

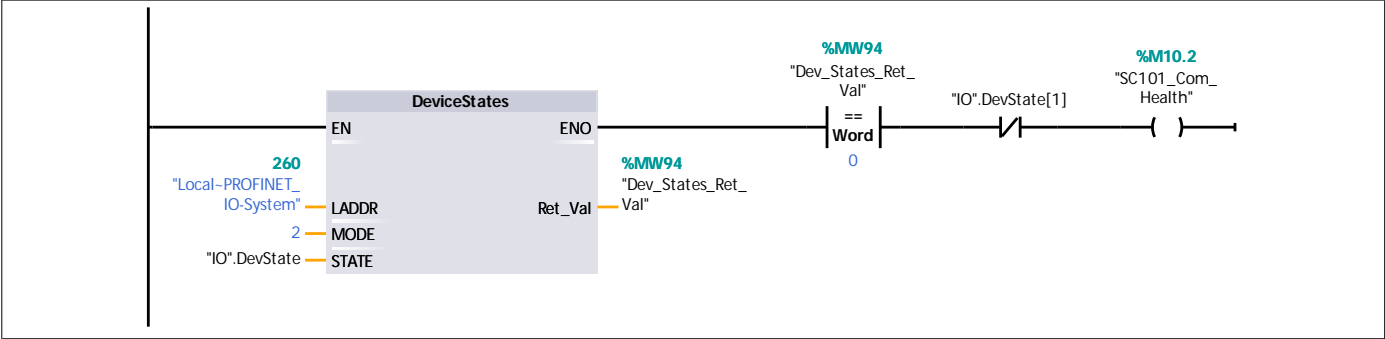
Main [OB1]

Main Properties					
General					
Name	Main	Number	1	Type	OB
Language	LAD	Numbering	Automatic		
Information					
Title	"Main Program Sweep (Cycle)"	Author		Comment	
Family		Version	0.1	User-defined ID	

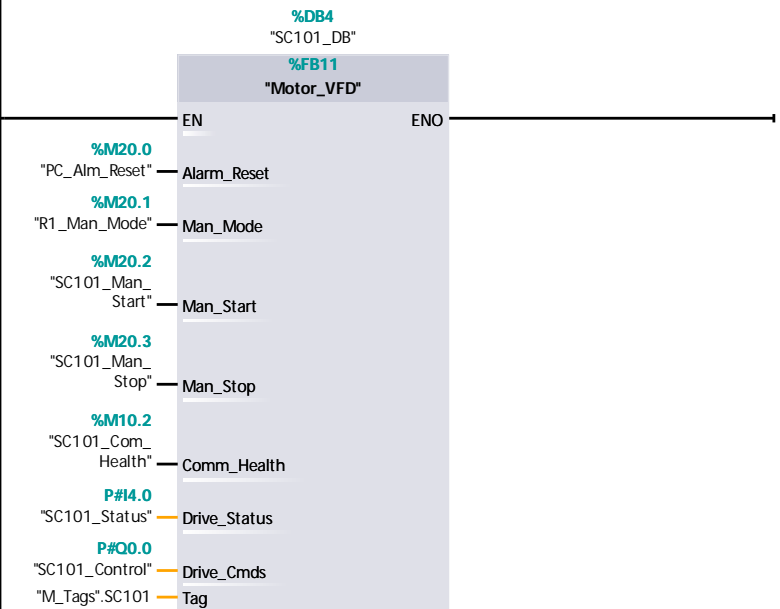
Name	Data type	Default value
▼ Input		
Initial_Call	Bool	
Remanence	Bool	
Temp		
Constant		

Network 1: Get drive communications health status

Drive is device 1 on network



Network 2:

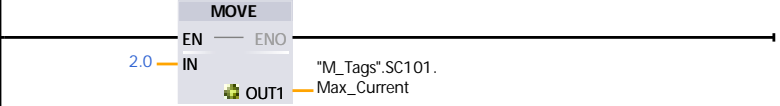


Network 3: Convert torque and power from drive into Nm and kW

Scaling in drive set so that torque 4000H (16384) = 2.06 Nm. For power 4000H (16384) = 0.39 kW

```
0001 "Drv_Fan_Torque" := (INT_TO_REAL("SC101_Status".Actual_Torque) / 16384.0) * 2.06;  
0002 "Drv_Fan_Power" := (INT_TO_REAL("SC101_Status".Actual_Power ) / 16384.0) * 0.39;
```

Network 4: Set max current configured in drive



Network 5: Reset first scan bit



Motor_VFD [FB11]

Motor_VFD Properties

General

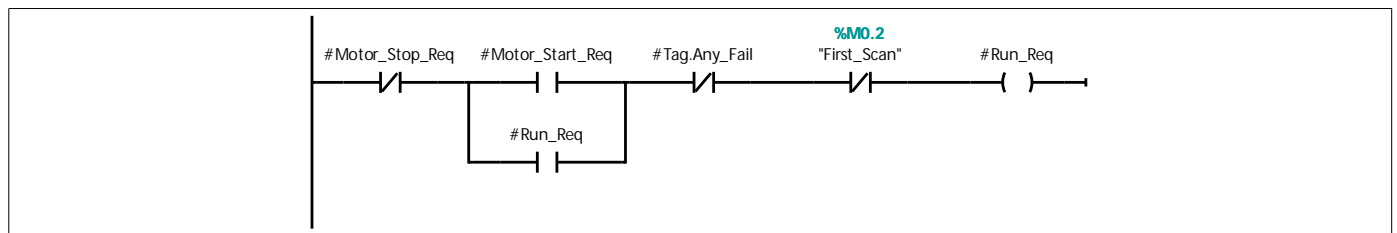
Name	Motor_VFD	Number	11	Type	FB
Language	LAD	Numbering	Manual		

Information

Title		Author		Comment	Example 11.2 VFD Motor function block Copyright (c) 2022 Dogwood Valley Press, LLC
Family		Version	0.1	User-defined ID	

Name	Data type	Default value
▼ Input		
Alarm_Reset	Bool	false
Man_Mode	Bool	false
Man_Start	Bool	false
Man_Stop	Bool	false
Comm_Health	Bool	false
Drive_Status	"CU240_Status"	
Output		
▼ InOut		
Drive_Cmds	"CU240_Control"	
Tag	"Motor_VFD_Type"	
▼ Static		
Motor_Start_Req	Bool	false
Motor_Stop_Req	Bool	false
Alw_On	Bool	TRUE
Alw_Off	Bool	FALSE
Run_Fail_Tmr	TON_TIME	
Run_Req	Bool	false
▼ Temp		
TempWord	Word	
Constant		

Network 1: Main control that drives motor starter contact



Network 2: Convert speed setpoint in Rev/Min to word needed by VFD

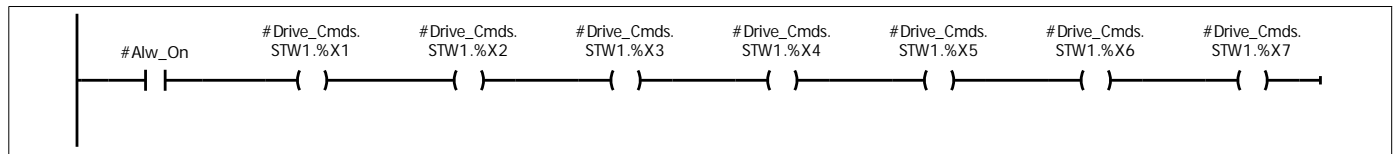
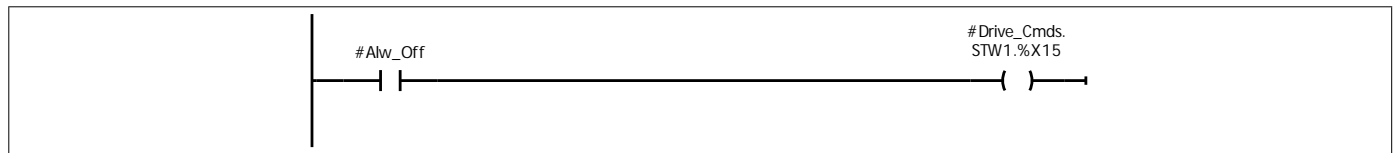
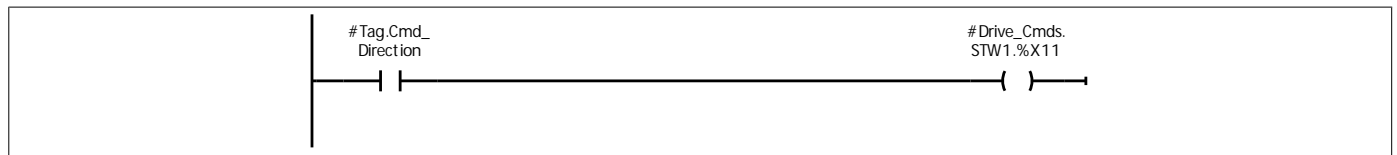
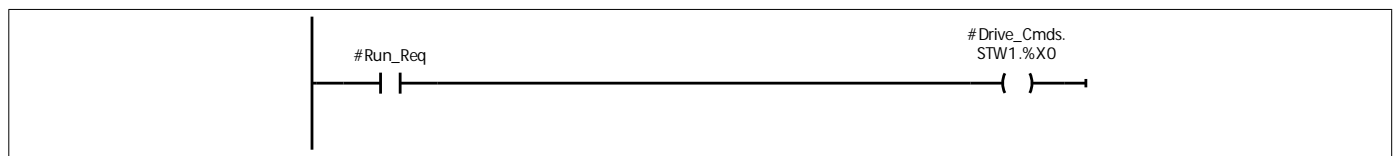
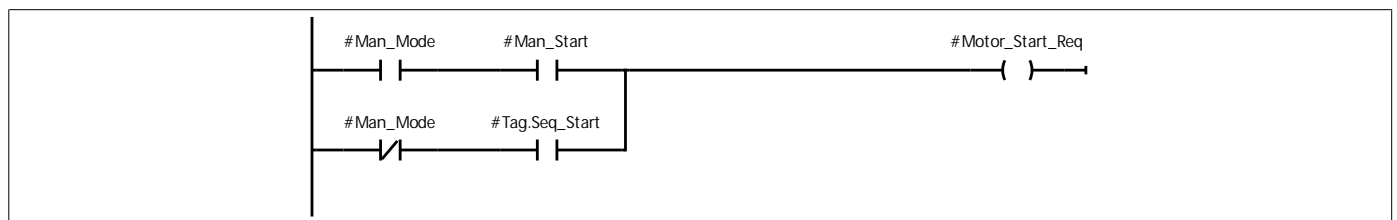
Integer is in units of tenths of RPM. Max RPM is 1760

```
0001 #Drive_Cmds.Speed_Setpoint := REAL_TO_INT((#Tag.Cmd_Speed / 100.0) * 17600.0);
```

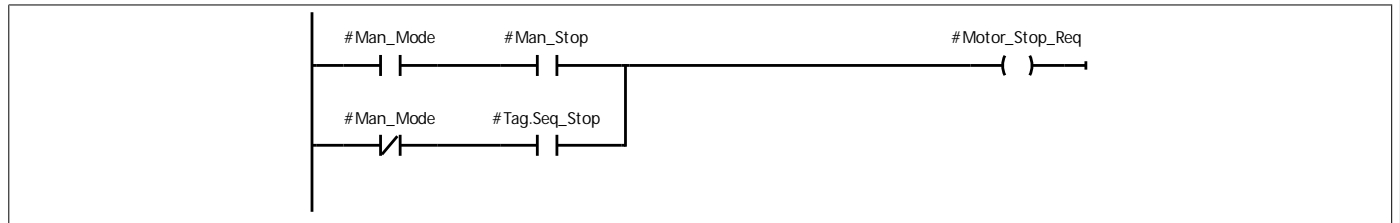
Network 3: Main VFD Control Bits

Enable VFD bits so will run when command ON_OFF1 is turned on

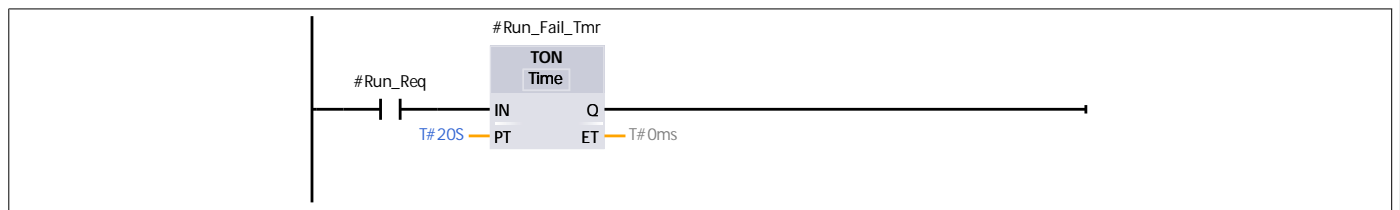
OFF2, OFF3, Enable_Operation, Enable_RFG_Permit, Enable_RFG, Enable_Setpoint, Control_Via_PLC

**Network 4: CDS Bit must be off****Network 5: Drive Direction control****Network 6: Drive run control****Network 7: Handle manual and sequence starts**

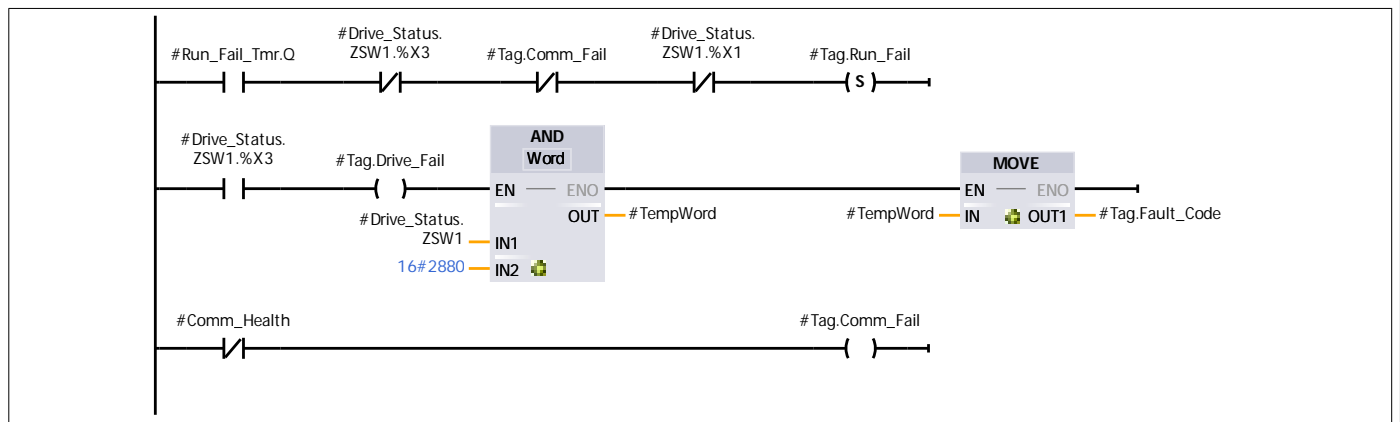
Network 8: Handle manual and sequence stop requests.



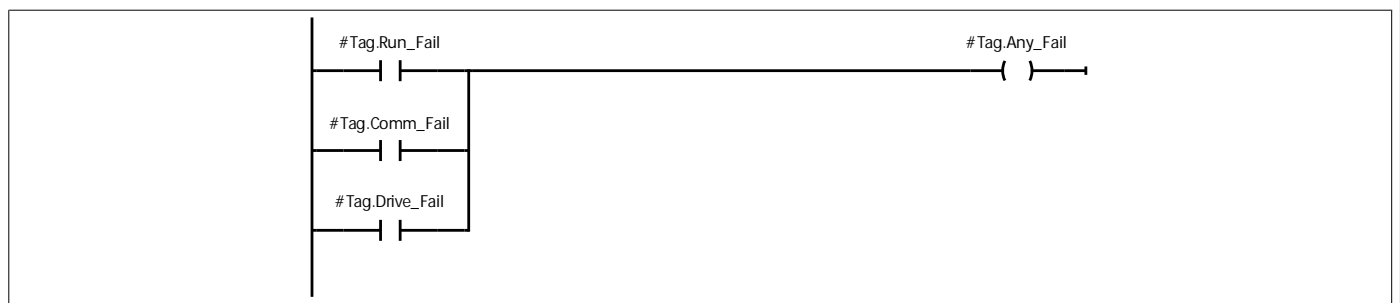
Network 9: Delay check for failures for 20 seconds



Network 10: Failures. Not active in 20 seconds, drive fault, comm. failure



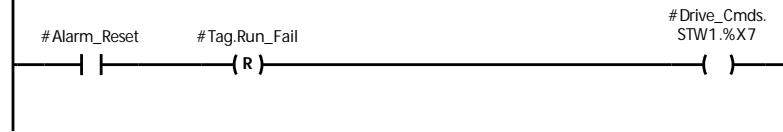
Network 11: Any Failure indication



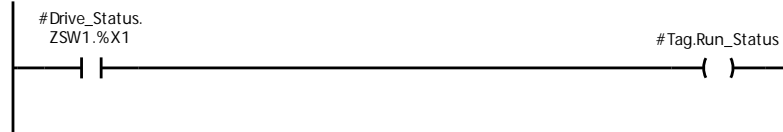
Network 12: No drive fault, set fault code to zero



Network 13: Reset fault bit when alarm cleared. Command drive to clear fault.

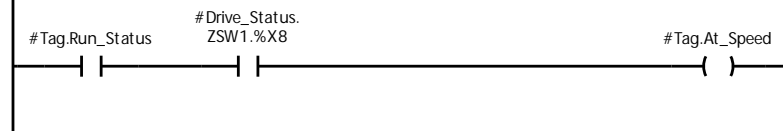


Network 14: Pass drive run and speed status to OI



Network 15: At speed

Only valid if drive is running



Network 16: Convert speed and current from drive into rpm and amps

Report speed as percent of max. Max current set in drive is in motor Tag.Max_Current. Scaling in drive set so that current 4000H (16384) is Max_Current

```
0001 #Tag.Act_Speed := (INT_TO_REAL(#Drive_Status.Actual_Speed)/17600.0)*100.0;
0002 #Tag.Act_Current := (INT_TO_REAL(#Drive_Status.Actual_Current)/
    16384.0)*#Tag.Max_Current;
```

Network 17: Reset sequence commands.

