otally Integrated

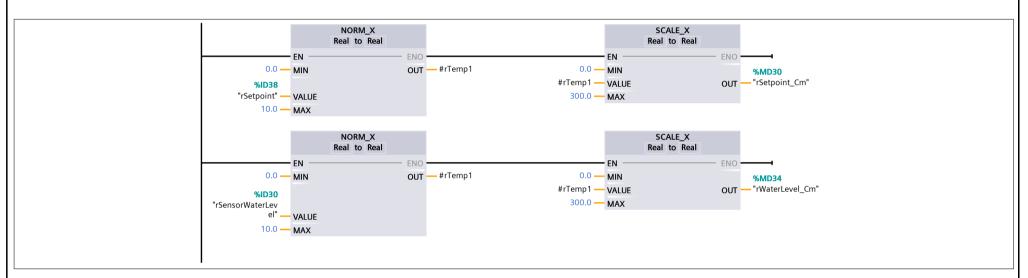
Proportional Controller for a Water tank / PLC_1 [CPU 1211C DC/DC/DC] / Program blocks

Main [OB1]

Main Properties								
General								
Name	Main	Number	1	Туре	ОВ	Language	LAD	
Numbering	Automatic							
Information								
Title	"Main Program Sweep (Cy-	Author		Comment		Family		
	cle)"							
Version	0.1	User-defined ID						

Main								
Name	Data type	Default value	Comment					
▼ Input								
Initial_Call	Bool		Initial call of this OB					
Remanence	Bool		=True, if remanent data are available					
▼ Temp								
rTemp1	Real							
wlevelMeter_2	Real							
Constant								

Network 1: Scaling the set point and current values in CM



Network 2: Displaying the current and set liquid level in cm on the display

```
TRUNC
Real to Dint
EN EN ENO
WQD38
"rSetpoint_Cm"—IN OUT WdisP"

**WQD42
"disP"

**WaterLevel_Cm"—IN OUT WdisP''

**WaterLevel_Cm"—IN OUT WdisP''
```

Network 3: Initialize RKp

```
#Initial_Call Move

EN ENO
N MD10
**OUT1 — "rKp"
```

Network 4: State Start/Stop

```
%M0.0
                                        "xStateStart"
    %10.0
                                       SR
  "xPbStart"
    \dashvP\vdash
    %M1.1
  "xMem_0"
    %I0.2
  "xPbStop"
     <del>-</del>1/1-
                        %10.5
    %10.4
                  "xSelectorManual
"xSelectorAuto"
    %M0.3
   "xAlarm"
```

```
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Network 5: Mode Auto/Manual
                                                                       %10.5
                                                                   "xSelectorManual
                                                                                         %10.4
                                                                                                                                           %M0.1
                                                                                                                                       "xModeManual"
                                                                                    "xSelectorAuto"
                                                                                         <del>-</del>1/1-
                                                                                                                                            ( )-
                                                                                         %10.5
                                                                                                                                        %M0.2
"xModeAuto"
                                                                       %10.4
                                                                                    "xSelectorManual
                                                                   "xSelectorAuto"
```

Network 6: Scaling the setpoint and current values to a value in cm

```
%M0.5
"xStateStart"
                                                                                        "xStep0_Init"
                                                                                            -( s )-
                                                                                            %M0.4
                                                                                     "xStep10_
EnableRegulator"
                                                                                            -( R )-
                                                                                           %M1.0
                                                                                        "xStep20_
LevelCheck"
                                                                                            -( R )−
                                                                                           %M0.6
                                                                                        "xStep30_
Discharge"
                                                                                            -( R )-
                                                                                           %M0.7
                                                                                       "xStep40_End"
                                                                                            -( R )−
                                                                                           %M0.4
                                                                                     "xStep10_
EnableRegulator"
  %M0.0
                         %M0.5
                                               %10.4
                                          "xSelectorAuto"
"xStateStart"
                     "xStep0_Init"
                                                                                           %M0.5
                                                                                        "xStep0_Init"
                                                                                            -( R )-
```

Network 7: Checking reaching of the set value then proceding to step 20

Network 8: Checking of the water level is winthin specificed limits .

```
%M1.0
                                                                     %M0.6
                                                   IN_RANGE
                "xStep20_
LevelCheck"
                                                                   "xStep30_
Discharge"
  %M0.0
                                    %10.4
                                "xSelectorAuto"
"xStateStart"
                                        %MD18
                                   "diLowerLimit
                                                                     %M1.0
                                                                  "xStep20_
LevelCheck"
                                     %QD42
                                         "diPV" — VAL
                                                               %MD22
                                  "diupperLimit" — MAX
               SUB
               Dint
               EN - ENO -
      %QD38
"diSP" — IN1 OUT — "diLowerLimit"
1 — IN2
               ADD
Dint
               EN - ENO -
      %QD38
"diSP" — IN1 OUT — "diupperLimit"
1 — IN2 •
```

```
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Network 9: Check if the tank is emmptied . If ithas emiptied thesequence ends
                                                                           %M0.6
                                                                                                        %QD42
                                                                                          %10.4
                                                                                                                       %M0.7
                                                                          "xStep30_
                                                                                                         "diPV"
                                                                                       "xSelectorAuto"
                                                           "xStateStart"
                                                                          Discharge"
                                                                                                                    "xStep40_End"
                                                                                                                        -( s )-
                                                                                                        Dint
                                                                                                                       %M0.6
                                                                                                                     "xStep30_
Discharge"
                                                                                                                       -( R )-
Network 10: Delay and return to the initialisations step
```

```
%DB2
"IEC_Timer_0_DB"
                                                          TON
  %M0.0
                    %M0.7
                                       %10.4
                                                                                               %M0.5
                 "xStep40_End"
                                                                                            "xStep0_Init"
"xStateStart"
                                   "xSelectorAuto"
                                                     - IN
                                                               ET — T#0ms
                                              T#2s — PT
                                                                                               %M0.7
                                                                                           "xStep40_End"
                                                                                               -( R )-
```

Network 11: Alarm and stop the sequence auto

```
%M0.7 %I0.4 "xAlarm"

"xStep40_End" "xSelectorAuto"

%I0.1
"xPbReset" — R1
```

Network 12: Switching off the valves

Network 13: Regulator COntroller filling Valve

```
%M0.4
  %M0.0
                "xStep10_
            EnableRegulator"
"xStateStart"
                                             MOVE
                  +
                                             - EN --- ENO -
                                       0.0 — IN
                                                          %QD34
                                             " OUT1 — "rValveDischarge"
                                                MUL
                                                                                               LIMIT
                                              Auto (Real)
                                                                                               Real
                                                   - ENO
                                                                                           EN - ENO
                                                                                     0.0 — MN
                                      %MD6
                                                    OUT — #rTemp1
                                                                                                         %QD30
                                  "rErrorABS" -
                                                                                  #rTemp1 — IN
                                                                                                 OUT — "rValveFill"
                                                                                     10.0 — MX
                                     %MD10
                                      "rKp" — IN2
```

Network 14: Regulator COntroller Discharge Valve

```
"xStep30_
Discharge"
 %M0.0
"xStateStart"
                                         MOVE
                                         EN - ENO
                                    0.0 — IN %QD30
                                        OUT1 — "rValveFill"
                                         MUL
                                                                                     LIMIT
                                         Auto (Real)
                                                                                      Real
                                         OUT — #rTemp1
                                                                             0.0 — MN
                                  %MD6
                                                                                              %QD34
                               "rErrorABS" — IN1
                                                                          #rTemp1 — IN
                                                                                        OUT — "rValveDischarge"
                                                                            10.0 — MX
                                 %MD10
                                   "rKp" — IN2
```

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Network 15: Switching off valve			
	%M0.0 "xStateStart" MOVE		
	EN ENO O.O IN "QD30 "rValveFill"	0.0 — IN — ENO — %QD34 — "rValveDischarge"	
Network 16: LEDs			
	%M0.0		
	"xStateStart"	%Q0.0 "xPbStartLed" ()	
	NOT	%Q0.2 "xPbStopLed" ()	
	%M0.3 %M100.7 "xAlarm" "xPulse"	%Q0.1 "xPbResetLed" ()	
Network 17: FIO			
	<u> </u>		
	%FC9000 "MHJ-PLC-Lab-Function-S71200" — EN ENO		
	1		