

## Main [OB1]

## Main Properties

## General

Name	Main	Number	1	Type	OB
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Language	LAD	Numbering	Manual		
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## Information

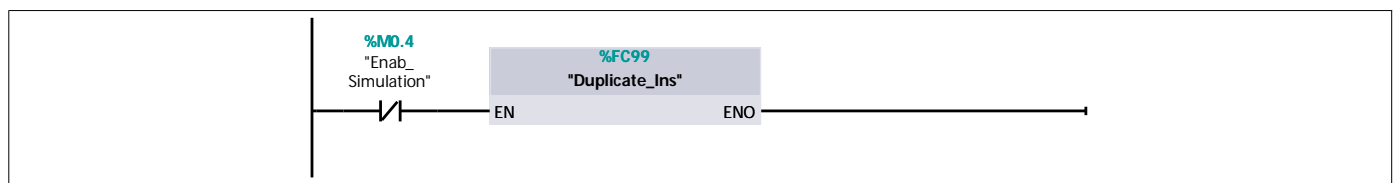
Title	Example 21.4	Author		Comment	Xfer Unit Control
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					Copyright (c) 2011 Dog-wood Valley Press, LLC
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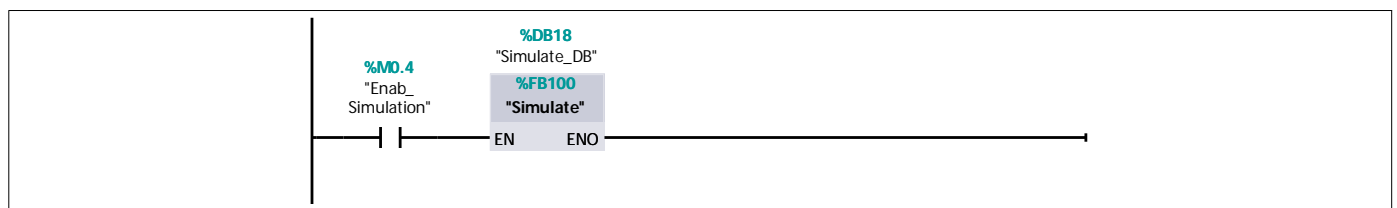
Family		Version	0.1	User-defined ID	
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Name	Data type	Default value
▼ Temp		
OB1_EV_CLASS	Byte	
OB1_SCAN_1	Byte	
OB1_PRIORITY	Byte	
OB1_OB_NUMBR	Byte	
OB1_RESERVED_1	Byte	
OB1_RESERVED_2	Byte	
OB1_PREV_CYCLE	Int	
OB1_MIN_CYCLE	Int	
OB1_MAX_CYCLE	Int	
OB1_DATE_TIME	Date_And_Time	
Temp1	Bool	
Temp2	Bool	
Constant		

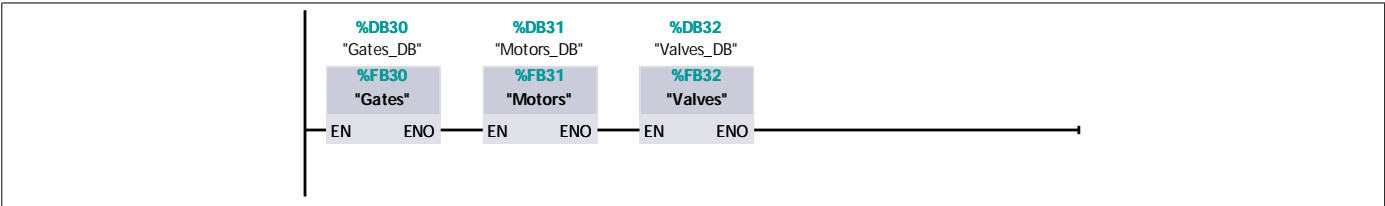
## Network 1: If not simulation, transfer inputs to proper location



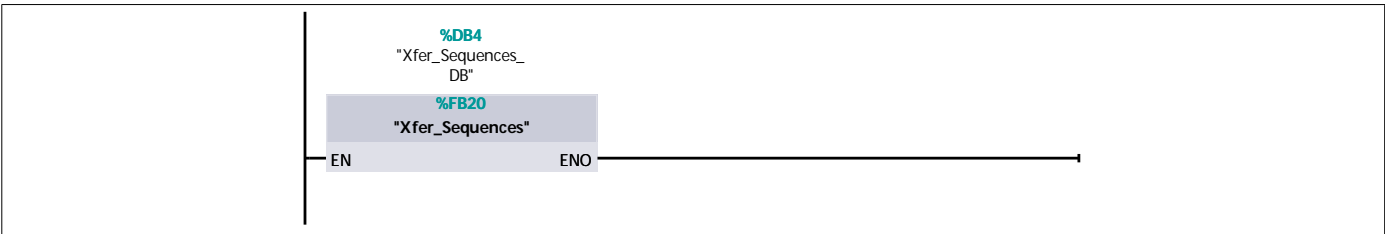
## Network 2:



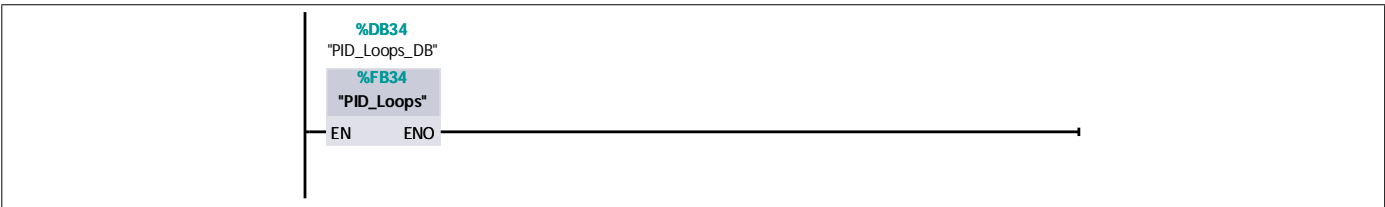
**Network 3: Device Controls**



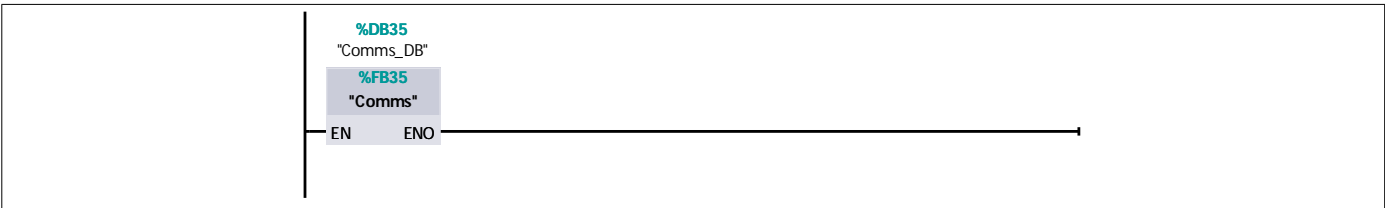
**Network 4: Unit Transfer Sequence**



**Network 5: PID Loops**

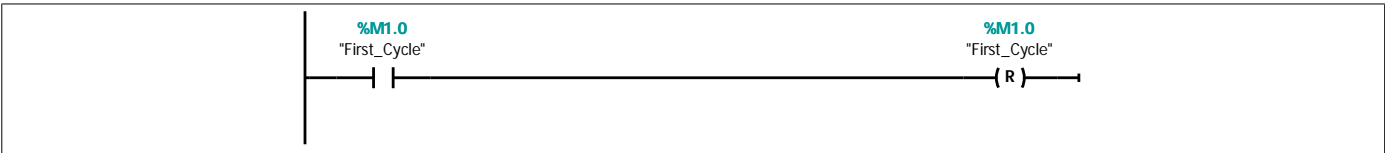


**Network 6: Communications**



**Network 7: On for first scan of OB1**

Reset first scan bit. MUST BE LAST RUNG IN OB1!!



## Xfer\_Sequences [FB20]

### Xfer\_Sequences Properties

#### General

<b>Name</b>	Xfer_Sequences	<b>Number</b>	20	<b>Type</b>	FB
<b>Language</b>	LAD	<b>Numbering</b>	Manual		

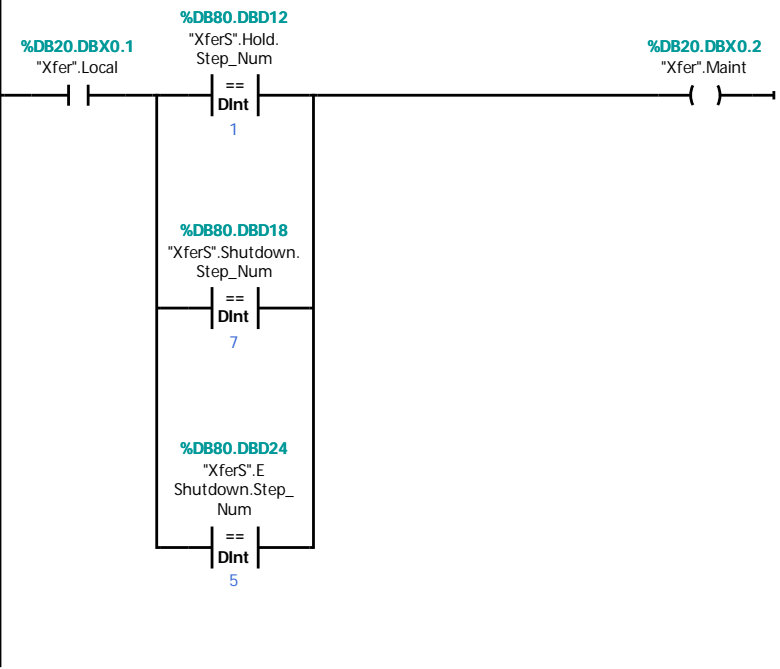
#### Information

<b>Title</b>	Example 21.4 Xfer Sequences	<b>Author</b>		<b>Comment</b>	Copyright (c) 2022 Dogwood Valley Press, LLC
<b>Family</b>		<b>Version</b>	0.1	<b>User-defined ID</b>	

Name	Data type	Default value
Input		
Output		
InOut		
▼ Static		
Xfer_Startup_ARTmr	TON_TIME	
Xfer_Operate_ARTmr	TON_TIME	
Xfer_Hold_ARTmr	TON_TIME	
Xfer_Shutdown_ARTmr	TON_TIME	
Xfer_EShutdown_ARTmr	TON_TIME	
Xfer_ConvCln_Tmr	TON_TIME	
TmpDI	DInt	0
TmpDI2	Time	T#0ms
Xfer_EShutdown_Tmr	TON_TIME	
EX100_FailHold_Tmr	TON_TIME	
C105_FailESdwn_Tmr	TON_TIME	
G102_FailESdwn_Tmr	TON_TIME	
L101_Level_Sdwn_Tmr	TON_TIME	
LSL101_Level_Alarm_Tmr	TON_TIME	
Temp		
Constant		

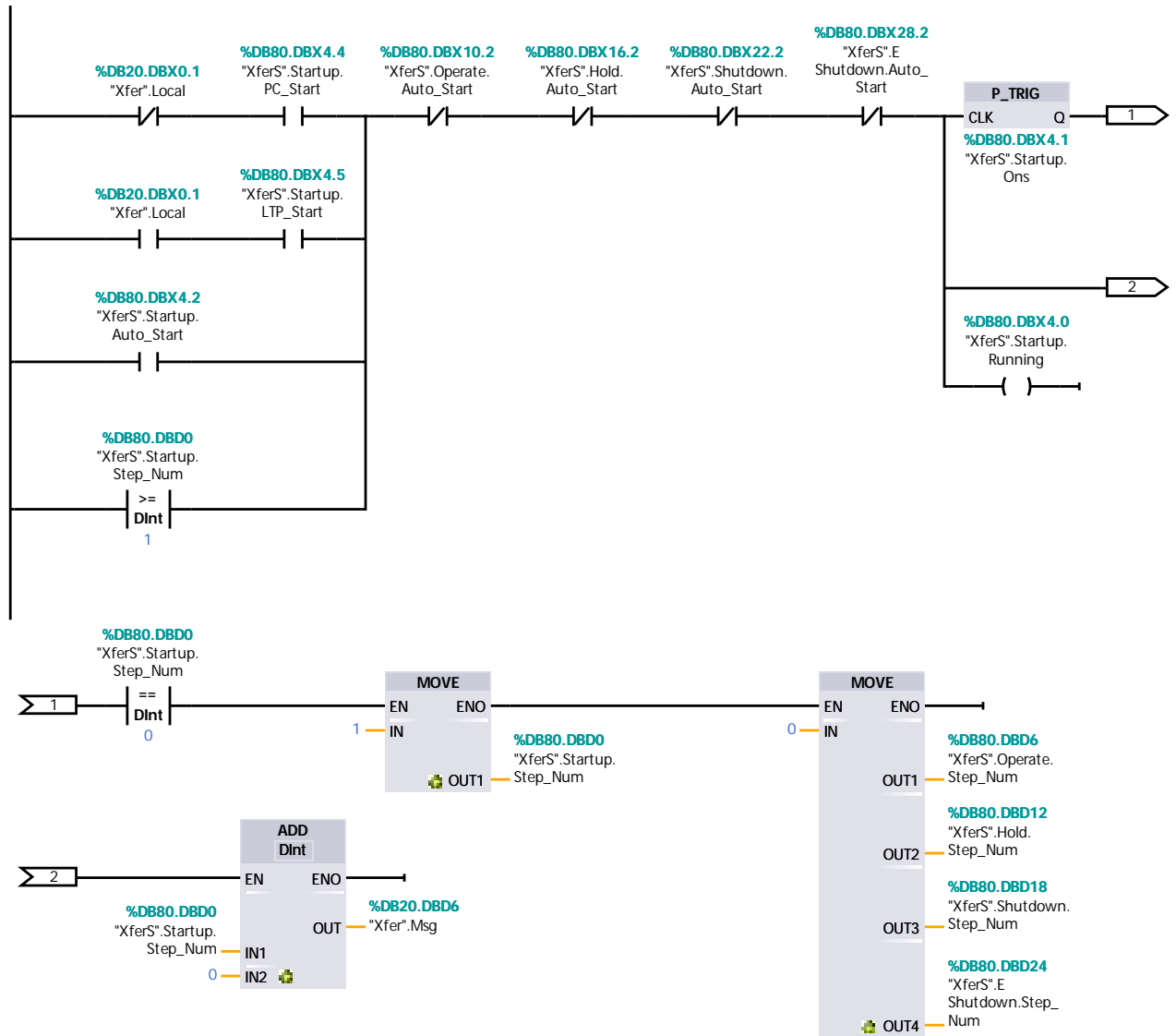
### Network 1: Maintenance privilege for device control

Unit device manual control allowed when local control granted and in safe state.



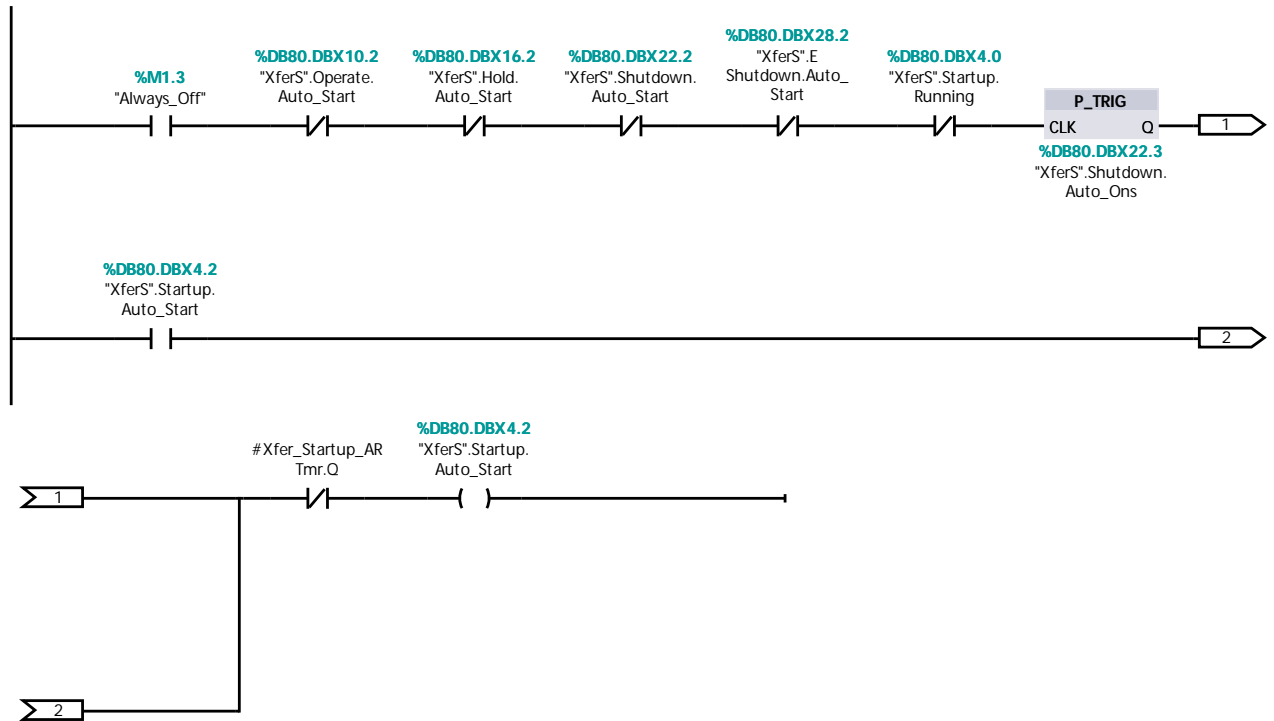
**Network 2: Start Transfer Sequence**

Start Transfer - Operator requests and auto sequence starts. Maintain message number for OI

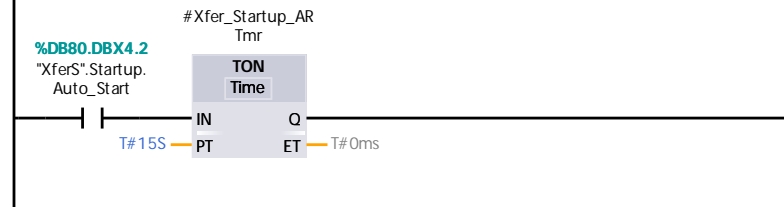


### Network 3: Auto start request

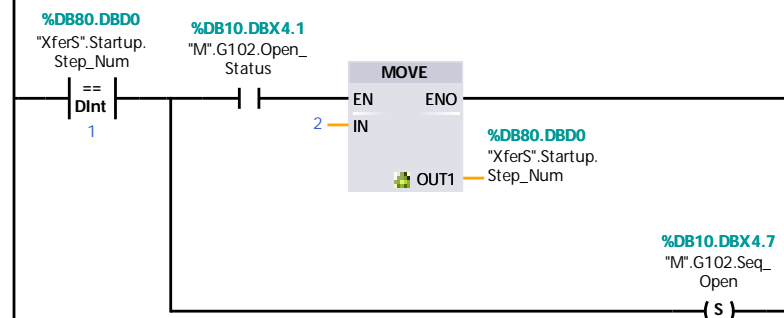
Auto-start for Startup - Not Used



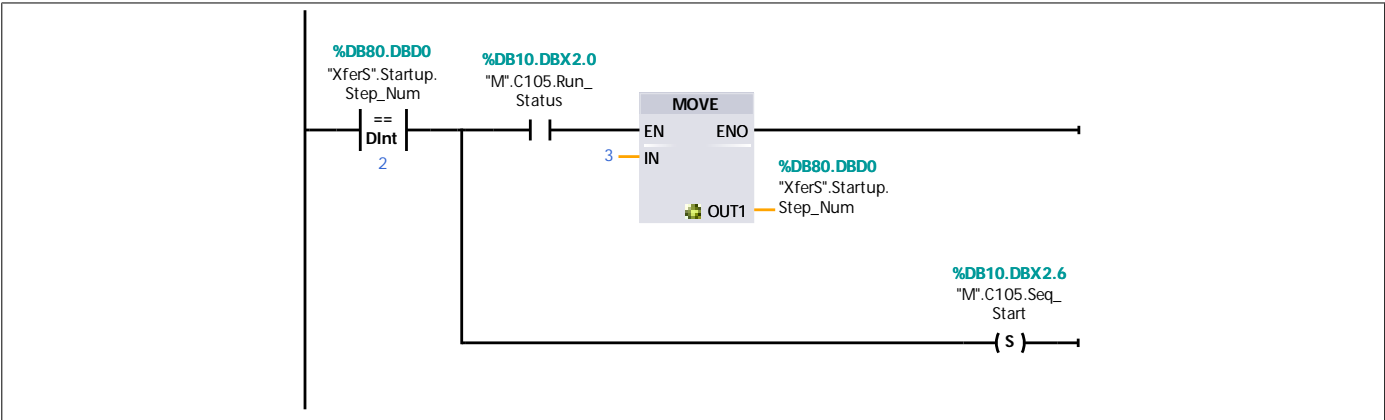
#### Network 4: Auto Start Timer



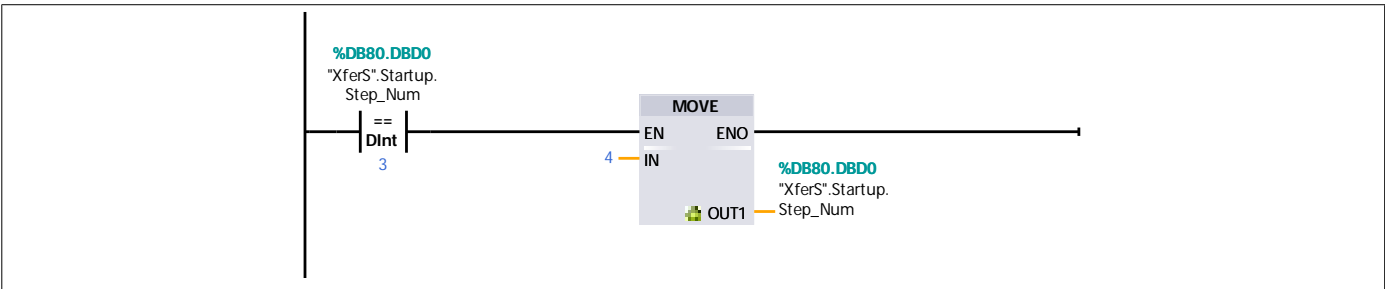
#### Network 5: Start Transfer step 1 - Open CIP Tank slide gate G-102



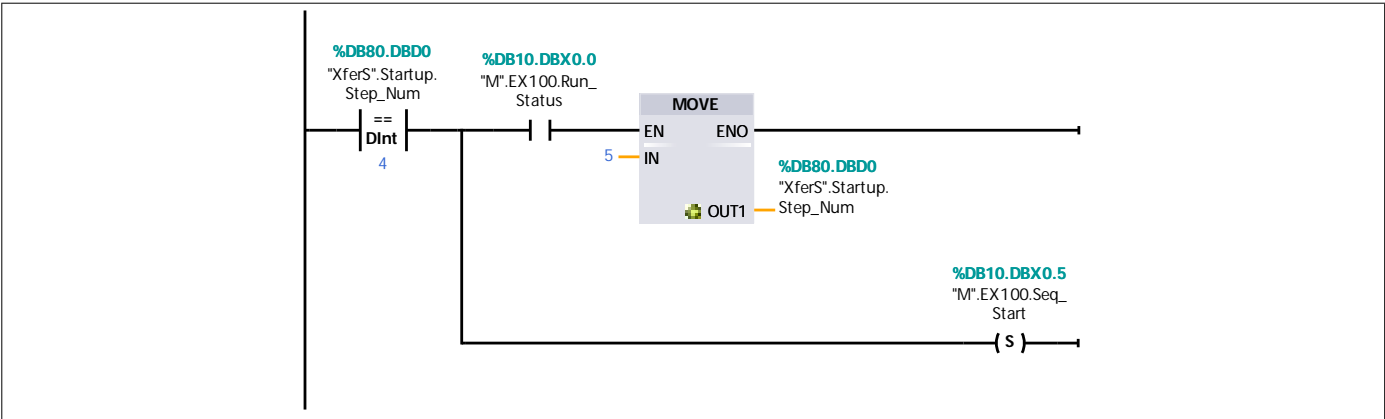
**Network 6: Start Transfer step 2 - Start conveyor C-105**



**Network 7: Start Transfer step 3 - Spare step**



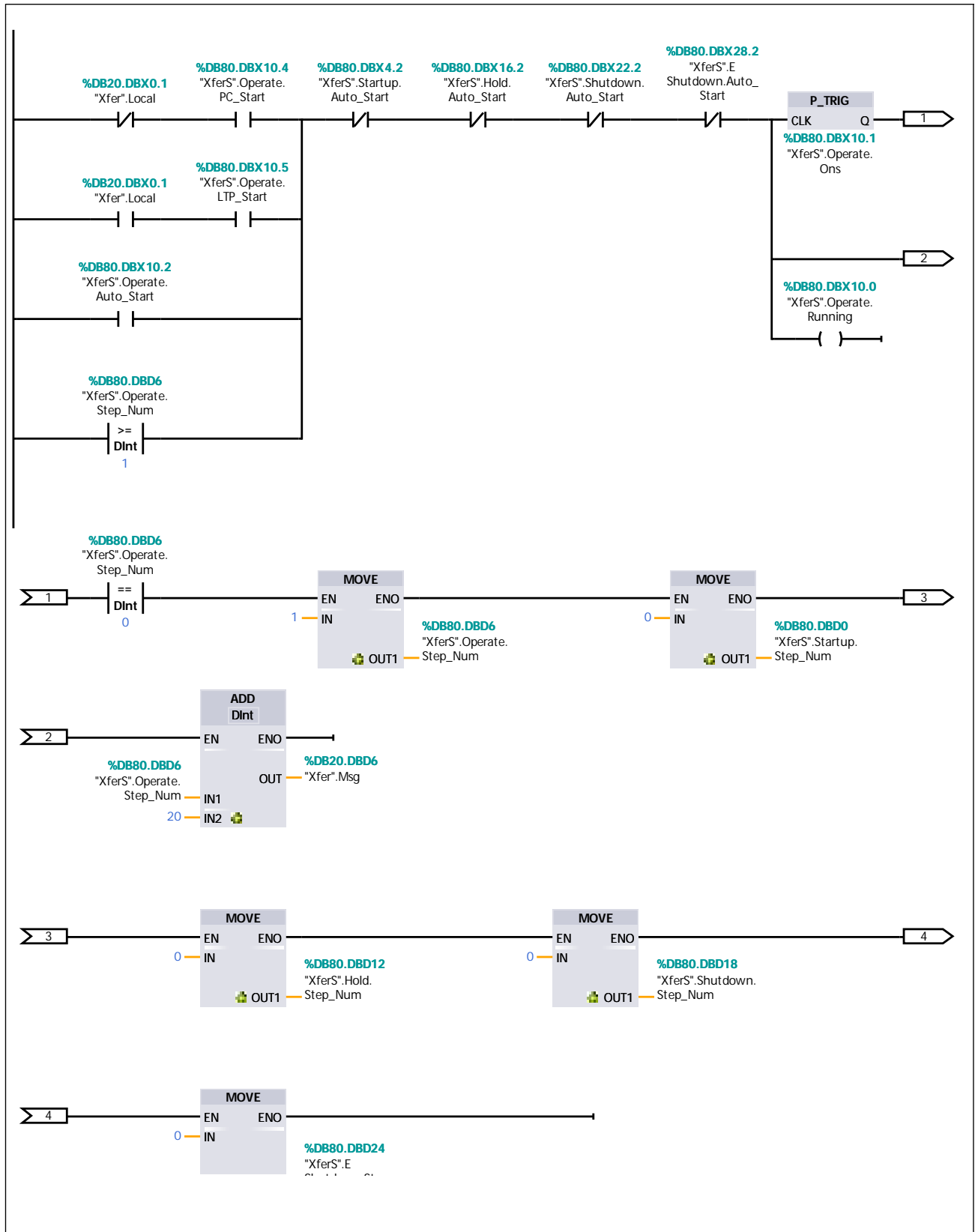
**Network 8: Start Transfer step 4 - Start airlock EX100**



**Network 9: Operate Sequence**

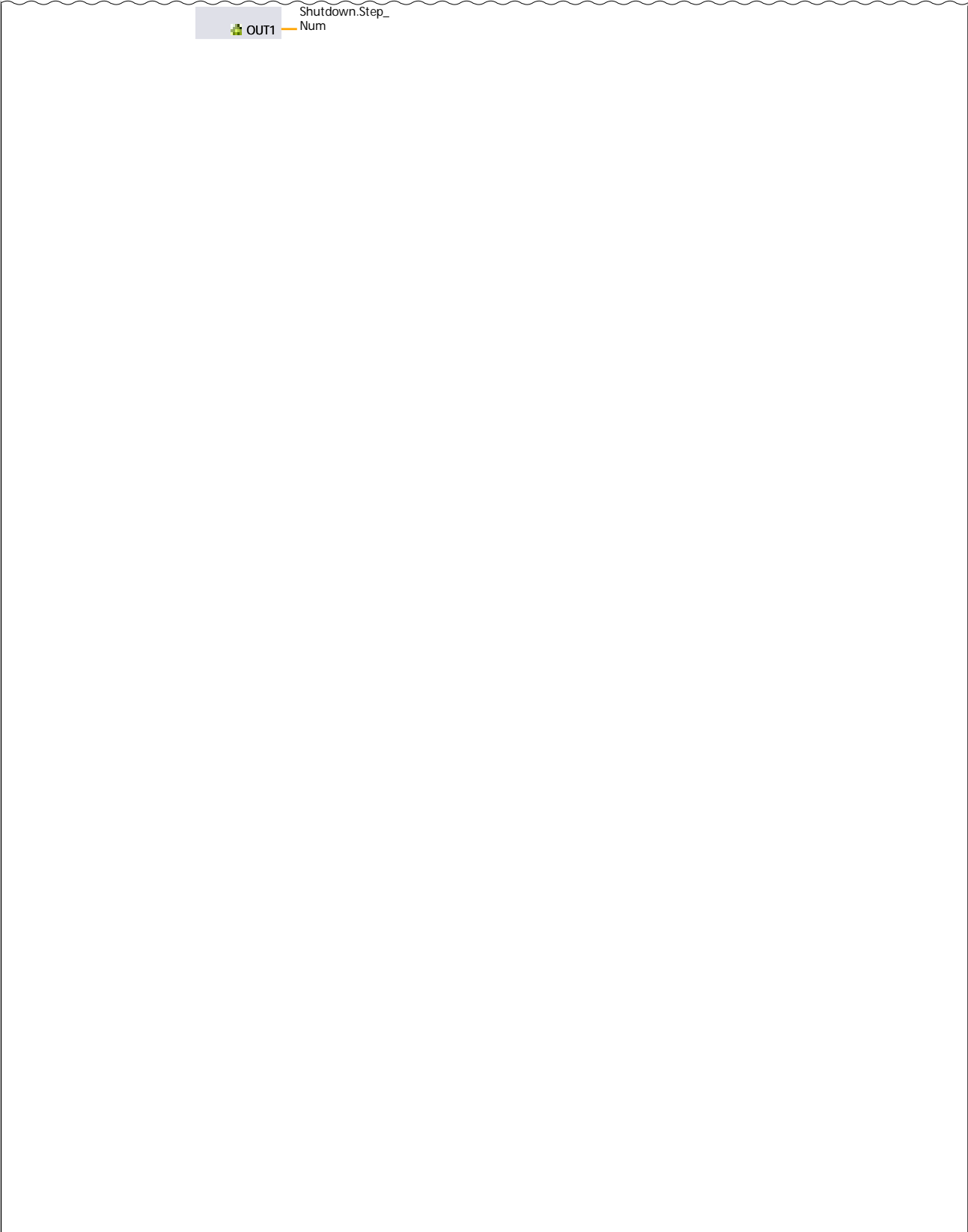
Operate - Operator requests and auto sequence starts. Maintain message number for OI

## Network 9: Operate Sequence (1.1 / 2.1)



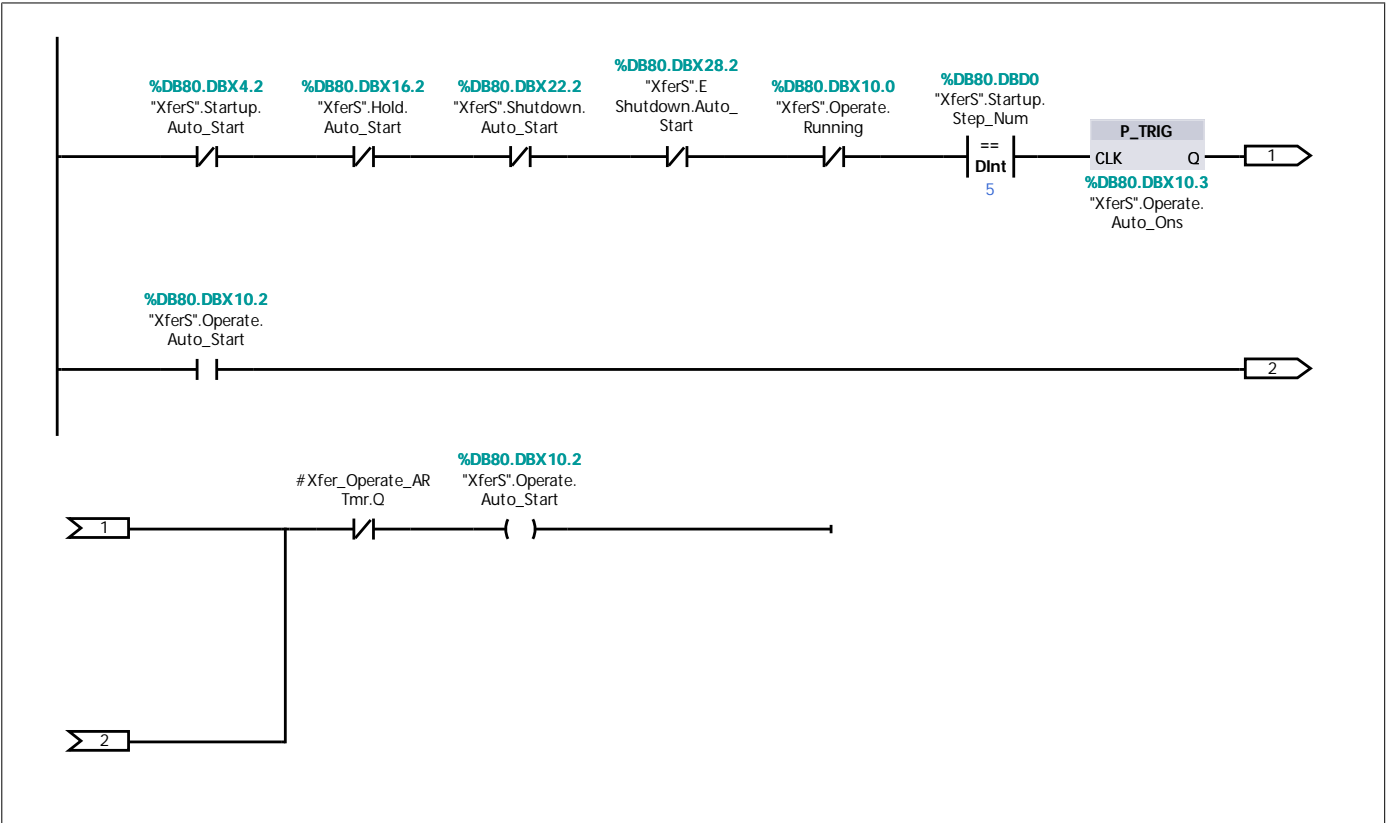
Network 9: Operate Sequence (2.1 / 2.1)

1.1 ( Page2 - 6)

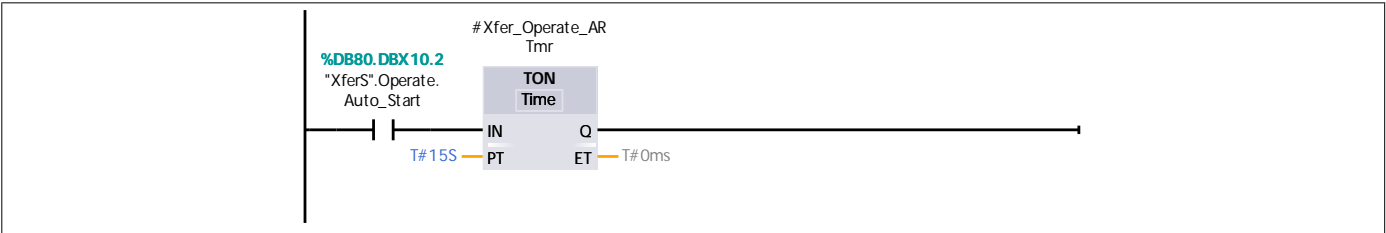


# Network 10: Auto start request

Auto-start for Operate

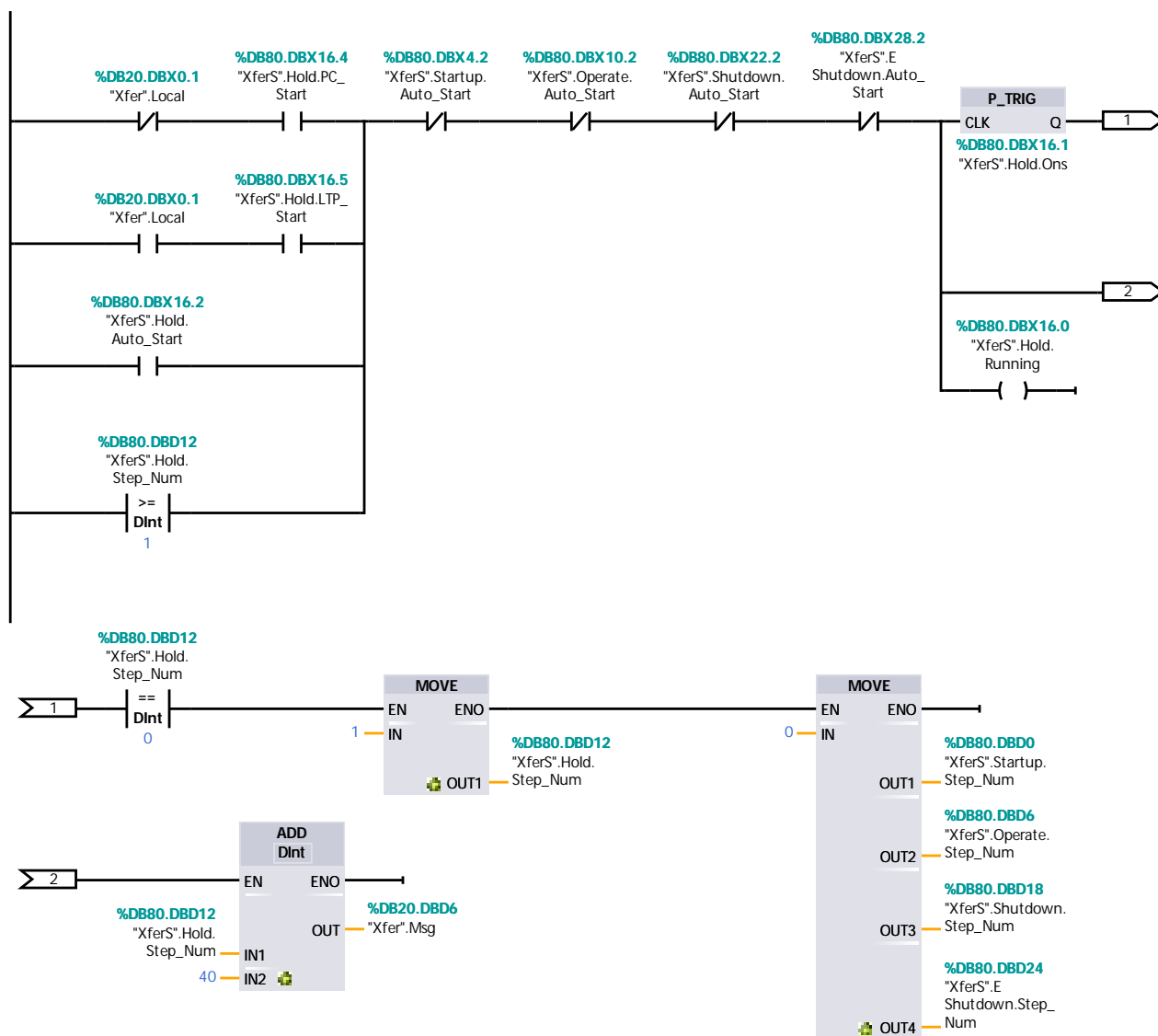


# Network 11: Auto Start Timer



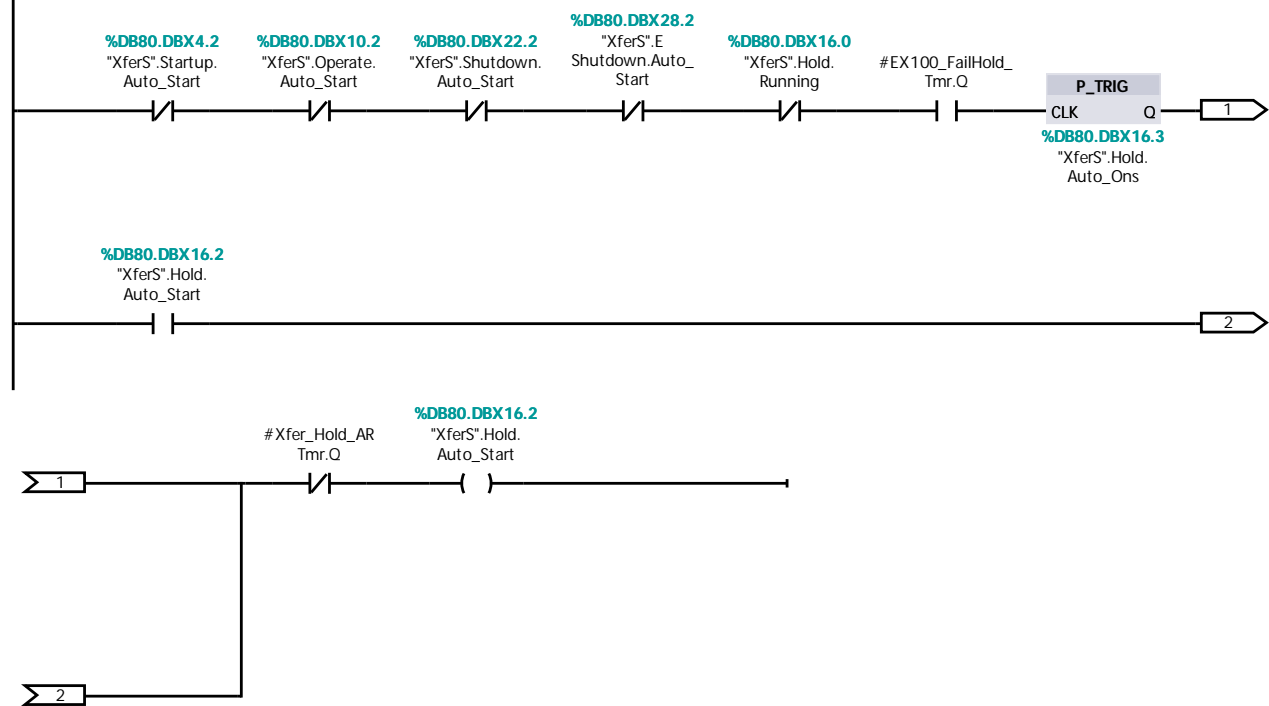
# Network 12: Hold Sequence

Hold - Operator requests and auto sequence starts. Maintain message number for OI

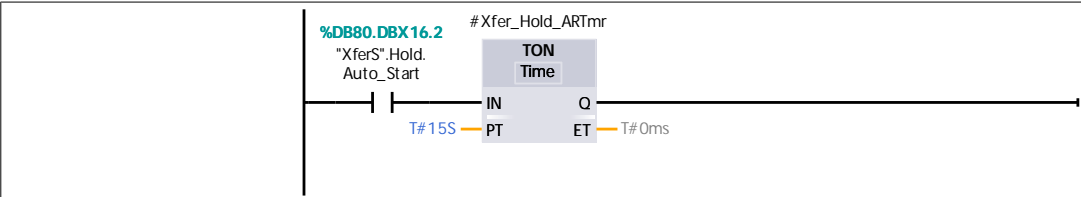


## Network 13: Auto start request

Auto-start for Hold

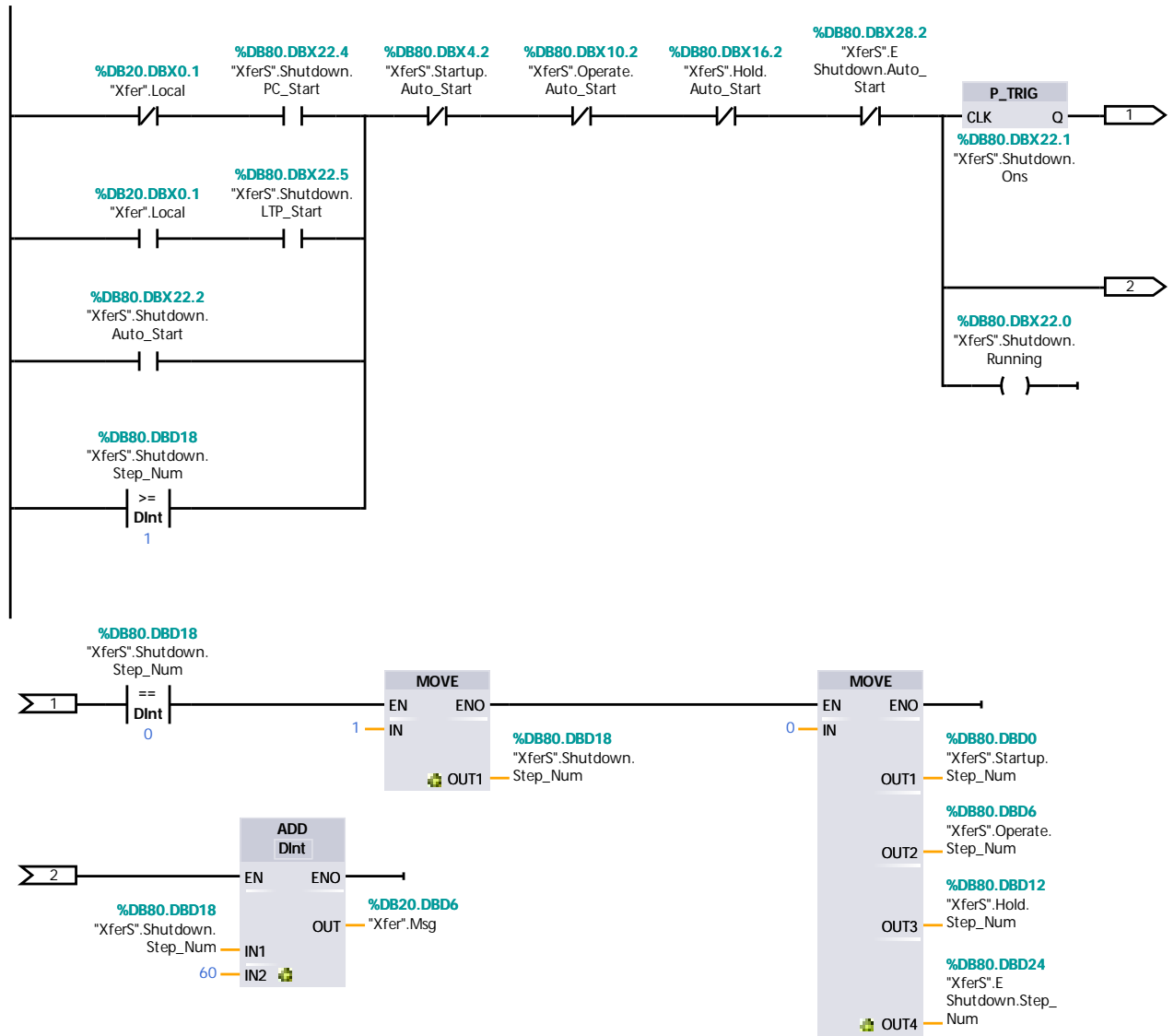


Network 14: Auto Start Timer



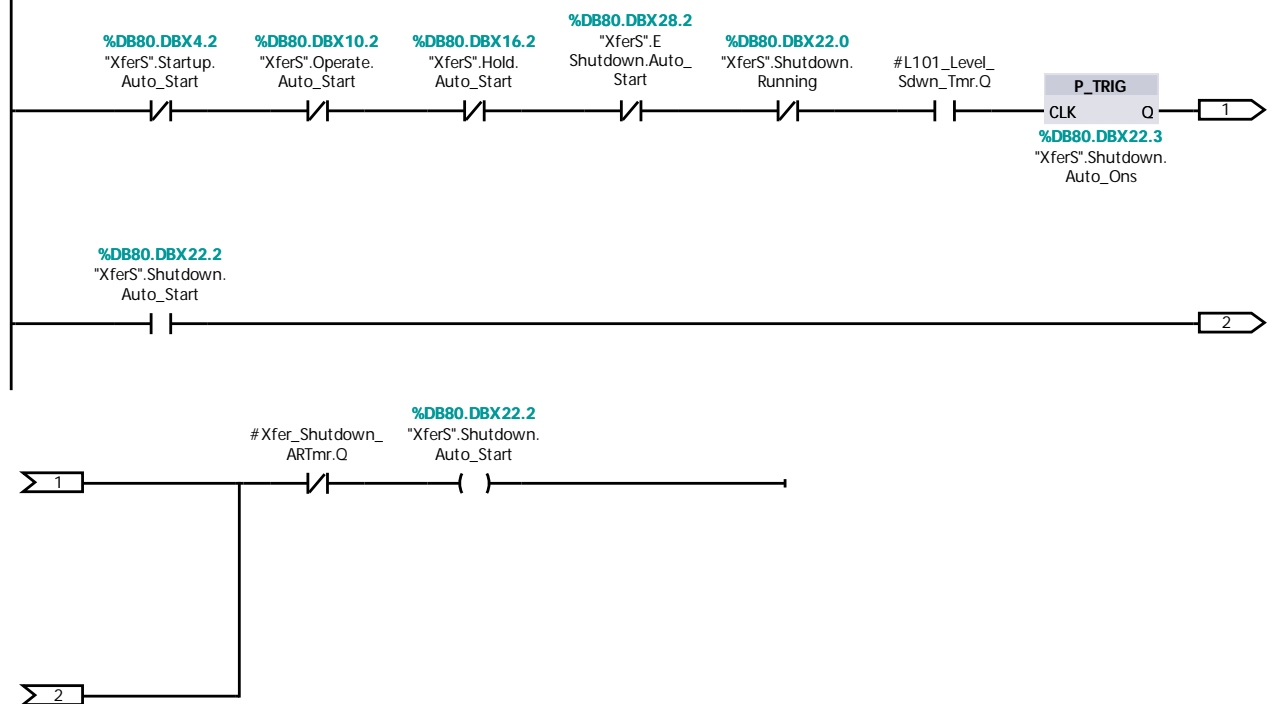
Network 15: Shutdown Sequence

Shutdown - Operator requests and auto sequence starts. Maintain message number for OI

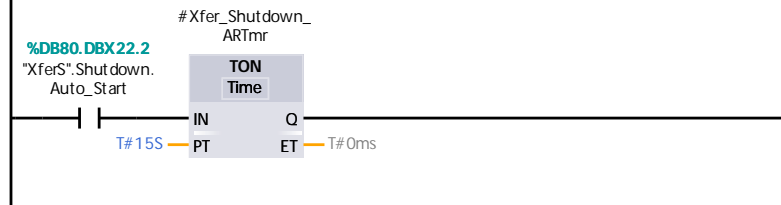


## Network 16: Auto start request

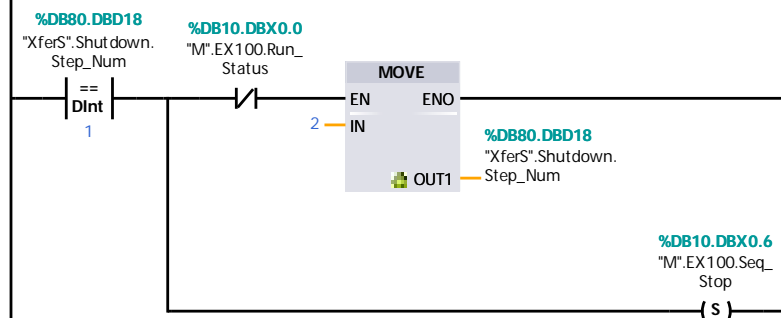
Auto-start for Shutdown



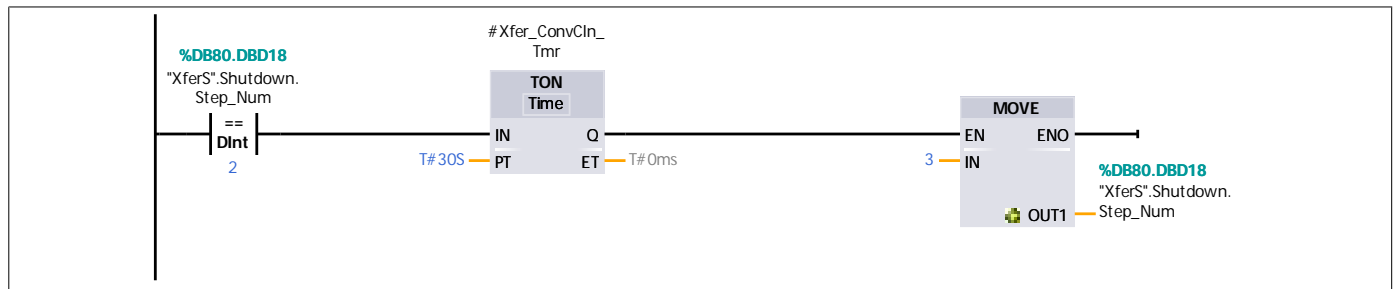
## Network 17: Auto Start Timer



## Network 18: Shutdown step 1 - Stop airlock



### Network 19: Shutdown step 2 - Wait 30 seconds for C-6100 to clear.



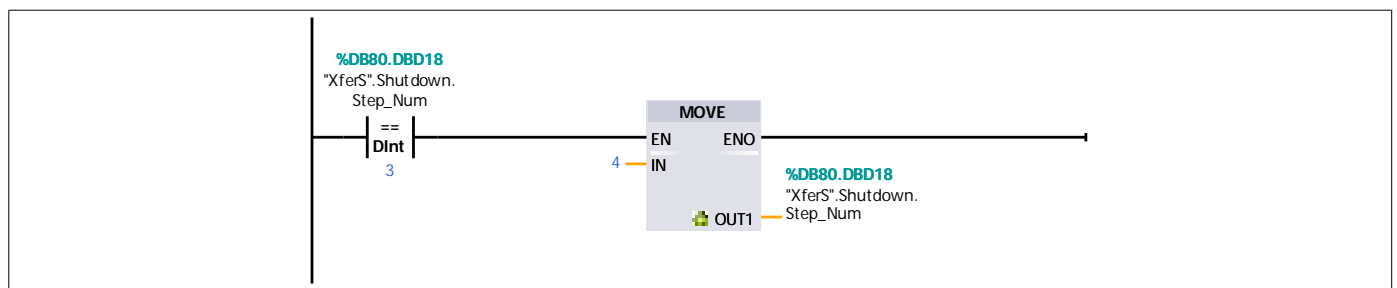
### Network 20: Calculation of time remaining for step 2

```

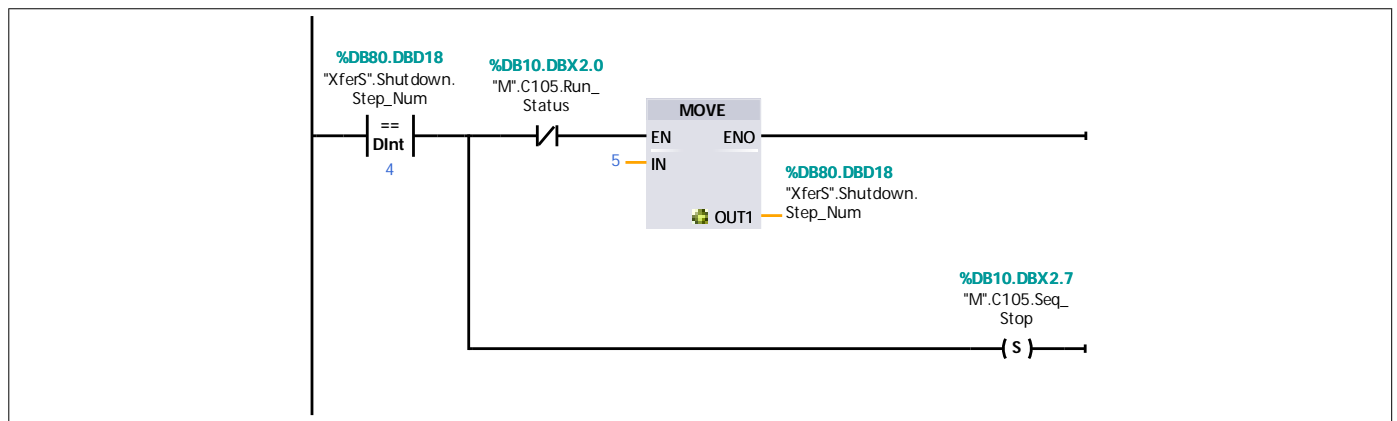
0001 IF "XferS".Shutdown.Step_Num = 2 THEN
0002     "Xfer".Time_Remaining := ((#Xfer_ConvCln_Tmr.PT - #Xfer_ConvCln_Tmr.ET) / 1000);
0003 END_IF;
0004

```

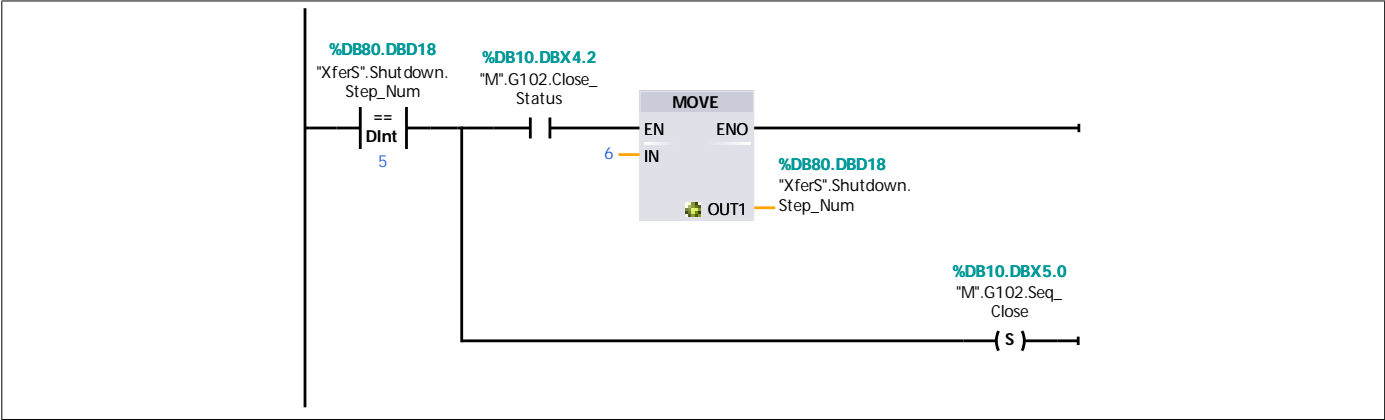
### Network 21: Shutdown step 3 - Spare step



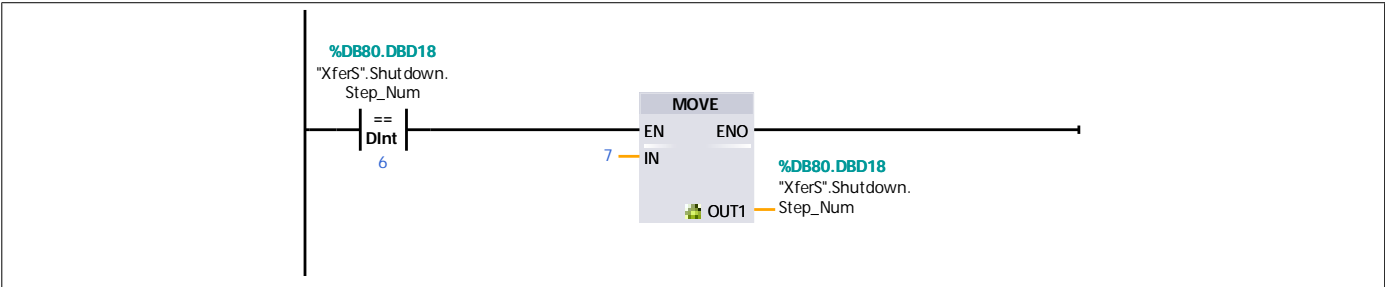
### Network 22: Shutdown step 4 - Stop soda ash screw conveyor.



Network 23: Shutdown step 5 - Close slide gate

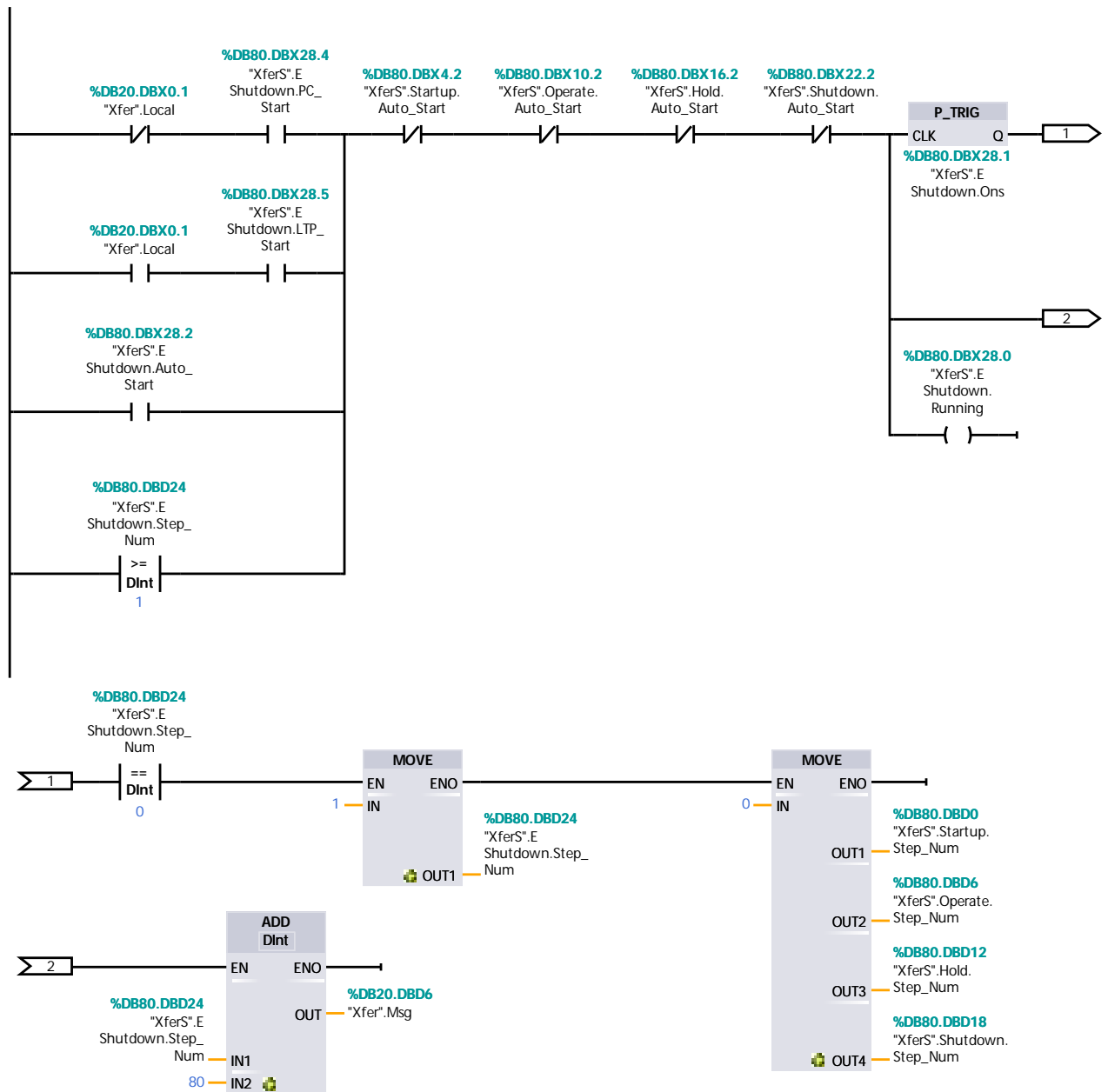


Network 24: Shutdown step 6 - Spare step



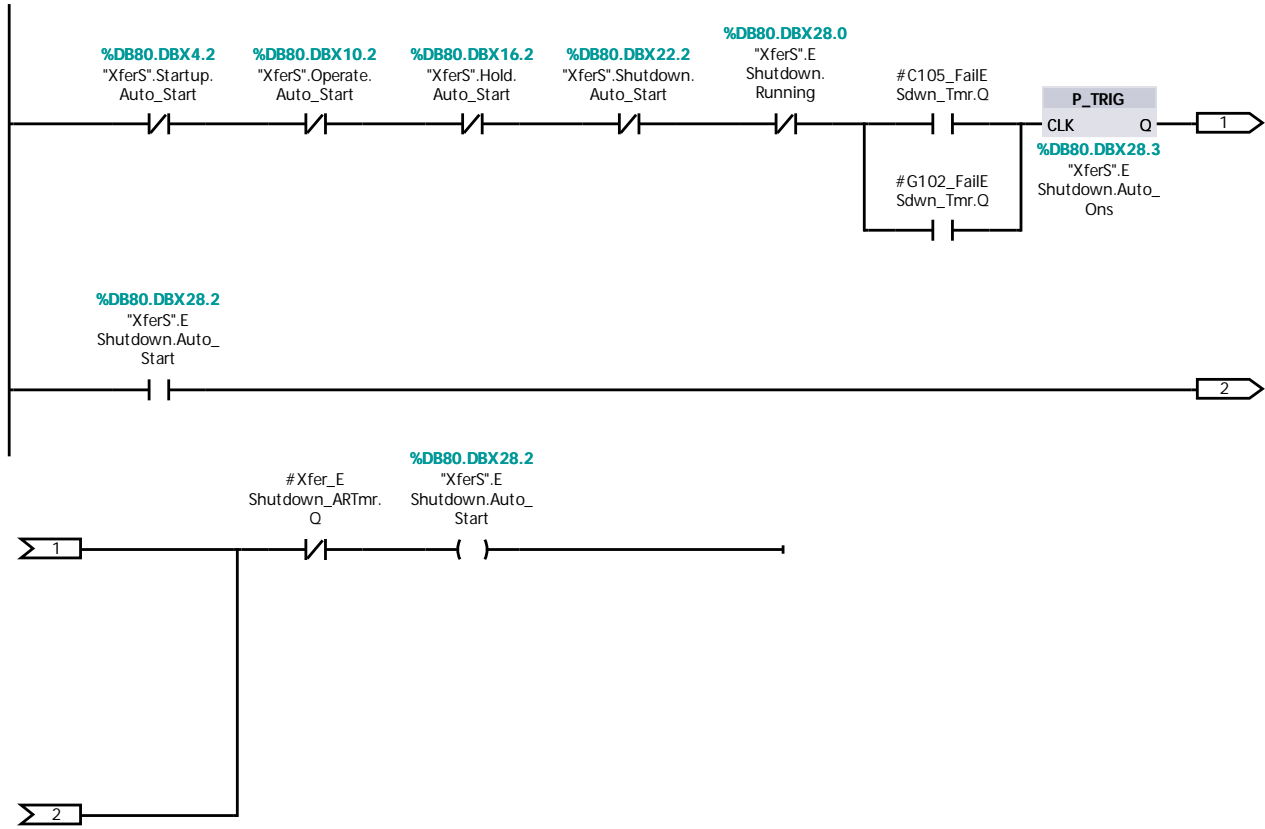
Network 25: E-Shutdown Sequence

EShutdown - Operator requests and auto sequence starts. Maintain message number for OI

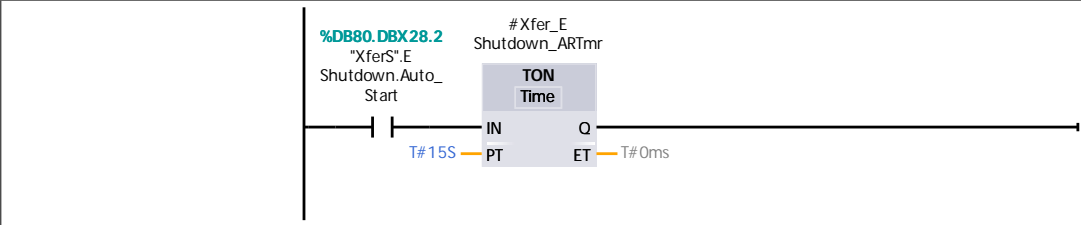


## Network 26: Auto start request

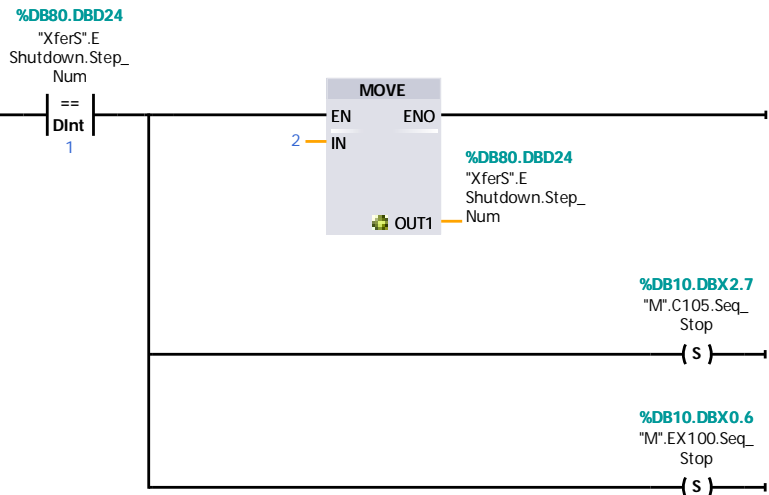
Auto-start for E-Shutdown



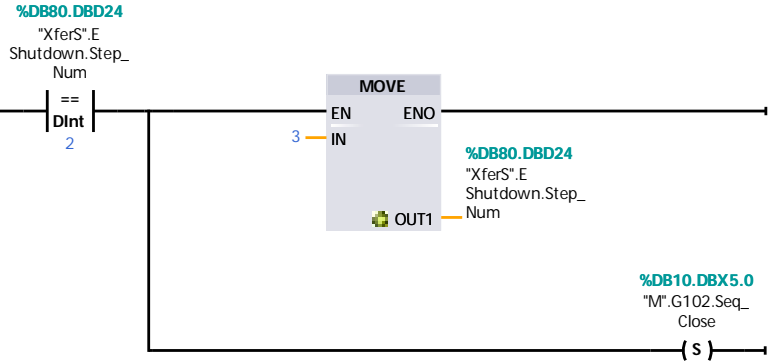
Network 27: Auto Start Timer



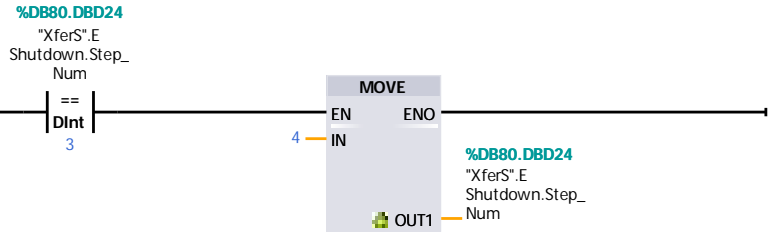
Network 28: E-Shutdown step 1 - Stop airlock and conveyor



Network 29: E-Shutdown step 2 - Close slide gate

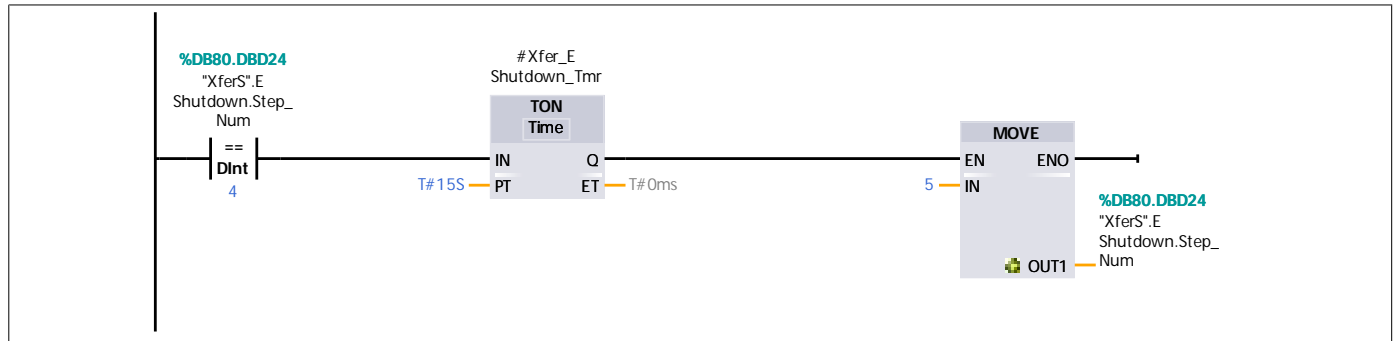


Network 30: E-Shutdown step 3 - Spare



### Network 31: E-Shutdown step 4 - Wait 15 seconds

for equipment to shut down before allowing maintenance mode.



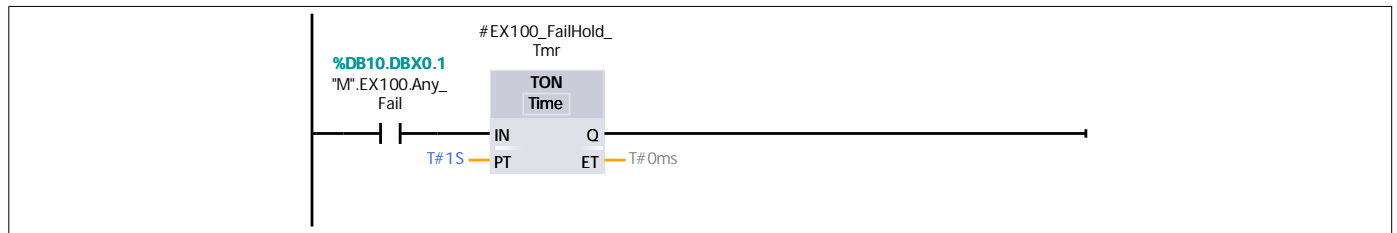
### Network 32: Calculation of time remaining for step 4

```

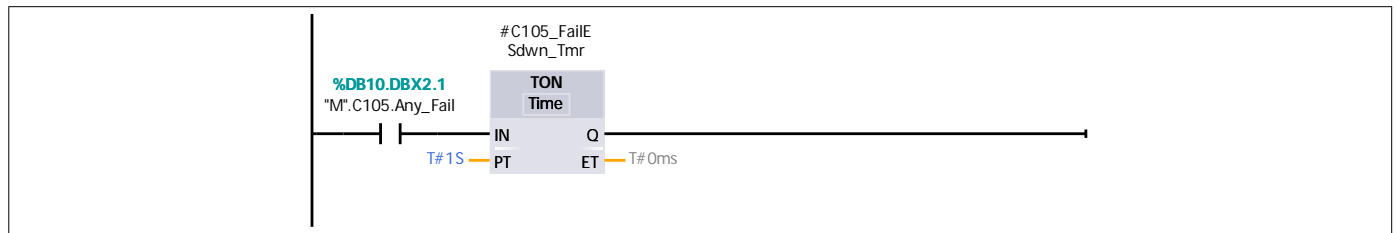
0001 IF "XferS".EShutdown.Step_Num = 4 THEN
0002   "Xfer".Time_Remaining := ((#Xfer_EShutdown_Tmr.PT - #Xfer_EShut-
      down_Tmr.ET) / 1000);
0003 END_IF;
0004

```

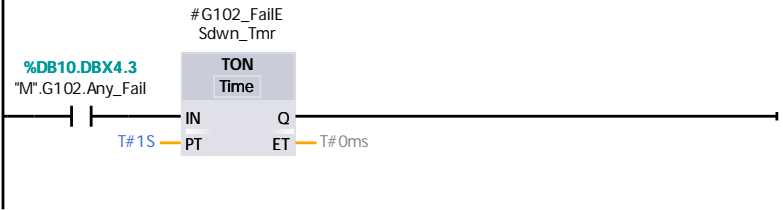
### Network 33: EX100 Fail to Hold



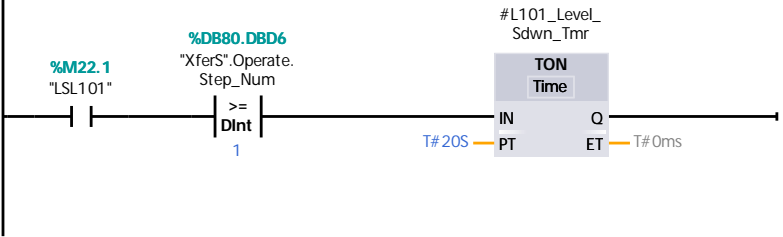
### Network 34: C105 Fail to E-Shutdown



### Network 35: G102 Fail to E-Shutdown

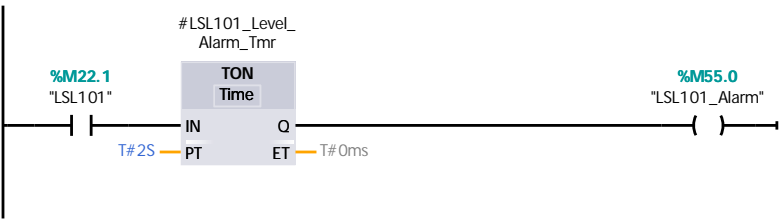


Network 36: Low bin for 20 secs while transfer in progress goes to Shutdown



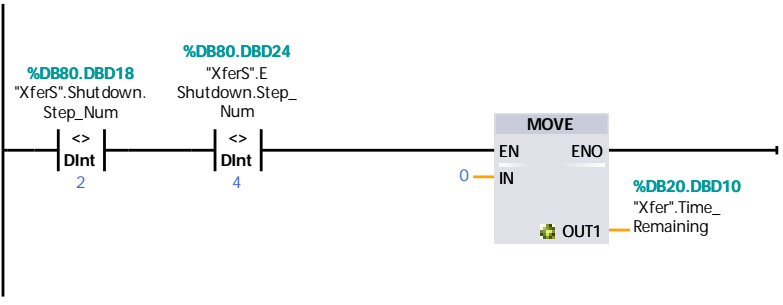
Network 37: Bin Low Level Alarm

Low bin for 2 seconds generates alarm.



Network 38: Clear time remaining to OI

If not in conveyor cleaning step or next-to-last step in E-shutdown



Network 39:

