

Fuel Pump Flushing & Valve Installation 2026-03-10 / PLC_1 [CPU 1215C DC/DC/DC] / Program blocks

Main Sequence [FC2]

Main Sequence Properties

General

| | | | | | | | |
|------------------|---------------|---------------|---|-------------|----|-----------------|-----|
| Name | Main Sequence | Number | 2 | Type | FC | Language | LAD |
| Numbering | automatic | | | | | | |

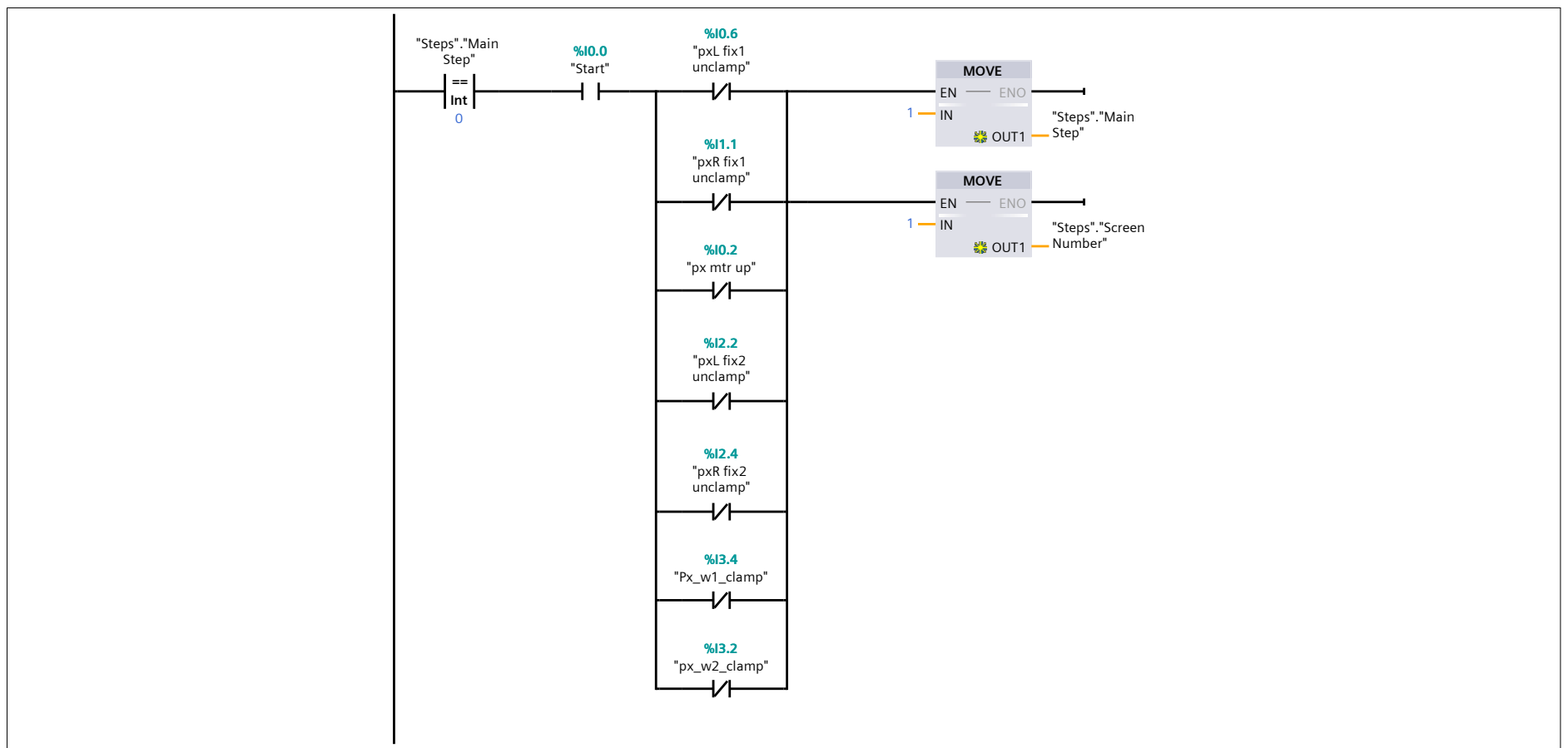
Information

| | | | | | | | |
|----------------|-----|------------------------|--|----------------|----|---------------|--|
| Title | | Author | | Comment | 15 | Family | |
| Version | 0.1 | User-defined ID | | | | | |

Main Sequence

| Name | Data type | Default value | Comment |
|---------------|-----------|---------------|---------|
| Input | | | |
| Output | | | |
| InOut | | | |
| Temp | | | |
| Constant | | | |
| ▼ Return | | | |
| Main Sequence | Void | | |

Network 1: Startup, check for home position



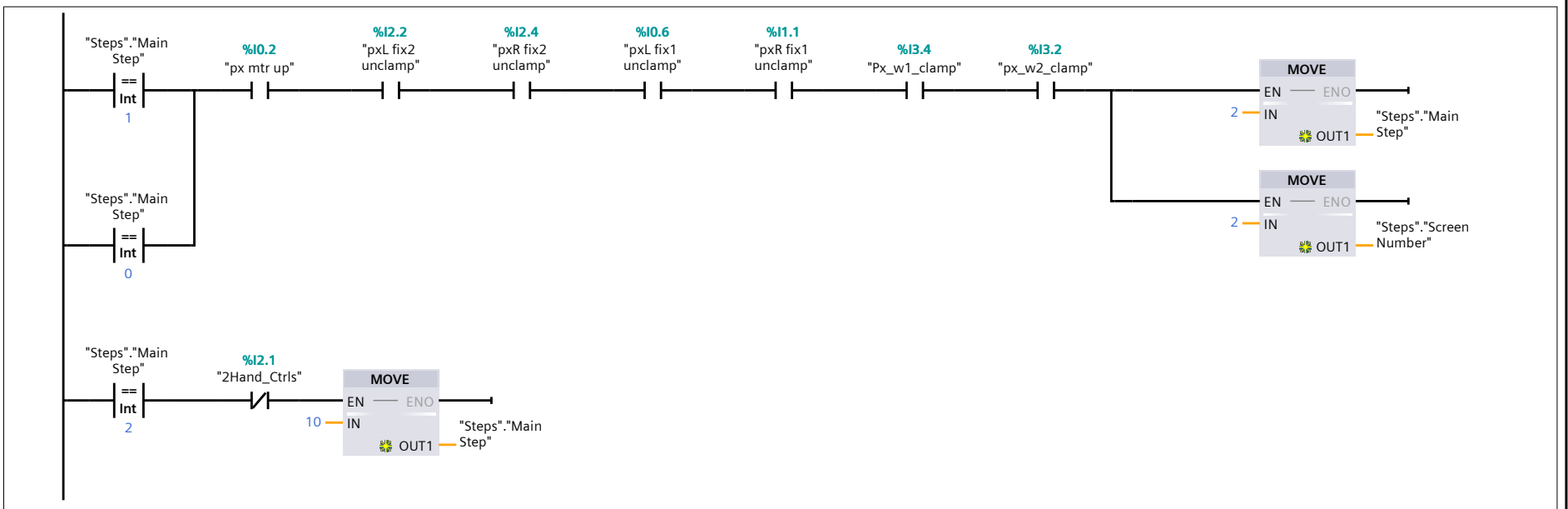
| Symbol | Address | Type | Comment |
|-----------------------|---------|------|---------|
| "px mtr up" | %I0.2 | Bool | |
| "Px_w1_clamp" | %I3.4 | Bool | |
| "px_w2_clamp" | %I3.2 | Bool | |
| "pxL fix1 unclamp" | %I0.6 | Bool | |
| "pxL fix2 unclamp" | %I2.2 | Bool | |
| "pxR fix1 unclamp" | %I1.1 | Bool | |
| "pxR fix2 unclamp" | %I2.4 | Bool | |
| "Start" | %I0.0 | Bool | |
| "Steps".Main Step | | Int | |
| "Steps".Screen Number | | Int | |

Network 2: homing all cylinders

soft start seals if:

- if all cylinders are at home
- if step is passed homing stage

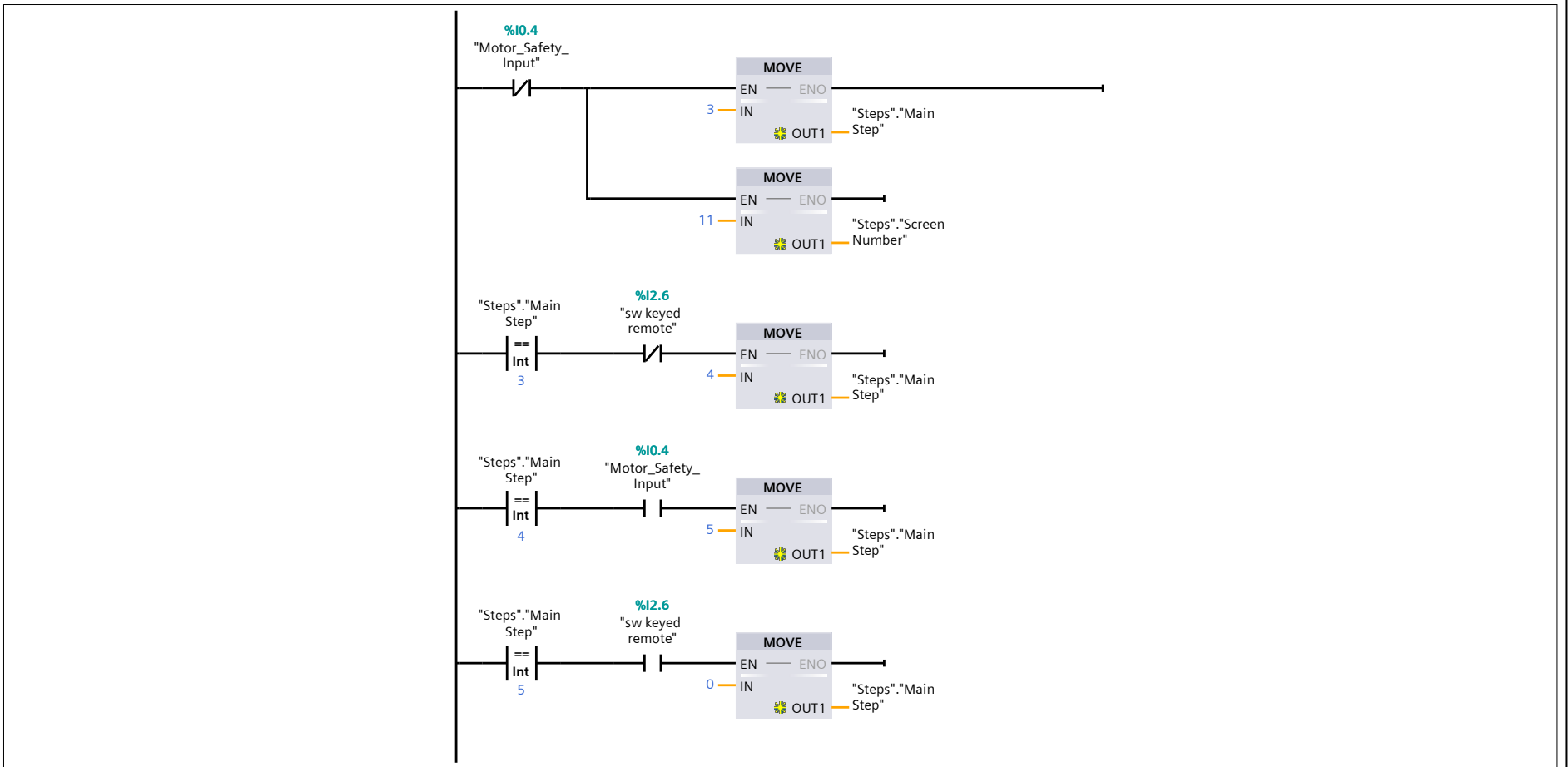
will break seal if estop is pressed or power cycled



| Symbol | Address | Type | Comment |
|-----------------------|---------|------|---------|
| "2Hand_Ctrls" | %I2.1 | Bool | |
| "px mtr up" | %I0.2 | Bool | |
| "Px_w1_clamp" | %I3.4 | Bool | |
| "px_w2_clamp" | %I3.2 | Bool | |
| "pxL fix1 unclamp" | %I0.6 | Bool | |
| "pxL fix2 unclamp" | %I2.2 | Bool | |
| "pxR fix1 unclamp" | %I1.1 | Bool | |
| "pxR fix2 unclamp" | %I2.4 | Bool | |
| "Steps".Main Step | | Int | |
| "Steps".Screen Number | | Int | |

Network 3: estop is pressed

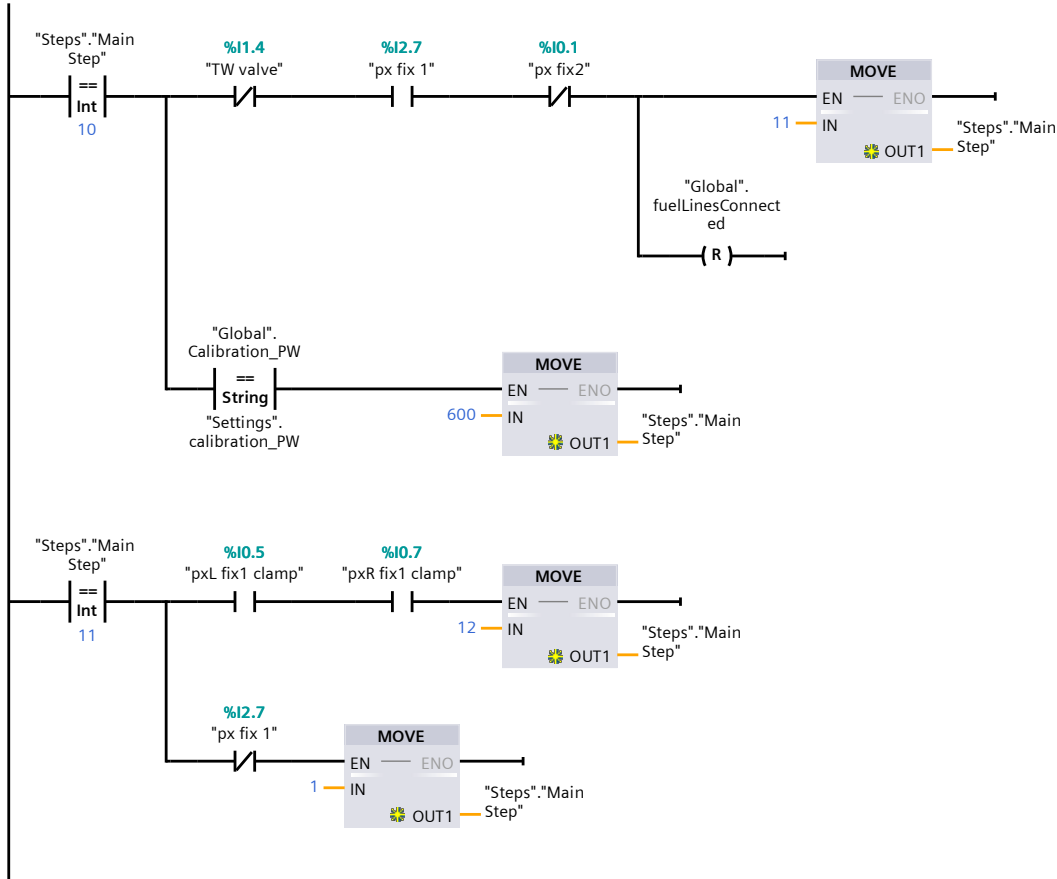
- stop motor
- stop all cylinders
- sound off buzzer
- go thru reset procedure, then turn off buzzer



| Symbol | Address | Type | Comment |
|-----------------------|---------|------|---------|
| "Motor_Safety_Input" | %I0.4 | Bool | |
| "Steps".Main Step | | Int | |
| "Steps".Screen Number | | Int | |
| "sw keyed remote" | %I2.6 | Bool | |

Network 4: Start of Normal Cycle (from setting of fuel block up to clamping in fixture 1)

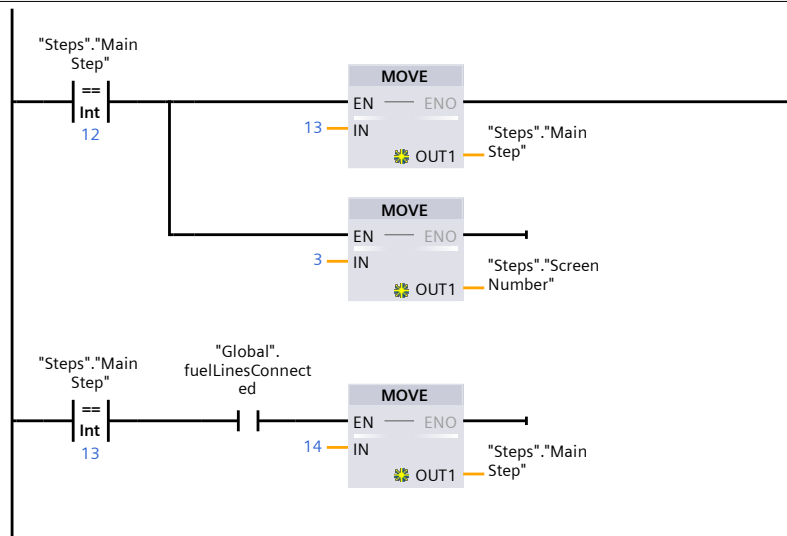
- from first bullet flashing to indicate waiting for fuel block to be set to fixture
- first bullet turn solid after detecting fuel block on fixture
- second bullet starts flashing to indicate waiting for hand switches to be activated
- second bullet turns solid after clamp is fully down
- if hand switches are let go before clamps are fully down, open clamps
- screen switches to next screen when part is fully clamped



| Symbol | Address | Type | Comment |
|-----------------------------|---------|--------|---------------------------|
| "Global".Calibration_PW | | String | |
| "Global".fuellinesConnected | | Bool | |
| "px fix2" | %I0.1 | Bool | I0.1 |
| "px fix 1" | %I2.7 | Bool | fuel block presence, I2.7 |
| "pxL fix1 clamp" | %I0.5 | Bool | |
| "pxR fix1 clamp" | %I0.7 | Bool | |
| "Settings".calibration_PW | | String | set Calibration Password |
| "Steps".Main Step | | Int | |
| "TW valve" | %I1.4 | Bool | |

Network 5: Install fuel inlet fitting and confirm lines are connected

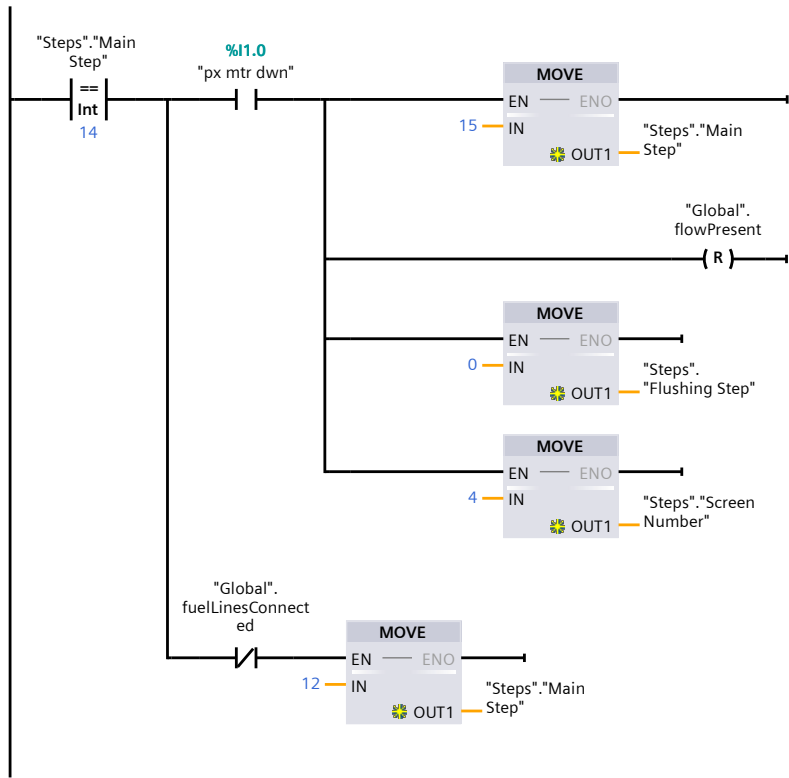
first bullet flashing, connect inlet & P1 lines then press screen to confirm connections, bullet turns solid, button turns green



| Symbol | Address | Type | Comment |
|-----------------------------|---------|------|---------|
| "Global".fuellinesConnected | | Bool | |
| "Steps".Main Step | | Int | |
| "Steps".Screen Number | | Int | |

Network 6: bring motor down

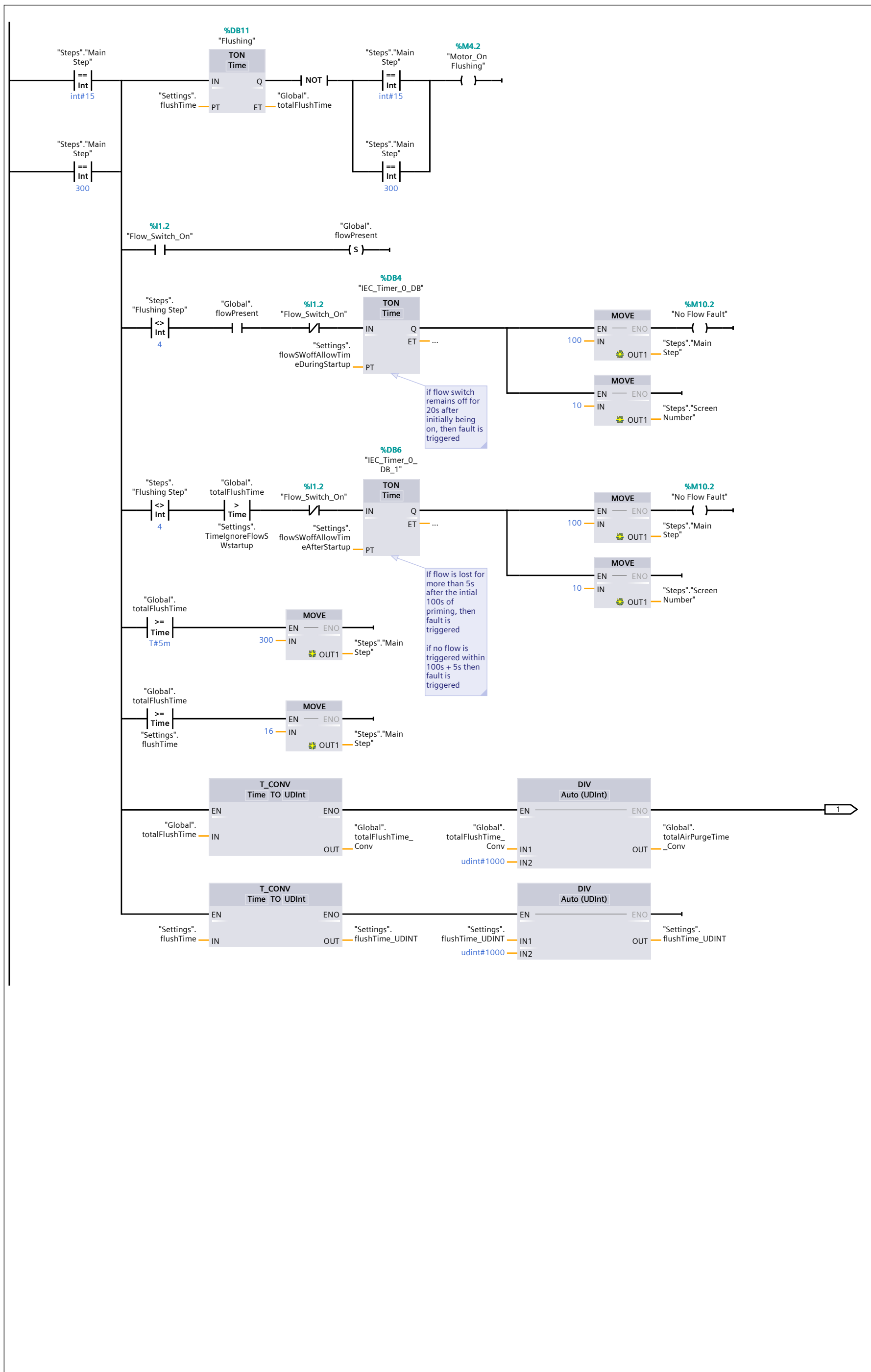
second bullet flashing, hold down hand switches to clamp part, bullet switches to solid when motor is fully down then screen switches to next screen



| Symbol | Address | Type | Comment |
|-----------------------------|---------|------|---------|
| "Global".flowPresent | | Bool | |
| "Global".fuelLinesConnected | | Bool | |
| "px mtr dwn" | %I1.0 | Bool | |
| "Steps".Flushing Step | | Int | |
| "Steps".Main Step | | Int | |
| "Steps".Screen Number | | Int | |

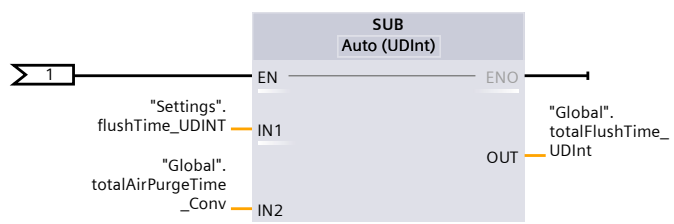
Network 7: Timer start, motor start, check flow. Do not check at step 4 of flushing (P1, P2, P3 ports are closed)
 flushing

Network 7: Timer start, motor start, check flow. Do not check at step 4 of flushing (P1, P2, P3 ports are closed) (1.1 / 2.1)



Network 7: Timer start, motor start, check flow. Do not check at step 4 of flushing (P1, P2, P3 ports are closed) (2.1 / 2.1)

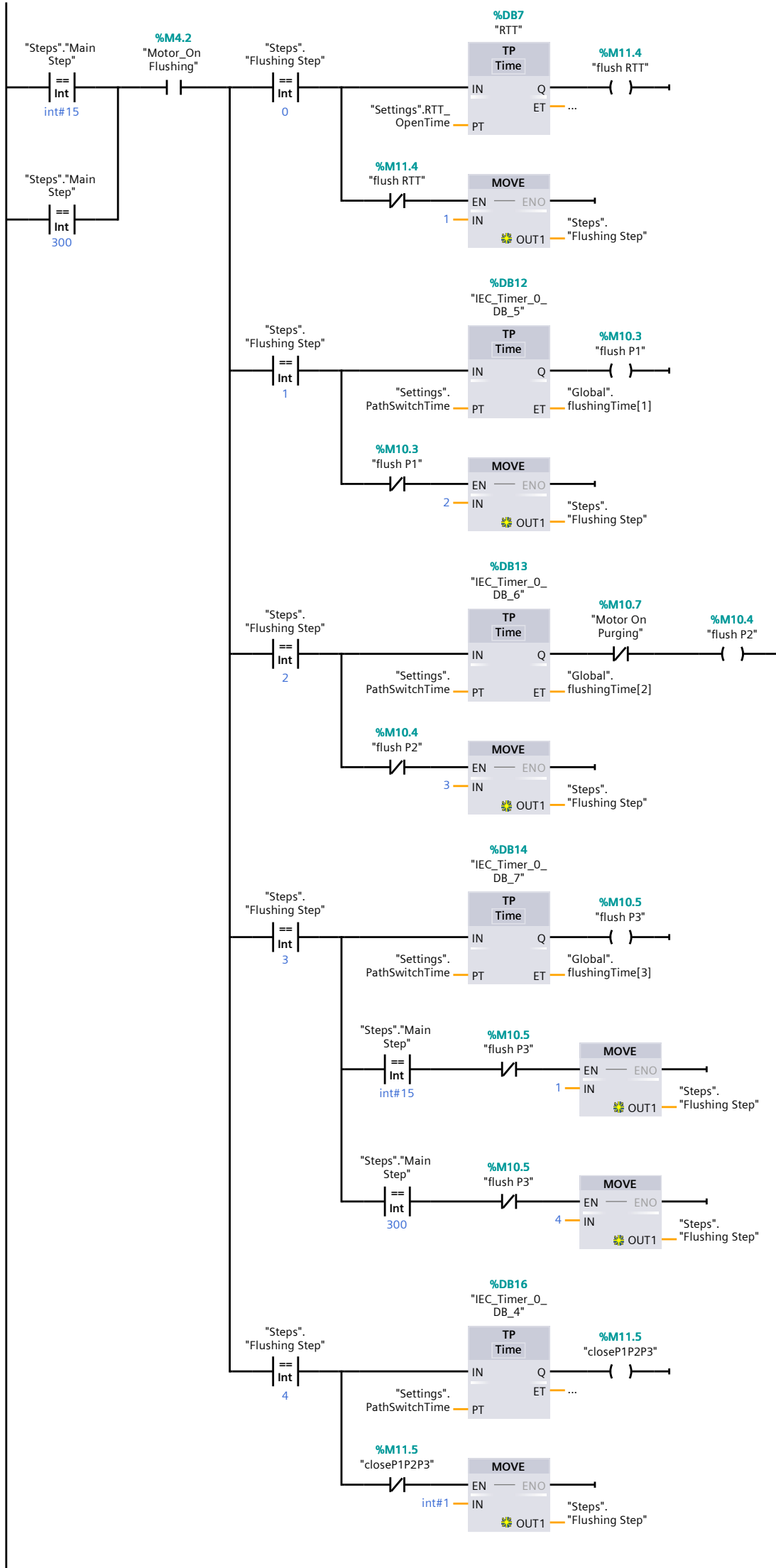
1.1 (Page1 - 5)



| Symbol | Address | Type | Comment |
|---|---------|-------|---|
| "Flow_Switch_On" | %I1.2 | Bool | |
| "Global".flowPresent | | Bool | |
| "Global".totalAirPurgeTime_Conv | | UDInt | |
| "Global".totalFlushTime | | Time | |
| "Global".totalFlushTime_Conv | | UDInt | |
| "Global".totalFlushTime_UDInt | | UDInt | |
| "Motor_On Flushing" | %M4.2 | Bool | |
| "No Flow Fault" | %M10.2 | Bool | |
| "Settings".flowSWoffAllowTimeAfterStartup | | Time | |
| "Settings".flowSWoffAllowTime-DuringStartup | | Time | allow flow sw to be off for this long after being on during startup |
| "Settings".flushTime | | Time | should be 600s |
| "Settings".flushTime_UDINT | | UDInt | intermediate variable |
| "Settings".TimeIgnoreFlowSWstart-up | | Time | if times out and flow sw is still off, program faults |
| "Steps"."Flushing Step" | | Int | |
| "Steps"."Main Step" | | Int | |
| "Steps"."Screen Number" | | Int | |

Network 8: Flushing

open P1 and RTT for 30s

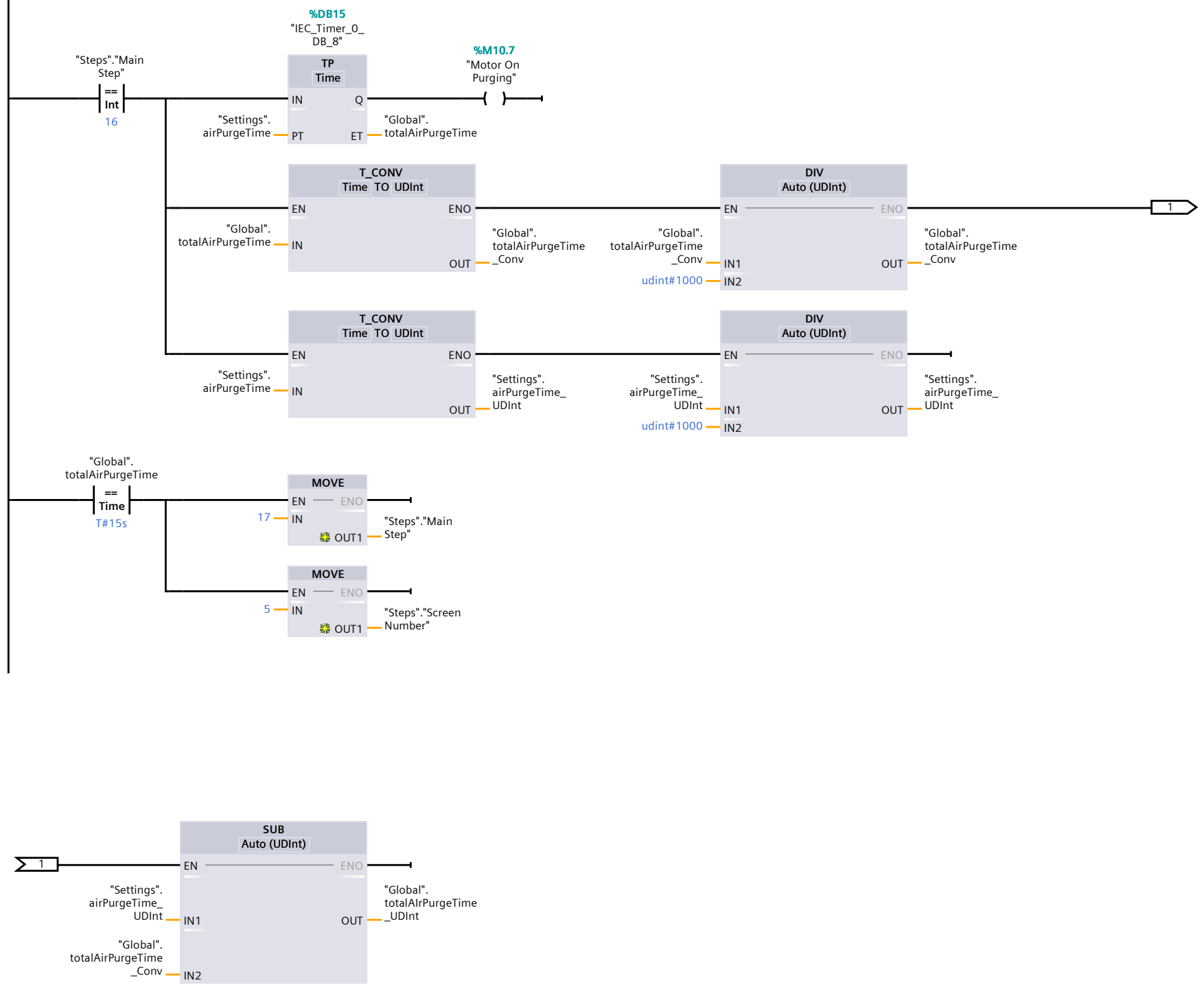


| Symbol | Address | Type | Comment |
|---------------------------|---------|------|---|
| "closeP1P2P3" | %M11.5 | Bool | |
| "flush P1" | %M10.3 | Bool | |
| "flush P2" | %M10.4 | Bool | |
| "flush P3" | %M10.5 | Bool | |
| "flush RTT" | %M11.4 | Bool | |
| "Global".flushingTime[1] | | Time | |
| "Global".flushingTime[2] | | Time | |
| "Global".flushingTime[3] | | Time | |
| "Motor On Purging" | %M10.7 | Bool | |
| "Motor_On Flushing" | %M4.2 | Bool | |
| "Settings".PathSwitchTime | | Time | should be 15s |
| "Settings".RTT_OpenTime | | Time | allow return to tank to bleed air from dry pump |
| "Steps".Flushing Step | | Int | |
| "Steps".Main Step | | Int | |

Network 9: air purging of diesel

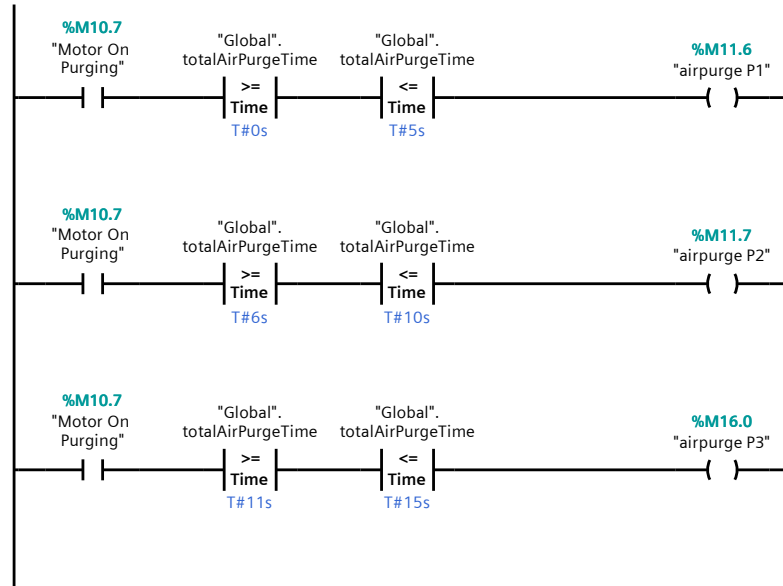
after 600 seconds, mtor remains on, turn on air, purge thru P1 for 5 secs, then P2 for 5 secs, then P3 for 5 secs

Network 9: air purging of diesel



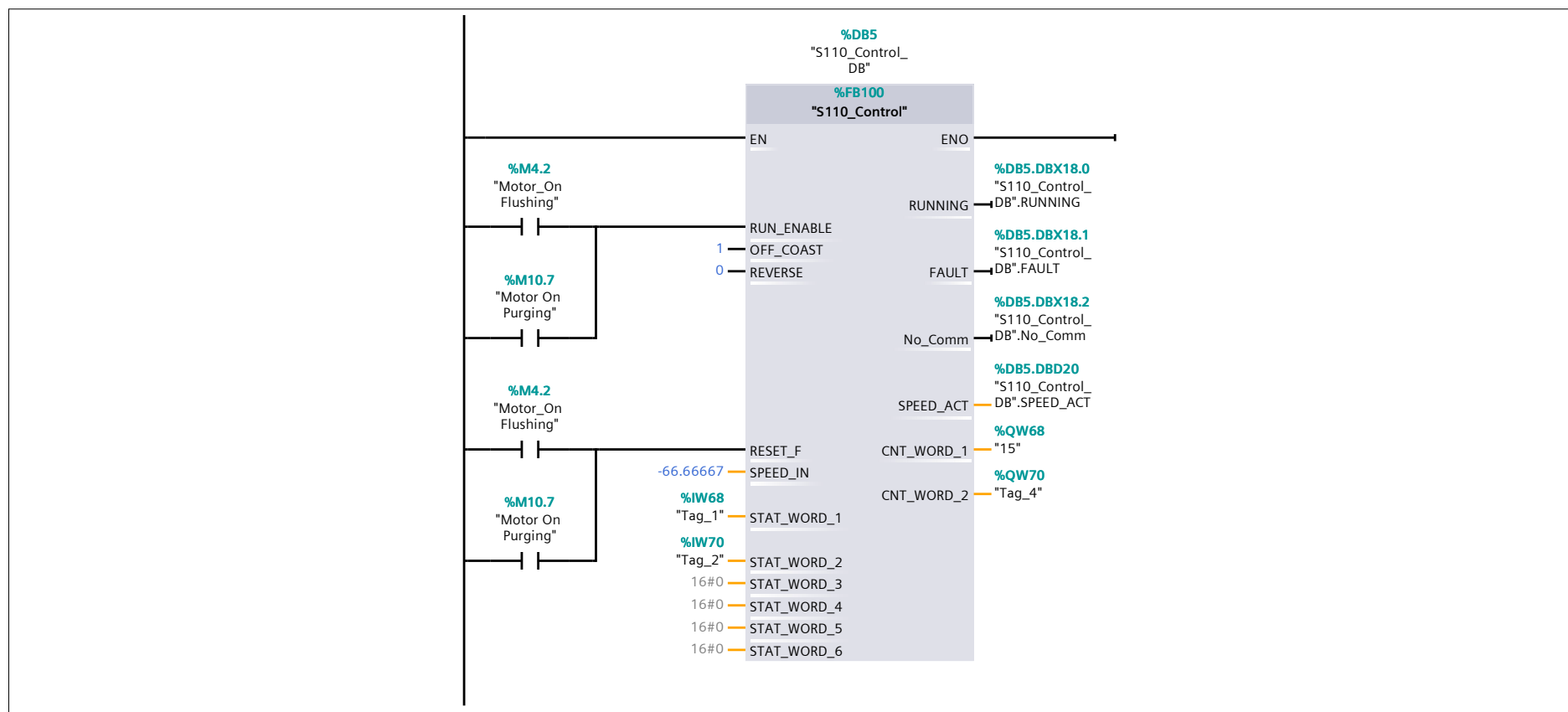
| Symbol | Address | Type | Comment |
|----------------------------------|---------|-------|-----------------------|
| "Global".totalAirPurgeTime | | Time | |
| "Global".totalAirPurgeTime_Conv | | UDInt | |
| "Global".totalAirPurgeTime_UDInt | | UDInt | |
| "Motor On Purging" | %M10.7 | Bool | |
| "Settings".airPurgeTime | | Time | |
| "Settings".airPurgeTime_UDInt | | UDInt | intermediate variable |
| "Steps"."Main Step" | | Int | |
| "Steps"."Screen Number" | | Int | |

Network 10: switching of ports while flushing or air purging



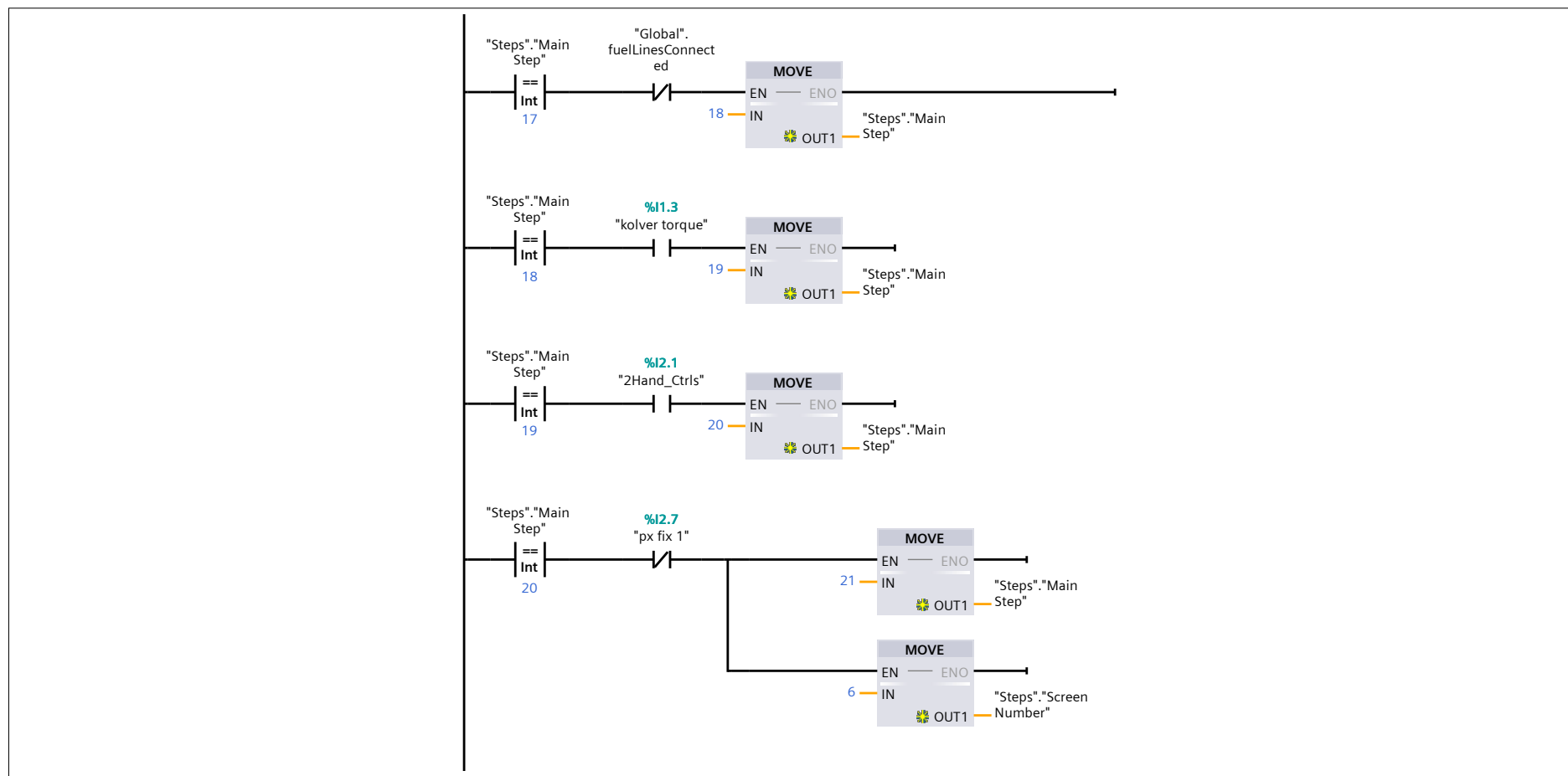
| Symbol | Address | Type | Comment |
|----------------------------|---------|------|---------|
| "airpurge P1" | %M11.6 | Bool | |
| "airpurge P2" | %M11.7 | Bool | |
| "airpurge P3" | %M16.0 | Bool | |
| "Global".totalAirPurgeTime | | Time | |
| "Motor On Purging" | %M10.7 | Bool | |

Network 11: RUN SERVO



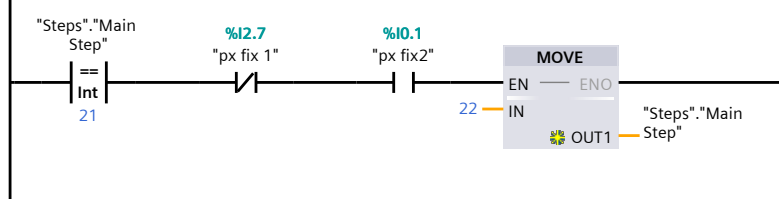
| Symbol | Address | Type | Comment |
|-----------------------------|--------------|------|---------|
| "15" | %QW68 | Word | |
| "Motor On Purging" | %M10.7 | Bool | |
| "Motor On Flushing" | %M4.2 | Bool | |
| "S110_Control_DB".FAULT | %DB5.DBX18.1 | Bool | |
| "S110_Control_DB".No_Comm | %DB5.DBX18.2 | Bool | |
| "S110_Control_DB".RUNNING | %DB5.DBX18.0 | Bool | |
| "S110_Control_DB".SPEED_ACT | %DB5.DBD20 | Real | |
| "Tag_1" | %IW68 | Word | |
| "Tag_2" | %IW70 | Word | |
| "Tag_4" | %QW70 | Word | |

Network 12: disconnect inlet and p1 lines, install plug, release part from fixture 1



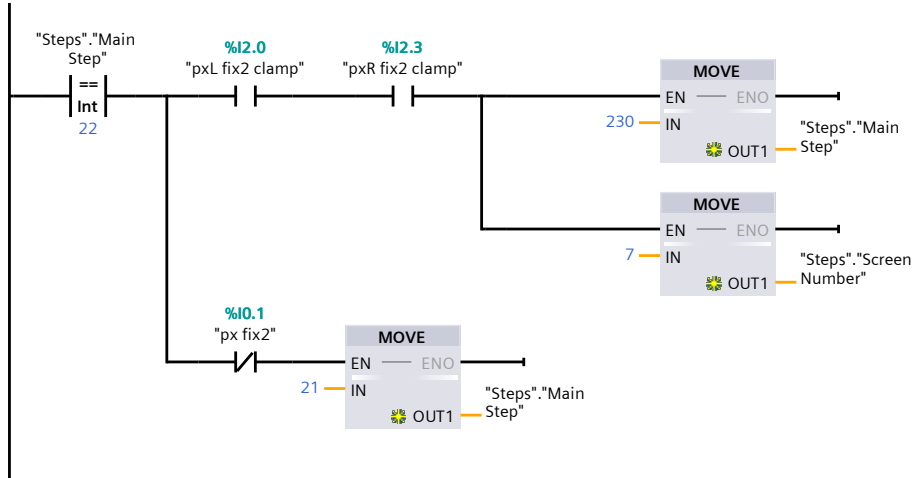
| Symbol | Address | Type | Comment |
|-----------------------------|---------|------|---------------------------|
| "2Hand_Ctrls" | %I2.1 | Bool | |
| "Global".fuelLinesConnected | | Bool | |
| "kolver torque" | %I1.3 | Bool | |
| "px fix 1" | %I2.7 | Bool | fuel block presence, I2.7 |
| "Steps".Main Step | | Int | |
| "Steps".Screen Number | | Int | |

Network 13: set part to fxture 2



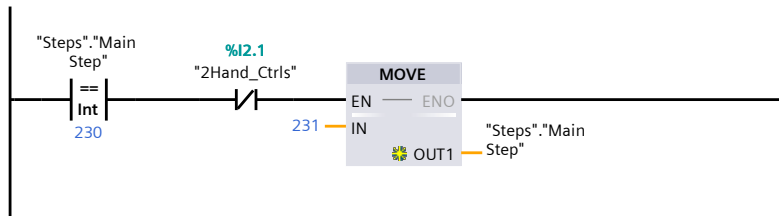
| Symbol | Address | Type | Comment |
|--------------------|---------|------|---------------------------|
| "px fix2" | %I0.1 | Bool | I0.1 |
| "px fix 1" | %I2.7 | Bool | fuel block presence, I2.7 |
| "Steps".Main Step" | | Int | |

Network 14: clamp fixture 2



| Symbol | Address | Type | Comment |
|------------------------|---------|------|---------|
| "px fix2" | %I0.1 | Bool | I0.1 |
| "pxL fix2 clamp" | %I2.0 | Bool | |
| "pxR fix2 clamp" | %I2.3 | Bool | |
| "Steps".Main Step" | | Int | |
| "Steps".Screen Number" | | Int | |

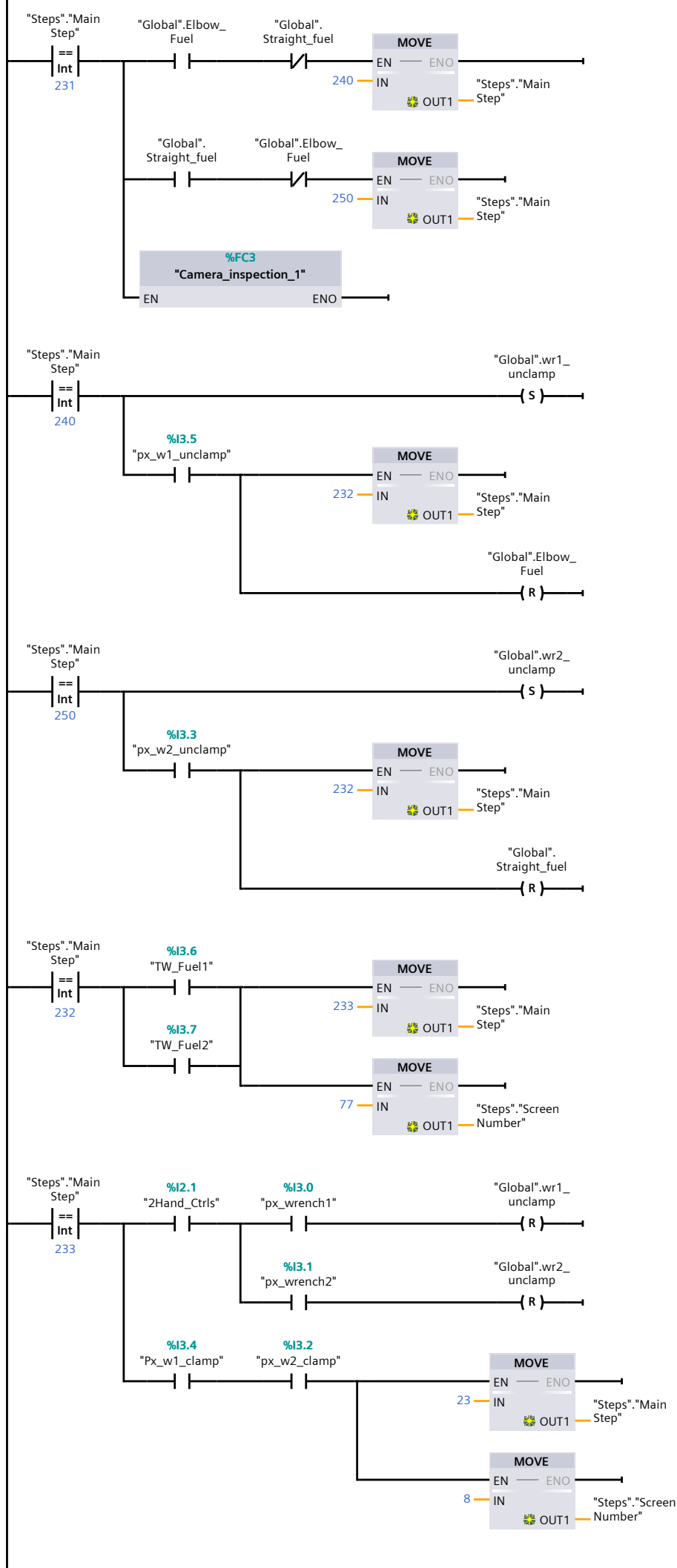
Network 15:



| Symbol | Address | Type | Comment |
|--------------------|---------|------|---------|
| "2Hand_Ctrls" | %I2.1 | Bool | |
| "Steps".Main Step" | | Int | |

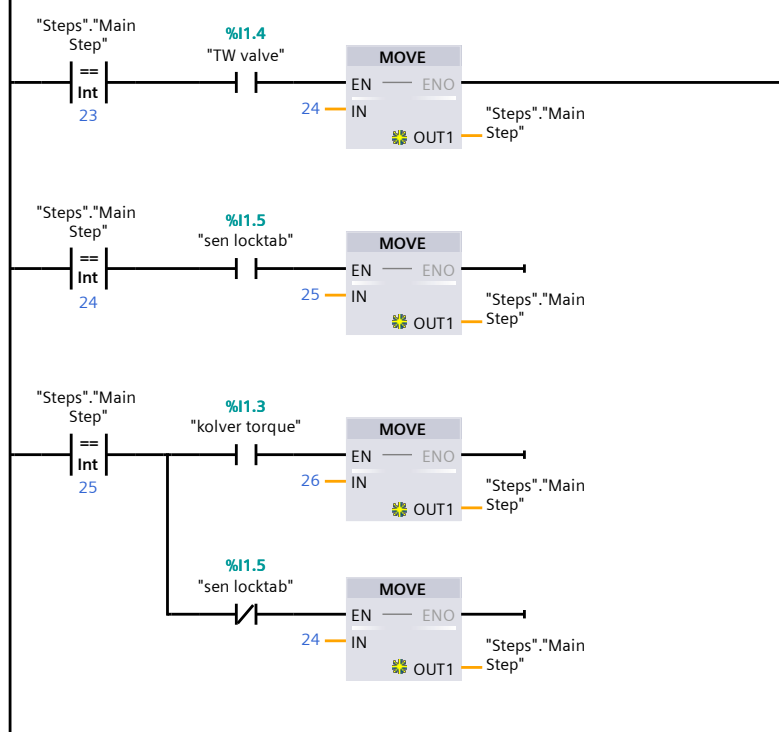
Network 16: Fuel Fitting

240 = elbow, 250=straight



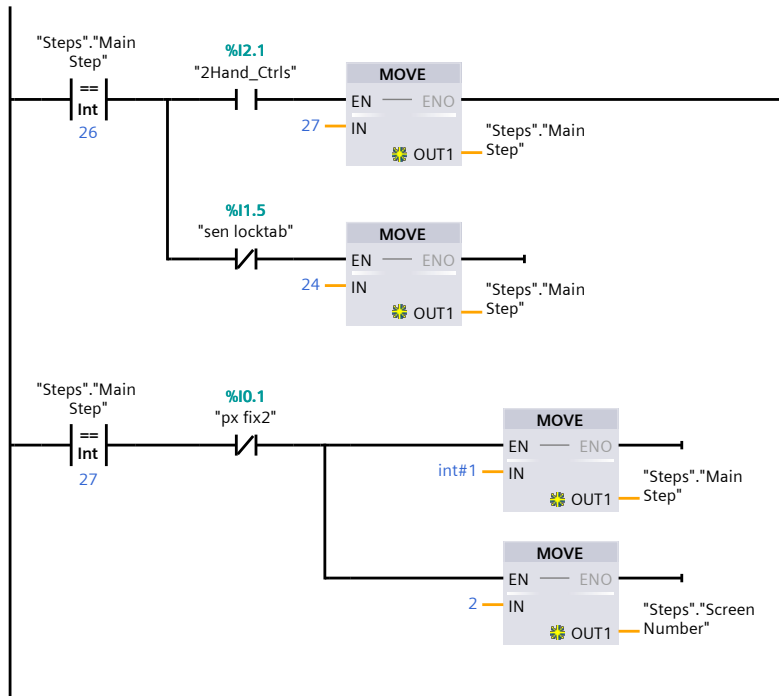
| Symbol | Address | Type | Comment |
|--------------------------|---------|------|---------|
| "2Hand_Ctrls" | %I2.1 | Bool | |
| "Global".Elbow_Fuel | | Bool | |
| "Global".Straight_fuel | | Bool | |
| "Global".wr1_unclamp | | Bool | |
| "Global".wr2_unclamp | | Bool | |
| "Px_w1_clamp" | %I3.4 | Bool | |
| "px_w1_unclamp" | %I3.5 | Bool | |
| "px_w2_clamp" | %I3.2 | Bool | |
| "px_w2_unclamp" | %I3.3 | Bool | |
| "px_wrench1" | %I3.0 | Bool | |
| "px_wrench2" | %I3.1 | Bool | |
| "Steps". "Main Step" | | Int | |
| "Steps". "Screen Number" | | Int | |
| "TW_Fuel1" | %I3.6 | Bool | |
| "TW_Fuel2" | %I3.7 | Bool | |

Network 17:



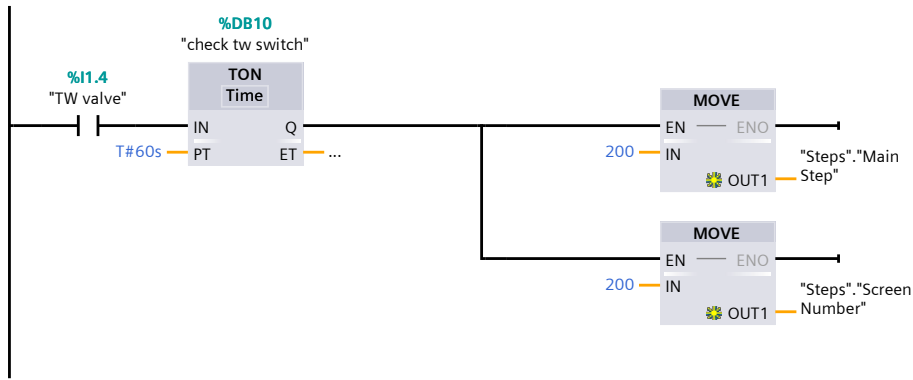
| Symbol | Address | Type | Comment |
|----------------------|---------|------|---------|
| "kolver torque" | %I1.3 | Bool | |
| "sen locktab" | %I1.5 | Bool | |
| "Steps". "Main Step" | | Int | |
| "TW valve" | %I1.4 | Bool | |

Network 18:



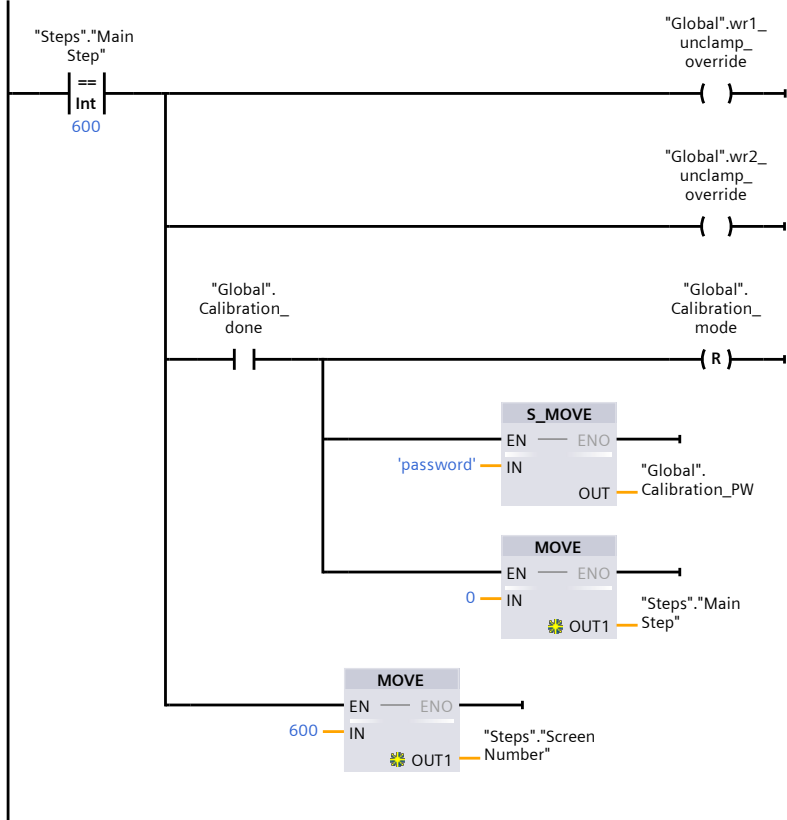
| Symbol | Address | Type | Comment |
|--------------------------|---------|------|---------|
| "2Hand_Ctrls" | %I2.1 | Bool | |
| "px fix2" | %I0.1 | Bool | I0.1 |
| "sen locktab" | %I1.5 | Bool | |
| "Steps". "Main Step" | | Int | |
| "Steps". "Screen Number" | | Int | |

Network 19: check valve tw switch



| Symbol | Address | Type | Comment |
|--------------------------|---------|------|---------|
| "Steps". "Main Step" | | Int | |
| "Steps". "Screen Number" | | Int | |
| "TW valve" | %I1.4 | Bool | |

Network 20:



| Symbol | Address | Type | Comment |
|-------------------------------|---------|--------|---------|
| "Global".Calibration_done | | Bool | |
| "Global".Calibration_mode | | Bool | |
| "Global".Calibration_PW | | String | |
| "Global".wr1_unclamp_override | | Bool | |
| "Global".wr2_unclamp_override | | Bool | |
| "Steps".Main Step | | Int | |
| "Steps".Screen Number | | Int | |