

# Digitalisation of the water sector and water education

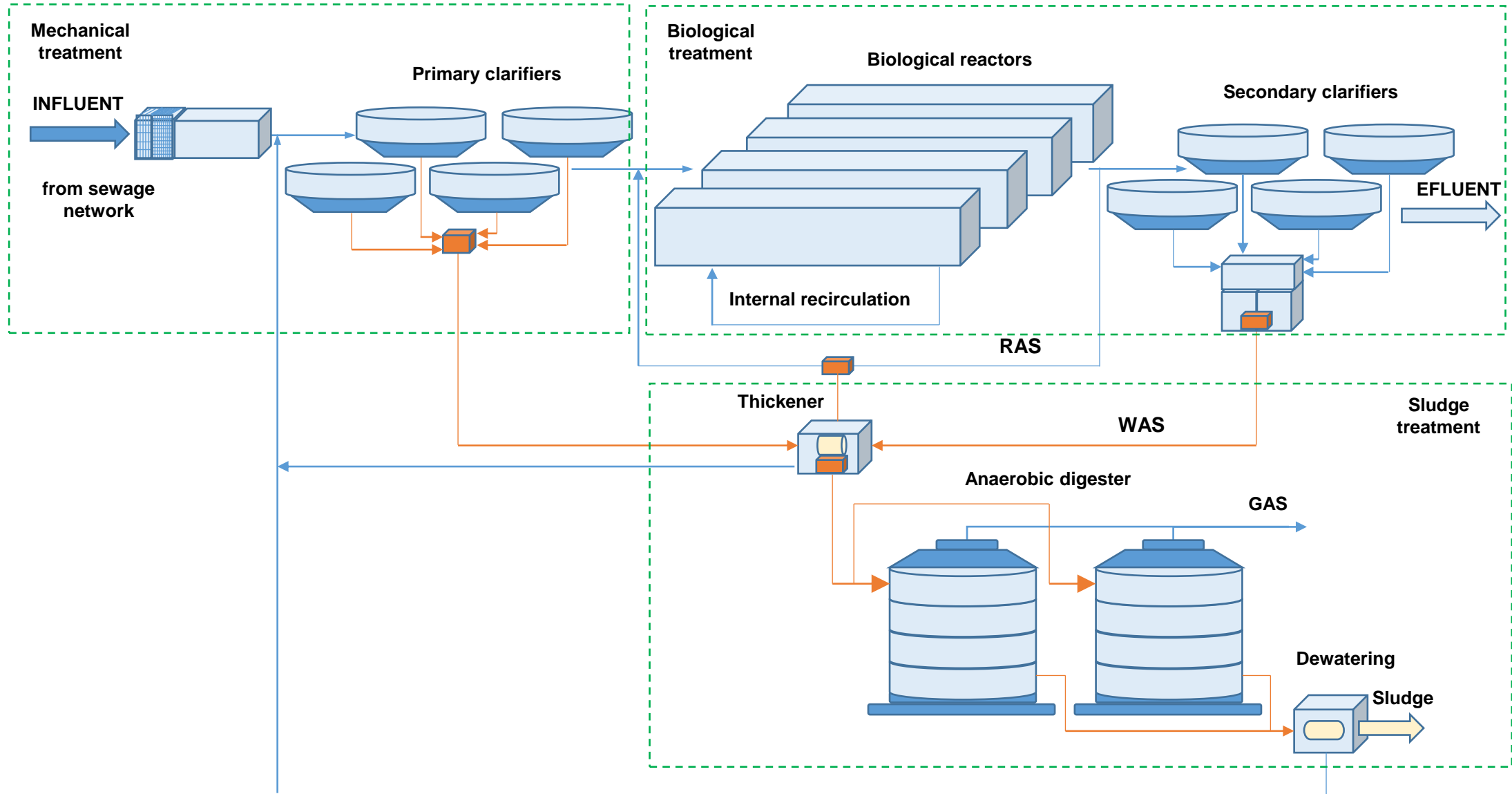
## DigiwatRO

Challenges in digitalizing of the water  
sector in Romania and discussion

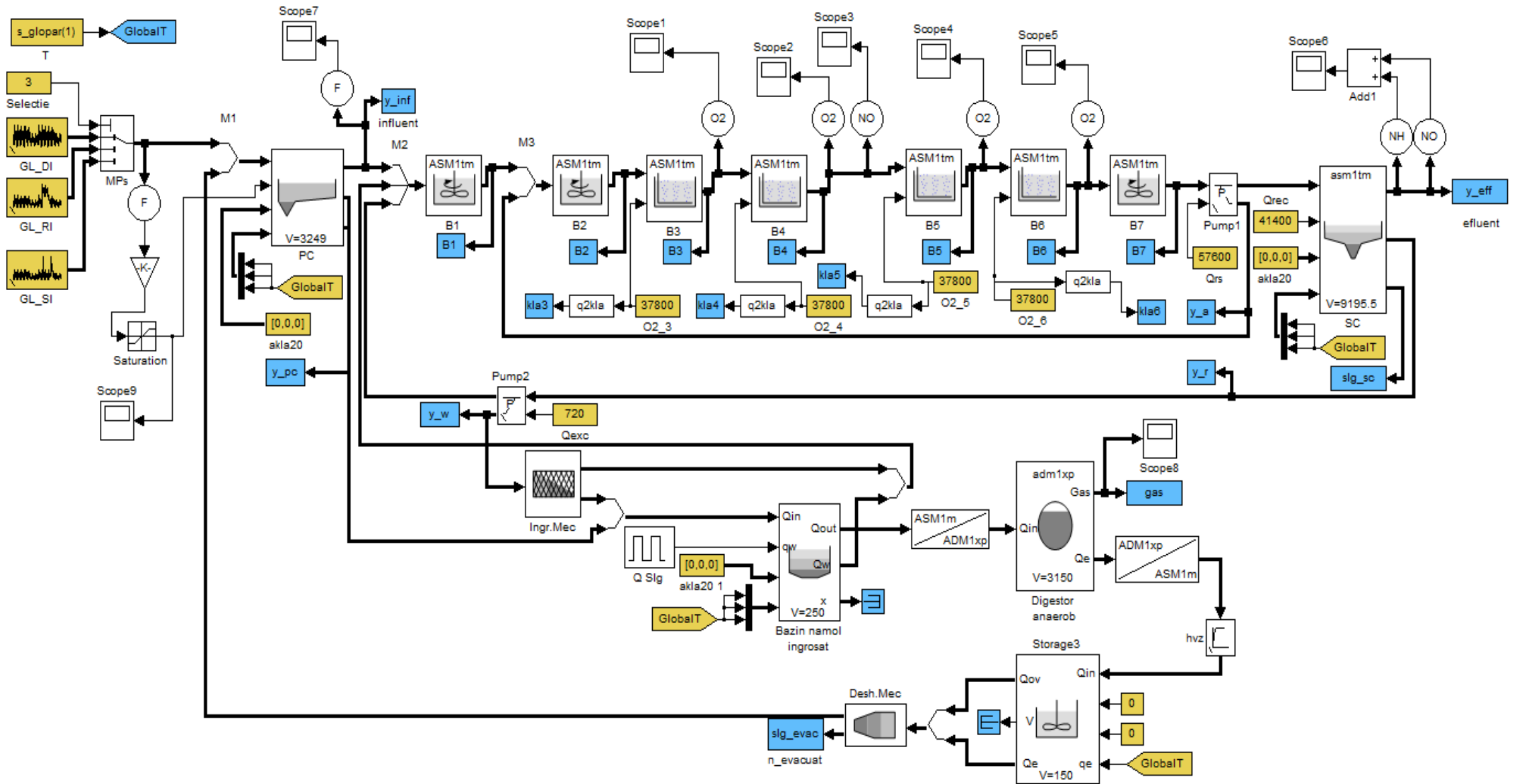
Laurentiu LUCA

25 Nov. 2021

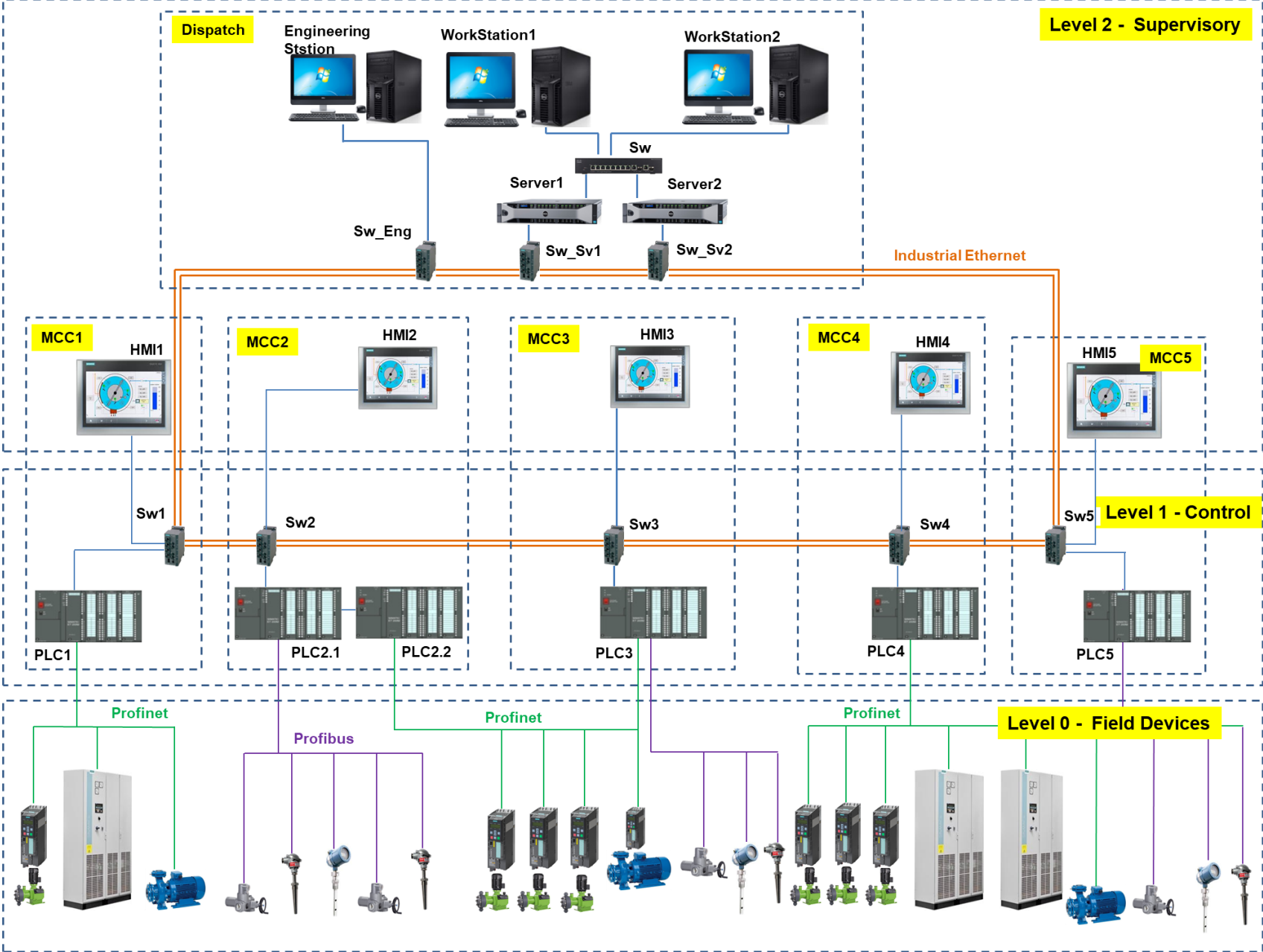
# WWTP Architecture



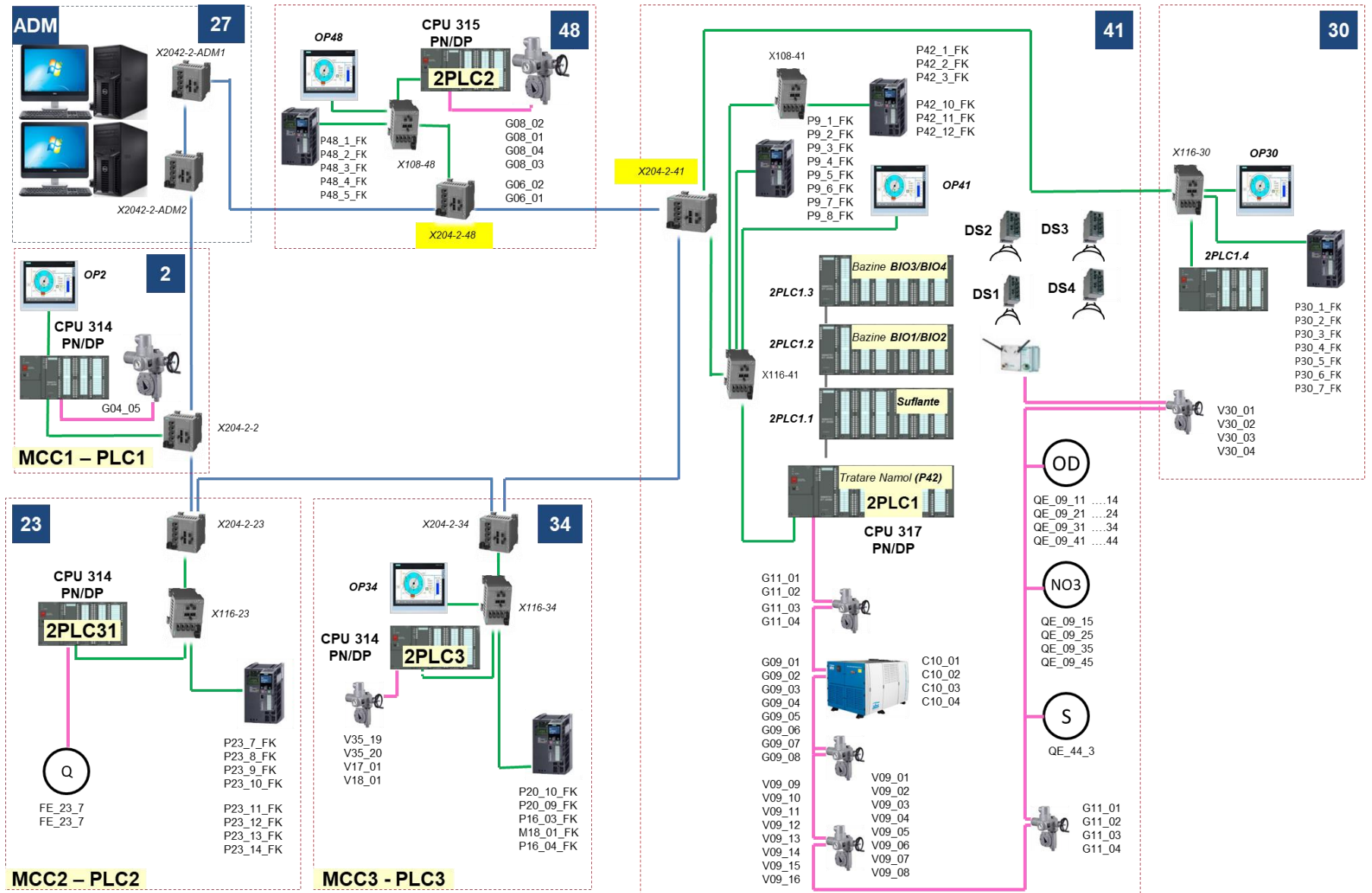
# WWTP Simba model



# SCADA Architecture



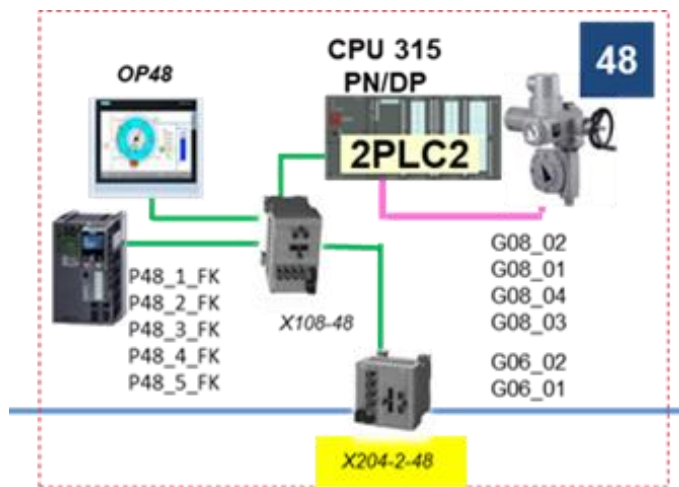
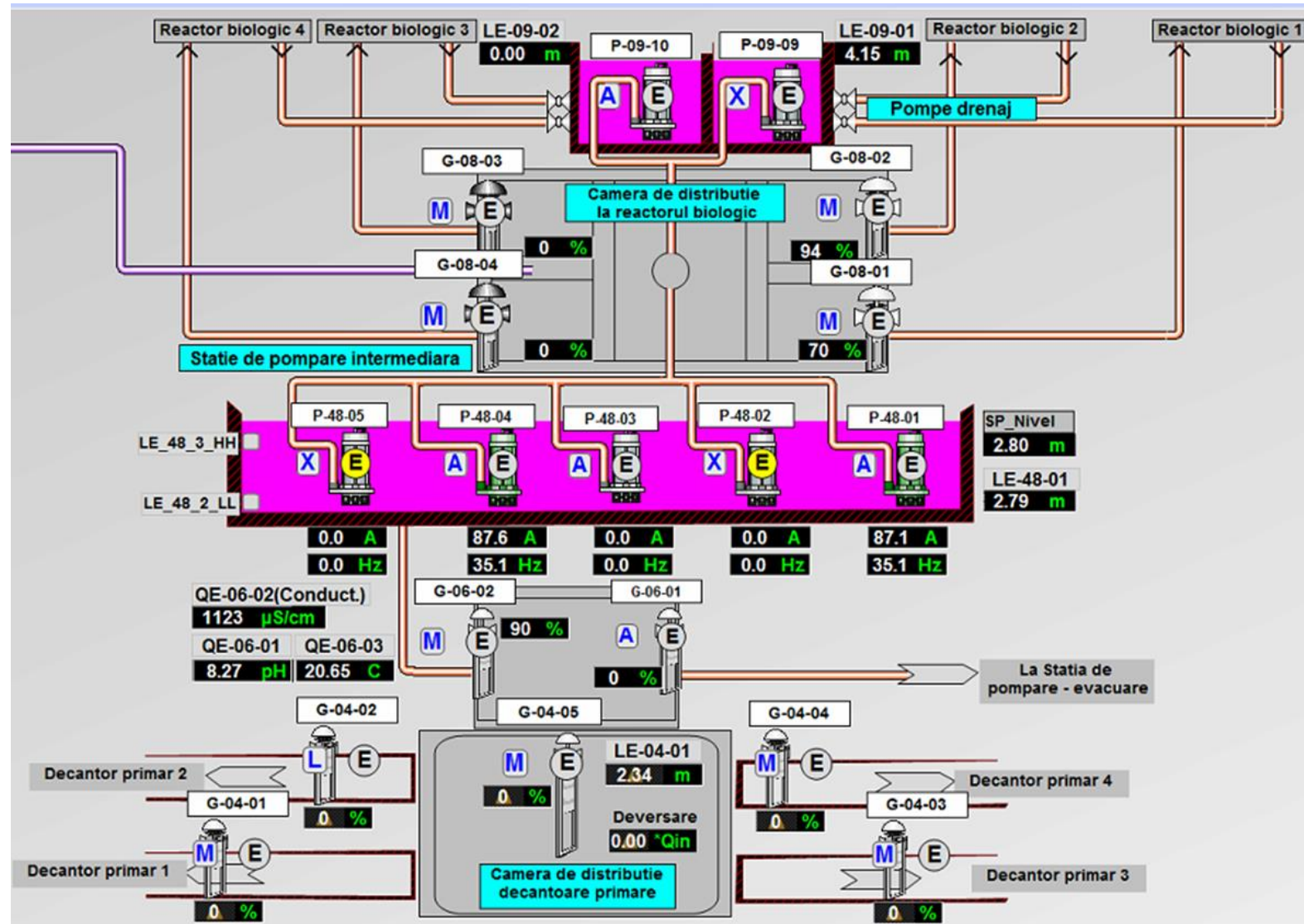
# Control Architecture



# Pumping Station

**P-30-02**

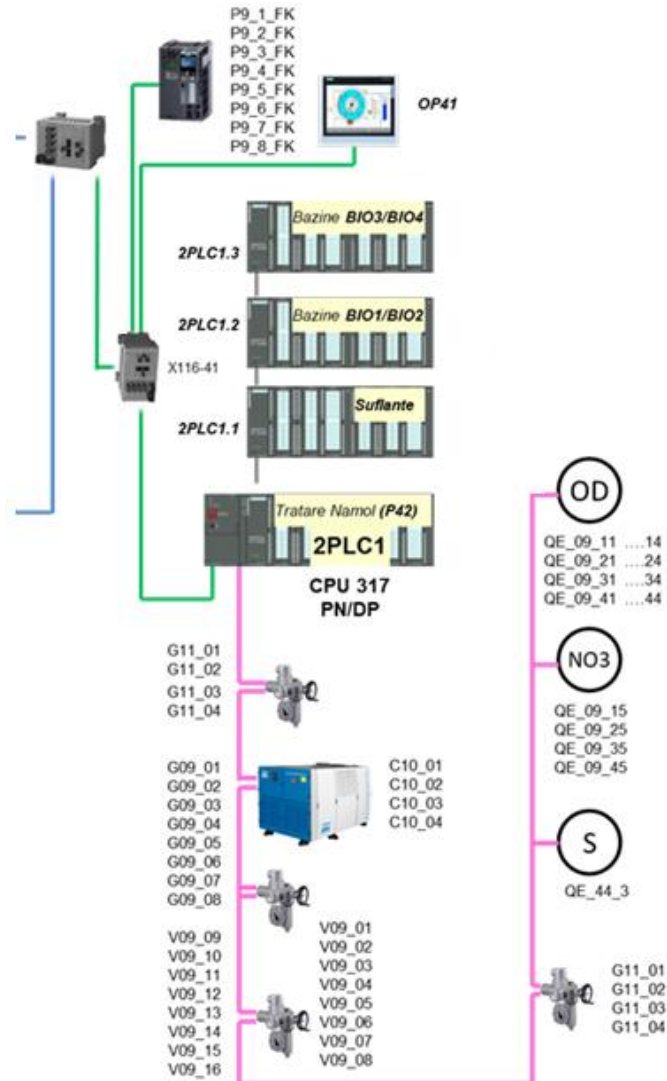
Command	Operator Status	Electrical Status
<input type="button" value="AUTOMAT"/> <input type="button" value="START"/> <input type="button" value="MANUAL"/> <input type="button" value="STOP"/> <span style="color: green; font-weight: bold; font-size: 24px;">M</span>	<input type="checkbox"/> Emergency Stop <input type="checkbox"/> Drive Fault <input type="checkbox"/> Fault Not Start  <input type="checkbox"/> Local <input checked="" type="checkbox"/> Remote <input checked="" type="checkbox"/> Automat Mode <input checked="" type="checkbox"/> Motor On	<input checked="" type="checkbox"/> Drive ready <input checked="" type="checkbox"/> Drive ready to run <input checked="" type="checkbox"/> Drive running <input type="checkbox"/> Drive fault active <input type="checkbox"/> OFF2 active <input type="checkbox"/> OFF3 active <input type="checkbox"/> On inhibit active <input type="checkbox"/> Drive warning active <input type="checkbox"/> Deviation setpoint <input checked="" type="checkbox"/> PZD control <input type="checkbox"/> Max frequency reached <input type="checkbox"/> Motor current limit <input type="checkbox"/> Motor holding brake On <input type="checkbox"/> Motor overload <input checked="" type="checkbox"/> Motor runs right <input type="checkbox"/> Inverter overload
Freq. SP Auto: <b>38.25 Hz</b> Actual Freq: <b>38.24 Hz</b> I Actual: <b>67.52 A</b> Working Time: <b>483 h</b> Number Starts: <b>11</b>		
<input type="button" value="RESET Working Time"/>		
<input type="button" value="ACK"/> <input type="button" value="RESET"/>		



# Pumping Station



# Biological Reactors

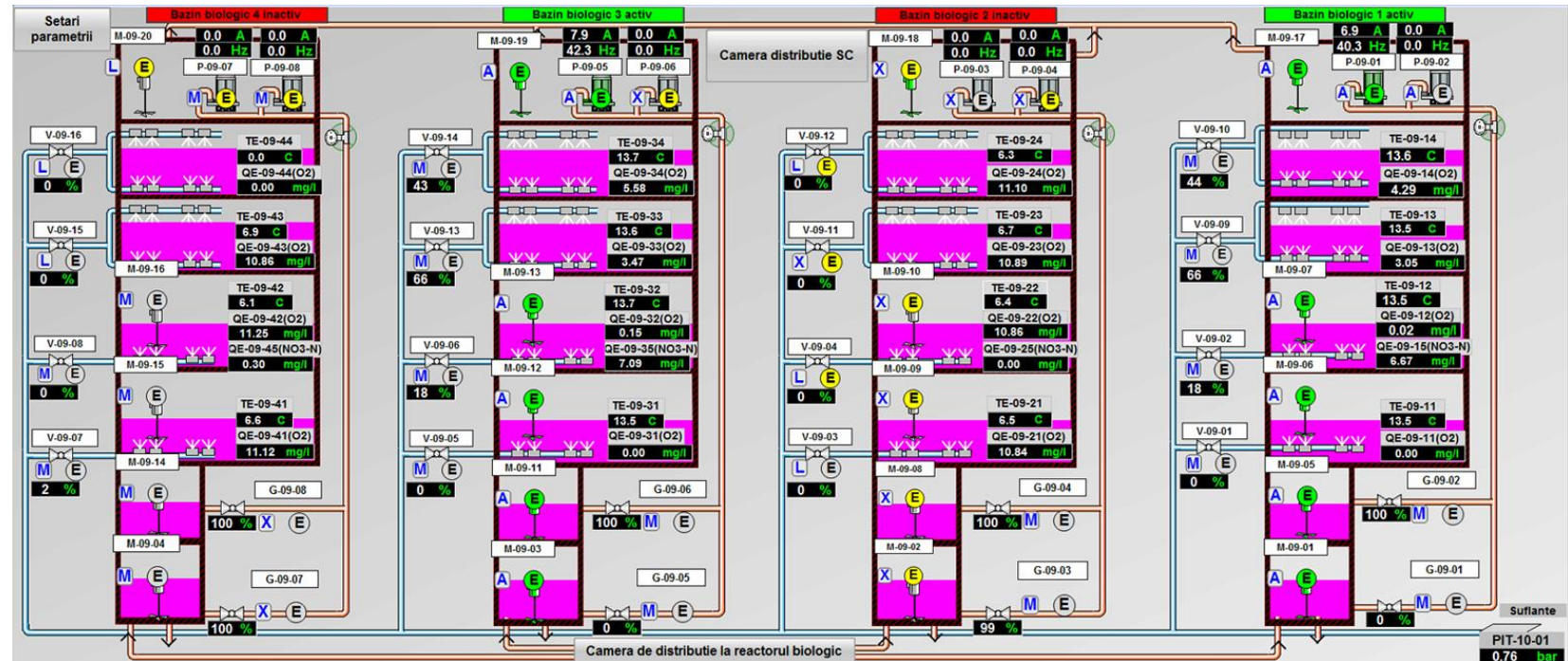


**V-09-10**

Command	Operator Status	Electrical Status
<div style="display: flex; justify-content: space-around;"> <span>AUTOMAT</span> <span>OPEN</span> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <span style="background-color: green; color: white; padding: 2px 5px;">MANUAL</span> <span style="background-color: green; color: white; padding: 2px 5px;">STOP</span> </div> <div style="text-align: center; margin-top: 10px;"> <span>CLOSE</span> </div>	<input type="checkbox"/> General Fault <input type="checkbox"/> Fault Not Move <input type="checkbox"/> Fault Not Open <input type="checkbox"/> Fault Not Closed  <input type="checkbox"/> Automat Mode <input checked="" type="checkbox"/> Remote <input type="checkbox"/> Local	<input type="checkbox"/> Open <input type="checkbox"/> Close <input type="checkbox"/> SetPoint Reached <input type="checkbox"/> Not Ready <input type="checkbox"/> Opening <input type="checkbox"/> Closing <input type="checkbox"/> Warning <input type="checkbox"/> Fault <input type="checkbox"/> Thermal Fault <input type="checkbox"/> One Phaze Missing <input checked="" type="checkbox"/> Remote Mode <input type="checkbox"/> Local Mode <input type="checkbox"/> Limit Switch Open <input type="checkbox"/> Limit Switch Closed <input type="checkbox"/> Torque Switch Open <input type="checkbox"/> Torque Switch Closed

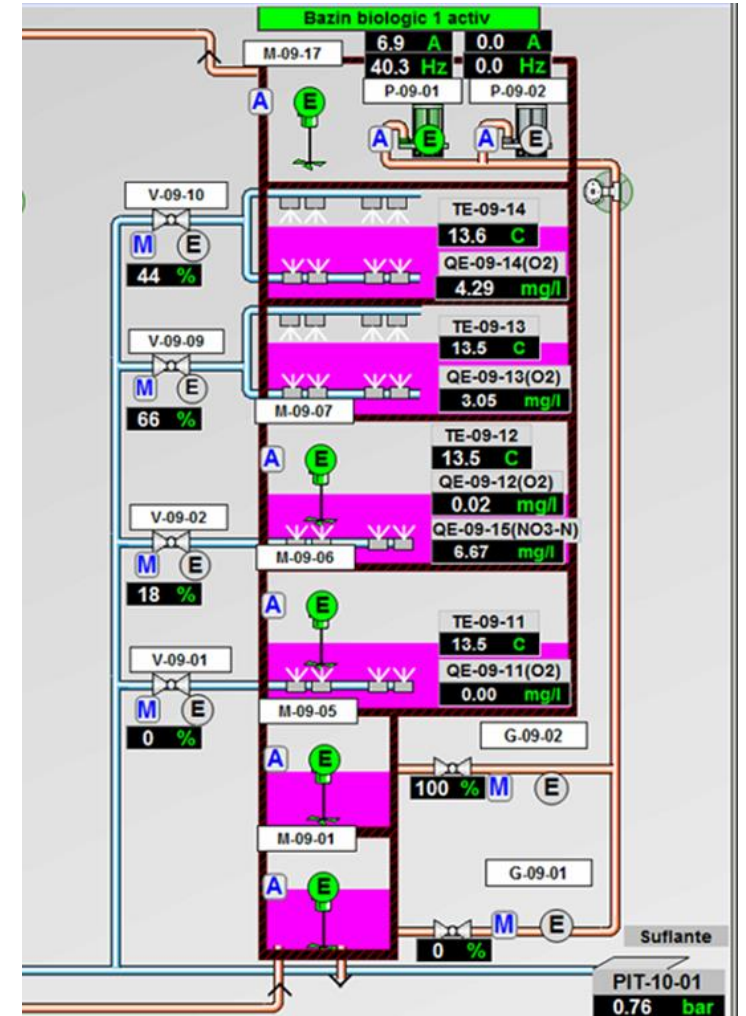
Position : 44%

ACK
RESET

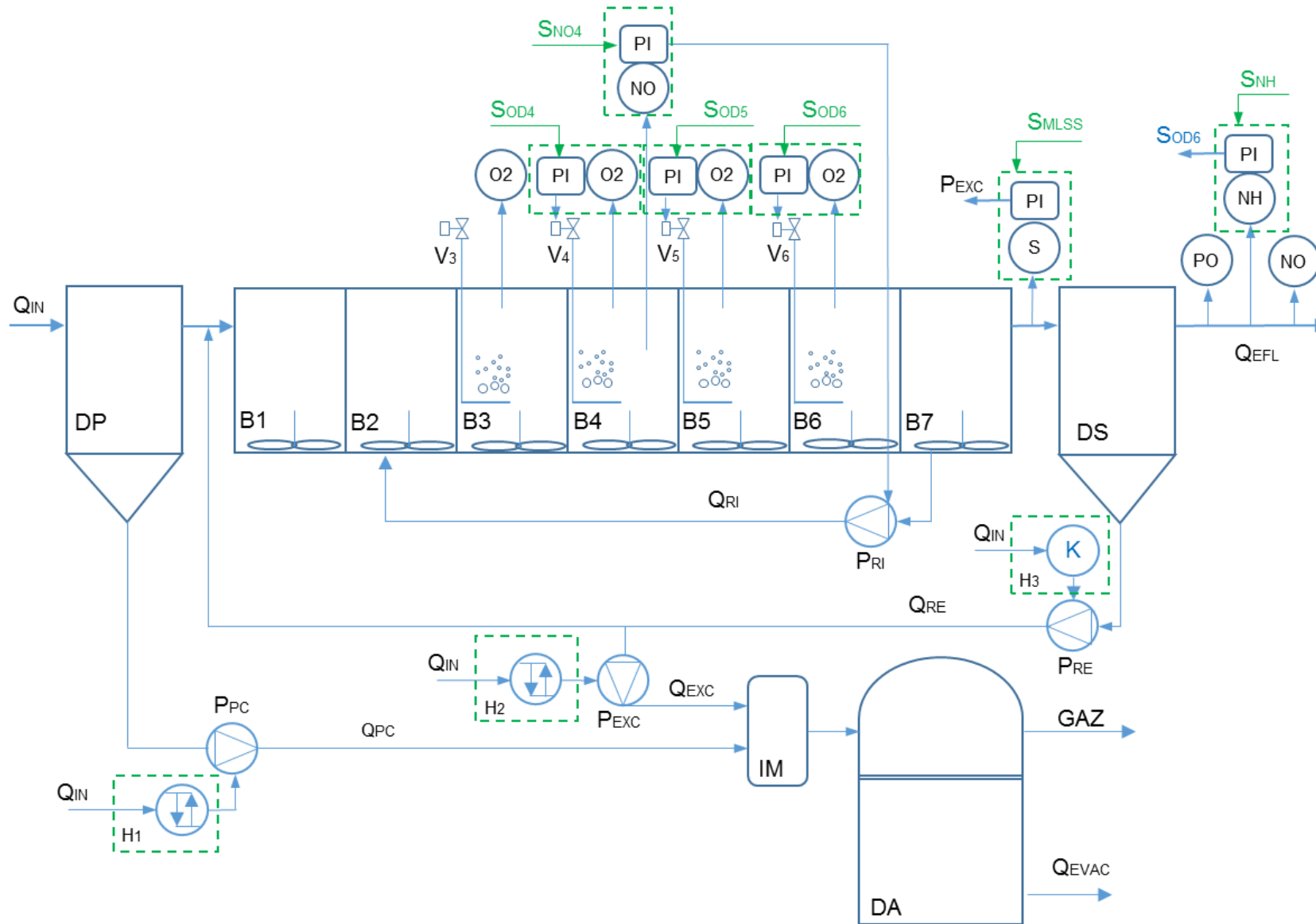




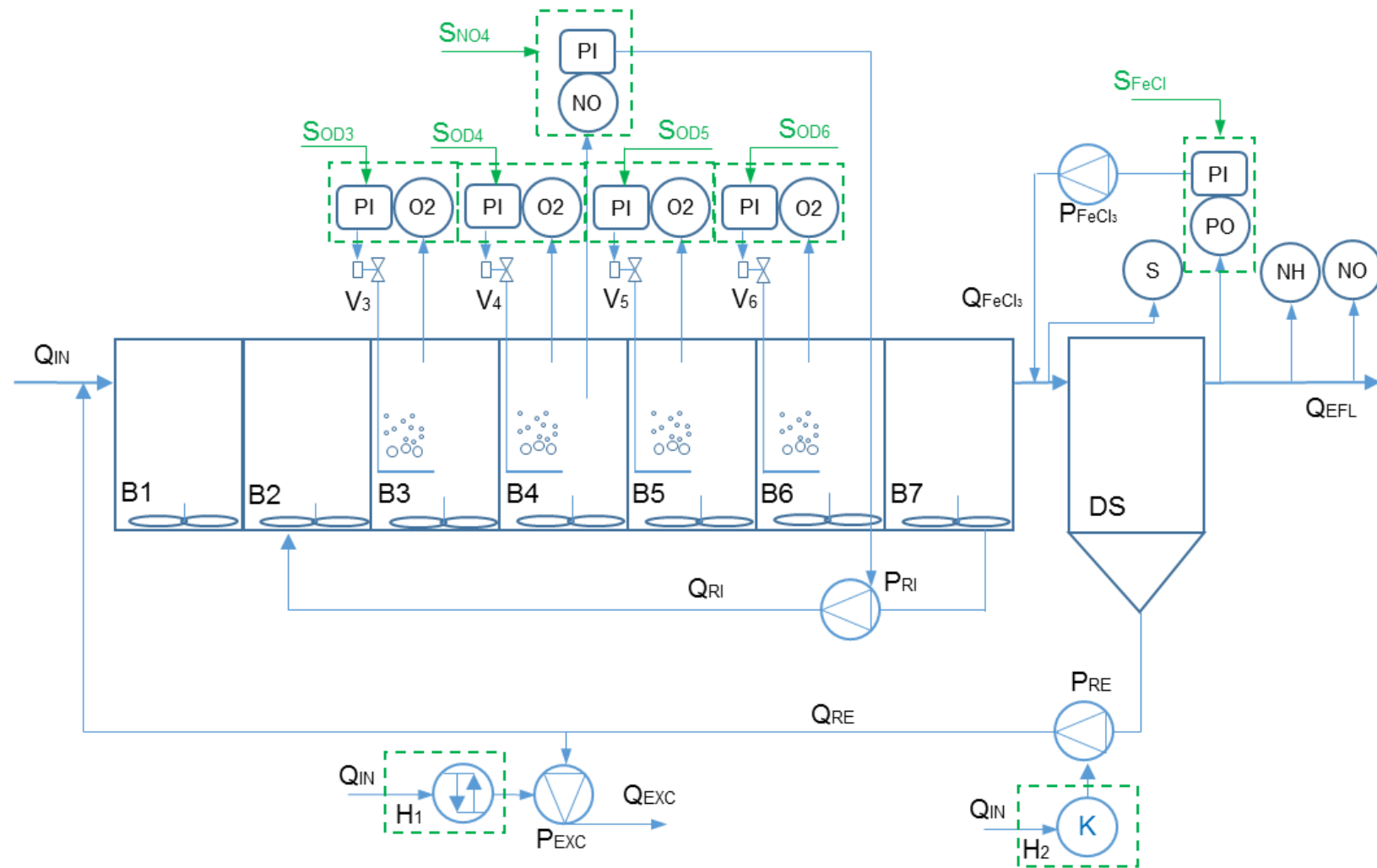
# Biological Reactors



# Control strategies for organic matter and nitrogen removal



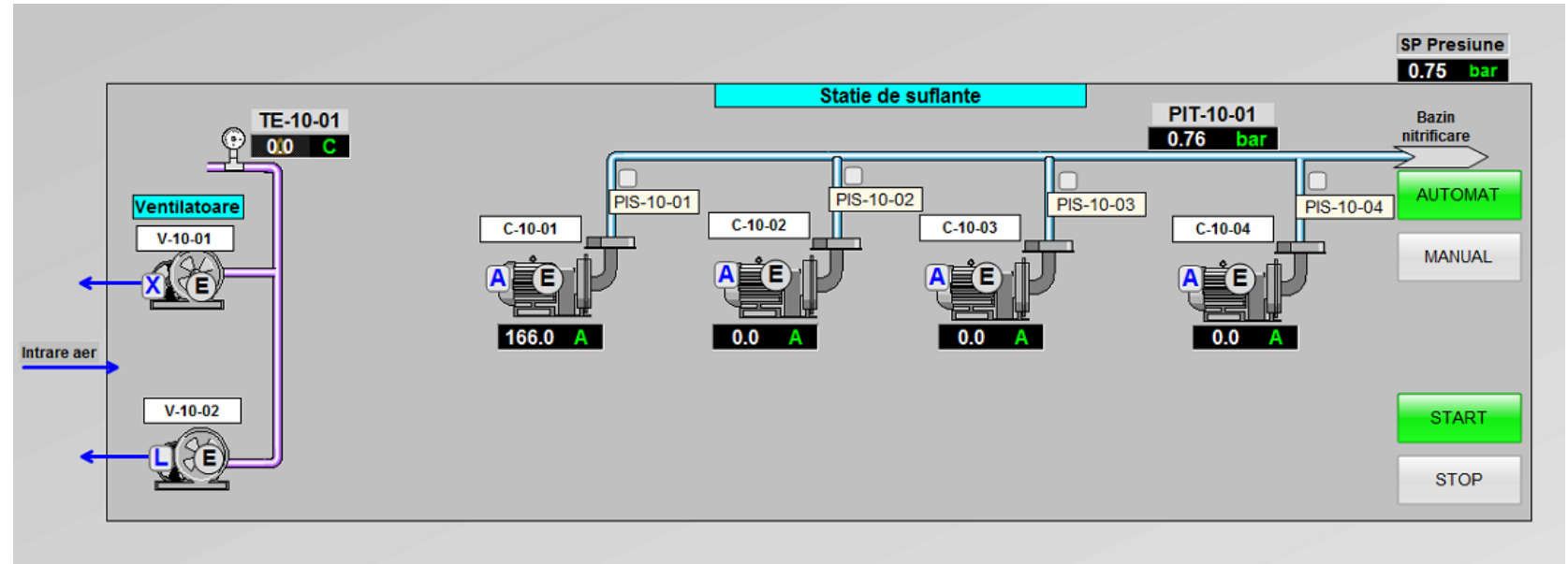
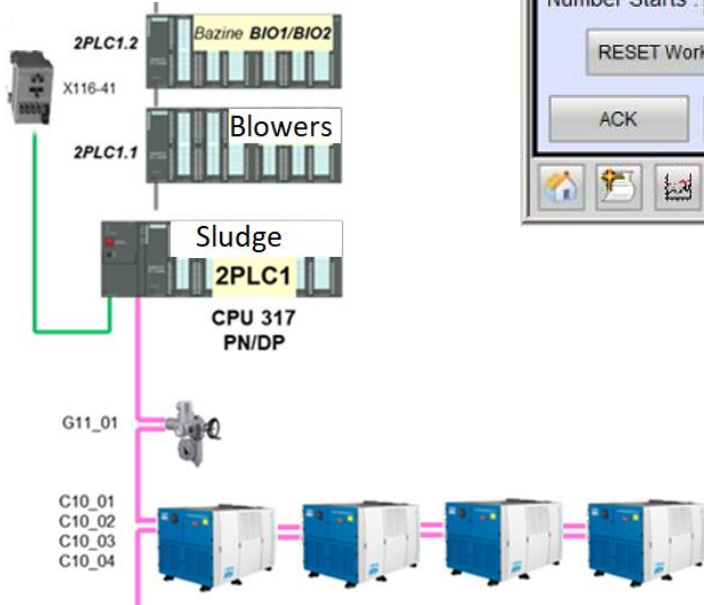
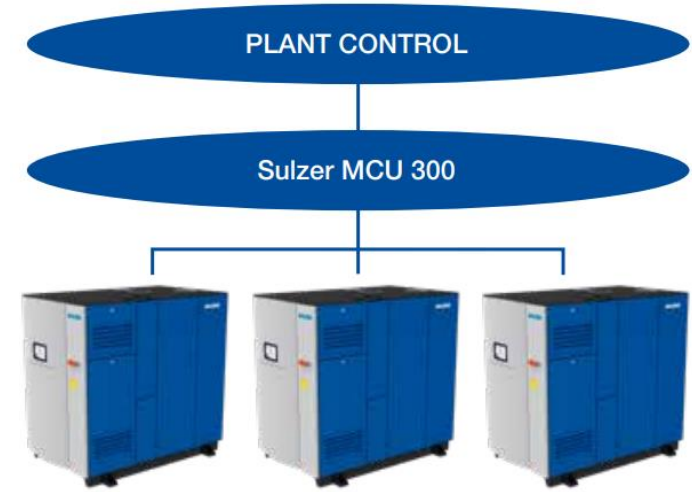
# Control strategies for phosphorus removal



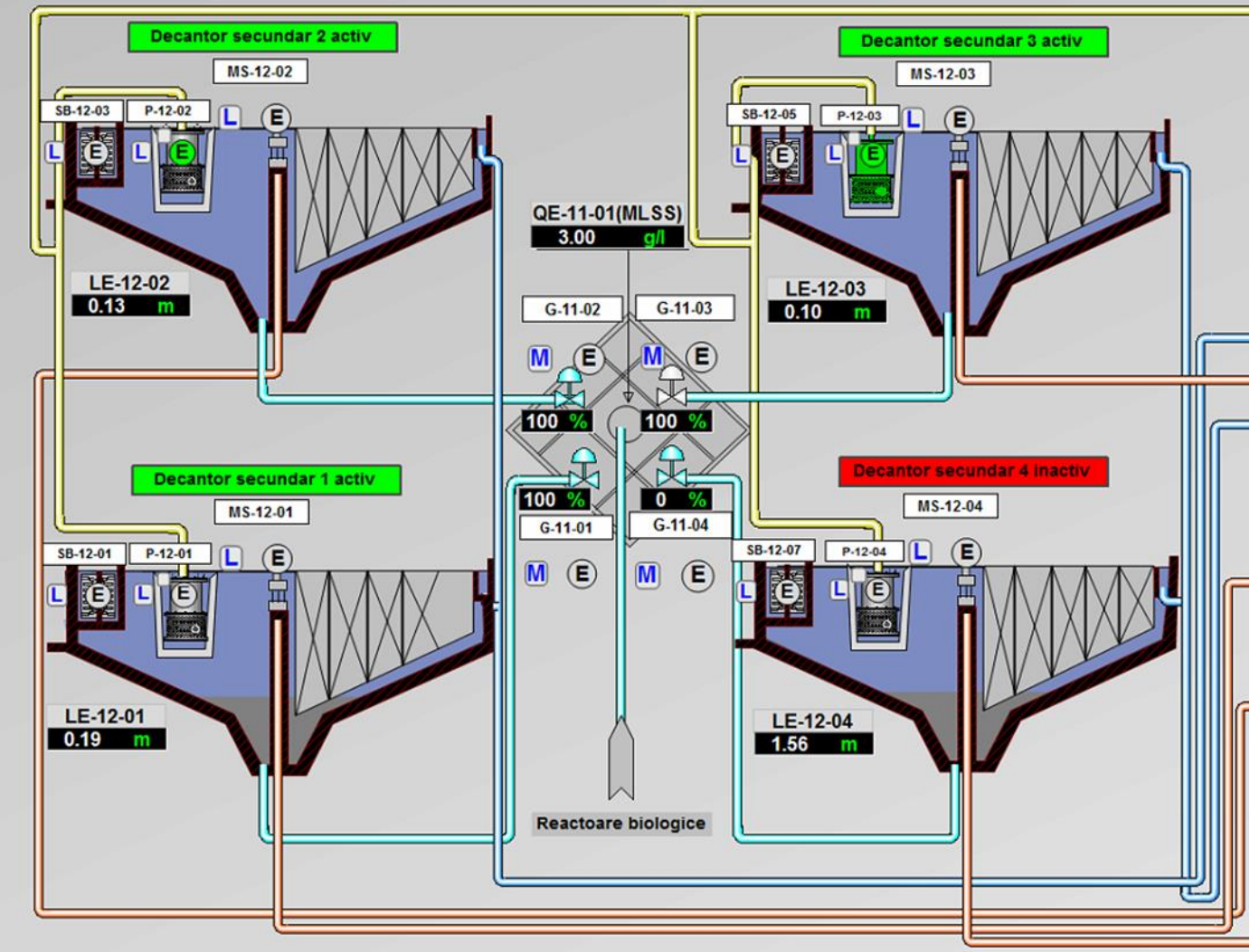
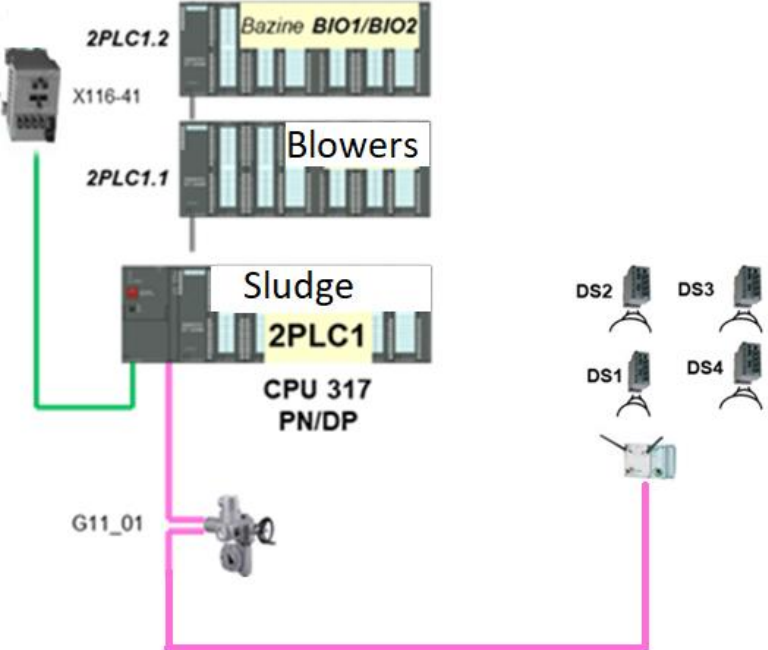
# Blowers

**C-10-01**

Command	Operator Status	Electrical Status
<input type="button" value="AUTOMAT"/> <input type="button" value="START"/> <input type="button" value="MANUAL"/> <input type="button" value="STOP"/> <input checked="" type="radio"/> M	FlowVolume : <b>52.2 %</b> In.Press : <b>1.0 bar</b> Out.Press : <b>1.8 bar</b> Mot.Temp : <b>66 C</b> Unit.Temp : <b>34 C</b> In. Air Temp : <b>11 C</b> Mot.Power : <b>1175 Kwh</b> Fault Code : <b>100</b> Alarm Code : <b>0</b>	<input checked="" type="checkbox"/> Running <input checked="" type="checkbox"/> Auto Control <input checked="" type="checkbox"/> Ready <input type="checkbox"/> General Fault <input type="checkbox"/> Fault <input type="checkbox"/> Alarm <input type="checkbox"/> Comms Fault <input type="checkbox"/> Fail To Run <input checked="" type="checkbox"/> Profibus Ctrl <input type="checkbox"/> Next To Start <input checked="" type="checkbox"/> Next To Stop <input type="checkbox"/> Blow OFF Valve <input type="checkbox"/> Local <input type="checkbox"/> Remote <input checked="" type="checkbox"/> Automat Mode
Freq : <b>278.0 Hz</b> I actual : <b>164.0 A</b> Working Time : <b>217 h</b> Number Starts : <b>36</b> <input type="button" value="RESET Working Time"/>		
<input type="button" value="ACK"/> <input type="button" value="RESET"/>		



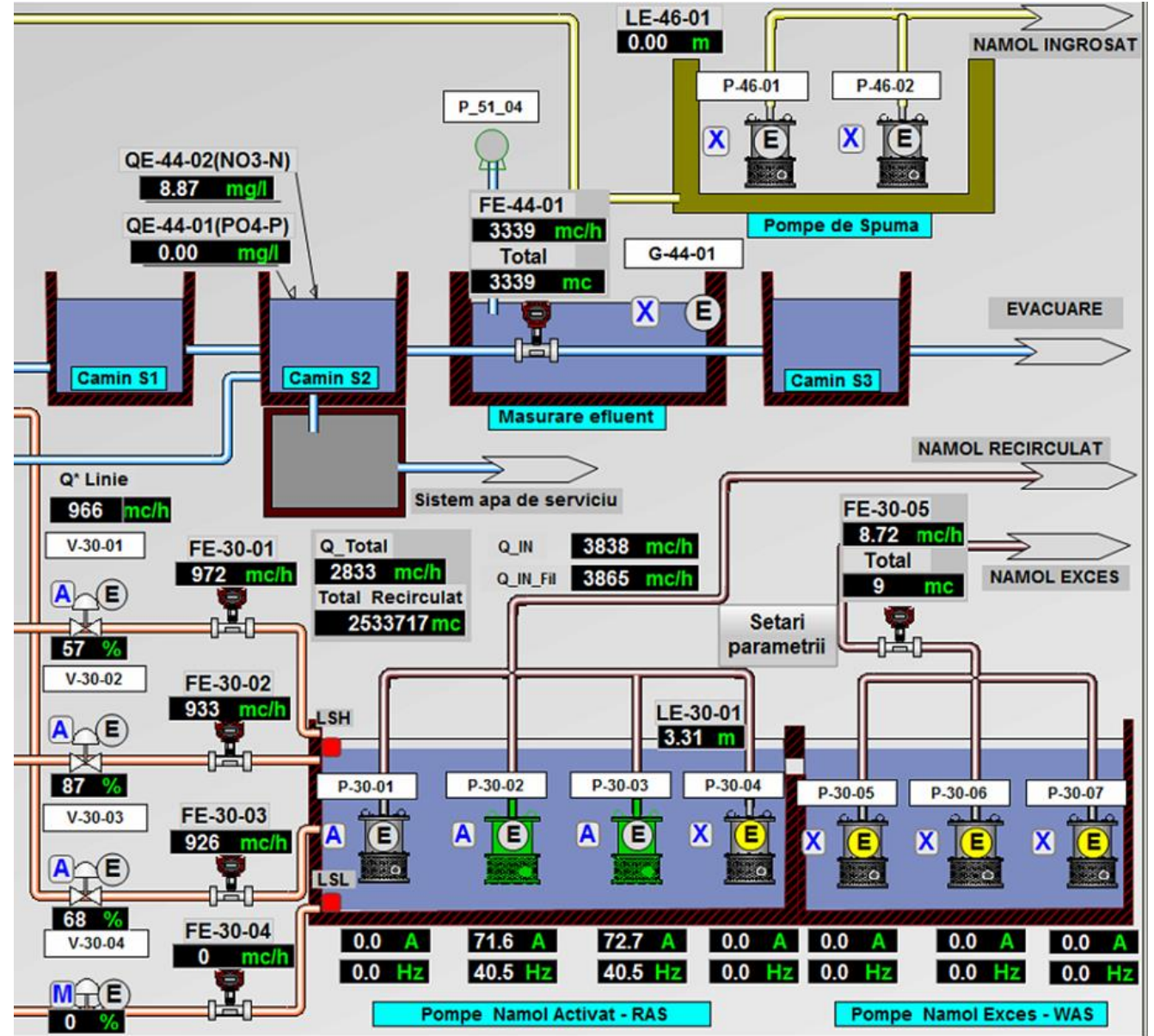
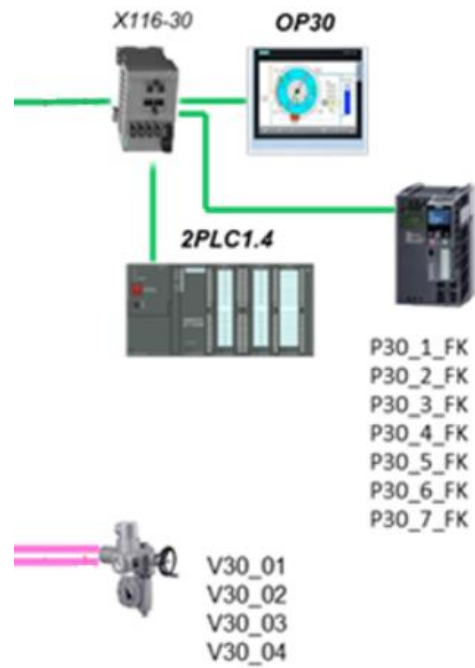
# Secondary Clarifiers



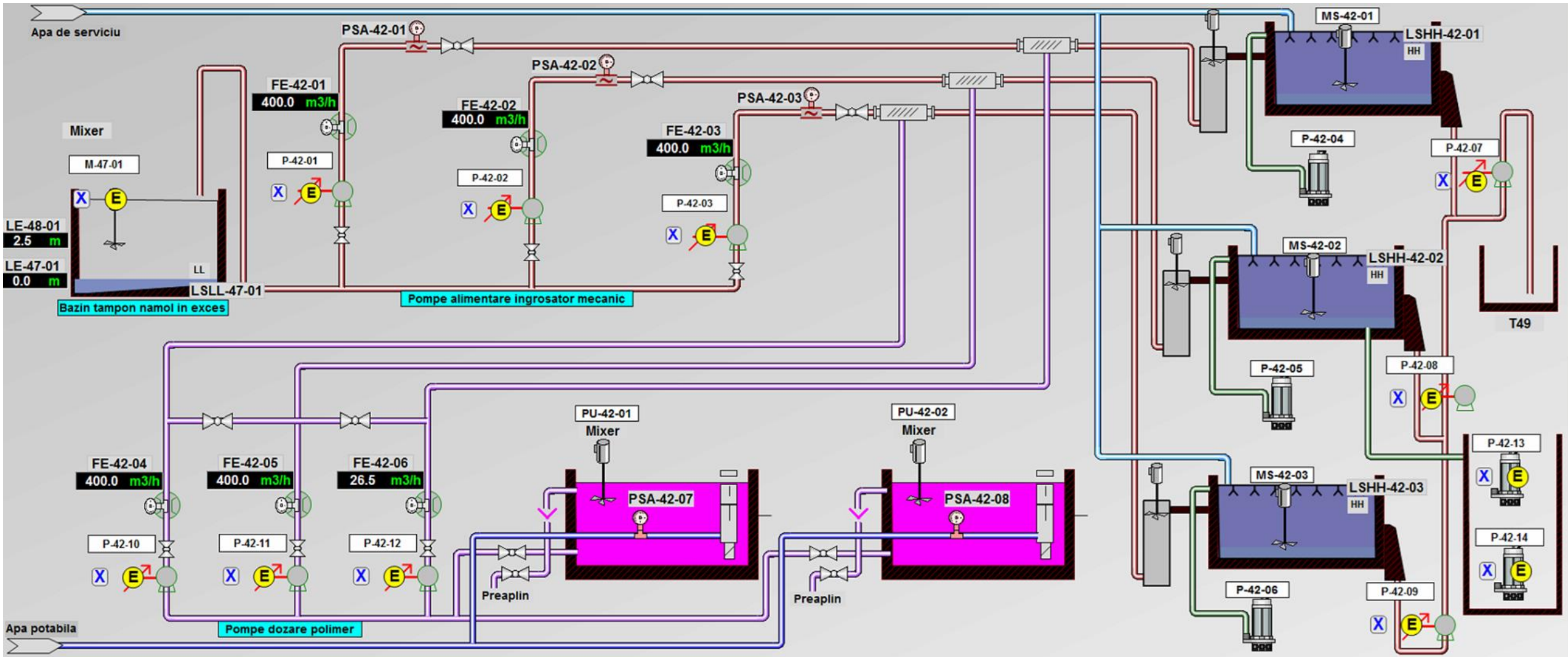
# Secondary Clarifiers



# Sludge Recirculation / Excess

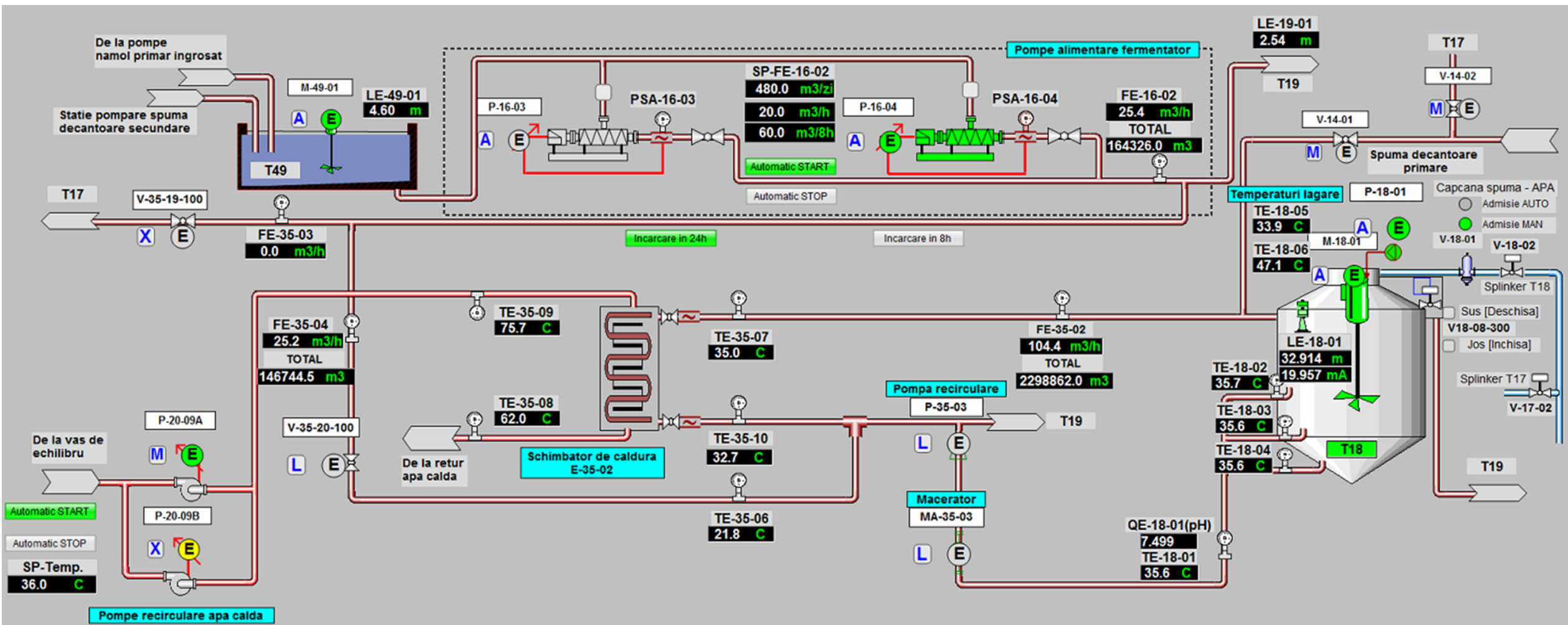


# Sludge thickening

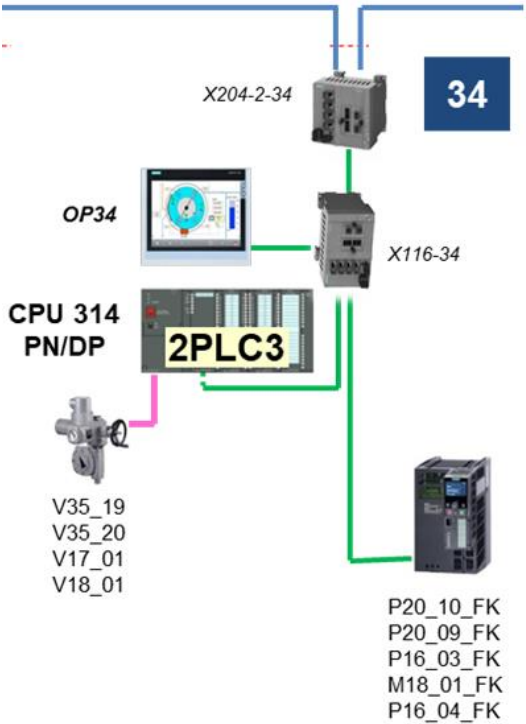




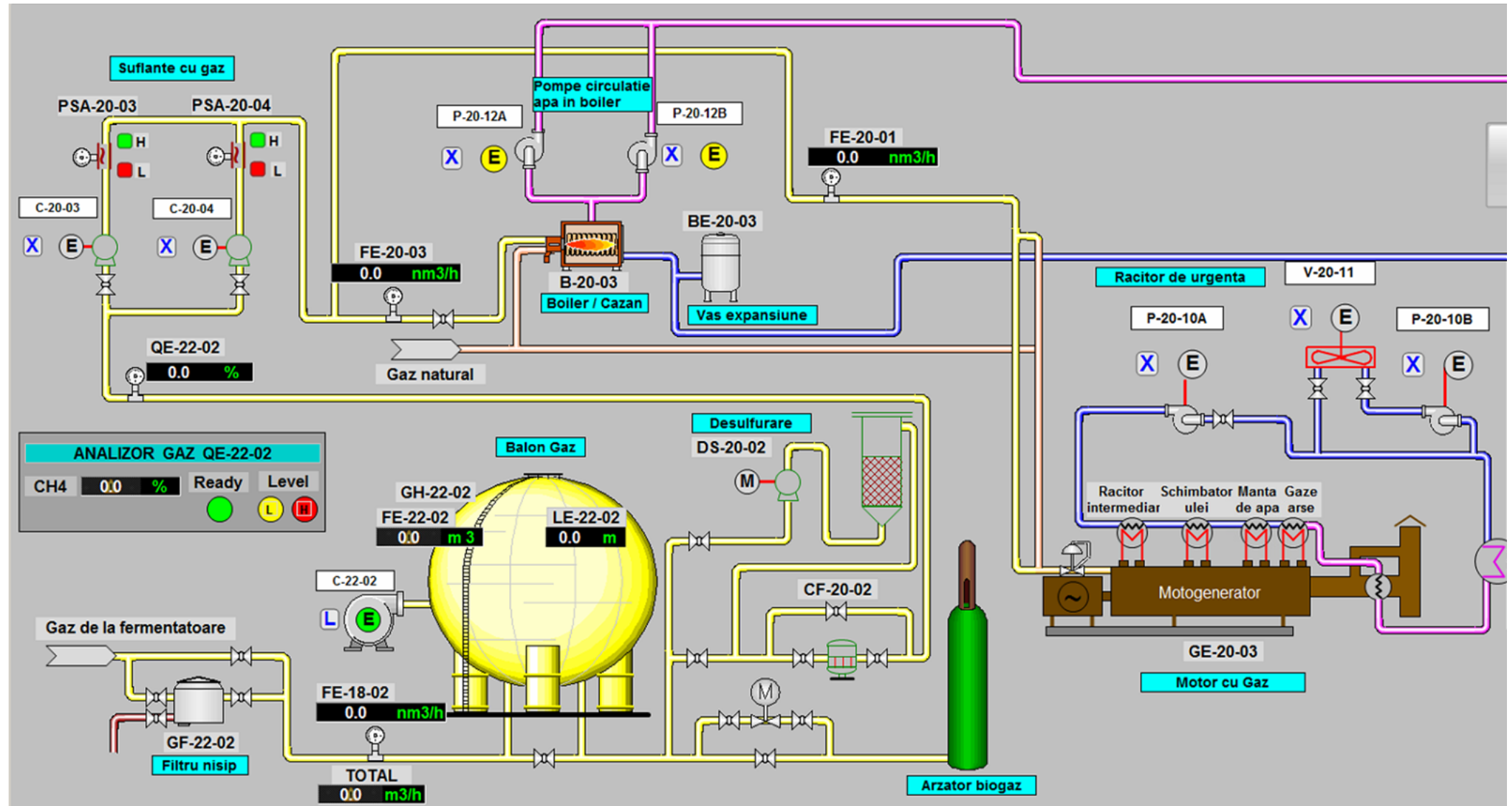
# Anaerobically Digestors



# Anaerobically Digestors

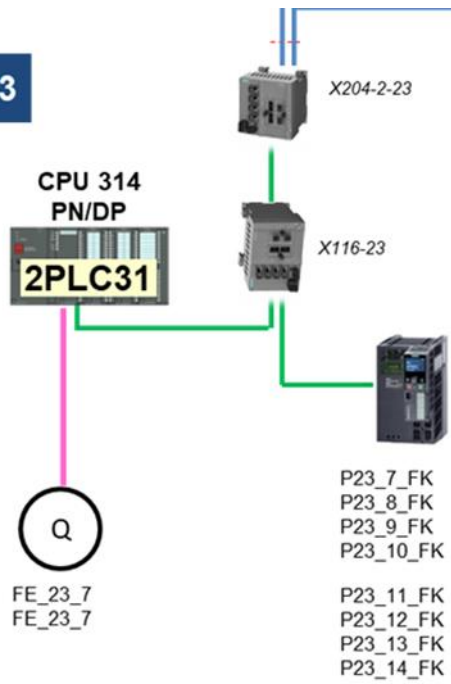


# Biogas

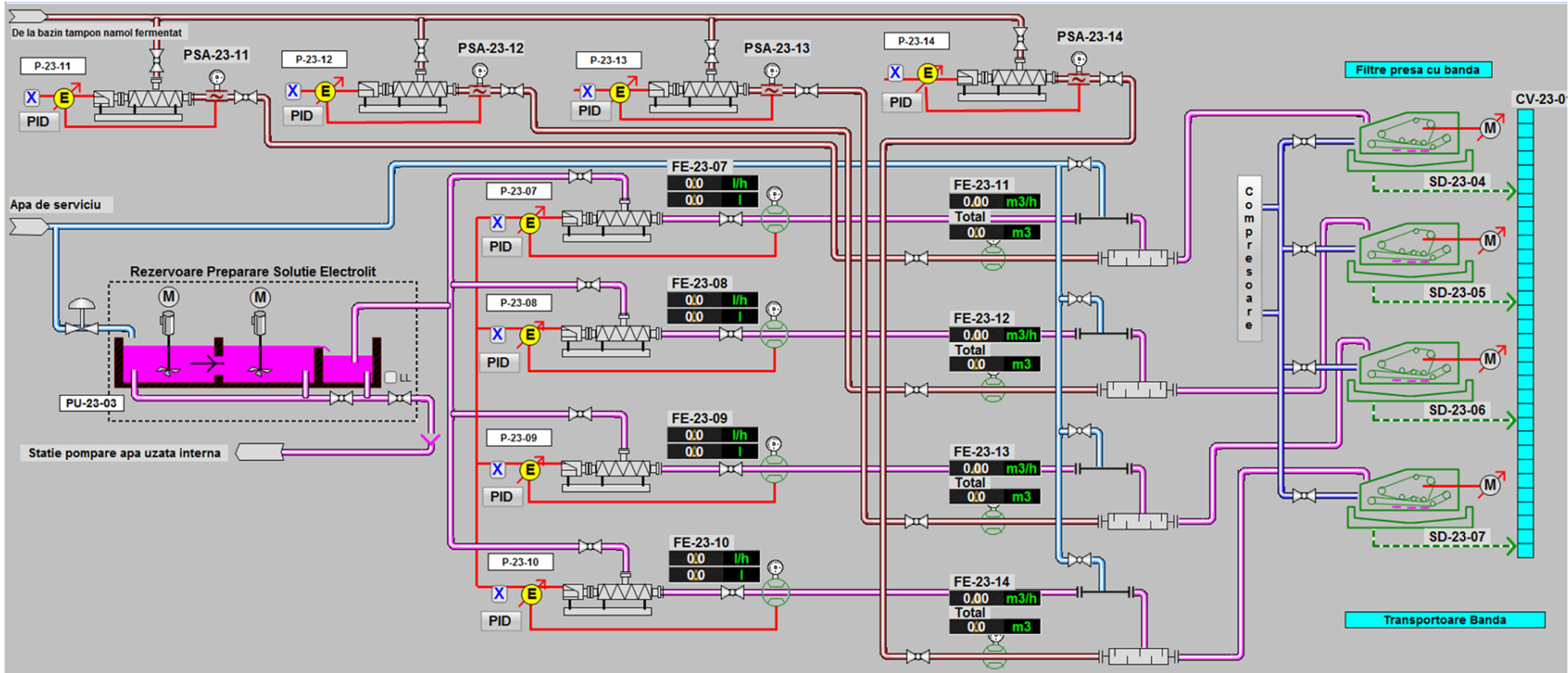


# Biogas

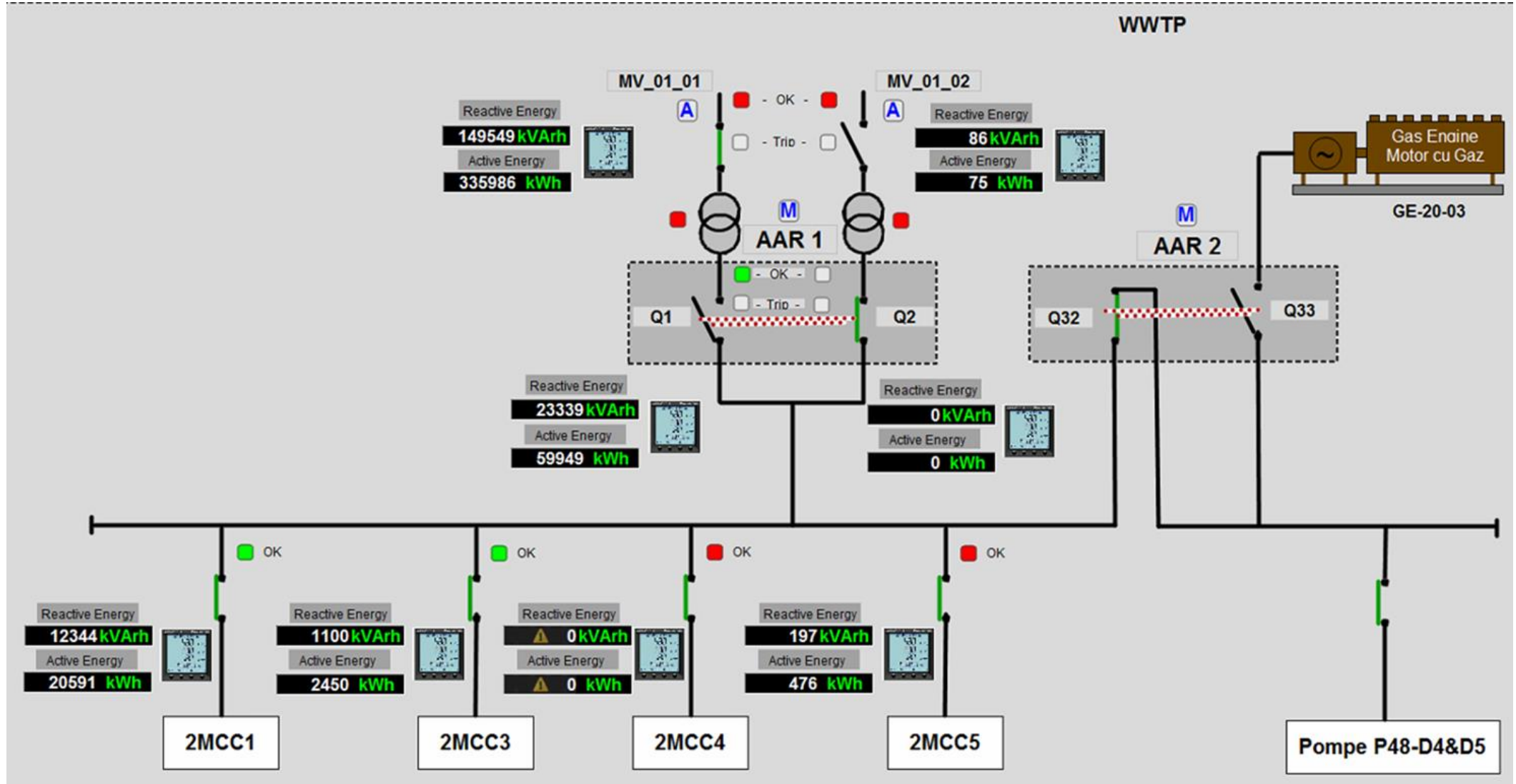
23



# Dewatering Sludge



# Power Distribution



# Power meter





Digertor anaerob

