash             | Bool               | false       | False  |
| Ack_Safe_Integrate_Tmr | TP_TIME            |             | False  |
| Safety_Reintegrate     | Bool               | false       | False  |

## Program blocks / 0\_UN01\_ExampleMachine

## PackML [DB10]

## PackML Properties

## General

|          |        |           |        |      |    |
|----------|--------|-----------|--------|------|----|
| Name     | PackML | Number    | 10     | Type | DB |
| Language | DB     | Numbering | Manual |      |    |

## Information

|        |              |         |     |                 |              |
|--------|--------------|---------|-----|-----------------|--------------|
| Title  | Machine Data | Author  |     | Comment         | Machine Data |
| Family |              | Version | 1.0 | User-defined ID |              |

| Name               | Data type            | Start value | Retain |
|--------------------|----------------------|-------------|--------|
| ▼ Static           |                      |             |        |
| Mode_Manual        | Bool                 | false       | False  |
| Mode_Produce       | Bool                 | false       | False  |
| UP_Aborted         | Bool                 | false       | False  |
| UP_Aborting        | Bool                 | false       | False  |
| UP_Execute         | Bool                 | false       | False  |
| UP_Idle            | Bool                 | false       | False  |
| UP_Resetting       | Bool                 | false       | False  |
| UP_Starting        | Bool                 | false       | False  |
| EM_Aborting_Done   | Array[0..31] of Bool |             | False  |
| EM_Execute_Done    | Array[0..31] of Bool |             | False  |
| EM_Resetting_Done  | Array[0..31] of Bool |             | False  |
| EM_Starting_Done   | Array[0..31] of Bool |             | False  |
| EM_MotionInstError | Array[0..31] of Bool |             | False  |

# Program blocks / EM01\_Axis01

## EM01\_00\_Main [FB200]

### EM01\_00\_Main Properties

#### General

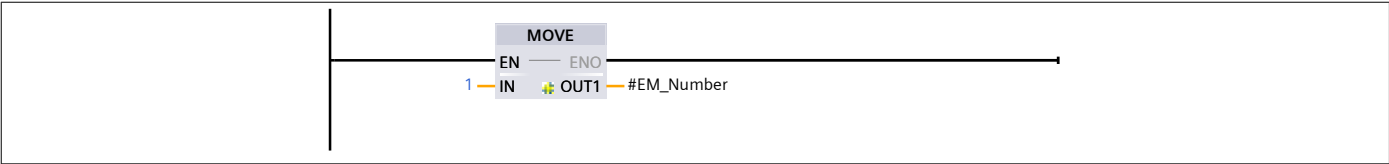
|          |              |           |        |      |    |
|----------|--------------|-----------|--------|------|----|
| Name     | EM01_00_Main | Number    | 200    | Type | FB |
| Language | LAD          | Numbering | Manual |      |    |

#### Information

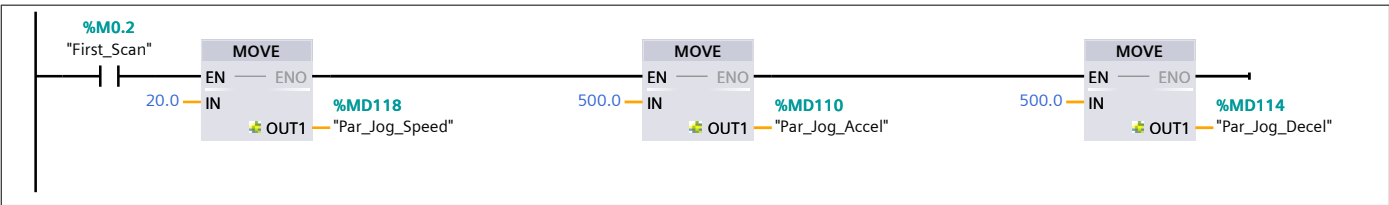
|        |  |         |     |                 |  |
|--------|--|---------|-----|-----------------|--|
| Title  |  | Author  |     | Comment         |  |
| Family |  | Version | 0.1 | User-defined ID |  |

| Name                 | Data type                   | Default value | Retain     |
|----------------------|-----------------------------|---------------|------------|
| Input                |                             |               |            |
| Output               |                             |               |            |
| InOut                |                             |               |            |
| ▼ Static             |                             |               |            |
| EM_Number            | DInt                        | 0             | Non-retain |
| Wrk_NoStepsActive    | Bool                        | false         | Non-retain |
| Wrk_MotionStepsError | Bool                        | false         | Non-retain |
| Wrk_JogFault         | Bool                        | false         | Non-retain |
| CM00_Procedure       | "EM01_CM00_Procedure"       |               |            |
| CM02_ServoAxisObject | "EM01_CM02_ServoAxisObject" |               |            |
| CM03_ServoAxisJog    | "EM01_CM03_ServoAxisJog"    |               |            |
| Axis_1_PositionError | LReal                       | 0.0           | Non-retain |
| Axis_1_VelocityError | LReal                       | 0.0           | Non-retain |
| Temp                 |                             |               |            |
| Constant             |                             |               |            |

### Network 1:

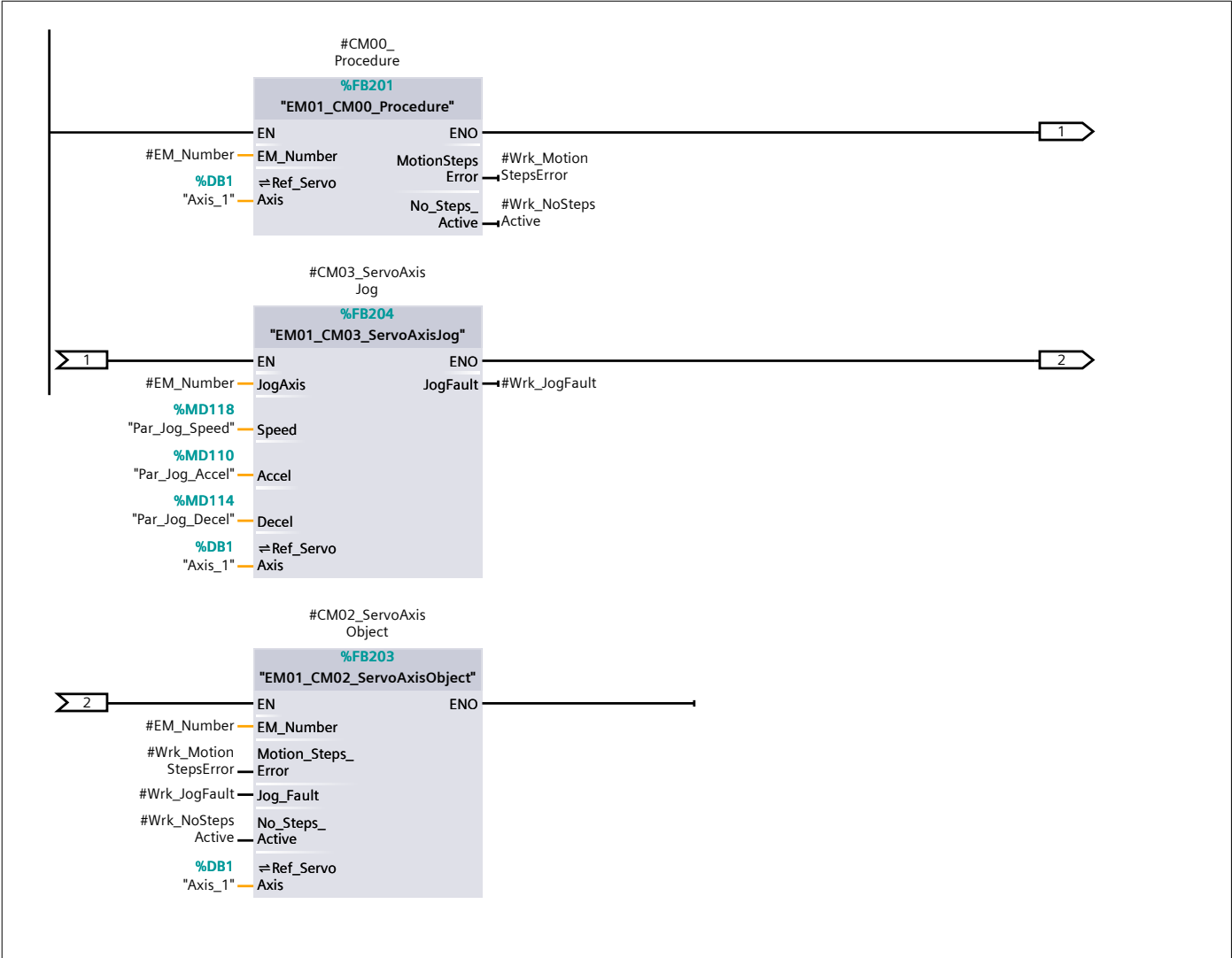


### Network 2:

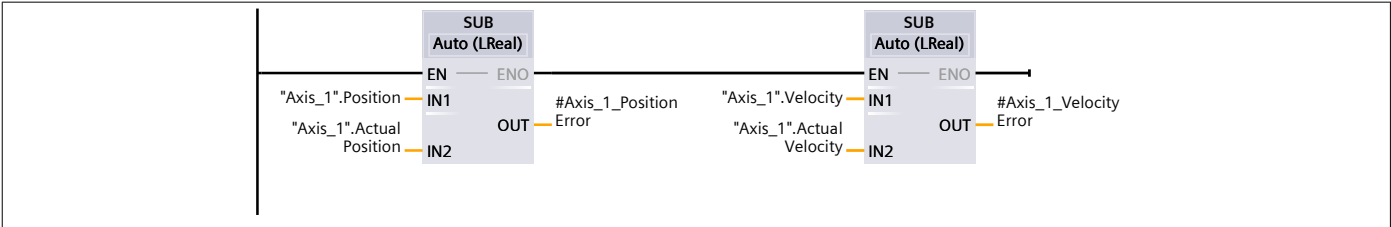


Network 3: Call other function blocks

Servo axis, procedure and jogging



Network 4:



## Program blocks / EM01\_Axis01

## EM01\_CM00\_Procedure [FB201]

## EM01\_CM00\_Procedure Properties

## General

|          |                     |           |        |      |    |
|----------|---------------------|-----------|--------|------|----|
| Name     | EM01_CM00_Procedure | Number    | 201    | Type | FB |
| Language | LAD                 | Numbering | Manual |      |    |

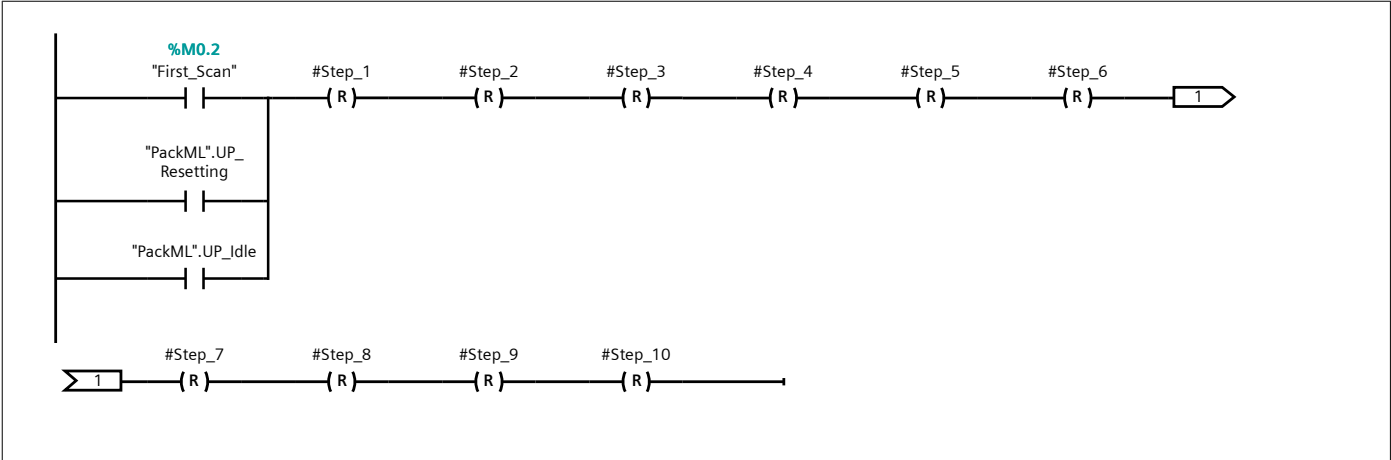
## Information

|        |  |         |     |                 |  |
|--------|--|---------|-----|-----------------|--|
| Title  |  | Author  |     | Comment         |  |
| Family |  | Version | 0.1 | User-defined ID |  |

| Name                       | Data type          | Default value | Retain     |
|----------------------------|--------------------|---------------|------------|
| ▼ Input                    |                    |               |            |
| EM_Number                  | DInt               | 0             | Non-retain |
| ▼ Output                   |                    |               |            |
| MotionStepsError           | Bool               | false         | Non-retain |
| No_Steps_Active            | Bool               | false         | Non-retain |
| ▼ InOut                    |                    |               |            |
| Ref_ServoAxis              | TO_PositioningAxis |               |            |
| ▼ Static                   |                    |               |            |
| MC_MoveRel1_Execute        | Bool               | false         | Non-retain |
| 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_Execute        | Bool               | false         | 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 |
| Step_1                     | Bool               | false         | Non-retain |
| Step_2                     | Bool               | false         | Non-retain |
| Step_3                     | Bool               | false         | Non-retain |
| Step_4                     | Bool               | false         | Non-retain |
| Step_5                     | Bool               | false         | Non-retain |
| Step_6                     | Bool               | false         | Non-retain |
| Step_7                     | Bool               | false         | Non-retain |
| Step_8                     | Bool               | false         | Non-retain |
| Step_9                     | Bool               | false         | Non-retain |
| Step_10                    | Bool               | false         | Non-retain |
| Delay                      | TON_TIME           |               | Non-retain |
| Wrk_MC_Move2               | MC_MOVERELATIVE    |               |            |
| Wrk_MC_Move1               | MC_MOVERELATIVE    |               |            |
| Temp                       |                    |               |            |
| Constant                   |                    |               |            |

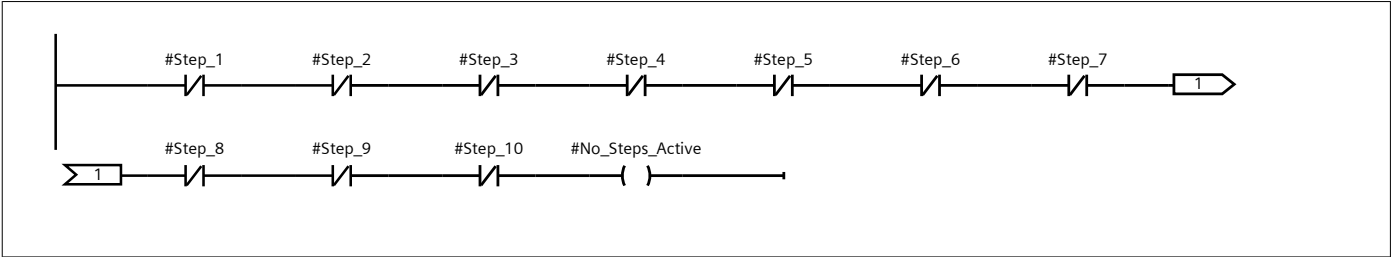
**Network 1: Reset of all steps**

First scan or resetting or idle - clear all steps

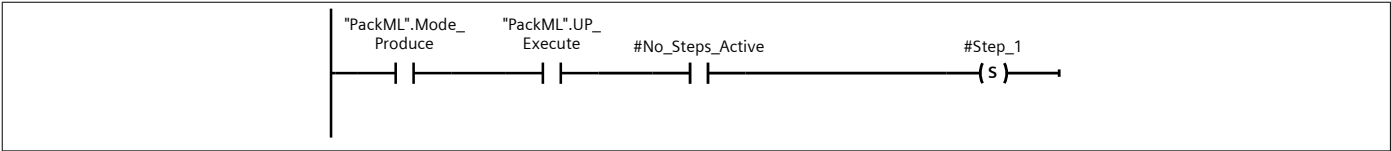


**Network 2: Indication that all steps reset**

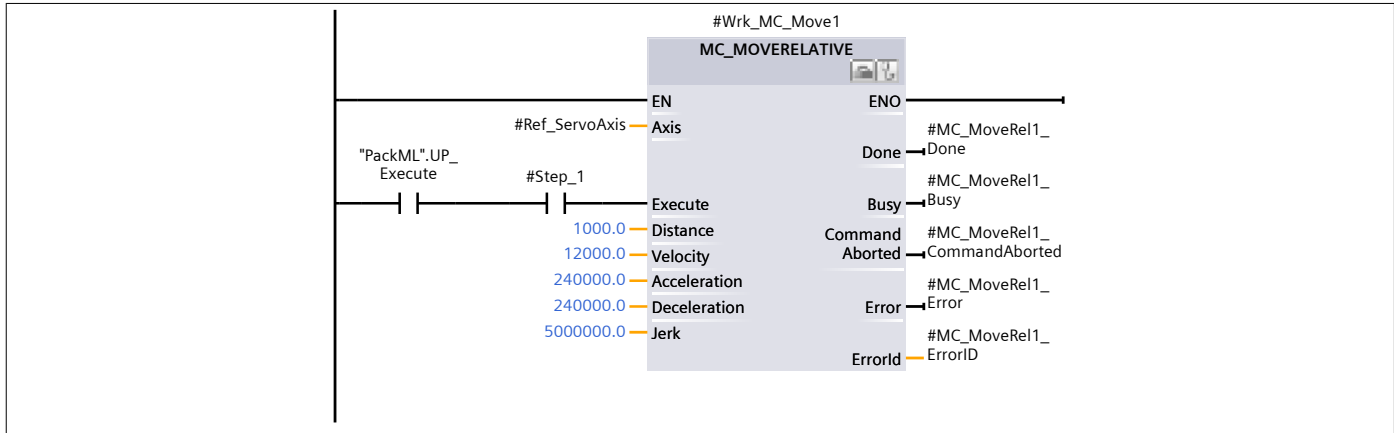
Used by RESETTING state and initial execute step



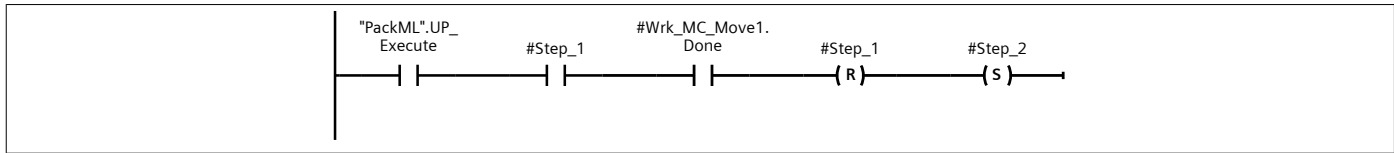
**Network 3:**



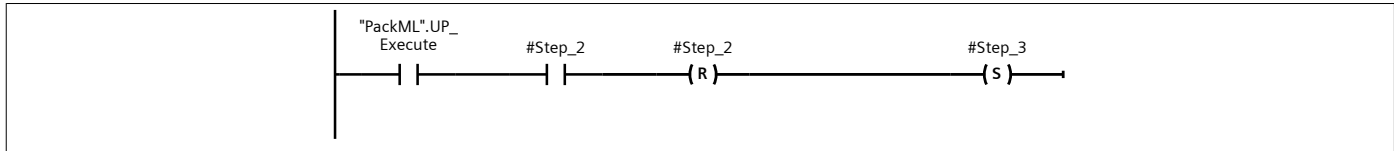
**Network 4: First motion**



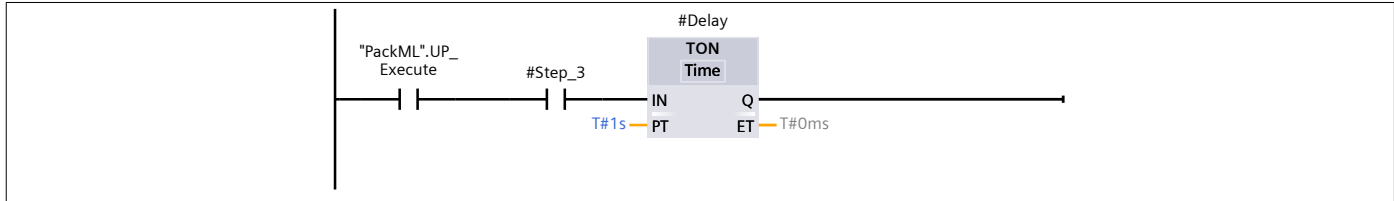
Network 5: Step\_1 - Move one doen



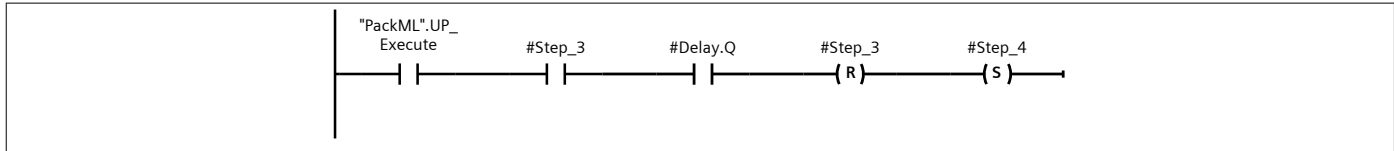
Network 6: Step\_2 - Spare step



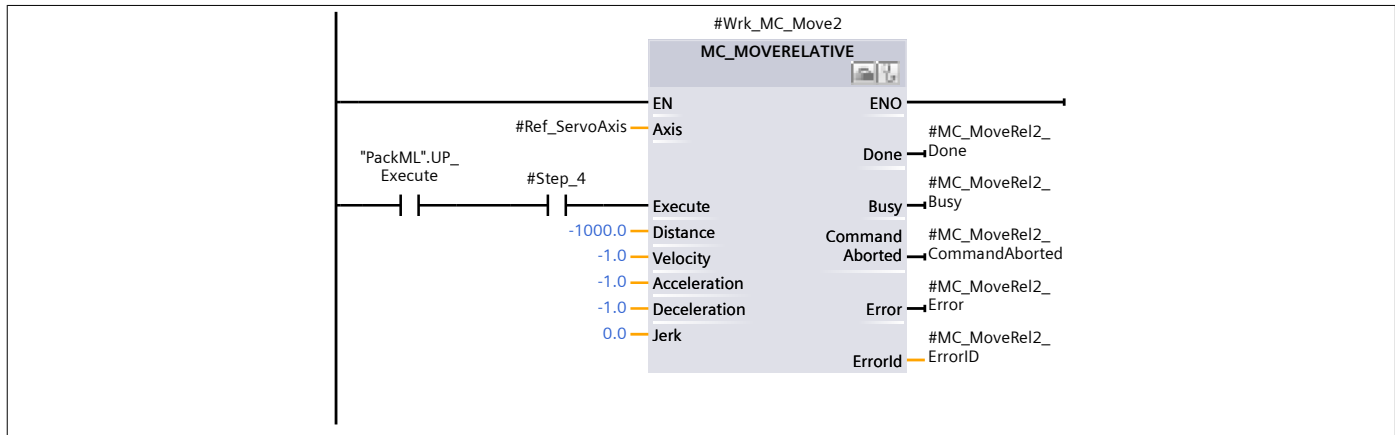
Network 7: Step\_3 - Delay 1 second



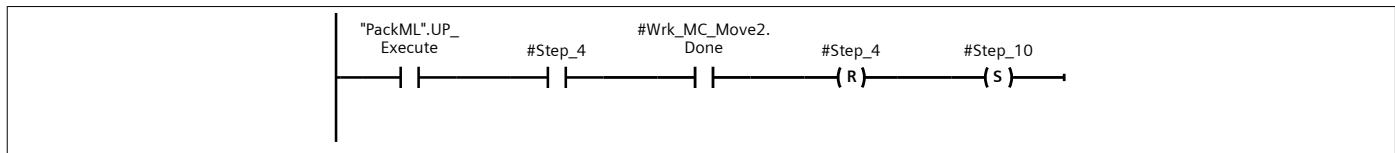
Network 8:



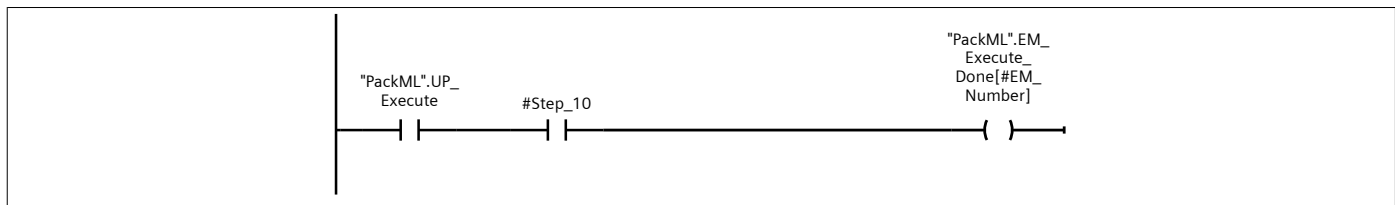
Network 9: Step\_4 - Second move



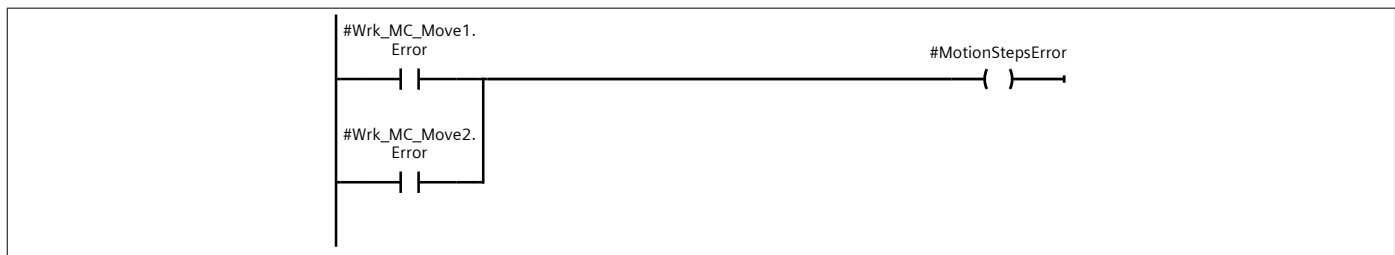
**Network 10: When finished with second move, go to last step**



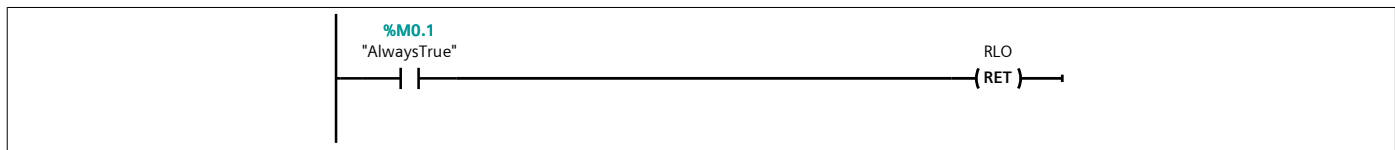
**Network 11: Last step - Signal moves are complete**



**Network 12: Copy motion block errors to output flag**



**Network 13: END: Update the ENO Output. (DO NOT REMOVE. Must be last rung)**



## Program blocks / EM01\_Axis01

## EM01\_CM02\_ServoAxisObject [FB203]

## EM01\_CM02\_ServoAxisObject Properties

## General

|          |                           |           |        |      |    |
|----------|---------------------------|-----------|--------|------|----|
| Name     | EM01_CM02_ServoAxisObject | Number    | 203    | Type | FB |
| Language | LAD                       | Numbering | Manual |      |    |

## Information

|        |  |         |     |                 |  |
|--------|--|---------|-----|-----------------|--|
| Title  |  | Author  |     | Comment         |  |
| Family |  | Version | 0.1 | User-defined ID |  |

| Name                    | Data type          | Default value | Retain     |
|-------------------------|--------------------|---------------|------------|
| ▼ Input                 |                    |               |            |
| EM_Number               | DInt               | 0             | Non-retain |
| Motion_Steps_Error      | Bool               | false         | Non-retain |
| Jog_Fault               | Bool               | false         | Non-retain |
| No_Steps_Active         | Bool               | false         | Non-retain |
| Output                  |                    |               |            |
| ▼ InOut                 |                    |               |            |
| Ref_ServoAxis           | TO_PositioningAxis |               |            |
| ▼ Static                |                    |               |            |
| MC_Power_Enable         | Bool               | false         | Non-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 |
| Wrk_Home_Start          | Bool               | false         | Non-retain |
| Wrk_HaltErrorTrans      | Bool               | false         | Non-retain |
| Wrk_Halt_PowerOff       | Bool               | false         | Non-retain |
| Wrk_Halt_CaptureErr     | Word               | 16#0          | Non-retain |
| Wrk_MC_Power            | MC_POWER           |               |            |
| Wrk_MC_Halt             | MC_HALT            |               |            |
| Wrk_MC_Reset            | MC_RESET           |               |            |

| Name           | Data type | Default value | Retain     |
|----------------|-----------|---------------|------------|
| Wrk_MC_Reset2  | MC_RESET  |               |            |
| Wrk_Dummy_Home | Bool      | false         | Non-retain |
| Reset_Tmr      | IEC_TIMER |               | Non-retain |
| Temp           |           |               |            |
| Constant       |           |               |            |

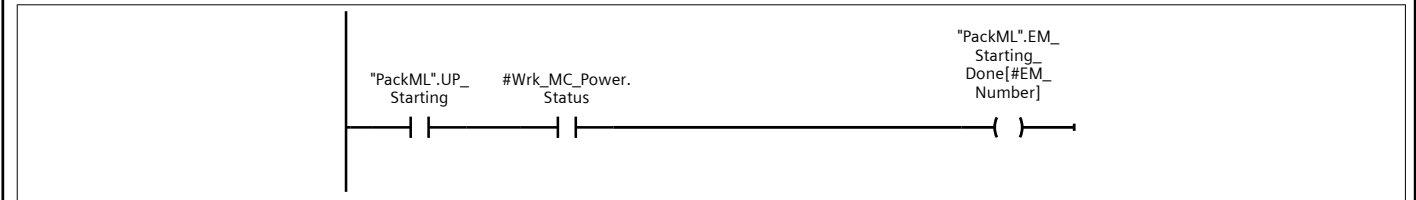
**Network 1: First scan initialization**

|                    |
|--------------------|
| Reset power enable |
|--------------------|

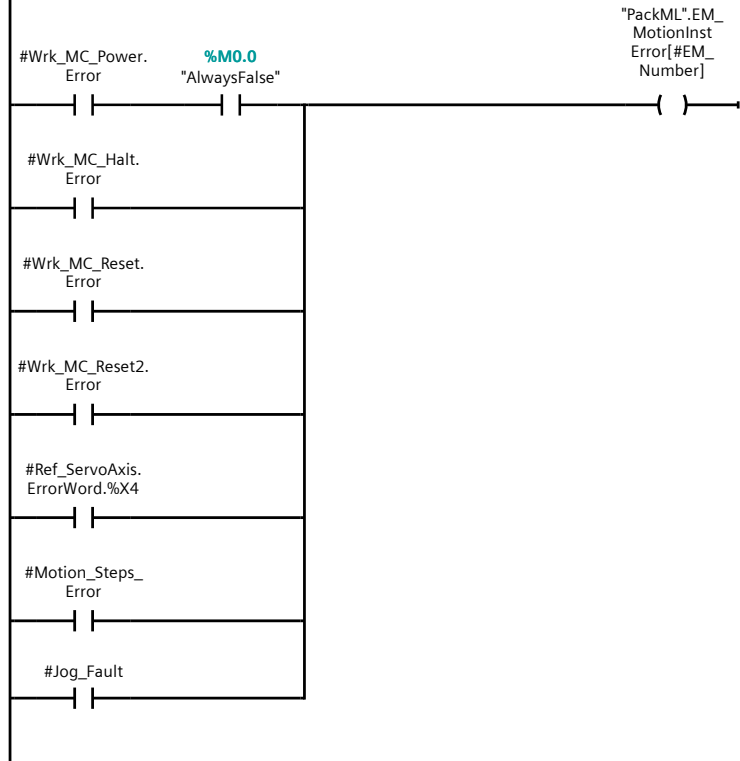


**Network 2: State completion for STARTING**

Starting - Check of power status is probably not absolutely necessary. Other starting tasks, such as gearing, could go here.

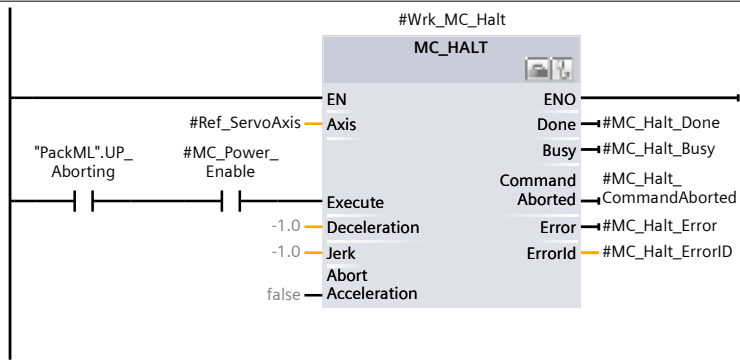


### Network 3: Handle errors from motion blocks



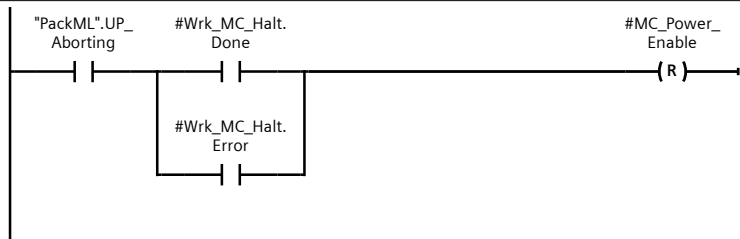
**Network 4: MC\_Halt block**

If axis power not on, if do halt will generate unnecessary error



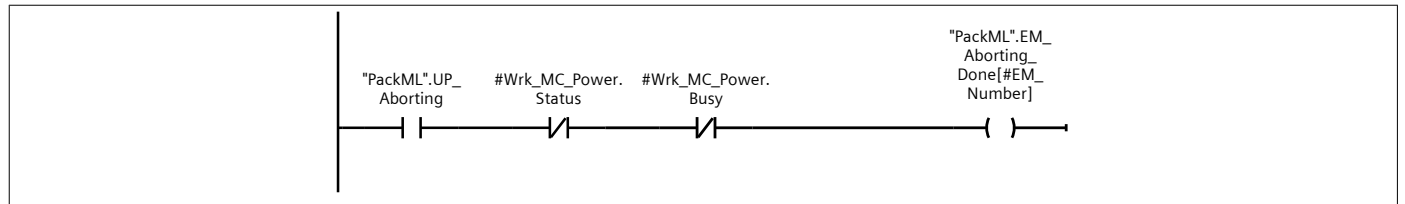
**Network 5: Reset MC\_Power enable as part of aborting**

Resetting Enable input to MC\_Power disables axis.



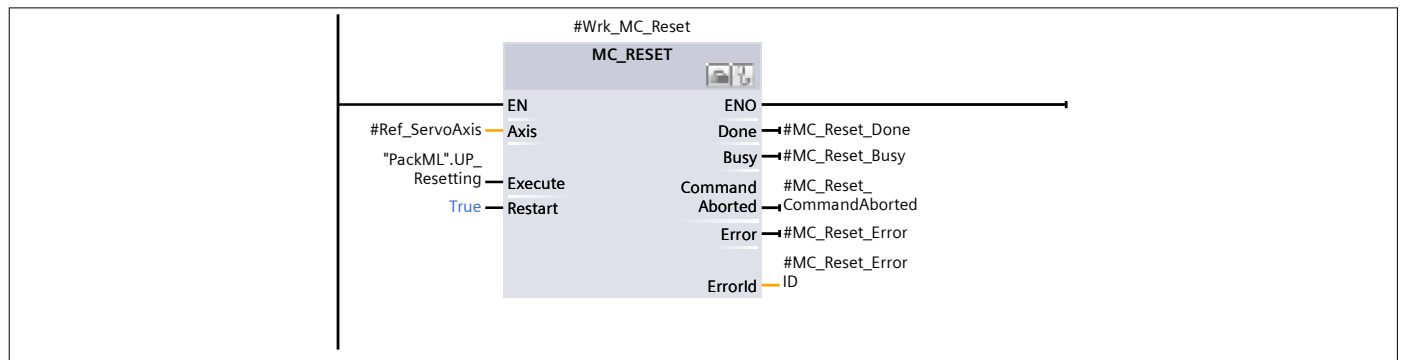
## Network 6: State completion for ABORTING

Wait for status to be off before transitioning to next step.



## Network 7: RESETTING - MC\_Reset block

RESETTING - first reset any errors and faults

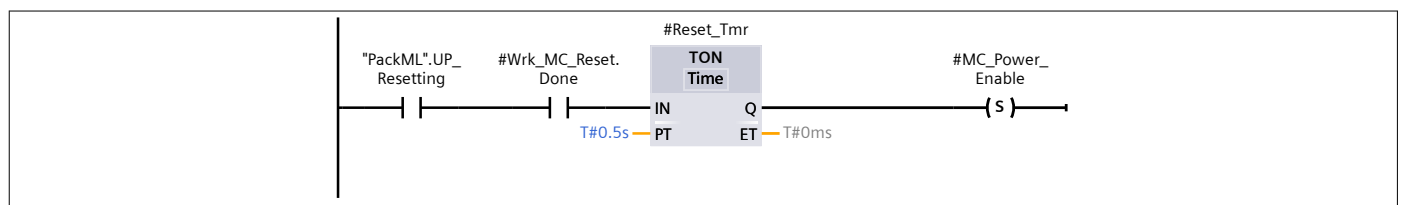


## Network 8: RESETTING - Set MC\_Power enable input

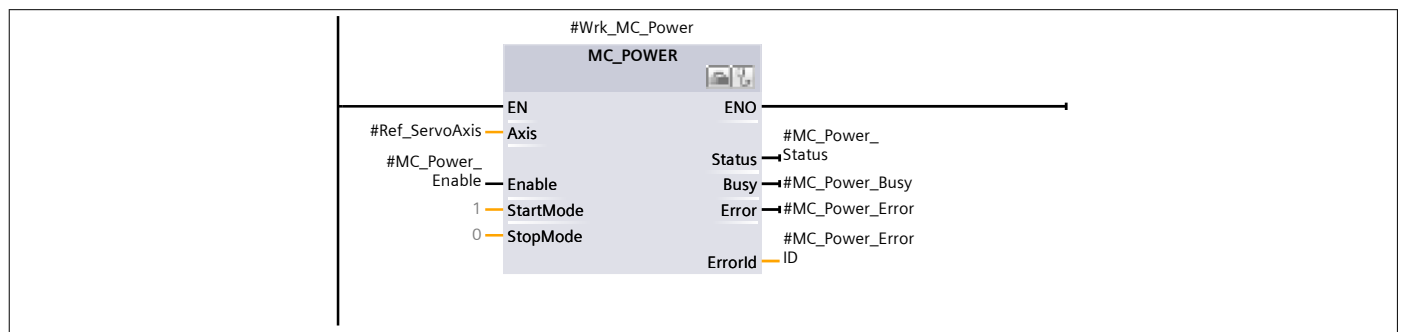
RESETTING -

When faults reset, wait 1/2 sec before setting Enable input of MC\_Power. Wait for status  
Next state is IDLE

Timer seems to be necessary. If no delay, MC\_Power faults

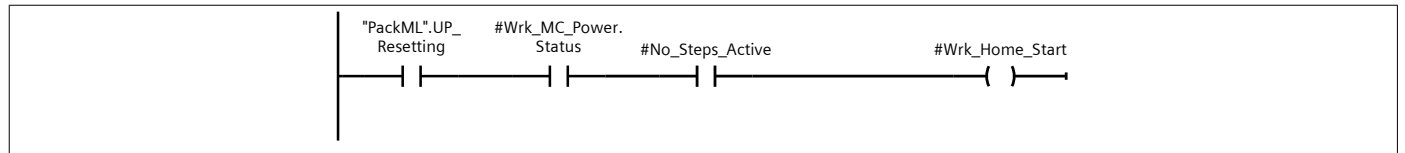


## Network 9: RESETTING - MC\_Power for axis



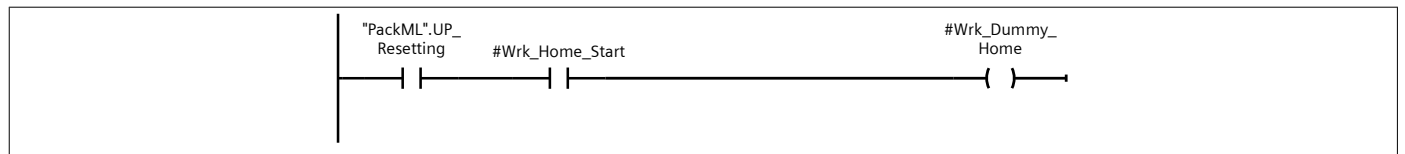
## Network 10: RESETTING - ready for homing

RESETTING - Power status good and steps from motion steps are all off.

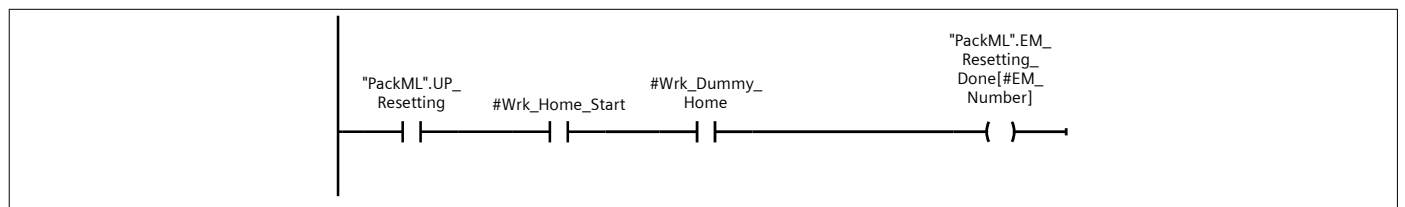


## Network 11: Handle homing

Homing not valid for this system, so no call to EM01\_CM04\_ServoAxisHome FB

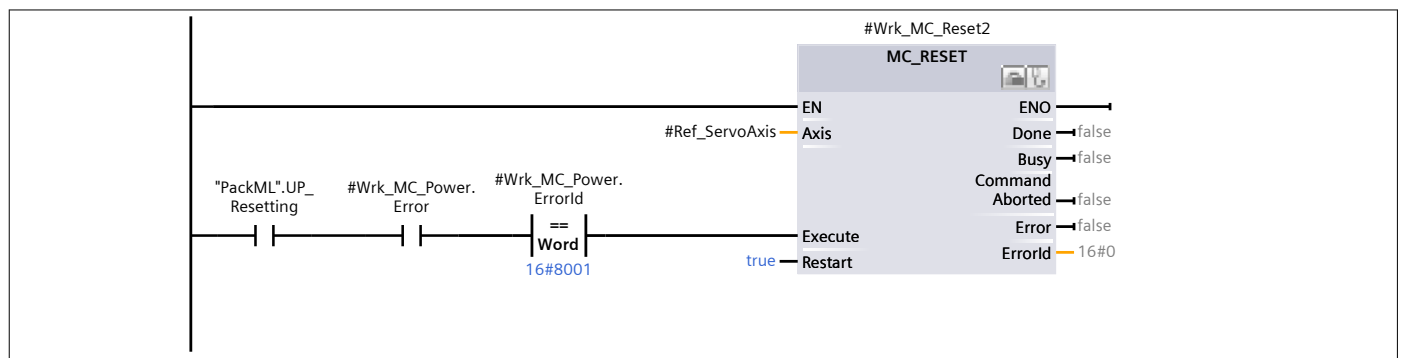


## Network 12: RESETTING - state completion when homed

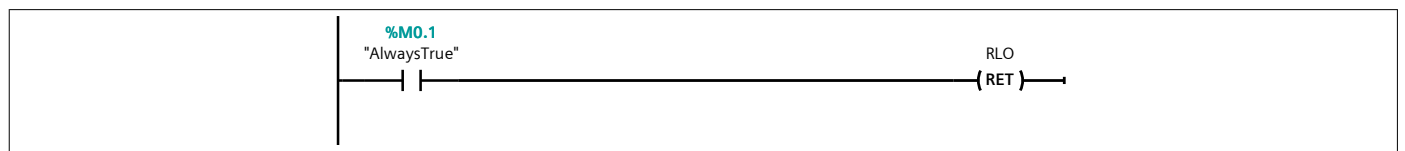


## Network 13: Handle technology alarm from MC\_Power

If the error is a technology alarm when resetting, clear the error in an attempt to let the MC\_Power complete



## Network 14: END: Update the ENO Output. (DO NOT REMOVE. Must be last rung)



## Program blocks / EM01\_Axis01

## EM01\_CM03\_ServoAxisJog [FB204]

## EM01\_CM03\_ServoAxisJog Properties

## General

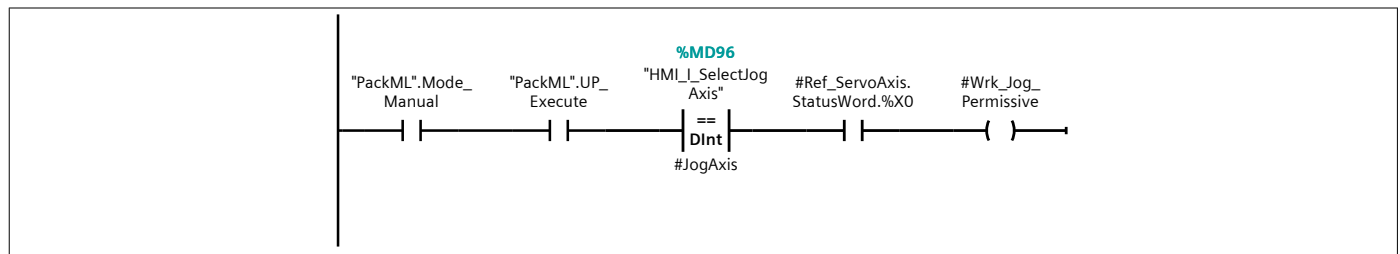
|          |                         |           |        |      |    |
|----------|-------------------------|-----------|--------|------|----|
| Name     | EM01_CM03_ServoAxis-Jog | Number    | 204    | Type | FB |
| Language | LAD                     | Numbering | Manual |      |    |

## Information

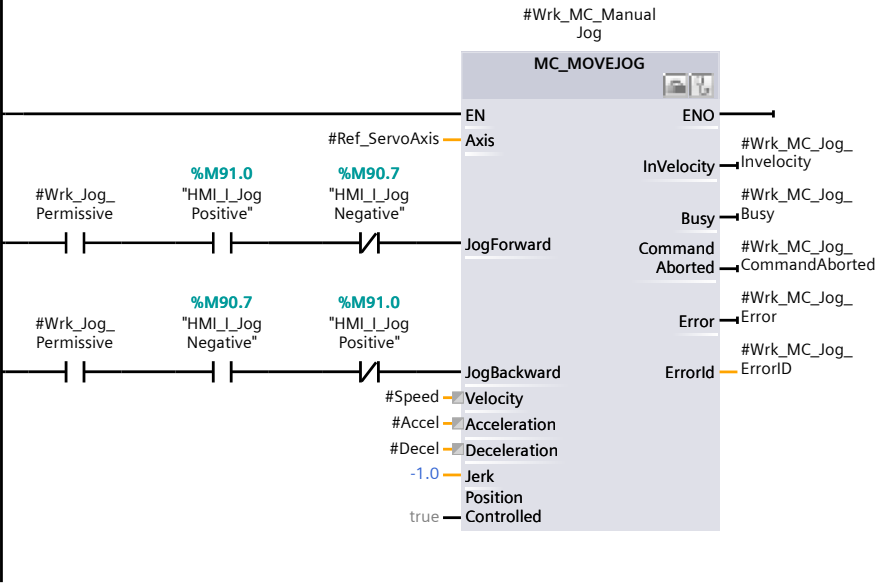
|        |                               |         |     |                 |  |
|--------|-------------------------------|---------|-----|-----------------|--|
| Title  | Jog servo axis in manual mode | Author  |     | Comment         |  |
| Family |                               | Version | 0.1 | User-defined 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                  |                    |               |            |
| JogFault                  | Bool               | false         | Non-retain |
| ▼ InOut                   |                    |               |            |
| Ref_ServoAxis             | TO_PositioningAxis |               |            |
| ▼ Static                  |                    |               |            |
| 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 |
| Wrk_MC_Jog_ErrorID        | Word               | 16#0          | Non-retain |
| Temp                      |                    |               |            |
| Constant                  |                    |               |            |

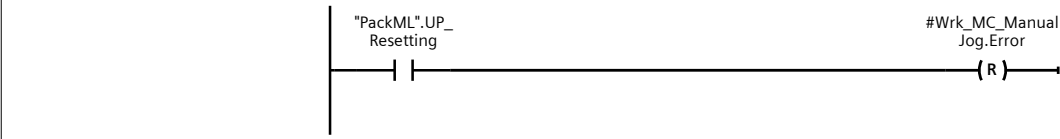
## Network 1: RELEASE JOG FUNCTION (-&gt; SELECT EM NUMBER VIA HMI)



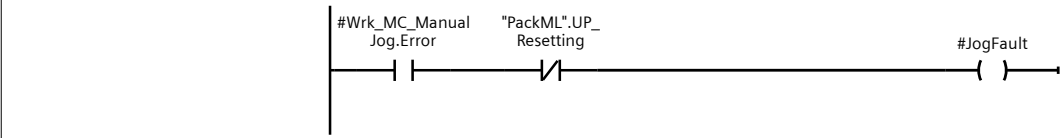
## Network 2: JOG SERVO AXIS



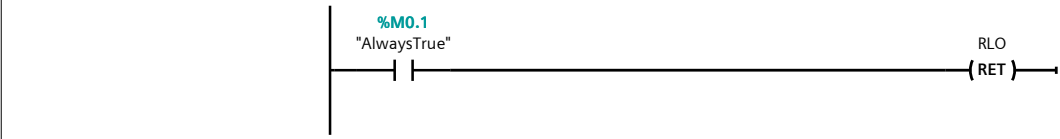
Network 3: Fault Reset



Network 4:



Network 5: END: Update the ENO Output. (DO NOT REMOVE. Must be last rung)



## Program blocks / EM01\_Axis01

## 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             |                             |             |        |
| EM_Number            | DInt                        | 0           | False  |
| Wrk_NoStepsActive    | Bool                        | false       | False  |
| Wrk_MotionStepsError | Bool                        | false       | False  |
| Wrk_JogFault         | Bool                        | false       | False  |
| CM00_Procedure       | "EM01_CM00_Procedure"       |             | False  |
| CM02_ServoAxisObject | "EM01_CM02_ServoAxisObject" |             | False  |
| CM03_ServoAxisJog    | "EM01_CM03_ServoAxisJog"    |             | False  |
| Axis_1_PositionError | LReal                       | 0.0         | False  |
| Axis_1_VelocityError | LReal                       | 0.0         | False  |

Program blocks

MiscBlocks

This folder is empty.