

DATASHEET

B&R AUTOMATION

8BVP0440HW00.000-1

OTHER SYMBOLS:

8BVP0440HW000001, 8BVP0440HW00000 1, 8BVP0440HW00000-1, 8BVP0440HW00 0001, 8BVP0440HW00 000 1, 8BVP0440HW00 000-1, 8BVP0440HW00.0001, 8BVP0440HW00.000 1, 8BVP0440HW00.000-1

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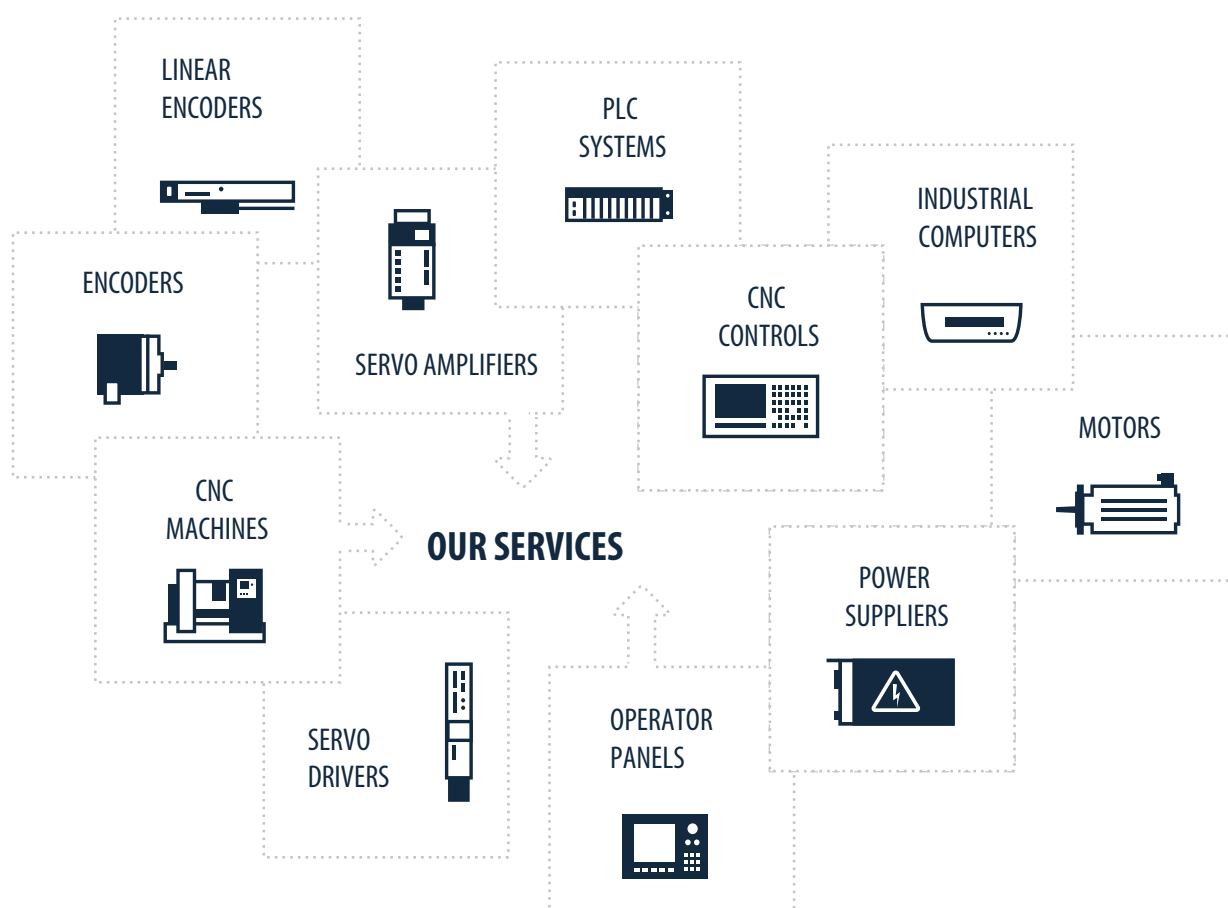


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6. 8BVP power supply modules

6.1 Order data


Model number	Short description	Figure
	Wall mounting	 <p style="text-align: center;">8BVP0880HC00.000-1</p>
8BVP0220HW00.000-1	ACOPOSmulti power supply module 22A, HV, wall mounting	
8BVP0440HW00.000-1	ACOPOSmulti power supply module 44A, HV, wall mounting	
8BVP0880HW00.000-1	ACOPOSmulti power supply module 88 A, HV, wall mounting	
	Cold plate or feed-through mounting	
8BVP0220HC00.000-1	ACOPOSmulti power supply module 22A, HV, cold plate or feed-through mounting	
8BVP0440HC00.000-1	ACOPOSmulti power supply module 44A, HV, cold plate or feed-through mounting	
8BVP0880HC00.000-1	ACOPOSmulti power supply module 88A, HV, cold plate or feed-through mounting	

Table 20: Order data - 8BVP power supply modules

Required accessories				
Model number	Amount	Short description	Comment	Page
8TB2106.2010-00	1	Screw terminal 6 pins, 1 row RM5.08 Label 1: numbered serially	Plug for X1 connection	276
8TB2108.2010-00	1	Screw terminal 8 pins, 1 row RM5.08 Label 1: numbered serially	Plug for X2 connection	276
8TB2104.204A-00	1	Screw terminal 4 pins, 1 row RM5.08 Label 4: T- T+ F- F+ Coding A: 0000	Plug for X4A connection	276
8TB4104.202L-10 ¹⁾	1	Screw terminal 4 pins, 1 row RM10.16 Label 2: L1 L2 L3 PE Coding N: 1010	Plug for X5A connection	276

Table 21: Required accessories - 8BVP power supply modules

1) Only for 8BVP0220Hx00.000-1 und 8BVP0440Hx00.000-1.

Technical data • 8BVP power supply modules

Optional accessories				
Model number	Amount	Short description	Comment	Page
8BAC0120.000-1	max. 2	ACOPOSMulti plug-in module, EnDat 2.1 interface	---	99
8BAC0120.001-1	max. 2	ACOPOSMulti plug-in module, EnDat 2.2 interface	---	---
8BAC0122.000-1	max. 2	ACOPOSMulti plug-in module, Resolver interface	---	107
8BAC0124.000-1	max. 2	ACOPOSMulti plug-in module, SinCos interface	---	127
8SCS005.0000-00	Up to 2	Shield component set consisting of: 1 slot cover shield sheet	Shield sheet for covering free plug-in module slots	---
8SCS002.0000-00	1	Shield component set consisting of: 1 clamping plate 2 clamps D 4-13.5mm 2 screws	Shield component set for I/O cable with a cable diameter of 4 - 13.5 mm	---
8SCS008.0000-00 ¹⁾	1	Shield component set consisting of: 1 shield plate, 2x, type 0 1 hose clamp, W 9mm, D 23-35mm	Shield component set for power cables with a diameter of 23 - 35 mm	---
8SCS003.0000-00 ²⁾	1	Shield component set consisting of: 1 shield mounting plate, 4x, 45° 8 screws	Base plate for mounting shield component set 8SCS001.0000-00 or 8SCS004.0000-00	---
8SCS004.0000-00 ²⁾	1	Shield component set consisting of: 1 shield plate, 4x, type 0 2 hose clamps, W 9mm, D 32-50mm	Shield component set for power cables with a diameter of 32 - 50 mm	---
8SCS001.0000-00 ²⁾	3	Shield component set consisting of: 1 shield plate, 4x, type 1 1 hose clamp, W 9mm, D 12-22mm	Shield component set for individual wires with a diameter of 12 - 22 mm	---
8SCS007.0000-00 ¹⁾	1	Shield component set consisting of: 1 shield mounting plate, 2x, 45° 4 screws	Base plate for mounting shield component set 8SCS008.0000-00	---
8BXF001.0000-00	---	ACOPOSMulti fan module Replacement fan for ACOPOSMulti modules (8BVP/8B0C/8BVI/8BVE/8B0K)	Replacement fan for ACOPOSMulti modules (8BVP/8B0C/8BVI/8BVE/8B0K)	---

Table 22: Optional accessories - 8BVP power supply modules

1) Only for 8BVP0220Hx00.000-1 und 8BVP0440Hx00.000-1.

2) Only for 8BVP0880Hx00.000-1.

6.2 Technical data

Product ID	8BVP0220HW00.000-1 8BVP0220HC00.000-1	8BVP0440HW00.000-1 8BVP0440HC00.000-1	8BVP0880HW00.000-1 8BVP0880HC00.000-1
Wall mounting Cold plate or feed-through mounting			
General information			
C-UL-US listed	In preparation	Yes	
Available cooling and mounting methods			
Wall mounting	Yes		
Cold plate or feed-through mounting	Yes		
Module width	2	4	
Power mains connection			
Mains input voltage	3x220 to 3x480VAC ±10%		
System configuration	TT, TN-S, TN-C-S		
Frequency	50 / 60 Hz ± 4%		
Installed load	In preparation		
Starting current at 400 VAC	In preparation		
Switch-on interval	> 10 s		
Max. chargeable DC bus capacitance	4 mF	8 mF	
Rated switching frequency	5 kHz		
Possible switching frequencies ¹⁾	5 / 10 kHz		
Integrated line filter according to EN 61800-3-A11 second environment (limits from CISPR11, group 2, class A)	No		
Integrated regeneration choke	No		
Capable of regeneration	Yes		
Power Factor Control (PFC)	Yes		
Design L1, L2, L3, PE PU Shield connection	Connectors Threaded bolt M5 Yes ²⁾	Threaded bolt M8 No Yes ²⁾	
Terminal connection cross sections Flexible and fine wire lines with wire tip sleeves Approbation data UL/C-UL-US CSA	0.5 - 16 mm ² 20 - 6 20 - 6	6 - 50 mm ² ³⁾ In preparation In preparation	
Terminal cable outer-cross-section dimension of the shield connection	23 - 35 mm	32 - 50 mm	

Table 23: Technical data -8BVP power supply modules

Technical data • 8BVP power supply modules

Product ID	8BVP0220HW00.000-1 8BVP0220HC00.000-1	8BVP0440HW00.000-1 8BVP0440HC00.000-1	8BVP0880HW00.000-1 8BVP0880HC00.000-1
Wall mounting Cold plate or feed-through mounting			
DC bus connection			
Voltage Max.	800 VDC 900 VDC		
Continuous power (supply and regeneration) ⁴⁾	15 kW	30 kW	60 kW
Reduction of continuous power depending on mains input voltage Mains input voltage < 3x400 VAC	37.5 W * (400 - mains input voltage)	75 W * (400 - mains input voltage)	150 W * (400 - mains input voltage)
Reduction of continuous power depending on switching frequency and cooling method ⁵⁾ Switching frequency 10 kHz Wall mounting ⁶⁾ Installing the cold plate ⁷⁾ Feed-through mounting Switching frequency 5 kHz Wall mounting ⁶⁾ Installing the cold plate ⁷⁾ Feed-through mounting	0.27 kW/K (from 31°C) 0.33 kW/K (from 49°C) In preparation No reduction No reduction In preparation	0.35 kW/K (from -10°C) ⁸⁾ 0.43 kW/K (from 6°C) ⁹⁾ In preparation 1.11 kW/K (from 40°C) 0.56 kW/K (from 45°C) In preparation	0.64 kW/K (from -5°C) ⁸⁾ 0.95 kW/K (from 27°C) In preparation 0.97 kW/K (from 41°C) 1.3 kW/K (from 58°C) In preparation
Reduction of continuous power depending on installation altitude Starting at 500 m above sea level	1.5 kW per 1000 m	3 kW per 1000 m	6 kW per 1000 m
Peak power (supply and regeneration)	37.5 kW	60 kW	120 kW
Power loss at max. device power	In preparation	In preparation	In preparation
DC bus capacitance	495 µF	825 µF	1650 µF
Protective measures Overload protection Short circuit and ground fault	Yes No		
Design	ACOPOSMulti backplane		
24 VDC supply ¹⁰⁾			
Input voltage	25 VDC ±1.6%		
Input capacitance	4.7 µF		
Max. power consumption	$P_{24\text{V Out}} \{0 \dots 10\text{ W}\}^{11)} + P_{\text{Fan8BVF}\dots}^{12)} + 2 * P_{\text{Fan8BOM}\dots}^{13)}$		$P_{24\text{V Out}} \{0 \dots 10\text{ W}\}^{11)} + P_{\text{Fan8BVF}\dots}^{12)} + 4 * P_{\text{Fan8BOM}\dots}^{13)}$
Design	ACOPOSMulti backplane		
Line filter fan connection			
Output voltage	24V +5.8 / -0.1%		
Continuous current	4.2 A		
Protective measures Overload protection Short circuit protection Cable breakage monitoring Undervoltage monitoring	No Yes No No		
Max. over-current limitation	10 A		

Table 23: Technical data -8BVP power supply modules (Forts.)

Technical data • 8BVP power supply modules

Product ID	8BVP0220HW00.000-1 8BVP0220HC00.000-1	8BVP0440HW00.000-1 8BVP0440HC00.000-1	8BVP0880HW00.000-1 8BVP0880HC00.000-1
Wall mounting Cold plate or feed-through mounting			
Trigger inputs			
Number of inputs	2		
Wiring	Sink		
Electrical isolation Input - Power supply module Input - Input	Yes Yes		
Input voltage Rated Maximum	24 VDC 30 VDC		
Switching threshold LOW HIGH	<5 V >15 V		
Input current at rated voltage	Approx. 10 mA		
Switching delay Positive edge Negative edge	52 μ s \pm 0.5 μ s (digitally filtered) 53 μ s \pm 0.5 μ s (digitally filtered)		
Modulation compared to ground potential	Max. \pm 38 V		
24 V Out			
Amount	2		
Output voltage DC bus voltage 260 ... 315 VDC DC bus voltage 315 ... 900 VDC	25 VDC * (DC bus voltage / 315) 24 VDC \pm 6%		
Fuse protection	500 mA (slow-blow) electronic, automatic reset		
Operational conditions			
Ambient temperature during operation Max. ambient temperature ¹⁴⁾	5 to 40°C +55°C		
Relative humidity during operation	5 to 85%, non-condensing		
Installation at altitudes above sea level Maximum installation altitude ¹⁵⁾	0 to 500 m 4000 m		
Degree of pollution according to EN 60664-1	2 (non-conductive material)		
Overvoltage cat. according to IEC 60364-4-443:1999	III		
EN 60529 protection	IP20		
Storage and transport conditions			
Storage temperature	-25 to +55°C		
Relative humidity during storage	5 to 95%, non-condensing		
Transport temperature	-25 to +70°C		
Relative humidity during transport	95% at +40°C		

Table 23: Technical data -8BVP power supply modules (Forts.)

Technical data • 8BVP power supply modules

Product ID	8BVP0220HW00.000-1 8BVP0220HC00.000-1	8BVP0440HW00.000-1 8BVP0440HC00.000-1	8BVP0880HW00.000-1 8BVP0880HC00.000-1
Wall mounting Cold plate or feed-through mounting			
Mechanical characteristics			
Dimensions ¹⁶⁾			
Width	106.5 mm		213.5 mm
Height	317 mm		317 mm
Depth			
Wall mounting	263 mm		263 mm
Cold-plate	212 mm		212 mm
Feed-through mounting	209 mm		209 mm
Weight			
Wall mounting	Approx. 5.2 kg	Approx. 5.5 kg	Approx. 10.2 kg
Cold-plate	Approx. 4.2 kg	Approx. 4.5 kg	Approx. 7.9 kg
Feed-through mounting	Approx. 4.2 kg	Approx. 4.5 kg	Approx. 7.9 kg

Table 23: Technical data -8BVP power supply modules (Forts.)

- 1) B&R recommends operating the module at nominal switching frequency. Operating the module at a higher switching frequency for application-specific reasons reduces the continuous power and increases the CPU load.
- 2) The cable does not require shielding up to a total cable length between the line filter, regeneration choke and power supply module of 3 m. Please contact B&R when using cable lengths > 3 m.
- 3) The connection is made with cable lugs using an M8 threaded bolt.
- 4) Valid in the following conditions: 40°C ambient temperature, installation altitude < 500 m above sea level.
- 5) Valid in the following conditions: Nominal DC bus voltage 800 VDC, minimum permissible coolant flow volume (3 l/min). The nominal switching frequency values for the respective ACOPOSmulti inverter module are marked in bold.
- 6) The temperature specifications are based on the ambient temperature.
- 7) The temperature specifications are based on the return temperature of the cold plate mounting plate.
- 8) The module cannot supply the full continuous current at this switching frequency. This unusual value for the ambient temperature, at which a derating of the continuous current must be accounted for, ensures that the derating of the continuous current can be determined in the same manner as at other switching frequencies.
- 9) The module cannot supply the full continuous current at this switching frequency. This unusual value for the return temperature, at which a derating of the continuous current must be accounted for, ensures that the derating of the continuous current can be determined in the same manner as at other switching frequencies.

Caution! Condensation can occur at low flow-temperatures and low return-temperatures. The designs in the section "Condensation" on page 203 must be taken into consideration!

- 10) In the power supply modules a DC bus power supply is integrated for the electronic supply. The 24 VDC supply from the ACOPOSmulti backplane only feeds the +24 VDC of the trigger inputs and the encoder power supplies on the encoder modules.
- 11) The power consumption $P_{24\text{ V Out}}$ corresponds to the power that is output on the module's X2 / +24 V Out 1 and X2 / +24 V Out 2 connections (max. 10 W).
- 12) The power consumption $P_{\text{Fan8BVF...}}$ corresponds to the portion of the power that is output on the X4A / F- and X4A / F+ connectors on the module and can be found in the technical data for the respective line filter 8BVF... (fan connection).
- 13) The power consumption $P_{\text{Fan8BOM...}}$ corresponds to the portion of the power that is used by the fan modules in the mounting plate / by the 8BOM0040HFF0.000-1 fan module and can be found in the technical data for the respective 8BOM... mounting plate.
- 14) Continuous operation of ACOPOSmulti power supply modules at ambient temperatures ranging from 40°C to max. 55°C is possible (taking the continuous current reductions listed into consideration), but results in a shorter lifespan.
- 15) Continuous operation of ACOPOSmulti power supply modules at altitudes ranging from 500 m to 4000 m above sea level is possible (taking the continuous current reductions listed into consideration). Additional requirements are to be arranged with B&R.
- 16) The dimensions define the true device dimensions including the respective mounting plate. Make sure to leave additional space above and below the device for mounting, connections and air circulation (see section 2 "Dimension diagrams and installation dimensions" on page 143).

2.4.2 Power supply module 8BVP0220HW00.000-1, 8BVP0440HW00.000-1

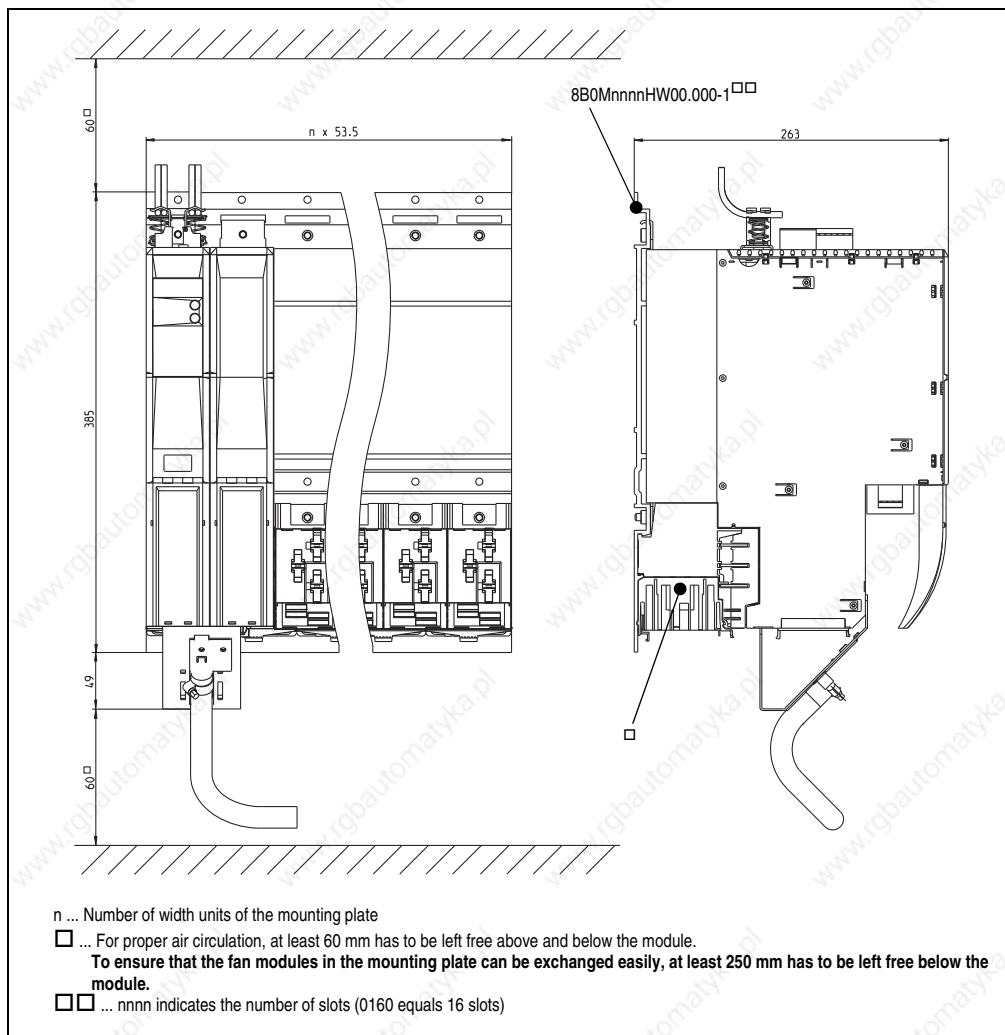


Figure 23: Dimensional diagram and installation dimensions for 8BVP0220HW00.000-1, 8BVP0440HW00.000-1

4. 8BVP power supply modules

4.1 8BVP0220Hx00.000-1, 8BVP0440Hx00.000-1

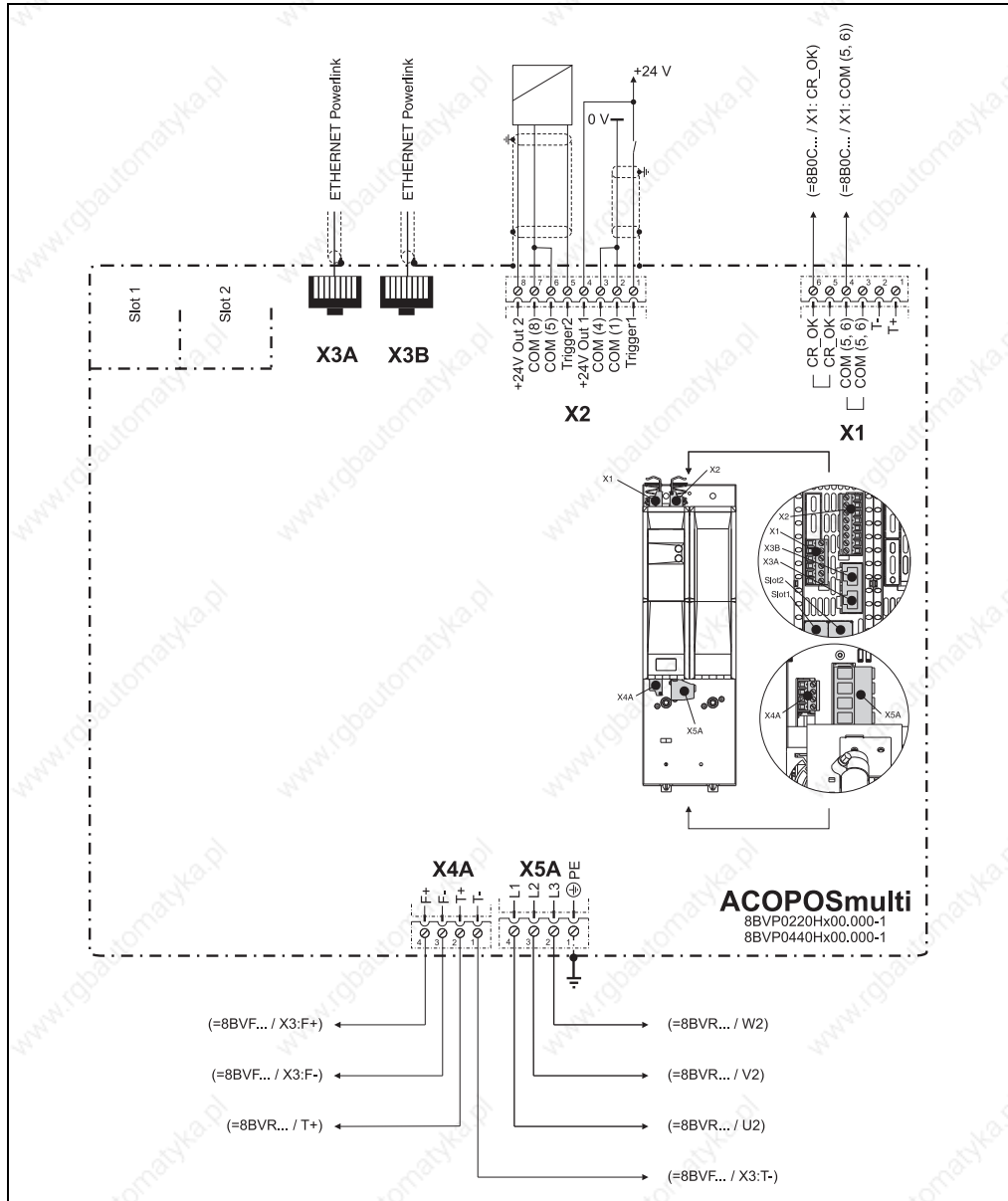


Figure 85: Overview of pin assignments - 8BVP0220Hx00.000-1, 8BVP0440Hx00.000-1

4.1.1 Pin assignments - X1 plug

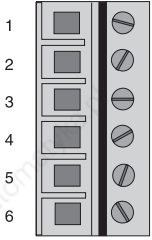
X1		Pin	Name	Function
	1	T+	Temperature sensor +	
	2	T-	Temperature sensor -	
	3	COM (5, 6)	DC bus ready 0 V	
	4	COM (5, 6)	DC bus ready 0 V	
	5	CR_OK	DC bus ready ¹⁾	
	6	CR_OK	DC bus ready ¹⁾	

Table 111: Pin assignments for X1 plug - 8BVP0220Hx00.000-1, 8BVP0440Hx00.000-1

- 1) The CR_OK output is only set if the following condition is met:
The loading relay is closed and the DC bus voltage $U_{DC} > 270$ VDC.

4.1.2 Pin assignments - X2 plug

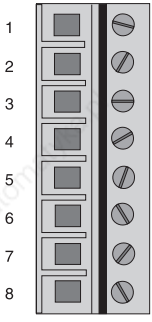
X2		Pin	Name	Function
	1	Trigger1	Trigger 1	
	2	COM (1)	Trigger 1 0 V	
	3	COM (4)	+24 V output 1 0 V	
	4	+24V Out 1	+24 V output 1	
	5	Trigger2	Trigger 2	
	6	COM (5)	Trigger 2 0 V	
	7	COM (8)	+24 V output 2 0 V	
	8	+24V Out 2	+24 V output 2	

Table 112: Pin assignments for X2 plug - 8BVP0220Hx00.000-1, 8BVP0440Hx00.000-1

4.1.3 Pin assignments - X3A, X3B plugs


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 113: Pin assignments for X3A, X3B plugs - 8BVP0220Hx00.000-1, 8BVP0440Hx00.000-1

Usage guidelines for B&R Powerlink cables

Special usage guidelines

Special usage guidelines must be adhered to for the following B&R Powerlink cables:

Model number	Short description
X20CA0E61.0002	Ethernet POWERLINK connection cables, RJ45 to RJ45, 0.2 m
X20CA0E61.0005	Ethernet POWERLINK connection cables, RJ45 to RJ45, 0.5 m
X20CA0E61.0010	Ethernet POWERLINK connection cables, RJ45 to RJ45, 1.0 m
X20CA0E61.0020	Ethernet POWERLINK connection cables, RJ45 to RJ45, 2.0 m
X20CA0E61.0030	Ethernet POWERLINK connection cables, RJ45 to RJ45, 3.0 m
X20CA0E61.0040	Ethernet POWERLINK connection cables, RJ45 to RJ45, 4.0 m
X20CA0E61.0050	Ethernet POWERLINK connection cables, RJ45 to RJ45, 5.0 m
X20CA0E61.0080	Ethernet POWERLINK connection cables, RJ45 to RJ45, 8.0 m
X20CA0E61.0100	Ethernet POWERLINK connection cables, RJ45 to RJ45, 10.0 m
X20CA0E61.0150	Ethernet POWERLINK connection cables, RJ45 to RJ45, 15.0 m
X20CA0E61.0300	Ethernet POWERLINK connection cables, RJ45 to RJ45, 30.0 m
X20CA0E61.0500	Ethernet POWERLINK connection cables, RJ45 to RJ45, 50.0 m
X20CA3E61.0100	Ethernet POWERLINK connection cables, RJ45 to RJ45, can be used in cable drag chains, 10.0 m
X20CA3E61.0150	Ethernet POWERLINK connection cables, RJ45 to RJ45, can be used in cable drag chains, 15.0 m
X67CA0E41.0010	Ethernet POWERLINK attachment cables, RJ45 to M12, 1.0 m
X67CA0E41.0050	Ethernet POWERLINK attachment cables, RJ45 to M12, 5.0 m
X67CA0E41.0150	Ethernet POWERLINK attachment cables, RJ45 to M12, 15.0 m
X67CA0E41.0500	Ethernet POWERLINK attachment cables, RJ45 to M12, 50.0 m
X67CA3E41.0150	Ethernet POWERLINK attachment cables, RJ45 to M12, can be used in cable drag chains, 15.0 m

Table 114: Overview of B&R Powerlink cables

The unlocking mechanism for this B&R Powerlink cable is protected by a soft plastic clip (see figure 86 "B&R Powerlink cable").

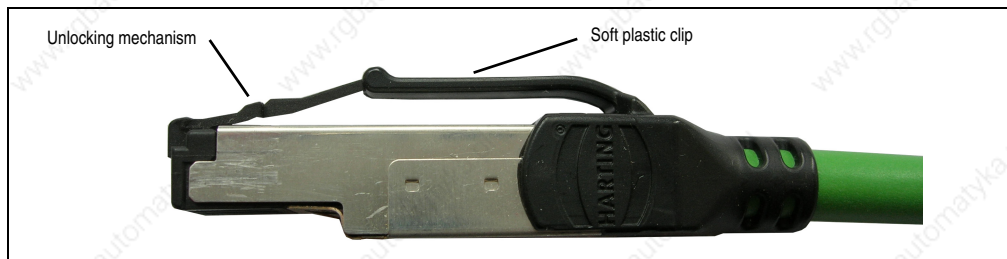


Figure 86: B&R Powerlink cable

This soft plastic clip connects the unlocking mechanism to the connector housing when extended and is designed to prevent the unlocking mechanism from breaking off when disconnecting the cable.

Disconnecting the B&R Powerlink cable from ACOPOSmulti modules

The RJ45 plug must be unlocked by pressing on the front part of the soft plastic clip and the B&R Powerlink cable must then be disconnected from the ACOPOSmulti module (see figure 87 "Correct unlocking of B&R Powerlink cables") .

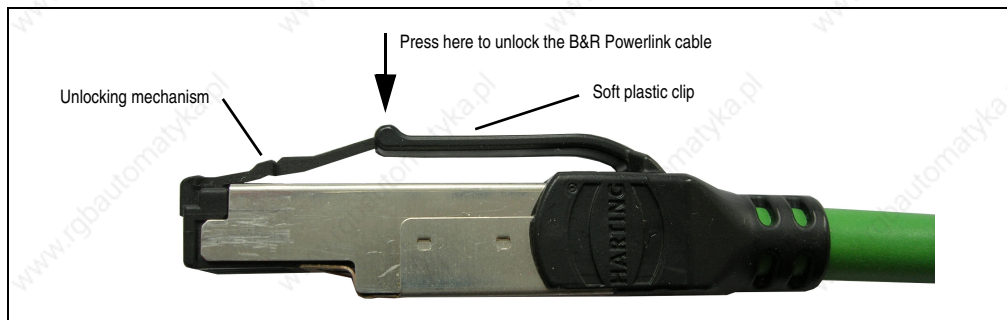


Figure 87: Correct unlocking of B&R Powerlink cables

Caution!

Before disconnecting the B&R Powerlink cable from ACOPOSmulti modules, make sure that the RJ45 plug is completely unlocked.

4.1.4 Pin assignments - X4A plug

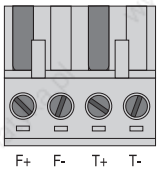
X4A	Name	Function
	T-	Network: Temperature sensor -
	T+	Network: Temperature sensor +
	F-	Network: Fans -
	F+	Network: Fans +

Table 115: Pin assignments for X4A plug - 8BVP0220Hx00.000-1, 8BVP0440Hx00.000-1

4.1.5 Pin assignments - X5A plug

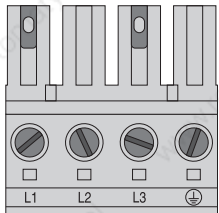
X5A	Name	Function
	PU	Network: Protective ground conductor
	L3	Network: Power mains connection L3
	L2	Network: Power mains connection L2
	L1	Network: Power mains connection L1

Table 116: Pin assignments for X5A plug - 8BVP0220Hx00.000-1, 8BVP0440Hx00.000-1

Danger!

Before turning on the module, make sure that the housing is properly connected to ground (PE rail). The ground connection must be made, even when testing the module or when operating it for a short time!

4.1.6 Input/output circuit diagram

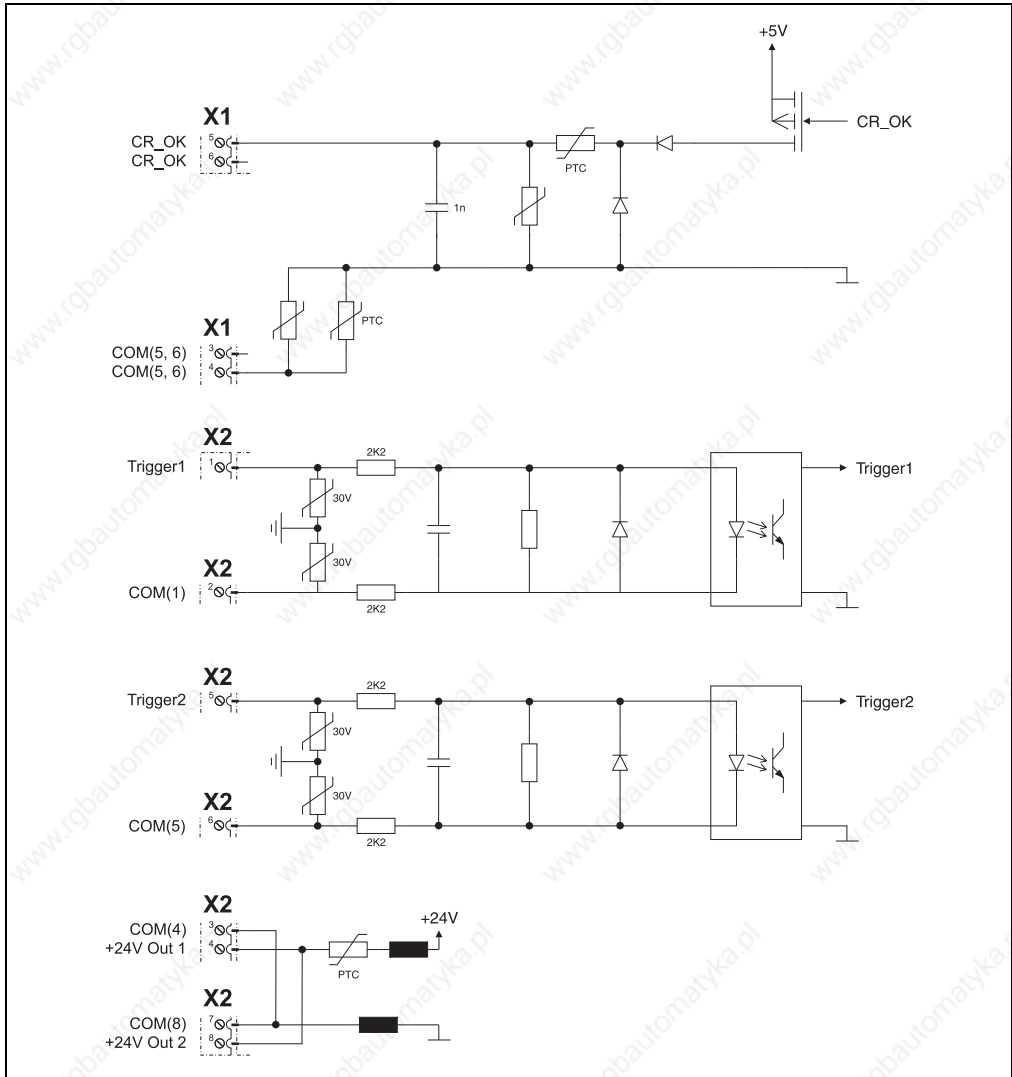


Figure 88: Input/output diagram - 8BVP0220Hx00.000-1, 8BVP0440Hx00.000-1

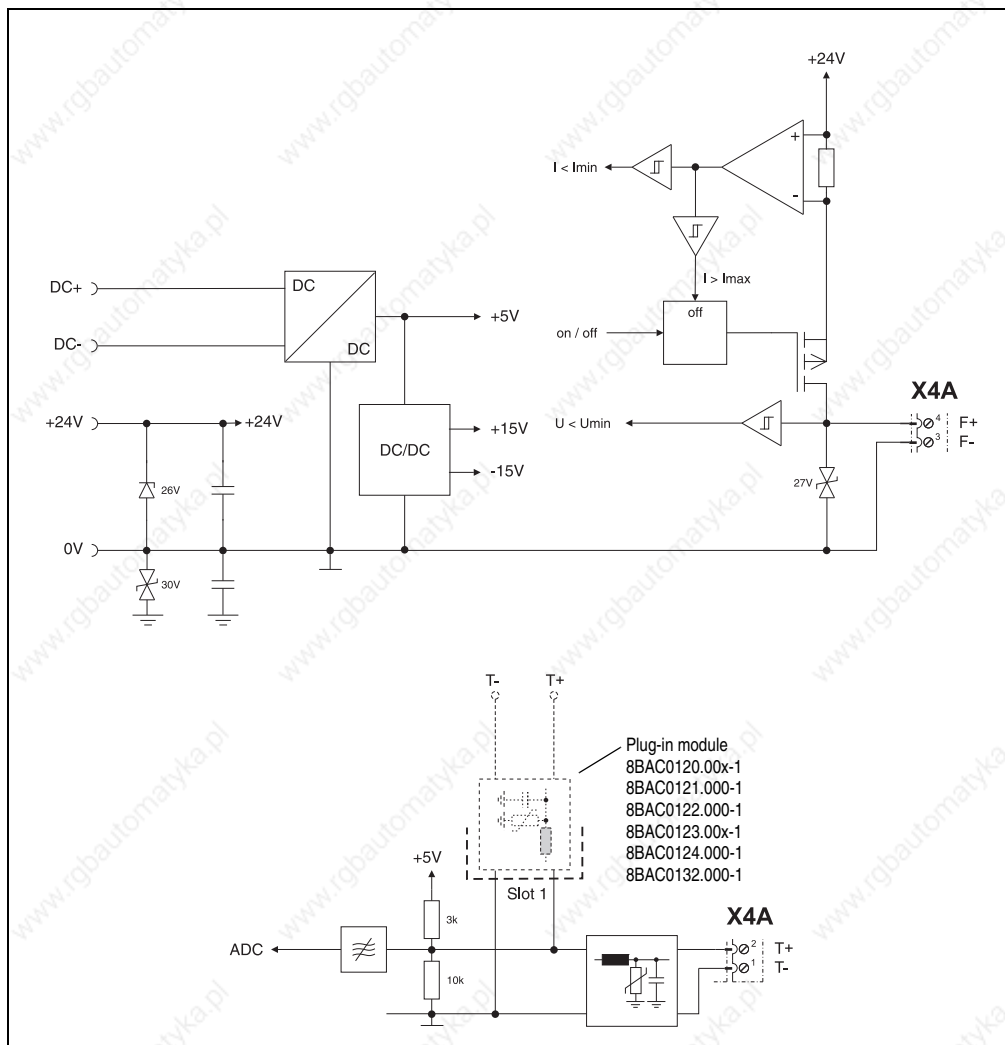


Figure 88: Input/output diagram - 8BVP0220Hx00.000-1, 8BVP0440Hx00.000-1 (Forts.)

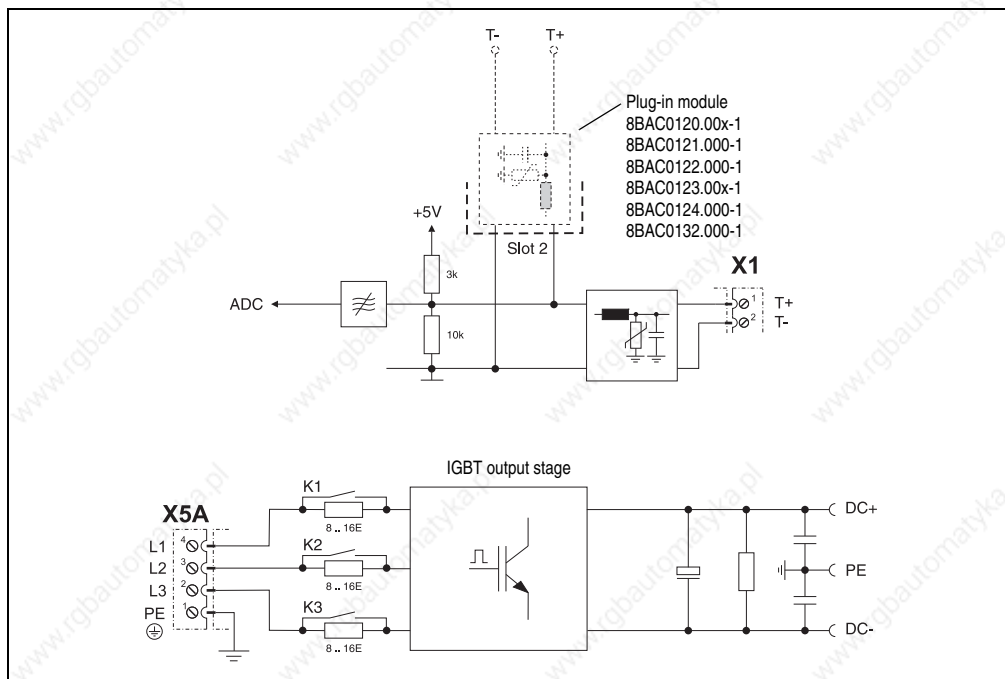


Figure 88: Input/output diagram - 8BVP0220Hx0.000-1, 8BVP0440Hx0.000-1 (Forts.)