

Main [OB1]

Main Properties

General

Name	Main	Number	1	Type	OB
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Language	LAD	Numbering	Manual		
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Information

Title	SP21-2	Author		Comment	
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Family		Version	0.1	User-defined ID	
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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: SP21-2

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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

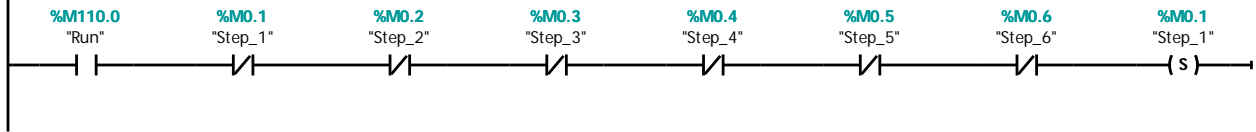
Run_PTrans M61.1 BOOL Bit for Run neg transition

Run_NTrans M61.2 BOOL Bit for Run pos transition

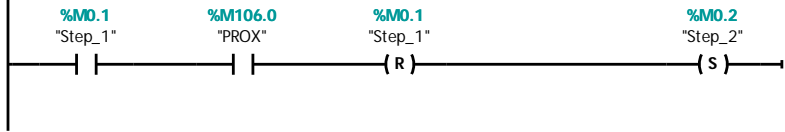
OP_Zeroed M61.3 BOOL Operation paused



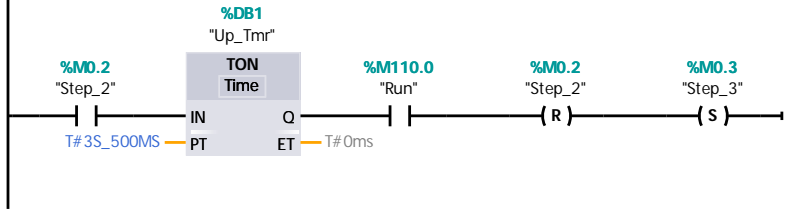
Network 2: Initial start



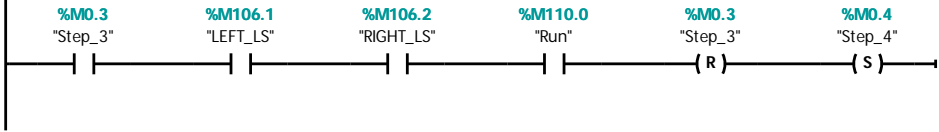
Network 3: Step 1 Move in



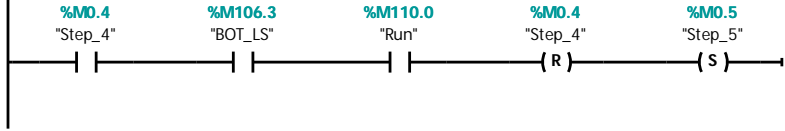
Network 4: Step 2 Open up



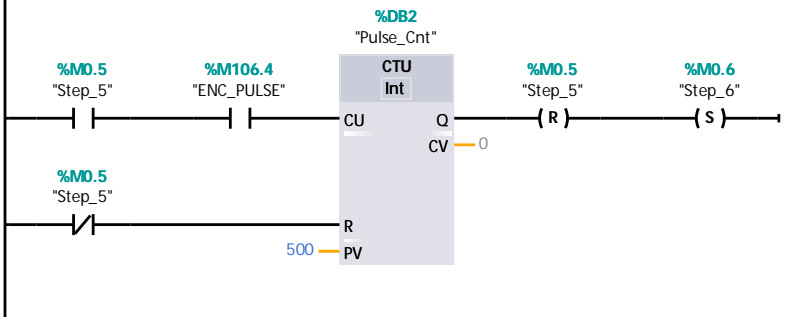
Network 5: Step 3 Close sides



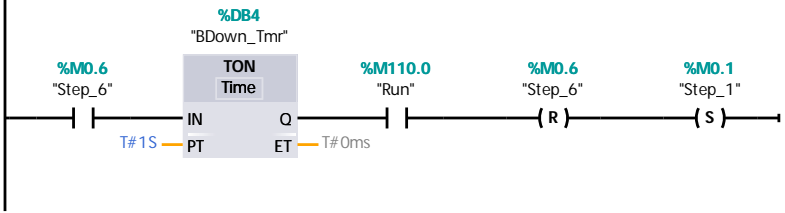
Network 6: Step 4 Close bottom



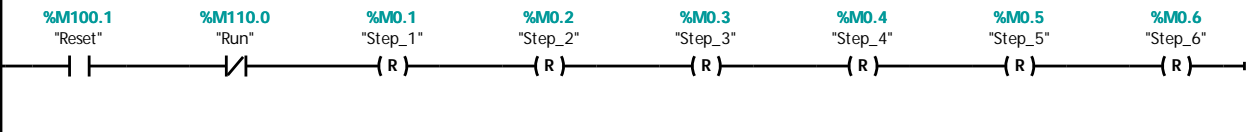
Network 7: Step 5 Move out



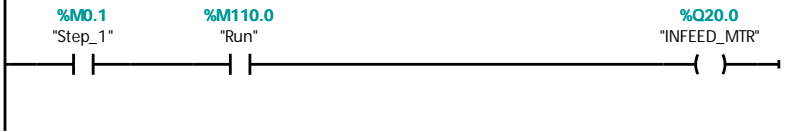
Network 8: Step 6 Let Bot_Cyl fall



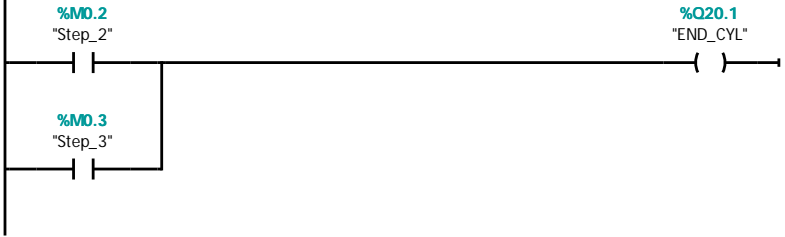
Network 9: Reset



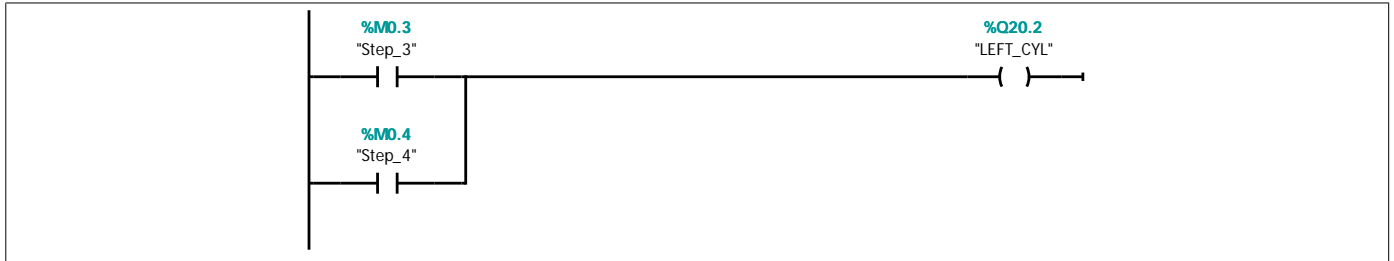
Network 10: Infeed rollers, on to move in flat carton



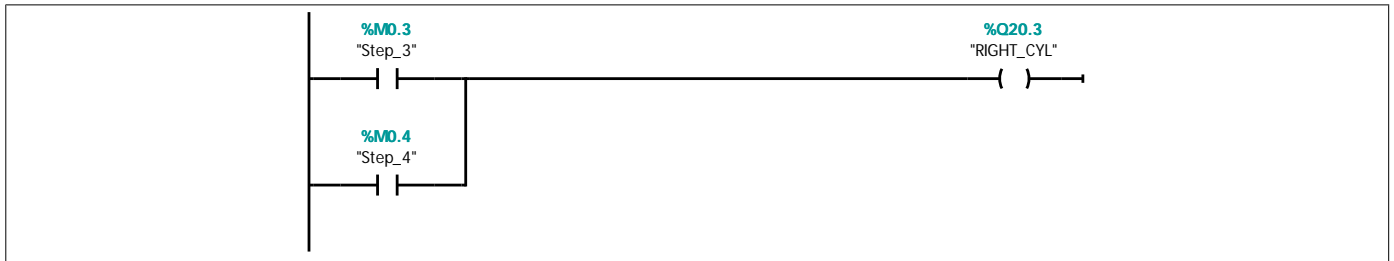
Network 11: End cylinder control, when on unfolds flat carton



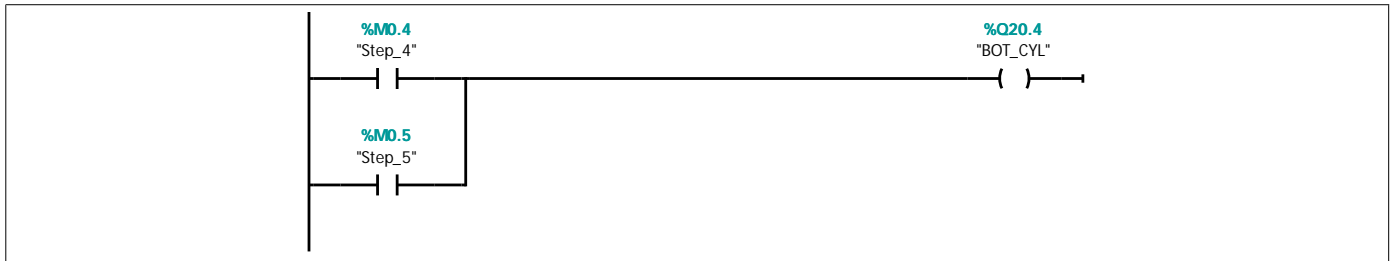
Network 12: Left cylinder control when on folds left flap inward



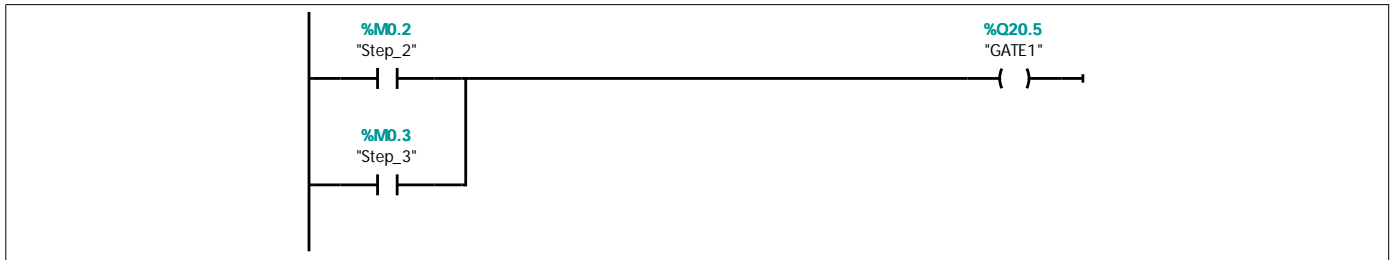
Network 13: Right cylinder control, when on folds right flap inward



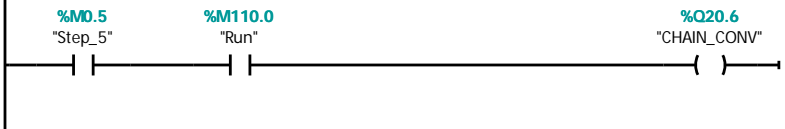
Network 14: Bottom cylinder control, when on folds bottom flap inward



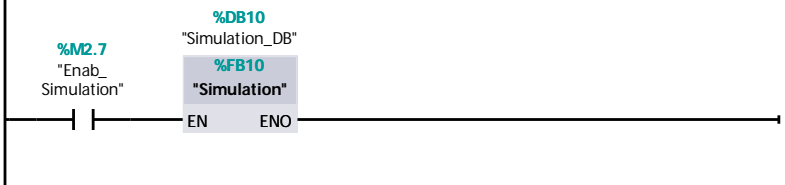
Network 15: Gate cylinder control, on to prevent carton from sliding out sta



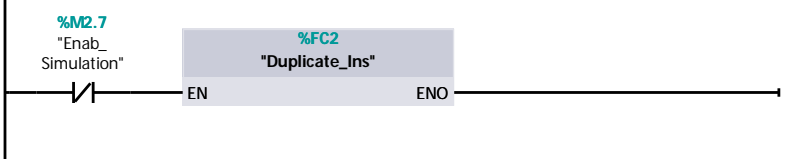
Network 16: Chain conveyor motor control, when on moves carton out



Network 17: Simulation



Network 18: 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:



Simulation [FB10]

Simulation Properties

General

Name	Simulation	Number	10	Type	FB
Language	LAD	Numbering	Manual		

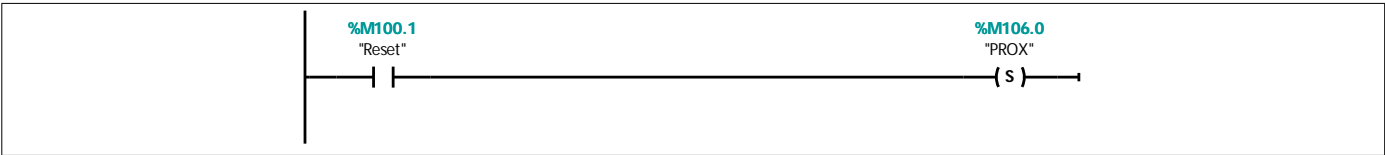
Information

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_TIME	
Prox_Off_Tmr	TON_TIME	
Left_Tmr	TON_TIME	
Right_Tmr	TON_TIME	
Bot_Tmr	TON_TIME	
Enc_Tic	TON_TIME	
Temp		
Constant		

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

On reset, reset PROX

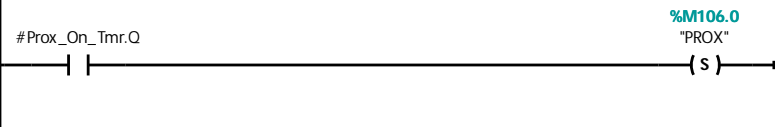


Network 2: Proximity sensor, on when flat carton in position to be erected

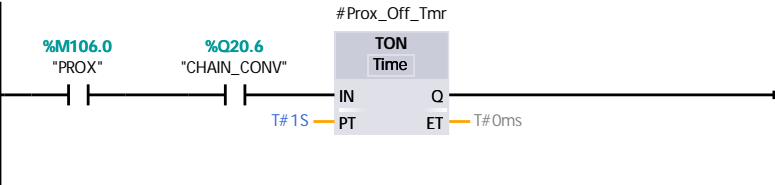
PROX simulation: Set when INFEED running for 3 secs.
Reset when PROX on and CHAIN_CONV runs for one sec



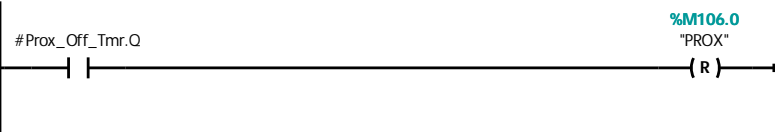
Network 3: Proximity sensor, on when flat carton in position to be erected



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

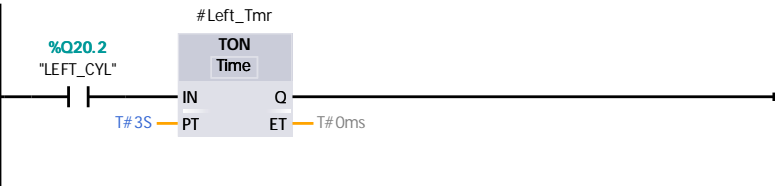


Network 5: Proximity sensor, on when flat carton in position to be erected

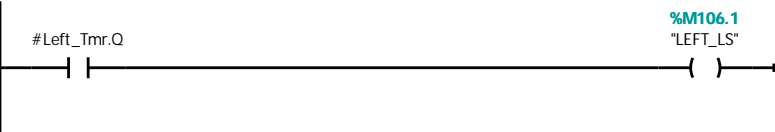


Network 6: Limit switch, on (closed) when left flap is folded in position

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



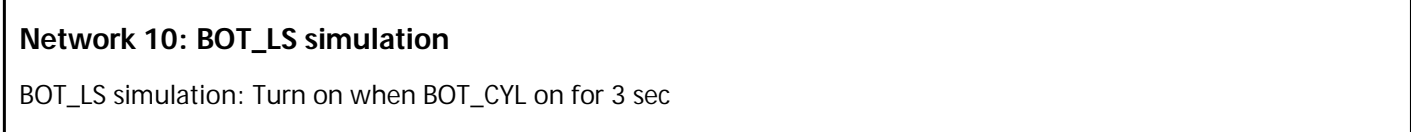
Network 8: Limit switch, on (closed) when right flap is folded in position

RIGHT_LS simulation: Turn on when RIGHT_CYL on for 3 sec



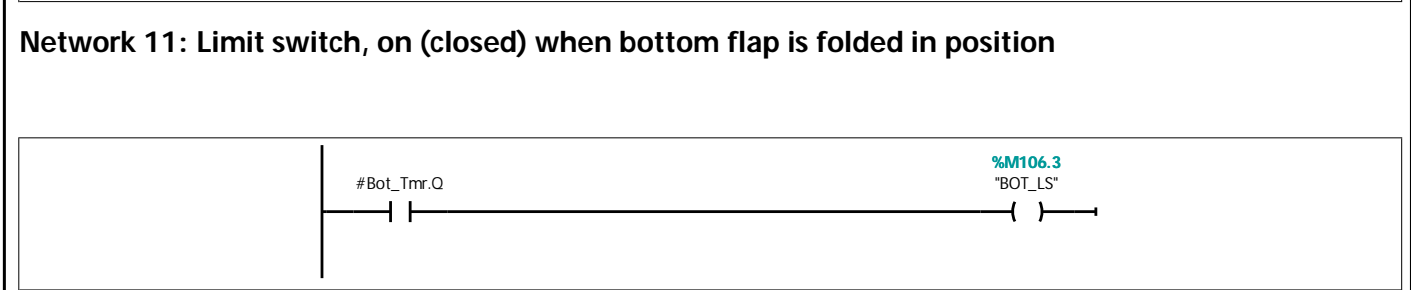
Network 9: Limit switch, on (closed) when right flap is folded in position

The diagram shows a horizontal timeline. A vertical line on the left is labeled "#Right_Tmr.Q". A horizontal line segment is labeled "%M106.2" and "RIGHT_LS". The segment starts with a vertical tick mark and ends with a vertical tick mark, indicating a pulse.



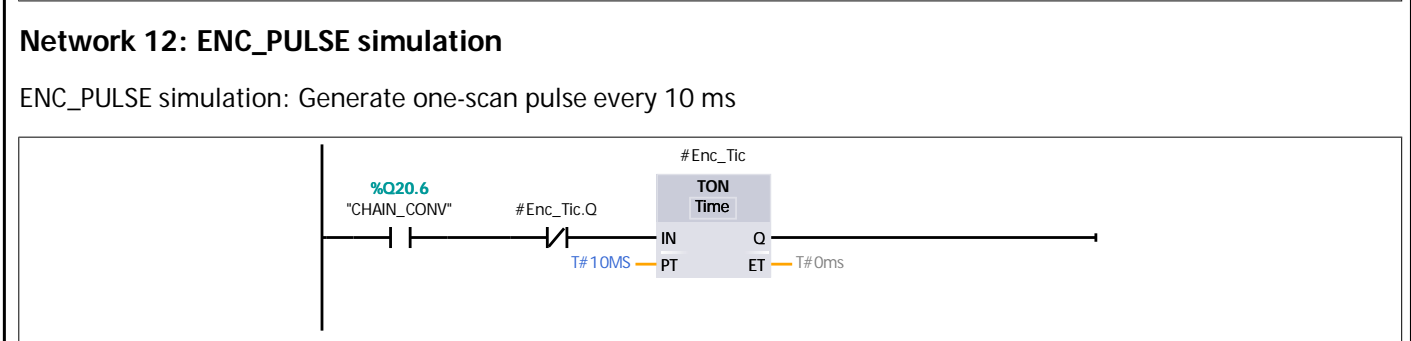
Network 10: BOT_LS simulation

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

```
graph LR; A["#Bot_Tmr.Q"] --- B["( %M106.3 \"BOT_LS\" )"]
```



Network 12: ENC_PULSE simulation

ENC_PULSE simulation: Generate one-scan pulse every 10 ms

```

graph LR
    Start(( )) --- C1["%Q20.6  
\"CHAIN_CONV\""]
    C1 --- C2["#Enc_Tic.Q"]
    C2 --- IN["IN"]
    subgraph TON ["TON Time"]
        IN --- PT["PT  
T#10MS"]
        PT --- Q["Q"]
        Q --- ET["ET  
T#0ms"]
    end
    Q --- End(( ))
    ET --- End
    
```

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

The timing diagram shows two signals over time. The first signal, labeled #Enc_Tic.Q, is a single narrow pulse. The second signal, labeled %M106.4 "ENC_PULSE", is a long pulse that starts after the first pulse and ends much later. The pulse for %M106.4 is colored cyan.

