

## Main\_Program [OB1]

### Main\_Program Properties

#### General

<b>Name</b>	Main_Program	<b>Number</b>	1	<b>Type</b>	OB
<b>Language</b>	LAD	<b>Numbering</b>	Manual		

#### Information

<b>Title</b>	"Main Program Sweep (Cycle)"	<b>Author</b>		<b>Comment</b>	
<b>Family</b>		<b>Version</b>	0.1	<b>User-defined ID</b>	

Name	Data type	Default value
▼ Temp		
OB1_EV_CLASS	Byte	
OB1_SCAN_1	Byte	
OB1_PRIORITY	Byte	
OB1_OB_NUMBR	Byte	
OB1_RESERVED_1	Byte	
OB1_RESERVED_2	Byte	
OB1_PREV_CYCLE	Int	
OB1_MIN_CYCLE	Int	
OB1_MAX_CYCLE	Int	
OB1_DATE_TIME	Date_And_Time	
Constant		

### Network 1:

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SP14-2 Case Erector Control Using S7-GRAPH With Simulation

Additional internal memory:

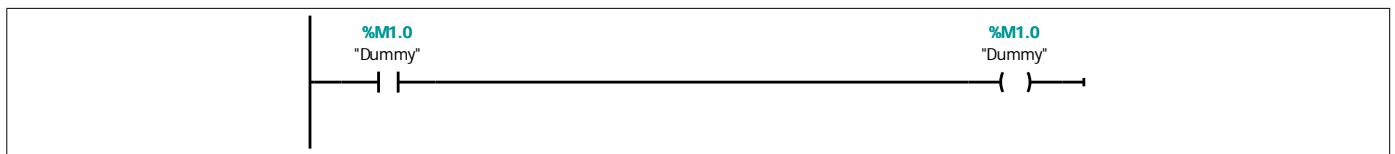
Tag Address

SRun\_Trans M61.0 BOOL Run has changed

Run\_PTrans M61.1 BOOL Bit for Run neg transition

Run\_NTrans M61.2 BOOL Bit for Run pos transition

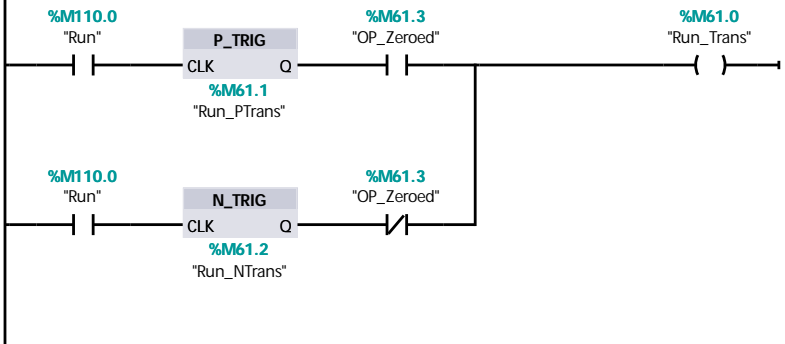
OP\_Zeroed M61.3 BOOL Operation paused



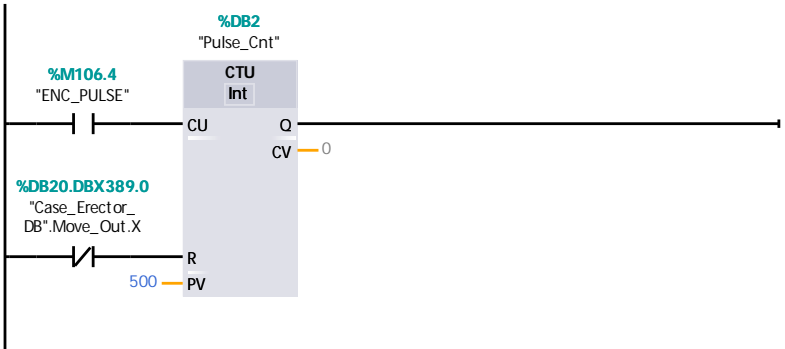
### Network 2: Generate pulse to toggle pause for SFC.

Positive transition on Run used only

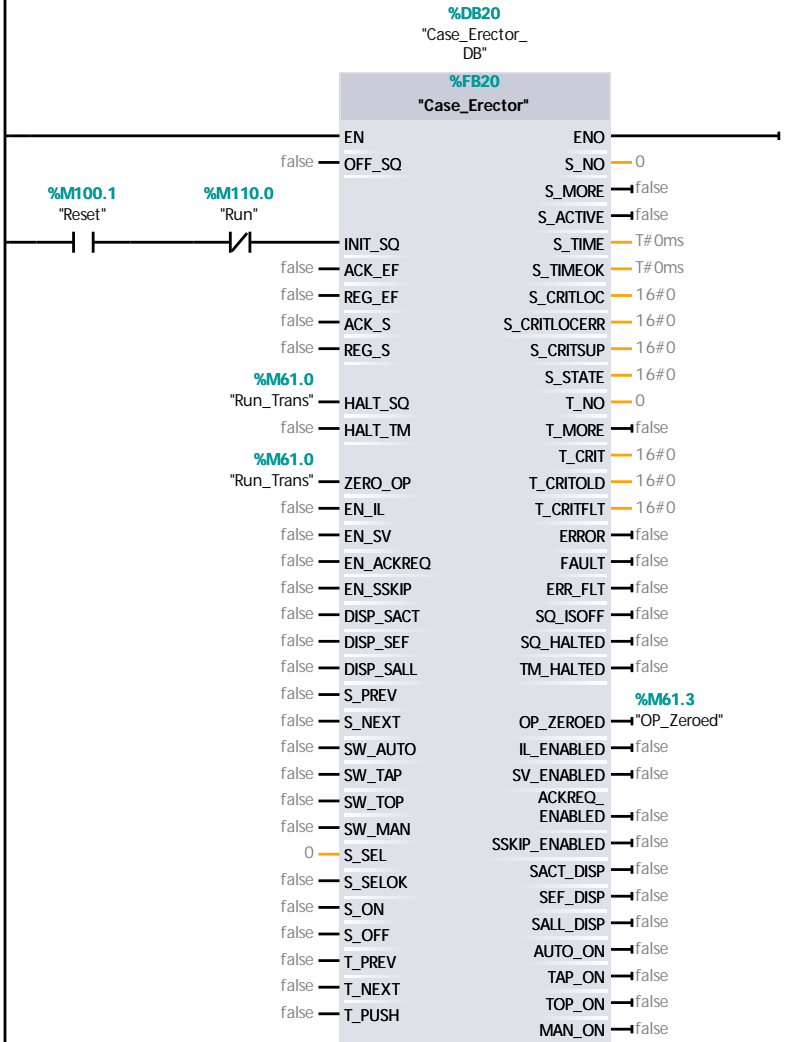
when already paused. Negative transition on Run used when not paused.



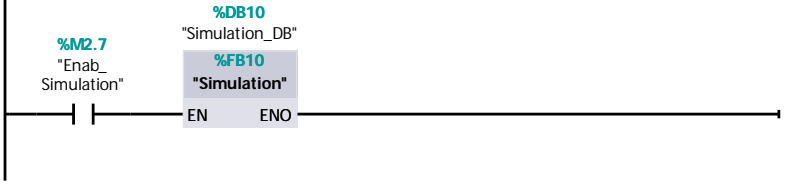
Network 3: Counts encoder pulses



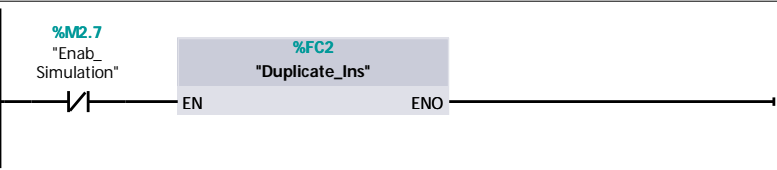
Network 4: Case Erector in S7-GRAPH



Network 5: Simulation



Network 6: Copy real inputs to input image if not simulating



# Duplicate\_Ins [FC2]

## Duplicate\_Ins Properties

### General

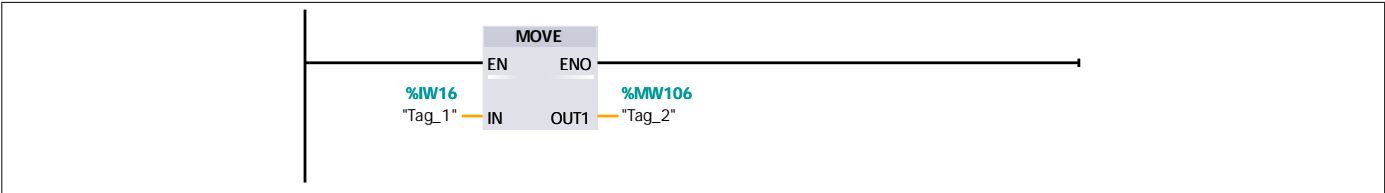
Name	Duplicate_Ins	Number	2	Type	FC
Language	LAD	Numbering	Manual		

### Information

Title		Author		Comment	
Family		Version	0.1	User-defined ID	

Name	Data type	Default value
Input		
Output		
InOut		
Temp		
Constant		
▼ Return		
Duplicate_Ins	Void	

## Network 1:



## Case\_Erector [FB20]

### Case\_Erector Properties

#### General

<b>Name</b>	Case_Erector	<b>Number</b>	20	<b>Type</b>	FB
<b>Language</b>	GRAPH	<b>Numbering</b>	Manual	<b>Network language</b>	LAD

#### Information

<b>Title</b>	S7GRAPH V5.0 FB -- SP14_02\SIMATIC 400 Station\CPU 417-4\S7 Program(2)\Sources\Case_Erector	<b>Author</b>		<b>Comment</b>	Case Erector  Copyright (c) 2011, 2015 Dogwood Valley Press, LLC ----- -----
<b>Family</b>		<b>Version</b>	0.1	<b>User-defined ID</b>	

Name	Data type	Default value
▼ Input		
OFF_SQ	Bool	false
INIT_SQ	Bool	false
ACK_EF	Bool	false
REG_EF	Bool	false
ACK_S	Bool	false
REG_S	Bool	false
HALT_SQ	Bool	false
HALT_TM	Bool	false
ZERO_OP	Bool	false
EN_IL	Bool	false
EN_SV	Bool	false
EN_ACKREQ	Bool	false
EN_SSKIP	Bool	false
DISP_SACT	Bool	false
DISP_SEF	Bool	false
DISP_SALL	Bool	false
S_PREV	Bool	false
S_NEXT	Bool	false
SW_AUTO	Bool	false
SW_TAP	Bool	false
SW_TOP	Bool	false
SW_MAN	Bool	false
S_SEL	Int	0
S_SELOK	Bool	false
S_ON	Bool	false
S_OFF	Bool	false
T_PREV	Bool	false
T_NEXT	Bool	false
T_PUSH	Bool	false
▼ Output		

Totally Integrated Automation Portal		
Name	Data type	Default value
S_NO	Int	0
S_MORE	Bool	false
S_ACTIVE	Bool	false
S_TIME	Time	T#0ms
S_TIMEOK	Time	T#0ms
S_CRITLOC	DWord	16#0
S_CRITLOCERR	DWord	16#0
S_CRITSUP	DWord	16#0
S_STATE	Word	16#0
T_NO	Int	0
T_MORE	Bool	false
T_CRIT	DWord	16#0
T_CRITOLD	DWord	16#0
T_CRITFLT	DWord	16#0
ERROR	Bool	false
FAULT	Bool	false
ERR_FLT	Bool	false
SQ_ISOFF	Bool	false
SQ_HALTED	Bool	false
TM_HALTED	Bool	false
OP_ZEROED	Bool	false
IL_ENABLED	Bool	false
SV_ENABLED	Bool	false
ACKREQ_ENABLED	Bool	false
SSKIP_ENABLED	Bool	false
SACT_DISP	Bool	false
SEF_DISP	Bool	false
SALL_DISP	Bool	false
AUTO_ON	Bool	false
TAP_ON	Bool	false
TOP_ON	Bool	false
MAN_ON	Bool	false
InOut		
▼ Static		
Trans1	GraphTransition	
Trans2	GraphTransition	
Trans3	GraphTransition	
Trans4	GraphTransition	
Trans5	GraphTransition	
Trans6	GraphTransition	
Trans7	GraphTransition	
Initial	GraphStep	
Move_In	GraphStep	
Open_Up	GraphStep	
Close_Sides	GraphStep	
Close_Bottom	GraphStep	
Move_Out	GraphStep	
Let_BOT_CYL_Fall	GraphStep	

Totally Integrated Automation Portal		
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Name	Data type	Default value
S_DISPLAY	Int	0
S_SEL_OLD	Int	0
S_DISPIDX	Byte	16#0
T_DISPIDX	Byte	16#0
MOP	Struct	
TICKS	Struct	
SQ_FLAGS	Struct	
Temp		
Constant		

Alarms

Enable alarms	False
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Category	Category enabler	Display class
Error		0
Warning		0
Info		0
Category 4		0
Category 5		0
Category 6		0
Category 7		0
Category 8		0

Category for interlocks	Error	Subcategory 1 for interlocks		Subcategory 2 for interlocks	
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Category for supervisions	Error	Subcategory 1 for supervisions		Subcategory 2 for supervisions	
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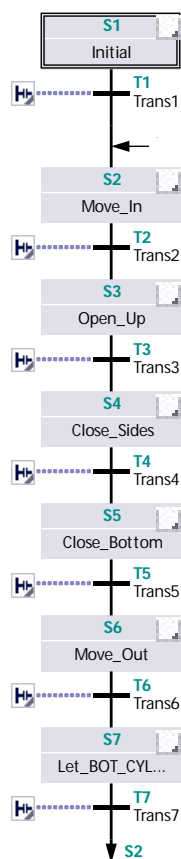
Permanent pre-instructions

Sequences (1)

1:Sequencer 1

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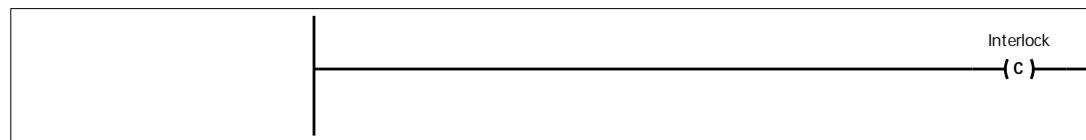
## S1 - [Initial step]:Initial

Step comment

### Interlock -(c)-:

#### Interlock alarm

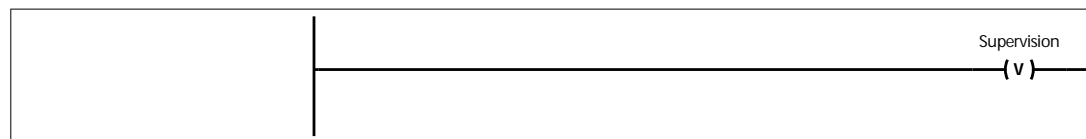
Alarm text Initial



### Supervision -(v)-:

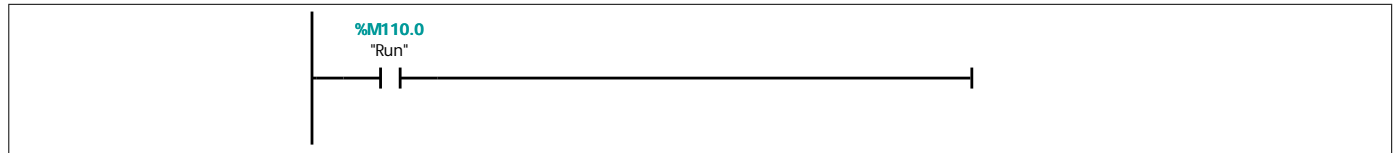
#### Supervision alarm

Alarm text Initial



**Actions:****Actions:**

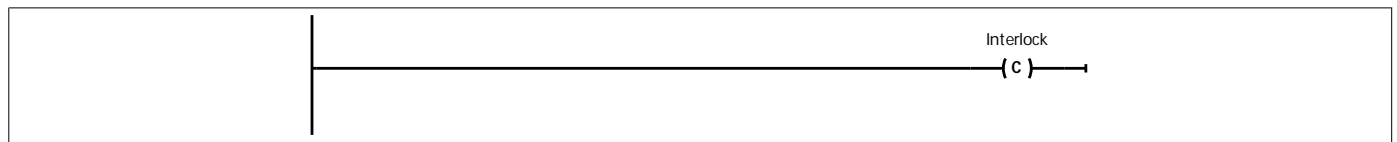
Interlock	Event	Qualifier	Action

**T1:Trans1****S2:Move\_In**

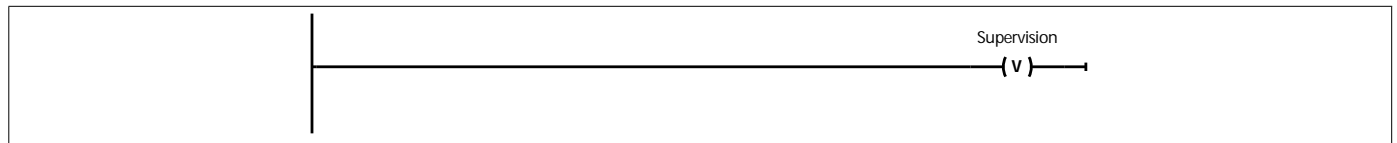
Step comment

**Interlock -(c)-:****Interlock alarm**

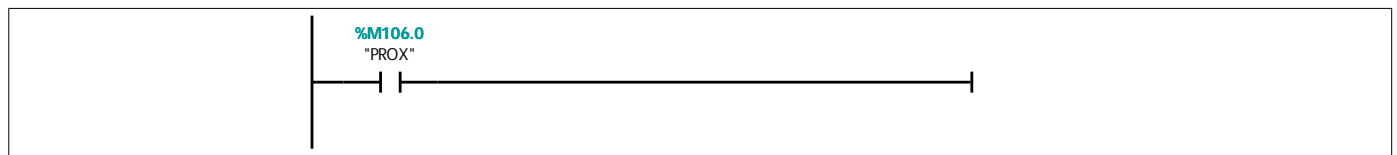
Alarm text	Move_In
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**Supervision -(v)-:****Supervision alarm**

Alarm text	Move_In
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**Actions:****Actions:**

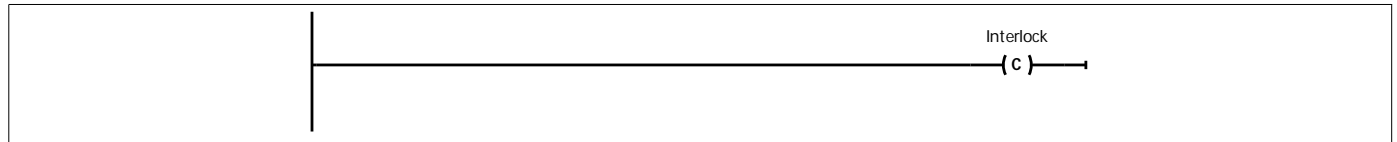
Interlock	Event	Qualifier	Action
		N	"INFEED_MTR"

**T2:Trans2****S3:Open\_Up**

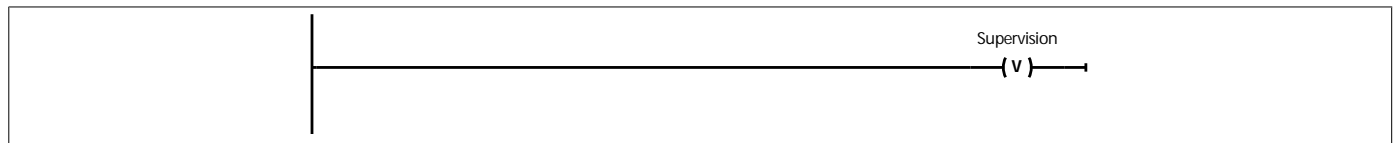
Step comment

**Interlock -(c)-:****Interlock alarm**

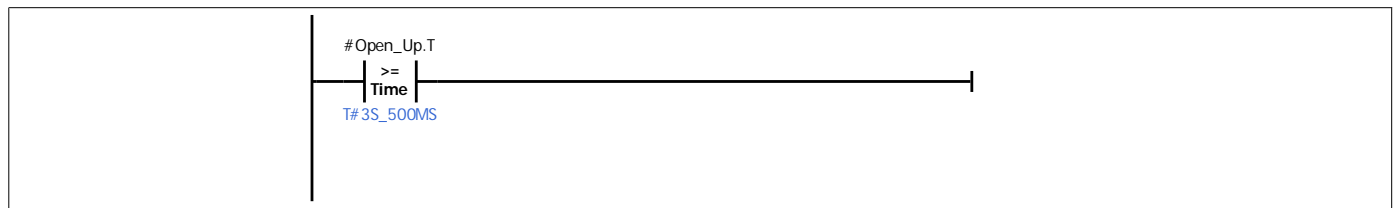
Alarm text Open\_Up

**Supervision -(v)-:****Supervision alarm**

Alarm text Open\_Up

**Actions:****Actions:**

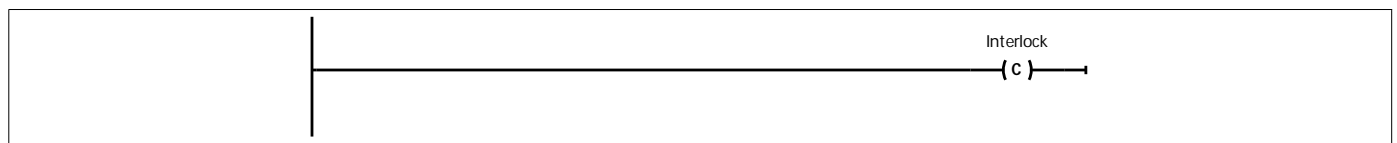
Interlock	Event	Qualifier	Action
		S	"END_CYL"
		S	"GATE1"

**T3:Trans3****S4:Close\_Sides**

Step comment

**Interlock -(c)-:****Interlock alarm**

Alarm text Close\_Sides

**Supervision -(v)-:****Supervision alarm**

Alarm text Close\_Sides

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Supervision

( v )

**Actions:**

**Actions:**

Interlock	Event	Qualifier	Action
		S	"LEFT_CYL"
		S	"RIGHT_CYL"

**T4:Trans4**

%M106.1  
"LEFT\_LS"

%M106.2  
"RIGHT\_LS"

**S5:Close\_Bottom**

Step comment

**Interlock -(c)-:**

**Interlock alarm**

Alarm text Close\_Bottom

Interlock

( c )

**Supervision -(v)-:**

**Supervision alarm**

Alarm text Close\_Bottom

Supervision

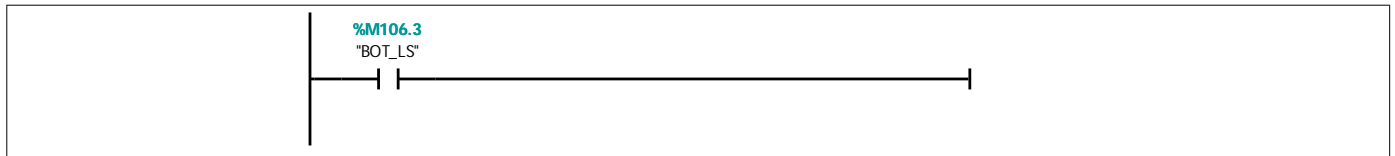
( v )

**Actions:**

**Actions:**

Interlock	Event	Qualifier	Action
		R	"END_CYL"
		R	"GATE1"
		S	"BOT_CYL"

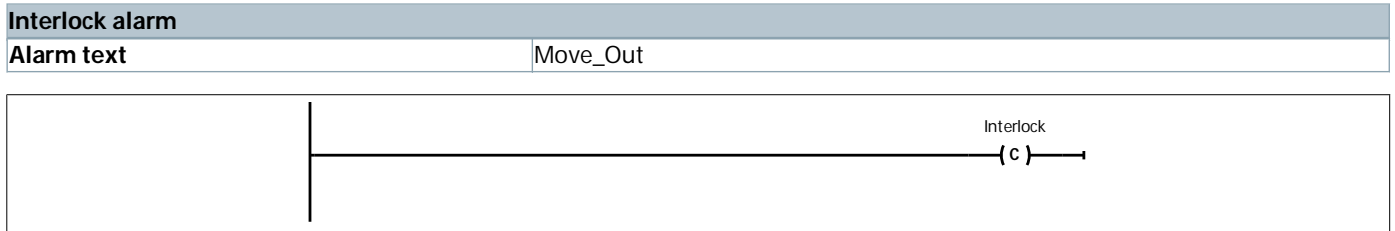
**T5:Trans5**



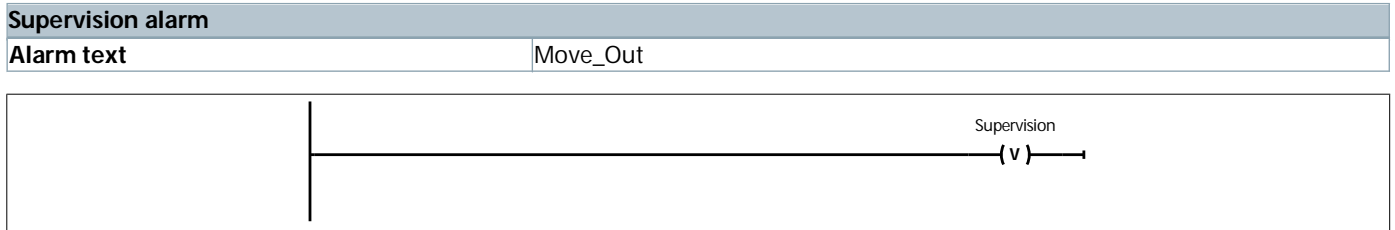
**S6:Move\_Out**

Step comment

**Interlock -(c)-:**



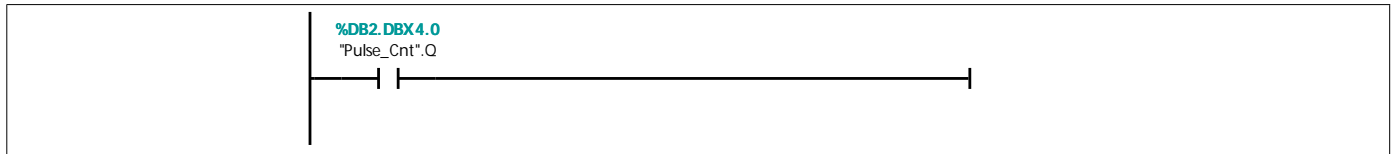
**Supervision -(v)-:**



**Actions:**

Actions:			
Interlock	Event	Qualifier	Action
		R	"LEFT_CYL"
		R	"RIGHT_CYL"
		N	"CHAIN_CONV"

**T6:Trans6**



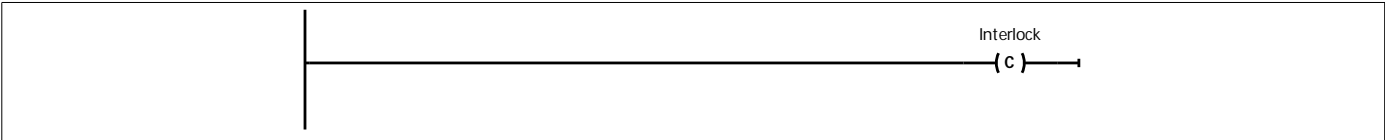
**S7:Let\_BOT\_CYL\_Fall**

Step comment

**Interlock -(c)-:**

**Interlock alarm**

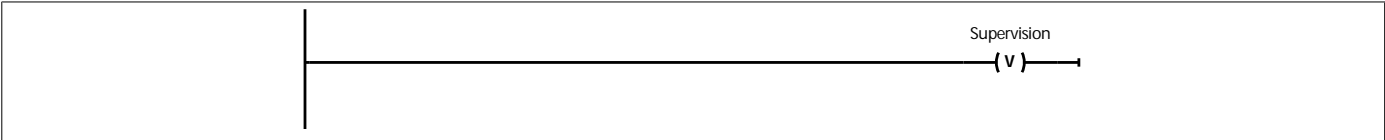
Alarm text Let\_BOT\_CYL\_Fall



**Supervision -(v)-:**

**Supervision alarm**

Alarm text Let\_BOT\_CYL\_Fall

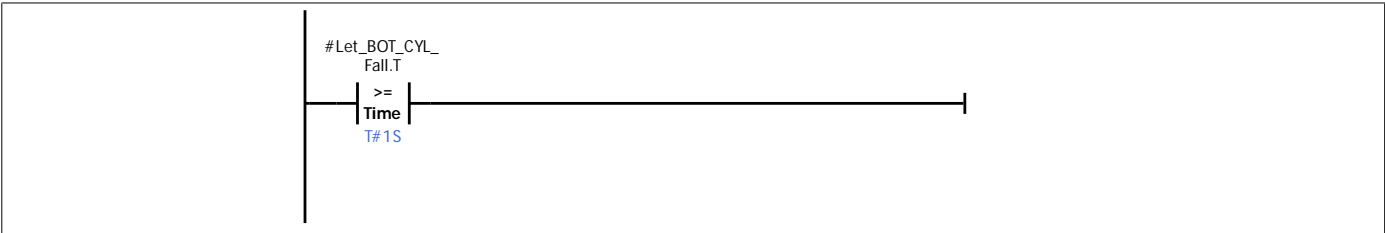


**Actions:**

**Actions:**

Interlock	Event	Qualifier	Action
		R	"BOT_CYL"

**T7:Trans7**



**Permanent post-instructions**

## Simulation [FB10]

### Simulation Properties

#### General

Name	Simulation	Number	10	Type	FB
Language	LAD	Numbering	Manual		

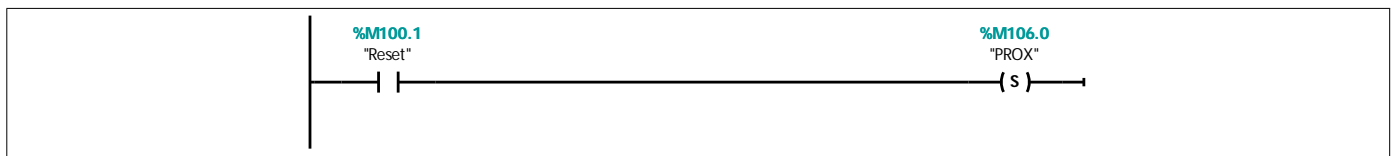
#### Information

Title	Simulation	Author		Comment	Copyright (c) 2011-2023 Dogwood Valley Press, LLC  SIMULATION LOGIC
Family		Version	0.1	User-defined ID	

Name	Data type	Default value
Input		
Output		
InOut		
▼ Static		
Prox_On_Tmr	TON	
Prox_Off_Tmr	TON	
Left_Tmr	TON	
Right_Tmr	TON	
Bot_Tmr	TON	
Enc_Tic	TON	
Temp		
Constant		

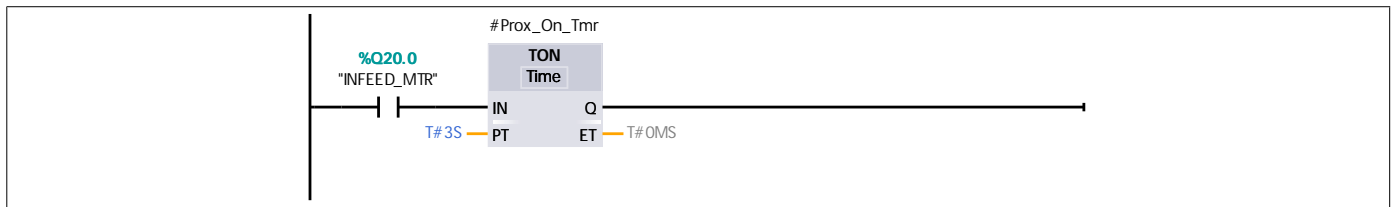
### Network 1: Proximity sensor, on when flat carton in position to be erected

On reset, reset PROX

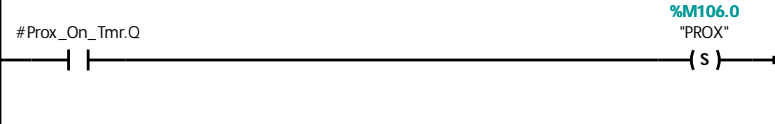


### Network 2: Proximity sensor, on when flat carton in position to be erected

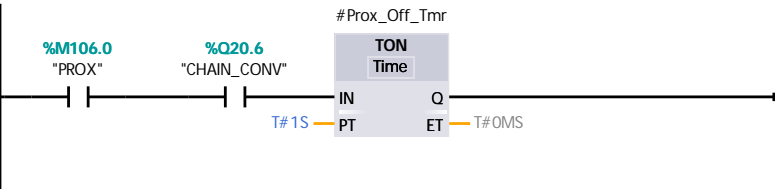
PROX simulation: Set when INFEED running for 3 secs.  
Reset when PROX on and CHAIN\_CONV runs for one sec



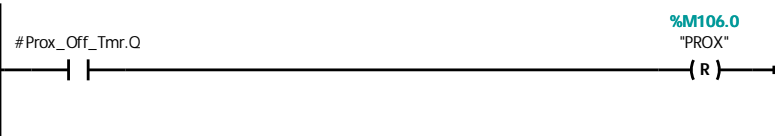
### Network 3: Proximity sensor, on when flat carton in position to be erected



**Network 4: Proximity sensor, on when flat carton in position to be erected**

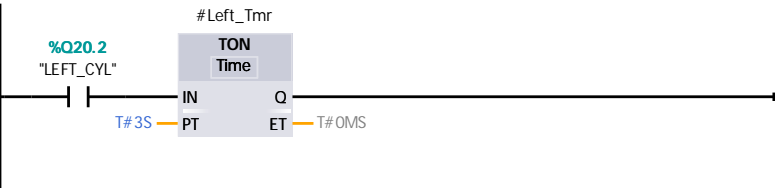


**Network 5: Proximity sensor, on when flat carton in position to be erected**

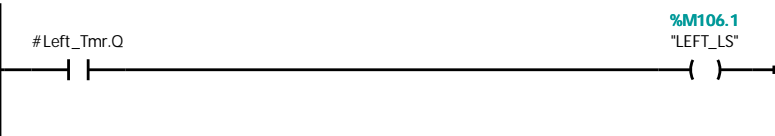


**Network 6: Limit switch, on (closed) when left flap is folded in position**

LEFT\_LS simulation: Turn on when LEFT\_CYL on for 3 sec

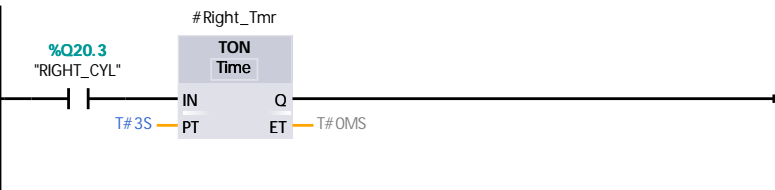


**Network 7: Limit switch, on (closed) when left flap is folded in position**



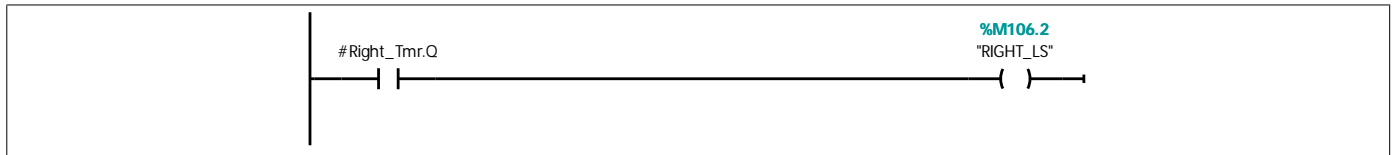
**Network 8: Limit switch, on (closed) when right flap is folded in position**

RIGHT\_LS simulation: Turn on when RIGHT\_CYL on for 3 sec



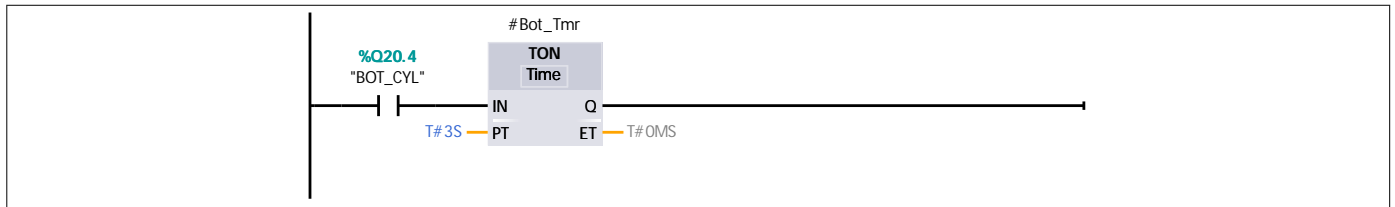


### Network 9: Limit switch, on (closed) when right flap is folded in position

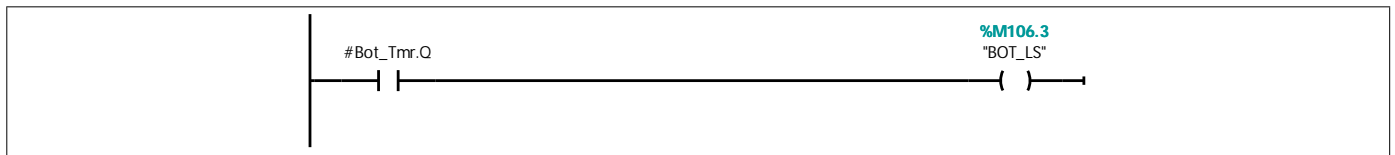


### Network 10: BOT\_LS simulation

BOT\_LS simulation: Turn on when BOT\_CYL on for 3 sec

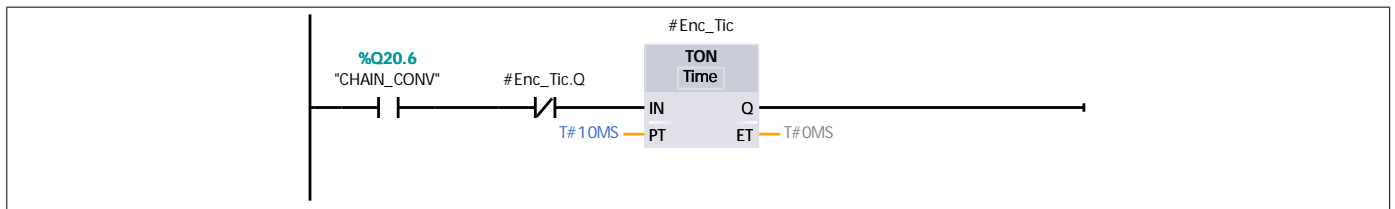


### Network 11: Limit switch, on (closed) when bottom flap is folded in position



### Network 12: ENC\_PULSE simulation

ENC\_PULSE simulation: Generate one-scan pulse every 10 ms



### Network 13: Pulses to count for position of chain conveyor used to move erected carton out

