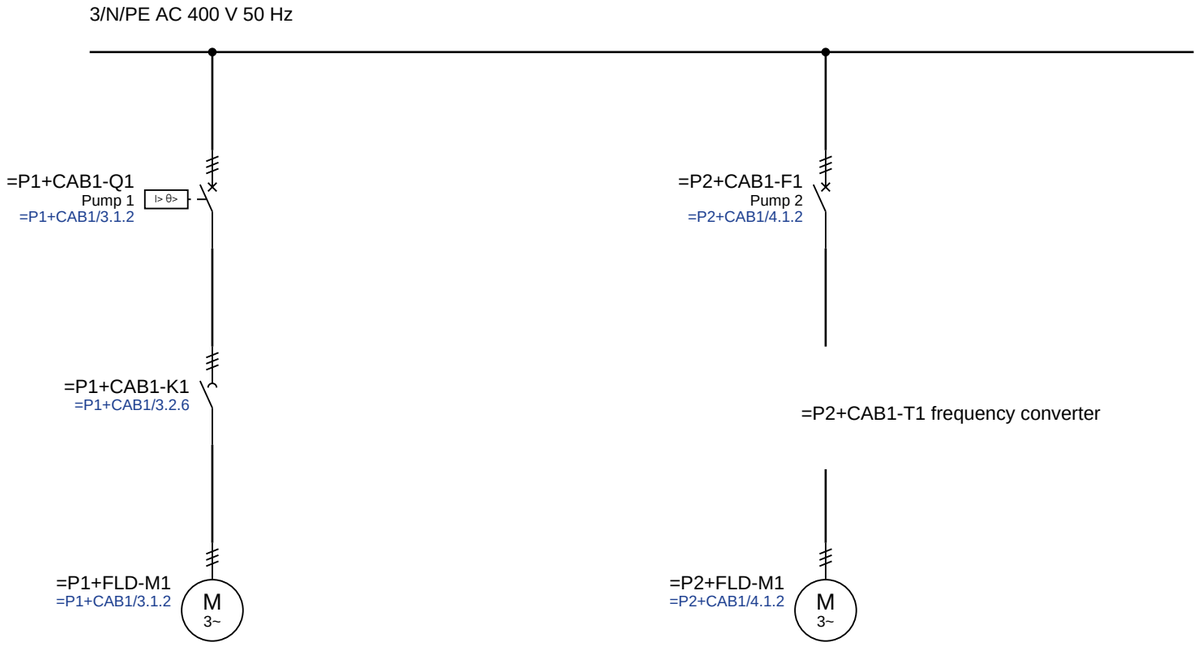
Pump station

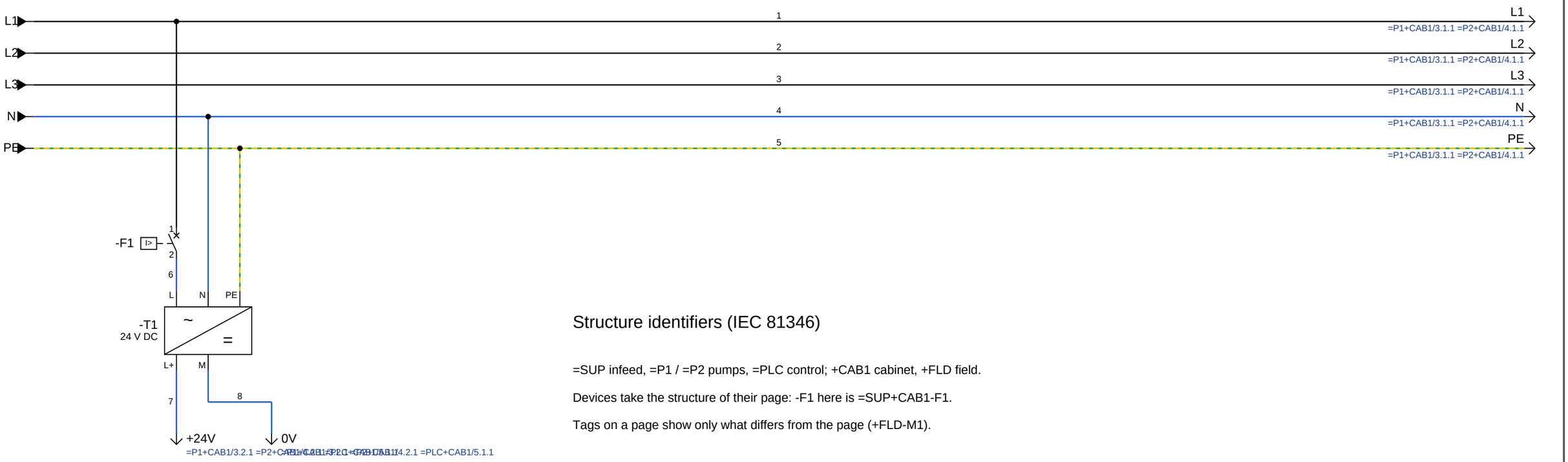
Two pumps with PLC control
structured after IEC 81346

Company	OpenECraft
Created by	OpenECraft
Date	2026-10-27
Revision	A
Number of pages	14

Company OpenECraft	Date 2026-10-27	Revision A	Project / page description Pump station	Page 1.1	Sheet 1 / 14
	Creator OpenECraft	Software OpenECraft	Cover sheet	Type Cover	Project Pump station



Company: OpenECraft	Date: 2026-10-27	Revision: A	Project / page description: Pump station	Page: 1.2	Sheet: 2 / 14
	Creator: OpenECraft	Software: OpenECraft	Single-line diagram	Type: Overview	Project: Pump station



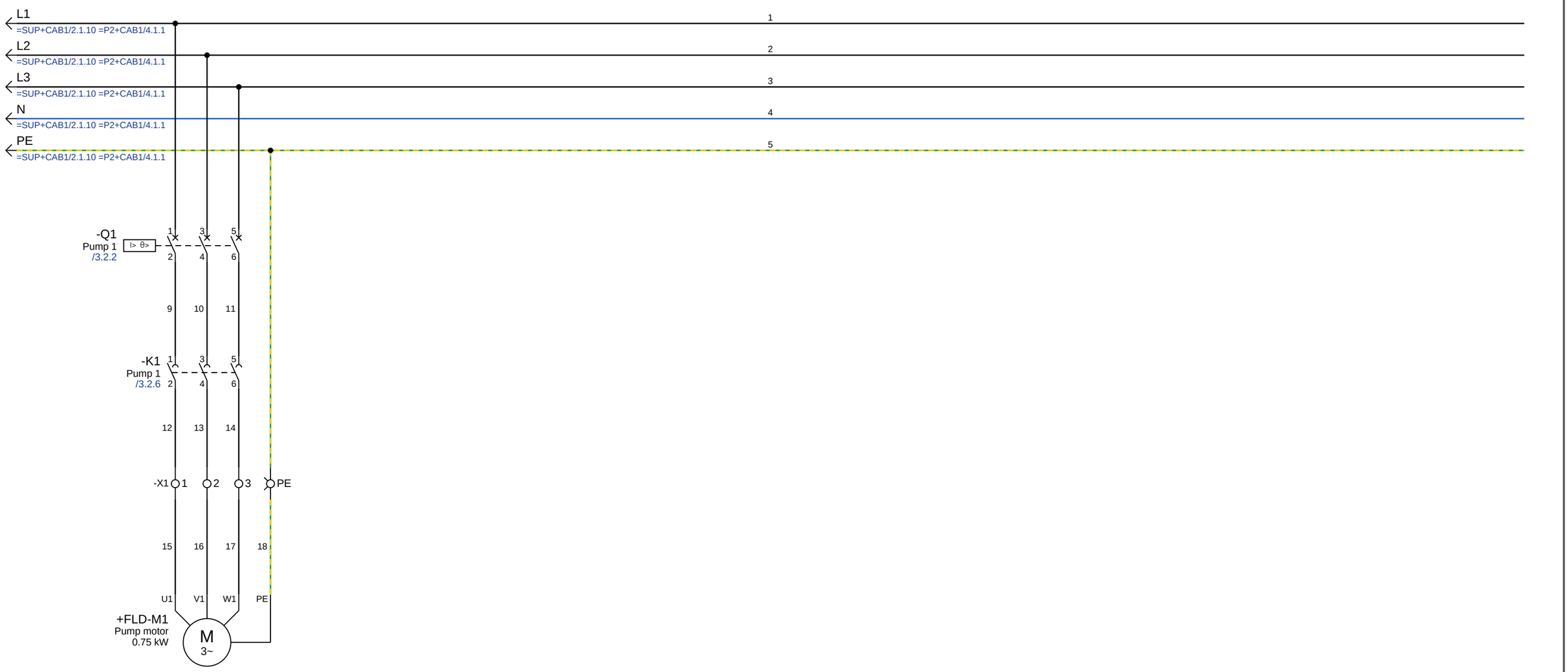
Structure identifiers (IEC 81346)

=SUP infeed, =P1 / =P2 pumps, =PLC control; +CAB1 cabinet, +FLD field.

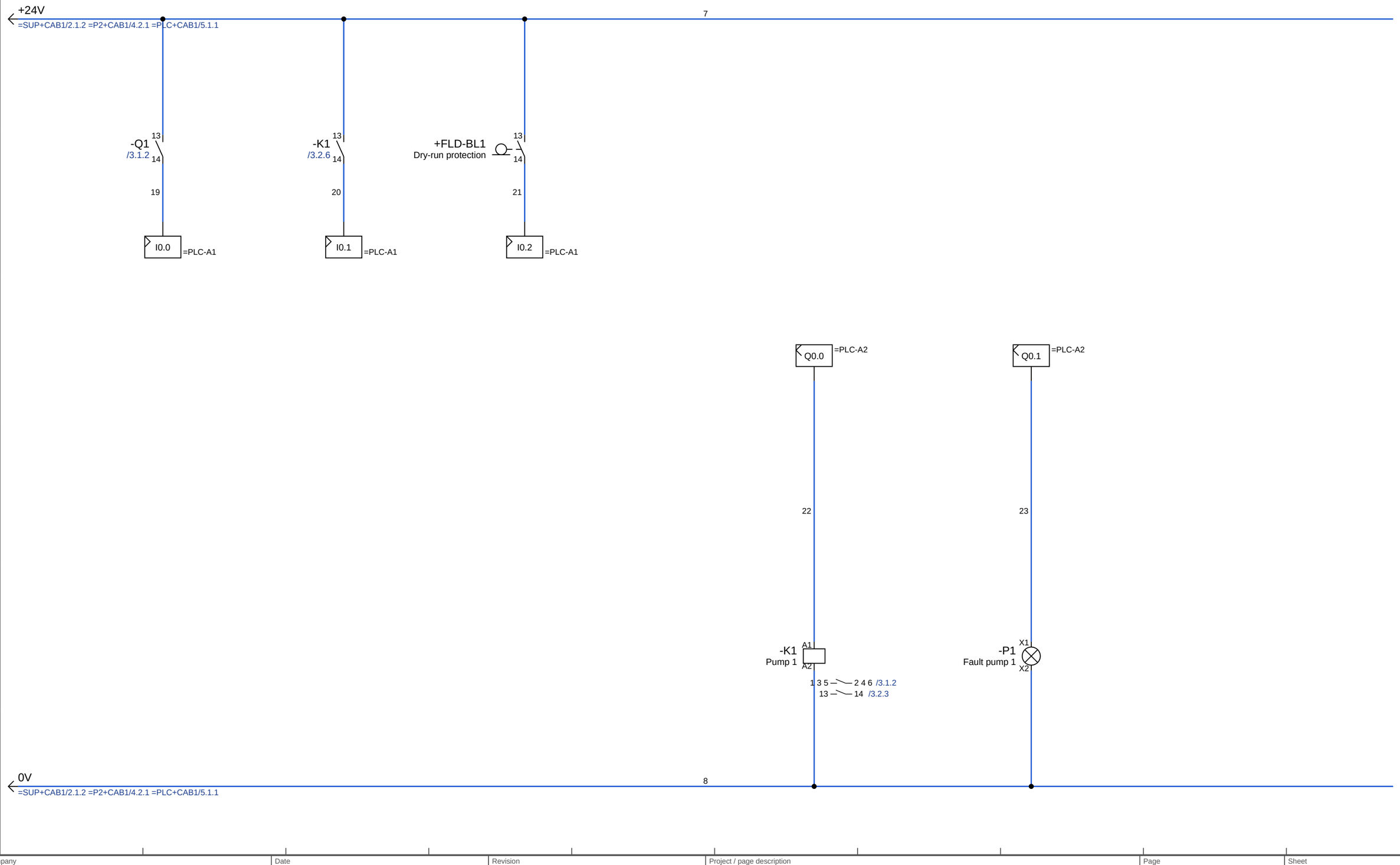
Devices take the structure of their page: -F1 here is =SUP+CAB1-F1.

Tags on a page show only what differs from the page (+FLD-M1).

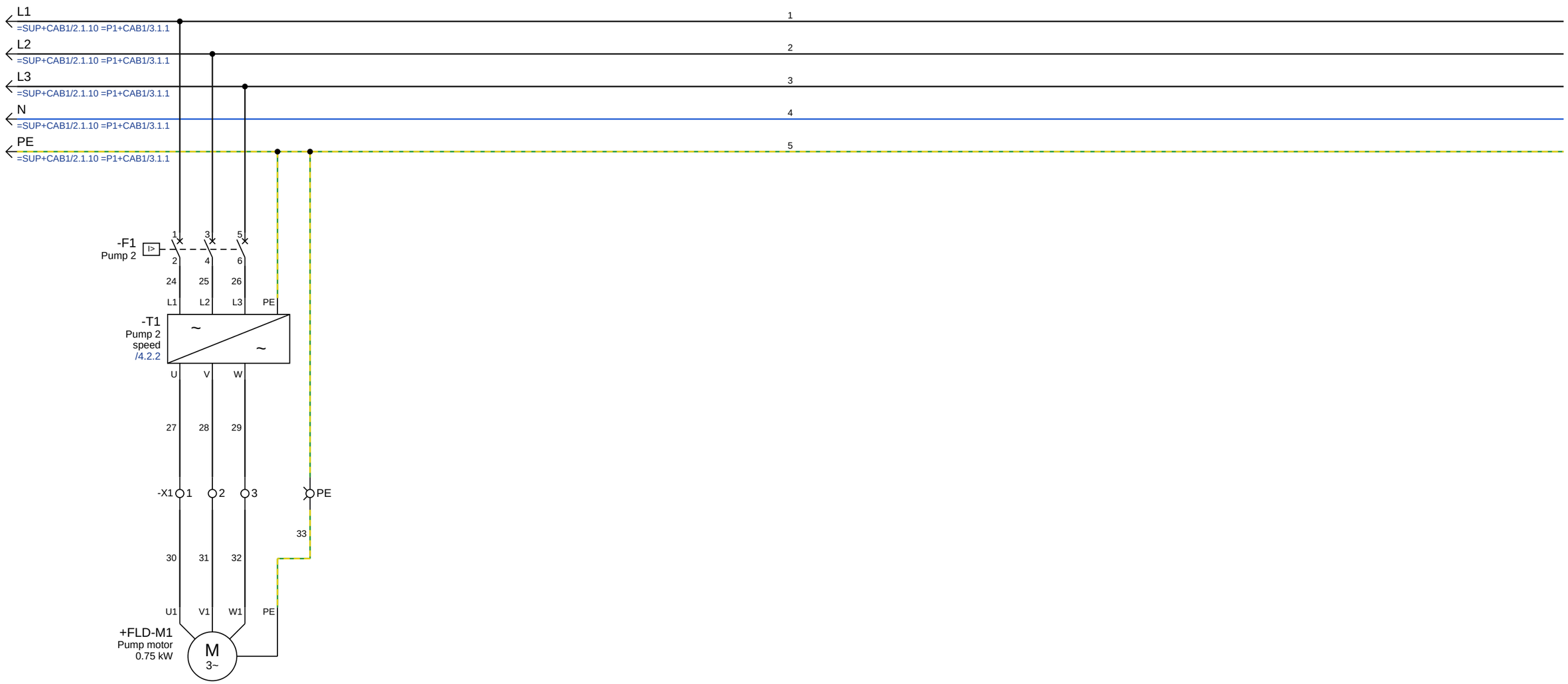
Company: OpenECraft	Date: 2026-10-27	Revision: A	Project / page description: Pump station	Page: =SUP+CAB1/2.1	Sheet: 3 / 14
	Creator: OpenECraft	Software: OpenECraft	Infeed and 24 V supply	Type: Schematic	Project: Pump station



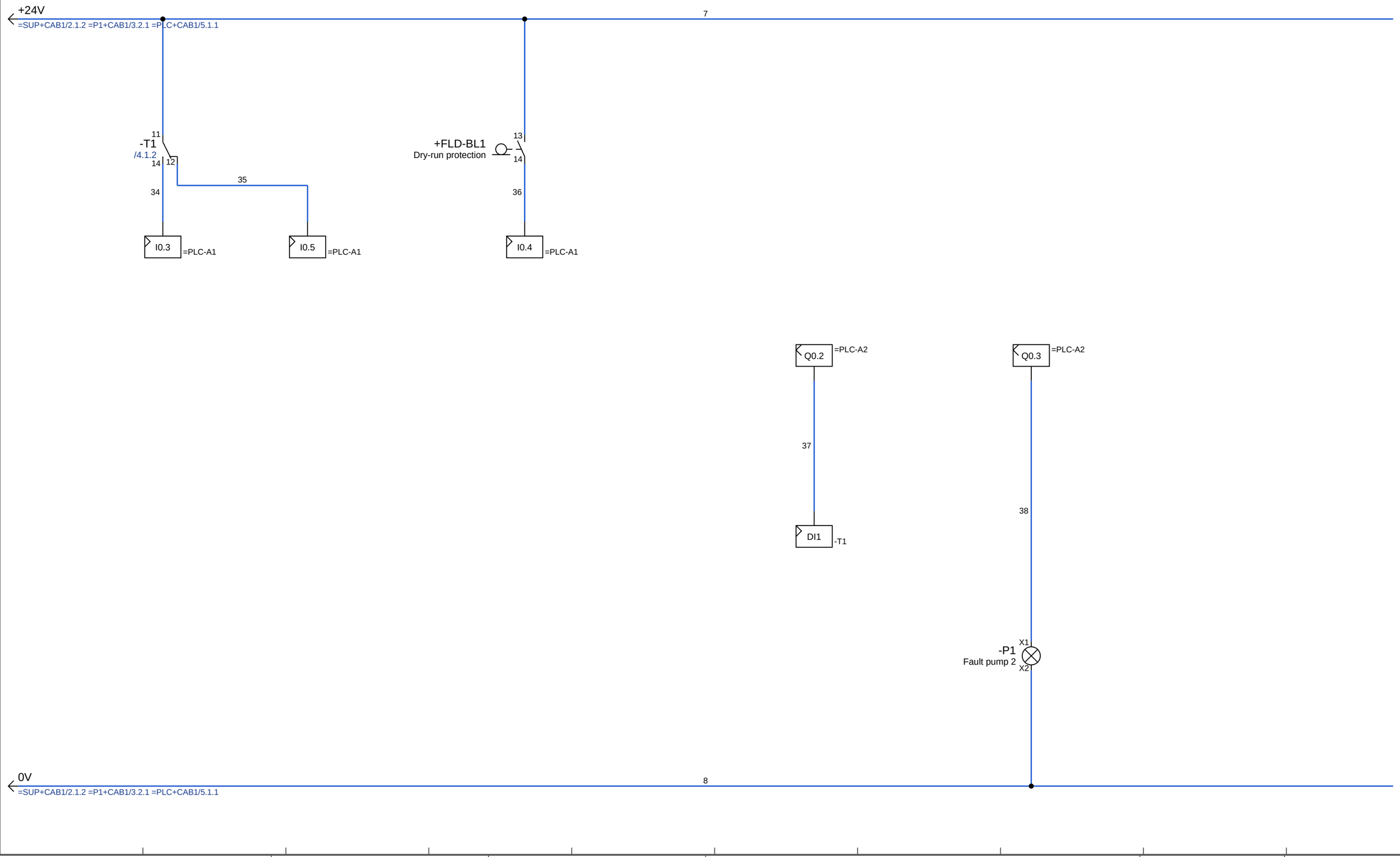
Company	Date	Revision	Project / page description	Page	Sheet
OpenECraft	2026-10-27	A	Pump station	=P1+CAB1/3.1	4 / 14
	Creator	Software	Power pump 1	Type	Project
	OpenECraft	OpenECraft		Schematic	Pump station



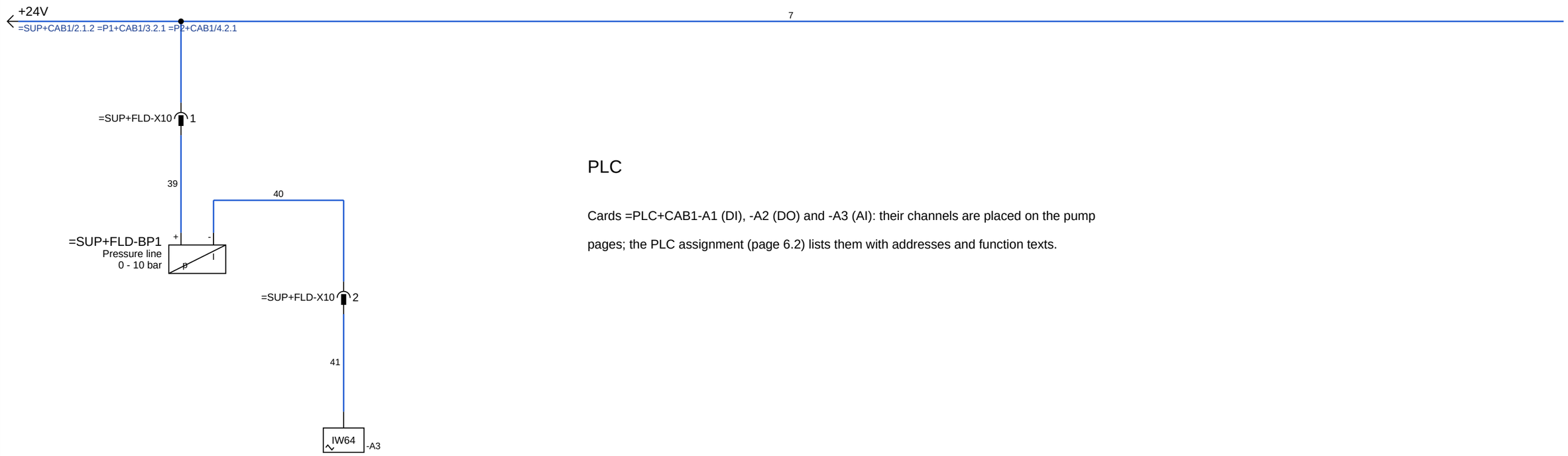
Company: OpenECraft	Date: 2026-10-27	Revision: A	Project / page description: Pump station	Page: =P1+CAB1/3.2	Sheet: 5 / 14
	Creator: OpenECraft	Software: OpenECraft	Control pump 1	Type: Schematic	Project: Pump station



Company	Date	Revision	Project / page description	Page	Sheet
OpenECraft	2026-10-27	A	Pump station	=P2+CAB1/4.1	6 / 14
	Creator: OpenECraft	Software: OpenECraft	Power pump 2	Type: Schematic	Project: Pump station



Company: OpenECraft	Date: 2026-10-27	Revision: A	Project / page description: Pump station	Page: =P2+CAB1/4.2	Sheet: 7 / 14
	Creator: OpenECraft	Software: OpenECraft	Control pump 2	Type: Schematic	Project: Pump station



PLC

Cards =PLC+CAB1-A1 (DI), -A2 (DO) and -A3 (AI): their channels are placed on the pump pages; the PLC assignment (page 6.2) lists them with addresses and function texts.

Company	Date	Revision	Project / page description	Page	Sheet
OpenECraft	2026-10-27	A	Pump station	=PLC+CAB1/5.1	8 / 14
	Creator: OpenECraft	Software: OpenECraft	Analog inputs	Type: Schematic	Project: Pump station

Table of contents

Page	Description	Type	Devices
1.1	Cover sheet	Cover sheet	0
1.2	Single-line diagram	Overview (not evaluated)	5
2.1	Infeed and 24 V supply	Schematic (multi-line)	14
3.1	Power pump 1	Schematic (multi-line)	12
3.2	Control pump 1	Schematic (multi-line)	12
4.1	Power pump 2	Schematic (multi-line)	12
4.2	Control pump 2	Schematic (multi-line)	11
5.1	Analog inputs	Schematic (multi-line)	6
6.1	Table of contents	Report: Table of contents	0
6.2	PLC assignment	Report: PLC assignment list	0
6.3	Plug diagram	Report: Plug diagram	0
6.4	Terminal diagram	Report: Terminal diagram	0
6.5	Device list	Report: Device list	0
6.6	Bill of materials	Report: Bill of materials	0

PLC assignment list

PLC card	Address	Type	Function text	Connected to	Location
=P2+CAB1-T1	DI1	DI	Run	=PLC+CAB1-A2:Q0.2	/4.2.6
=PLC+CAB1-A1	I0.0	DI	Pump 1 ready	=P1+CAB1-Q1:14	/3.2.2
=PLC+CAB1-A1	I0.1	DI	Pump 1 running	=P1+CAB1-K1:14	/3.2.3
=PLC+CAB1-A1	I0.2	DI	Pump 1 water level	=P1+FLD-BL1:14	/3.2.4
=PLC+CAB1-A1	I0.3	DI	Pump 2 ready	=P2+CAB1-T1:14	/4.2.2
=PLC+CAB1-A1	I0.4	DI	Pump 2 water level	=P2+FLD-BL1:14	/4.2.4
=PLC+CAB1-A1	I0.5	DI	Pump 2 converter fault	=P2+CAB1-T1:12	/4.2.3
=PLC+CAB1-A2	Q0.0	DO	Pump 1 on	=P1+CAB1-K1:A1	/3.2.6
=PLC+CAB1-A2	Q0.1	DO	Pump 1 fault	=P1+CAB1-P1:X1	/3.2.8
=PLC+CAB1-A2	Q0.2	DO	Pump 2 on	=P2+CAB1-T1:DI1	/4.2.6
=PLC+CAB1-A2	Q0.3	DO	Pump 2 fault	=P2+CAB1-P1:X1	/4.2.8
=PLC+CAB1-A3	IW64	DI	Line pressure	=SUP+FLD-BP1:-, =SUP+FLD-X10:2	/5.1.3

Plug diagram

Plug	Pin	Socket side	Pin side	Potential	Location	Function text
=SUP+FLD-X10	1	=P1+CAB1-K1:13, =P1+CAB1-Q1:13, =P1+FLD-BL1:13, =P2+CAB1-T1:11, =P2+FLD-BL1:13	=SUP+FLD-BP1:+	+24V	/5.1.2	
=SUP+FLD-X10	2	=SUP+FLD-BP1:-	=PLC+CAB1-A3:IW64	N24	/5.1.3	
=SUP+FLD-X10	3					spare
=SUP+FLD-X10	4					spare

Company OpenECraft	Date 2026-10-27	Revision A	Project / page description Pump station	Page 6.3	Sheet 11 / 14
	Creator OpenECraft	Software OpenECraft	Plug diagram	Type Report	Project Pump station

Terminal diagram

Strip	Terminal	Level	Jumper	External (top)	Internal (bottom)	Potential	Location	Function text
=P1+CAB1-X1	End bracket			GEN.EB-35				
=P1+CAB1-X1	1			=P1+CAB1-K1:2	=P1+FLD-M1:U1	N5	/3.1.2	
=P1+CAB1-X1	2			=P1+CAB1-K1:4	=P1+FLD-M1:V1	N6	/3.1.2	
=P1+CAB1-X1	3			=P1+CAB1-K1:6	=P1+FLD-M1:W1	N7	/3.1.2	
=P1+CAB1-X1	End plate			GEN.TB-END				
=P1+CAB1-X1	PE			=P2+CAB1-T1:PE, =P2+CAB1-X1:PE, =PE, =SUP+CAB1-T1:PE, »PE	=P1+FLD-M1:PE	PE	/3.1.2	
=P1+CAB1-X1	End plate			GEN.TB-END				
=P1+CAB1-X1	End bracket			GEN.EB-35				
=P2+CAB1-X1	End bracket			GEN.EB-35				
=P2+CAB1-X1	1			=P2+CAB1-T1:U	=P2+FLD-M1:U1	N16	/4.1.2	
=P2+CAB1-X1	2			=P2+CAB1-T1:V	=P2+FLD-M1:V1	N17	/4.1.2	
=P2+CAB1-X1	3			=P2+CAB1-T1:W	=P2+FLD-M1:W1	N18	/4.1.2	
=P2+CAB1-X1	End plate			GEN.TB-END				
=P2+CAB1-X1	PE			=P1+CAB1-X1:PE, =P2+CAB1-T1:PE, =PE, =SUP+CAB1-T1:PE, »PE	=P2+FLD-M1:PE	PE	/4.1.2	
=P2+CAB1-X1	End plate			GEN.TB-END				
=P2+CAB1-X1	End bracket			GEN.EB-35				

Device list

Device tag	Main function	Function text	Location	Aux. functions	Part number	Description
=P1+CAB1-K1	Relay / contactor coil	Pump 1	/3.2.6	2	GEN.CT-9A-24DC	Contactor 3P 9 A, coil 24 V DC, 1 NO aux
=P1+CAB1-P1	Indicator lamp	Fault pump 1	/3.2.8	0	GEN.LMP-RD-24	Indicator lamp red, LED 24 V
=P1+CAB1-Q1	Motor protection switch	Pump 1	/3.1.2	1	GEN.MPS-2.5-4A, GEN.MPS-AUX-1NO1NC	Motor protection switch 2.5 - 4 A
=P1+CAB1-X1	Terminal ×4		/3.1.2	0	GEN.TB-2.5, GEN.TB-PE-2.5	Feed-through terminal 2.5 mm², grey
=P1+FLD-BL1	Float switch NO	Dry-run protection	/3.2.4	0	GEN.FLOAT-SW-1NO	Float switch, cable 5 m, 1 NO
=P1+FLD-M1	Motor 3-phase	Pump motor 0.75 kW	/3.1.2	0	GEN.MOT-0.75KW	Three-phase motor 0.75 kW 400 V, 1400 rpm
=P2+CAB1-F1	Circuit breaker 3-pole	Pump 2	/4.1.2	0	GEN.MCB-3P-C16	Miniature circuit breaker 3P C16
=P2+CAB1-P1	Indicator lamp	Fault pump 2	/4.2.8	0	GEN.LMP-RD-24	Indicator lamp red, LED 24 V
=P2+CAB1-T1	Frequency converter	Pump 2 speed	/4.1.2	1	GEN.VFD-0.75KW	Frequency converter 0.75 kW, 3 x 400 V, EMC filter
=P2+CAB1-X1	Terminal ×4		/4.1.2	0	GEN.TB-2.5, GEN.TB-PE-2.5	Feed-through terminal 2.5 mm², grey
=P2+FLD-BL1	Float switch NO	Dry-run protection	/4.2.4	0	GEN.FLOAT-SW-1NO	Float switch, cable 5 m, 1 NO
=P2+FLD-M1	Motor 3-phase	Pump motor 0.75 kW	/4.1.2	0	GEN.MOT-0.75KW	Three-phase motor 0.75 kW 400 V, 1400 rpm
=PLC+CAB1-A1	PLC digital input ×6	Pump 1 ready	/3.2.2	0	GEN.PLC-DI16	PLC digital input module 16 x 24 V DC
=PLC+CAB1-A2	PLC digital output ×4	Pump 1 on	/3.2.6	0	GEN.PLC-DO16	PLC digital output module 16 x 24 V DC 0.5 A
=PLC+CAB1-A3	PLC analog input ×1	Line pressure	/5.1.3	0	GEN.PLC-AI4	PLC analog input module 4 x 0/4 - 20 mA, 0 - 10 V
=SUP+CAB1-F1	Circuit breaker 1-pole		/2.1.2	0	GEN.MCB-1P-C6	Miniature circuit breaker 1P C6
=SUP+CAB1-T1	Power supply AC/DC	24 V DC	/2.1.2	0	GEN.PS-24DC-5A	Power supply 230 V AC / 24 V DC 5 A
=SUP+FLD-BP1	Measuring transducer	Pressure line 0 - 10 bar	/5.1.2	0	GEN.PT-10BAR-420	Pressure transmitter 0 - 10 bar, 4 - 20 mA, 2-wire, G1/4
=SUP+FLD-X10	Plug pin and socket ×2		/5.1.2	0	GEN.CON-M12-4	Connector M12, 4 pins, A-coded, female, field-wireable

Bill of materials

Pos	Qty	Unit	Part number	Type number	Manufacturer	Description	Devices	Unit price	Total
1	1	pcs	GEN.CON-M12-4	CON-M12-4	Generic	Connector M12, 4 pins, A-coded, female, field-wireable	=SUP+FLD-X10	9.50 EUR	9.50
2	1	pcs	GEN.CT-9A-24DC	CT-9A-24DC	Generic	Contactor 3P 9 A, coil 24 V DC, 1 NO aux	=P1+CAB1-K1	38.50 EUR	38.50
3	4	pcs	GEN.EB-35	EB-35	Generic	End bracket for TS 35 mounting rail	=P1+CAB1-X1, =P2+CAB1-X1	1.10 EUR	4.40
4	2	pcs	GEN.FLOAT-SW-1NO	FLOAT-SW-1NO	Generic	Float switch, cable 5 m, 1 NO	=P1+FLD-BL1, =P2+FLD-BL1	21.00 EUR	42.00
5	2	pcs	GEN.LMP-RD-24	LMP-RD-24	Generic	Indicator lamp red, LED 24 V	=P1+CAB1-P1, =P2+CAB1-P1	9.10 EUR	18.20
6	17	pcs	GEN.MARK-DEV	MARK-DEV	Generic	Device marker 15 x 5 mm, white, printable	marking	0.08 EUR	1.36
7	10	pcs	GEN.MARK-TB-5	MARK-TB-5	Generic	Terminal marker 5.2 mm, white, printable	marking	0.02 EUR	0.20
8	100	pcs	GEN.MARK-WIRE	MARK-WIRE	Generic	Wire marker sleeve for 0.5 – 2.5 mm², white, printable	marking	0.03 EUR	3.00
9	1	pcs	GEN.MCB-1P-C6	MCB-1P-C6	Generic	Miniature circuit breaker 1P C6	=SUP+CAB1-F1	8.70 EUR	8.70
10	1	pcs	GEN.MCB-3P-C16	MCB-3P-C16	Generic	Miniature circuit breaker 3P C16	=P2+CAB1-F1	27.30 EUR	27.30
11	2	pcs	GEN.MOT-0.75KW	MOT-0.75KW	Generic	Three-phase motor 0.75 kW 400 V, 1400 rpm	=P1+FLD-M1, =P2+FLD-M1	180.00 EUR	360.00
12	1	pcs	GEN.MPS-2.5-4A	MPS-2.5-4A	Generic	Motor protection switch 2.5 - 4 A	=P1+CAB1-Q1	61.00 EUR	61.00
13	1	pcs	GEN.MPS-AUX-1NO1NC	MPS-AUX-1NO1NC	Generic	Auxiliary switch for motor protection switch, 1 NO + 1 NC, lateral mou…	=P1+CAB1-Q1	12.90 EUR	12.90
14	1	pcs	GEN.PLC-AI4	PLC-AI4	Generic	PLC analog input module 4 x 0/4 - 20 mA, 0 - 10 V	=PLC+CAB1-A3	245.00 EUR	245.00
15	1	pcs	GEN.PLC-DI16	PLC-DI16	Generic	PLC digital input module 16 x 24 V DC	=PLC+CAB1-A1	145.00 EUR	145.00
16	1	pcs	GEN.PLC-DO16	PLC-DO16	Generic	PLC digital output module 16 x 24 V DC 0.5 A	=PLC+CAB1-A2	165.00 EUR	165.00
17	1	pcs	GEN.PS-24DC-5A	PS-24DC-5A	Generic	Power supply 230 V AC / 24 V DC 5 A	=SUP+CAB1-T1	89.00 EUR	89.00
18	1	pcs	GEN.PT-10BAR-420	PT-10BAR-420	Generic	Pressure transmitter 0 - 10 bar, 4 - 20 mA, 2-wire, G1/4	=SUP+FLD-BP1	135.00 EUR	135.00
19	6	pcs	GEN.TB-2.5	TB-2.5	Generic	Feed-through terminal 2.5 mm², grey	=P1+CAB1-X1, =P2+CAB1-X1	0.95 EUR	5.70
20	4	pcs	GEN.TB-END	TB-END	Generic	End plate for terminal 2.5 mm²	=P1+CAB1-X1, =P2+CAB1-X1	0.30 EUR	1.20
21	2	pcs	GEN.TB-PE-2.5	TB-PE-2.5	Generic	Protective earth terminal 2.5 mm², green-yellow	=P1+CAB1-X1, =P2+CAB1-X1	1.80 EUR	3.60
22	1	pcs	GEN.VFD-0.75KW	VFD-0.75KW	Generic	Frequency converter 0.75 kW, 3 x 400 V, EMC filter	=P2+CAB1-T1	285.00 EUR	285.00
						Sum			1661.56