

TS-D Series

Eight Pumps Deaerator, Surge, or Condensate Control Panel, or Combination Deaerator/Surge or Deaerator/Condensate Panel, For Up to Four Groups



Description

A TS-... series control system manages lead/lag operation of an individual deaerator (DA), DA two separate feedwater manifolds, surge, condensate, or a combination DA/Surge, DA/Condensate tank with up to eight pumps and up to four groups of feedwater and/or transfer pumps.

Each TS-... control system includes a preprogrammed 10" touchscreen, a programmable logic controller (PLC), and digital and analog signal inputs and outputs for monitoring and control.

Flexible communication interface options to the building management system (BMS) provide streamlined data collection and monitoring.

Application

TS-... control systems are suited for deaerator, surge, condensate, or combination deaerator and surge/condensate tank systems, pump control, and other feedwater or transfer pump systems with water level control applications.

Features

- Control an individual deaerator, surge, condensate, or combination deaerator and surge/condensate tank, up to four groups, with the ability to manage a separate deaerator and a surge or condensate tank with one TS-D series control panel
- PLC based control with touchscreen HMI
- Hand-Off-Auto selection switches provide continuous operation in the events of PLC and touchscreen downtime
- Graphics for individual pumps and automatically configured overview screen
- Monitor pump operation via current switches with starter control and via VFD feedback with VFD control
- Lead or lag the pumps based on feedwater pressure setpoints
- Lead lag the feedwater and or the transfer pumps for four groups of pumps, based on four sperate pressure setpoints, and four separate lead lag PID control
- Lead or lag the feedwater pumps based on boiler header pressure, plus an offset setpoint
- Lead lag the pumps based on a transfer pressure setpoint
- Rotate feedwater and transfer pumps based on real clock run time hours
- Start or stop the feedwater pumps based on boiler float start signal
- Control condensate tank with pumps OFF to fill and Pumps ON to transfer.
- Provide deaerator/surge tank warning, alarms, and status.
- Provide high or low feedwater or transfer water pressure alarms
- Provide a chemical pump On/Off output control
- Provide high and low water alarm from the RWF55 if float control not installed
- Provide an alarm output for external use
- Maintain 2 feedwater and 2 transfer pump manifold pressures with separate Lead Lag PID controls
- Maintain and control the deaerator/surge tank water levels vial PLC, RWF55, or PLC control and redundant RWF55, or RWF55 main and RWF55 backup control.

- Monitor high, low and low/low water level float status
- Monitor DA steam pressure and provide steam pressure control via PLC or RWF55.
- Control make-up water and transfer valves
- Control pumps ON/OFF via motor starters, or modulate with variable frequency drives (VFDs)
- Clear English text for alarms
- Modbus TCP/IP, Modbus RTU RS485, BACnet/IP, BACnet MS/TP standard for BMS interface
- Trending
- Data logging
- Alarm emailing

Standard Components System- Dependent

TS-... control systems include the following components:

- Preprogrammed 10" touchscreen
- Programmable logic controller (PLC)
- Up to 10 analog inputs (4-20mA or 0-10V)
- Up to 9 analog outputs (4-20mA or 0-10V)
- 4 RTD inputs (1000 Ω)
- 4-20ma temperature measurement with RTD to 4-20ma converters
- Hand-Off-Auto pump control switches
- Main 120 VAC power disconnect
- Alarm horn
- 24 VDC power supply and branch circuit protection
- Control power ON/OFF switch
- Pumps control switch
- Alarm reset/silence push button
- Pump control relays
- Chemical feed relays for all groups
- External alarm output relay
- 40 VAC transformers for SKB/C/D water level actuators
- PLC Based water level controllers with optional RWF55.50A9 loop controller for Backup DA, Surge, Condensate water level, and PLC based pressure control with optional RWF55.50A9 loop controller for Backup pressure control
- Building management communications to most building management systems
- Optional 3 phase control panel for starter control or VFD Control

Deaerator, Surge and Condensate Tanks Groups Designation

Tank 1	Group Designation		Tank 2	Group Designation
DA	D		DA	D
DA/DA	DD		DA/DA	DD
Surge	S		Surge	S
Surge/Surge	SS		Surge/Surge	SS
Condensate	C		Condensate	C
DA/Surge	DS		DA/Surge	DS
DA/DA/Surge	DDS		DA/DA/Surge	DDS
DA/Surge/Surge	DSS		DA/Surge/Surge	DSS
DA/DA/Surge/Surge	DDSS			

Group Letter Designation	Name	Groups Description
D	DA	(Designation "D") Single Deaerator tank, with 1 groups of feed water pumps, One feed water pressure setpoint control, one feedwater pressure transmitter with optional header pressure transmitter, one lead lag PID based routine
2	DA/DA	(Designation "DD") Single Deaerator tank, with 2 groups of pumps, two feed water pressure setpoints control, two separate feedwater pressure transmitters, two separate lead lag PID based routines
S	Surge	(Designation "S") Single Surge tank, with 1 group transfer pumps, one transfer pressure setpoint control, one transfer pressure transmitter, one lead lag PID based routine.
B	Surge/Surge	(Designation "SS") Surge tank, with 2 groups of pumps, two transfer pressure setpoints control, two separate transfer pressure transmitters, two separate lead lag PID based routines.
C	Condensate	(Designation "C") Single Condensate tank, control method is, stop the pumps to fill, start the pumps to empty. Lag pumps start setpoint based on the water level with the lead pump running, stop the lag pumps with timer, and after minimum run time timer expires.
E	Deaerator/ Surge	(Designation "DS") Single or Dual Deaerator/Surge tanks, with 2 groups of pumps. Group 1, one feedwater pressure setpoint control, with Lead Lag, one PID loop control, one feedwater pressure transmitters. Surge, group 2, one transfer pressure setpoint control, with lead lag, one PID loop control, and one transfer pressure transmitter.
F	DA/DA/Surge	(Designation "DDS") Single Deaerator/Surge tank, or Dual DA/Surge tanks, with 3 groups of pumps, 2 feedwater groups, one transfer group, two feed water pressure setpoints control, two separate feedwater pressure transmitters, two separate lead lag PID based routines, and Single surge tank, with 1 group transfer pumps, one transfer pressure setpoint control, on transfer pressure transmitter, with one lead lag PID based routine.

Groups Designation (continues)

H	DA/Surge/Surge	(Designation "DSS") Single Deaerator/Surge tank, or Dual DA/Surge tanks, with 3 groups of pumps, 2 feedwater groups, one transfer group, two feed water pressure setpoints control, two separate feedwater pressure transmitters, two separate lead lag PID based routines, and Single Surge tank, with 1 group transfer pumps, one transfer pressure setpoint control, on transfer pressure transmitter, one lead lag PID based routine.
G	DA/DA/Surge/Surge	(Designation "DDSS") Single Deaerator/Surge tank, or Dual DA/Surge tanks, with 4 groups of pumps, 2 feedwater groups, two transfer groups, two feed water pressure setpoints control, two separate feedwater pressure transmitters, two separate lead lag PID based routines, with 2 group transfer pumps, two transfer pressure setpoints control, two separate transfer pressure transmitters, two separate lead lag PID routines

Groups selection example for one tank				
One tank (Split tank) DDSS (DA 2 groups/Surge 2 groups)	DDSS			
4 separate selection groups	D	D	S	S
Groups allocation	Group 1	Group 2	Group 3	Group 4
Number of pumps per group	2 Pumps	2 Pumps	2 Pumps	2 Pumps
Starter or VFD with the pumps quantities selection for each group	Starter or VFD Control	Starter or VFD Control	Starter or VFD Control	Starter or VFD Control
Total number of pumps must equal 8 or less	2	2	2	2

Groups selection example for two tanks				
Two tanks (Dual tanks) DD-SS (DA 2 groups/Surge 2 groups)	DD		-	SS
4 separate selection groups	D	D	S	S
Groups allocation	Group 1	Group 2	Group 3	Group 4
Number of pumps per group	2 Pumps	2 Pumps	2 Pumps	2 Pumps
Starter or VFD with the pumps quantities selection for each group	Starter or VFD Control	Starter or VFD Control	Starter or VFD Control	Starter or VFD Control
Total number of pumps must equal 8 or less	2	2	2	2

Analog Inputs Accountability and Availability Table

Additional Analog and RTD Inputs for Field Use and Totalization								
Each additional analog inputs module contains four analog inputs.								
Groups *	Quantity of Tanks	Tank Name	Quantity of the Standard Included Analog Inputs	Quantity of the Standard Included RTD Inputs	Analog Inputs Potential Field Utilization	Standard Analog Inputs Available for Field Use and Totalization	Additional Available Analog Inputs That Could Be Added	Additional RTD Inputs That Could be Added for Field Use for Temperature Monitoring
1	1	DA or Surge	2	0	Feedwater pressure or transfer pressure	0	8	4
		or Condensate			Tank pressure, or PLC water level DP transmitter			
1	1	DA or Surge or Condensate	6	0	Feedwater or transfer pressure	2	4	4
		and one PLC water level			Tank pressure Tank temperature with RTD with 4-20 ma transmitter, PLC water level DP transmitter			
2	1 or 2	DA / Surge / Condensate, combination DA/Surge, Surge/ Condensate, DA/Condensate, Two Groups DA/DA , Surge/Surge, Condensate/Condensate	6	0	Feedwater pressure	0	4	4
					Transfer pressure			
					Tank pressure			
					Tank temperature with RTD with 4-20 ma transmitter			
					PLC water level DP transmitter group 1			
PLC water level DP transmitter group 2								
3	1 or 2	DA / Surge / Condensate, Combination DA/Surge, Combination Surge Condensate	10	0	Feedwater pressure	3	0	4
					Transfer pressure			
					Tank pressure			
					Tank temperature with RTD with 4-20 ma transmitter			
					PLC water level DP transmitter group 1			
					PLC water level DP transmitter group 2			
					PLC water level DP transmitter group 3			
4	1 or 2	DA / Surge / Condensate, Combination DA/Surge, Combination Surge Condensate	10	0	2 feedwater pressures	0*	0	4
					2 Transfer pressures			
					Tank pressure			
					Tank temperature with RTD with 4-20 ma transmitter			
					PLC water level DP transmitter group 1			
					PLC water level DP transmitter group 2			
					PLC water level DP transmitter group 3			
PLC water level DP transmitter group 4								

* = Substitute PLC water level with RWF55 to free up the analog inputs if must have for totalization.

Specifications

Physical characteristics	Main power	10" Touchscreen 120 VAC
	Touchscreen power	24 VDC
	Power consumption	≤ 294 W
	Dry contacts	2 Amps
Operating environment	Operating temperature	32 to 131 °F [0 to 55 °C]
	Humidity	Max. 85% with no condensation
	NEMA rating	
	-Standard	NEMA 1
-Optional	NEMA 12/NEMA 4X (Indoor)	

Product Part Numbers

TS	D	0	4	S	E	X	D	4	X	X	X	2	2	2	2	B	X	A	E	A	X
Touchscreen																					
DA/SRG/COND Series																					
Touchscreen size																					
0 = 10" touchscreen																					
Enclosure																					
1 = NEMA 1 A = NEMA 1, with cooling fan																					
2 = NEMA 12 B = NEMA 12, with cooling fan/filters																					
4 = NEMA 4X (Indoor)																					
C = NEMA 4X, with cooling fan/shrouds (Indoor)																					
BMS Communication																					
S = Standard, Modbus TCP/IP and RTU RS485/BACnet/IP and																					
M = Johnson Metasys N2																					
Tank One Type (Maximum 4 groups with or without tank 2)																					
D = Deaerator (D) S = Surge (S)																					
A = Deaerator 2 groups (DD) B = Surge 2 groups (SS)																					
E = Deaerator/Surge (DS) C = Condensate (C)																					
F = Deaerator 2 groups/Surge (DDS) H = Deaerator/Surge 2 groups (DSS)																					
G = Deaerator two groups, surge two groups (DDSS)																					
Tank Two Type (Maximum 3 groups with or without tank 1)																					
X = No second tank S = Surge (S)																					
D = Deaerator (D) B = Surge 2 groups (SS)																					
A = Deaerator 2 groups (DD) C = Condensate (C)																					
E = Deaerator/Surge (DS) F = Deaerator 2 groups/Surge (DDS)																					
H = Deaerator /Surge 2 groups (DSS)																					
Pumps Group 1																					
1 = 1 pump, controlled by motor starters A = 1 pump, controlled by VFDs																					
2 = 2 pumps, controlled by motor starters B = 2 pumps, controlled by VFDs																					
3 = 3 pumps, controlled by motor starters C = 3 pumps, controlled by VFDs																					
4 = 4 pumps, controlled by motor starters D = 4 pumps, controlled by VFDs																					
5 = 5 pumps, controlled by motor starters E = 5 pumps, controlled by VFDs																					
6 = 6 pumps, controlled by motor starters F = 6 pumps, controlled by VFDs																					
7 = 7 pumps, controlled by motor starters G = 7 pumps, controlled by VFDs																					
8 = 8 pumps, controlled by motor starters H = 8 pumps, controlled by VFDs																					
Pumps Group 2																					
X = No pumps																					
1 = 1 pumps, controlled by motor starters A = 1 pumps, controlled by VFDs																					
2 = 2 pumps, controlled by motor starters B = 2 pumps, controlled by VFDs																					
3 = 3 pumps, controlled by motor starters C = 3 pumps, controlled by VFDs																					
4 = 4 pumps, controlled by motor starters D = 4 pumps, controlled by VFDs																					
5 = 5 pumps, controlled by motor starters E = 5 pumps, controlled by VFDs																					
6 = 6 pumps, controlled by motor starters F = 6 pumps, controlled by VFDs																					
7 = 7 pumps, controlled by motor starters G = 7 pumps, controlled by VFDs																					
Pumps Group 3																					
X = No pumps																					
1 = 1 pumps, controlled by motor starters A = 1 pumps, controlled by VFDs																					
2 = 2 pumps, controlled by motor starters B = 2 pumps, controlled by VFDs																					
3 = 3 pumps, controlled by motor starters C = 3 pumps, controlled by VFDs																					
4 = 4 pumps, controlled by motor starters D = 4 pumps, controlled by VFDs																					
5 = 5 pumps, controlled by motor starters E = 5 pumps, controlled by VFDs																					
6 = 6 pumps, controlled by motor starters F = 6 pumps, controlled by VFDs																					
Pumps Group 4																					
X = No pumps																					
1 = 1 pumps, controlled by motor starters A = 1 pumps, controlled by VFDs																					
2 = 2 pumps, controlled by motor starters B = 2 pumps, controlled by VFDs																					
3 = 3 pumps, controlled by motor starters C = 3 pumps, controlled by VFDs																					
4 = 4 pumps, controlled by motor starters D = 4 pumps, controlled by VFDs																					
5 = 5 pumps, controlled by motor starters E = 5 pumps, controlled by VFDs																					
Tank 1 Water Level Controller																					
X = No water level control																					
1 = One PLC water level controller																					
2 = One RWF55 water level controller																					
3 = Two PLC water level controllers																					
4 = Two RWF55 water level controllers																					
5 = One RWF55 water level controller, and one RFW55 backup																					
6 = One PLC water level controller, and one RWF55 backup																					
7 = Two PLC water level controllers, and two RWF55 backup																					
8 = One PLC water level controllers, and one RWF55 water level controller																					
Tank 2 Water Level Controller																					
X = No water level control																					
1 = One PLC water level controller																					
2 = One RWF55 water level controller																					
3 = Two PLC water level controllers																					
4 = Two RWF55 water level controllers																					
5 = One RWF55 water level controller, and one RFW55 backup																					
6 = One PLC water level controller, and one RWF55 backup																					
7 = Two PLC water level controllers, and two RWF55 backup																					
8 = One PLC water level controllers, and one RWF55 water level controller																					
Tank 1 Pressure Controller																					
X = No pressure control																					
1 = One PLC pressure controller																					
2 = One RWF55 pressure controller																					
3 = One PLC pressure controller and one RWF55 backup																					
4 = One RWF55 pressure controller and one RWF55 backup																					
Tank 2 Pressure Controller																					
X = No pressure control																					
1 = Tank one PLC pressure controller																					
2 = One RWF55 pressure controller																					
3 = One PLC pressure controller and one RWF55 backup																					
4 = One RWF55 pressure controller and one RWF55 backup																					
Chemical Pumps Start Stop Control																					
X = Not included																					
A = Yes chemical feed start relays all groups																					
B = Yes chemical feed start relays all groups with indicator run lights																					
Feedwater Pump Boiler Start Control or BMS Group Start Stop Control																					
X = No boiler command pump start control																					
A = Boiler command pump start control																					
B = BMS system start stop control all groups																					
Boilers Header Pressure Feedwater Control (DA or Surge Only)																					
X = No feedwater boilers header pressure control																					
A = Yes feedwater boilers header pressure control																					
Analog and 1000 Ohm RTD Inputs (Maximum of 10 Analog , and 4 1000 Ohm RTD inputs)																					
One Analog is required for each group feed or transfer water pressure control, and one for water level control																					
If flow metering and totalization are required, minimum selection B for 6 analog inputs needs to be selected																					
X = Standard 2 Analog, and no RTD Inputs																					
A = 2 analog, and 4 RTD 1000 Ohm inputs																					
B = 6 analog, and no RTD inputs																					
C = 6 analog, and 4 RTD 1000 Ohm inputs																					
D = 10 analog, and no RTD inputs																					
E = 10 analog , and 4 RTD 1000 Ohm inputs																					
Feedwater From Tank 1 or Tank 2 Selector Switch																					
X = No feed from tank 1 or tank 2 selector switch																					
A = Yes feed from DA/feed from surge selector switch																					
B = Yes with feed from DA1/feed from DA2 selector switch																					
C = Yes with feed from Surge1/feed from Surge2 selector switch																					
Backup Pumps (Pumps installed in addition to actual feedwater or transfer pumps as a backup to run in auto or forced on by a selector switch)																					
X = No backup pumps																					
A = Backup pump for group 1																					
B = Backup pump for group 2																					
C = Backup pump for group 3																					
D = Backup pump for group 4																					
E = Backup pumps for groups 1 and 2																					
F = Backup pumps for groups 1 and 3																					
G = Backup pumps for groups 1 and 4																					
H = Backup pumps for groups 2 and 3																					
J = Backup pumps for groups 2 and 4																					
K = Backup pumps for groups 3 and 4																					
L = Backup pumps for groups 1, 2 and 3																					
M = Backup pumps for groups 1, 2 and 4																					
N = Backup pumps for groups 1, 3 and 4																					
P = Backup pumps for groups 2, 3 and 4																					
R = Backup pumps for groups 1, 2, 3 and 4																					

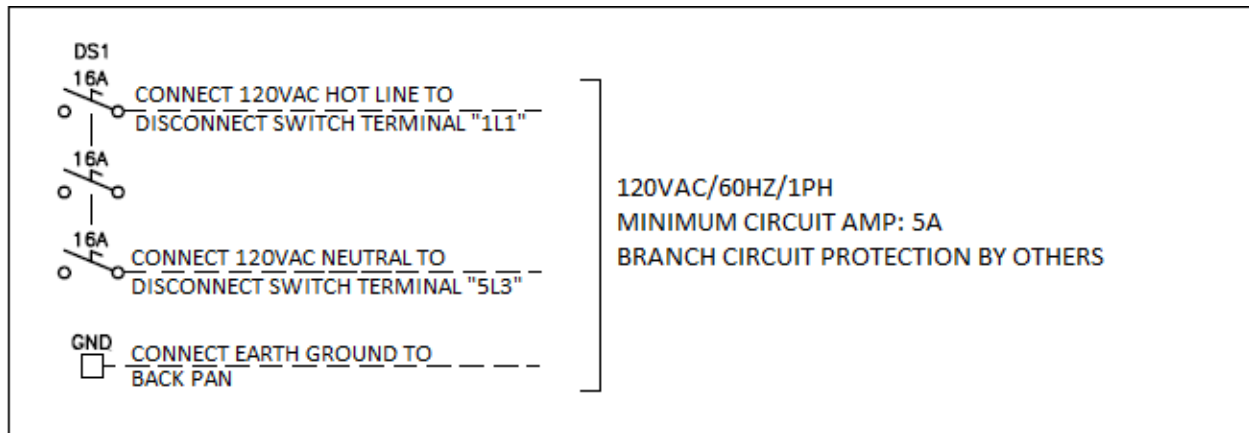
Date 10/23/2023

Connections

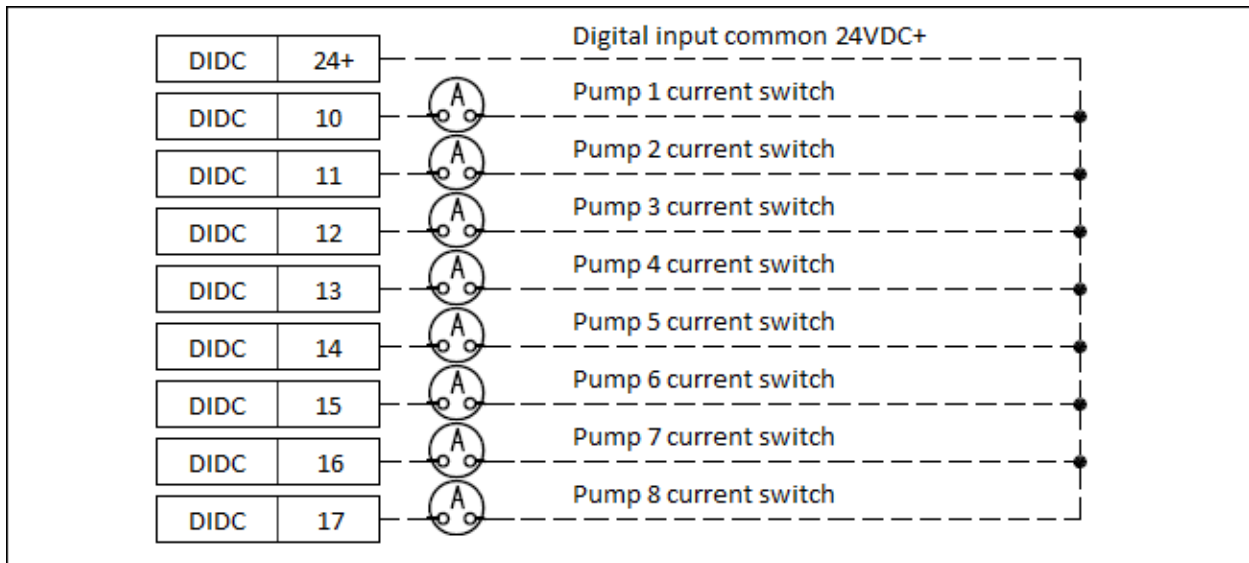
(Connections are applicable based on the product part number selected)

TS-D... series stand-alone DA tank with feedwater pumps, Up to 8 pumps for standalone DA, or Up to 4 for group and 2 pumps group 2 if Two groups Da control selected

Disconnect switch



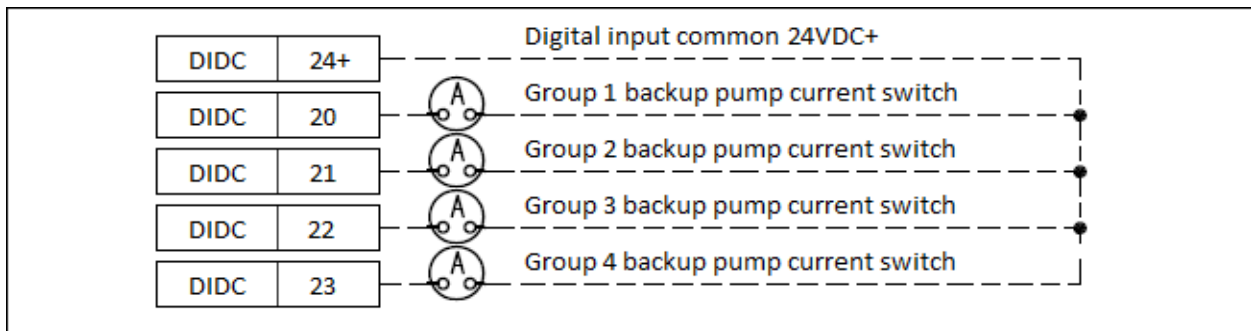
Digital Inputs: Pump proving (current switches) terminals



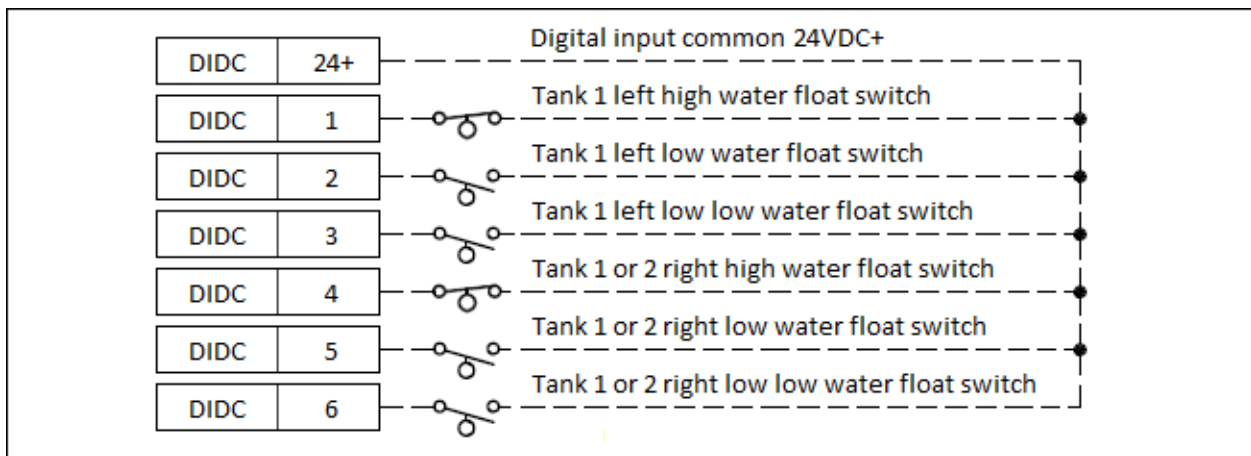
Note: Current switch is in “A” lead of motor wiring. Pump proving may be indicated with differential pressure switch across pump, or VFD built-in start indication normally open dry contact in lieu of current switch. VFD parameters need to be programmed.

Connections (continued)

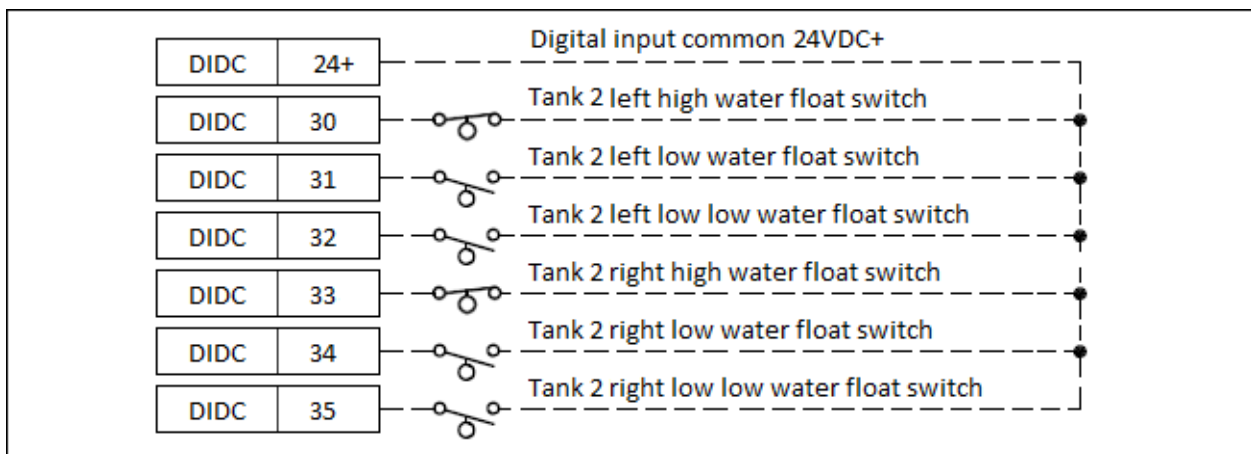
Digital Inputs: Backup Pump proving (current switches) terminals



Digital Inputs: Tank 1 or Tank 2 float switch terminals

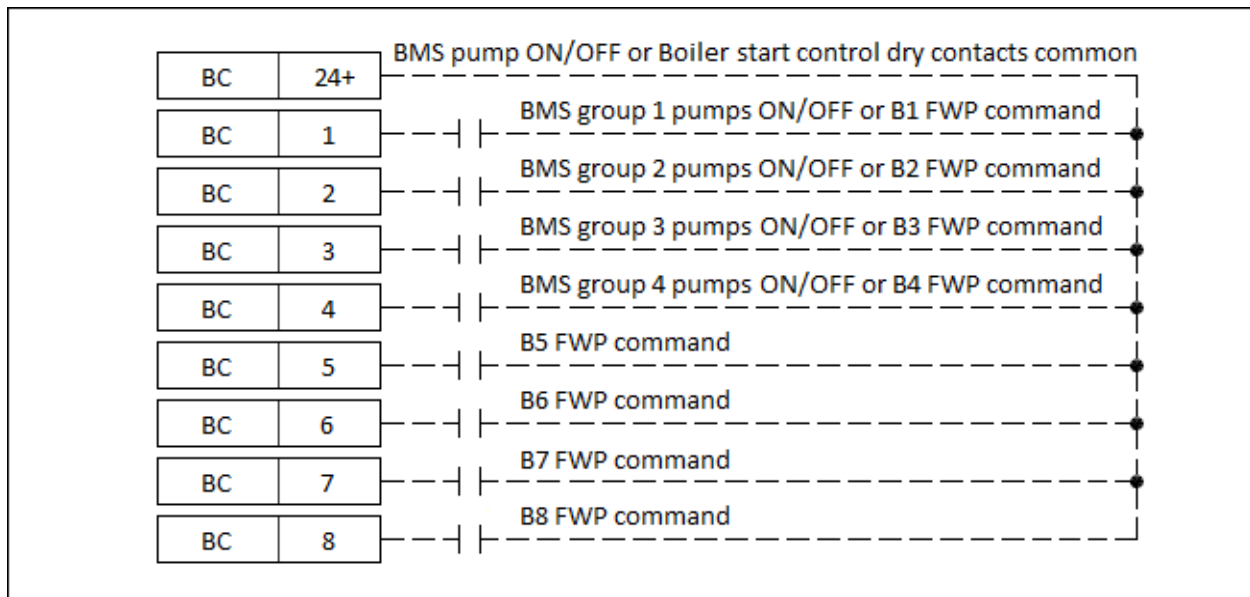


Digital Inputs: Tank 2 float switch terminals

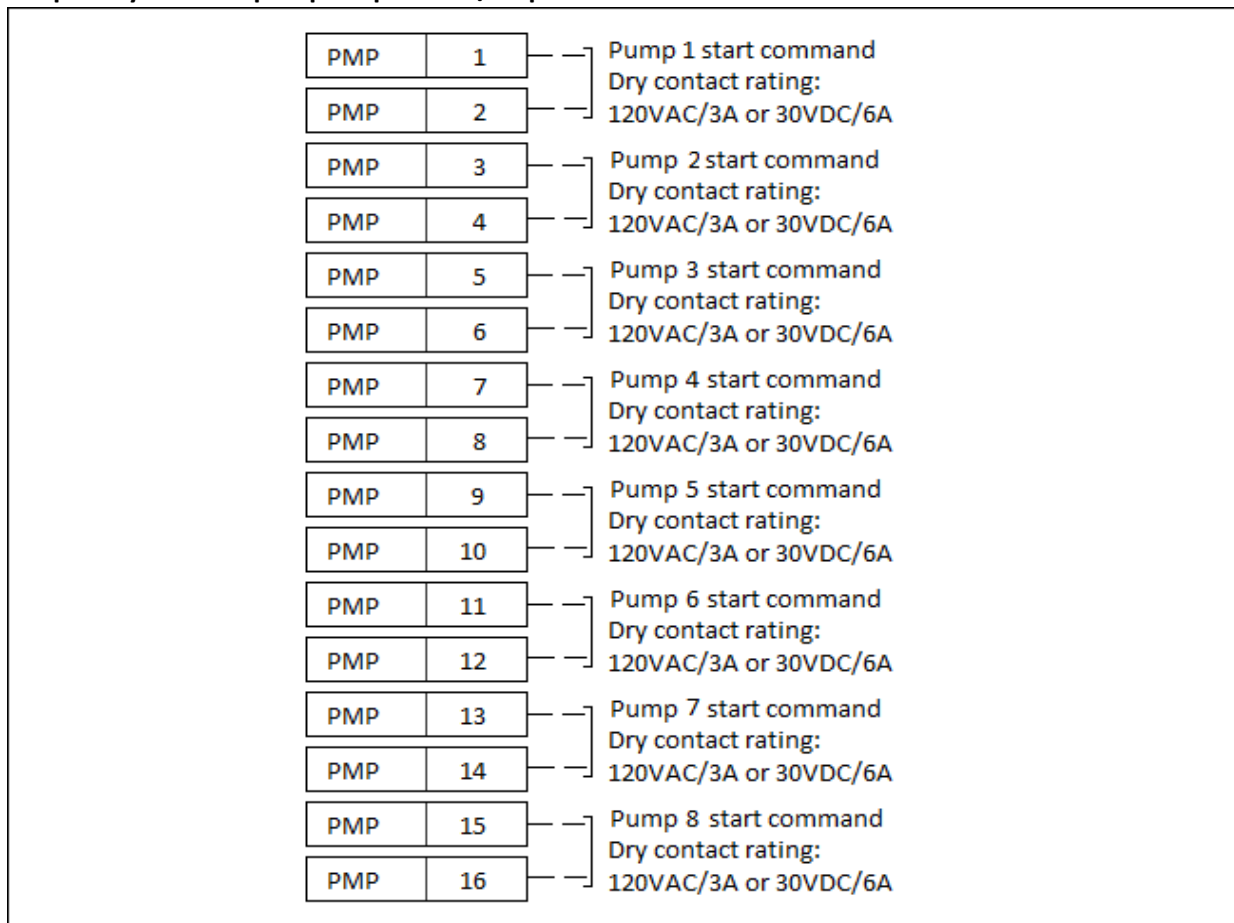


Connections (continued)

BMS pump ON/OFF or Boiler start control terminals

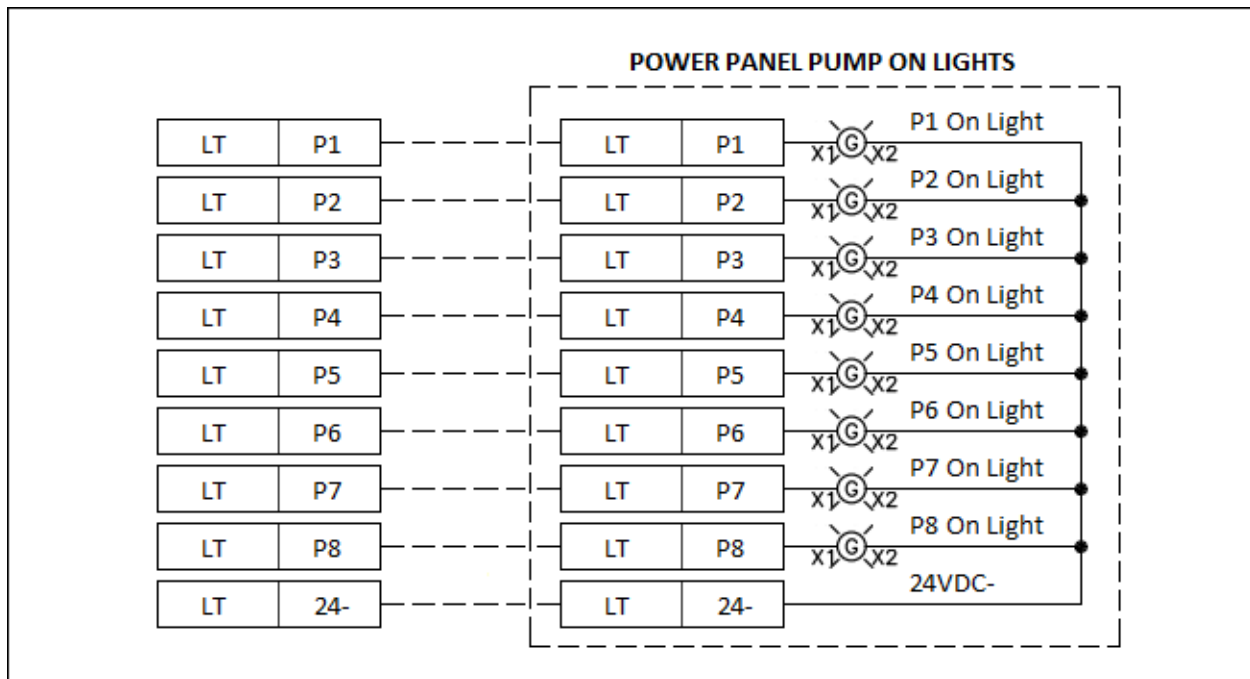


Output dry contact: pump output start/stop command terminals

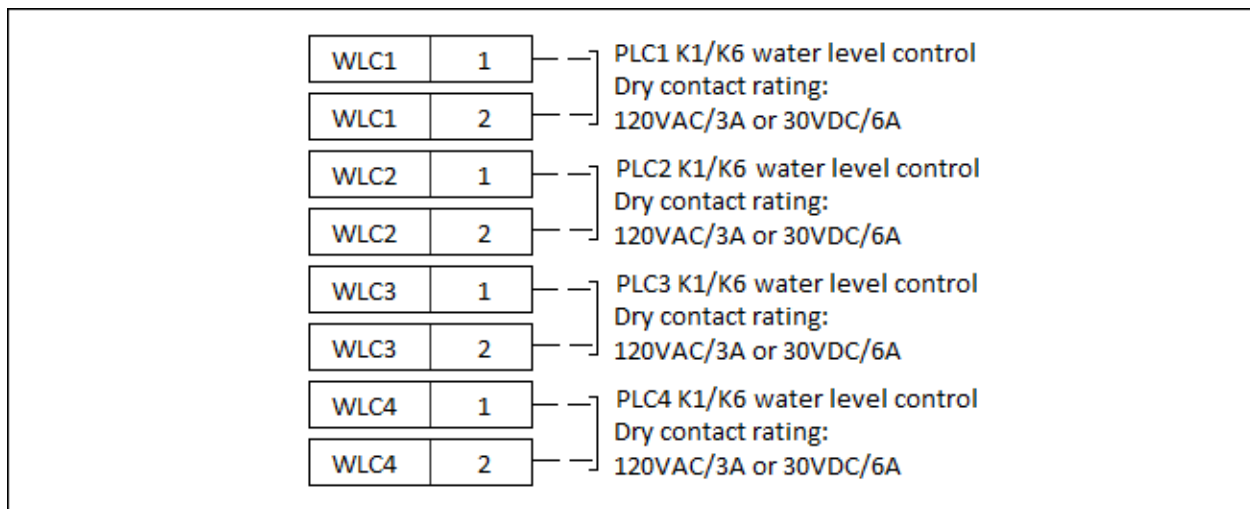


Connections (continued)

Pump run light terminals (lights are in the power panel)



PLC K1/K6 water level terminals



Connections (continued)

Output dry contact: group backup pump start command terminals

BUP	1	}	Group 1 backup pump start command Dry contact rating: 120VAC/3A or 30VDC/6A
BUP	2		
BUP	3	}	Group 2 backup pump start command Dry contact rating: 120VAC/3A or 30VDC/6A
BUP	4		
BUP	5	}	Group 3 backup pump start command Dry contact rating: 120VAC/3A or 30VDC/6A
BUP	6		
BUP	7	}	Group 4 backup pump start command Dry contact rating: 120VAC/3A or 30VDC/6A
BUP	8		

Output dry contact: group chemical pump start command terminals

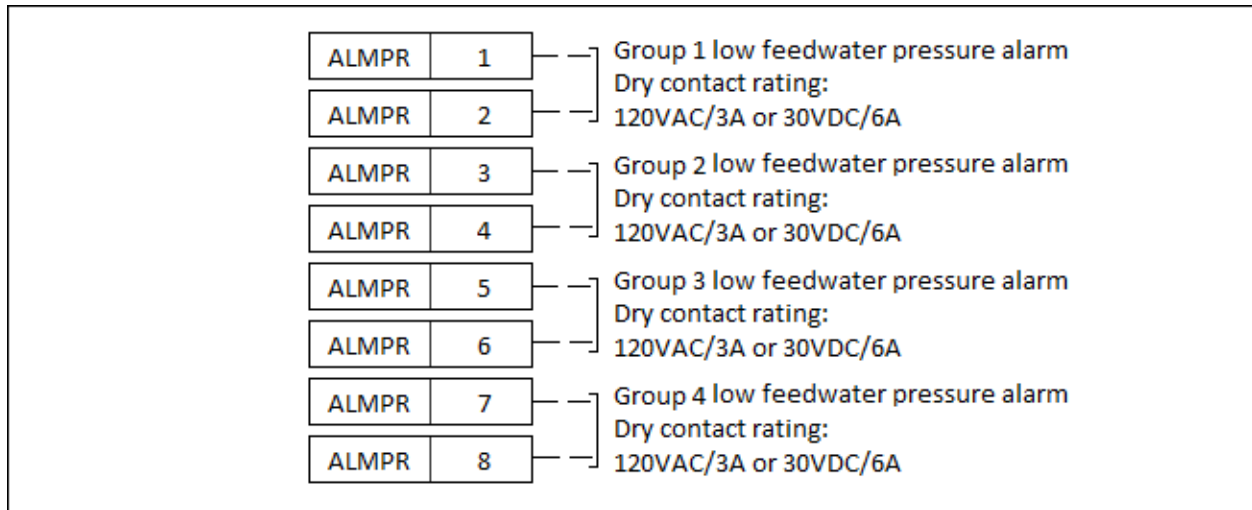
CPMP	1	}	Group 1 chemical pump start command Dry contact rating: 120VAC/3A or 30VDC/6A
CPMP	2		
CPMP	3	}	Group 2 chemical pump start command Dry contact rating: 120VAC/3A or 30VDC/6A
CPMP	4		
CPMP	5	}	Group 3 chemical pump start command Dry contact rating: 120VAC/3A or 30VDC/6A
CPMP	6		
CPMP	7	}	Group 4 chemical pump start command Dry contact rating: 120VAC/3A or 30VDC/6A
CPMP	8		

Output dry contact: general remote alarm terminals

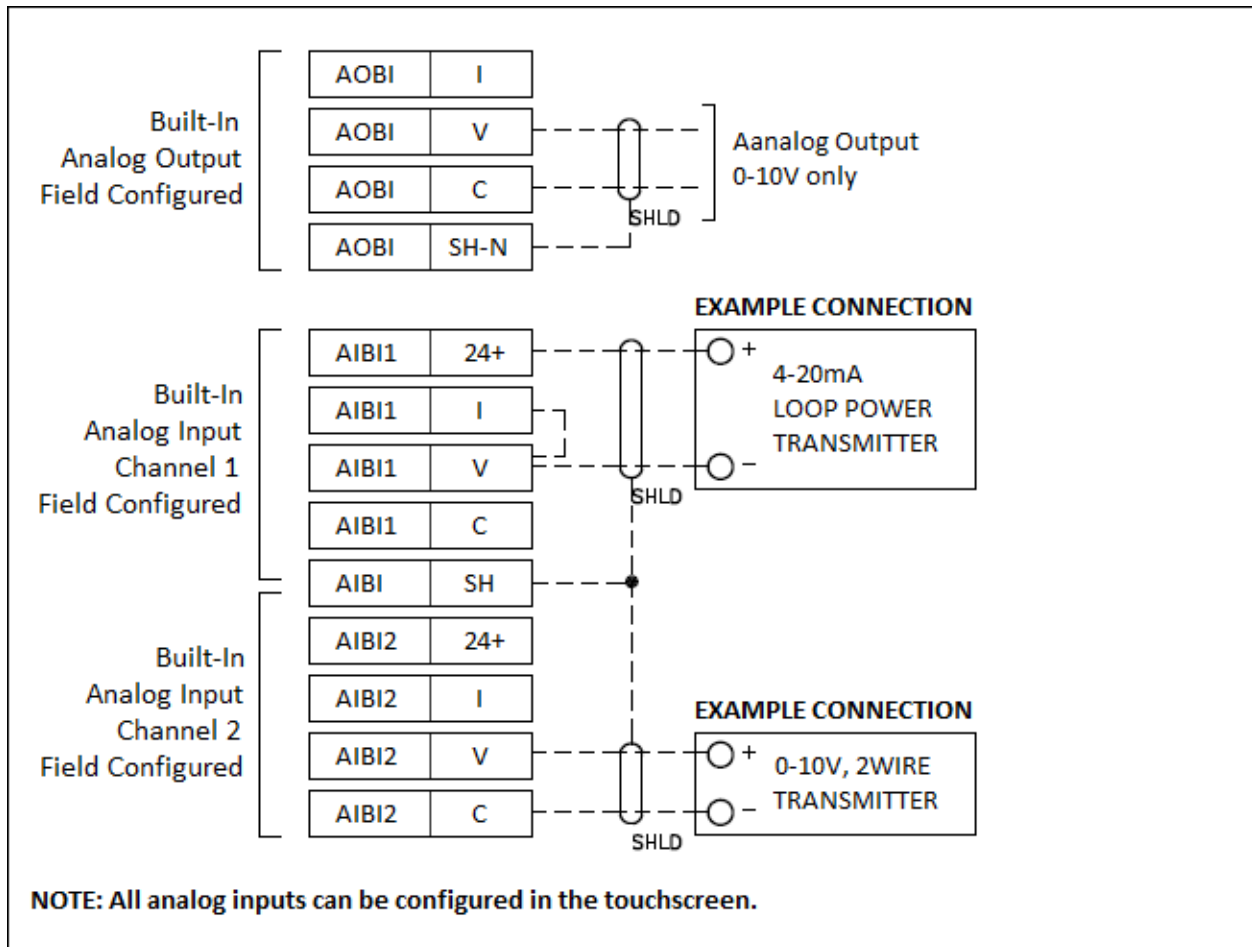
ALM	1	}	General remote alarm Dry contact rating: 120VAC/3A or 30VDC/6A
ALM	2		

Connections (continued)

Output dry contact: group low feedwater pressure alarm terminals

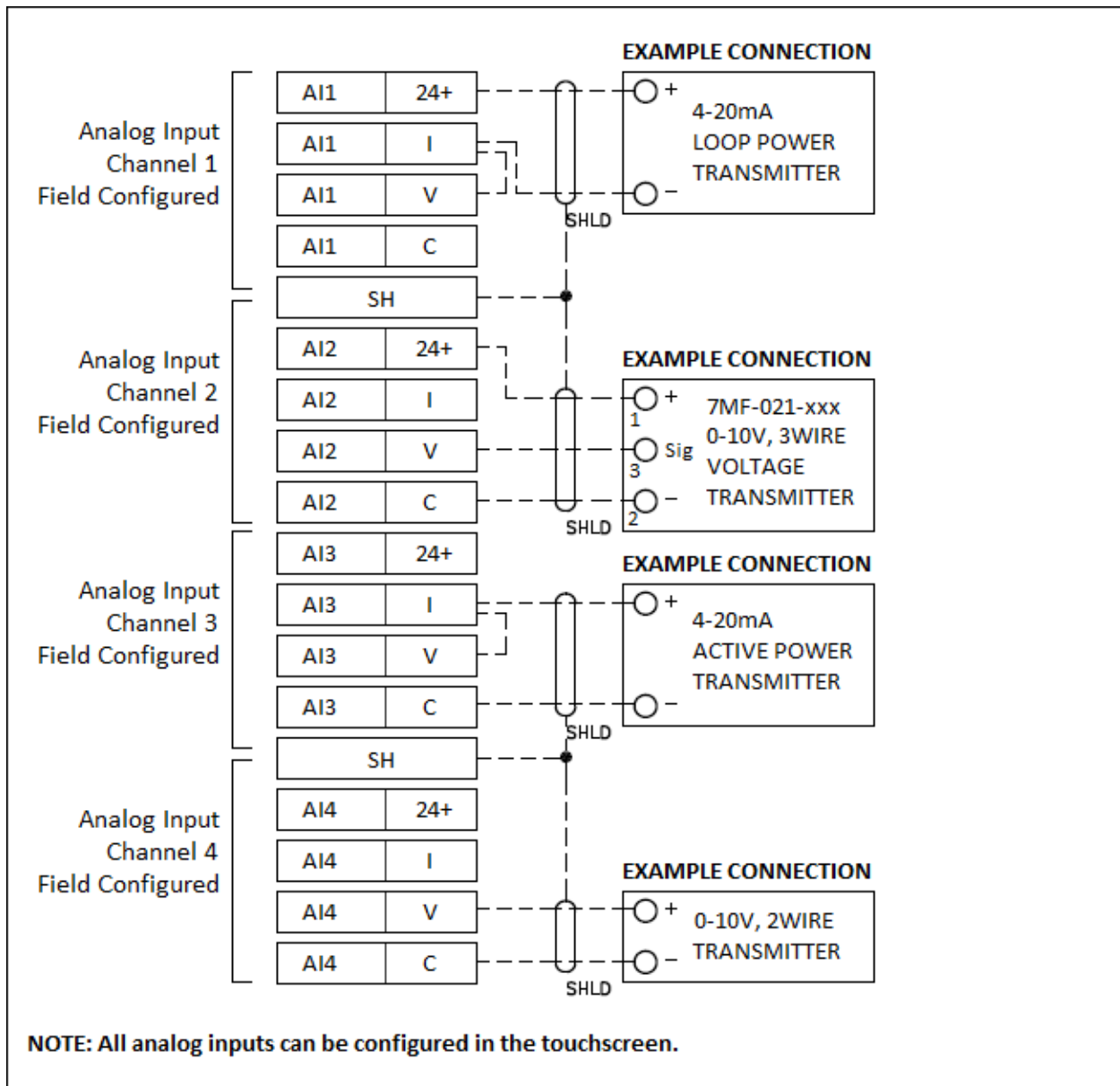


Analog built-in inputs and output terminals



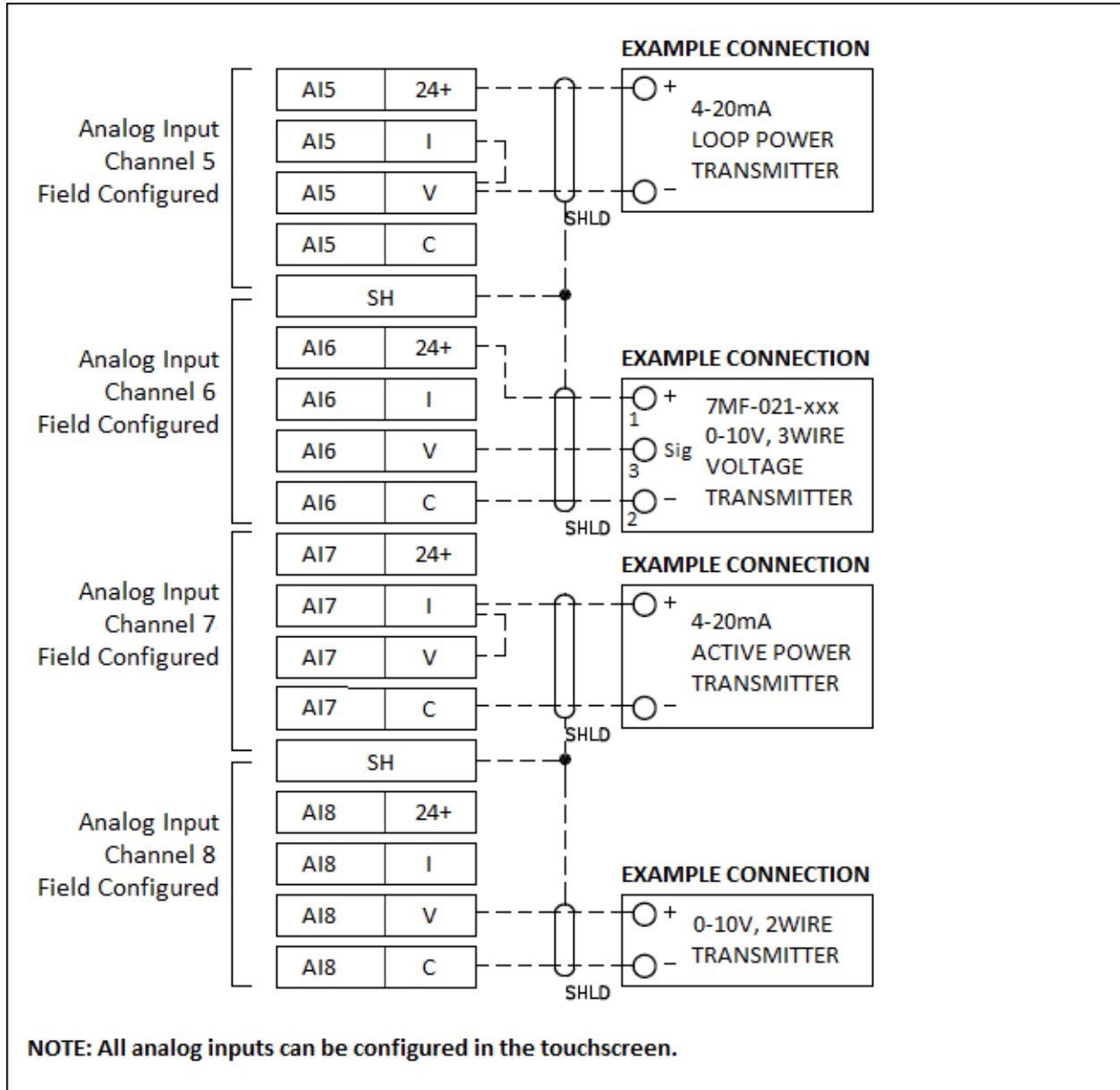
Connections (continued)

Analog input module number 1 terminals



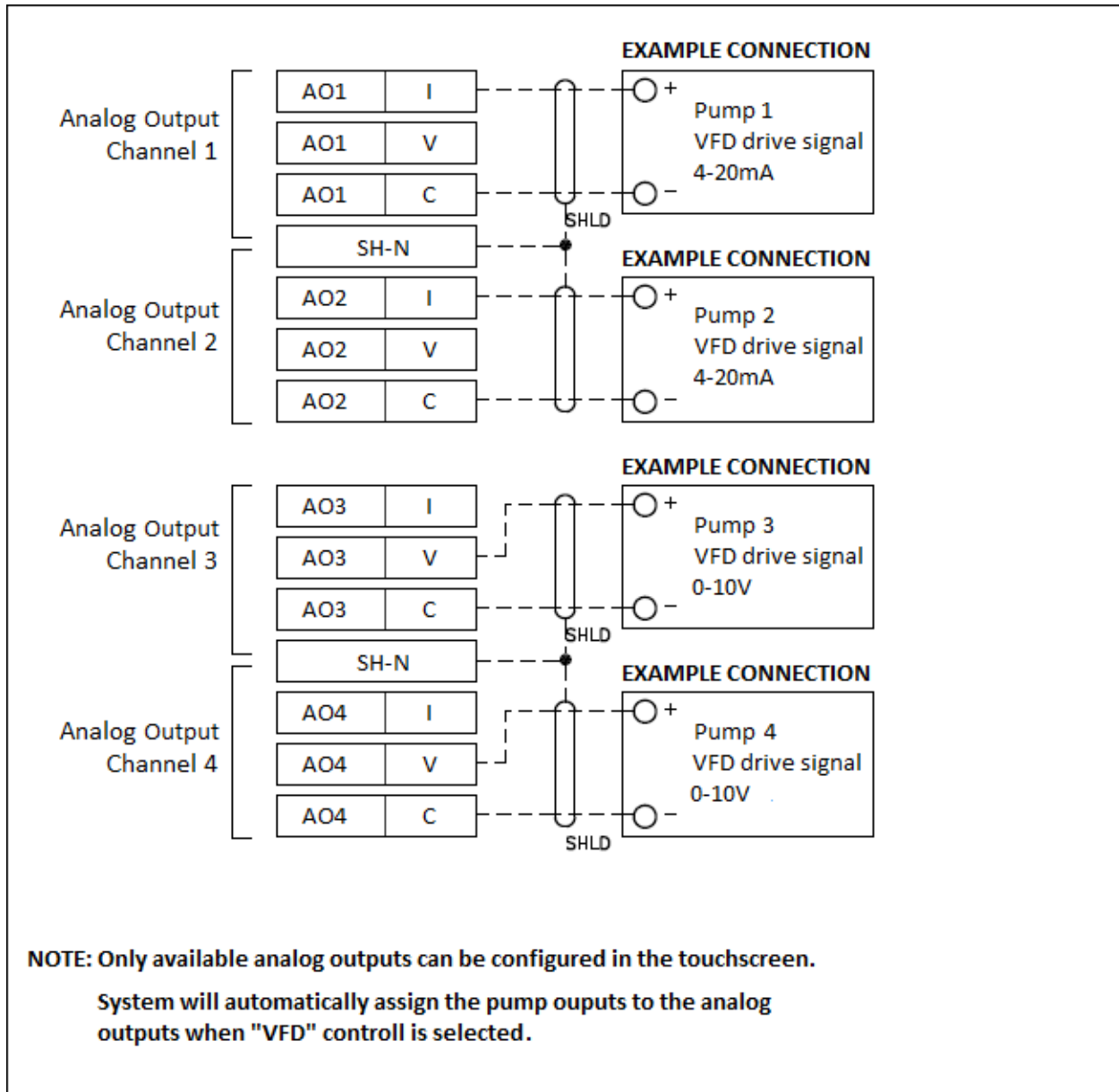
Connections (continued)

Analog input module number 2 terminals



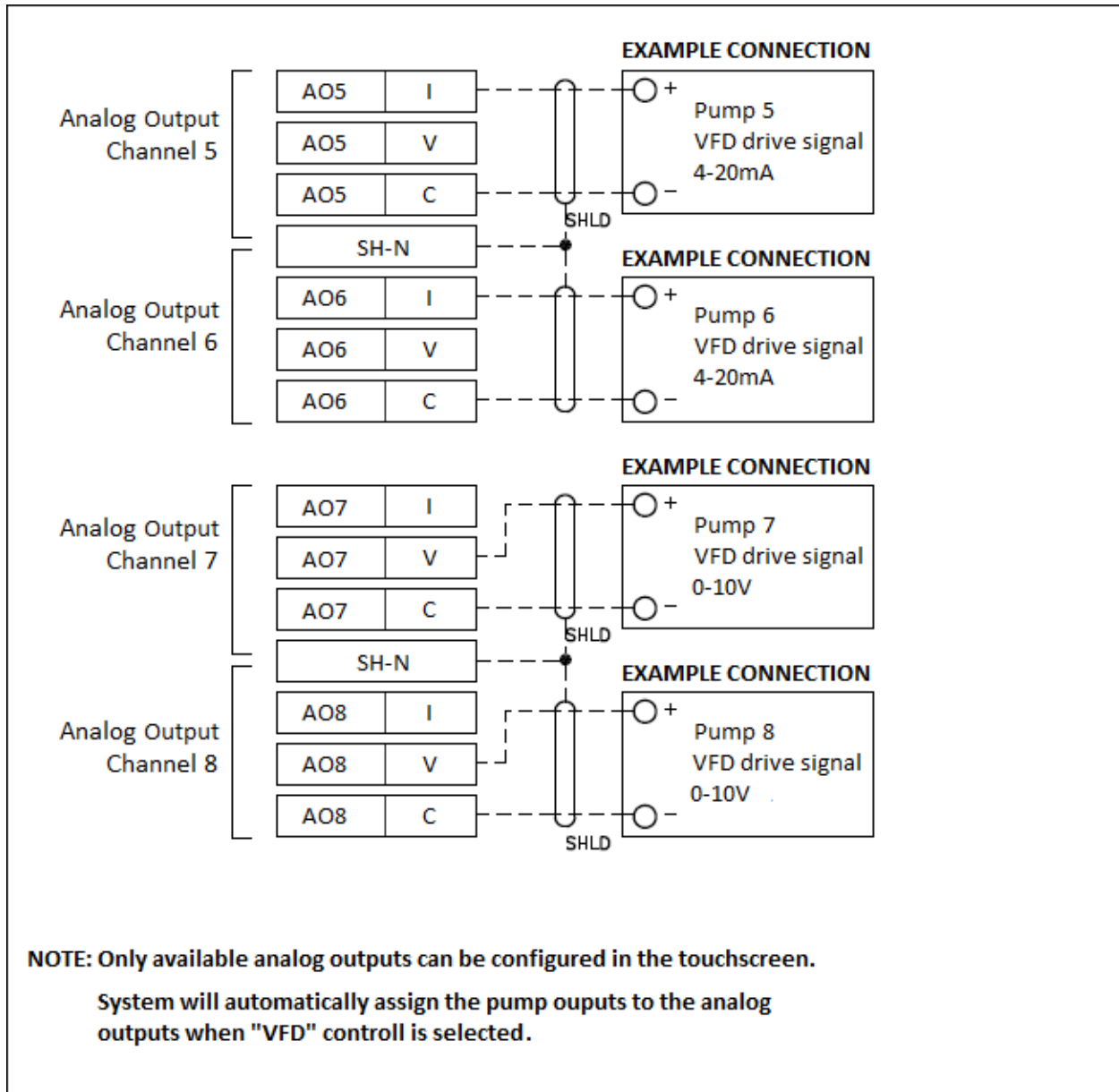
Connections (continued)

Analog output module number 1 terminals



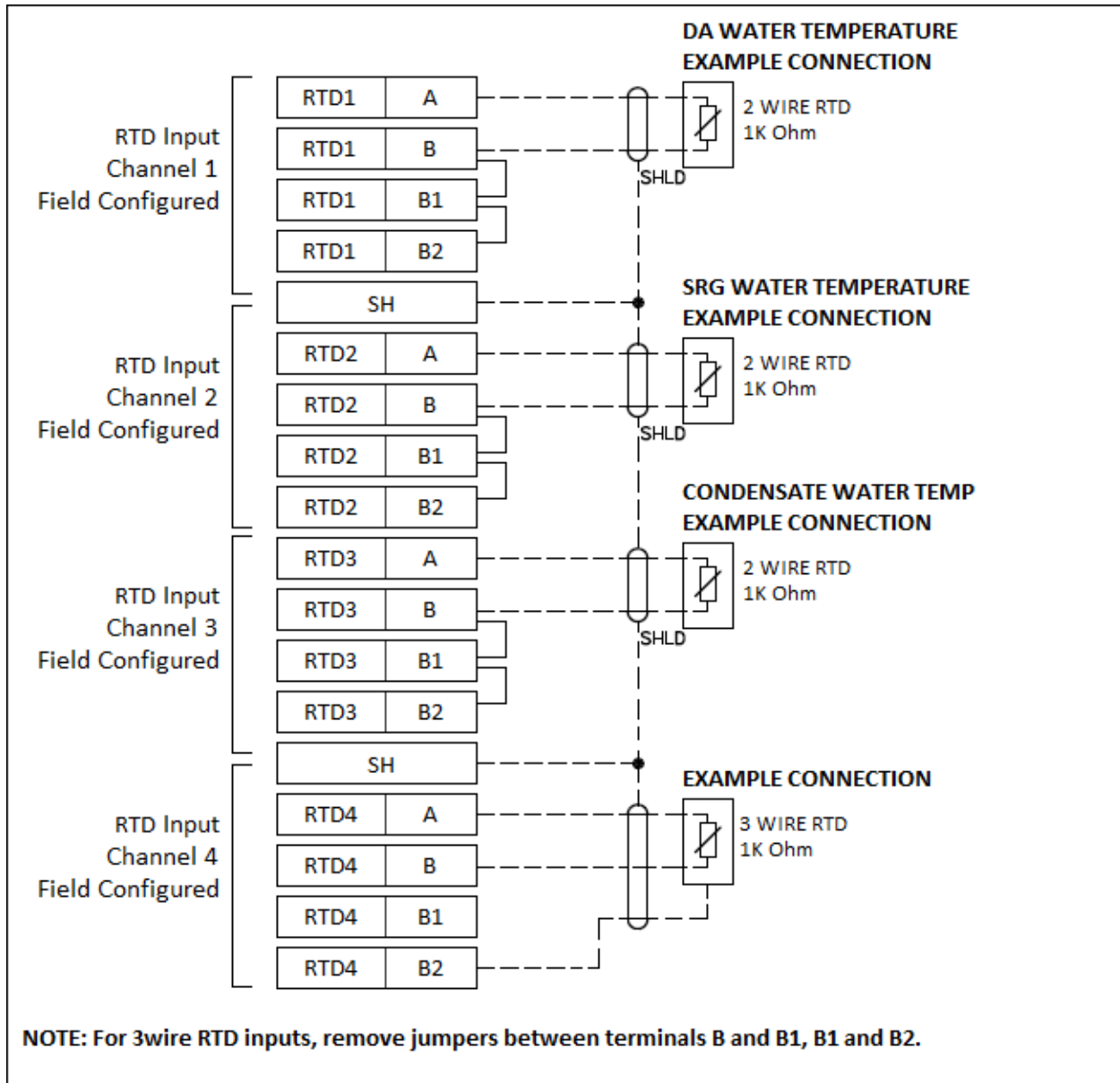
Connections (continued)

Analog output module number 2 terminals



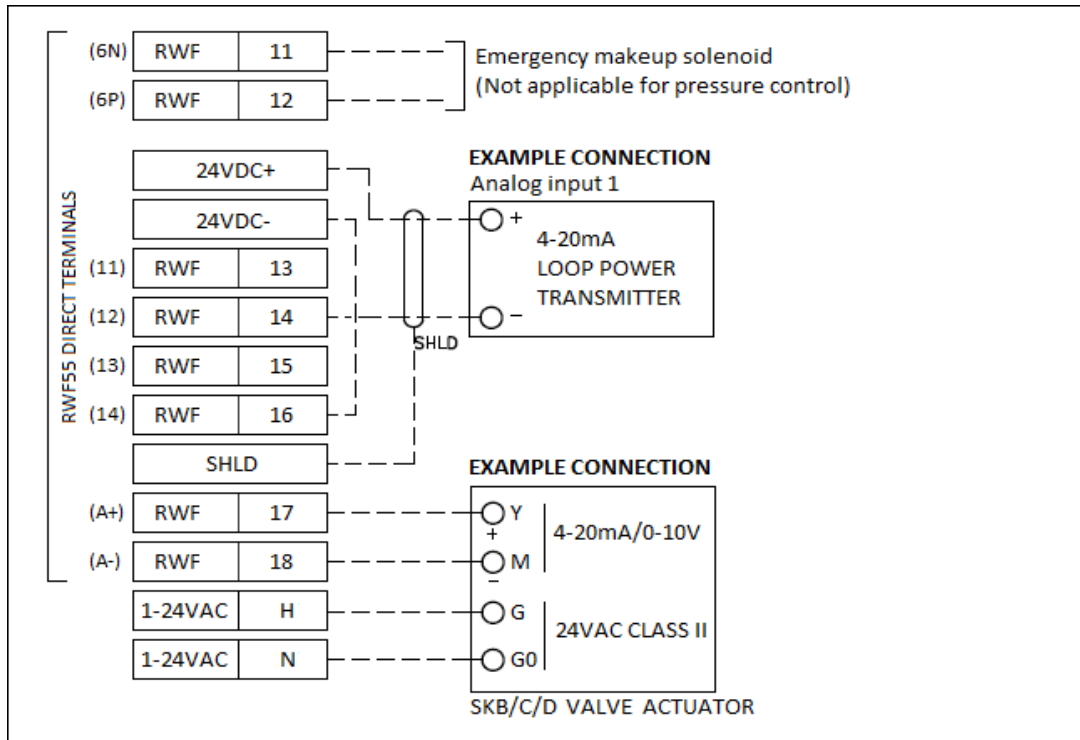
Connections (continued)

RTD (Resistance Temperature Detector) input terminals

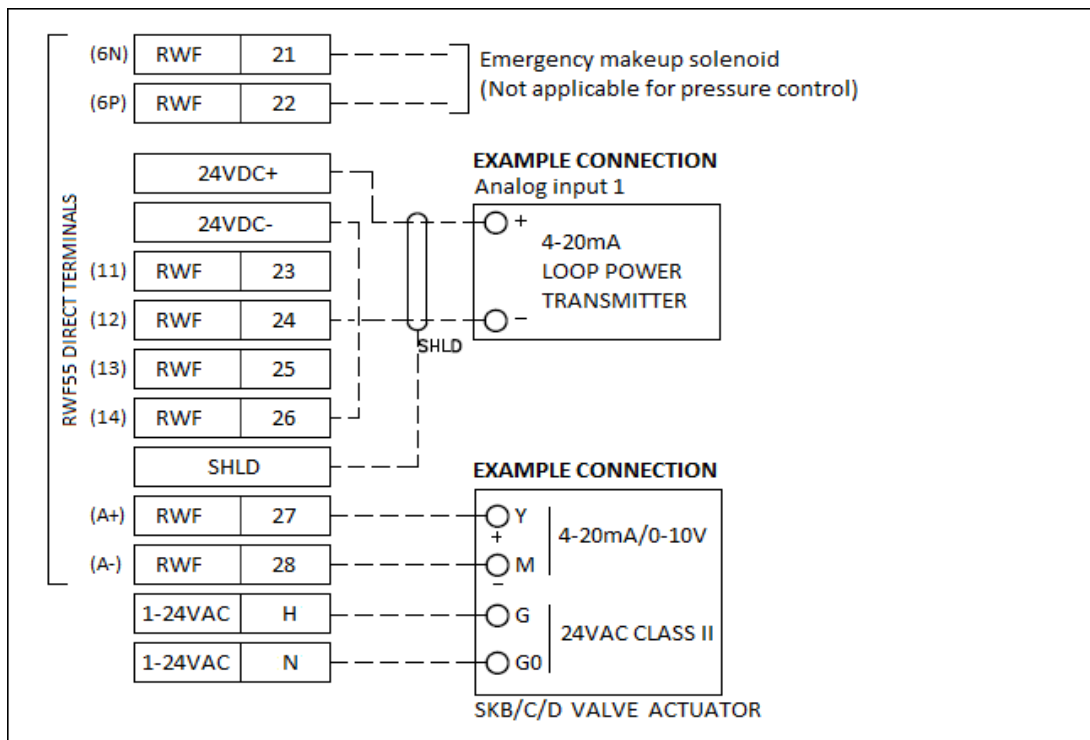


Connections (continued)

RWF55 number 1 controller terminals

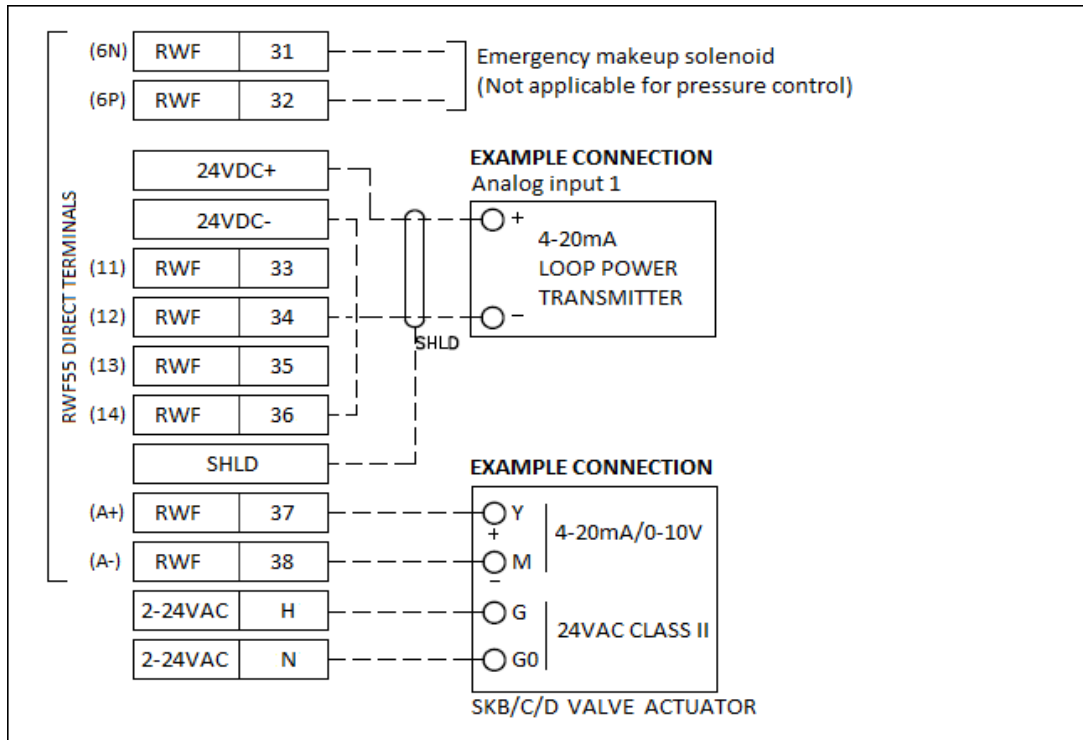


RWF55 number 2 controller terminals

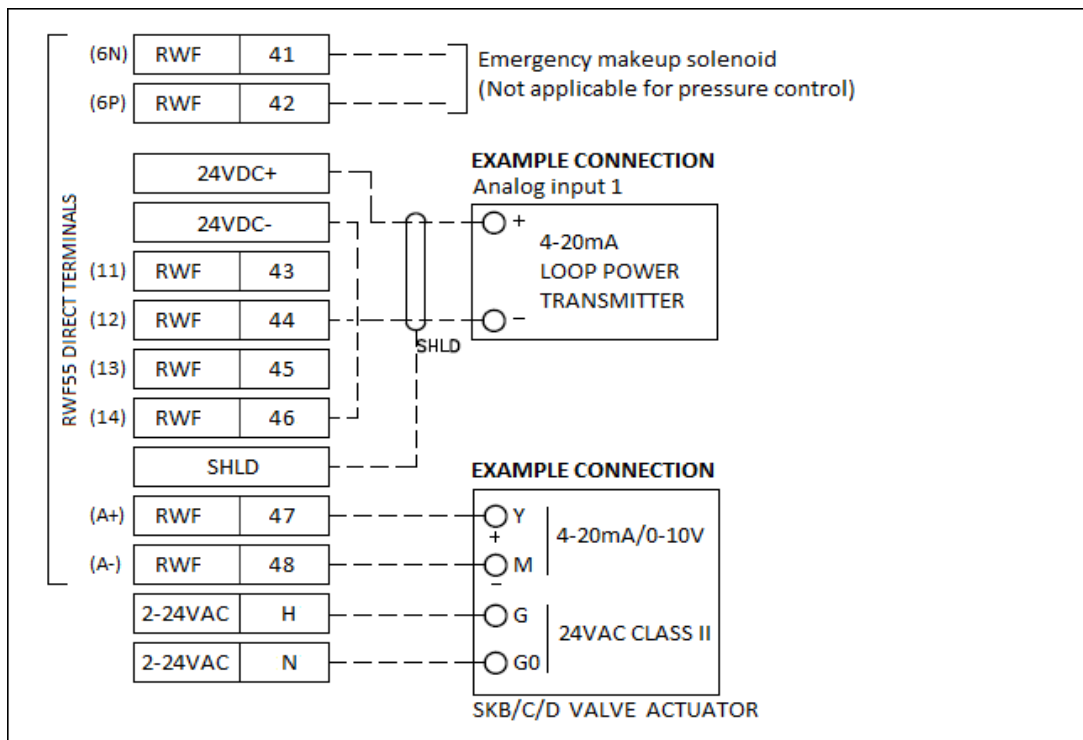


Connections (continued)

RWF55 number 3 controller terminals

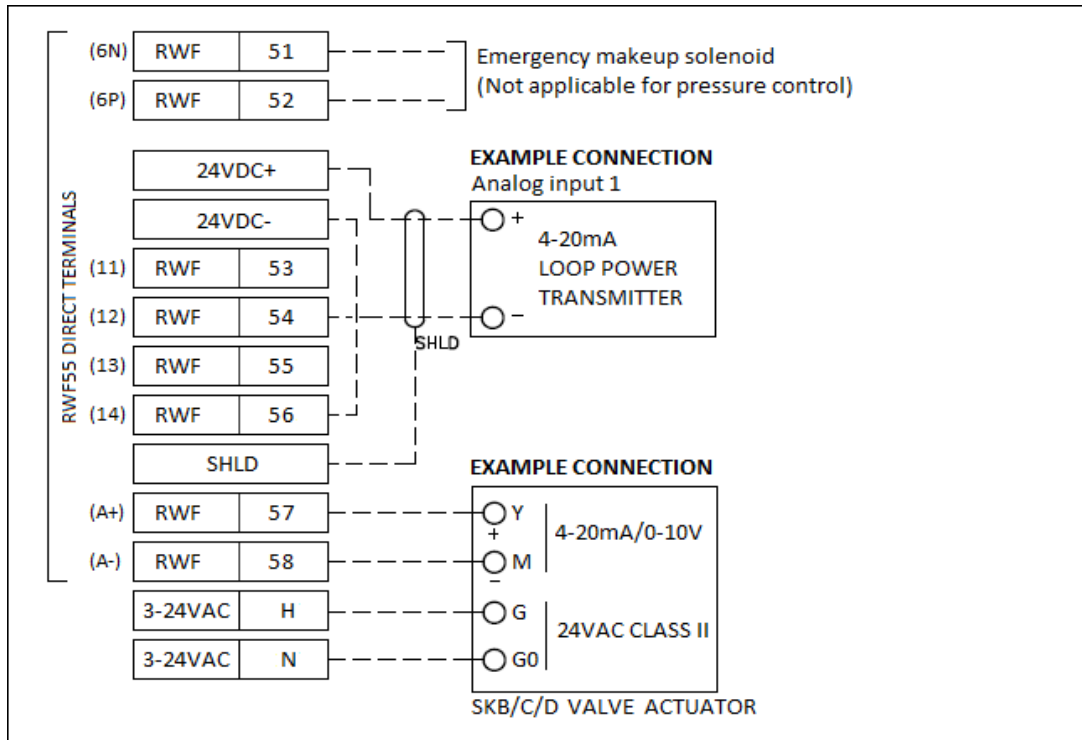


RWF55 number 4 controller terminals

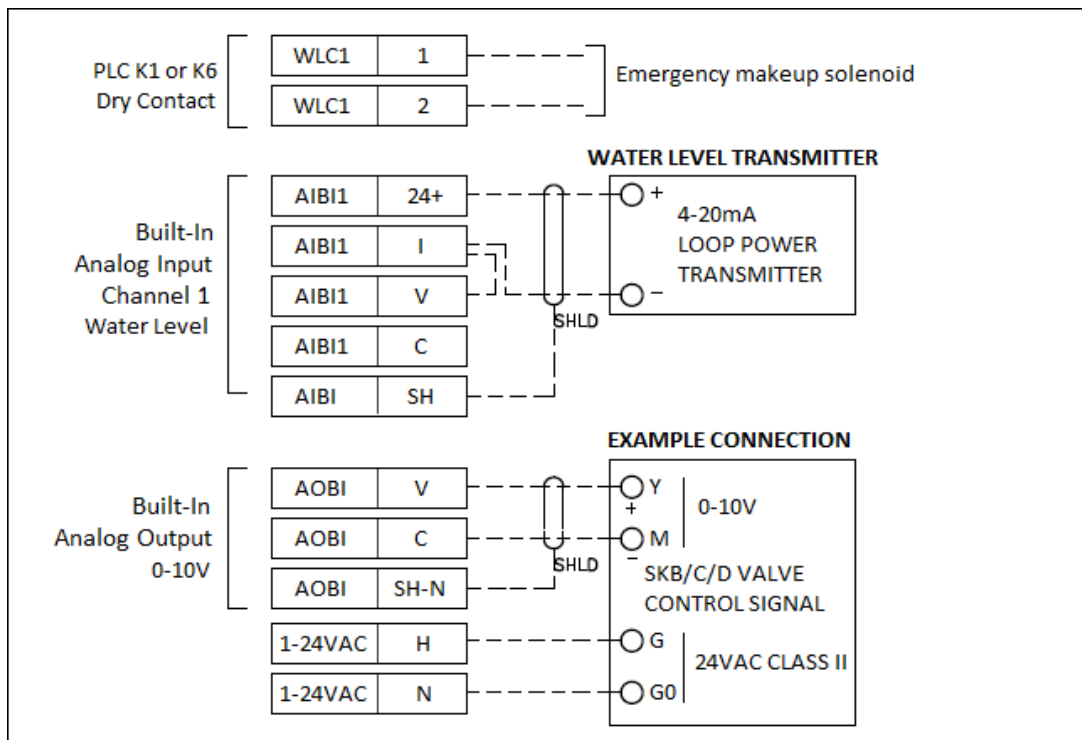


Connections (continued)

RWF55 number 5 controller terminals

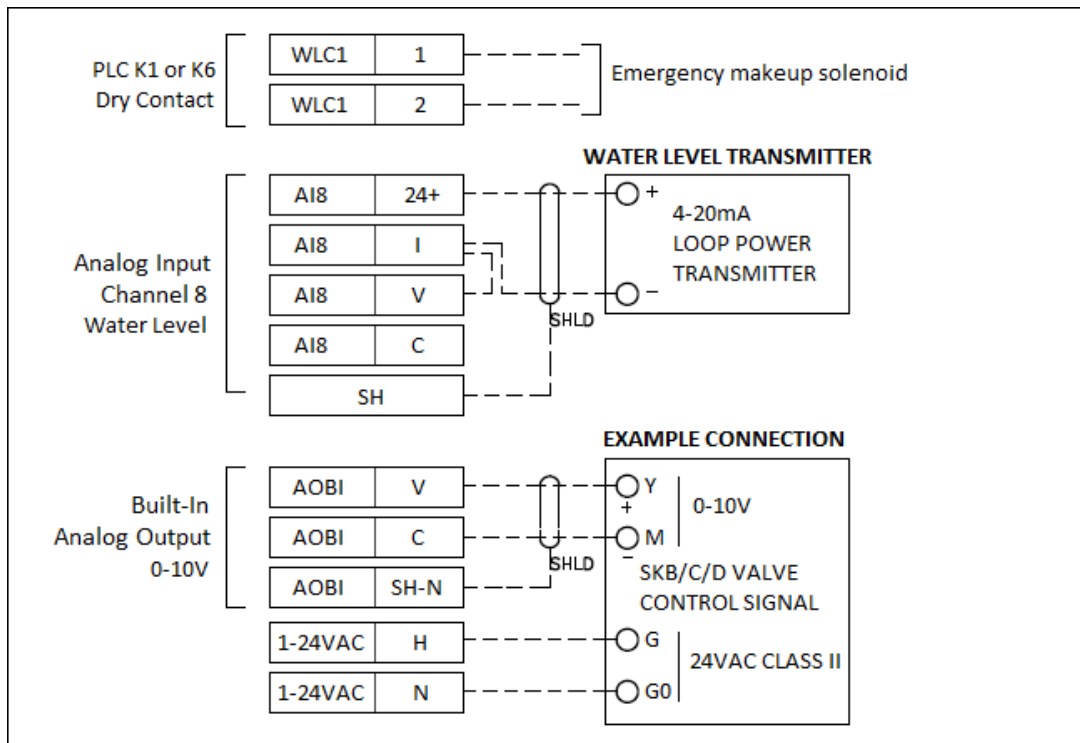


Example connection: PLC water level control using analog built-in inputs and output



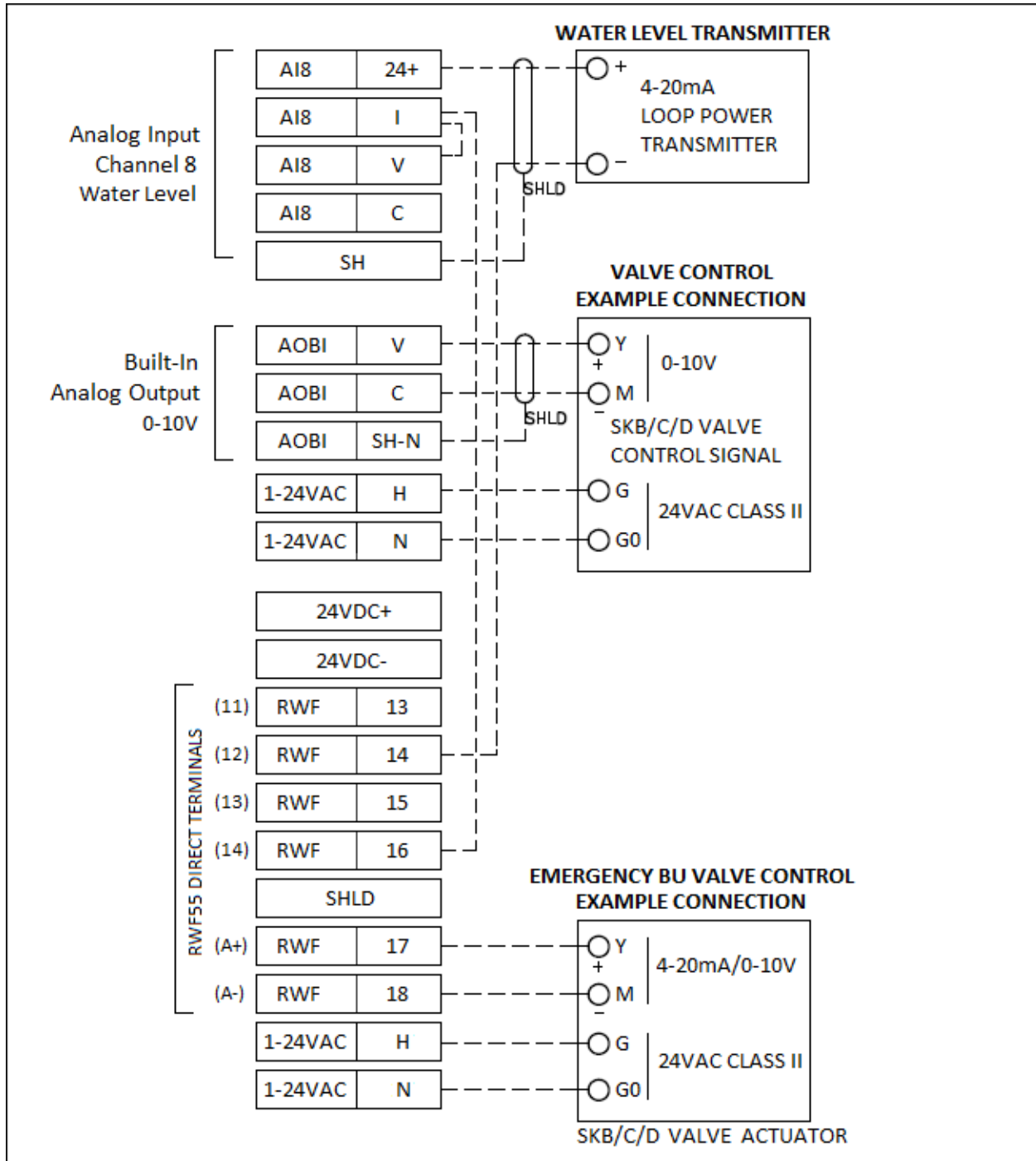
Connections (continued)

Example connection: PLC water level control using analog input 8 and built-in analog output



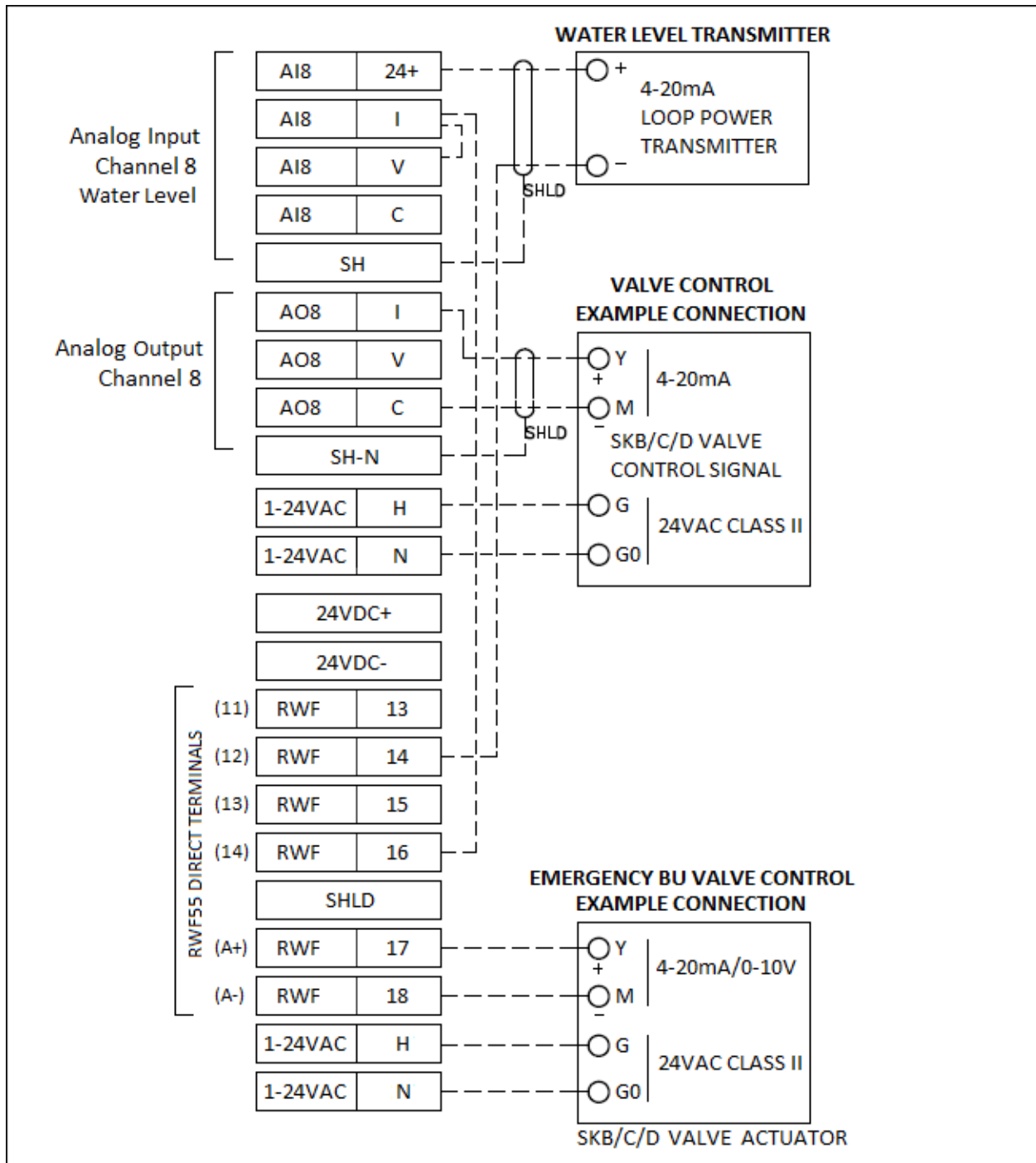
Connections (continued)

Example connection: PLC water level control using analog input 8 and built-in analog output with backup water level using RWF55 number 1 controller



Connections (continued)

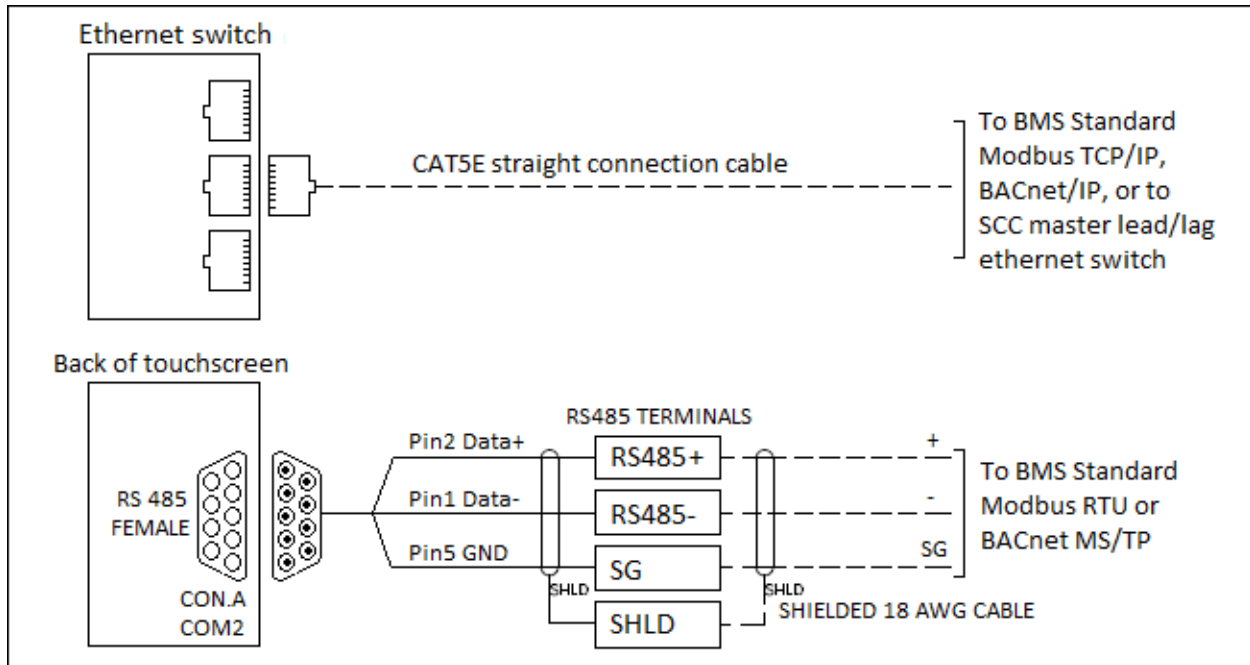
Example connection: PLC water level control using analog input 8 and analog output 8 with backup water level using RWF55 number 1 controller



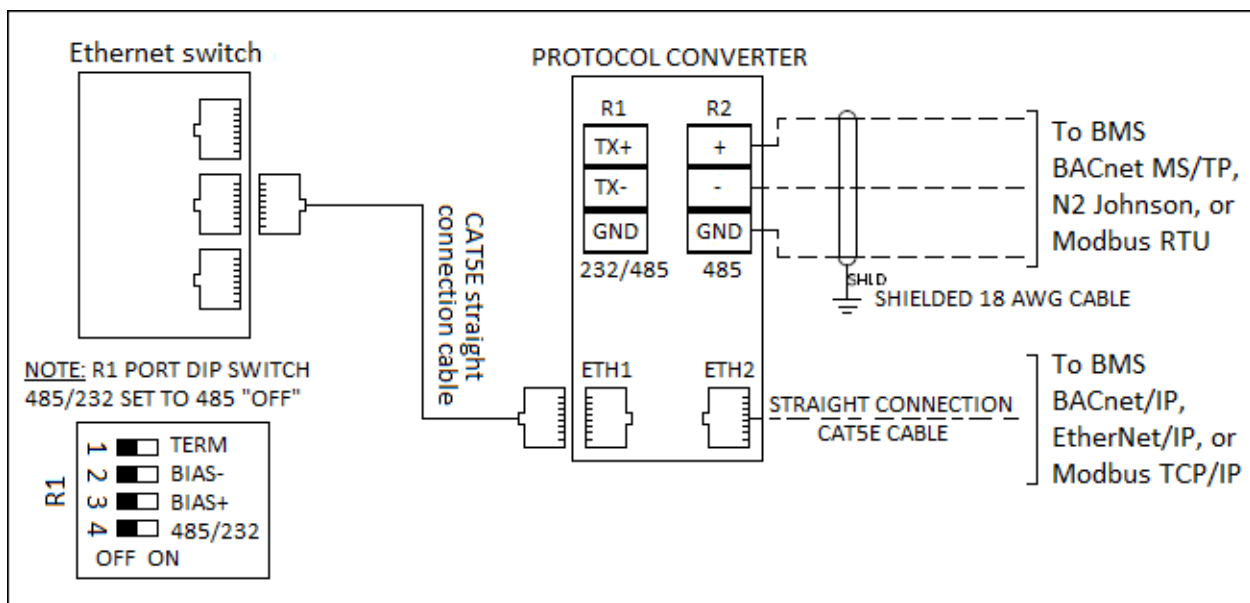
Connections (continued)

Building Management System Communications Connections

Standard Modbus TCP/IP, BACnet/IP, Modbus RTU, or BACnet MS/TP connection to BMS or Modbus TCP/IP connection to SCC Master Lead/Lag Panel

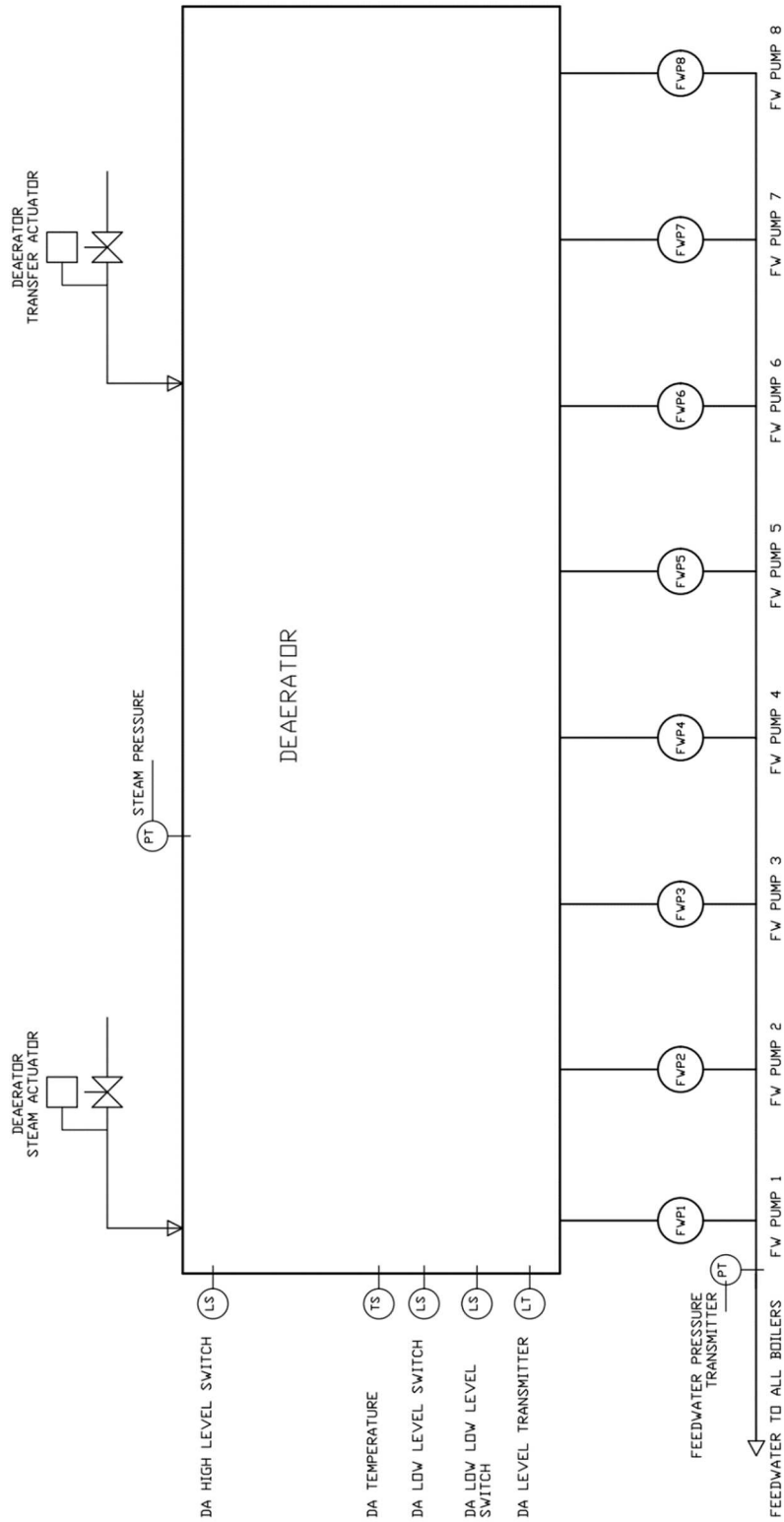


N2 Johnson, Modbus RTU, BACnet MS/TP, BACnet/IP, EtherNet/IP, or Modbus TCP/IP



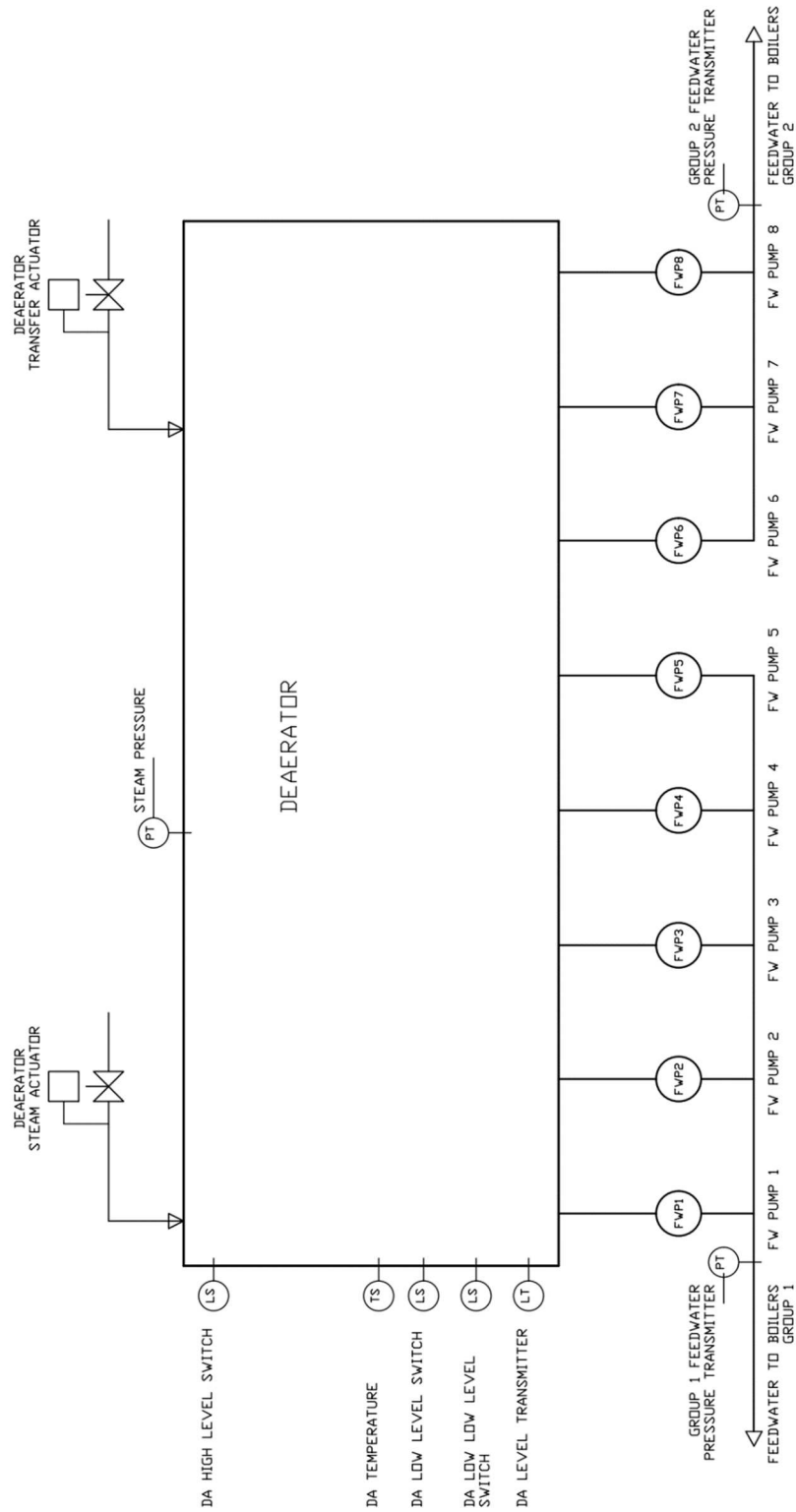
Connections (continued)

TS-D... series stand-alone DA tank piping and instrumentation diagram



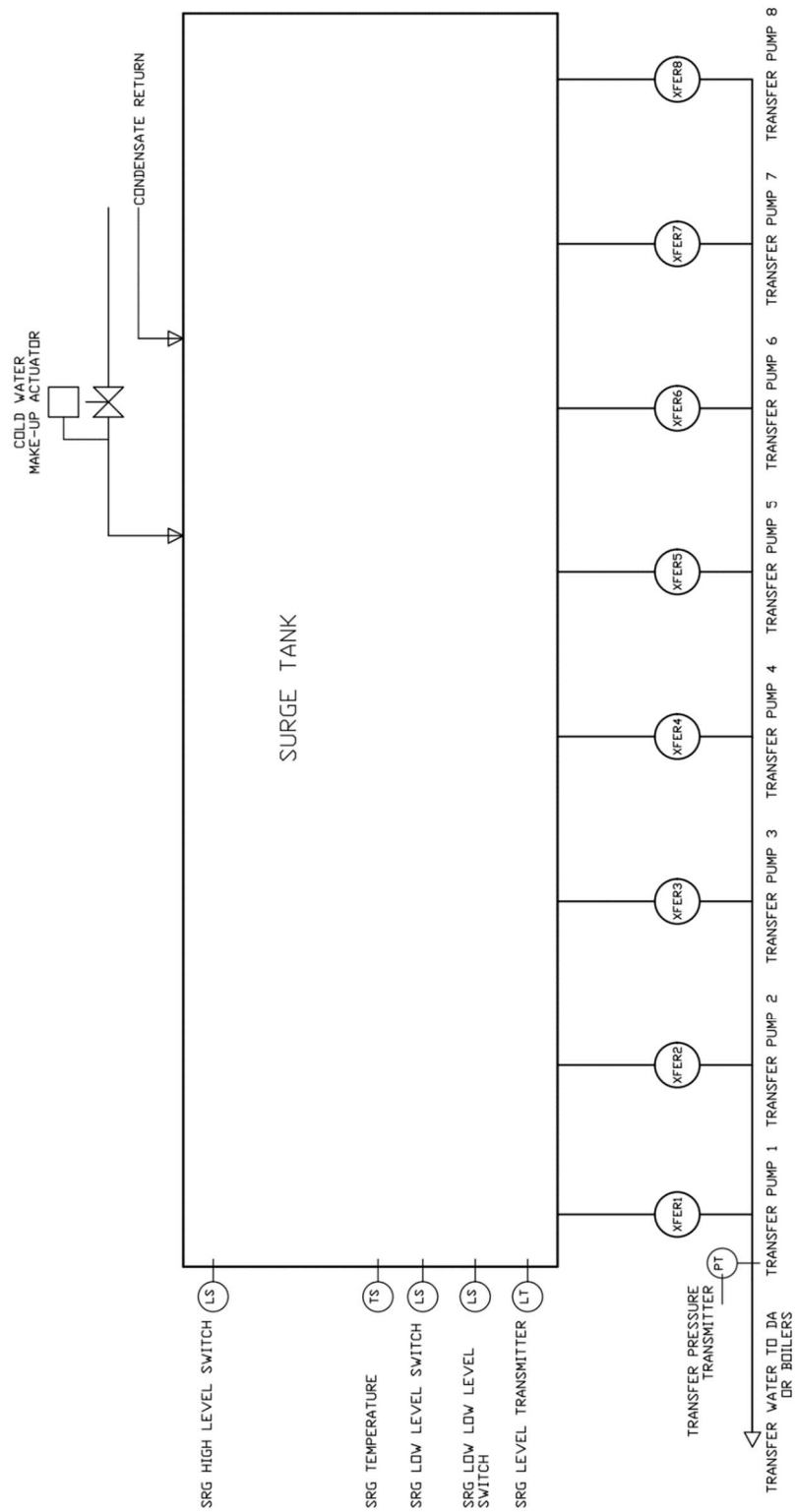
Connections (continued)

TS-DD... series stand-alone DA tank, two groups piping and instrumentation diagram



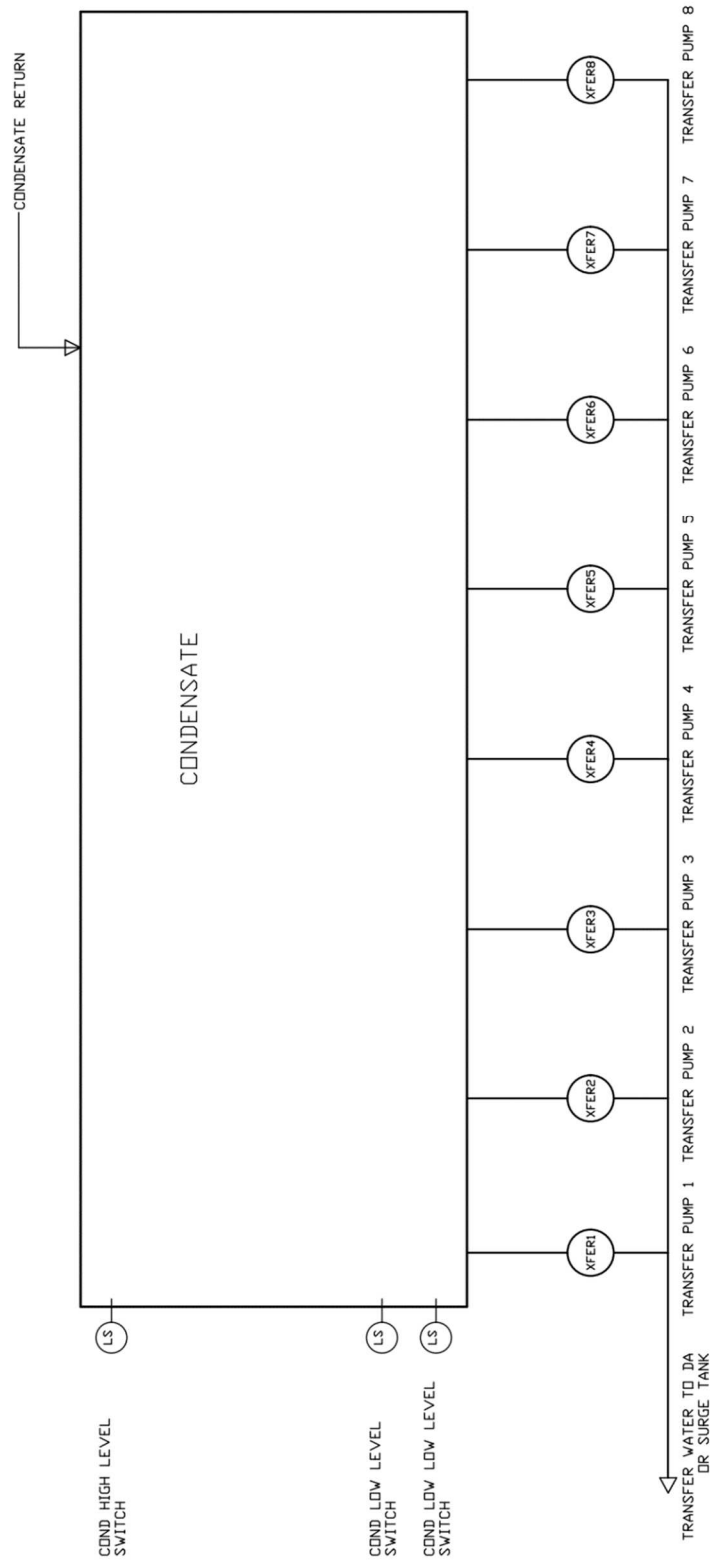
Connections (continued)

TS-S... series stand-alone surge tank piping and instrumentation diagram



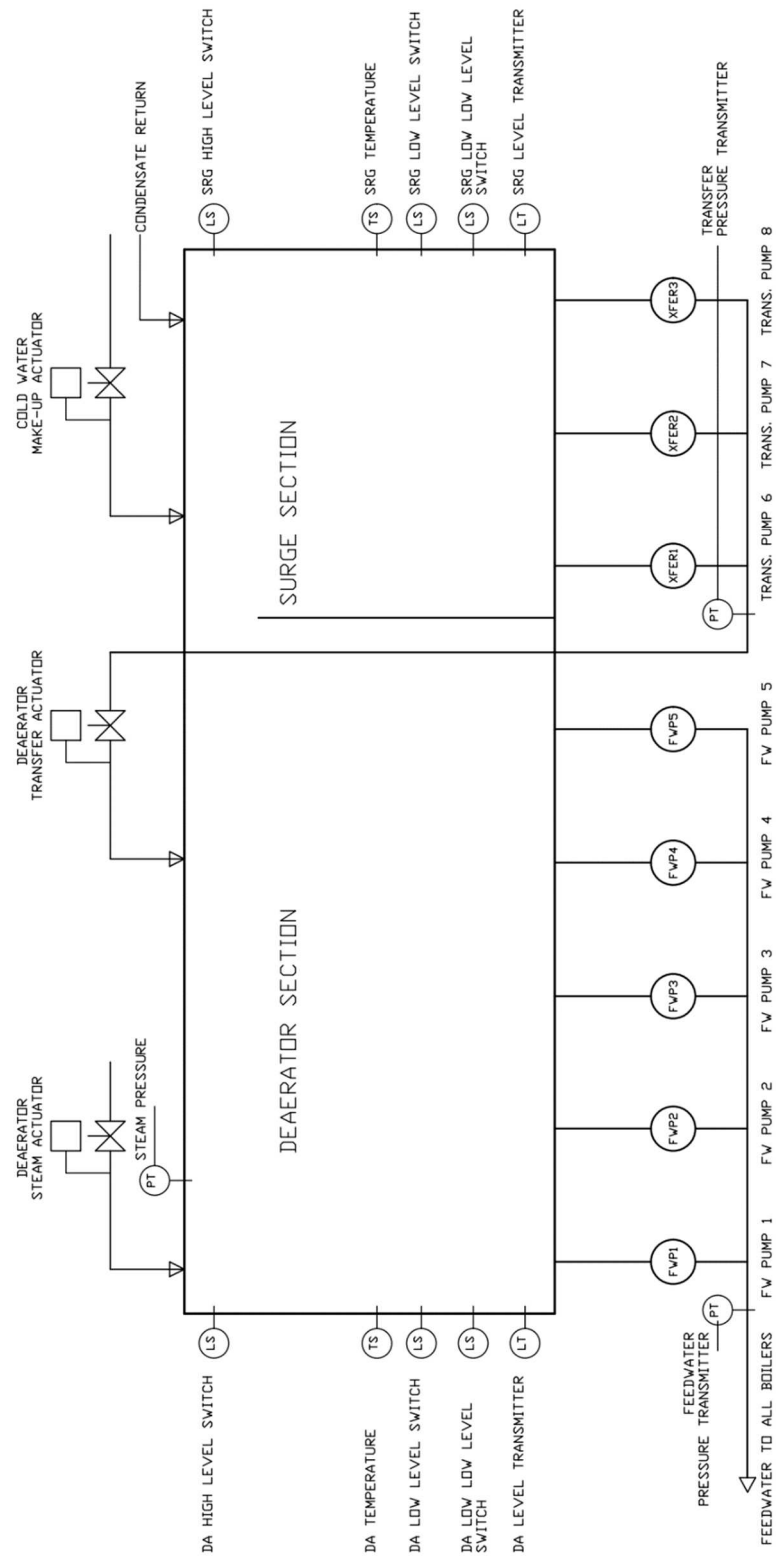
Connections (continued)

TS-C... series condensate system piping instrumentation diagram



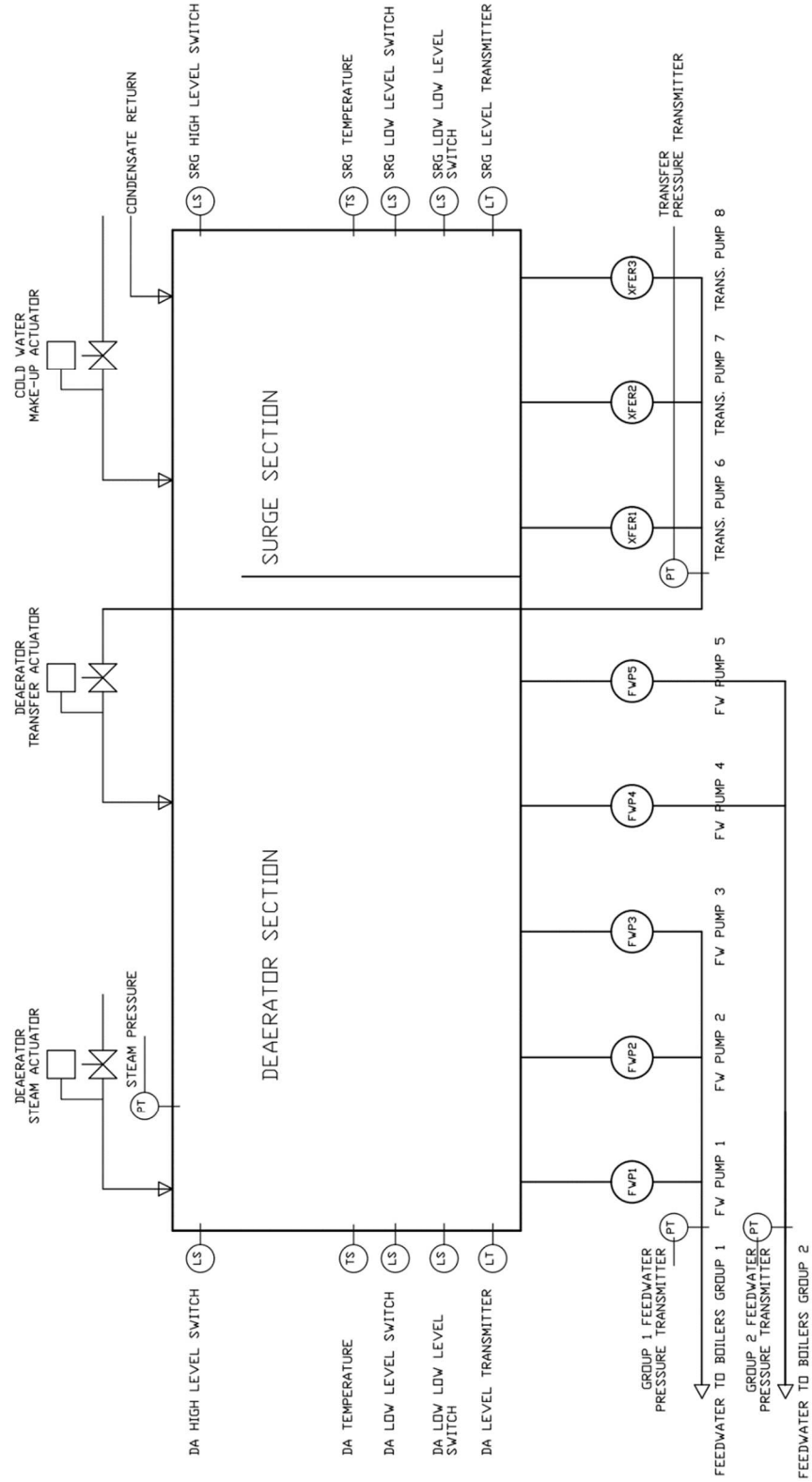
Connections (continued)

TS-DS... series split DA/surge system piping instrumentation diagram



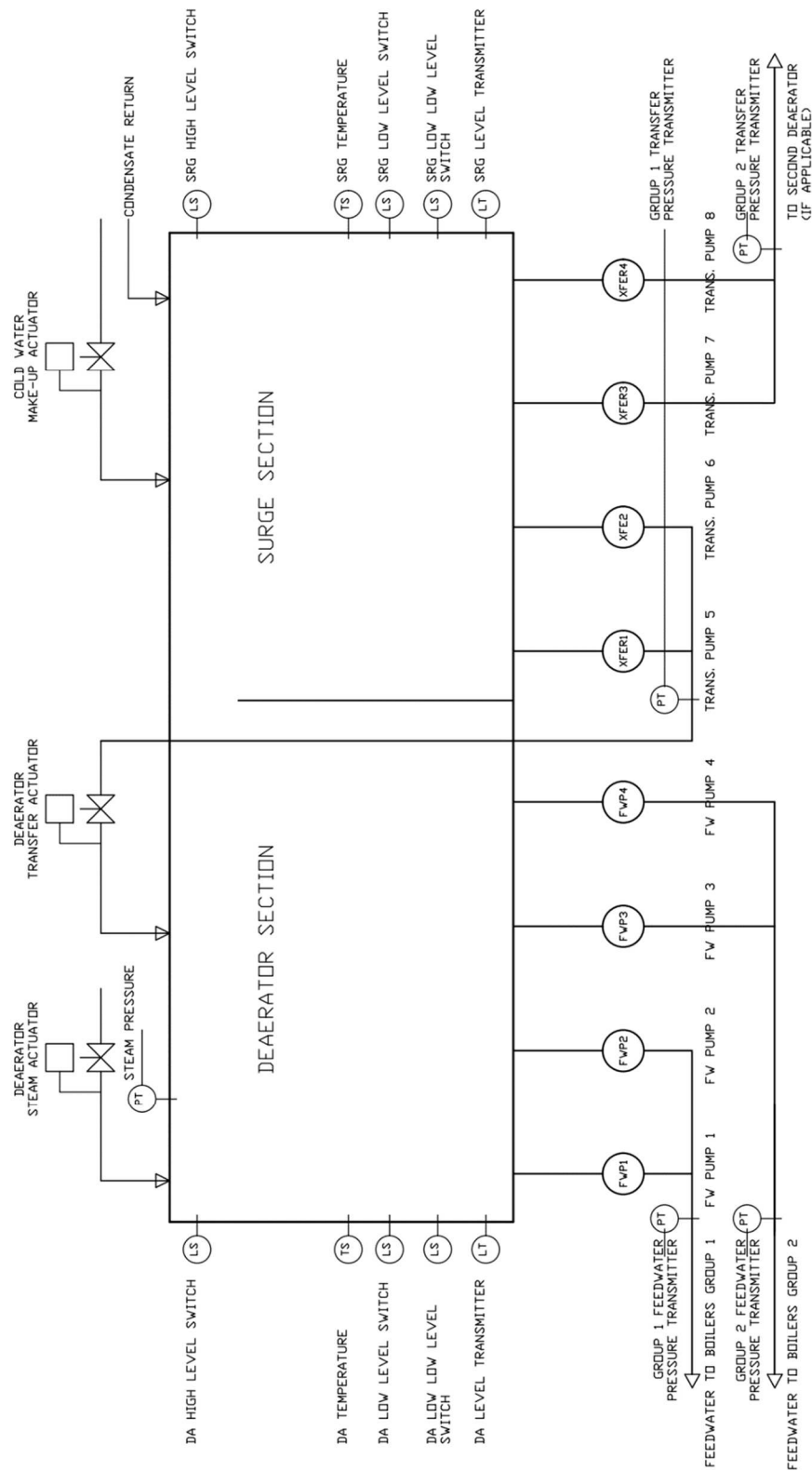
Connections (continued)

TS-DS... series split DA 2 groups/surge system piping instrumentation diagram

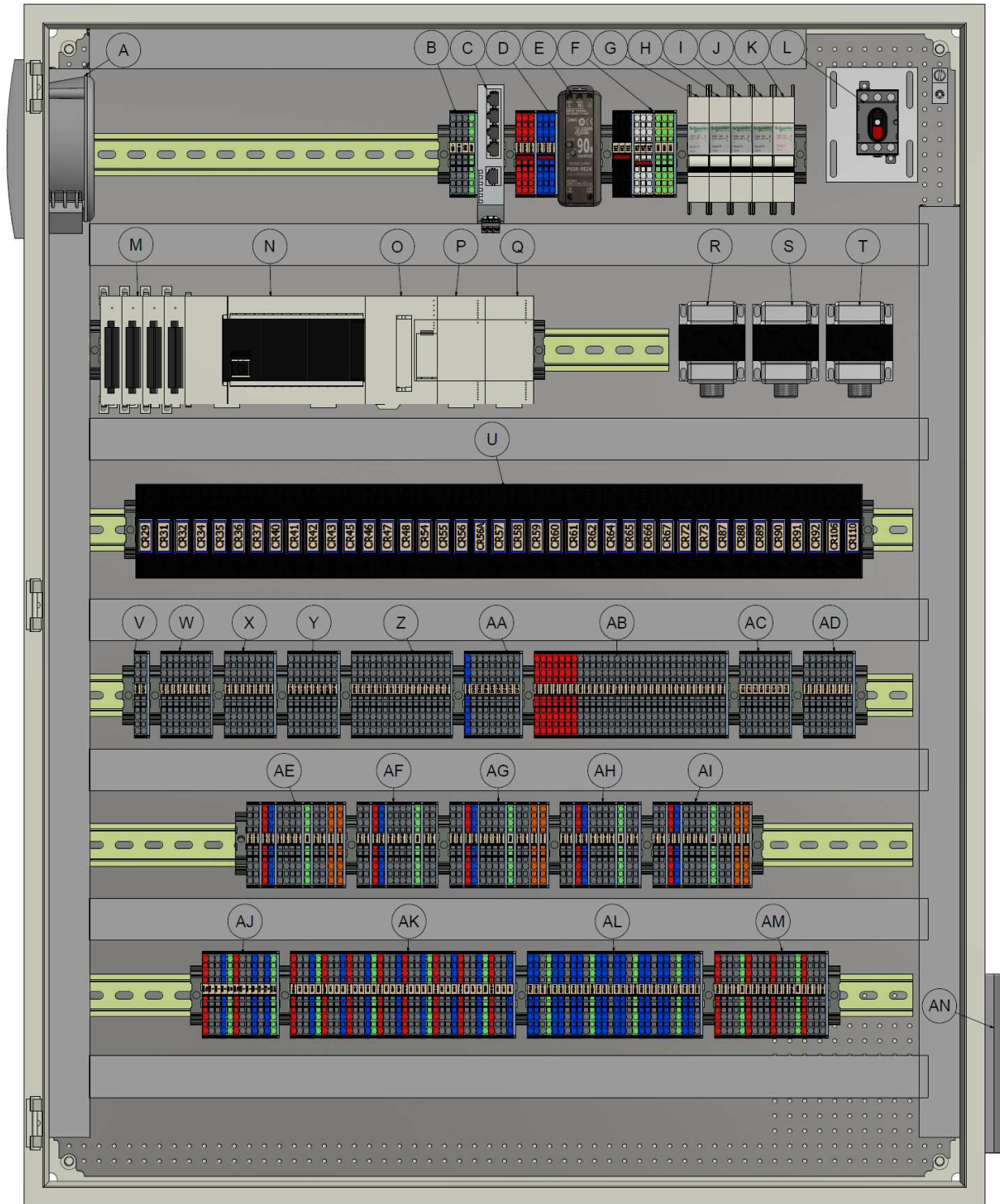


Connections (continued)

TS-DS... series split DA 2 groups/ SRG 2 groups system piping instrumentation diagram



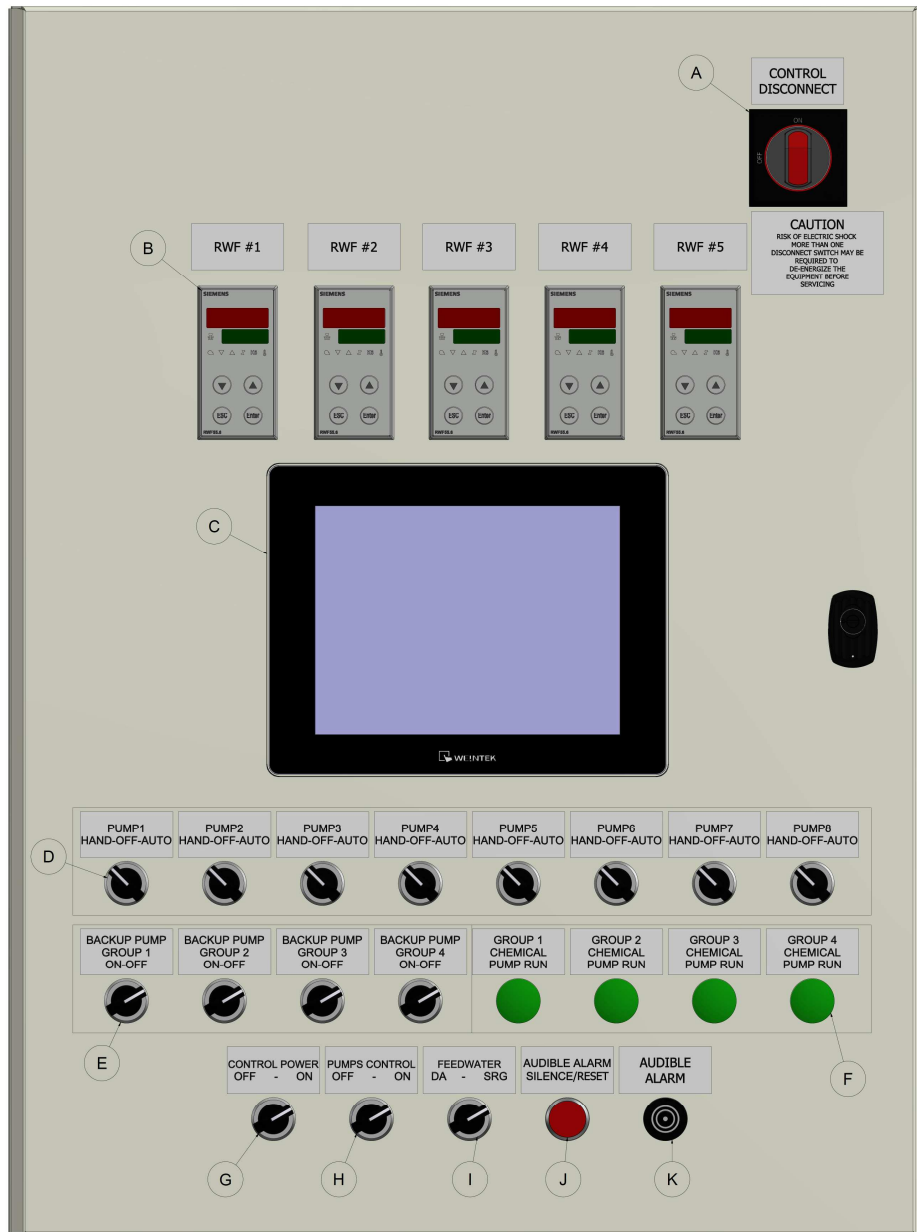
Enclosure Internal Parts Description



Enclosure Internal Parts Description

A.	Cooling Fan	U.	Relays
B.	Modbus RS485 Terminals	V.	Remote Alarm Terminals
C.	Protocol Converter	W.	Low Feedwater Pressure Alarm Terminals
D.	24VDC Terminals	X.	Chemical Pump Start Command Terminals
E.	24 VDC Power Supply	Y.	Backup Pump Start Command Terminals
F.	120 VAC and Ground Terminals	Z.	Pump Start/Stop Command Terminals
G.	Cooling Fan Circuit Breaker	AA.	Pump Run Light Terminals
H.	Water Level Circuit Breaker	AB.	Digital Input Terminals
I.	Water Level Circuit Breaker	AC.	BMS Pump On/Off or Boiler Start Control Terminals
J.	Water Level Circuit Breaker	AD.	PLC K1/K6 Water Level Terminals
K.	System Power Circuit Breaker	AE.	1 st RWF55 Controller Terminals
L.	System 120 VAC Disconnect	AF.	2 nd RWF55 Controller Terminals
M.	Analog and RTD Input Modules	AG.	3 rd RWF55 Controller Terminals
N.	Programmable Logic Controller (PLC)	AH.	4 th RWF55 Controller Terminals
O.	Temperature Controller Module	AI.	5 th RWF55 Controller Terminals
P.	Input Output Module	AJ.	Built-in Analog Input and Output Terminals
Q.	Second Input Output Module	AK.	Analog Input Terminals
R.	Feedwater 24 VAC Transformer	AL.	Analog Output Terminals
S.	2 nd Feedwater 24 VAC Transformer	AM.	RTD Terminals
T.	3 rd Feedwater 24 VAC Transformer	AN.	Fan Exhaust

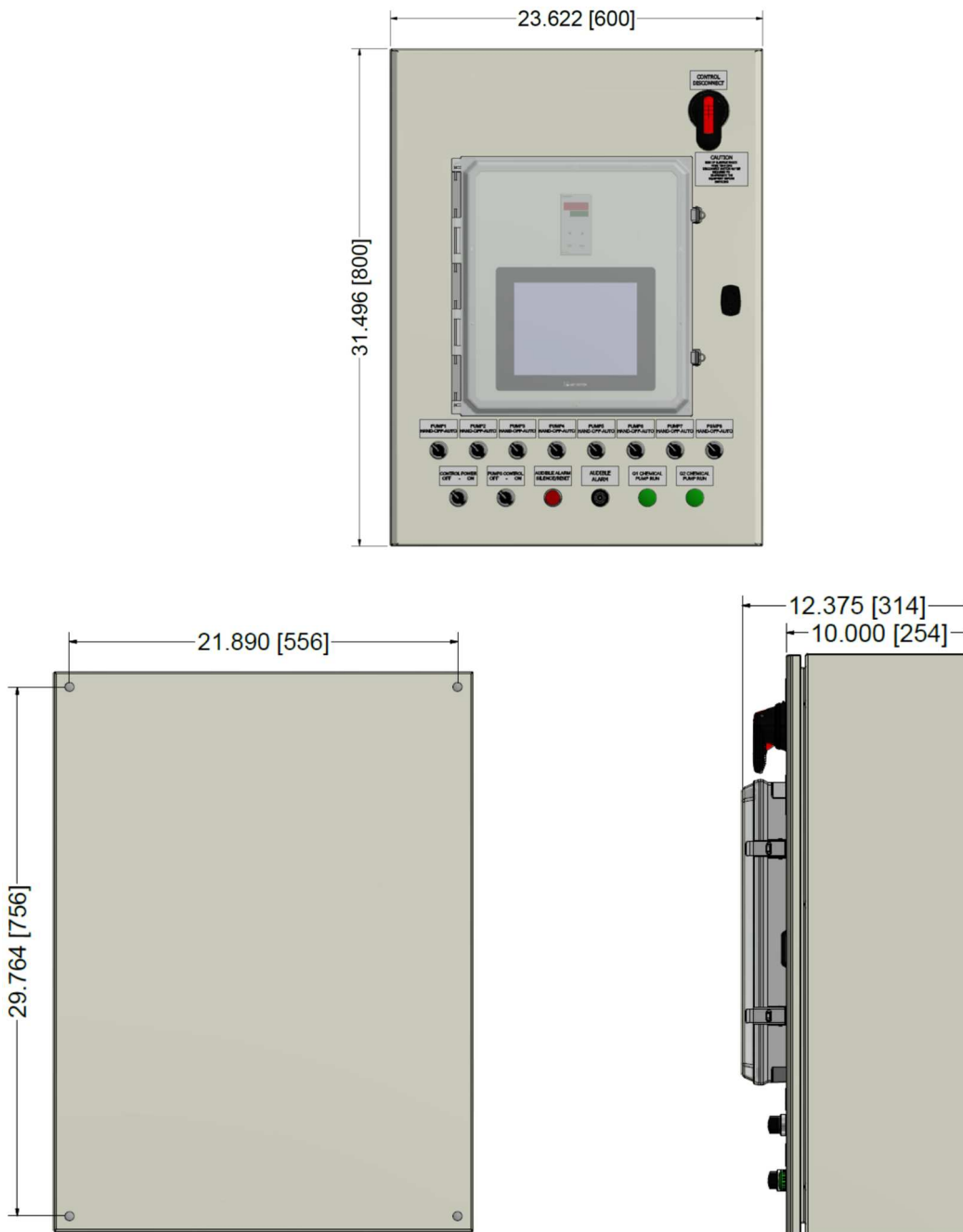
Enclosure External Parts Description



A.	Main 120 VAC lockable disconnect handle	G.	Control power switch
B.	RWF55s for water level and pressure control	H.	Pump control on/off switch
C.	Touchscreen	I.	Feedwater selector switch
D.	Hand/Off/Auto pump switches	J.	Audible alarm silence/reset button
E.	Group backup pump on/off switch	K.	Audible alarm
F.	Group chemical pump run light		

Enclosure Dimensions

Dimensions in inches; millimeters in brackets



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