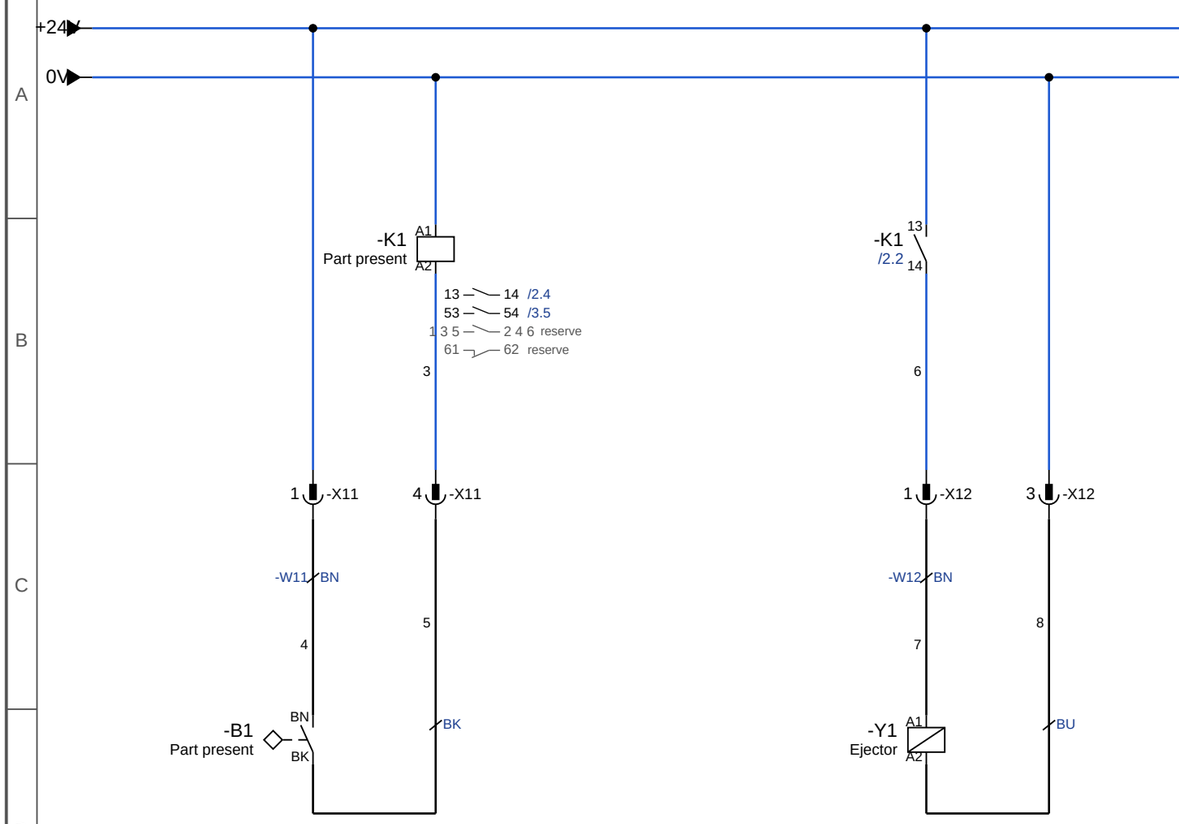
Connector handling

Circular, D-sub and IDC connectors
with ribbon cable

Company	OpenECraft
Created by	OpenECraft
Date	2026-10-31
Revision	A
Number of pages	8



Circular connectors

-X11: M12 A-coded, 4 pins; -X12: M8, pins 1, 3 and 4.

The field cables carry their core colours to the pins:

Devices › Plugs shows them on the mating faces.

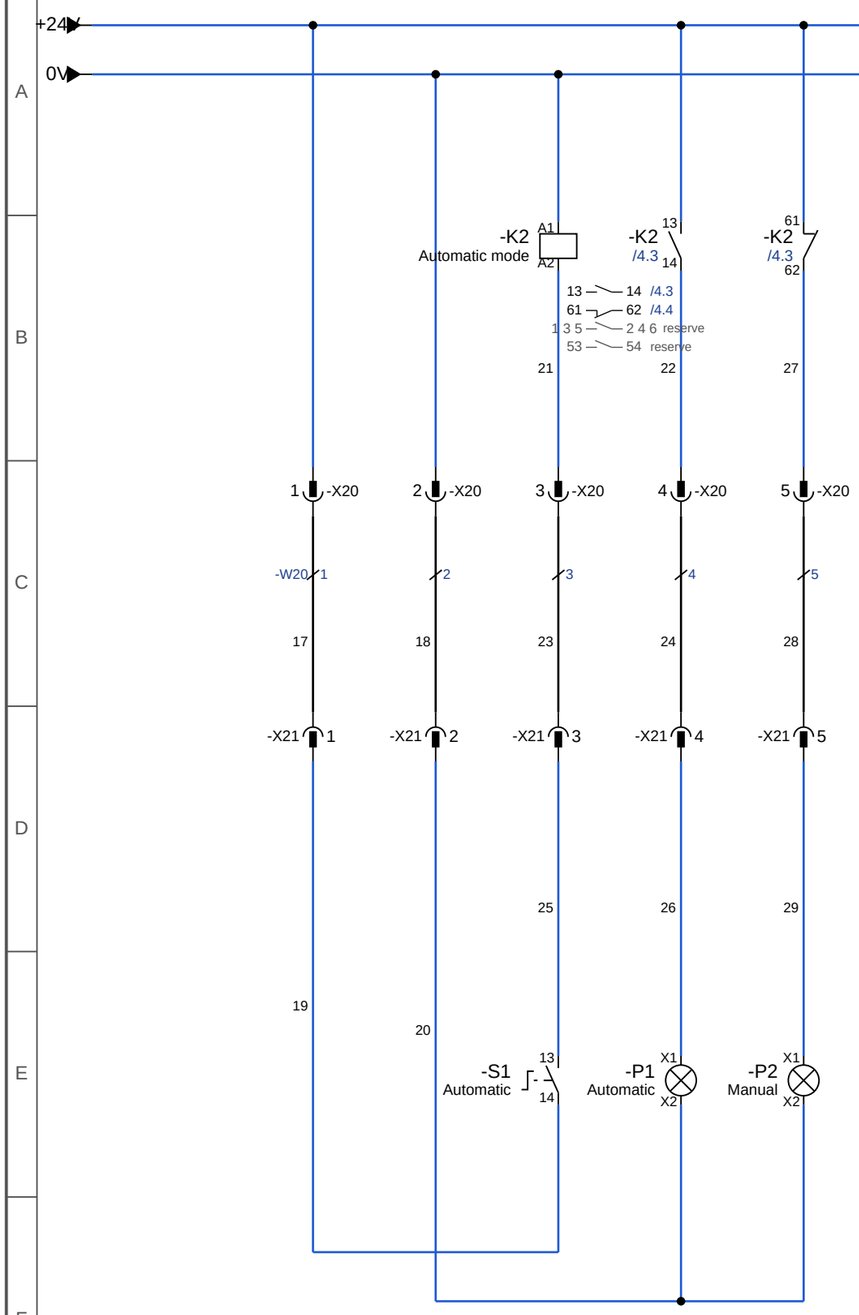
Company	Date	Revision	Project / page description	Page	Sheet
OpenECraft	2026-10-31	A	Connector handling	2	2 / 8
	Creator	Software	Proximity switch on M12, valve on M8	Type	Project
	OpenECraft	OpenECraft		Schematic	Connector handling

GX aviation connectors and D-sub

-X13: GX16, 4 pins; -X14: GX12, 3 pins; -X15: D-sub 9.

Unused pins are spares in the plug diagram and on the faces.

Company: OpenECraft	Date: 2026-10-31	Revision: A	Project / page description: Connector handling	Page: 3	Sheet: 3 / 8
	Creator: OpenECraft	Software: OpenECraft	Fan on GX aviation connectors, buzzer on D-sub	Type: Schematic	Project: Connector handling



Ribbon cable and IDC connectors

-W20: ribbon cable 10 cores, pitch 1.27 mm, core 1 marked red.

-X20 / -X21: IDC sockets 2 x 5 on box headers; core n lands on pin n.

Pins 6 - 10 are spare. The check reports cores on the wrong pin.

Controller board

Operator panel board

Company: OpenECraft	Date: 2026-10-31	Revision: A	Project / page description: Connector handling	Page: 4	Sheet: 4 / 8
	Creator: OpenECraft	Software: OpenECraft	Operator panel on ribbon cable	Type: Schematic	Project: Connector handling

Plug diagram

Plug	Pin	Socket side	Pin side	Potential	Location	Function text
-X11	1	-B1:BN	-K1:13, -K1:53, -K2:13, -K2:61, -X14:1, -X20:1, =+24V	+24V	/2.2	
-X11	4	-B1:BK	-K1:A2	N1	/2.2	
-X11	2					spare
-X11	3					spare
-X12	1	-Y1:A1	-K1:14	N2	/2.4	
-X12	3	-Y1:A2	-K1:A1, -K2:A1, -X13:2, -X15:3, -X20:2, =0V	0V	/2.5	
-X12	2					spare
-X13	1	-M1:A1	-X14:2	N3	/3.3	
-X13	2	-M1:A2	-K1:A1, -K2:A1, -X12:3, -X15:3, -X20:2, =0V	0V	/3.3	
-X13	3					spare
-X13	4					spare
-X14	1	-B2:11	-K1:13, -K1:53, -K2:13, -K2:61, -X11:1, -X20:1, =+24V	+24V	/3.2	
-X14	2	-B2:12	-X13:1	N3	/3.2	
-X14	3					spare
-X15	2	-P3:1	-K1:54	N4	/3.5	
-X15	3	-P3:2	-K1:A1, -K2:A1, -X12:3, -X13:2, -X20:2, =0V	0V	/3.6	
-X15	1					spare
-X15	4					spare
-X15	5					spare
-X15	6					spare
-X15	7					spare
-X15	8					spare
-X15	9					spare
-X20	1	-X21:1	-K1:13, -K1:53, -K2:13, -K2:61, -X11:1, -X14:1, =+24V	+24V	/4.2	
-X20	2	-X21:2	-K1:A1, -K2:A1, -X12:3, -X13:2, -X15:3, =0V	0V	/4.2	
-X20	3	-X21:3	-K2:A2	N5	/4.3	
-X20	4	-X21:4	-K2:14	N6	/4.3	
-X20	5	-X21:5	-K2:62	N7	/4.4	
-X20	6					spare
-X20	7					spare
-X20	8					spare
-X20	9					spare
-X20	10					spare
-X21	1	-X20:1	-S1:14	+24V	/4.2	
-X21	2	-X20:2	-P1:X2, -P2:X2	0V	/4.2	
-X21	3	-X20:3	-S1:13	N5	/4.3	
-X21	4	-X20:4	-P1:X1	N6	/4.3	
-X21	5	-X20:5	-P2:X1	N7	/4.4	
-X21	6					spare
-X21	7					spare

… 3 more rows – see Reports window / CSV export

Cable overview

Cable	Type	Cores used	Cross-section	Length (m)	From	To	Part number	Description
-W11	CBL-SENS-3X0.34	2/3	0.34 mm²	5	-X11	-B1	GEN.CBL-SENS-3X0.34	Proximity switch
-W12	CBL-SENS-3X0.34	2/3	0.34 mm²	3	-X12	-Y1	GEN.CBL-SENS-3X0.34	Valve
-W13	CBL-4G1.5	2/4	1.5 mm²	4	-X13	-M1	GEN.CBL-4G1.5	Fan
-W14	CBL-SENS-3X0.34	2/3	0.34 mm²	4	-X14	-B2	GEN.CBL-SENS-3X0.34	Fan thermostat
-W20	CBL-FLAT-10	5/10	0.08 mm²	0.6	-X20	-X21	GEN.CBL-FLAT-10	Operator panel

Cable diagram

Cable	Core	From	To	Potential	Wire no.	Cross-section
-W11	BN	-X11:1	-B1:BN	+24V	4	0.34 mm²
-W11	BU	reserve				0.34 mm²
-W11	BK	-X11:4	-B1:BK	N1	5	0.34 mm²
-W12	BN	-X12:1	-Y1:A1	N2	7	0.34 mm²
-W12	BU	-X12:3	-Y1:A2	0V	8	0.34 mm²
-W12	BK	reserve				0.34 mm²
-W13	BN	-X13:1	-M1:A1	N3	12	1.5 mm²
-W13	BK	-X13:2	-M1:A2	0V	13	1.5 mm²
-W13	GY	reserve				1.5 mm²
-W13	GNYE	reserve				1.5 mm²
-W14	BN	-X14:1	-B2:11	+24V	10	0.34 mm²
-W14	BU	-X14:2	-B2:12	N3	11	0.34 mm²
-W14	BK	reserve				0.34 mm²
-W20	1	-X20:1	-X21:1	+24V	17	0.08 mm²
-W20	2	-X20:2	-X21:2	0V	18	0.08 mm²
-W20	3	-X20:3	-X21:3	N5	23	0.08 mm²
-W20	4	-X20:4	-X21:4	N6	24	0.08 mm²
-W20	5	-X20:5	-X21:5	N7	28	0.08 mm²
-W20	6	reserve				0.08 mm²
-W20	7	reserve				0.08 mm²
-W20	8	reserve				0.08 mm²
-W20	9	reserve				0.08 mm²
-W20	10	reserve				0.08 mm²

Bill of materials

Pos	Qty	Unit	Part number	Type number	Manufacturer	Description	Devices	Unit price	Total
1	2	pcs	GEN.AUX-1NO1NC	AUX-1NO1NC	Generic	Auxiliary contact block 1 NO + 1 NC	-K1, -K2	9.80 EUR	19.60
2	4	m	GEN.CBL-4G1.5	CBL-4G1.5	Generic	Power cable 4G1.5, rubber sheathed	-W13	2.40 EUR	9.60
3	0.60	m	GEN.CBL-FLAT-10	CBL-FLAT-10	Generic	Ribbon cable 10 cores, AWG 28, pitch 1.27 mm, grey, core 1 marked red	-W20	0.60 EUR	0.36
4	12	m	GEN.CBL-SENS-3X0.34	CBL-SENS-3X0.34	Generic	Sensor cable M12 3 x 0.34, PUR	-W11, -W12, -W14	1.60 EUR	19.20
5	2	pcs	GEN.CON-BOX-10M	CON-BOX-10M	Generic	Box header 10 pins (2 x 5), pitch 2.54 mm, straight, polarised, for PCB	-X20, -X21	0.55 EUR	1.10
6	1	pcs	GEN.CON-DSUB-9F	CON-DSUB-9F	Generic	D-sub connector DE-9, 9 pins, female, solder cup, with metal hood	-X15	1.80 EUR	1.80
7	1	pcs	GEN.CON-DSUB-9M	CON-DSUB-9M	Generic	D-sub connector DE-9, 9 pins, male, solder cup, with metal hood	-X15	1.80 EUR	1.80
8	1	pcs	GEN.CON-GX12-3F	CON-GX12-3F	Generic	Aviation connector GX12, 3 pins, female, cable plug, 5 A, IP55	-X14	2.40 EUR	2.40
9	1	pcs	GEN.CON-GX12-3M	CON-GX12-3M	Generic	Aviation connector GX12, 3 pins, male, panel socket, 5 A, IP55	-X14	2.40 EUR	2.40
10	1	pcs	GEN.CON-GX16-4F	CON-GX16-4F	Generic	Aviation connector GX16, 4 pins, female, cable plug, 5 A, IP55	-X13	3.10 EUR	3.10
11	1	pcs	GEN.CON-GX16-4M	CON-GX16-4M	Generic	Aviation connector GX16, 4 pins, male, panel socket, 5 A, IP55	-X13	3.10 EUR	3.10
12	2	pcs	GEN.CON-IDC-10F	CON-IDC-10F	Generic	IDC socket 10 pins (2 x 5), pitch 2.54 mm, for ribbon cable 1.27 mm, w…	-X20, -X21	0.80 EUR	1.60
13	1	pcs	GEN.CON-M12-4	CON-M12-4	Generic	Connector M12, 4 pins, A-coded, female, field-wireable	-X11	9.50 EUR	9.50
14	1	pcs	GEN.CON-M12-4M	CON-M12-4M	Generic	Connector M12, 4 pins, A-coded, male, field-wireable	-X11	9.50 EUR	9.50
15	1	pcs	GEN.CON-M8-3F	CON-M8-3F	Generic	Connector M8, 3 pins, A-coded, female, field-wireable	-X12	6.90 EUR	6.90
16	1	pcs	GEN.CON-M8-3M	CON-M8-3M	Generic	Connector M8, 3 pins, A-coded, male, field-wireable	-X12	6.90 EUR	6.90
17	2	pcs	GEN.CT-9A-24DC	CT-9A-24DC	Generic	Contactor 3P 9 A, coil 24 V DC, 1 NO aux	-K1, -K2	38.50 EUR	77.00
18	1	pcs	GEN.HORN-24	HORN-24	Generic	Panel buzzer 24 V, 85 dB	-P3	18.00 EUR	18.00
19	1	pcs	GEN.LMP-GN-24	LMP-GN-24	Generic	Indicator lamp green, LED 24 V	-P1	9.10 EUR	9.10
20	1	pcs	GEN.LMP-RD-24	LMP-RD-24	Generic	Indicator lamp red, LED 24 V	-P2	9.10 EUR	9.10
21	10	pcs	GEN.MARK-CABLE	MARK-CABLE	Generic	Cable marker for cable Ø 4 – 10 mm, white, printable	marking	0.12 EUR	1.20
22	17	pcs	GEN.MARK-DEV	MARK-DEV	Generic	Device marker 15 x 5 mm, white, printable	marking	0.08 EUR	1.36
23	52	pcs	GEN.MARK-WIRE	MARK-WIRE	Generic	Wire marker sleeve for 0.5 – 2.5 mm², white, printable	marking	0.03 EUR	1.56
24	1	pcs	GEN.MOT-DC-24V-60W	MOT-DC-24V-60W	Generic	DC motor 24 V 60 W, 3000 rpm	-M1	95.00 EUR	95.00
25	1	pcs	GEN.PROX-M12-PNP	PROX-M12-PNP	Generic	Inductive proximity sensor M12, PNP NO, Sn 4 mm	-B1	29.00 EUR	29.00
26	1	pcs	GEN.SEL-2POS-1NO	SEL-2POS-1NO	Generic	Selector switch 2 positions, 1 NO	-S1	15.90 EUR	15.90
27	1	pcs	GEN.SV-24DC	SV-24DC	Generic	Solenoid valve coil 24 V DC, 4.8 W	-Y1	22.50 EUR	22.50
28	1	pcs	GEN.TEMP-SW-60C	TEMP-SW-60C	Generic	Thermostat 0 - 60 °C, 1 NC	-B2	19.00 EUR	19.00
						Sum			397.58