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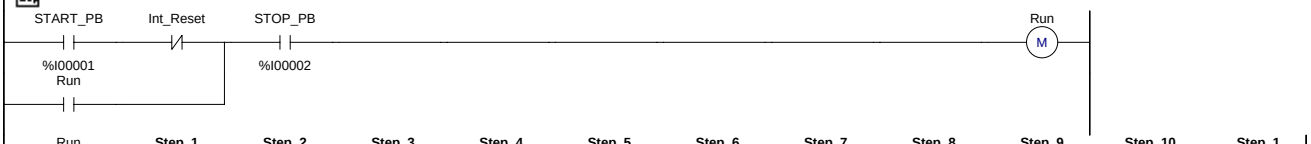
Hole Drilling Station 3 control

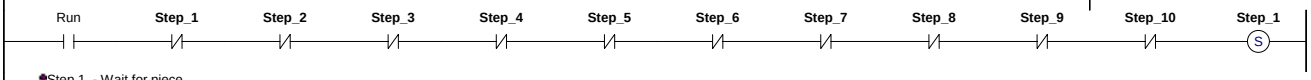
Additional internal variable declarations:

Variables		Data Type	
Run		BOOL	On while station running
Int_Reset	BOOL	Internal reset	
Step_1 to Step_10		BOOL	Step-in-progress bits
Clamp_Tmr	TON	Times clamping	
Pause_Tmr	TON	Times paused druing drilling	
Reset_Tmr	TON	Times retract of YCYL when reset	

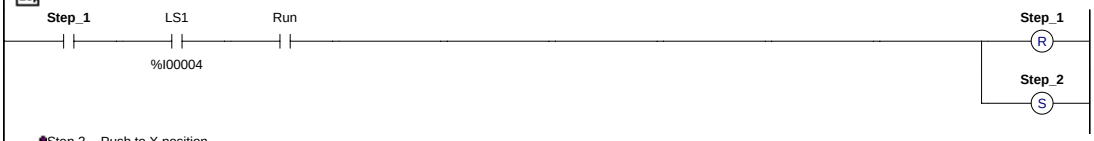
Conversion formulas
X_VAL = (X_MEAS / 32000) * (300 - 150) + 150
Y_VAL = (Y_MEAS / 32000) * (110 - 0) + 0

Start/stop and initial start. During reset prevent start.

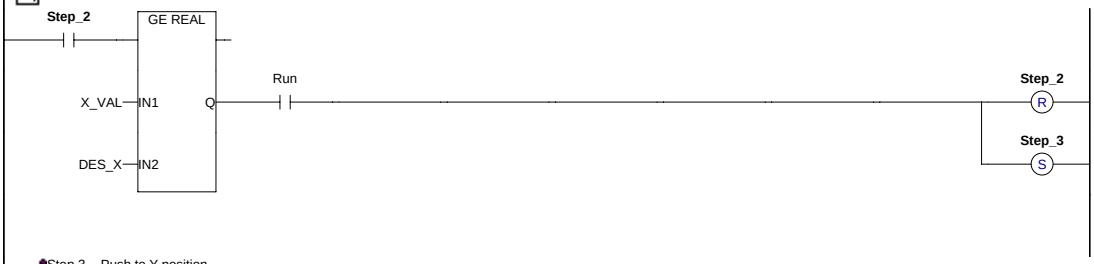




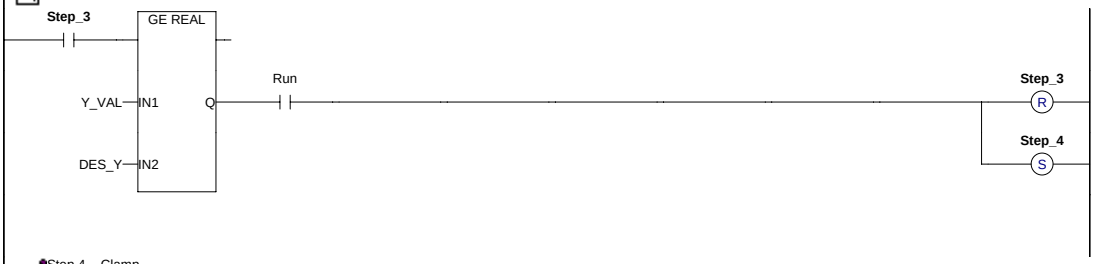
Step 1 - Wait for piece.



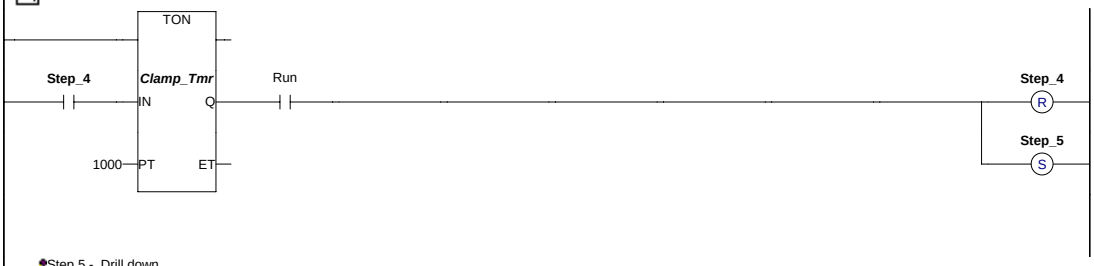
Step 2 - Push to X position



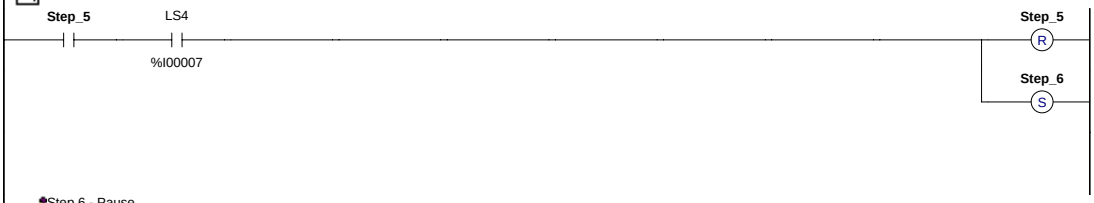
Step 3 - Push to Y position



Step 4 - Clamp



Step 5 - Drill down.



Step 6 - Pause

19
TON
Step_6 — Pause_Tmr IN Q — Run — Step_6 (R), Step_7 (S)
1500 — PT ET

20 Step 7 - Drill up.
21 Step_7 — LS3 %I00006 — Run — Step_7 (R), Step_8 (S)

22 Step 8 - Push partway out.
23 Step_8 — PROX %I00008 — Run — Step_8 (R), Step_9 (S)

24 Step 9 - Push out all the way.
25 Step_9 — PROX %I00008 (NC) — Run — Step_9 (R), Step_10 (S)

26 Step 10 - Retract XCYL
27 Step_10 — LS2 %I00005 — Run — Step_10 (R), Step_1 (S)

28 Physical Outputs .
29 Conveyors
Run — IN_CONV (M) %Q00001
30 Run — OUT_CONV (M) %Q00002

31 X Cylinder control
32 Step_2 — Run — XCYL_EXTEND (M) %Q00003
Step_8
Step_9

33 Retract XCYL when reset
34 Step_10 — Run — XCYL_RETRACT (M) %Q00004
Int_Reset — LS2 %I00005 (NC)

35 Y Cylinder control
36 Step_3 — Run — YCYL (M) %Q00005

37 Clamp Control - cannot be off when paused
38 Step_4 — CLAMP_CYL (M) %Q00006
Step_5
Step_6
Step_7

39 Drill control.
40 Step_5 — DRILL_DOWN (M) %Q00007

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41 Drill up when reset

42 Step_7 Run Int_Reset LS3 %I00006 — DRILL_UP M %Q00008

43 Drill motor control - Must remain on when paused, must run durint reset if retracting drill.

44 Step_3 Step_4 Step_5 Step_6 Step_7 Int_Reset LS3 %I00006 — DRILL_MOTOR %Q00009

45 Reset

46 RESET_PB %I00003 Run; Int_Reset LS2 %I00005; LS3 %I00006; Reset_Tmr.Q — Step_1 R, Step_2 R, Step_3 R, Step_4 R, Step_5 R, Step_6 R, Step_7 R, Step_8 R, Step_9 R, Step_10 R, Int_Reset M

47 Int_Reset — TON Reset_Tmr IN Q, 1000 PT ET

48 Measurement Conversion - Calculate X_VAL

49 X_MEAS %AI0001 — INT TO REAL IN Q — DIV REAL IN1 Q TmpR1, 32000.0 IN2 — SUB REAL IN1 Q TmpR2, 300.0 IN1, 150.0 IN2

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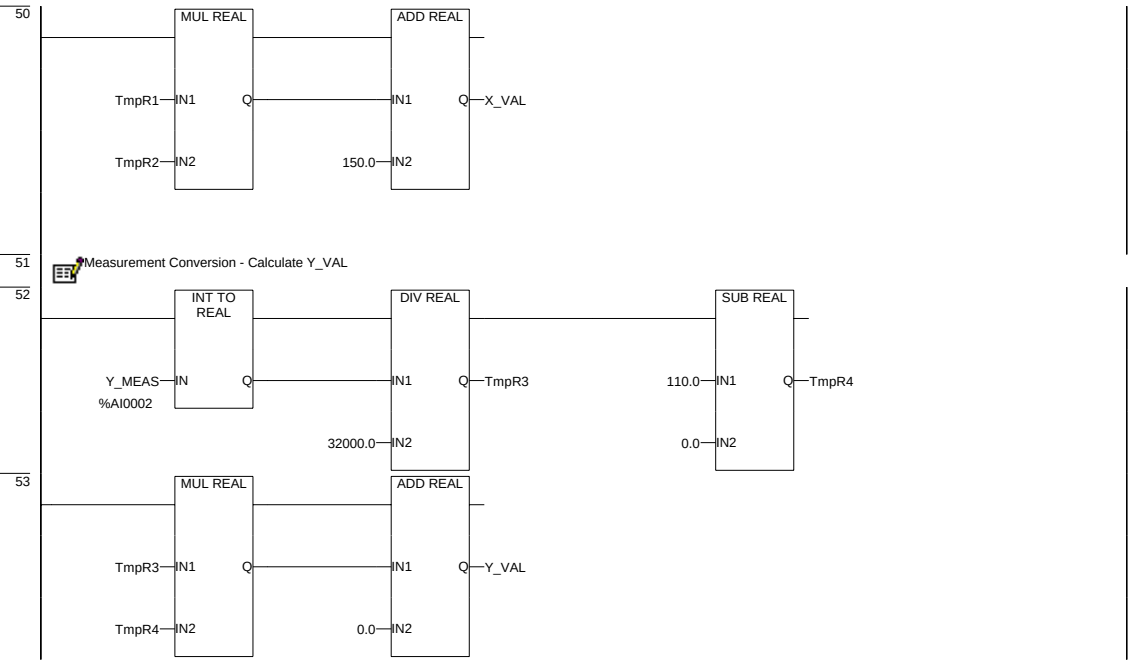

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