

Main [OB1]

Main Properties

General	
1	General
2	General
3	General
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99	General
100	General

Name	Main	Number	1	Type	OB
Language	LAD	Numbering	Manual		

Information

Title	"Main Program Sweep (Cycle)"	Author		Comment	
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: SP14-1

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SP14-1 Part Oiler Station Control Using S7-GRAPH with Simulation

Additional internal memory:

Tag Address

Run M5.0 BOOL On while station running

Int_Reset M5.1 BOOL Internal reset

Run_Trans M61.0 BOOL Run has changed

Run_PTrans M61.1 BOOL Bit for Run neg transition

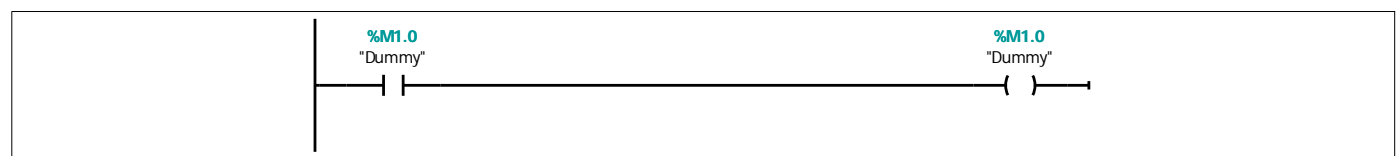
Run_NTrans M61.2 BOOL Bit for Run pos transition

OP_Zeroed M61.3 BOOL Operation paused

Reset_Trans M61.4 BOOL Reset_PB transition to start-kick

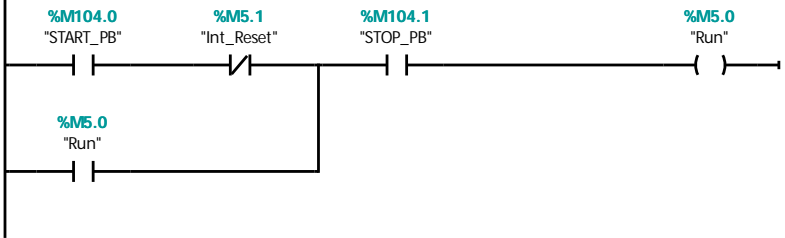
SFC

ResetPB_PTrans M61.5 BOOL Bit for Reset_PB pos trans



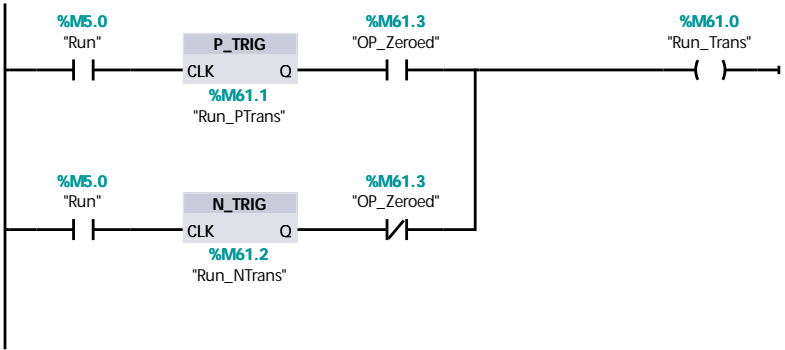
Network 2: Start/stop

During reset prevent start



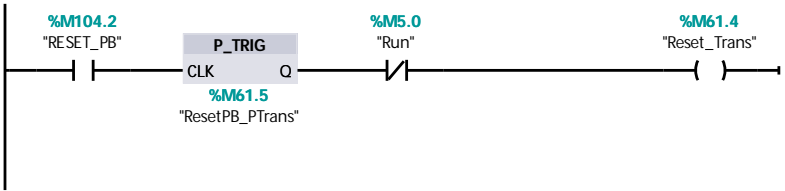
Network 3: Generate pulse to toggle pause for SFC.

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

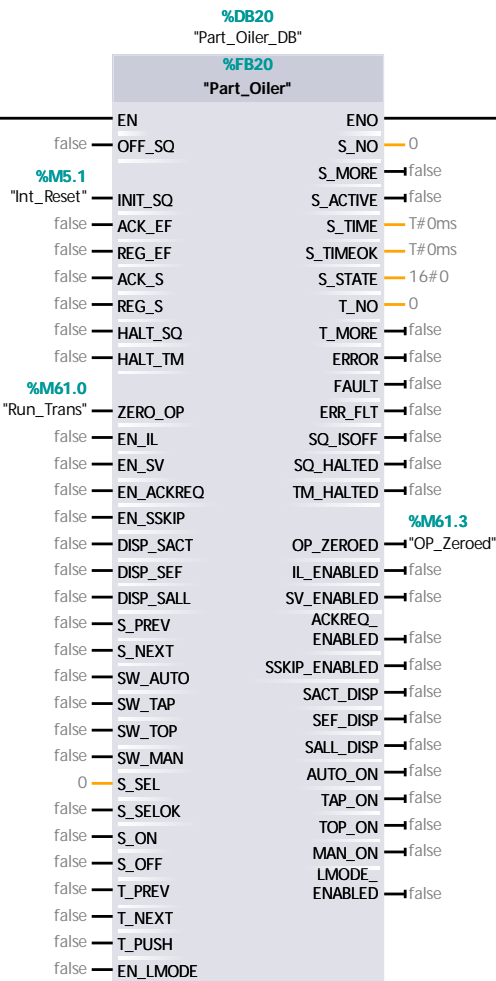


Network 4:

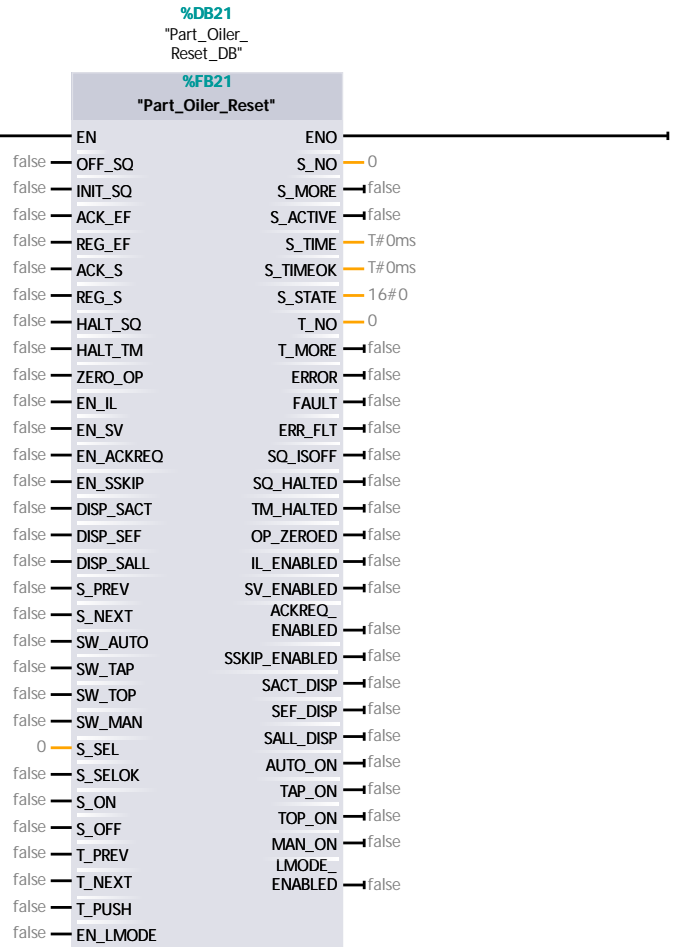
Positive transition for reset PB to start reset operation.



Network 5: Part Oiler S7-GRAPH



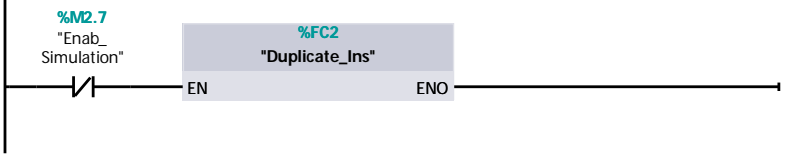
Network 6:



Network 7: Simulation



Network 8: Copy real inputs to input image if not simulating



Totally Integrated Automation Portal																																																		
<div>Duplicate_Ins [FC2]</div> <div><div>Duplicate_Ins Properties</div><div><div>General</div><table><tr><td>Name</td><td>Duplicate_Ins</td><td>Number</td><td>2</td><td>Type</td><td>FC</td></tr><tr><td>Language</td><td>LAD</td><td>Numbering</td><td>Manual</td><td></td><td></td></tr></table><div>Information</div><table><tr><td>Title</td><td></td><td>Author</td><td></td><td>Comment</td><td></td></tr><tr><td>Family</td><td></td><td>Version</td><td>0.1</td><td>User-defined ID</td><td></td></tr></table></div><table><tr><th>Name</th><th>Data type</th><th>Default value</th></tr><tr><td>Input</td><td></td><td></td></tr><tr><td>Output</td><td></td><td></td></tr><tr><td>InOut</td><td></td><td></td></tr><tr><td>Temp</td><td></td><td></td></tr><tr><td>Constant</td><td></td><td></td></tr><tr><td>▼ Return</td><td></td><td></td></tr><tr><td>Duplicate_Ins</td><td>Void</td><td></td></tr></table></div> <div>Network 1:</div> <div><div><div><div></div><div>MOVE</div><div>EN</div><div>ENO</div><div>%IW4</div><div>"Tag_1"</div><div>IN</div><div>OUT1</div><div>%MW104</div><div>"Tag_2"</div></div><div><div></div><div>MOVE</div><div>EN</div><div>ENO</div><div>%IW8</div><div>"Tag_3"</div><div>IN</div><div>OUT1</div><div>%IW108</div><div>"Tag_4"</div></div></div></div>			Name	Duplicate_Ins	Number	2	Type	FC	Language	LAD	Numbering	Manual			Title		Author		Comment		Family		Version	0.1	User-defined ID		Name	Data type	Default value	Input			Output			InOut			Temp			Constant			▼ Return			Duplicate_Ins	Void	
Name	Duplicate_Ins	Number	2	Type	FC																																													
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Output																																																		
InOut																																																		
Temp																																																		
Constant																																																		
▼ Return																																																		
Duplicate_Ins	Void																																																	

Part_Oiler [FB20]

Part_Oiler Properties

General

Name	Part_Oiler	Number	20	Type	FB
Language	GRAPH	Numbering	Manual	Network language	LAD
Block version	V2.0				

Information

Title		Author		Comment	
Family		Version	0.1	User-defined ID	

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

Totally Integrated Automation Portal			
Name	Data type	Default value	Retain
S_TIME	Time	T#0ms	Non-retain
S_TIMEOK	Time	T#0ms	Non-retain
S_STATE	Word	16#0	Non-retain
T_NO	Int	0	Non-retain
T_MORE	Bool	false	Non-retain
ERROR	Bool	false	Non-retain
FAULT	Bool	false	Non-retain
ERR_FLT	Bool	false	Non-retain
SQ_ISOFF	Bool	false	Non-retain
SQ_HALTED	Bool	false	Non-retain
TM_HALTED	Bool	false	Non-retain
OP_ZEROED	Bool	false	Non-retain
IL_ENABLED	Bool	false	Non-retain
SV_ENABLED	Bool	false	Non-retain
ACKREQ_ENABLED	Bool	false	Non-retain
SSKIP_ENABLED	Bool	false	Non-retain
SACT_DISP	Bool	false	Non-retain
SEF_DISP	Bool	false	Non-retain
SALL_DISP	Bool	false	Non-retain
AUTO_ON	Bool	false	Non-retain
TAP_ON	Bool	false	Non-retain
TOP_ON	Bool	false	Non-retain
MAN_ON	Bool	false	Non-retain
LMODE_ENABLED	Bool	false	Non-retain
InOut			
▼ Static			
RT_DATA	G7_RTDataPlus_V2		Non-retain
Trans1	G7_Transition-Plus_V2		Non-retain
Trans2	G7_Transition-Plus_V2		Non-retain
Trans3	G7_Transition-Plus_V2		Non-retain
Trans4	G7_Transition-Plus_V2		Non-retain
Trans5	G7_Transition-Plus_V2		Non-retain
Trans6	G7_Transition-Plus_V2		Non-retain
Trans7	G7_Transition-Plus_V2		Non-retain
Initial	G7_StepPlus_V2		Non-retain
Wait_For_Part	G7_StepPlus_V2		Non-retain
Wait_To_Engage	G7_StepPlus_V2		Non-retain
Lower_Oiler	G7_StepPlus_V2		Non-retain
Squirt_Oil	G7_StepPlus_V2		Non-retain
Raise_Oiler	G7_StepPlus_V2		Non-retain
Part_Leaves	G7_StepPlus_V2		Non-retain
Temp			
Constant			

Totally Integrated Automation Portal		
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Alarms

Enable alarms	True
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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	
Category for supervisions	Error	Subcategory 1 for supervisions		Subcategory 2 for supervisions	
Category for GRAPH warnings	Warning	Subcategory 1 for GRAPH warnings		Subcategory 2 for GRAPH warnings	

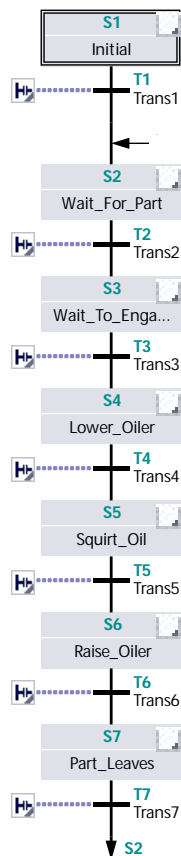
Permanent pre-instructions

1:

Sequences (1)

1:

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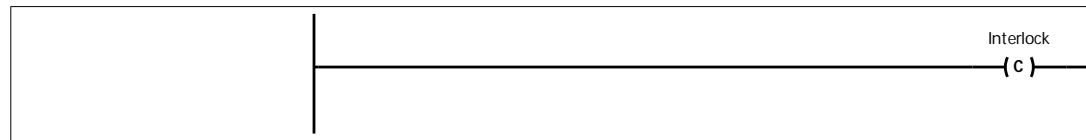


S1 - [Initial step]:Initial

Interlock -(c)-:

Interlock alarm

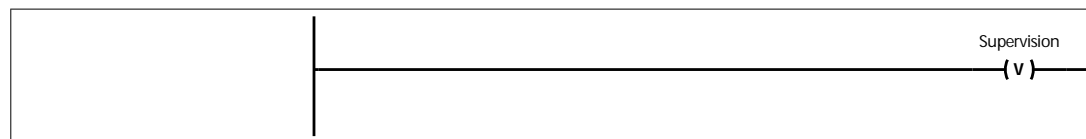
Alarm text



Supervision -(v)-:

Supervision alarm

Alarm text

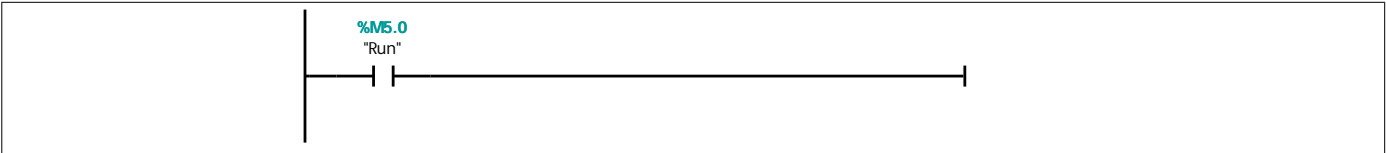


Actions:

Actions:

Interlock	Event	Qualifier	Action

T1:Trans1



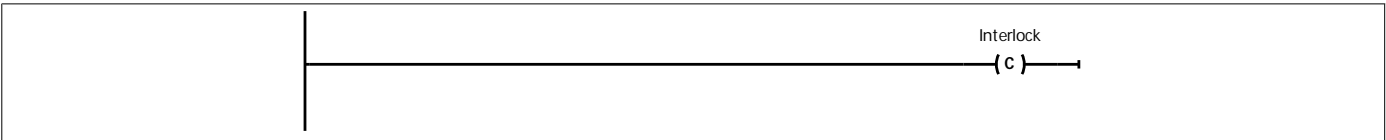
S2:Wait_For_Part

Step comment

Interlock -(c)-:

Interlock alarm

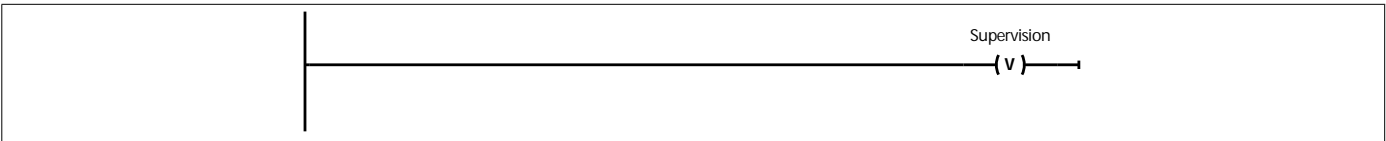
Alarm text	Wait_For_Part
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Supervision -(v)-:

Supervision alarm

Alarm text	Wait_For_Part
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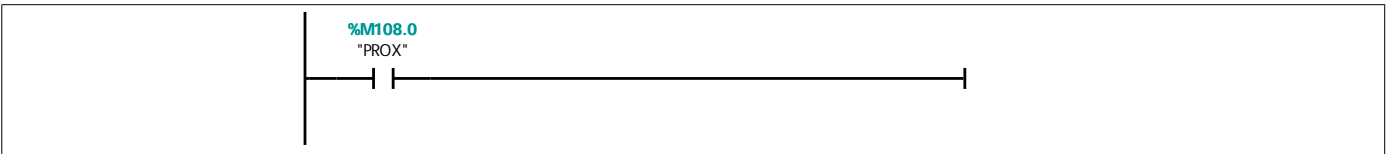


Actions:

Actions:

Interlock	Event	Qualifier	Action

T2:Trans2

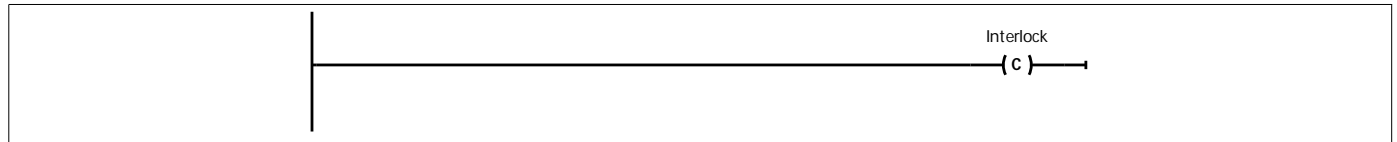


S3:Wait_To_Engage

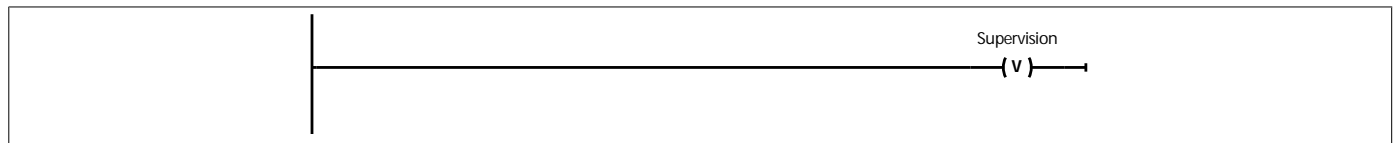
Step comment

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

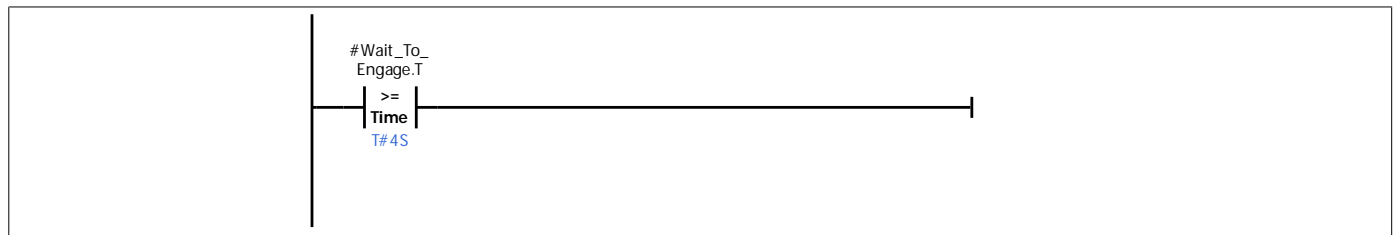
Alarm text Wait_To_Engage

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

Alarm text Wait_To_Engage

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

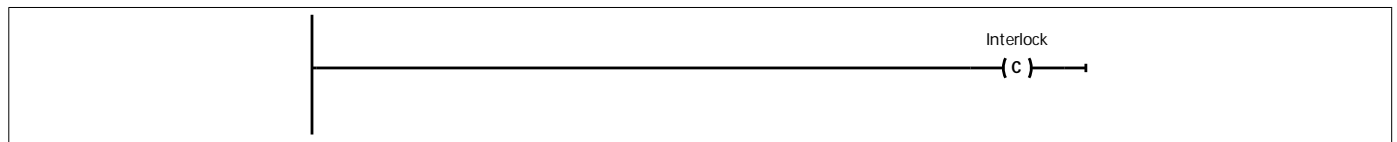
Interlock	Event	Qualifier	Action
		S	"ENGAGE_SOL"

T3:Trans3**S4:Lower_Oiler**

Step comment

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

Alarm text Lower_Oiler

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

Alarm text Lower_Oiler

Totally Integrated Automation Portal																		
<div>T5:Trans5</div> <div><div></div><div><div>#Squirt_Oil.T</div><div>>=</div><div>Time</div><div>T# 500MS</div></div><div></div></div>																		
<div>S6:Raise_Oiler</div> <div>Step comment</div> <div>Interlock -(c)-:</div> <div><div>Interlock alarm</div><div>Alarm text</div><div>Raise_Oiler</div></div> <div><div></div><div></div><div>Interlock</div><div>(c)</div></div>																		
<div>Supervision -(v)-:</div> <div><div>Supervision alarm</div><div>Alarm text</div><div>Raise_Oiler</div></div> <div><div></div><div></div><div>Supervision</div><div>(v)</div></div>																		
<div>Actions:</div> <div><div>Actions:</div><table><thead><tr><th>Interlock</th><th>Event</th><th>Qualifier</th><th>Action</th></tr></thead><tbody><tr><td></td><td></td><td>R</td><td>"OIL_VALVE"</td></tr><tr><td></td><td></td><td>N</td><td>"OILER_UP"</td></tr><tr><td></td><td></td><td></td><td></td></tr></tbody></table></div>			Interlock	Event	Qualifier	Action			R	"OIL_VALVE"			N	"OILER_UP"				
Interlock	Event	Qualifier	Action															
		R	"OIL_VALVE"															
		N	"OILER_UP"															
<div>T6:Trans6</div> <div><div></div><div><div>%M108.1</div><div>"LS1"</div></div><div></div><div><div>%M5.0</div><div>"Run"</div></div><div></div></div>																		
<div>S7:Part_Leaves</div> <div>Step comment</div>																		

Totally Integrated Automation Portal			
Interlock -(c)-:			
Interlock alarm			
Alarm text	Part_Leaves		
<div><div></div><div>Interlock (c)</div></div>			
Supervision -(v)-:			
Supervision alarm			
Alarm text	Part_Leaves		
<div><div></div><div>Supervision (v)</div></div>			
Actions:			
Actions:			
Interlock	Event	Qualifier	Action
		R	"ENGAGE_SOL"
T7:Trans7			
<div><div></div><div><div>%M108.0 "PROX"</div><div></div></div></div>			
Permanent post-instructions			
1:			
<div><div></div><div></div></div>			

Part_Oiler_Reset [FB21]

Part_Oiler_Reset Properties

General

Name	Part_Oiler_Reset	Number	21	Type	FB
Language	GRAPH	Numbering	Manual	Network language	LAD
Block version	V2.0				

Information

Title		Author		Comment	
Family		Version	0.1	User-defined ID	

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

Totally Integrated Automation Portal			
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Name	Data type	Default value	Retain
S_TIME	Time	T#0ms	Non-retain
S_TIMEOK	Time	T#0ms	Non-retain
S_STATE	Word	16#0	Non-retain
T_NO	Int	0	Non-retain
T_MORE	Bool	false	Non-retain
ERROR	Bool	false	Non-retain
FAULT	Bool	false	Non-retain
ERR_FLT	Bool	false	Non-retain
SQ_ISOFF	Bool	false	Non-retain
SQ_HALTED	Bool	false	Non-retain
TM_HALTED	Bool	false	Non-retain
OP_ZEROED	Bool	false	Non-retain
IL_ENABLED	Bool	false	Non-retain
SV_ENABLED	Bool	false	Non-retain
ACKREQ_ENABLED	Bool	false	Non-retain
SSKIP_ENABLED	Bool	false	Non-retain
SACT_DISP	Bool	false	Non-retain
SEF_DISP	Bool	false	Non-retain
SALL_DISP	Bool	false	Non-retain
AUTO_ON	Bool	false	Non-retain
TAP_ON	Bool	false	Non-retain
TOP_ON	Bool	false	Non-retain
MAN_ON	Bool	false	Non-retain
LMODE_ENABLED	Bool	false	Non-retain
InOut			
▼ Static			
RT_DATA	G7_RTDataPlus_V2		Non-retain
Trans1	G7_Transition-Plus_V2		Non-retain
Trans2	G7_Transition-Plus_V2		Non-retain
Trans3	G7_Transition-Plus_V2		Non-retain
Reset_Wait	G7_StepPlus_V2		Non-retain
Reset_Head_Up	G7_StepPlus_V2		Non-retain
Unlatch_Reset	G7_StepPlus_V2		Non-retain
Temp			
Constant			

Alarms

Enable alarms	True
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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

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

Alarm text

Supervision

(v)

Actions:**Actions:**

Interlock	Event	Qualifier	Action

T1:Trans1%M61.4
"Reset_Trans"**S2:Reset_Head_Up**

Step comment

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

Alarm textReset_Head_Up

Interlock

(c)

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

Alarm textReset_Head_Up

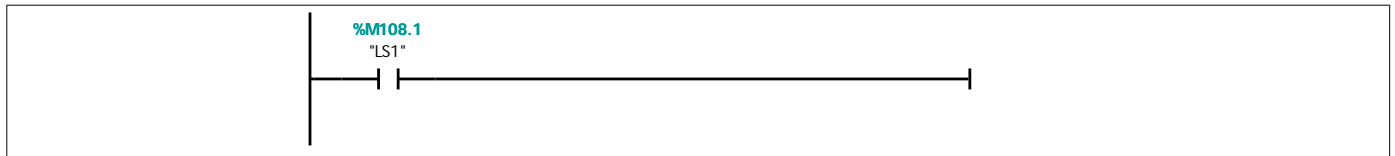
Supervision

(v)

Actions:**Actions:**

Interlock	Event	Qualifier	Action
		N	"OILER_UP"
		S	"Int_Reset"

T2:Trans2



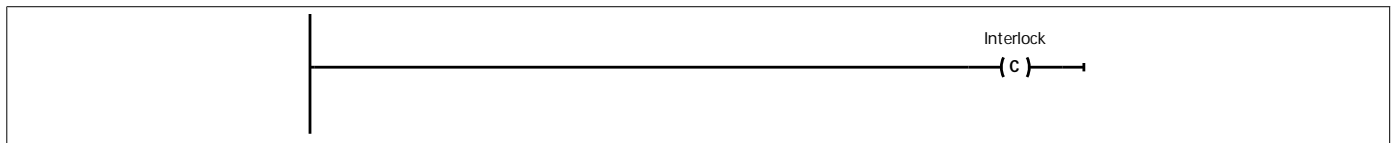
S3:Unlatch_Reset

Step comment

Interlock -(c)-:

Interlock alarm

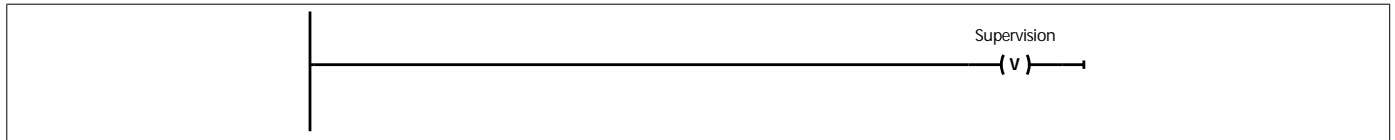
Alarm text Unlatch_Reset



Supervision -(v)-:

Supervision alarm

Alarm text Unlatch_Reset

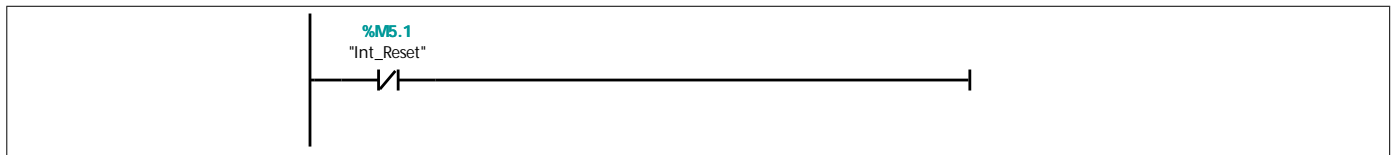


Actions:

Actions:

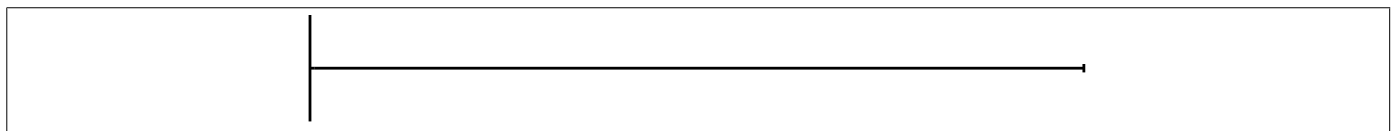
Interlock	Event	Qualifier	Action
		R	"Int_Reset"

T3:Trans3



Permanent post-instructions

1:



Simulation [FB10]

Simulation Properties

General

Name	Simulation	Number	10	Type	FB
Language	LAD	Numbering	Manual		

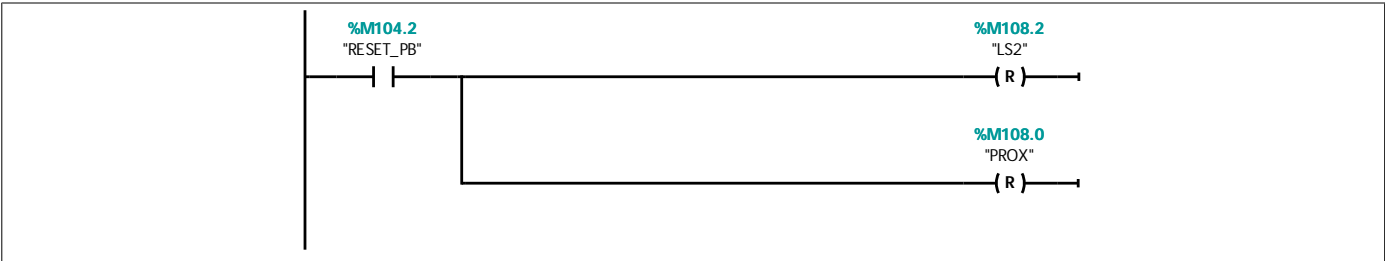
Information

Title		Author		Comment	
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	
LS1_Tmr	TON_TIME	
LS2_Tmr	TON_TIME	
Prox_Off_Tmr_IN	Bool	false
Oiler_Up_NTrans	Bool	false
Temp		
Constant		

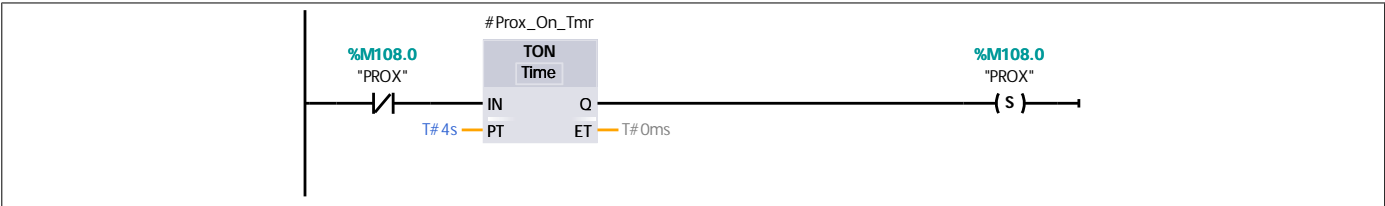
Network 1: Limit switch, on (closed) when oiler tip is in lowered position

On reset, reset PROX and LS2

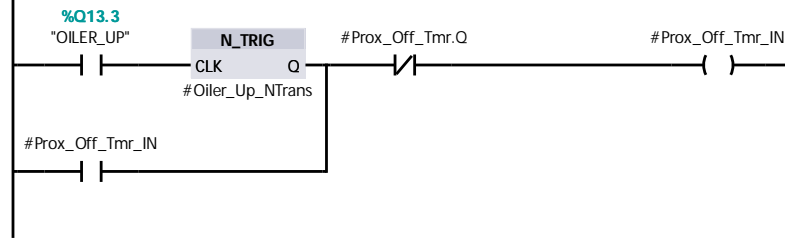


Network 2: Proximity sensor, on when platform is in station

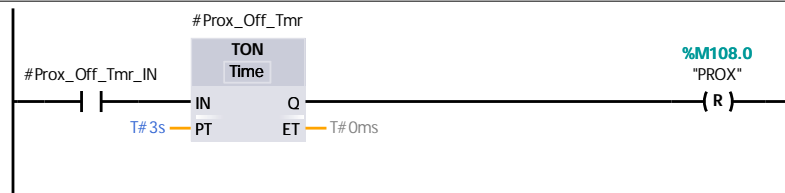
PROX simulation: Set when PROX off for 4 secs.
Reset 3 secs after OILER_UP transitions off



Network 3:

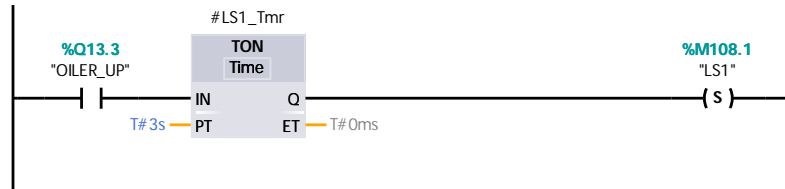


Network 4: Proximity sensor, on when platform is in station

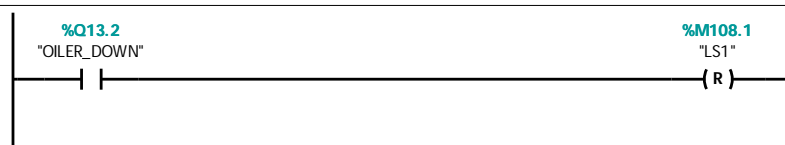


Network 5: Limit switch, on (closed) when oiler tip is in raised position

LS1 and LS2 simulation: Set LS1 when OILER_UP on for 3 sec. Reset when OILER_DOWN
Set LS2 when OILER_DOWN on for 3 sec. Reset when OILER_UP



Network 6: Limit switch, on (closed) when oiler tip is in raised position



Network 7: Proximity sensor, on when 40-foot rail piece in feeder area



Network 8: Limit switch, on (closed) when oiler tip is in lowered position

