

8CVE28000HC00.00-1

1 Order data


Model number	Short description	Figure
	Connection boxes	
8CVE28000HC00.00-1	ACOPOSremote/ACOPOSmotor connection box, HV, IP65, cold plate mounting, 4x connections for hybrid cables, 2x 24 VDC Out	
	Required accessories	
	Fuse sets	
8CXS000.0000-00	ACOPOSremote fuse set: 8x 10x38 mm fuse, 20 A, fast-acting	
	Optional accessories	
	Accessory sets	
8CXC000.0000-00	Accessory set: 1x slot cover for male hybrid connector	
8CXC001.0000-00	ACOPOSremote accessory set: 2x bridge, 2-pin, fully isolated, 10 mm	
8CXC001.0002-00	ACOPOSremote accessory set: 20x 2-pin bridge, fully isolated, 10 mm	
8CXC001.0005-00	ACOPOSremote accessory set: 50x bridge 2-pin, fully isolated, grid 10 mm	
8CXC001.000A-00	ACOPOSremote accessory set: 100x 2-pin bridge, fully isolated, 10 mm	
8CXD000.0000-00	ACOPOSremote accessory set: 1x desiccant cartridge M36x1.5 for 8CVE connection box	
8CXM001.0000-00	ACOPOSremote accessory set: 4x M6x25 mm hex socket head screw for 8CVE connection boxes	
8CXM001.0002-00	ACOPOSremote accessory set: 20x M6x25 mm hex socket head screw for 8CVE connection boxes	
8CXM001.0005-00	ACOPOSremote accessory set: 52x M6x25 mm hex socket head screw for 8CVE connection boxes	
8CXM001.000A-00	ACOPOSremote accessory set: 100x M6x25 mm hex socket head screw for 8CVE connection boxes	
	Hybrid cables	
8CCH0003.11110-1	Hybrid cable, length 3 m, 2x 2x 0.34 mm ² + 4x 0.75 mm ² + 5x 2.5 mm ² , 2x 15-pin female TYCO connector, UL/CSA listed	
8CCH0003.11130-1	Hybrid cable, length 3 m, 2x 2x 0.34 mm ² + 4x 0.75 mm ² + 5x 2.5 mm ² , 2x 15-pin female TYCO connector, 1x connector insert rotated 180°, UL/CSA listed	
8CCH0005.11110-1	Hybrid cable, length 5 m, 2x 2x 0.34 mm ² + 4x 0.75 mm ² + 5x 2.5 mm ² , 2x 15-pin female TYCO connector, UL/CSA listed	
8CCH0010.11110-1	Hybrid cable, length 10 m, 2x 2x 0.34 mm ² + 4x 0.75 mm ² + 5x 2.5 mm ² , 2x 15-pin female TYCO connector, UL/CSA listed	
8CCH0015.11110-1	Hybrid cable, length 15 m, 2x 2x 0.34 mm ² + 4x 0.75 mm ² + 5x 2.5 mm ² , 2x 15-pin female TYCO connector, UL/CSA listed	
8CCH0020.11110-1	Hybrid cable, length 20 m, 2x 2x 0.34 mm ² + 4x 0.75 mm ² + 5x 2.5 mm ² , 2x 15-pin female TYCO connector, UL/CSA listed	
	Threaded caps	
X67AC0M08	X67 M8 threaded caps, 50 pcs.	
X67AC0M12	X67 M12 threaded caps, 50 pcs.	

Table 1: 8CVE28000HC00.00-1 - Order data

2 Technical data

Model number	8CVE28000HC00.00-1
General information	
B&R ID code	0xB41D
Status indicators	Safety status, interface status
Cooling and mounting method	Cold plate mounting
Certification	
CE	Yes
UL	cULus E225616 Power conversion equipment
Functional safety ¹⁾	Yes
DC bus connection ²⁾	
Voltage	
Nominal	750 VDC

Table 2: 8CVE28000HC00.00-1 - Technical data

Model number	8CVE28000HC00.00-1
Design	
DC+, DC-, PE	Cage clamp terminal block
Shield connection	Yes (via cable gland)
Terminal connection cross sections	
Flexible and fine wire lines	
With wire end sleeves	0.25 to 10 mm ²
Approbation data	
UL/C-UL-US	24 to 8
CSA	24 to 8
Terminal cross sections (cable diameter)	14 to 21 mm (M32 cable grommet)
Max. cable length	30 m
24 VDC supply ²⁾	
Quantity	2
Input voltage	24 VDC -25% / +20%
Max. power consumption ³⁾	In preparation
Design	
24 VDC, COM, PE	Cage clamp terminal block
Shield connection	No
Terminal connection cross sections	
Flexible and fine wire lines	
With wire end sleeves	0.25 to 10 mm ²
Approbation data	
UL/C-UL-US	24 to 8
CSA	24 to 8
Terminal cross sections (cable diameter)	14 to 21 mm (M32 cable grommet)
Max. cable length	30 m
Hybrid cable outlets	
Quantity	4 (each with DC bus, 24 VDC, 2x enable, POWERLINK)
DC+ and DC- fuse protection	
Type ⁴⁾	Blow-out fuse conforming to UL/CSA, \varnothing 10 x 38 mm
Tripping characteristic	Fast-acting
Rated current of fuse depending on ambient temperature	
40°C	In preparation
60°C	20 A
24 VDC fuse protection	
Type	Blade fuses conforming to UL/CSA
Tripping characteristic	Fast-acting
Rated current of fuse depending on ambient temperature	
40°C	In preparation
60°C	15 A
Continuous power depending on rated current of fuse ⁵⁾	
DC+ and DC-	
20 A	10.1 kW
24 VDC	
15 A	240 W
Continuous current depending on rated current of fuse	
DC+ and DC-	
20 A	13.5 A _{eff}
24 VDC	
15 A	10.1 A
Continuous current of enable outputs	Max. 500 mA
Reduction of continuous power depending on installation elevation	
Starting at 500 m above sea level	10% per 1,000 m
Power dissipation with continuous power	
DC+ and DC-	
20 A	In preparation
24 VDC	
15 A	In preparation
Protective measures	
Overload protection	
DC+ and DC-	No (overload status can be retrieved via fieldbus) ⁶⁾
24 VDC	No (overload status can be retrieved via fieldbus) ⁶⁾
Short circuit and ground fault protection	
DC+ and DC-	Yes
24 VDC	Yes
Max. cable length	30 m
Design	15-pin male TYCO connector ⁷⁾

Table 2: 8CVE28000HC00.00-1 - Technical data

Model number	8CVE28000HC00.00-1
24 VDC output	
Quantity	2
Output voltage	Depends on the 24 VDC supply
Continuous current	Max. 8 A (max. 4 A per pin)
Fuse protection per pin	
Type	Blade fuses conforming to UL/CSA
Tripping characteristic	Fast-acting
Rated current of fuse depending on ambient temperature	
40°C	5 A
60°C	7.5 A
Protective measures	
Overload protection	No (overload status can be retrieved via fieldbus) ⁶⁾
Short circuit protection	Yes
Design	
24 VDC, COM	Female M8 connector
Fieldbus	
Type	POWERLINK (V1/V2) 100BASE-T (ANSI/IEE 802.3)
Design	1x internal 4-port hub, 1x internal 5-port hub; 4x 19-pin hybrid connector, 4x M12 female connector
Cable length	Max. 100 m between two stations (segment length) ⁸⁾
Transfer rate	100 Mbit/s
Enable inputs	
Quantity	2
Input voltage	
Nominal	24 VDC
Maximum	30 VDC
Permissible input current	Max. 2 A
Design	Cage clamp terminal block
Terminal connection cross sections	
Flexible and fine wire lines	
With plastic wire end sleeves	0.25 to 1.5 mm ²
Approbation data	
UL/C-UL-US	26 to 12
CSA	-
Terminal cross sections (cable diameter)	5 to 9 mm (M16 cable grommet)
Max. cable length	30 m
Operating conditions	
Permissible mounting orientations	
Hanging vertically	Yes
Lying horizontally	Yes
Standing horizontally	Yes
Installation at elevations above sea level	
Nominal	0 to 500 m
Maximum ⁹⁾	4000 m
Pollution degree per EN 61800-5-1	2 (non-conductive pollution)
Overvoltage category per EN 61800-5-1	III
Protection per EN 60529	IP65 ¹⁰⁾
Environmental conditions	
Temperature	
Operation	
Nominal	5 to 40°C ¹¹⁾
Maximum ¹²⁾	60°C
Storage	-25 to 55°C
Transport	-25 to 70°C
Relative humidity	
Operation	5 to 85%, non-condensing
Storage	5 to 95%, non-condensing
Transport	Max. 95% at 40°C
Mechanical characteristics	
Dimensions ¹³⁾	
Width	293 mm
Height	328 mm
Depth	80 mm
Weight	7 kg

Table 2: 8CVE28000HC00.00-1 - Technical data

- 1) Achievable safety classifications (safety integrity level, safety category, performance level) are documented in the user's manual (section "Safety technology").
- 2) Caution! Power for 8CVE remote connection boxes is only permitted to be supplied by an ACOPOS multi drive system (8BVE expansion module)!
- 3) Power consumption refers to the 24 VDC2 input since this supplies the module.
- 4) For a cable with 15 A rated current, KLKD020 fuses from Littelfuse must be used.
- 5) The continuous power and continuous current are valid for the following conditions: 750 VDC nominal DC bus voltage, 40°C ambient temperature, installation elevation <500 m above sea level. The values listed take into consideration a reserve of 48% (recommended by fuse manufacturer) of the rated current (for a max. ambient temperature of 60°C).
- 6) In preparation.
- 7) It is important to note that the 15-pin male TYCO connector is designed for max. 20 connection cycles.

- 8) Limited to 30 m when using hybrid cables.
- 9) Continuous operation at elevations ranging from 500 m to 4,000 m above sea level is possible (taking the specified continuous current reductions into consideration). Requirements that go beyond this must be arranged with B&R.
- 10) The specified level of protection is only in place if all connectors on the module that are not being used are closed with suitable caps or covers. Suitable caps and covers are available as optional accessories (X67AC0M08, X67AC0M12, 8CXC000.0000-00). The module has IP20 protection when delivered.
- 11) The temperature of the module's mounting surface is not permitted to exceed 60°C.
- 12) The module must be connected to a cooling surface (frame of the machine) at ambient temperatures over 40°C.
- 13) These dimensions refer to the actual device dimensions including the respective mounting plate. Make sure to leave additional space above and below the devices for mounting, connections and air circulation.

3 Status indicators

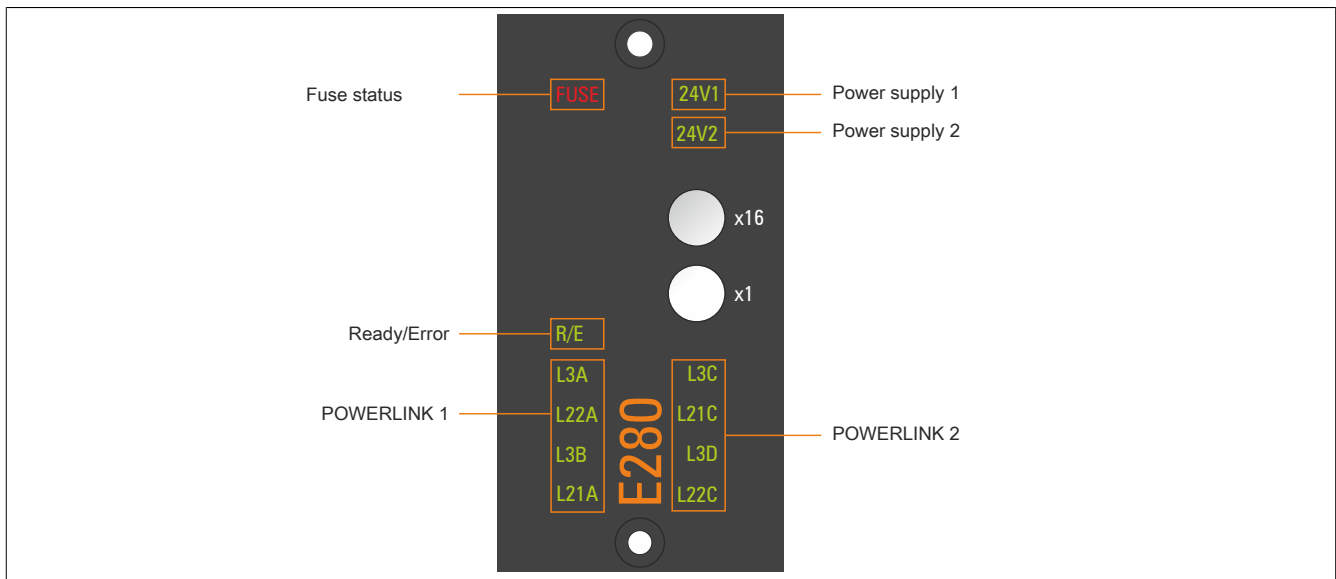


Figure 1: Indicator groups - Overview

3.1 LED status indicators

Status indicator group	Label	Color	Function	Description
Ready/Error	R/E	Green/Red	Ready/Error	see Tab. 4 "POWERLINK - LED status indicators" on page 5
POWERLINK 1	L3A	Green	Link/Data activity on port 1	
	L22A	Green	Link/Data activity on port 2	
	L3B	Green	Link/Data activity on port 3	
	L21A	Green	Link/Data activity on port 4	
POWERLINK 2	L3C	Green	Link/Data activity on port 1	
	L21C	Green	Link/Data activity on port 2	
	L3D	Green	Link/Data activity on port 3	
	L22C	Green	Link/Data activity on port 4	
Power supplies	FUZE	Red	Fuse tripped	One or more internal fuses for the power supply have been tripped.
	24V1	Green	24 VDC 1 ready	24 VDC 1 module power supply is within the tolerance range.
	24V2	Green	24 VDC 2 ready	24 VDC 2 module power supply is within the tolerance range.

Table 3: 8CVE remote connection box - LED status indicators

3.2 POWERLINK - LED status indicators

Label	Color	Function	Description	
R/E	Green/Red	Ready/Error	LED off	The module is not receiving power or initialization of the network interface has failed.
			Solid red	The POWERLINK node number of the module is 0.
			Blinking red/green	The client is in an error state (drops out of cyclic operation).
			Blinking green (1x)	The client detects a valid POWERLINK frame on the network.
			Blinking green (2x)	Cyclic operation on the network is taking place, but the client itself is not yet a participant.
			Blinking green (3x)	Cyclic operation of the client is in preparation.
			Solid green	The client is participating in cyclic operation.
L3A L3C	Green	Link/Data activity on port 1	Solid green	A physical connection has been established to another station on the network.
			L22A L21C	Green
L3B L3D	Green	Link/Data activity on port 3		
			L21A L22C	Green

Table 4: POWERLINK - LED status indicators

4 Pinouts

Danger!

Before performing service work, disconnect the power supply and wait 5 minutes to ensure that the DC bus of the drive system has discharged. Observe regulations!

Warning!

Drive systems can carry high levels of electrical voltage.
Never connect or disconnect the connector when voltage is present!

Information:

To satisfy UL/CSA requirements, components of B&R drive systems are only permitted to be wired with copper wires with a permitted wire temperature of at least 75°C.

4.1 Overview

Up to revision C0

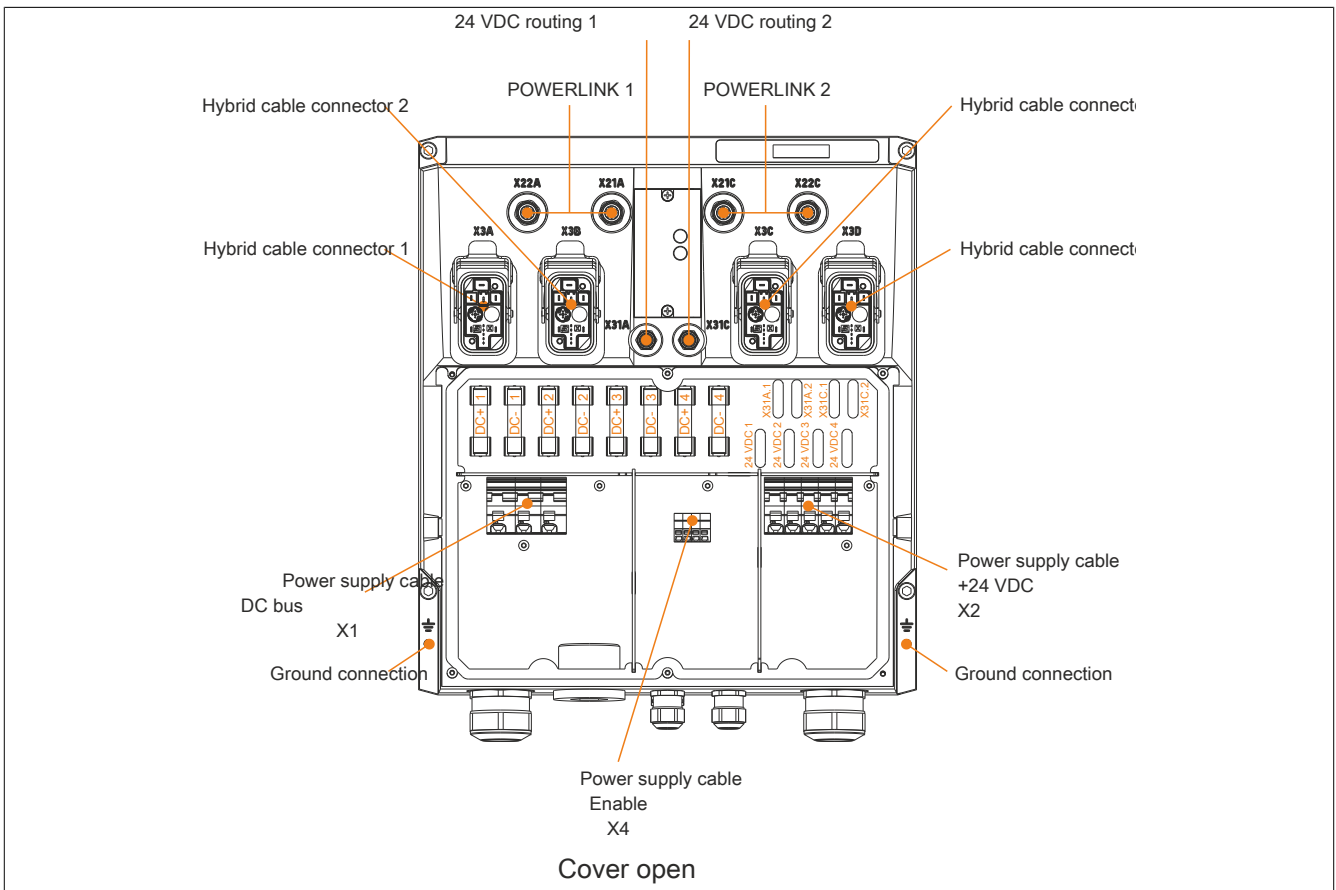


Figure 2: Pinout overview up to revision C0

Starting with revision D0

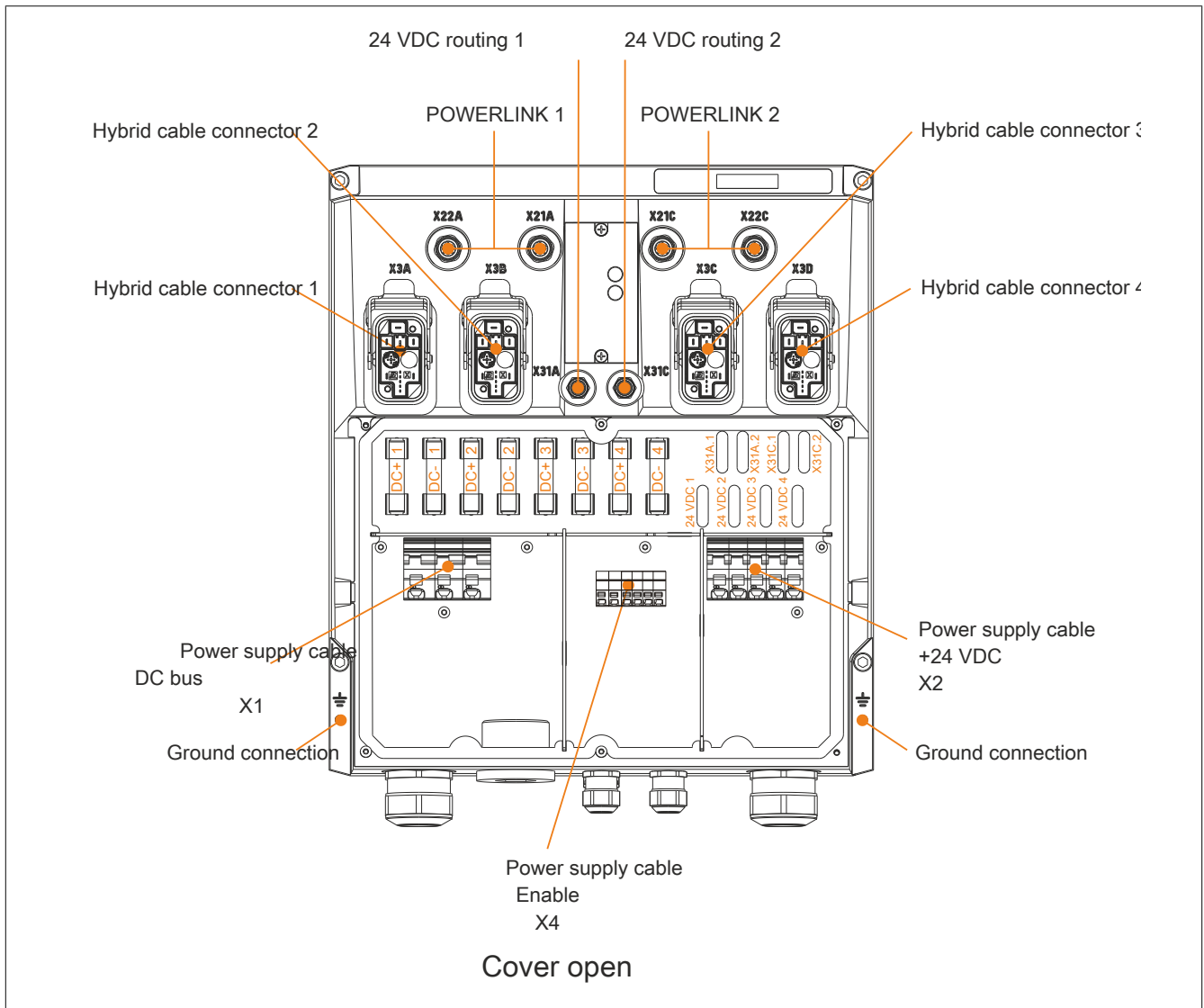


Figure 3: Pinout overview starting with revision D0

4.2 X1 (DC bus power supply cable)

Figure	Pin	Description	Function
	1	DC+ ¹⁾	U DC bus +
	2	PE	PE
	3	DC- ¹⁾	U DC bus -

Table 5: Connector X1 - Pinout

1) Wiring is not permitted to exceed a total length of 30 m.

Information:

B&R strongly recommends the use of a shielded cable for the DC bus power supply cable. Shielding is carried out via the cable gland.

Caution!

Power for 8CVE remote connection boxes is only permitted to be supplied by an ACOPOSmulti drive system (8BVE expansion module)!

4.3 X2 (cable for 24 VDC power supply)

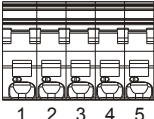
Figure	Pin	Description	Function
	1	24 VDC 1 ^{1) 2)}	24 VDC 1
	2	24 VDC 2 ^{1) 2)}	24 VDC 2 ⁴⁾
	3	COM (1) ³⁾	24 VDC 1 0 V
	4	COM (2) ³⁾	24 VDC 2 0 V
	5	PE	Protective ground conductor

Table 6: Connector X2 - Pinout

- 1) Wiring is not permitted to exceed a total length of 30 m.
- 2) Accessory set 8CXC001.xxxxx is available to connect 24 VDC 1 and 24 VDC 2.
- 3) Accessory set 8CXC001.xxxxx is available to connect COM(1) and COM(2).
- 4) The 24 VDC power supply of the 8CVE connection box is provided via connections 24 VDC2 and COM(2) and is mandatory for the proper functioning of the 8CVE connection box.

Caution!

Power for 8CVE remote connection boxes is only permitted to be supplied by an ACOPOSmulti drive system (8BVE expansion module)!

4.4 X4 (enable power supply cable)

Up to revision C0

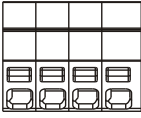
Figure	Pin	Description	Function
	1	COM (2)	Enable 2 0 V
	2	Enable 2 ¹⁾	Enable 2
	3	COM (4)	Enable 1 0 V
	4	Enable 1 ¹⁾	Enable 1

Table 7: Connector X4 - Pinout

- 1) Wiring is not permitted to exceed a total length of 30 m.

Starting with revision D0

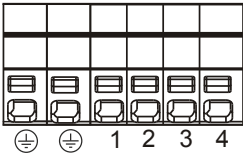
Figure	Pin	Description	Function
	⊕	PE ¹⁾	Protective ground conductor
	⊕	PE ¹⁾	Protective ground conductor
	1	COM (2)	Enable 2 0 V
	2	Enable 2 ²⁾	Enable 2
	3	COM (4)	Enable 1 0 V
	4	Enable 1 ²⁾	Enable 1

Table 8: Connector X4 - Pinout

- 1) Optional.
- 2) Wiring is not permitted to exceed a total length of 30 m.

4.5 X21A, X22A, X21C, X22C (POWERLINK)

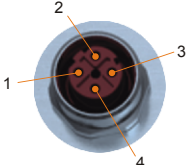
Figure	Pin	Description	Function
	1	TXD	Transmit data
	2	RXD	Receive data
	3	TXD\	Transmit data inverted
	4	RXD\	Receive data inverted

Table 9: Connector X21x/X22x - Pinout

4.6 X31A, X31C (24 VDC routing)

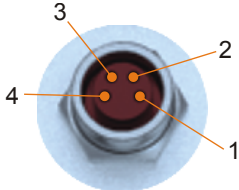
Figure	Pin	Description	Function
	1	24 VDC I/O	24 VDC I/O power supply
	2	24 VDC I/O	24 VDC I/O power supply
	3	GND	24 VDC I/O power supply 0 V
	4	GND	24 VDC I/O power supply 0 V

Table 10: Connector X31x - Pinout

4.7 Ground connection (PE)

The protective ground conductor is connected to the M5 threaded bolt provided using a cable lug.

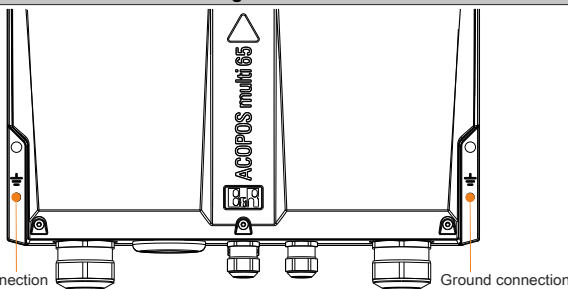
Figure	Description	Function
	PE	Protective ground conductor
Terminal cross sections	[mm²]	AWG
Cable lug for M5 threaded bolt	0.25 - 16	23 - 5


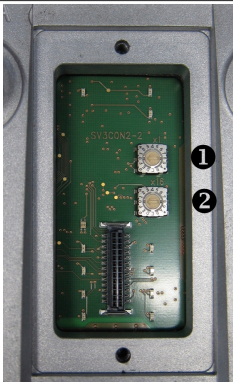
Table 11: Ground connection (PE)

5 POWERLINK node number setting

The POWERLINK node number can be set using the two hexadecimal coded rotary switches located behind the module's black cover.

Removing the back cover:

- Required tool: Size 10 Torx screwdriver
- Remove the two marked mounting screws (M3x6 mm Torx screws) with the Torx screwdriver.
- Remove the back cover.

Figures		Coded rotary switches	POWERLINK node number
		1	16s position (high)
		2	1s position (low)
Cover closed		Cover open	
		<p>A change to the POWERLINK node number only takes effect the next time the ACOPUSmulti drive system is switched on.</p> <p>Information:</p> <p>In principle, node numbers between \$01 and \$FD are permitted. However, node numbers between \$F0 and \$FD are intended for future system expansions. To ensure compatibility, these node numbers should be avoided.</p> <p>Node numbers \$00, \$FE and \$FF are reserved and are therefore not permitted to be set.</p>	

Installing the back cover:

- Required tool: Size 10 Torx screwdriver
- Place the cover on the module.
- Secure the cover with the two mounting screws (M3x6 mm Torx screws).
Tightening torque: 0.6 Nm

5.1 POWERLINK - Cabling examples

Connection box 8BVE is equipped with 2 isolated POWERLINK hubs. The connection box itself as well as all modules connected to hybrid cable connectors X21A/X22A are allocated to the first hub. All modules connected to hybrid cable connectors X21C/X22C are allocated to the second hub.

Cabling for a shared POWERLINK network for all hybrid cable connectors

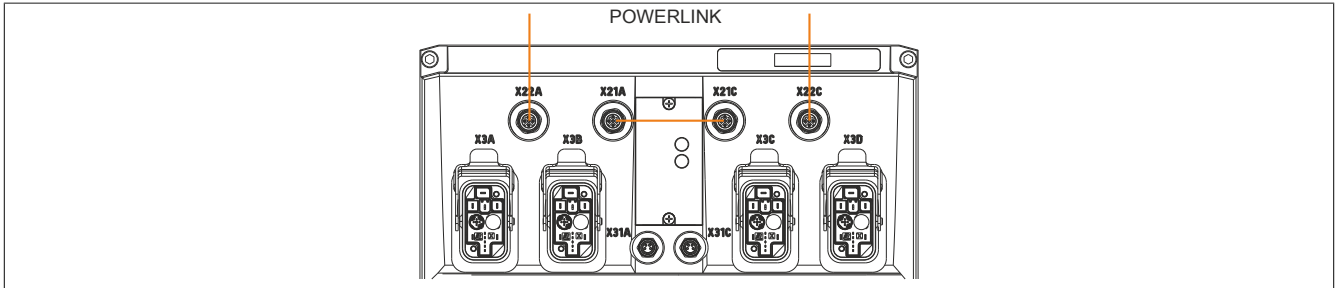


Figure 4: Cabling for a shared POWERLINK network for all hybrid cable connectors

The 2 hubs in connection box 8CVE are connected to each other. Connection box 8CVE as well as all modules connected to hybrid cable connectors X21A/X22A/X21C/X22C are part of a separate POWERLINK network.

Cabling for 2 independent POWERLINK networks

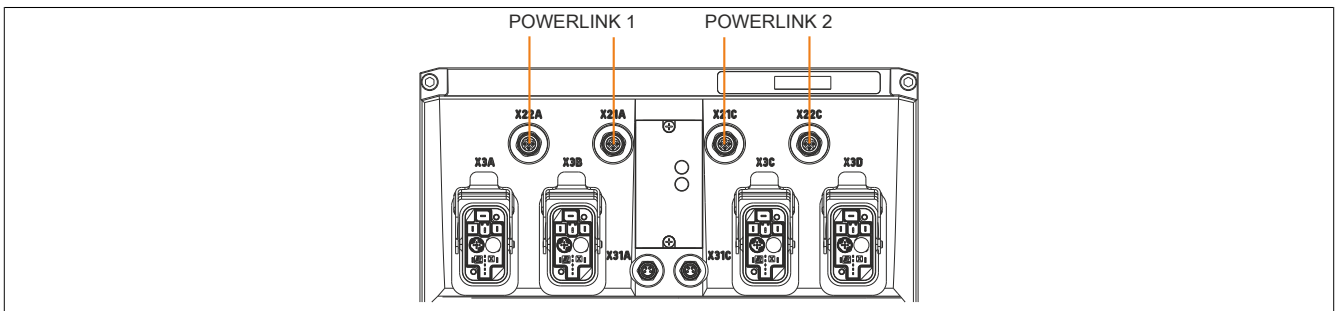


Figure 5: Cabling for 2 independent POWERLINK networks

The 2 hubs in connection box 8CVE are not connected to each other. Connection box 8CVE as well as all modules connected to hybrid cable connectors X21A/X22A are part of network POWERLINK 1. All modules connected to hybrid cable connectors X21C/X22C are part of network POWERLINK 2.

6 Input/Output circuit diagram

Up to revision C0

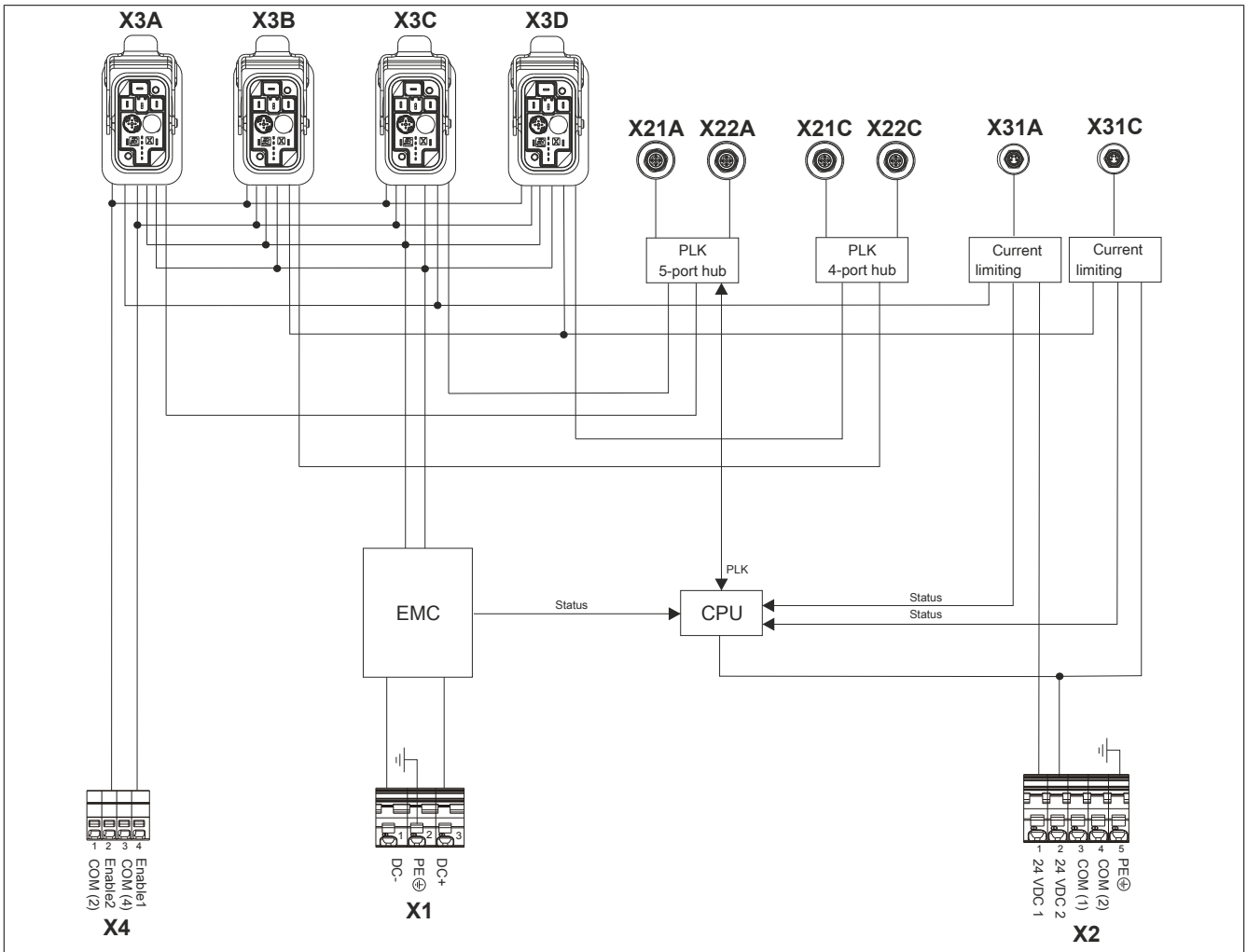


Figure 6: Connection box 8CVE - Input/Output circuit diagram

Starting with revision D0

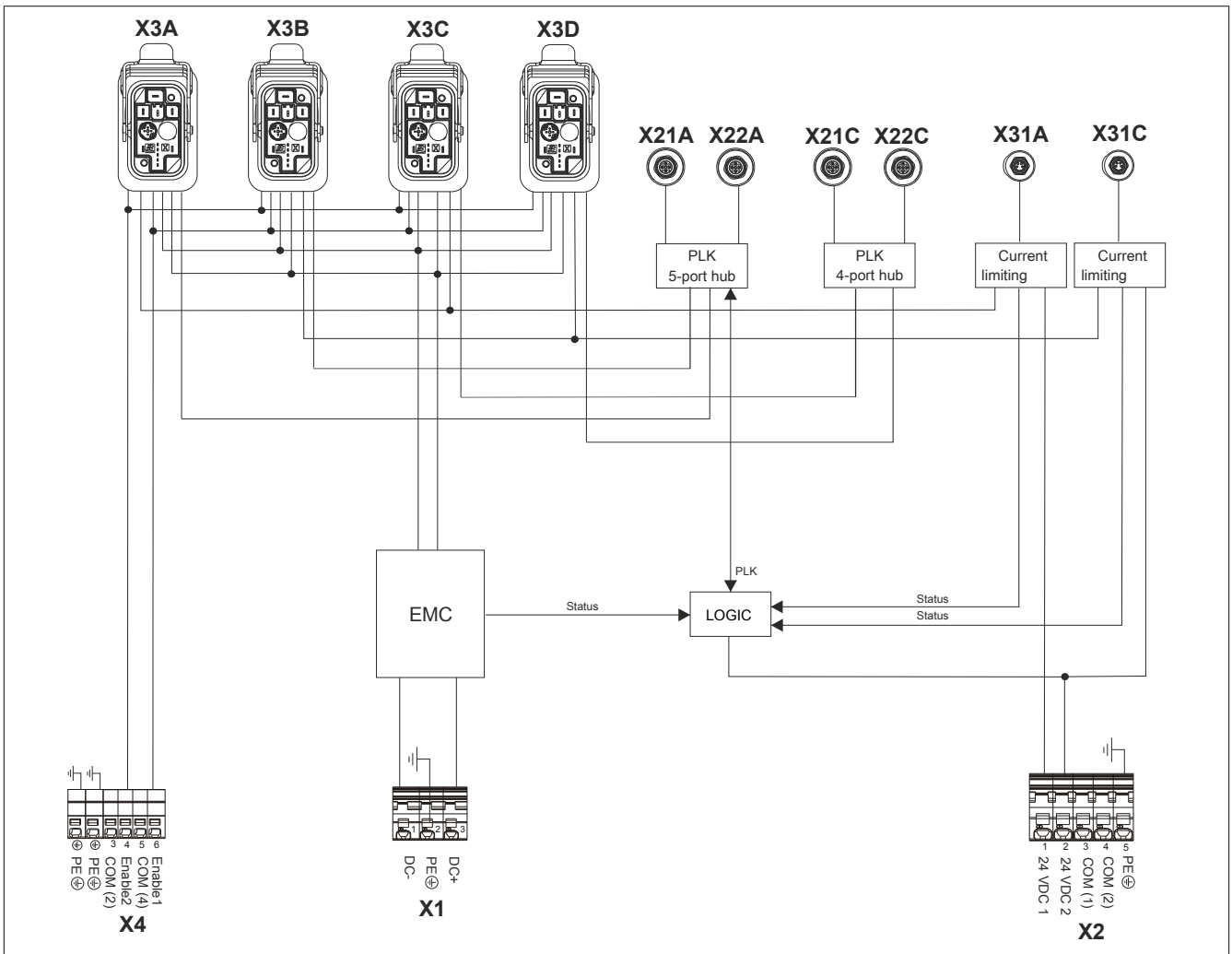


Figure 7: Connection box 8CVE - Input/Output circuit diagram