

Main_Program [OB1]

Main_Program Properties

General

Name	Main_Program	Number	1	Type	OB
Language	LAD	Numbering	Manual		

Information

Title	SP7-12	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: SP7-12

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SP7-12 Part Height Sorter Control

Additional internal memory:

Tag Address

Step_1 to Step_5 %M0.1 to M0.5 BOOL Step-in-progress bits

Down_Tmr %DB1 TON_SFB Times lowering of measuring ram

Eject_Tmr %DB3 TON_SFB Times eject pulse

LVDT_Val %MD116 REAL LVDT measurement in mm

Height_60 %M20.0 BOOL Height in range of 56 - 64

Height_75 %M20.1 BOOL Height in range of 71 - 79

Height_90 %M20.2 BOOL Height in range of 86 - 94

Height_Other %M20.3 BOOL Height in range not one of above

Tmpl %MW118 INT Temporary integer

TmpDI %MD120 DINT Temporary double integer

TmpR %MD124 REAL Temporary real

Ret_Val %MW12 WORD Return value from SCALE block

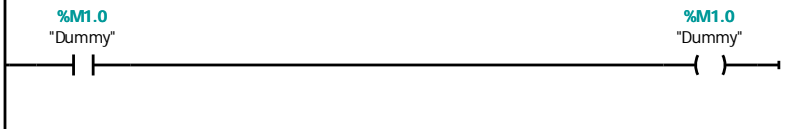
Always_Off %M10.0 BOOL Always off bit for SCALE block

Conversion formulas:

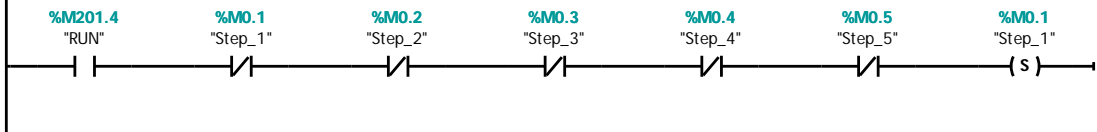
$UX1_VAL = (UX1_MEAS - 5530) / 22118.0 * (100.0 - 15.0) + 15.0$

$LVDT_VAL = (HGT_MEAS - 5530) / 22118.0 * (100.0)$

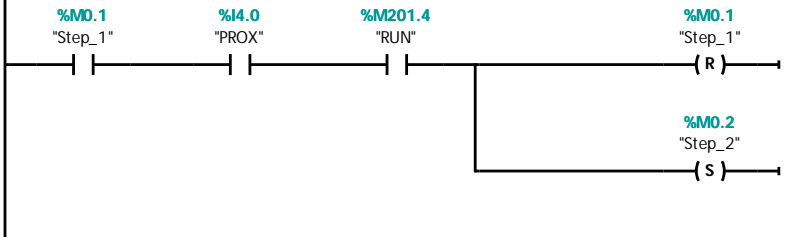
$HGT_VAL = 150 - LVDT_VAL$ (calculated on transition from Step_2 to Step_3)



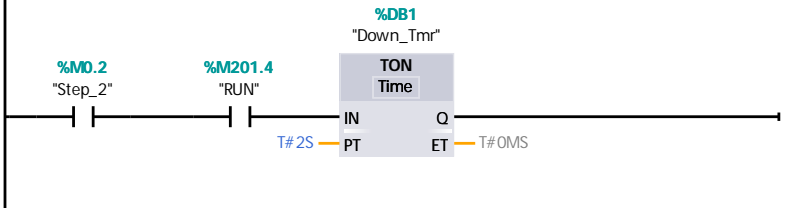
Network 2: Initial Start



Network 3: Step 1 Wait for piece

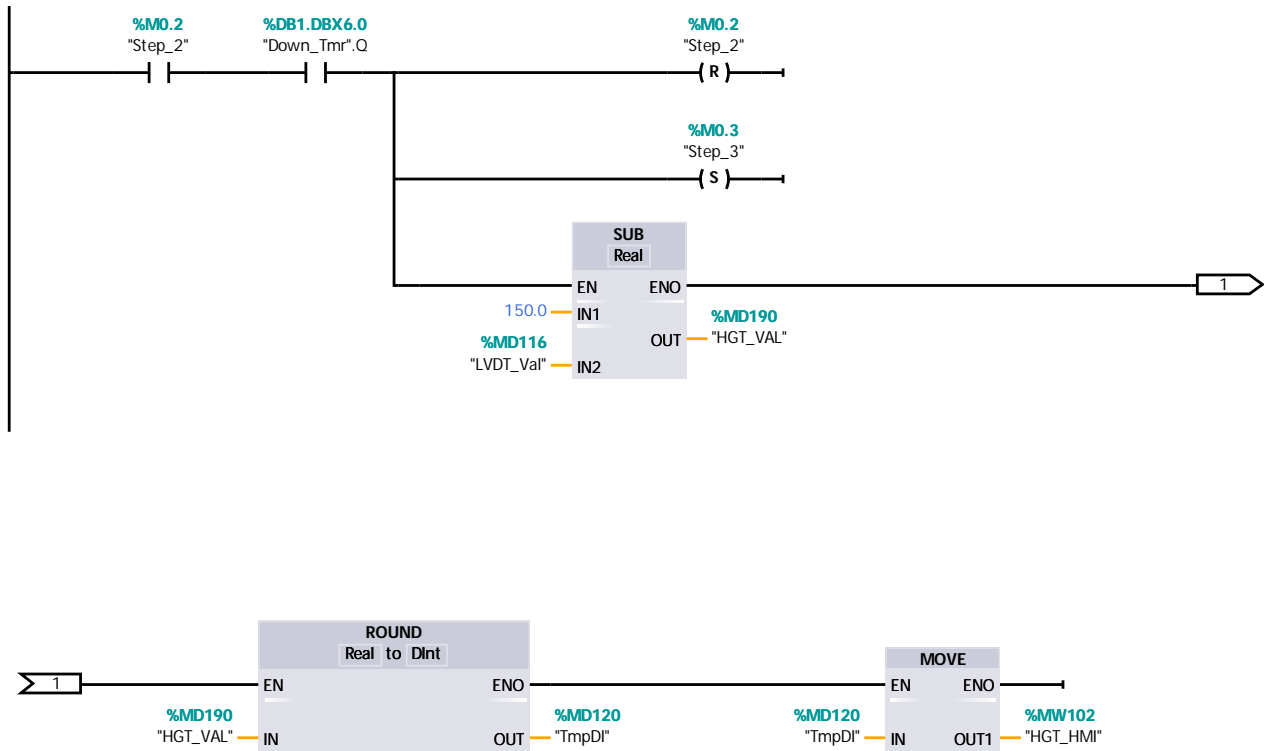


Network 4: Step 2 Move down

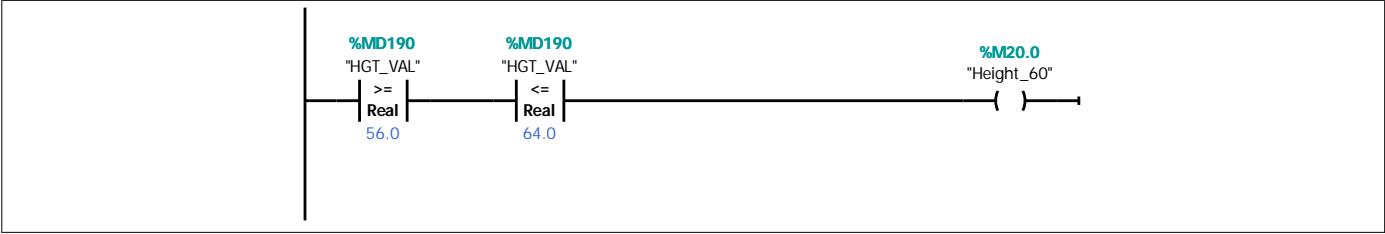


Network 5: Step 2 Move down

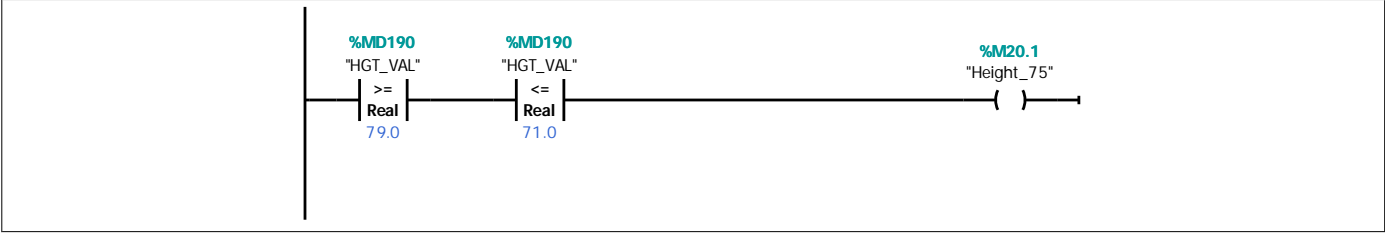
Measure height on transition.
Also convert to integer for display.



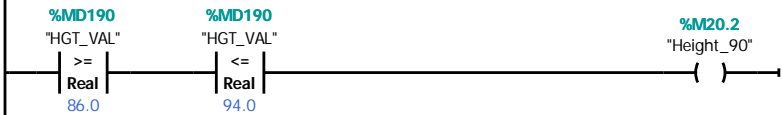
Network 6: Size range for 60 mm part



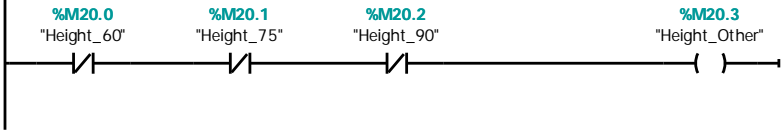
Network 7: Size range for 75 mm part



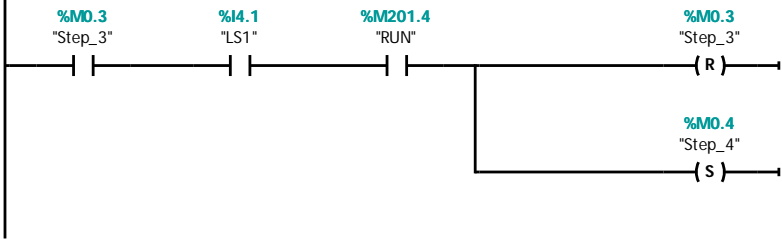
Network 8: Size range for 90 mm part



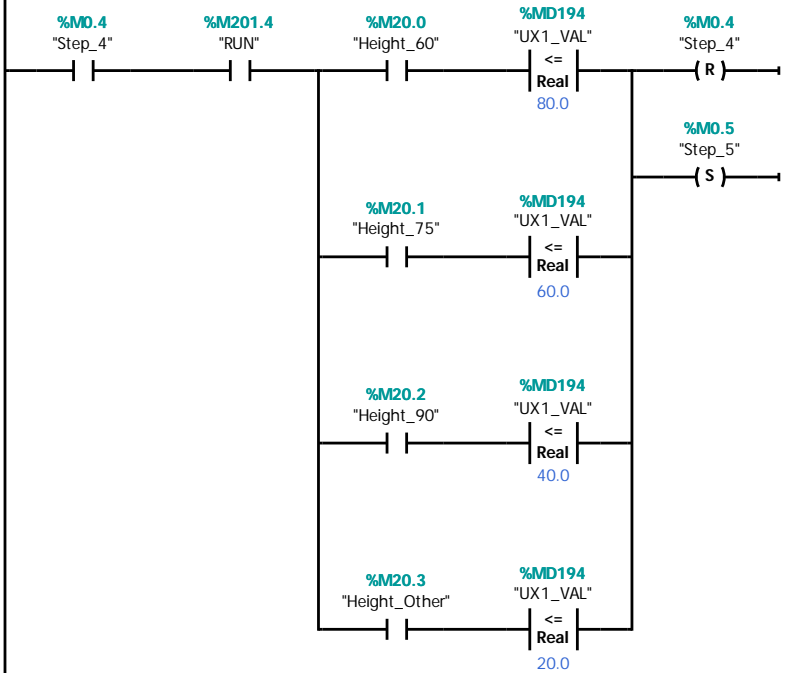
Network 9: Height not in one of above ranges



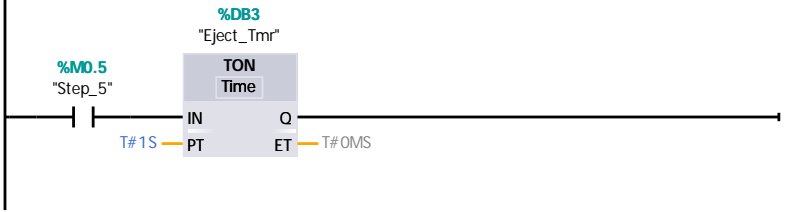
Network 10: Step 3 Move up



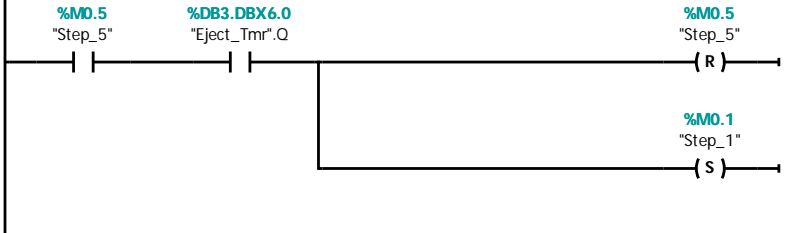
Network 11: Step 4 - Move to eject position



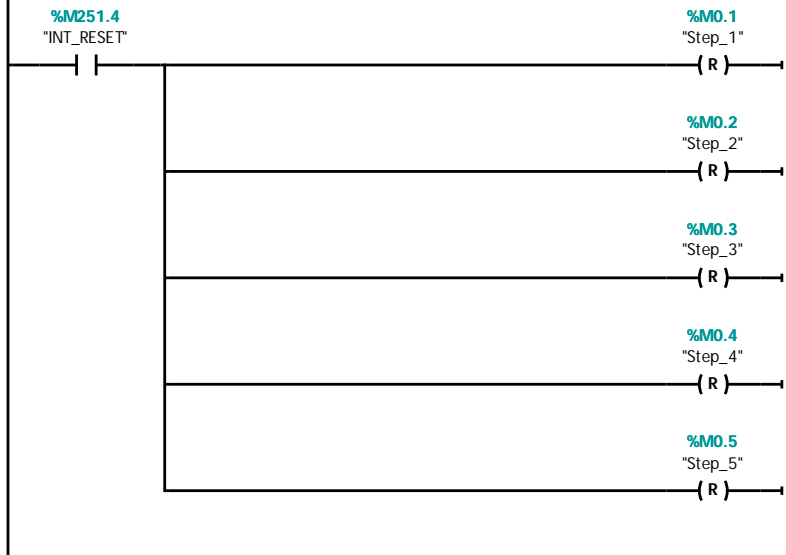
Network 12: Step 5 timer



Network 13: Step 5 Eject part

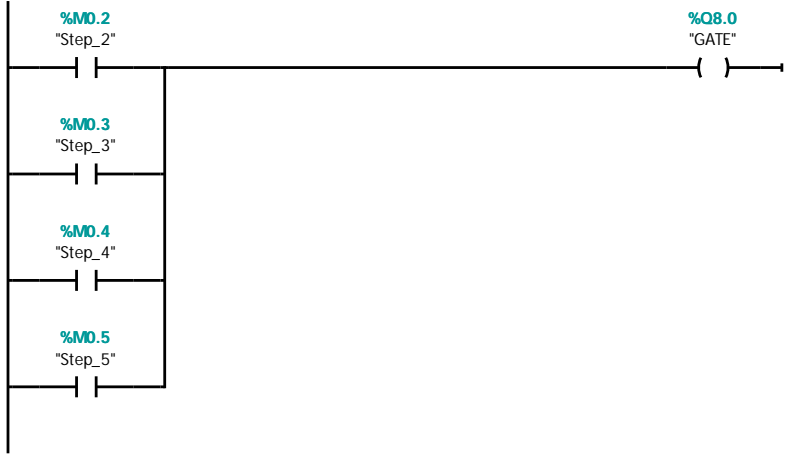


Network 14: Reset



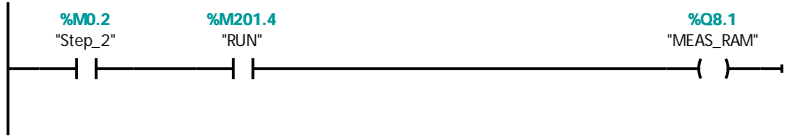
Network 15: Gate

Do not turn off when paused



Network 16: Measuring ram

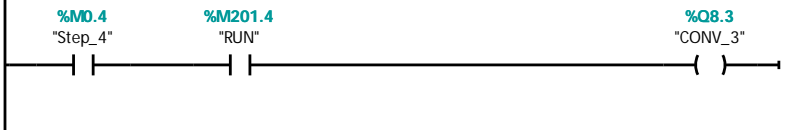
When paused it is off. This is no problem because when paused, timer is reset, so when step is resumed, timing starts over.



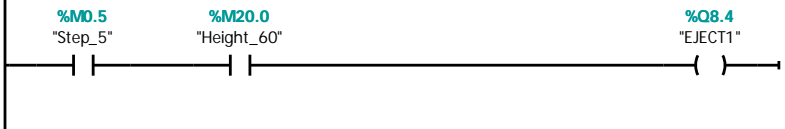
Network 17: Conveyor Controls



Network 18: Main cylinder extension control

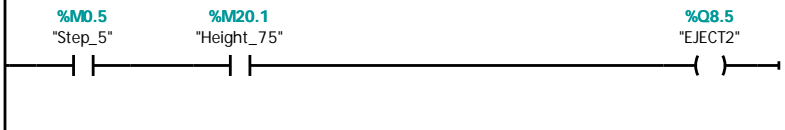


Network 19: Eject solenoids - selected on height of part

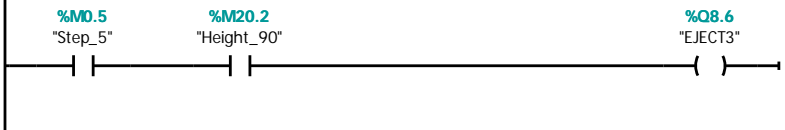


Network 20:

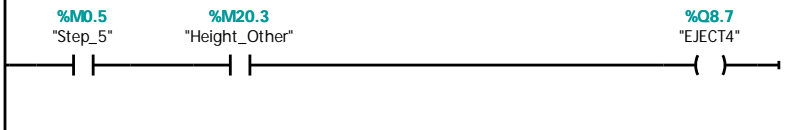
Must remain on when paused.



Network 21:

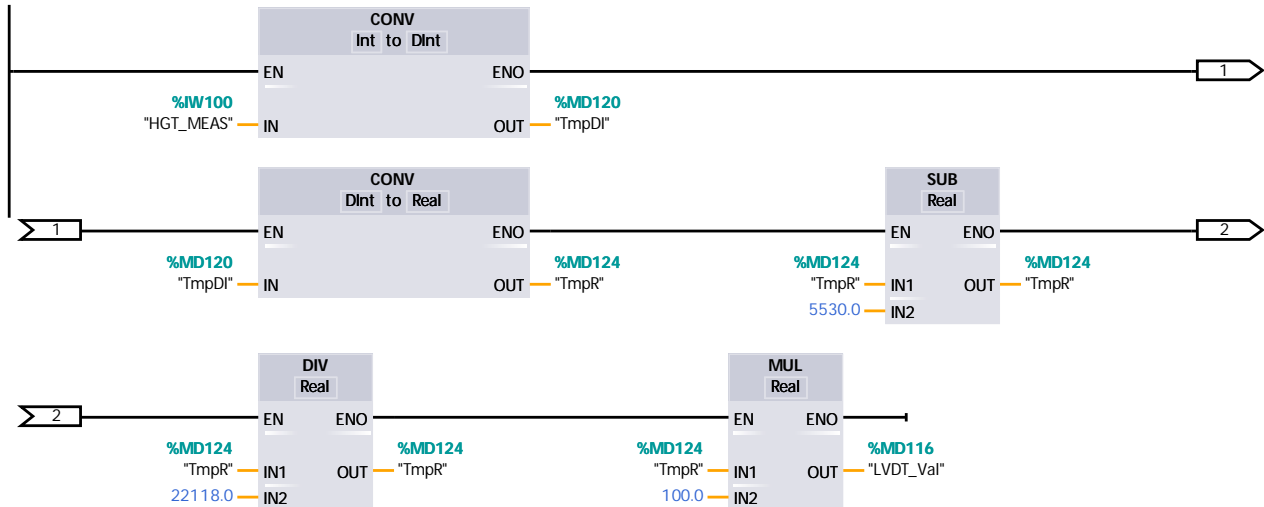


Network 22: On to operate cylinder to eject part onto OUTCONV_4



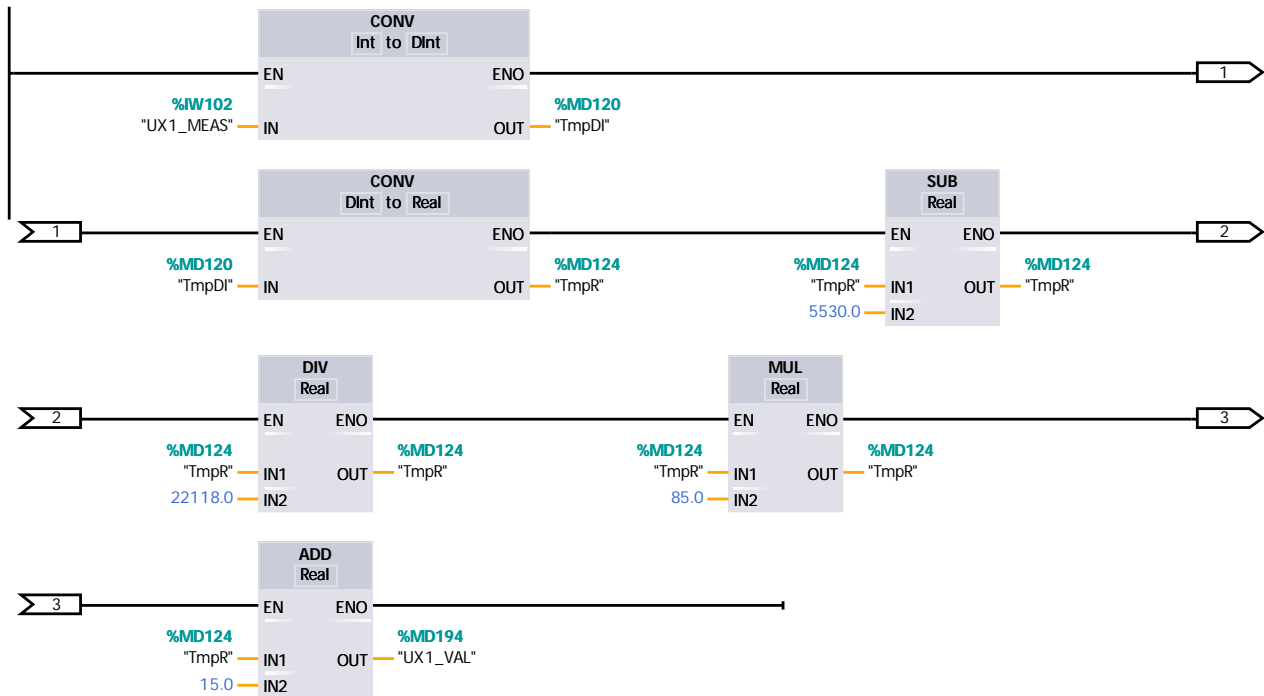
Network 23: Convert LVDT measurement with comp blocks

Convert LVDT measurement to mm.
Uses individual computation blocks.

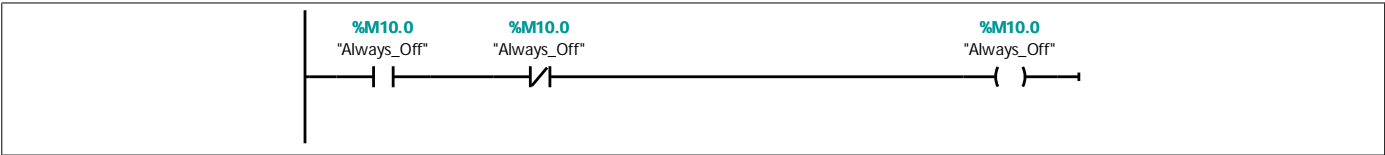


Network 24: Convert UX1 measurement with comp blocks

Convert UX1 measurement to cm.
Uses individual computation blocks.



Network 25: Always Off



Network 26: Convert LVDT and UX1 measurement with SCALE

Convert LVDT and UX1 measurements.
Uses SCALE block. Note that the lo_lim input is 25% lower than zero weight to account for this block assuming the minimum value of the analog in is zero rather than the 5530 (which corresponds to 4 mA).

