

Main_Program [OB1]

Main_Program Properties

General

Name	Main_Program	Number	1	Type	OB
Language	LAD	Numbering	Manual		

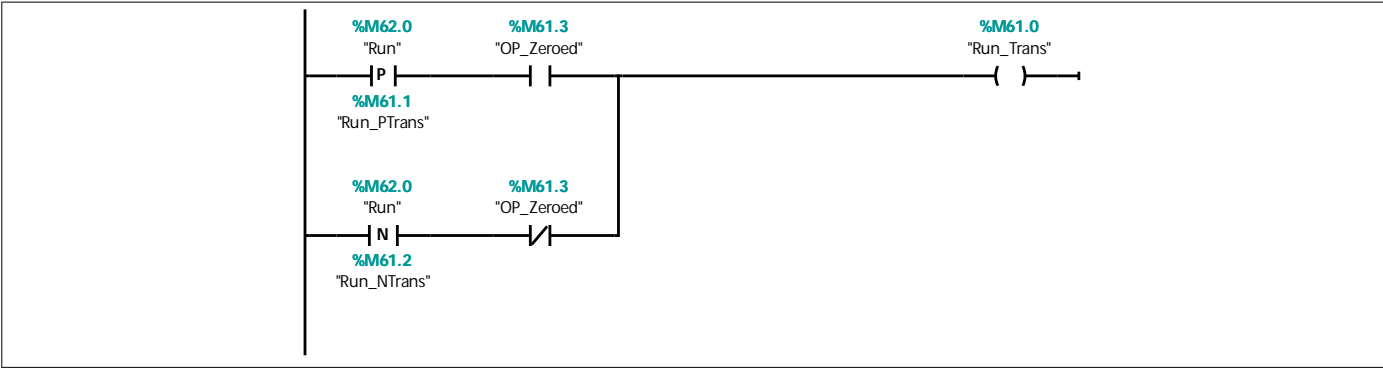
Information

Title	"Main Program Sweep (Cycle)"	Author		Comment	Example 14.1 Parts Tub Loader with S7-Graph sequence. Copyright (c) 2013, Dogwood Valley Press, LLC
Family		Version	0.1	User-defined ID	

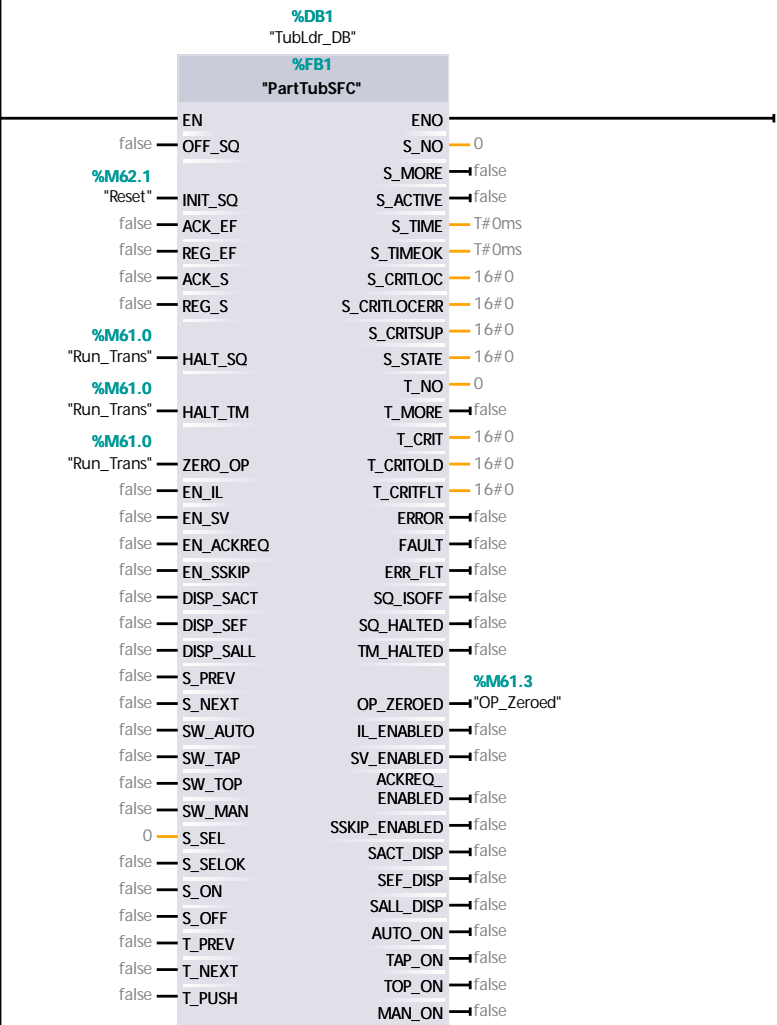
Name	Data type	Default value
▼ Temp		
OB1_EV_CLASS	Byte	
OB1_SCAN_1	Byte	
OB1_PRIORITY	Byte	
OB1_OB_NUMBR	Byte	
OB1_RESERVED_1	Byte	
OB1_RESERVED_2	Byte	
OB1_PREV_CYCLE	Int	
OB1_MIN_CYCLE	Int	
OB1_MAX_CYCLE	Int	
OB1_DATE_TIME	Date_And_Time	
Constant		

Network 1:

Generate pulse to toggle pause for SFC. Positive transition on Run used only when already paused. Negative transition on Run used when not paused.

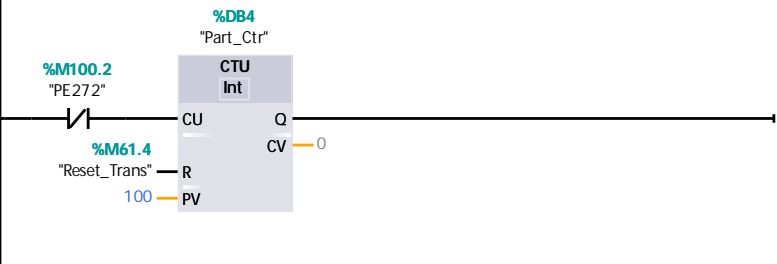


Network 2:



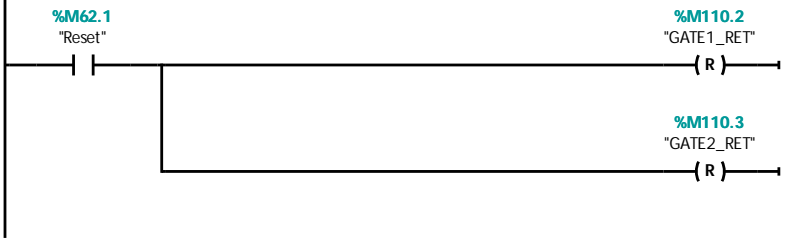
Network 3:

Count Parts

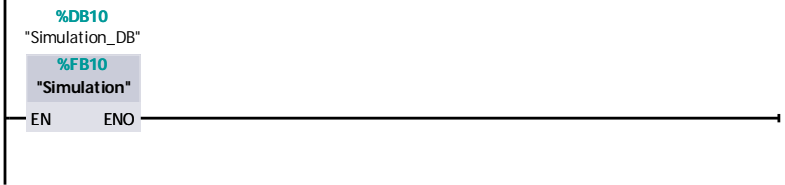


Network 4:

Reset of "S" actions in SFC since initialize of SFC does not do it



Network 5:



PartTubSFC [FB1]**PartTubSFC Properties****General**

Name	PartTubSFC	Number	1	Type	FB
Language	GRAPH	Numbering	Manual	Network language	LAD

Information

Title	S7GRAPH V5.0 FB -- Ex14_1\SIMATIC 400 Station\CPU 417-4\S7 Program(2)\Sources\Part- TubSFC	Author		Comment	Example 14.1 Engineer In- verter Normal Operation with S7 Graph Copyright (c) 2011 Dog- wood Valley Press, LLC
Family		Version	0.1	User-defined ID	

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		
S_NO	Int	0

Totally Integrated Automation Portal		
Name	Data type	Default value
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		
Start_Trans	GraphTransition	
Part_Ctr_Trans	GraphTransition	
Opn_G1_Trans	GraphTransition	
Pall_Up_Trans	GraphTransition	
Hld_G1_Trans	GraphTransition	
Cls_G1_Trans	GraphTransition	
Opn_G2_Trans	GraphTransition	
Tub_In_Trans	GraphTransition	
Hld_G2_Trans	GraphTransition	
Cls_G2_Trans	GraphTransition	
Initial	GraphStep	
Parts_Into_Tub	GraphStep	
Open_Gate_1	GraphStep	
Wait_Tub_Out	GraphStep	
Hold_Gate_1	GraphStep	

Totally Integrated Automation Portal		
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Name	Data type	Default value
Close_Gate_1	GraphStep	
Open_Gate_2	GraphStep	
Wait_Tub_In	GraphStep	
Hold_Gate_2	GraphStep	
Close_Gate_2	GraphStep	
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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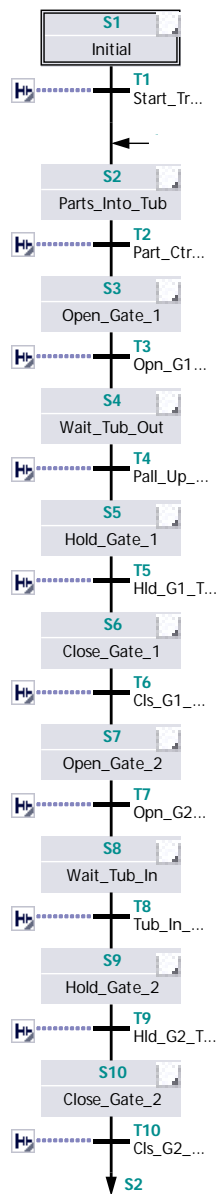
Category for supervisions	Error	Subcategory 1 for supervisions	Subcategory 2 for supervisions
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Permanent pre-instructions

Sequences (1)

1:Sequencer 1

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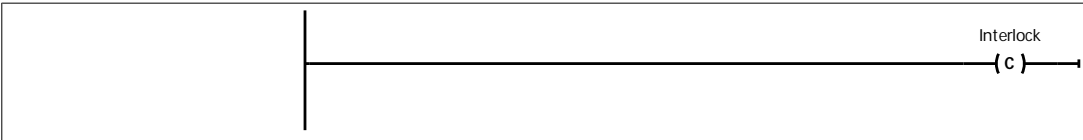
S1 - [Initial step]:Initial

Step comment

Interlock -(c)-:

Interlock alarm

Alarm text Initial



Supervision -(v)-:

Supervision alarm

Alarm textInitial

Supervision
(v)

Actions:

Actions:

Interlock	Event	Qualifier	Action

T1:Start_Trans

%M62.0
"Run"Interlock
(c)

S2:Parts_Into_Tub

Step comment

Interlock -(c)-:

Interlock alarm

Alarm textParts_Into_Tub

Supervision
(v)

Supervision -(v)-:

Supervision alarm

Alarm textParts_Into_Tub

Actions:

Actions:

Interlock	Event	Qualifier	Action
		N	"BELT_RUN"
		N	"Tub_Permissive"
	S1	N	"Reset_Trans"

Totally Integrated Automation Portal			
Interlock	Event	Qualifier	Action
T2:Part_Ctr_Trans			
	<div><div>%DB4.DBX4.0 "Part_Ctr".Q</div><div>%M62.0 "Run"</div></div>		
S3:Open_Gate_1			
Step comment			
Interlock -(c)-:			
Interlock alarm			
Alarm text		Open_Gate_1	
	<div>Interlock (c)</div>		
Supervision -(v)-:			
Supervision alarm			
Alarm text		Open_Gate_1	
	<div>Supervision (v)</div>		
Actions:			
Actions:			
Interlock	Event	Qualifier	Action
		S	"GATE1_RET"
T3:Opn_G1_Trans			
	<div><div>%M100.4 "GATE1_OPLS"</div></div>		
S4:Wait_Tub_Out			
Step comment			
Interlock -(c)-:			
Interlock alarm			
Alarm text		Wait_Tub_Out	

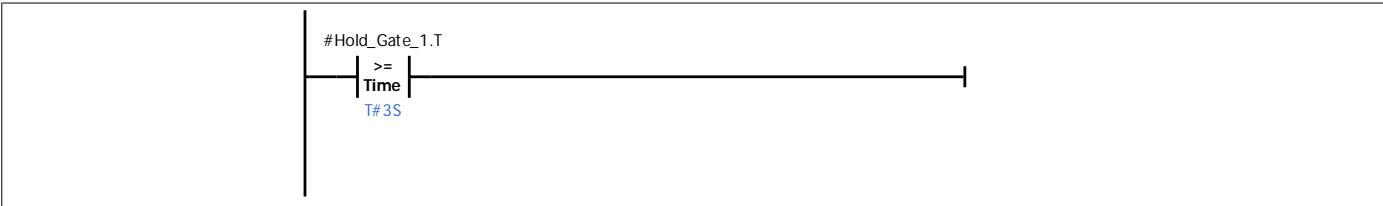
Totally Integrated Automation Portal			
	<div>Interlock (c)</div>		
Supervision -(v)-:			
Supervision alarm			
Alarm text	Wait_Tub_Out		
	<div>Supervision (v)</div>		
Actions:			
Actions:			
Interlock	Event	Qualifier	Action
		N	"TROLL_RUN"
T4:Pall_Up_Trans			
	<div>%M100.3 "TUB_PROX"</div>		
S5:Hold_Gate_1			
Step comment			
Interlock -(c)-:			
Interlock alarm			
Alarm text	Hold_Gate_1		
	<div>Interlock (c)</div>		
Supervision -(v)-:			
Supervision alarm			
Alarm text	Hold_Gate_1		
	<div>Supervision (v)</div>		

Actions:

Actions:

Interlock	Event	Qualifier	Action
		N	"TROLL_RUN"

T5:Hld_G1_Trans



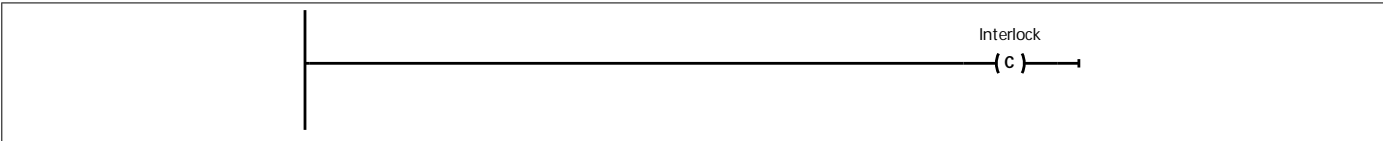
S6:Close_Gate_1

Step comment

Interlock -(c)-:

Interlock alarm

Alarm text	Close_Gate_1
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Supervision -(v)-:

Supervision alarm

Alarm text	Close_Gate_1
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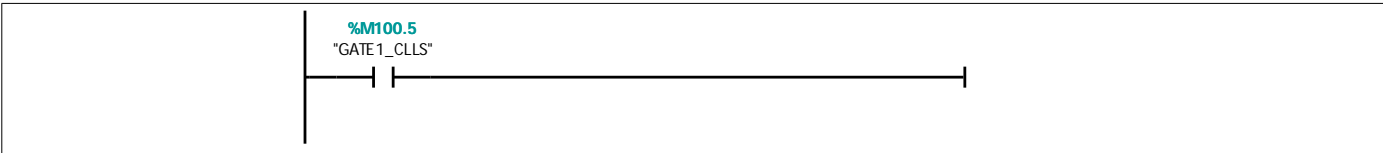


Actions:

Actions:

Interlock	Event	Qualifier	Action
		R	"GATE1_RET"

T6:Cls_G1_Trans



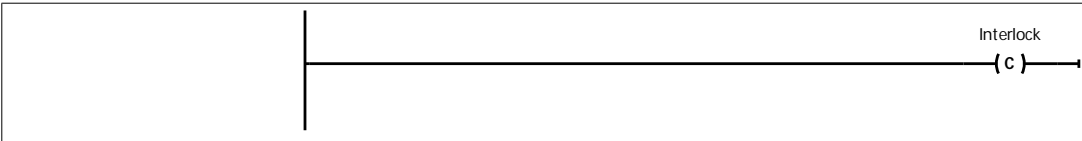
S7:Open_Gate_2

Step comment

Interlock -(c)-:

Interlock alarm

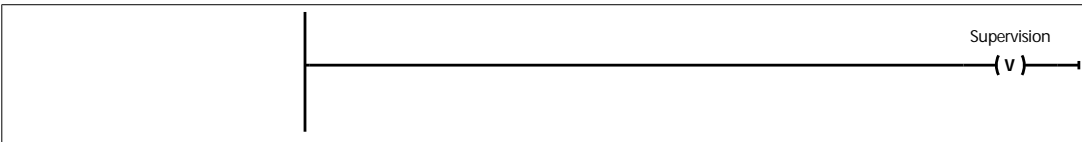
Alarm text Open_Gate_2



Supervision -(v)-:

Supervision alarm

Alarm text Open_Gate_2



Actions:

Actions:

Interlock	Event	Qualifier	Action
		S	"GATE2_RET"

T7:Opn_G2_Trans



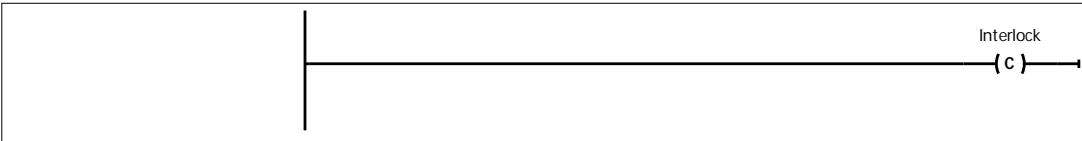
S8:Wait_Tub_In

Step comment

Interlock -(c)-:

Interlock alarm

Alarm text Wait_Tub_In



Supervision -(v)-:

Supervision alarm

Alarm text Wait_Tub_In

Supervision

(v)

Actions:

Actions:

Interlock	Event	Qualifier	Action
		N	"TROLL_RUN"

T8:Tub_In_Trans

%M100.3
"TUB_PROX"

S9:Hold_Gate_2

Step comment

Interlock -(c)-:

Interlock alarm

Alarm text	Hold_Gate_2
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Interlock

(c)

Supervision -(v)-:

Supervision alarm

Alarm text	Hold_Gate_2
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Supervision

(v)

Actions:

Actions:

Interlock	Event	Qualifier	Action
		N	"TROLL_RUN"

Totally Integrated Automation Portal														
<div>T9:Hld_G2_Trans</div> <div><div></div><div>#Hold_Gate_2.T Time T#3S</div><div></div></div>														
<div>S10:Close_Gate_2</div> <div>Step comment</div> <div>Interlock -(c)-:</div> <div><div>Interlock alarm</div><div>Alarm textClose_Gate_2</div><div><div></div><div></div><div>Interlock (c)</div></div></div>														
<div>Supervision -(v)-:</div> <div><div>Supervision alarm</div><div>Alarm textClose_Gate_2</div><div><div></div><div></div><div>Supervision (v)</div></div></div>														
<div>Actions:</div> <div><div>Actions:</div><table><tr><th>Interlock</th><th>Event</th><th>Qualifier</th><th>Action</th></tr><tr><td></td><td></td><td>R</td><td>"GATE2_RET"</td></tr><tr><td></td><td></td><td></td><td></td></tr></table></div>			Interlock	Event	Qualifier	Action			R	"GATE2_RET"				
Interlock	Event	Qualifier	Action											
		R	"GATE2_RET"											
<div>T10:Cls_G2_Trans</div> <div><div></div><div>%M100.7 "GATE2_CLLS"</div><div></div></div>														
<div>Permanent post-instructions</div>														

Simulation [FB10]

Simulation Properties

General

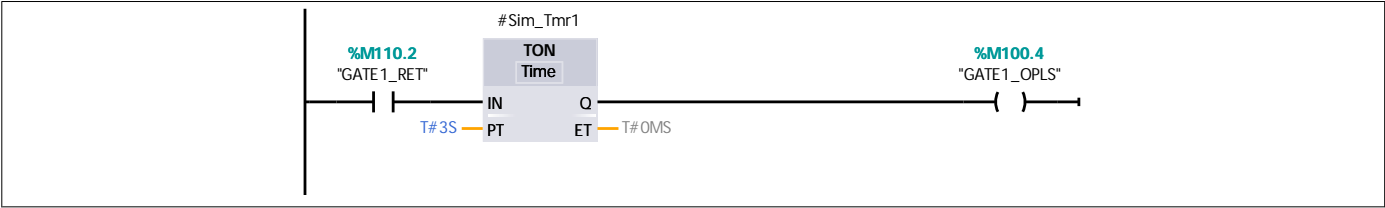
Name	Simulation	Number	10	Type	FB
Language	LAD	Numbering	Manual		

Information

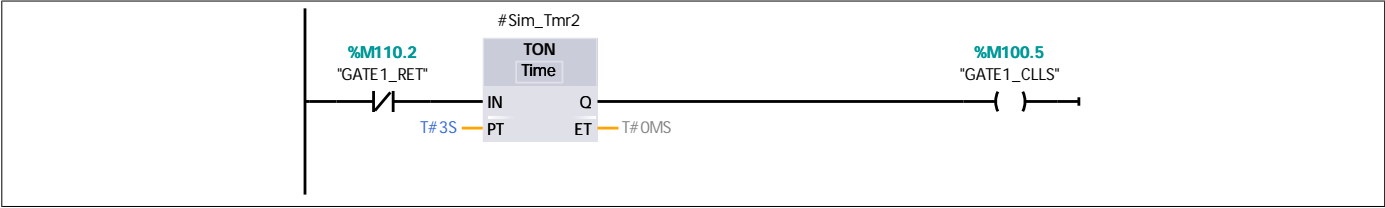
Title	Simulaton	Author		Comment	
Family		Version	0.1	User-defined ID	

Name	Data type	Default value
Input		
Output		
InOut		
▼ Static		
Sim_Tmr1	TON	
Sim_Tmr2	TON	
Sim_Tmr3	TON	
Sim_Tmr4	TON	
Sim_Tmr5	TON	
Sim_Tmr6	TON	
Sim_Tmr7	TON	
Temp		
Constant		

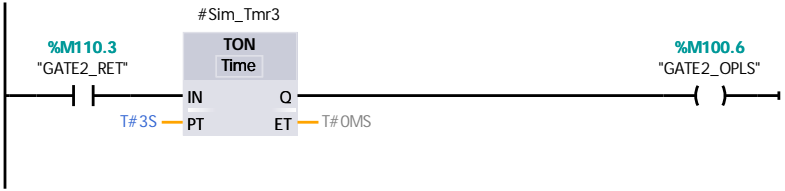
Network 1: Simulate gate 1 LS's



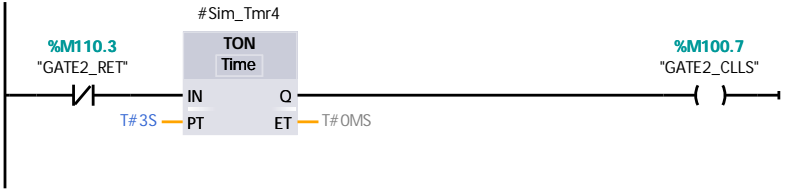
Network 2:



Network 3: Simulate gate 2 LS's

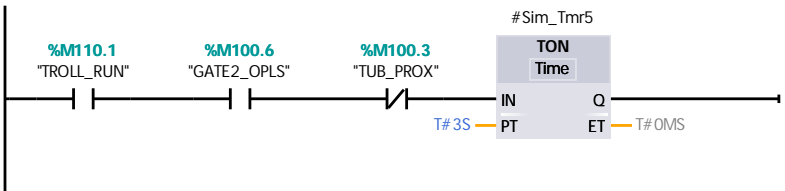


Network 4:

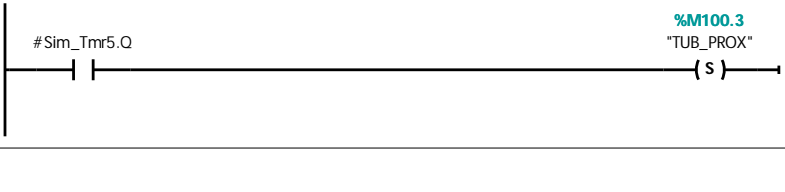


Network 5: Simulate TUB_PROX

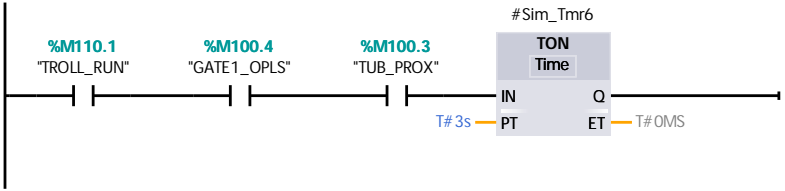
Simulate TUB_PROX for roller conveyor



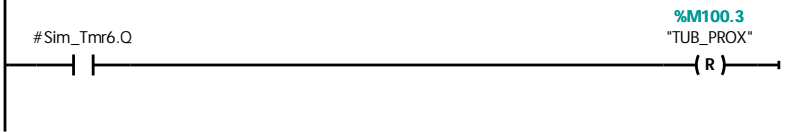
Network 6:



Network 7:



Network 8:



Network 9: Simulate PE272

Simulate PE272 by turning it off every 0.15 seconds

