

8BVI0055HWD0.000-1

1 General information

- Integrated uncontrolled standstill and safe stop
- Integrated connection for motor holding brake and temperature sensor
- 2 slots for ACOPOSmulti plug-in modules
- Two fully independent power inverters in one inverter module contained in 2-axis modules

2 Order data

Order number	Short description	Figure
	Wall mounting	
8BVI0055HWD0.000-1	ACOPOSmulti inverter module, 7.6 A, AS, wall mounting, 2 axes	
	Required accessories	
	Terminal block sets	
8BZVI0055D0.000-1A	Screw clamp terminal block set for ACOPOSmulti 8BVI00xxHxD0 modules: 1x 8TB2112.2010-00, 1x 8TB2108.2010-00, 1x 8TB2104.203L-00, 1x 8TB2104.203F-00, 1x 8TB3104.204G-11, 1x 8TB3104.204K-11	
	Optional accessories	
	Accessory sets	
8BxB000.0000-00	ACOPOSmulti accessory set for encoder buffering consisting of: 1x battery AA 3.6 V, 1x protective cover for battery holder	
	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	
8SCS000.0000-00	ACOPOSmulti shield component set: 1x shield plate 1x type 0, 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	
8SCS005.0000-00	ACOPOSmulti shield component set: 1x slot cover / shield plate	
8SCS009.0000-00	ACOPOSmulti shield component set: 1x ACOPOSmulti holding plate SK8-14, 1x shield connection clamp SK14	
	Terminal blocks	
8TB2104.203F-00	4-pin screw clamp terminal block, 1-row, pitch: 5.08 mm, label 3: T- T+ B- B+, coding F: 0101	
8TB2104.203L-00	4-pin screw clamp terminal block, 1-row, pitch: 5.08 mm, label 3: T- T+ B- B+, coding L: 1010	
8TB2108.2010-00	8-pin screw clamp terminal block, 1-row, pitch: 5.08 mm, label 1: Numbered consecutively	
8TB2112.2010-00	12-pin screw clamp terminal block, 1-row, pitch: 5.08 mm, label 1: Numbered consecutively	
8TB3104.204G-11	4-pin screw clamp terminal block, 1-row, pitch: 7.62 mm, label 4: PE W V U, coding G: 0110	
8TB3104.204K-11	4-pin screw clamp terminal block, 1-row, pitch: 7.62 mm, label 4: PE W V U, coding K: 1001	

Table 1: 8BVI0055HWD0.000-1 - Order data

3 Technical data

Order number	8BVI0055HWD0.000-1
General information	
B&R ID code	0x20B5
Support	
Dynamic node allocation (DNA)	Yes
Cooling and mounting type	Wall mounting
Slots for plug-in modules	2
Certifications	
CE	Yes
UKCA	Yes
Functional safety ¹⁾	Yes
UL	cULus E225616 Power conversion equipment
EAC	Yes
KC	Yes
DC bus connection	
Voltage	
Nominal	750 VDC
Continuous power consumption ²⁾	11.19 kW
Power dissipation depending on switching frequency ³⁾	
Switching frequency 5 kHz	$[1.2 * I_M^2 + 2.62 * I_M + 100] \text{ W}$
Switching frequency 10 kHz	$[2.56 * I_M^2 + 2.8 * I_M + 200] \text{ W}$
Switching frequency 20 kHz	$[6 * I_M^2 - 9.4 * I_M + 430] \text{ W}$
DC bus capacitance	330 µF
Variant	ACOPOSmulti backplane
24 VDC power supply	
Input voltage	25 VDC ±1.6%
Input capacitance	23.5 µF
Max. power consumption	$16 \text{ W} + P_{\text{SLOT1}} + P_{\text{SLOT2}} + P_{24 \text{ V Out}} + P_{\text{HoldingBrake(s)}}^{4)}$
Variant	ACOPOSmulti backplane
24 VDC output	
Quantity	2
Output voltage	
DC bus voltage (U_{DC}): 260 to 315 VDC	$25 \text{ VDC} * (U_{DC}/315)$
DC bus voltage (U_{DC}): 315 to 800 VDC	24 VDC ±6%
Fuse protection	250 mA (slow-blow) electronic, automatic reset
Motor connection	
Quantity	2
Continuous power per motor connection ²⁾	5.5 kW
Continuous current per motor connection ²⁾	$7.6 A_{\text{eff}}$
Reduction of continuous current depending on switching frequency ⁵⁾	
Switching frequency 5 kHz	No reduction
Switching frequency 10 kHz	0.22 A/K (starting at 43°C)
Switching frequency 20 kHz	0.15 A/K (starting at -14°C) ⁶⁾
Reduction of continuous current depending on installation elevation	
Starting at 500 m above sea level	0.76 A_{eff} per 1000 m
Peak current per motor connection	$18.9 A_{\text{eff}}$
Nominal switching frequency	5 kHz
Possible switching frequencies ⁷⁾	5 / 10 / 20 kHz
Insulation stress of the connected motor per IEC TS 60034-25:2004 ⁸⁾	Limit value curve A ⁹⁾
Protective measures	
Overload protection	Yes
Short-circuit and ground fault protection	Yes
Max. output frequency	598 Hz ¹⁰⁾
Variant	
U, V, W, PE	Connector
Shield connection	Yes
Terminal connection cross section	
Flexible and fine-stranded wires	
With wire end sleeves	0.25 to 6 mm²
Approbation data	
UL/C-UL-US	30 to 10 AWG
CSA	28 to 10 AWG
Terminal cable cross section dimension of shield connection	12 to 22 mm

Table 2: 8BVI0055HWD0.000-1 - Technical data

Order number	8BVI0055HWD0.000-1
Max. motor line length depending on switching frequency	
Switching frequency 5 kHz	25 m
Switching frequency 10 kHz	25 m
Switching frequency 20 kHz	10 m
Motor holding brake connection	
Quantity	2
Output voltage ¹¹⁾	24 VDC +5.8% / -0% ¹²⁾
Continuous current per connection	1.1 A
Max. internal resistance	0.5 Ω
Extinction potential	Approx. 30 V
Max. extinction energy per switching operation	1.5 Ws
Max. switching frequency	0.5 Hz
Protective measures	
Overload and short-circuit protection	Yes
Open-circuit monitoring	Yes
Undervoltage monitoring	Yes
Response threshold for open-circuit monitoring	Approx. 0.25 A
Response threshold for undervoltage monitoring	24 VDC +0% / -4%
Enable inputs	
Quantity	4 (2 per axis)
Circuit	Sink
Electrical isolation	
Input - Inverter module	Yes
Input - Input	Yes
Input voltage	
Nominal	24 VDC
Maximum	30 VDC
Input current at nominal voltage	Approx. 30 mA
Switching threshold	
Low	<5 V
High	>15 V
Switching delay at nominal input voltage	
Enable 1 → 0, PWM off	Max. 20.5 ms
Enable 0 → 1, ready for PWM	Max. 100 µs
Modulation compared to ground potential	Max. ±38 V
OSSD signal connections ¹³⁾	Permitted Max. test pulse length: 500 µs
Trigger inputs	
Quantity	2
Circuit	Sink
Electrical isolation	
Input - Inverter 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
Temperature sensor connection	
Quantity	2
Resistance range	500 Ω to 5 kΩ
Electrical properties	
Discharge capacitance	0.2 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 ¹⁴⁾	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

Table 2: 8BVI0055HWD0.000-1 - Technical data

Order number	8BVI0055HWD0.000-1
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 ¹⁵⁾	
Width	53 mm
Height	317 mm
Depth	
Wall mounting	263 mm
Weight	Approx. 2.9 kg
Module width	1

Table 2: 8BVI0055HWD0.000-1 - Technical data

- 1) Achievable safety classifications (safety integrity level, safety category, performance level) are documented in the user's manual (section "Safety technology").
- 2) Valid under the following conditions: 750 VDC DC bus voltage, 5 kHz switching frequency, 40°C ambient temperature, installation elevation <500 m above sea level, no derating due to cooling type.
- 3) $I_M = 0.5 \cdot (I_{X5A} + I_{X5B})$
 I_{X5A} ... Current on motor connection X5A [A_{eff}]
 I_{X5B} ... Current on motor connection X5B [A_{eff}]
- 4) P_{SLOT1} ... Max. power consumption P_{BBAC} [W] of the plug-in module in SLOT1 (see the technical data for the respective plug-in module).
P_{SLOT2} ... Max. power consumption P_{BBAC} [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).
- 5) Valid under the following conditions: 750 VDC DC bus voltage. The temperature specifications refer to the ambient temperature.
- 6) The module cannot supply the full continuous current at this switching frequency. This unusual value for the ambient temperature, at which derating of the continuous current must be taken into account, ensures that the derating of the continuous current can be determined in the same manner as at other switching frequencies.
- 7) 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 current and increases CPU utilization. When using 2-axis modules, the increased CPU utilization reduces the functionality of the drive; if this is not taken into account, the computing time can be exceeded in extreme cases.
- 8) If necessary, the stress of the motor isolation system can be reduced by an additional externally wired dv/dt choke. For example, the RWK 305 three-phase dv/dt choke from Schaffner (www.schaffner.com) can be used. IMPORTANT: Even when using a dv/dt choke, it is necessary to ensure that an EMC-compatible, low inductance shield connection is used!
- 9) Only applies when using B&R motor cables and B&R motors.
- 10) The module's electrical output frequency (SCTRL_SPEED_ACT * MOTOR_POLEPAIRS) is monitored to protect against dual use in accordance with Regulation (EC) 428/2009 | 3A225. If the electrical output frequency of the module exceeds the limit value of 598 Hz uninterrupted for more than 0.5 s, then the current movement is aborted and error 6060 is output ("Power unit: Limit speed exceeded").
- 11) During configuration, it is necessary to check if the minimum voltage can be maintained on the holding brake with the intended wiring. For the operating voltage range of the holding brake, see the user documentation for the motor being used.
- 12) The specified value is only valid under the following conditions:
- The 24 VDC power supply for the module is provided by an 8B0C auxiliary supply module located on the same mounting plate.
- Connection of connectors S1 and S2 (activation of the external holding brake) by a jumper with a maximum length of 10 cm.
If the 24 VDC power supply for the module is applied to the mounting plate using an 8BVE expansion module, then the output voltage is reduced because of voltage drops on the expansion cable. In this case, undervoltage monitoring must be disabled.
If jumpers longer than 10 cm are used to connect connectors S1 and S2, then the output voltage is reduced due to voltage drops on the jumpers.
- 13) Output signal switching device (OSSD) signals are used for monitoring signal lines for short circuits and cross faults.
- 14) 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.
- 15) 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.