8BVP0880HC00.004-1

1 General information

- Wide input voltage range
- Regenerative
- Integrated connection for temperature sensor
- 2 slots for ACOPOSmulti plug-in modules

2 Order data

Order number	Short description	Figure
	Cold plate or feed-through mounting	
8BVP0880HC00.004-1	ACOPOSmulti power supply module, 88 A, AS, cold plate or pass-through mounting	
	Required accessories	
	Terminal block sets	
8BZVP165000.000-1A	Screw clamp set for ACOPOSmulti modules 8BVP0880Hx00 and 8BVP1650Hx00: 1x 8TB2104.204A-00, 1x 8TB2106.2010-00, 1x 8TB2108.2010-00	
	Optional accessories	
	Accessory sets	
8BXB000.0000-00	ACOPOSmulti accessory set for encoder buffering consists of the following: 1 lithium battery AA 3.6 V, 1 cover for battery compartment	
	Fan modules	
8BXF001.0000-00	ACOPOSmulti fan module, replacement fan for ACOPOSmulti modules (8BxP/8B0C/8BVI/8BVE/8B0K)	
	Plug-in modules	
8BAC0120.000-1	ACOPOSmulti plug-in module, EnDat 2.1 interface	
8BAC0120.001-2	ACOPOSmulti plug-in module, EnDat 2.2 interface	
8BAC0121.000-1	ACOPOSmulti plug-in module, HIPERFACE interface	
8BAC0122.000-1	ACOPOSmulti plug-in module, resolver interface 10 kHz	
8BAC0123.000-1	ACOPOSmulti plug-in module, incremental encoder and SSI absolute encoder interface for RS422 signals	
8BAC0123.001-1	ACOPOSmulti plug-in module, incremental encoder interface for 5 V single-ended and 5 V differential signals	
8BAC0123.002-1	ACOPOSmulti plug-in module, incremental encoder interface for 24 V single-ended and 24 V differential signals	
8BAC0124.000-1	ACOPOSmulti plug-in module, SinCos interface	
8BAC0125.000-1	ACOPOSmulti plug-in module, SinCos EnDat 2.1/SSI/BiSS interface	
8BAC0130.000-1	ACOPOSmulti plug-in module, 2 digital outputs, 50 mA, max. 62.5 kHz, 2 digital outputs, 500 mA, max. 1.25 kHz, 2 digital inputs 24 VDC	
8BAC0130.001-1	ACOPOSmulti plug-in module, 2 digital outputs, 50 mA, max. 62.5 kHz, 4 digital outputs, 500 mA, max. 1.25 kHz	
8BAC0132.000-1	ACOPOSmulti plug-in module, 4 analog inputs ±10 V	
8BAC0133.000-1	ACOPOSmulti plug-in module, 3 RS422 outputs for ABR encoder emulation, 1 MHz	
	POWERLINK/Ethernet cables	
X20CA0E61.00020	POWERLINK/Ethernet connection cable, RJ45 to RJ45, 0.2 m	
X20CA0E61.00025	POWERLINK/Ethernet connection cable, RJ45 to RJ45, 0.25 m	
X20CA0E61.00030	POWERLINK/Ethernet connection cable, RJ45 to RJ45, 0.3 m	
X20CA0E61.00035	POWERLINK/Ethernet connection cable, RJ45 to RJ45, 0.35 m	
X20CA0E61.00050	POWERLINK/Ethernet connection cable, RJ45 to RJ45, 0.5 m	
X20CA0E61.00100	POWERLINK/Ethernet connection cable, RJ45 to RJ45, 1 m	
	Shield component sets	
8SCS001.0000-00	ACOPOSmulti shield component set: 1x shield plate 4x type 1, 1x hose clamp, B 9 mm, D 12-22 mm	
8SCS002.0000-00	ACOPOSmulti shield component set: 1x clamping plate, 2x clamp D 4-13.5 mm, 2x screws	
8SCS003.0000-00	ACOPOSmulti shield component set: 1x shield mounting plate 4x 45°, 8x screws	
8SCS004.0000-00	ACOPOSmulti shield component set: 1x shield plate 4x type 0, 2x hose clamps, B 9 mm, D 32-50 mm	
8SCS005.0000-00	ACOPOSmulti shield component set: 1x slot cover/shield plate	
8SCS010.0000-00	ACOPOSmulti shield component set: 1x ACOPOSmulti holding plate SK14-20, 1x shield connection clamp SK20	
	Terminal blocks	
8TB2104.204A-00	4-pin screw clamp terminal block, 1-row, pitch: 5.08 mm, label 4: T- T+ F- F+, coding A: 0000	
8TB2106.2010-00	6-pin screw clamp terminal block, 1-row, pitch: 5.08 mm, label 1: Numbered consecutively	
8TB2106.2210-00	Push-in terminal block 6-pin, 1-row, spacing: 5.08 mm, label 1: numbered consecutively	
8TB2108.2010-00	8-pin screw clamp terminal block, 1-row, pitch: 5.08 mm, label 1: Numbered consecutively	

Table 1: 8BVP0880HC00.004-1 - Order data

3 Technical data

Order number	8BVP0880HC00.004-1
General information	
B&R ID code	0xA6A1
Cooling and mounting type	Cold plate or pass-through mounting
Slots for plug-in modules	2
Certifications	
CE	Yes
UL	cULus E225616 Power conversion equipment
EAC	Yes
KC	Yes
Mains connection	
Network configurations	TT, TN-S, TN-C-S [1]
Mains input voltage	3x 220 to 3x 480 VAC ±10%
Frequency	50 / 60 Hz ±4%
Total harmonic distortion current (THDi)	<0.2%
Total harmonic distortion voltage (THDu)	<1%
Installed load [2]	Max. 62 kW
Inrush current at 400 VAC	Max. 133 A
Switch-on interval [3]	>300 s
Max. DC bus capacitance depending on mains voltage	
230 VAC	34.8 mF
400 VAC	11.5 mF
480 VAC	8 mF
Nominal switching frequency	5 kHz
Possible switching frequencies [4]	5 / 10 kHz
Integrated line filter per EN 61800-3, category C3 [5]	No
Integrated regeneration choke	No
Regenerative	Yes
Power factor correction (PFC)	Yes
Variant	
L1, L2, L3, PE	M8 threaded bolts
Shield connection [6]	Yes
Connection cross section range	
Flexible and fine-stranded wires	--- [7]
Terminal cable cross section dimension of shield connection	32 to 50 mm
DC bus connection	
Voltage	
Nominal	750 VDC
Continuous power (supply and regeneration) [8]	60 kW
Reduction of continuous power depending on mains input voltage	
Mains input voltage <3x 400 VAC	150 W/V * (400 V - Mains input voltage)
Reduction of continuous power depending on DC bus voltage (U_{DC})	
U_{DC} <750 VDC	0.08 kW/V [9]
Reduction of continuous power depending on switching frequency and mounting type [10]	
Switching frequency 5 kHz	
Cold plate mounting [11]	1.3 kW/K (starting at 58°C) [12]
Pass-through mounting	In preparation
Switching frequency 10 kHz	
Cold plate mounting [11]	0.95 kW/K (starting at 27°C)
Pass-through mounting	In preparation
Reduction of continuous power depending on installation elevation	
Starting at 500 m above sea level	6 kW per 1000 m
Peak power (supply and regeneration)	120 kW
Power dissipation depending on switching frequency [13]	
Switching frequency 5 kHz	[0.065*P²+11.4*P+90] W
Switching frequency 10 kHz	[0.22*P²+16.1*P+185] W
DC bus capacitance	1650 µF
Protective measures	
Overload protection	Yes
Short-circuit and ground fault protection	No
Variant	ACOPOSmulti backplane
24 VDC power supply	
Input voltage	25 VDC ±1.6%
Input capacitance	4.7 µF

Table 2: 8BVP0880HC00.004-1 - Technical data

Order number	8BVP0880HC00.004-1
Max. power consumption	27 W + P_{SLOT1} + P_{SLOT2} + $P_{24\ V\ Out}$ + $P_{Fan8BVF...}$ [14]
Variant	ACOPOSmulti backplane
24 VDC Out	
Quantity	2
Output voltage	
DC bus voltage (U_{DC}): 260 to 315 VDC	25 VDC * (U_{DC} / 315)
DC bus voltage (U_{DC}): 315 to 800 VDC	24 VDC ±6%
Fuse protection	250 mA (slow-blow) electronic, automatic reset
Filter fan connection	
Output voltage	24 V +5.8% / -0.1%
Continuous current	4.2 A
Max. overcurrent limiting	10 A
Protective measures	
Overload protection	No
Short-circuit proof	Yes
Open-circuit monitoring	No
Undervoltage monitoring	No
Trigger inputs	
Quantity	2
Circuit	Sink
Electrical isolation	
Input - Power supply module	Yes
Input - Input	Yes
Input voltage	
Nominal	24 VDC
Maximum	30 VDC
Switching threshold	
Low	<5 V
High	>15 V
Input current at nominal voltage	Approx. 10 mA
Switching delay	
Rising edge	52 µs ±0.5 µs (digitally filtered)
Falling edge	53 µs ±0.5 µs (digitally filtered)
Modulation compared to ground potential	Max. ±38 V
Electrical properties	
Discharge capacitance	0.9 µF
Operating conditions	
Permissible mounting orientations	
Hanging vertically	Yes
Horizontal, face up	Yes
Standing horizontally	No
Installation elevation above sea level	
Nominal	0 to 500 m
Maximum [15]	4000 m
Pollution degree per EN 61800-5-1	2 (non-conductive pollution)
Overvoltage category per EN 61800-5-1	III
Degree of protection per EN 60529	IP20
Ambient conditions	
Temperature	
Operation	
Nominal	5 to 40°C
Maximum	55°C
Storage	-25 to 55°C
Transport	-25 to 70°C
Relative humidity	
Operation	5 to 85%
Storage	5 to 95%
Transport	Max. 95% at 40°C
Mechanical properties	
Dimensions [16]	
Width	213.5 mm
Height	317 mm
Depth	
Cold plate	212 mm
Pass-through mounting	209 mm
Weight	Approx. 7.9 kg
Module width	4

Table 2: 8BVP0880HC00.004-1 - Technical data

1) TT and TN power systems are commonly referred to as "Delta/Wye with grounded wye neutral" in the USA.
2) The specified value already includes the power dissipation of the associated 8BVF line filter and associated 8BVR regeneration choke.
3) At max. chargeable DC bus capacitance.
4) B&R recommends operating the module at its nominal switching frequency. Operating the module at a higher switching frequency for application-specific reasons reduces the continuous power and increases CPU utilization.

5) Limit values from EN 61800-3 C3 (second environment).
6) Cables do not have to be shielded up to a total wiring length of 3 m between the line filter, regeneration choke and power supply module. Consult B&R when using cable lengths >3 m.
7) The connection is made with cable lugs for M8 (0.32") threaded bolts. The nominal cross section of the cable lug must match the cross section of the conductor to be connected in the particular application.
8) Valid under the following conditions: Mains input voltage 3x 400 VAC, nominal DC bus voltage 750 VDC, switching frequency 5 kHz, 40°C ambient temperature, installation elevation <500 m above sea level, no derating due to cooling type.
9) P ... Actual continuous power available (value adapted to actual ambient conditions)
10) Valid under the following conditions: 750 VDC DC bus voltage, minimum permissible coolant flow volume (3 l/min).
11) The temperature specifications refer to the return temperature of the cold plate mounting plate.
12) Value for the nominal switching frequency.
13) Valid for a mains input voltage of 400 VAC and a DC bus voltage of 750 VDC. P ... Continuous power [kW].
14) P_{SLOT1} ... Max. power consumption P_{8BAC} [W] of the plug-in module in SLOT1 (see the technical data for the respective plug-in module).
P_{SLOT2} ... Max. power consumption P_{8BAC} [W] of the plug-in module in SLOT2 (see the technical data for the respective plug-in module).
$P_{24\ V\ Out}$ ... Power [W] that is output to connections X2/+24 V Out 1 and X2/+24 V Out 2 on the module (max. 10 W).
$P_{Fan8BVF...}$ ... Power [W] that is output to connections X4A/F- and X4A/F+ of the module (see the technical data of the respective 8BVF... mains filter).
15) Continuous operation at an installation elevation of 500 m to 4,000 m above sea level is possible taking the specified reduction of continuous current into account. Requirements that go beyond this must be arranged with B&R.
16) These dimensions refer to the actual device dimensions including the respective mounting plate. Additional spacing above and below the devices must be taken into account for mounting, connections and air circulation.

4 Overload characteristics

The continuous current for the module is permitted to be exceeded for a short time during operation (dynamic overload).

Overload response: WARNING

If the maximum overload time is exceeded, the module outputs a warning (WARNING).

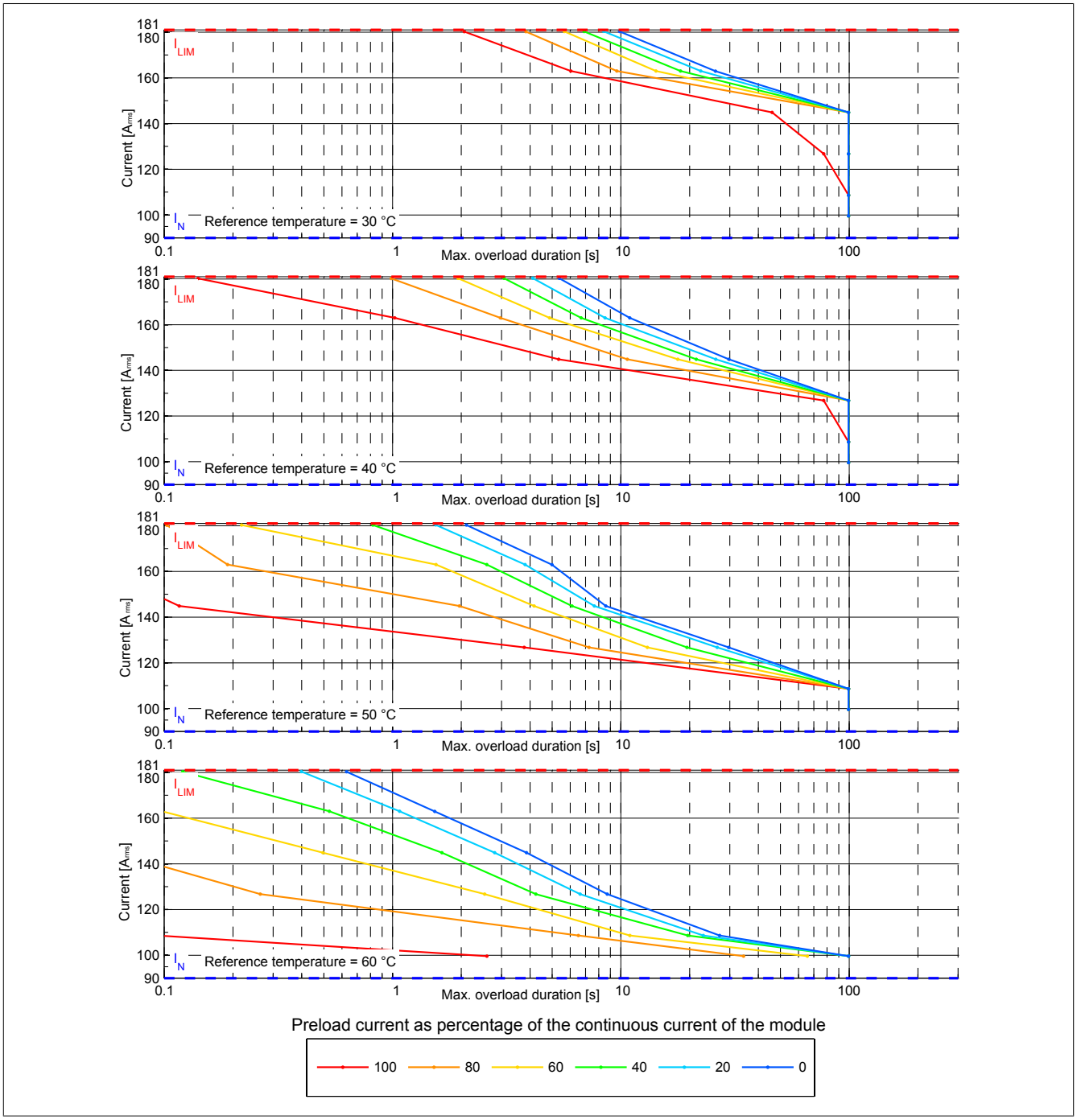


Figure 1: 8BVP0880HCS0.004-1 - Overload characteristics, overload response - WARNING

I_N	Continuous current of the module [A_{rms}]
I_{LIM}	Peak current of the module [A_{rms}]
Mounting type:	Cold plate mounting
DC bus voltage:	700 V
Switching frequency:	5 kHz
Rotary frequency of current indicator:	50 Hz
Reference temperature:	Temperature of the coolant at the return of the cold plate mounting plate

Overload response ERROR + STOP

When the module exceeds the maximum overload duration, it outputs an error and executes a movement stop with current limiting (ERROR + STOP).

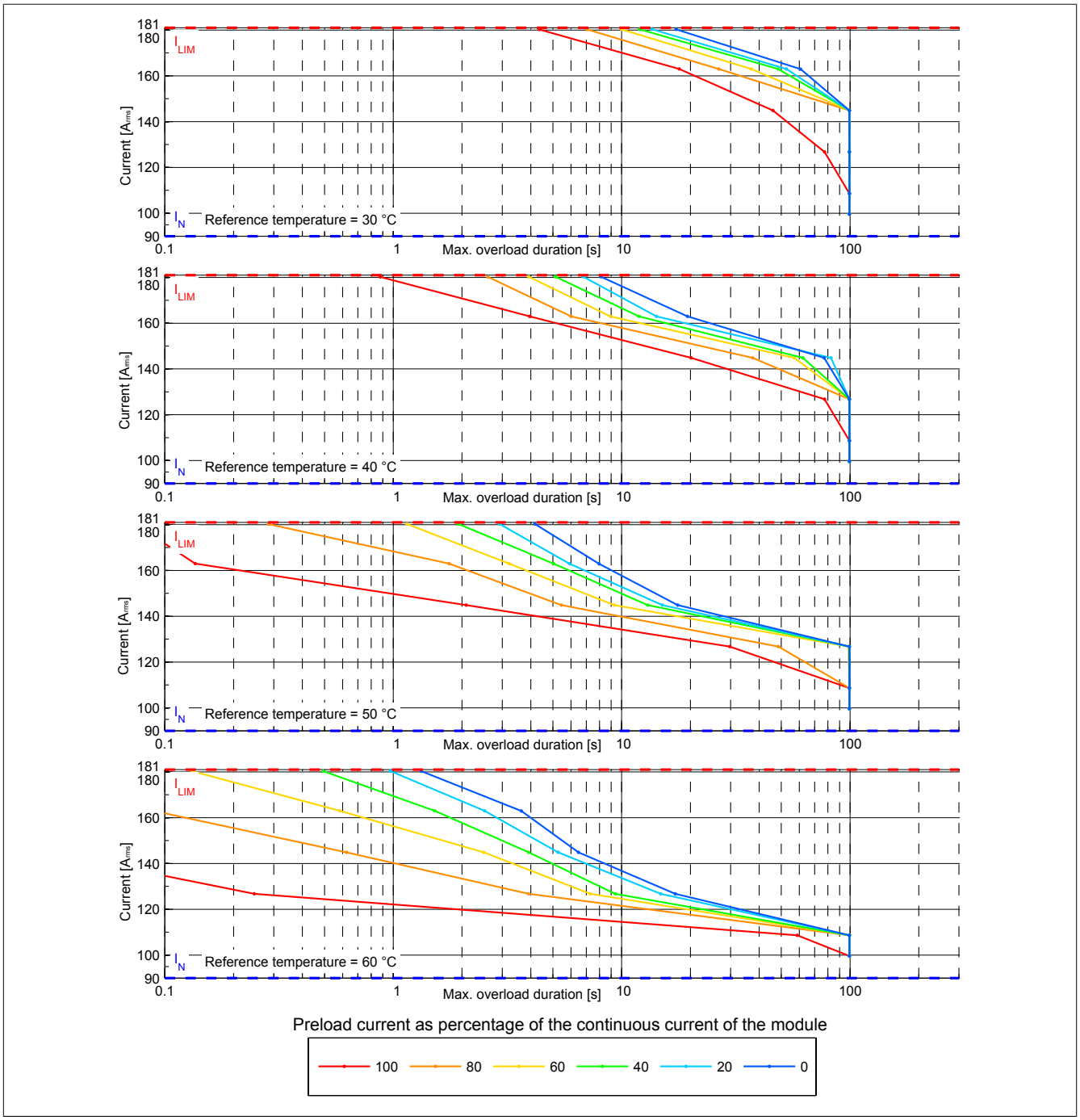


Figure 2: Overload characteristics of 8BVP0880HCS0.004-1, overload response - ERROR+STOP

I_N	Continuous current of the module [A_{rms}]
I_{LIM}	Peak current of the module [A_{rms}]
Mounting type:	Cold plate mounting
DC bus voltage:	700 V
Switching frequency:	5 kHz
Rotary frequency of current indicator:	50 Hz
Reference temperature:	Temperature of the coolant at the return of the cold plate mounting plate

5 Status indicators

Status indicators are located on the black cover of each module.

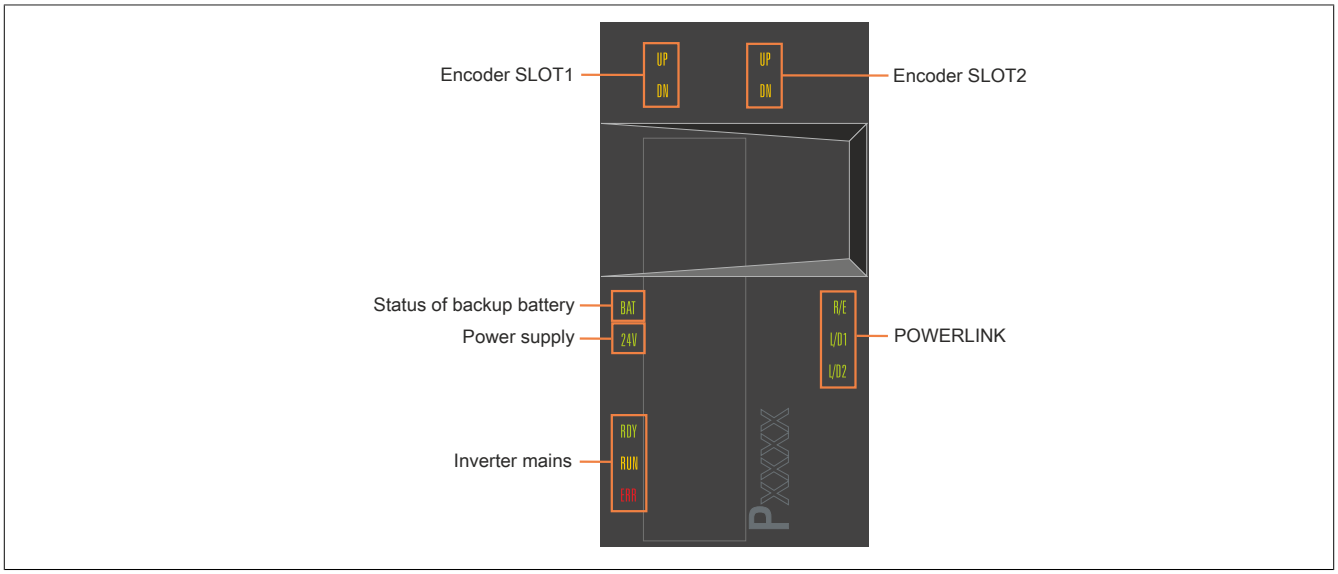


Figure 3: 8BVP power supply modules - Status indicator groups

5.1 LED status indicators

Status indicator group	Label	Color	Function	Description
POWERLINK	R/E	Green/Red	Ready/Error	see "POWERLINK - LED status indicators" on page 9
	L/D1	Green	Link/Data activity on port 1	
	L/D2	Green	Link/Data activity on port 2	
Inverter mains	RDY	Green	Ready	see "RDY, RUN, ERR (8BVI, 8BVP, 8B0P) - LED status indicators" on page 9
	RUN	Orange	Run	
	ERR	Red	Error	
Status of backup battery	BAT	Green/Red	Ready/Error	see "Backup battery - LED status indicators" on page 10
Power supply	24 V	Green	24 V OK	24 V internal system power supply is within the tolerance range.
Encoder SLOT1	UP	Orange	Encoder direction of rotation +	The encoder position of the connected encoder is changing in the positive direction. The faster the encoder position changes, the brighter the LED lights up.
	DN	Orange	Encoder direction of rotation -	The encoder position of the connected encoder is changing in the negative direction. The faster the encoder position changes, the brighter the LED lights up.
Encoder SLOT2	UP	Orange	Encoder direction of rotation +	See encoder SLOT1.
	DN	Orange	Encoder direction of rotation -	

Table 3: 8BVP power supply modules - LED status indicators

5.2 RDY, RUN, ERR (8BVI, 8BVP, 8B0P) - LED status indicators

Label	Color	Function	Description	
RDY	Green	Ready	Solid green	The module is ready for operation and the power stage can be enabled (operating system present and booted, no pending permanent or temporary errors).
			Blinking green [1]	The module is not ready for operation. **Examples:** • No signal on one or both enable inputs • DC bus voltage outside the tolerance range • Overtemperature on the motor (temperature sensor) • Motor feedback not connected or defective • Motor temperature sensor not connected or defective • Overtemperature on the module (IGBT junction, heat sink, etc.) • Disturbance on network
RUN	Orange	Run	Solid orange	The module's power stage is enabled.
ERR	Red	Error	Solid red [1]	There is a permanent error on the module. **Examples:** • Permanent overcurrent • Data in EPROM not valid
			Blinking red	• LED status "Status changes when starting up the operating system loader" on page 10

Table 4: RDY, RUN, ERR (8BVI, 8BVP, 8B0P) - LED status indicators

1) Firmware V2.130 and later.

Information:

The ACOPOSmulti drive system has no way of detecting whether the module's internal fans are actually rotating.

5.3 POWERLINK - LED status indicators

Label	Color	Function	Description	
R/E	Green/Red	Ready/Error	LED off	The module is not supplied with power or network interface initialization 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, but the client itself is not yet in cyclic operation.
			Blinking green (3x)	Cyclic operation of the client is in preparation.
			Solid green	The client is in cyclic operation.
			Flickering green	The client is not in cyclic operation and also does not detect any other stations on the network in cyclic operation.
L/D1	Green	Link/Data activity Port 1	Solid green	A physical connection has been established to another station on the network.
			Blinking green	Activity on port 1
L/D2	Green	Link/Data activity Port 2	Solid green	A physical connection has been established to another station on the network.
			Blinking green	Activity on port 2

Table 5: POWERLINK - LED status indicators

5.4 Backup battery - LED status indicators

Label	Color	Function	Description	
BAT	Green/Red	Ready/Error	LED off	**Possible causes:** • The voltage of the installed backup battery is within the tolerance range, but an EnDat encoder with battery backup is not connected. • An EnDat encoder with backup battery is connected and registering "Battery OK", but the module's firmware version does not support EnDat encoders with battery backup.
			Solid green	An EnDat encoder with battery backup is connected and registering "Battery OK" (voltage of the installed backup battery is within the tolerance range).
			Solid red	An EnDat encoder with battery backup is connected and registering "Battery not OK". **Possible causes:** • Voltage of the installed backup battery outside of tolerance range • No backup battery installed in module

Table 6: Backup battery - LED status indicators

5.5 Status changes when starting up the operating system loader

The following intervals are used for the LED status indicators:

Width of box: 50 ms
Repeats after: 3,000 ms

Status	LED	Display
1. Boot procedure for base hardware active	RDY	
	RUN	
	ERR	
2. Network configuration active	RDY	
	RUN	
	ERR	
3. Waiting for network telegram	RDY	
	RUN	
	ERR	
4. Network communication active	RDY	
	RUN	
	ERR	
5. ACOPOS operating system being transferred/burned [1)]	RDY	
	RUN	
	ERR	

Table 7: Status changes when starting up the operating system loader

1) Firmware V2.140 and later.

6 Dimension diagram and installation dimensions

6.1 Cold plate

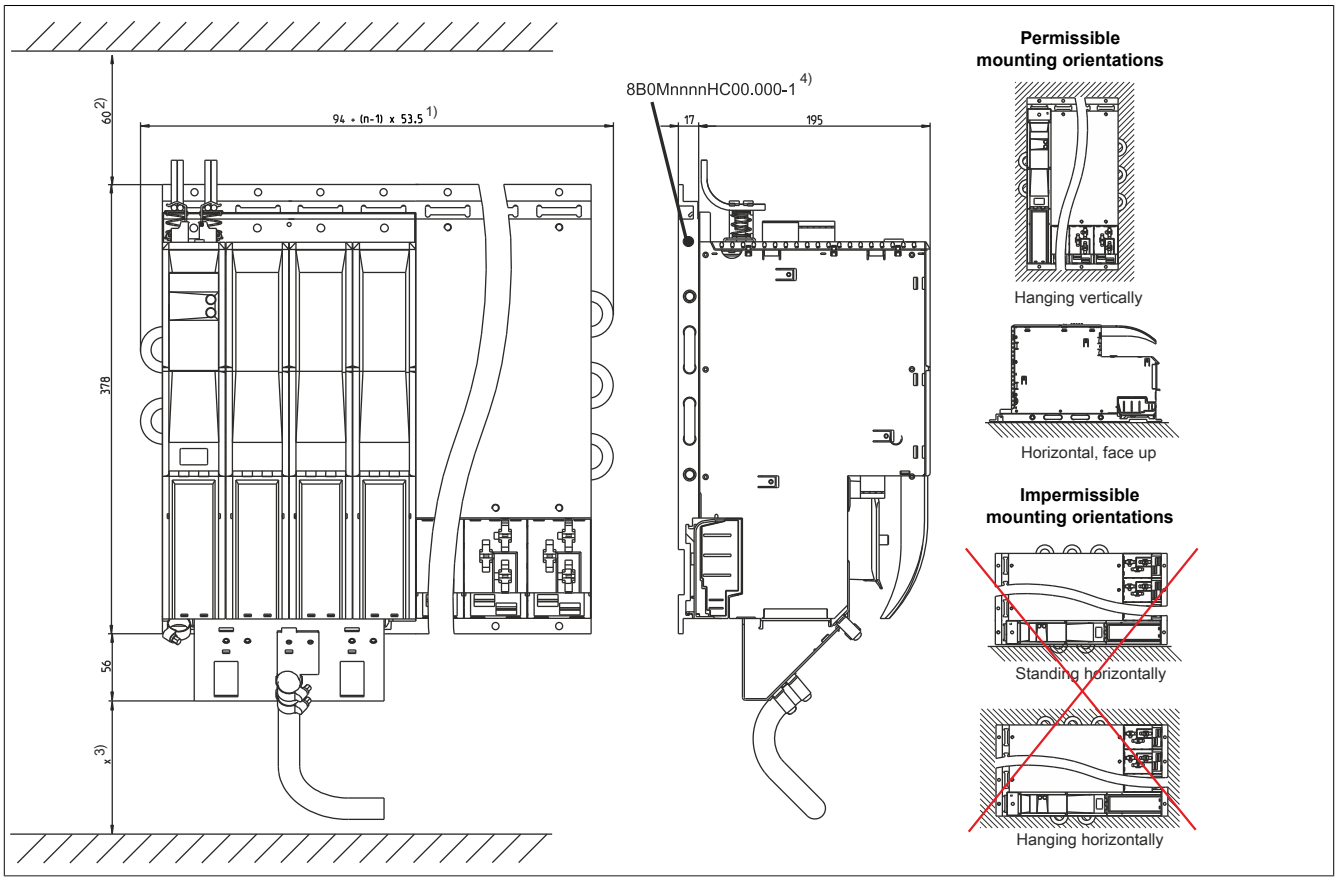


Figure 4: Dimension diagram and installation dimensions

1) n... Number of width units on the mounting plate
2) For sufficient air circulation, a clearance of at least 60 mm must be provided above the mounting plate and below the module.
3) The required spacing x to the wiring on the bottom of the module depends on the power cable being used.
4) nnnn indicates the number of slots (e.g. 0160 refers to 16 slots).

Information:

When installing ACOPOSmulti modules with cold plate or pass-through mounting, it is important to ensure that the rear panel of the control cabinet is not scratched. This results in deterioration of the heat dissipation to the mounting plate.

Do not place ACOPOSmulti modules on their bottom side for cold plate or pass-through mounting. Doing so could break the clips that hold the unit is fan. Broken clips make it more difficult to replace the fans later on.

6.2 Pass-through mounting

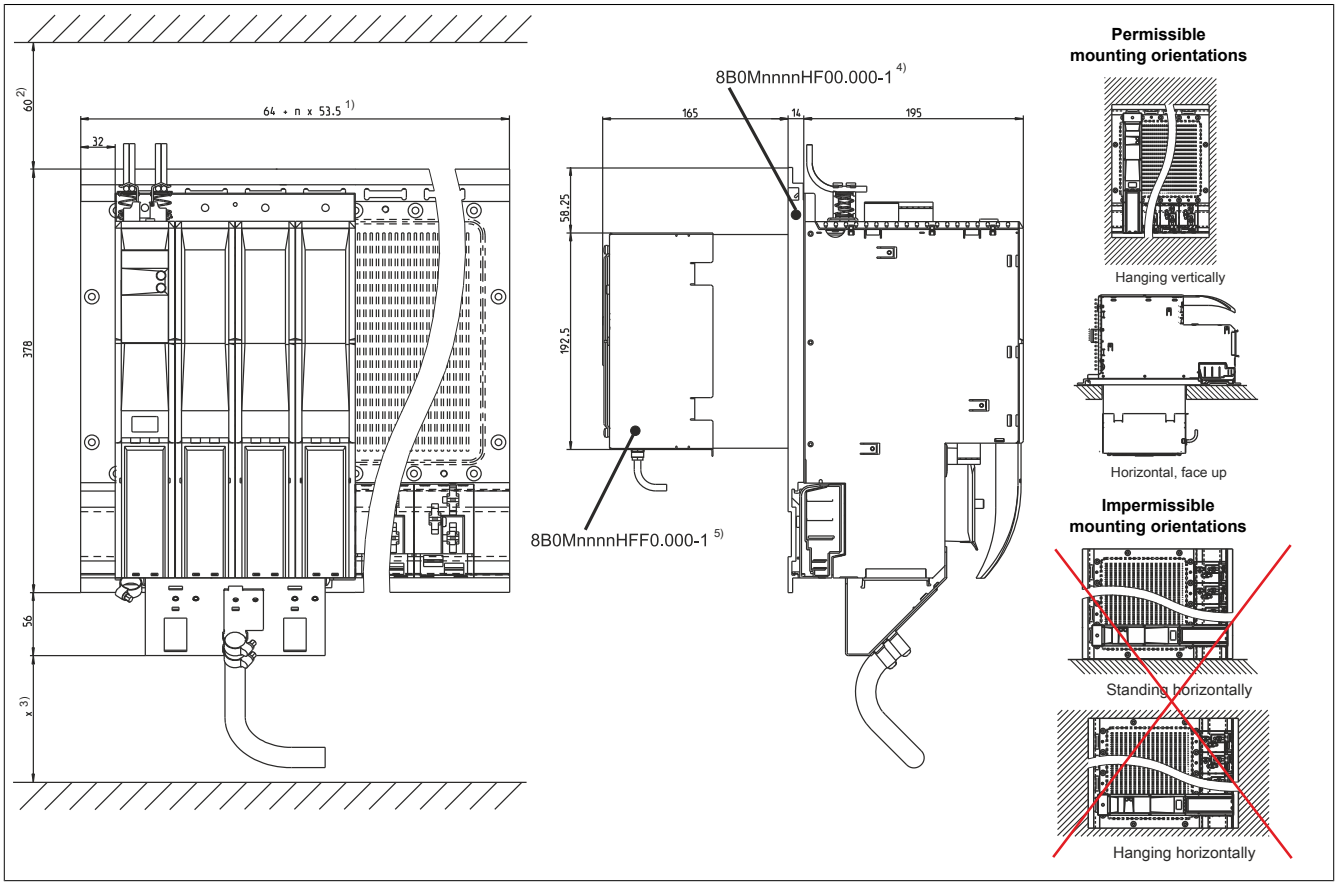


Figure 5: Pass-through mounting - Dimension diagram and installation dimensions

1) n... Number of width units on the mounting plate
2) For sufficient air circulation, a clearance of at least 60 mm must be provided above the mounting plate and below the module.
3) The required spacing to the wiring on the bottom of the module depends on the power cable being used.
4) nnnn indicates the number of slots (e.g. 0160 refers to 16 slots).
5) For sufficient air circulation, a clearance of at least 100 mm must be provided around the fan module.

Information:

When installing ACOPOSmulti modules with cold plate or pass-through mounting, it is important to ensure that the rear panel of the control cabinet is not scratched. This results in deterioration of the heat dissipation to the mounting plate.

Do not place ACOPOSmulti modules on their bottom side for cold plate or pass-through mounting. Doing so could break the clips that hold the unit is fan. Broken clips make it more difficult to replace the fans later on.

7 Wiring

7.1 8BVP0880Hx00.00x-1 - Pinout overview

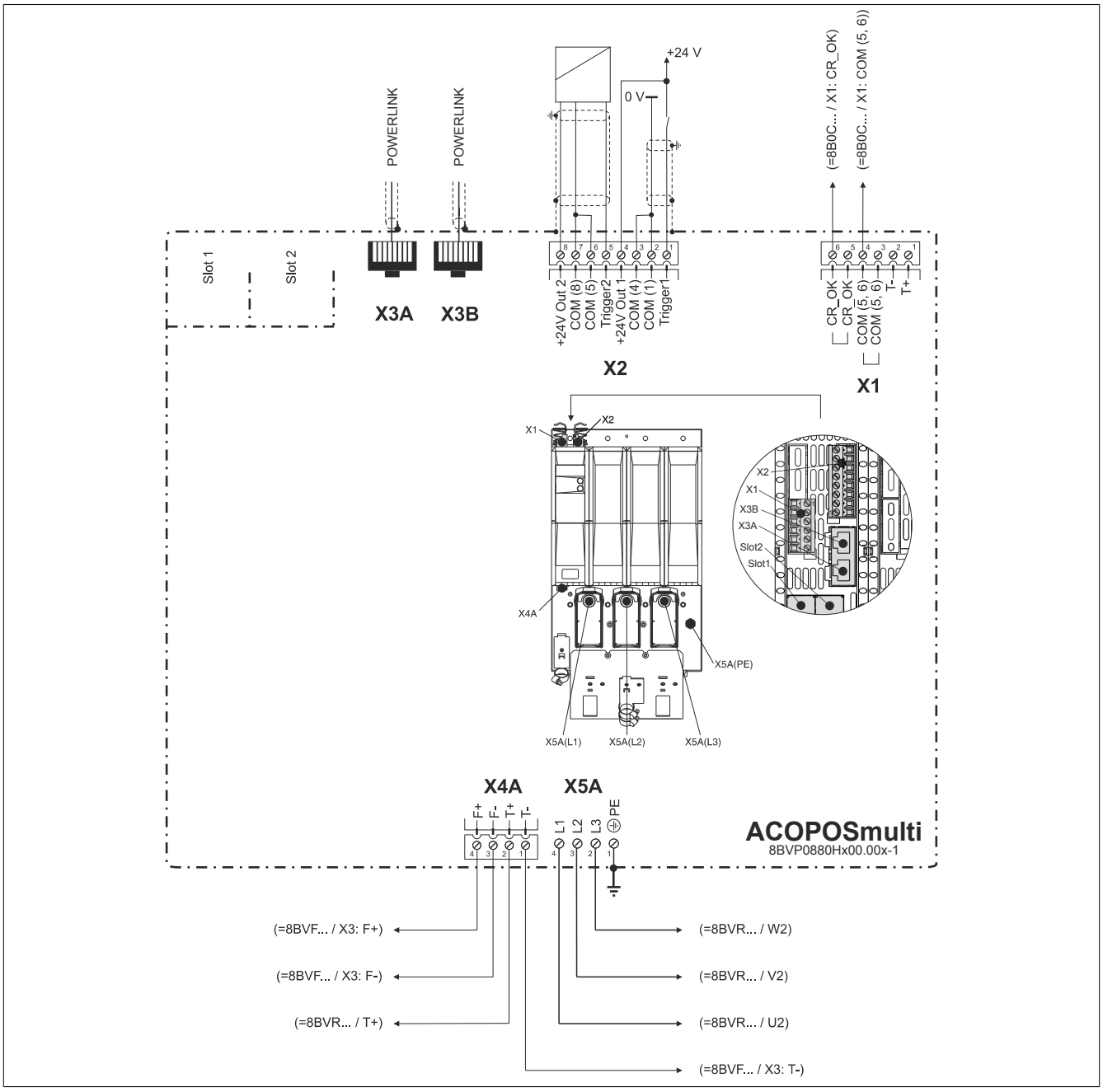


Figure 6: 8BVP0880Hx00.00x-1 - Pinout overview

7.2 Connector X1 - Pinout

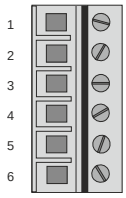
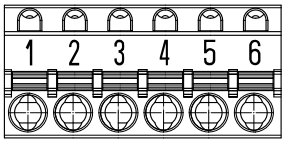
X1	Pin	Name	Function
 8TB2106.2010-00  8TB2106.2210-00	1	T+	Temperature sensor +
	2	T-	Temperature sensor -
	3	COM (5, 6)	DC bus ready 0 V
	4	COM (5, 6)	DC bus ready 0 V
	5	CR_OK	DC bus ready [1]
	6	CR_OK	DC bus ready [1]

Table 8: Connector X1 - Pinout

1) Output CR_OK is only set if the following condition is met:
Charging relay is closed and DC bus voltage U_{DC} >270 VDC.

Danger!

The connections for the temperature sensor are isolated circuits. As a result, only devices or components that have at least safe isolation per IEC 60364-4-41 or EN 61800-5-1 are permitted to be connected to these connections.

7.3 Connector X2 - Pinout

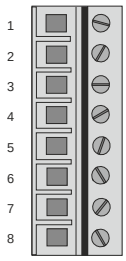
X2	Pin	Name	Function
 8TB2108.2010-00	1	Trigger1	Trigger1
	2	COM (1)	Trigger 1 0 V
	3	COM (4)	+24 V output 1 0 V
	4	+24 V Out 1	+24 V output 1
	5	Trigger2	Trigger2
	6	COM (5)	Trigger 2 0 V
	7	COM (8)	+24 V output 2 0 V
	8	+24 V Out 2	+24 V output 2

Table 9: Connector X2 - Pinout

7.4 Connectors X3A, X3B - Pinout

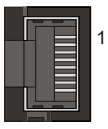
X3A, X3B	Pin	Name	Function
	1	RXD	Receive signal
	2	RXD\	Receive signal inverted
	3	TXD	Transmit signal
	4	Shield	Shield
	5	Shield	Shield
	6	TXD\	Transmit signal inverted
	7	Shield	Shield
	8	Shield	Shield

Table 10: X3A, X3B connectors - Pinout

7.5 Connector X4A - Pinout

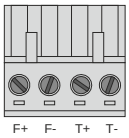
X4A	Name	Function
 8TB2104.204A-00	T-	Mains: Temperature sensor -
	T+	Mains: Temperature sensor +
	F-	Mains: Fan -
	F+	Mains: Fan +

Table 11: Connector X4A - Pinout

Danger!

The connections for the temperature sensor and fan are safely isolated circuits. As a result, only devices or components that have at least safe isolation per IEC 60364-4-41 or EN 61800-5-1 are permitted to be connected to these connections.

Warning!

Temperature sensors are only permitted to be connected to the X4A/T+ and X4A/T- connectors on an ACOPOSmulti module under the following conditions:

- **SLOT1 of the ACOPOSmulti module does not contain an ACOPOSmulti plug-in module to which a temperature sensor is connected on the T+ and T- connections.**

Otherwise, the temperature monitoring functions on the ACOPOSmulti module may become ineffective, which in extreme cases can cause the hardware (e.g. motors) connected to the ACOPOSmulti module to be destroyed!

Connections T+ and T- are not required when using 8BCHxxxx hybrid motor cables.

7.6 Connector X5A - Pinout

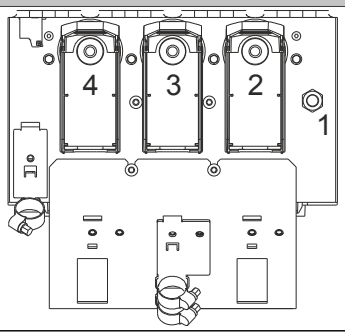
X5A	Pin	Name	Function
	1	PE	Mains: Protective ground conductor
	2	L3	Mains: Mains connection L3
	3	L2	Mains: Mains connection L2
	4	L1	Mains: Mains connection L1
	Tightening torque for the M8 nuts: 12 Nm		

Table 12: X5A - Pinout

Danger!

Before switching on the module, it is important to make sure that the housing is properly connected to ground potential (PE rail). Ground connections must also be made if the module is only connected for testing purposes or only operated for a short time!

Mains connections L1, L2, L3 - Cable installation

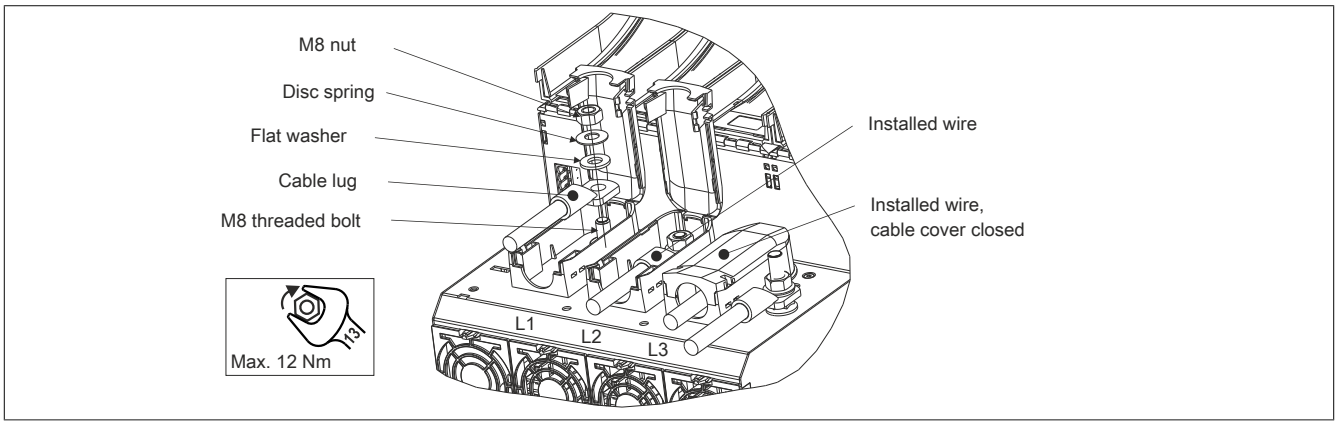
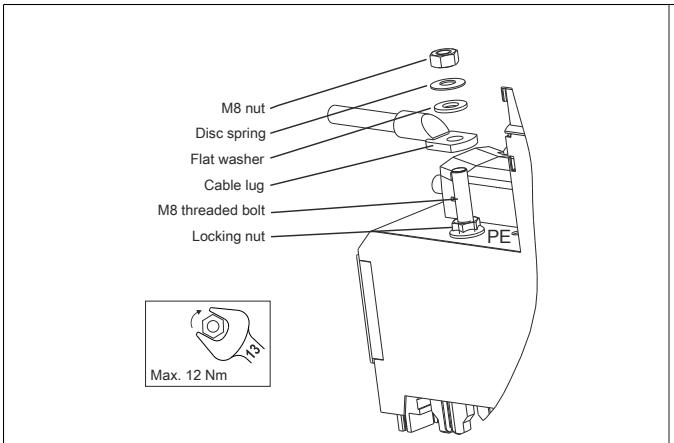


Figure 7: Mains connections L1, L2, L3 - Cable installation

PE connection (1-wire) - Cable installation



PE connection (1-wire) - Overview of installation material

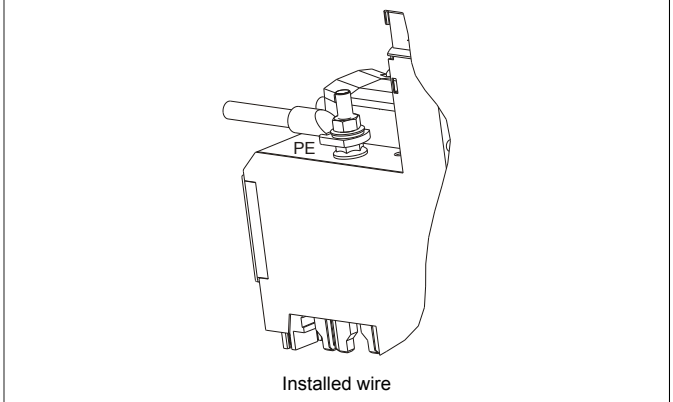
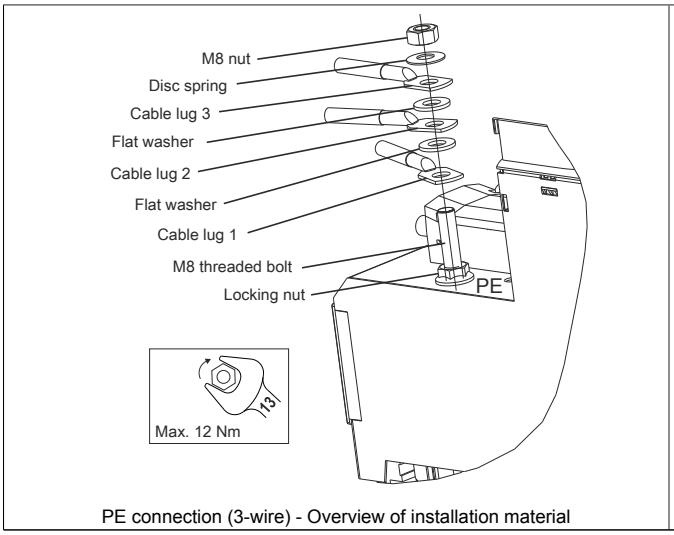


Table 13: PE connection (1-wire) - Cable installation

PE connection (3-wire) - Cable installation



PE connection (3-wire) - Overview of installation material

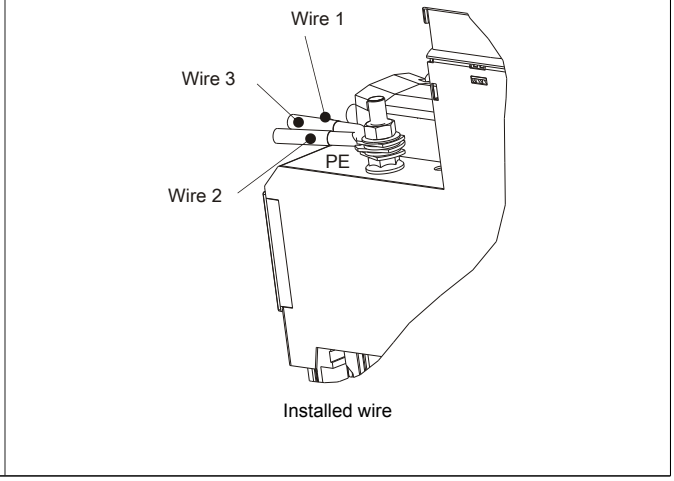


Table 14: PE connection (3-wire) - Cable installation

7.7 Input/Output circuit diagram

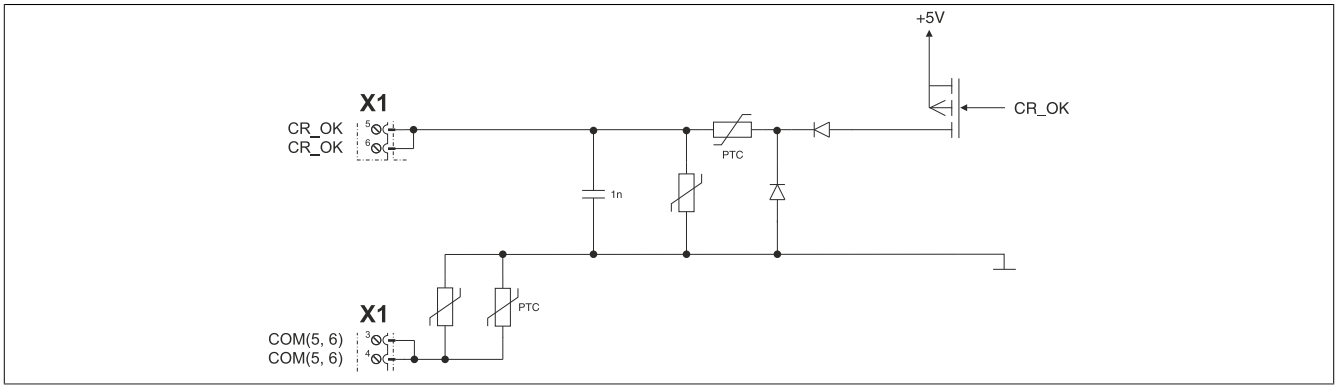


Figure 8: 8B0C enable

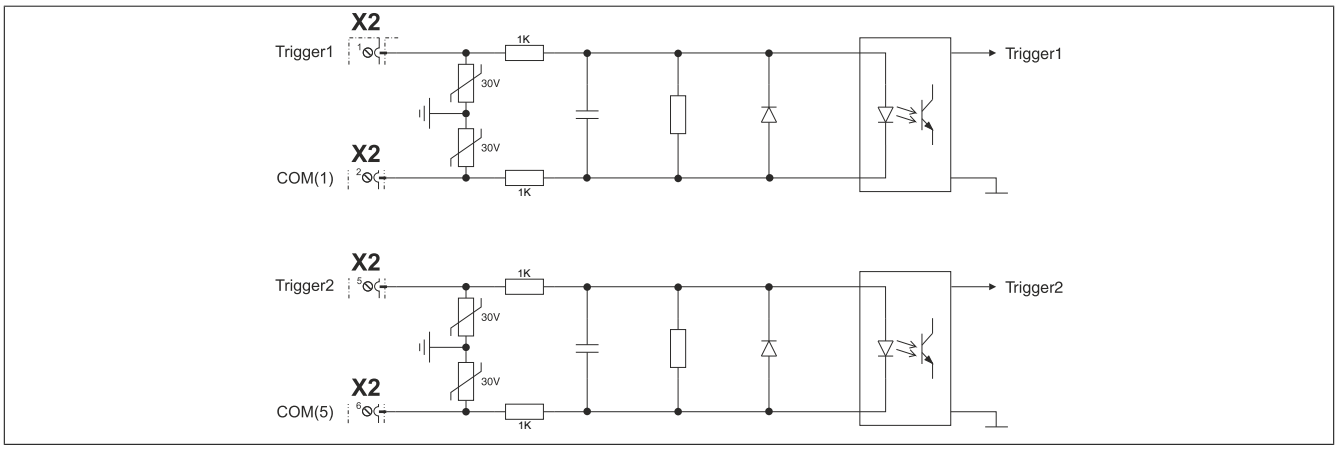


Figure 9: Trigger inputs

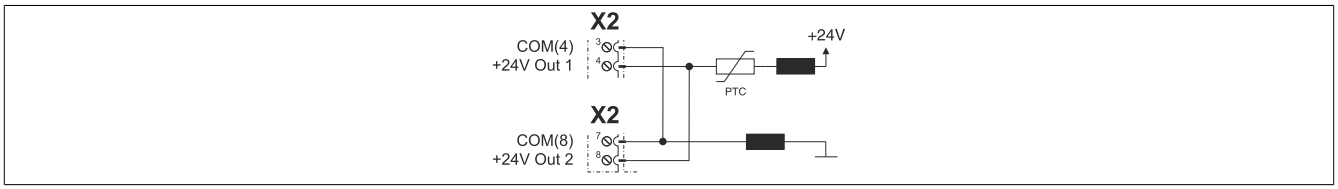


Figure 10: 24 VDC out

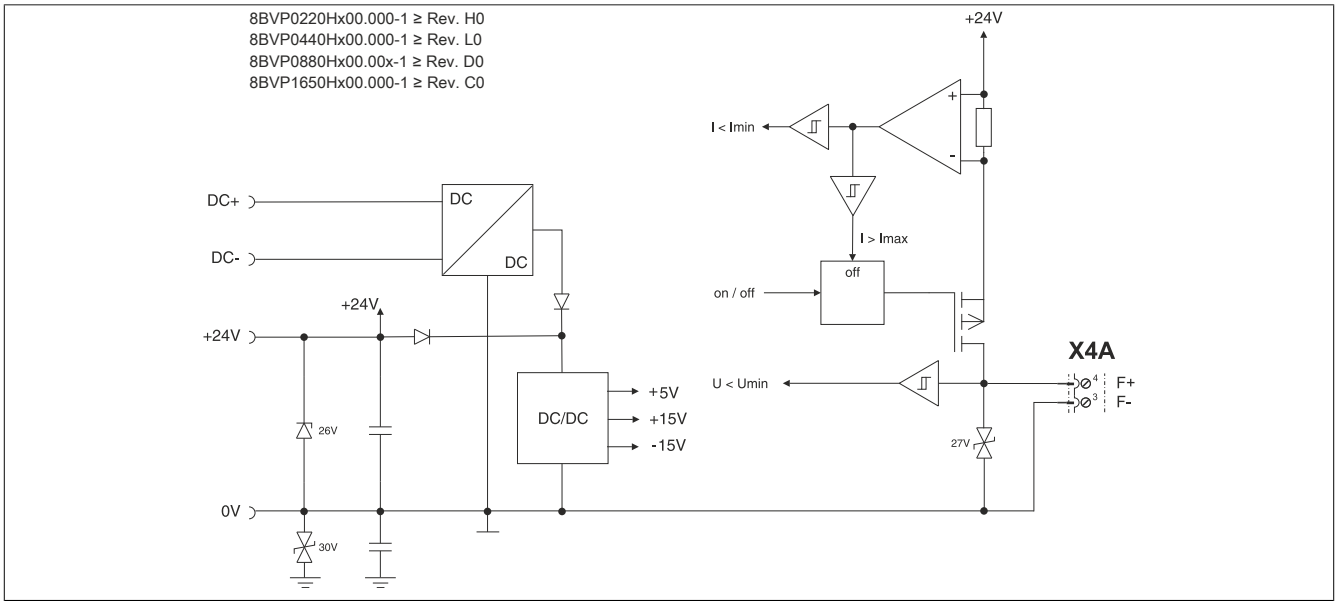


Figure 11: Internal 24 V generation and control of 8BVF fan

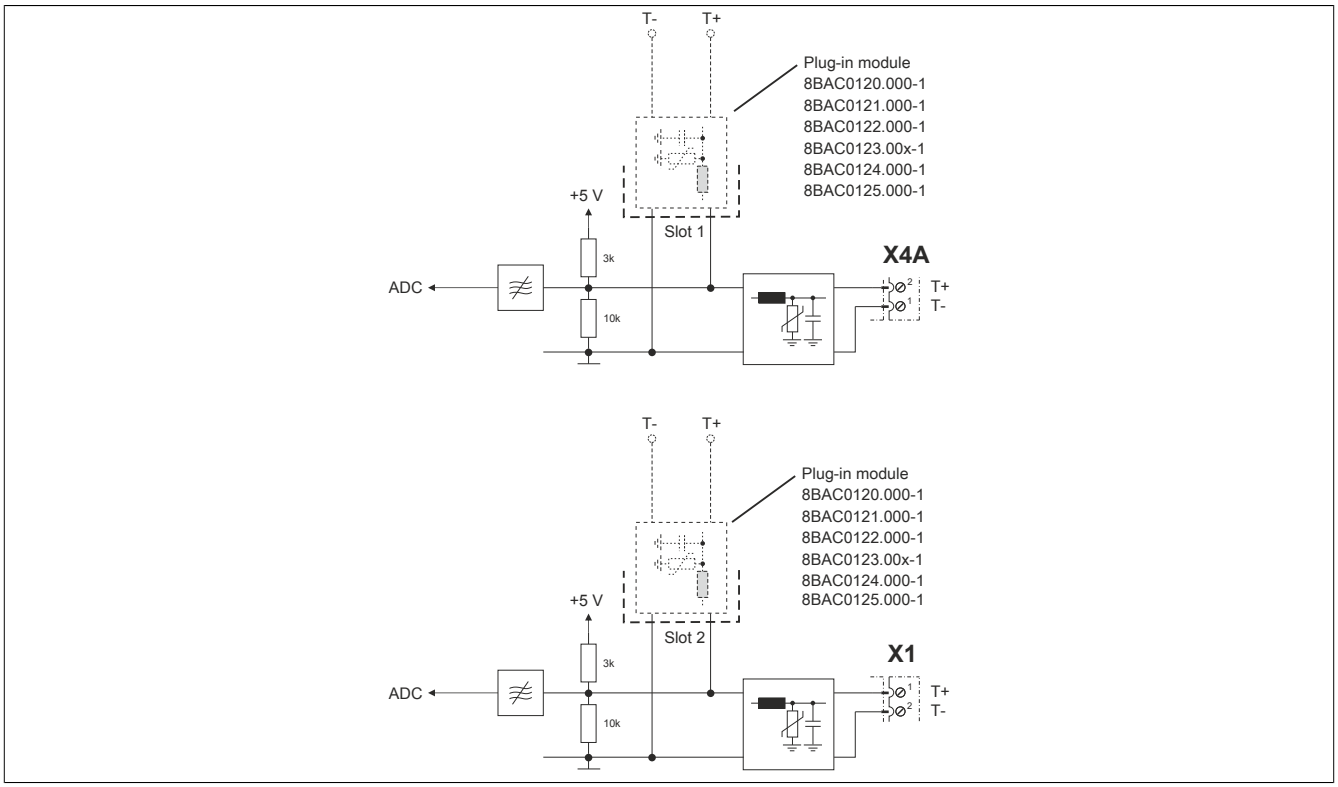


Figure 12: Temperature sensor

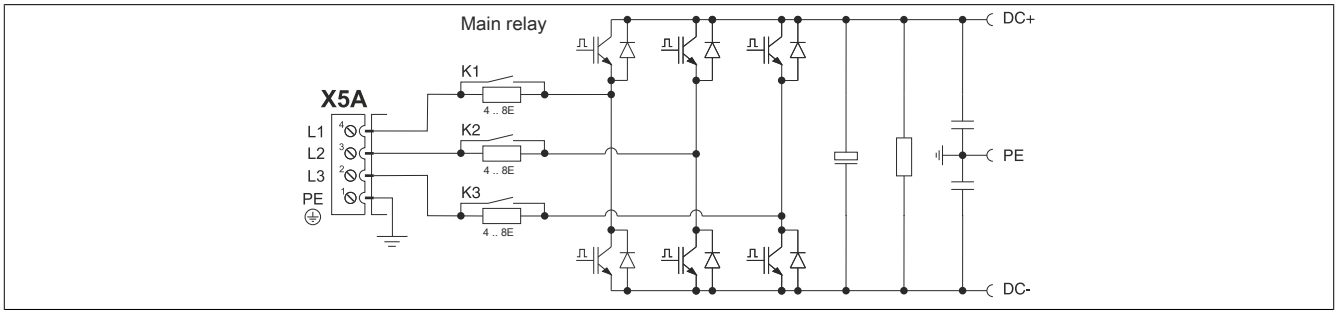


Figure 13: Power unit

7.8 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:

<table>
<tr><th colspan="2">Figure</th><th>Coded rotary switches</th><th>POWERLINK node number</th></tr>
<tr><td rowspan="3">

Cover closed</td><td rowspan="3">

Cover open</td><td>1</td><td>16s position (high)</td></tr>
<tr><td>2</td><td>1s position (low)</td></tr>
<tr><td colspan="2">A change to the POWERLINK node number only takes effect the next time the ACOPOSmulti drive system is switched on.
Information:
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.
Node numbers $00, $FE and $FF are reserved and are therefore not permitted to be set.</td></tr>
</table>

Table 15: Setting the POWERLINK node number