

1.5 MOVITOOLS® MotionStudio engineering software

1.5.1 Tasks

The software package enables you to perform the following tasks with consistency:

- Establishing communication with devices
- Executing functions of the devices

1.5.2 Establishing communication with the units

The SEW Communication Server is integrated into the MOVITOOLS® MotionStudio software package for establishing communication with the devices.

The SEW Communication Server allows you to create **communication channels**. Once the channels are established, the devices communicate via these communication channels using their communication options. You can operate up to 4 communication channels at the same time.

MOVITOOLS® MotionStudio supports the following types of communication channels:

- Serial (RS485) via interface adapters
- System bus (SBus) via interface adapters
- Ethernet
- EtherCAT®
- Fieldbus (PROFIBUS DP/DP-V1)
- Tool Calling Interface

The available channels can vary depending on the device and its communication options.

1.5.3 Executing functions with the units

The software package enables you to perform the following functions with consistency:

- Parameterization (e. g. in the parameter tree of the device)
- Startup
- Visualization and diagnostics
- Programming

The following basic components are integrated into the MOVITOOLS® MotionStudio software package, allowing you to use the devices to execute functions:

- MotionStudio
- MOVITOOLS®

All functions communicate using **tools**. MOVITOOLS® MotionStudio provides the right tools for every device type.

1.5.4 Technical support

SEW-EURODRIVE offers a 24-hour service hotline.

Simply dial **(+49) 0800** and enter the letters **SEWHELP** using the telephone keypad. Of course, you can also dial **(+49) 0800 - 7 39 43 57**.

1.5.5 Online help

After installation, the following types of help are available to you:

- This documentation is displayed in a help window after you start the software.
If the help window does not appear at the start, deactivate the "Display" check box, in the menu under [Settings] / [Options] / [Help].
If the help window appears again, activate the "Display" control field, in the menu under [Settings] / [Options] / [Help].
- Context-sensitive help is available for the fields which require you to enter values. For example, you can use the <F1> key to display the ranges of values for the device parameters.

1.6 SEW-Workbench

The SEW-Workbench is the central configuration software for inverters by SEW-EURODRIVE.

All necessary configurations can be processed, from entering the application to gear unit, motor and inverter calculations. Other features are optimization of the various axis cycles including the selection of accessories and a fault check of the entire drive system configuration.

Of course, the workbench can also be used to select and dimension all other products from SEW-EURODRIVE (such as decentralized drives and gearmotors). This means the SEW-Workbench allows for specifying drive solutions from the entire range of products from SEW-EURODRIVE. The straightforward operation saves a lot of time and minimizes complexity.

The key features of the SEW-Workbench are:

- Application selection.
- Calculation of gear unit and motor.
- Price-optimized project planning.
- Comparison of different solutions.
- Inverter calculation.
- Multi-axis optimization.
- Parameterization of cable and accessories selection.
- Dimensioning faults check.
- Parts list generation.
- Electronic catalog with all products.

The project planning software SEW-Workbench is available for download from the official SEW-EURODRIVE website.

To use SEW-Workbench, all you need to do is to register via the Online Support once you have downloaded the software or received the data DVD. An Internet update service ensures that products and functions are always up-to-date.

2 Technical data of basic device

2.1 CE marking, approvals

2.1.1 CE marking

- Low Voltage Directive

MOVIDRIVE® MDX60B/61B drive inverters comply with the regulations of the Low Voltage Directive 2014/35/EU.

- Electromagnetic compatibility (EMC)

MOVIDRIVE® drive inverters and regenerative power supply units are designed for use as components for installation in machinery and systems. They comply with the EMC product standard EN 61800-3 "Variable-speed electrical drives". Provided that you comply with the installation instructions for the SEW components, the CE marking requirements for the entire machine/system in which they are installed are satisfied on the basis of the EMC directive 2014/30/EU. For detailed information on EMC compliant installation, refer to the documentation "Electromagnetic Compatibility in Drive Engineering" from SEW-EURODRIVE.

- Compliance with limit classes C1, C2 or C3 has been tested in a CE-typical drive system. SEW-EURODRIVE provides detailed information on request.



The CE mark on the nameplate indicates conformity with the low voltage directive 2014/35/EU. We can provide a declaration of conformity on request.

2.1.2 UL / cUL / EAC



UL and cUL approval (USA) has been granted for the entire MOVIDRIVE® device series. Only the MOVIDRIVE® MDR60A1320-503-00 is not UL or cUL approved. cUL is equivalent to the CSA approval.



The MOVIDRIVE® device series meets the requirements of the technical regulations of the Customs Union of Russia, Kazakhstan, and Belarus.

The EAC marking on the nameplate certifies the conformity with the safety requirements of the Custom Union.

2.1.3 RCM



RCM approval has been granted for the entire MOVIDRIVE® device family. RCM certifies conformity with ACMA (Australian Communications and Media Authority) standards.

2.1.4 KC



The KC certificate is approved for size 0– 6 of the MOVIDRIVE® device family. The KC certificate states the registration with the Korean RRA (National Radio Research Agency).

2.2 General technical data

The following table lists the technical data applicable to all MOVIDRIVE® MDX60/61B drive inverters, regardless of their type, design, size, and power rating.

MOVIDRIVE® MDX60B/61B	All sizes
Interference immunity	Meets EN 61800-3
Interference emission with EMC compliant installation	Sizes 0 to 7 meet EN 61800-3 Sizes 0 to 5: According to limit value class C1 to EN 61800-3 with a corresponding line filter Sizes 0, 1, 2S, and 2 in accordance with limit value class C2 to EN 61800-3 without additional measures Size 6 and 7 in accordance with limit value class C2 to EN 61800-3 with corresponding line filter
Ambient temperature ϑ_{amb}	0 °C – +50 °C at $I_D = 100\% I_N$ and $f_{PWM} = 4$ kHz / size 7: 2.5 kHz 0 °C – +40 °C at $I_D = 125\% I_N$ and $f_{PWM} = 4$ kHz / size 7: 2.5 kHz 0 °C – +40 °C at $I_D = 100\% I_N$ and $f_{PWM} = 8$ kHz (size 0 – 6) 0 °C – +40 °C at $I_D = 100\% I_N$ and $f_{PWM} = 4$ kHz (size 7)
I_N reduction	2.5% I_N per K at 40 °C to 50 °C
Ambient temperature	3% I_N per K at 50 °C to 60 °C
Climate class	EN 60721-3-3 class 3K3
Storage temperature ¹⁾ ϑ_L	-25 °C – +70 °C (EN 60721-3-3, class 3K3) DBG keypad: -20 °C – +60 °C
Cooling type (DIN 41751)	Forced cooling (temperature-controlled fan, response threshold 45 °C)
Degree of protection EN 60529 (NEMA1)	
Sizes 0 to 2	IP20
Size 3	- IP10 without touch guard - IP20 (power connections) with connected cable and installed heat shrink tubing (not included in the delivery) or with the delivered protection caps
Sizes 4 to 5	IP00 (power connections) IP10 (power connections) with - fitted Plexiglas cover supplied as standard and - fitted heat shrink tubing (not included in scope of delivery) IP20 (power connections) with - Mounted option DLB11B
Size 6	IP00 (power connections) IP10 (power connections) with - fitted Plexiglas cover supplied as standard and - fitted heat shrink tubing (not included in scope of delivery)
Size 7	IP00 (power connections) IP20 (power connections) with installed DLB21B touch guard
Operating mode	Continuous duty with 50% overload capacity (size 0: 100%)
Overvoltage category	III according to IEC 60664-1 (VDE 0110-1)
Pollution class	2 according to IEC 60664-1 (VDE 0110-1)
Protection against mechanically active substances	3S1 DIN EN 60721-3-3 / IEC 721-3-3
Protection against chemically active substances	3C2 DIN EN 60721-3-3 / IEC 721-3-3

MOVIDRIVE® MDX60B/61B	All sizes
Installation altitude h	Up to $h \leq 1000$ m without restrictions. The following restrictions apply at $h \geq 1000$ m: • From 1,000 m to max. 4,000 m: – I_N reduction by 1% per 100 m • From 2,000 m to max. 4,000 m: – The safe disconnection of power and electronics connections can no longer be assured above 2000 m. This requires external measures (IEC 60664-1/EN 61800-5-1) – You have to connect an overvoltage protection device in order to reduce the overvoltages from category III to category II.

1) In case of extended storage, connect the device to the power supply for at least 5 minutes every two years, otherwise the device's service life may be reduced.

2.3 MOVIDRIVE® MDX60/61B...-5_3 (AC 400/500 V units)

2.3.1 MOVIDRIVE® MDX60/61B0005/0008/0011/0014 size 0 (AC 400/500 V devices)

MOVIDRIVE® MDX60/61B		0005-5A3-4-0_	0008-5A3-4-0_	0011-5A3-4-0_	0014-5A3-4-0_
Size		0S		0M	
INPUT					
Nominal supply voltage (to EN 50160)	V _{line}	3 × AC 380 V – 500 V			
Line frequency	f _{line}	50 Hz – 60 Hz ±5%			
Nominal line current ¹⁾ I _{line}	100%	AC 1.8 A	AC 2.2 A	AC 2.8 A	AC 3.6 A
(at V _{line} = 3 × AC 400 V)	125%	AC 2.3 A	AC 2.7 A	AC 3.5 A	AC 4.5 A
OUTPUT					
Apparent output power ²⁾ (at V _{line} = 3 × AC 380 – 500 V)	S _N	1.4 kVA	1.6 kVA	2.1 kVA	2.8 kVA
Nominal output current ¹⁾ (at V _{line} = 3 × AC 400 V)	I _N	AC 2 A	AC 2.4 A	AC 3.1 A	AC 4 A
Continuous output current (= 125% I _N) (at V _{line} = 3 × AC 400 V and f _{PWM} = 4 kHz)	I _D	AC 2.5 A	AC 3 A	AC 3.8 A	AC 5 A
Continuous output current (= 100% I _N) (at V _{line} = 3 × AC 400 V and f _{PWM} = 8 kHz)	I _D	AC 2 A	AC 2.4 A	AC 3.1 A	AC 4 A
Max. output frequency	f _{max}	599 Hz			
Current limiting	I _{max}	Motor and generator mode 200% I _N , duration depending on the capacity utilization			
Internal current limit		I _{max} = 0 – 200% adjustable			
Permitted minimum braking resistance value (4Q operation)	R _{BWmin}	68 Ω			
Output voltage	V _O	Max. V _{line}			
PWM frequency	f _{PWM}	Adjustable: 4/8/12/16 kHz			
Speed range/resolution	n _R / Δn _R	-6000 – 0 – +6000 min ⁻¹ / 0.2 min ⁻¹ over the entire range			
GENERAL					
Power loss at S _N ²⁾	P _{Vmax}	42 W	48 W	58 W	74 W
Cooling air consumption		3 m³/h		9 m³/h	
Cross section of device terminals X1, X2, X3, X4		Separable terminal strips 4 mm² conductor end sleeve DIN 46228			
Tightening torque		0.6 Nm			

1) The system and output currents must be reduced by 20% from the nominal values for $V_{line} = 3 \times AC 500 V$.

2) The performance data applies to $f_{PWM} = 4 kHz$.

MDX61B standard version		0005-5A3-4-00	0008-5A3-4-00	0011-5A3-4-00	0014-5A3-4-00
Design with coated printed circuit boards		0005-5A3-4-00/L	0008-5A3-4-00/L	0011-5A3-4-00/L	0014-5A3-4-00/L
Part number		8277222	8277230	8277249	8277257
		8289476	8289484	8289492	8289506
MDX61B Application version		0005-5A3-4-0T	0008-5A3-4-0T	0011-5A3-4-0T	0014-5A3-4-0T
Design with coated printed circuit boards		0005-5A3-4-0T/L	0008-5A3-4-0T/L	0011-5A3-4-0T/L	0014-5A3-4-0T/L
Part number		8277265	8277273	8277281	827729X
		8289514	8289522	8289530	8289549
Recommended motor power					
 Constant load	P_{Mot}	0.55 kW	0.75 kW	1.1 kW	1.5 kW
 Variable torque load or constant load without overload	P_{Mot}	0.75 kW	1.1 kW	1.5 kW	2.2 kW
Mass		2.0 kg		2.5 kg	
Dimensions	W × H × D	45 mm × 317 mm × 260 mm		67.5 mm × 317 mm × 260 mm	
MDX61B standard version (VFC/CFC/SERVO)		0005-5A3-4-00	0008-5A3-4-00	0011-5A3-4-00	0014-5A3-4-00
Design with coated printed circuit boards		0005-5A3-4-00/L	0008-5A3-4-00/L	0011-5A3-4-00/L	0014-5A3-4-00/L
Part number		8277303	8277311	827732X	8277338
		8289557	8289565	8289573	8289581

MDX61B technology version (VFC/CFC/SERVO) Design with coated printed circuit boards		0005-5A3-4-0T 0005-5A3-4-0T/L	0008-5A3-4-0T 0008-5A3-4-0T/L	0011-5A3-4-0T 0011-5A3-4-0T/L	0014-5A3-4-0T 0014-5A3-4-0T/L
Part number		8277346 8289603	8277354 8289611	8277362 8289638	8277370 8289646
Mass		2.3 kg		2.8 kg	
Dimensions	W × H × D	72.5 mm × 317 mm × 260 mm		95 mm × 317 mm × 260 mm	
Recommended motor power		→ MOVIDRIVE® B system manual or catalog, chapter "Basic recommendations for motor selection" (→ 353)			

2.3.2 MOVIDRIVE® MDX61B0015/0022/0030/0040 size 1 (AC 400/500 V devices)

MOVIDRIVE® MDX61B		0015-5A3-4-0_	0022-5A3-4-0_	0030-5A3-4-0_	0040-5A3-4-0_
INPUT					
Nominal supply voltage (to EN 50160)	V _{line}	3 × AC 380 V – 500 V			
Line frequency	f _{line}	50 Hz – 60 Hz ±5%			
Nominal line current ¹⁾ I _{line}	100%	AC 3.6 A	AC 5.0 A	AC 6.3 A	AC 8.6 A
(at V _{line} = 3 × AC 400 V)	125%	AC 4.5 A	AC 6.2 A	AC 7.9 A	AC 10.7 A
OUTPUT					
Apparent output power ²⁾ (at V _{line} = 3 × AC 380 – 500 V)	S _N	2.8 kVA	3.8 kVA	4.9 kVA	6.6 kVA
Nominal output current ¹⁾ (at V _{line} = 3 × AC 400 V)	I _N	AC 4 A	AC 5.5 A	AC 7 A	AC 9.5 A
Continuous output current (= 125% I _N) (at V _{line} = 3 × AC 400 V and f _{PWM} = 4 kHz)	I _D	AC 5 A	AC 6.9 A	AC 8.8 A	AC 11.9 A
Continuous output current (= 100% I _N) (at V _{line} = 3 × AC 400 V and f _{PWM} = 8 kHz)	I _D	AC 4 A	AC 5.5 A	AC 7 A	AC 9.5 A
Max. output frequency	f _{max}	599 Hz			
Current limiting	I _{max}	Motor and generator mode 150% I _N , duration depending on the capacity utilization			
Internal current limit		I _{max} = 0 – 150% adjustable			
Permitted minimum braking resistance value (4Q operation)	R _{BWmin}	68 Ω			
Output voltage	V _O	Max. V _{line}			
PWM frequency	f _{PWM}	Adjustable: 4/8/12/16 kHz			
Speed range/resolution	n _R / Δn _R	-6000 – 0 – +6000 min ⁻¹ / 0.2 min ⁻¹ over the entire range			
GENERAL					
Power loss at S _N ²⁾	P _{Vmax}	85 W	105 W	130 W	180 W
Cooling air consumption		40 m³/h			
Mass		3.5 kg			
Dimensions	W × H × D	105 mm × 314 mm × 234 mm			
Cross section of device terminals X1, X2, X3, X4		Separable terminal strips 4 mm² conductor end sleeve DIN 46228			
Tightening torque		0.6 Nm			

1) The system and output currents must be reduced by 20% from the nominal values for $V_{line} = 3 \times \text{AC } 500 \text{ V}$.

2) The performance data applies to $f_{PWM} = 4 \text{ kHz}$.

MDX61B standard design		0015-5A3-4-00	0022-5A3-4-00	0030-5A3-4-00	0040-5A3-4-00
Design with coated printed circuit boards		0015-5A3-4-00/L	0022-5A3-4-00/L	0030-5A3-4-00/L	0040-5A3-4-00/L
Part number		08279578 18400132	08279586 18400140	08279594 18400159	08279608 18400167
MDX61B application version		0015-5A3-4-0T	0022-5A3-4-0T	0030-5A3-4-0T	0040-5A3-4-0T
Design with coated printed circuit boards		0015-5A3-4-0T/L	0022-5A3-4-0T/L	0030-5A3-4-0T/L	0040-5A3-4-0T/L
Part number		08279756 18400310	08279764 18400329	08279772 18400337	08279780 18400345
Recommended motor power					
	P_{Mot}	1.5 kW	2.2 kW	3.0 kW	4.0 kW
Constant load					
	P_{Mot}	2.2 kW	3.0 kW	4.0 kW	5.5 kW
Variable torque load or constant load without overload					
Recommended motor power		→ MOVIDRIVE® B system manual or catalog, chapter "Basic recommendations for motor selection" (→ 353)			

2.3.3 MOVIDRIVE® MDX61B0055/0075/0110 size 2S, 2 (AC 400/500 V devices)

MOVIDRIVE® MDX61B		0055-5A3-4-0_	0075-5A3-4-0_	0110-5A3-4-0_
Size		2S		2
INPUT				
Nominal supply voltage (to EN 50160)	V _{line}	3 × AC 380 V – 500 V		
Line frequency	f _{line}	50 Hz – 60 Hz ±5%		
Nominal line current ¹⁾ I _{line}	100%	AC 11.3 A	AC 14.4 A	AC 21.6 A
(at V _{line} = 3 × AC 400 V)	125%	AC 14.1 A	AC 18.0 A	AC 27.0 A
OUTPUT				
Apparent output power ²⁾ (at V _{line} = 3 × AC 380 – 500 V)	S _N	8.7 kVA	11.2 kVA	16.8 kVA
Nominal output current ¹⁾ (at V _{line} = 3 × AC 400 V)	I _N	AC 12.5 A	AC 16 A	AC 24 A
Continuous output current (= 125% I _N) (at V _{line} = 3 × AC 400 V with f _{PWM} = 4 kHz)	I _D	AC 15.6 A	AC 20 A	AC 30 A
Continuous output current (= 100% I _N) (at V _{line} = 3 × AC 400 V with f _{PWM} = 8 kHz)	I _D	AC 12.5 A	AC 16 A	AC 24 A
Max. output frequency	f _{max}	599 Hz		
Current limiting	I _{max}	Motor and generator mode 150% I _N , duration depending on the capacity utilization		
Internal current limit		I _{max} = 0 – 150% adjustable		
Permitted minimum braking resistance value (4Q operation)	R _{BWmin}	47 Ω		22 Ω
Output voltage	V _O	Max. V _{line}		
PWM frequency	f _{PWM}	Adjustable: 4/8/12/16 kHz		
Speed range/resolution	n _R / Δn _R	-6000 – 0 – +6000 min ⁻¹ / 0.2 min ⁻¹ over the entire range		
GENERAL				
Power loss at S _N ²⁾	P _{Vmax}	180 W	230 W	400 W
Cooling air consumption		80 m³/h		
Mass		6.6 kg		
Dimensions	W × H × D	105 mm × 335 mm × 294 mm		130 mm × 315 mm × 285 mm
Cross section of device terminals X1, X2, X3, X4		Terminal strips 4 mm² conductor end sleeve DIN 46228		M4 screw and washer assembly with terminal clip 4 mm² conductor end sleeve DIN 46228 6 mm² crimp cable lug DIN 46234
Tightening torque		0.6 Nm		1.5 Nm

1) The system and output currents must be reduced by 20% from the nominal values for $V_{line} = 3 \times \text{AC } 500 \text{ V}$.

2) The performance data applies to $f_{PWM} = 4 \text{ kHz}$.

MDX61B standard design		0055-5A3-4-00	0075-5A3-4-00	0110-5A3-4-00
Design with coated printed circuit boards		0055-5A3-4-00/L	0075-5A3-4-00/L	0110-5A3-4-00/L
Part number		08279616	08279624	08279632
		18400175	18400183	18400191
MDX61B application version		0055-5A3-4-0T	0075-5A3-4-0T	0110-5A3-4-0T
Design with coated printed circuit boards		0055-5A3-4-0T/L	0075-5A3-4-0T/L	0110-5A3-4-0T/L
Part number		08279799	08279802	08279810
		18400353	18400361	18400388
Recommended motor power				
 Constant load	P_{Mot}	5.5 kW	7.5 kW	11 kW
 Variable torque load or constant load without overload	P_{Mot}	7.5 kW	11 kW	15 kW
Recommended motor power		→ MOVIDRIVE® B system manual or catalog, chapter "Basic recommendations for motor selection" (→ 353)		

2.3.4 MOVIDRIVE® MDX61B0150/0220/0300 size 3 (AC 400/500 V devices)

MOVDRIVE® MDX61B		0150-503-4-0_	0220-503-4-0_	0300-503-4-0_
INPUT				
Nominal supply voltage (to EN 50160)	V _{line}	3 × AC 380 V – 500 V		
Line frequency	f _{line}	50 Hz – 60 Hz ±5%		
Nominal line current ¹⁾ I _{line}	100%	AC 28.8 A	AC 41.4 A	AC 54 A
(at V _{line} = 3 × AC 400 V)	125%	AC 36 A	AC 51.7 A	AC 67.5 A
OUTPUT				
Apparent output power ²⁾ (at V _{line} = 3 × AC 380 – 500 V)	S _N	22.2 kVA	31.9 kVA	41.6 kVA
Nominal output current ¹⁾ (at V _{line} = 3 × AC 400 V)	I _N	AC 32 A	AC 46 A	AC 60 A
Continuous output current (= 125% I _N) (at V _{line} = 3 × AC 400 V with f _{PWM} = 4 kHz)	I _D	AC 40 A	AC 57.5 A	AC 75 A
Continuous output current (= 100% I _N) (at V _{line} = 3 × AC 400 V with f _{PWM} = 8 kHz)	I _D	AC 32 A	AC 46 A	AC 60 A
Max. output frequency	f _{max}	599 Hz		
Current limiting	I _{max}	Motor and generator mode 150% I _N , duration depending on the capacity utilization		
Internal current limit		I _{max} = 0 – 150% adjustable		
Permitted minimum braking resistance value (4Q operation)	R _{BWmin}	15 Ω	12 Ω	
Output voltage	V _O	Max. V _{line}		
PWM frequency	f _{PWM}	Adjustable: 4/8/12/16 kHz		
Speed range/resolution	n _R / Δn _R	-6000 – 0 – +6000 min ⁻¹ / 0.2 min ⁻¹ over the entire range		
GENERAL				
Power loss at S _N ²⁾	P _{Vmax}	550 W	750 W	950 W
Cooling air consumption		180 m³/h		
Mass		15.0 kg		
Dimensions	W × H × D	200 mm × 465 mm × 308 mm		
Cross section of device terminals X1, X2, X3, X4		M6 bolt with nut, max. 25 mm², crimp cable lug DIN 46235		
Tightening torque		3.5 Nm		

1) The system and output currents must be reduced by 20% from the nominal values for $V_{line} = 3 \times \text{AC } 500 \text{ V}$.

2) The performance data applies to $f_{PWM} = 4 \text{ kHz}$.

MDX61B standard design		0150-503-4-00	0220-503-4-00	0300-503-4-00
Design with coated printed circuit boards		0150-503-4-00/L	0220-503-4-00/L	0300-503-4-00/L
Part number		08279640	08279659	08279667
		18400205	18400213	18400221
MDX61B application version		0150-503-4-0T	0220-503-4-0T	0300-503-4-0T
Design with coated printed circuit boards		0150-503-4-0T/L	0220-503-4-0T/L	0300-503-4-0T/L
Part number		08279829	08279837	08279845
		18400396	18400418	18400426
Recommended motor power				
	P_{Mot}	15 kW	22 kW	30 kW
Constant load				
	P_{Mot}	22 kW	30 kW	37 kW
Variable torque load or constant load without overload				
Recommended motor power		→ MOVIDRIVE® B system manual or catalog, chapter "Basic recommendations for motor selection" (→ 353)		

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2.3.5 MOVIDRIVE® MDX61B0370/0450 size 4 (AC 400/500 V devices)

MOVIDRIVE® MDX61B		0370-503-4-0_	0450-503-4-0_
INPUT			
Nominal supply voltage (to EN 50160)	V _{line}	3 × AC 380 V – 500 V	
Line frequency	f _{line}	50 Hz – 60 Hz ±5%	
Nominal line current ¹⁾ I _{line}	100%	AC 65.7 A	AC 80.1 A
(at V _{line} = 3 × AC 400 V)	125%	AC 81.9 A	AC 100.1 A
OUTPUT			
Apparent output power ²⁾ (at V _{line} = 3 × AC 380 – 500 V)	S _N	51.1 kVA	62.3 kVA
Nominal output current ¹⁾ (at V _{line} = 3 × AC 400 V)	I _N	AC 73 A	AC 89 A
Continuous output current (= 125% I _N) (at V _{line} = 3 × AC 400 V with f _{PWM} = 4 kHz)	I _D	AC 91 A	AC 111 A
Continuous output current (= 100% I _N) (at V _{line} = 3 × AC 400 V with f _{PWM} = 8 kHz)	I _D	AC 73 A	AC 89 A
Max. output frequency	f _{max}	599 Hz	
Current limiting	I _{max}	Motor and generator mode 150% I _N , duration depending on the capacity utilization	
Internal current limit		I _{max} = 0 – 150 % adjustable	
Permitted minimum braking resistance value (4Q operation)	R _{BWmin}	6 Ω	
Output voltage	V _O	Max. V _{line}	
PWM frequency	f _{PWM}	Adjustable: 4/8/12/16 kHz	
Speed range/resolution	n _R / Δn _R	-6000 – 0 – +6000 min ⁻¹ / 0.2 min ⁻¹ over the entire range	
GENERAL			
Power loss at S _N ²⁾	P _{Vmax}	1200 W	1450 W
Cooling air consumption		180 m³/h	
Mass		27 kg	
Dimensions	W × H × D	280 mm × 522 mm × 307 mm	
Cross section of device terminals X1, X2, X3, X4		M10 bolt with nut Max. 70 mm² Press cable lug DIN 46235	
Tightening torque		14 Nm	

1) The system and output currents must be reduced by 20% from the nominal values for $V_{line} = 3 \times \text{AC } 500 \text{ V}$.

2) The performance data applies to $f_{PWM} = 4 \text{ kHz}$.

MDX61B standard design		0370-503-4-00	0450-503-4-00
Design with coated printed circuit boards		0370-503-4-00/L	0450-503-4-00/L
Part number		08279675 18400248	08279683 18400256
MDX61B application version		0370-503-4-0T	0450-503-4-0T
Design with coated printed circuit boards		0370-503-4-0T/L	0450-503-4-0T/L
Part number		08279853 18400434	08279861 18400442
Recommended motor power			
	P_{Mot}	37 kW	45 kW
Constant load			
	P_{Mot}	45 kW	55 kW
Variable torque load or constant load without overload			
Recommended motor power		→ MOVIDRIVE® B system manual or catalog, chapter "Basic recommendations for motor selection" (→ 353)	

2.3.6 MOVIDRIVE® MDX61B0550/0750 size 5 (AC 400/500 V devices)

MOVIDRIVE® MDX61B		0550-503-4-0_	0750-503-4-0_
INPUT			
Nominal supply voltage (to EN 50160)	V _{line}	3 × AC 380 V – 500 V	
Line frequency	f _{line}	50 Hz – 60 Hz ±5%	
Nominal line current ¹⁾ I _{line}	100%	AC 94.5 A	AC 117 A
(at V _{line} = 3 × AC 400 V)	125%	AC 118.1 A	AC 146.3 A
OUTPUT			
Apparent output power ²⁾ (at V _{line} = 3 × AC 380 – 500 V)	S _N	73.5 kVA	91.0 kVA
Nominal output current ¹⁾ (at V _{line} = 3 × AC 400 V)	I _N	AC 105 A	AC 130 A
Continuous output current (= 125% I _N) (at V _{line} = 3 × AC 400 V with f _{PWM} = 4 kHz)	I _D	AC 131 A	AC 162 A
Continuous output current (= 100% I _N) (at V _{line} = 3 × AC 400 V with f _{PWM} = 8 kHz)	I _D	AC 105 A	AC 130 A
Max. output frequency	f _{max}	599 Hz	
Current limiting	I _{max}	Motor and generator mode 150% I _N , duration depending on the capacity utilization	
Internal current limit		I _{max} = 0 – 150% adjustable	
Permitted minimum braking resistance value (4Q operation)	R _{BWmin}	6 Ω	4 Ω
Output voltage	V _O	Max. V _{line}	
PWM frequency	f _{PWM}	Adjustable: 4/8/12/16 kHz	
Speed range/resolution	n _R / Δn _R	-6000 – 0 – +6000 min ⁻¹ / 0.2 min ⁻¹ over the entire range	
GENERAL			
Power loss at S _N ²⁾	P _{Vmax}	1700 W	2000 W
Cooling air consumption		360 m³/h	
Mass		35 kg	
Dimensions	W × H × D	280 mm × 610 mm × 330 mm	
Cross section of device terminals X1, X2, X3, X4		M10 bolt with nut Max. 70 mm² Press cable lug DIN 46235	
Tightening torque		14 Nm	

1) The system and output currents must be reduced by 20% from the nominal values for $V_{line} = 3 \times AC 500 V$.

2) The performance data applies to $f_{PWM} = 4 kHz$.

MDX61B standard design		0550-503-4-00	0750-503-4-00
Design with coated printed circuit boards		0550-503-4-00/L	0750-503-4-00/L
Part number		08279691 18400264	08279705 18400272
MDX61B application version		0550-503-4-0T	0750-503-4-0T
Design with coated printed circuit boards		0550-503-4-0T/L	0750-503-4-0T/L
Part number		08279888 18400450	08279896 18400469
Recommended motor power			
	P_{Mot}	55 kW	75 kW
Constant load			
	P_{Mot}	75 kW	90 kW
Variable torque load or constant load without overload			
Recommended motor power		→ MOVIDRIVE® B system manual or catalog, chapter "Basic recommendations for motor selection" (→ 353)	

2.3.7 MOVIDRIVE® MDX61B0900/1100/1320 size 6 (AC 400/500 V devices)

MOVIDRIVE® MDX61B		0900-503-4-0_	1100-503-4-0_	1320-503-4-0_
INPUT				
Nominal supply voltage (to EN 50160)	V _{line}	3 × AC 380 V – 500 V		
Line frequency	f _{line}	50 Hz – 60 Hz ±5%		
Nominal line current ¹⁾ I _{line}	100%	AC 153 A	AC 180 A	AC 225 A
(at V _{line} = 3 × AC 400 V)	125%	AC 191 A	AC 225 A	AC 281 A
OUTPUT				
Apparent output power ²⁾ (at V _{line} = 3 × AC 380 – 500 V)	S _N	118 kVA	139 kVA	174 kVA
Nominal output current ¹⁾ (at V _{line} = 3 × AC 400 V)	I _N	AC 170 A	AC 200 A	AC 250 A
Continuous output current (= 125 % I _N) (at V _{line} = 3 × AC 400 V with f _{PWM} = 4 kHz) Temperature range 0 °C – +40 °C	I _D	AC 212 A	AC 250 A	AC 312 A
Continuous output current (= 100% I _N) I _D (at V _{line} = 3 × AC 400 V with f _{PWM} = 8 kHz) Temperature range 0 °C – +50 °C	I _D	AC 170 A	AC 200 A	AC 250 A
Max. output frequency	f _{max}	599 Hz		
Current limiting	I _{max}	Motor and generator mode 150% I _N , duration depending on the capacity utilization		
Internal current limit		I _{max} = 0 – 150% adjustable		
Permitted minimum braking resistance value (4Q operation)	R _{BWmin}	2.7 Ω		
Output voltage	V _O	Max. V _{line}		
PWM frequency	f _{PWM}	Adjustable: 4 oder 8 kHz		
Speed range/resolution	n _R / Δn _R	-6000 – 0 – +6000 min ⁻¹ / 0.2 min ⁻¹ over the entire range		
GENERAL				
Power loss at S _N ²⁾	P _{Vmax}	1983 W	2240 W	2700 W
Cooling air consumption		600 m³/h		
Mass		60 kg		
Dimensions	W × H × D	280 mm × 1000 mm × 382 mm		
Cross section of device terminals X1, X2, X3, X4		M12 bolt with nut Max. 185 mm² Press cable lug DIN 46235		
Tightening torque		20 Nm		

1) The system and output currents must be reduced by 20% from the nominal values for $V_{line} = 3 \times \text{AC } 500 \text{ V}$.

2) The performance data applies to $f_{PWM} = 4 \text{ kHz}$.

MDX61B standard design		0900-503-4-00	1100-503-4-00	1320-503-4-00
Design with coated printed circuit boards		0900-503-4-00/L	1100-503-4-00/L	1320-503-4-00/L
Part number		08279713 18400280	08279721 18400299	08279748 18400302
MDX61B application version		0900-503-4-0T	1100-503-4-0T	1320-503-4-0T
Design with coated printed circuit boards		0900-503-4-0T/L	1100-503-4-0T/L	1320-503-4-0T/L
Part number		08279918 18400477	08279926 18400485	08279934 18400493
Recommended motor power				
	P_{Mot}	90 kW	110 kW	132 kW
Constant load				
	P_{Mot}	110 kW	132 kW	160 kW
Variable torque load or constant load without overload				
Recommended motor power		→ MOVIDRIVE® B system manual or catalog, chapter "Basic recommendations for motor selection" (→ 353)		

2.3.8 MOVIDRIVE® MDX61B1600/2000/2500 size 7 (AC 400/500 V devices)

MOVIDRIVE® MDX61B		1600-503-2-0T/L 1600-503-4-0T/L	2000-503-2-0T/L 2000-503-4-0T/L	2500-503-2-0T/L 2500-503-4-0T/L
INPUT				
Nominal supply voltage (to EN 50160)	V _{line}	3 × AC 380 V – 500 V		
Line frequency	f _{line}	50 Hz – 60 Hz ±5%		
Nominal line current ¹⁾ I _{line}	100%	AC 280 A	AC 340 A	AC 435 A
(at V _{line} = 3 × AC 400 V)	125%	AC 340 A	AC 425 A	AC 535 A
OUTPUT				
Maximum output voltage		599 Hz	599 Hz	599 Hz
Apparent output power ²⁾ (at V _{line} = 3 × AC 380 – 500 V)	S _N	208 kVA	263 kVA	326 kVA
Nominal output current ¹⁾ (at V _{line} = 3 × AC 400 V)	I _N	AC 300 A	AC 380 A	AC 470 A
Continuous output current (= 125% I _N) (at V _{line} = 3 × AC 400 V with f _{PWM} = 2.5 kHz) Temperature range 0 °C – +40 °C	I _D	AC 375 A	AC 475 A	AC 588 A
Continuous output current (= 100% I _N) (at V _{line} = 3 × AC 400 V with f _{PWM} = 2.5 kHz) Temperature range 0 °C – +50 °C	I _D	AC 300 A	AC 380 A	AC 470 A
Max. output frequency	f _{max}	599 Hz		
Current limiting	I _{max}	Motor and generator mode 150% I _N , duration depending on the capacity utilization		
Internal current limit		I _{max} = 0 – 150% adjustable		
Permitted minimum braking resistance value (4Q operation)	R _{BWmin}	1.1 Ω		
Output voltage	V _O	Max. V _{line}		
PWM frequency	f _{PWM}	Adjustable: 2.5 or 4 kHz possible		
Speed range/resolution	n _R / Δn _R	-6000 – 0 – +6000 min ⁻¹ / 0.2 min ⁻¹ over the entire range		
GENERAL				
Power loss at S _N ²⁾	P _{Vmax}	2691 W	3182 W	3880 W
Cooling air consumption		1200 m³/h		
Mass		2Q design: 260 kg 4Q variant: 280 kg		
Dimensions	W × H × D	700 mm × 1490 mm × 470 mm		
Conductor rails X1, X2, X3		Connection rail with bore for M12 Max. 2 × 240 mm² Press cable lug DIN 46235		
Tightening torque		70 Nm		
Connections of the DC 24 V power supply unit (PE L1 L2 L3)		Cross section: 6 mm² Tightening torque ≤ 4 mm² = 0.5 Nm Tightening torque > 4 mm² = 0.7 Nm – 0.8 Nm		

1) The system and output currents must be reduced by 20% from the nominal values for $V_{line} = 3 \times AC\ 500\ V$.

2) The performance data applies to $f_{PWM} = 2.5\ kHz$.

MDX61B application version		1600-503-2-0T/L	2000-503-2-0T/L	2500-503-2-0T/L
With coated printed circuit boards		1600-503-4-0T/L	2000-503-4-0T/L	2500-503-4-0T/L
Part number		08299765	08299773	08299781
		08299803	08299811	08299838
Recommended motor power				
 Constant load	P_{Mot}	160 kW	200 kW	250 kW
 Variable torque load or constant load without overload	P_{Mot}	200 kW	250 kW	315 kW
Recommended motor power		→ MOVIDRIVE® B system manual or catalog, chapter "Basic recommendations for motor selection" (→ 353)		

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2.4 MOVIDRIVE® MDX61B...-2_3 (AC 230 V units)

2.4.1 MOVIDRIVE® MDX61B0015/0022/0037 size 1 (AC 230 V devices)

MOVIDRIVE® MDX61B		0015-2A3-4-0_	0022-2A3-4-0_	0037-2A3-4-0_
INPUT				
Nominal supply voltage (to EN 50160)	V _{line}	3 × AC 200 V - 240 V		
Line frequency	f _{line}	50 Hz – 60 Hz ±5%		
Nominal supply current I _{line}	100%	AC 6.7 A	AC 7.8 A	AC 12.9 A
(at V _{line} = 3 × AC 230 V)	125%	AC 8.4 A	AC 9.8 A	AC 16.1 A
OUTPUT				
Apparent output power ¹⁾ (at V _{line} = 3 × AC 380 – 240 V)	S _N	2.7 kVA	3.4 kVA	5.8 kVA
Nominal output current (at V _{line} = 3 × AC 230 V)	I _N	AC 7.3 A	AC 8.6 A	AC 14.5 A
Continuous output current (= 125% I _N) (at V _{line} = 3 × AC 230 V with f _{PWM} = 4 kHz)	I _D	AC 9.1 A	AC 10.8 A	AC 18.1 A
Continuous output current (= 100% I _N) (at V _{line} = 3 × AC 230 V with f _{PWM} = 8 kHz)	I _D	AC 7.3 A	AC 8.6 A	AC 14.5 A
Max. output frequency	f _{max}	599 Hz		
Current limiting	I _{max}	Motor and generator mode 150% I _N , duration depending on the capacity utilization		
Internal current limit		I _{max} = 0 – 150% adjustable		
Minimum permitted braking resistor value (4Q operation)	R _{BWmin}	27 Ω		
Output voltage	V _O	Max. V _{line}		
PWM frequency	f _{PWM}	Adjustable: 4/8/12/16 kHz		
Speed range/resolution	n _R / Δn _R	-6000 – 0 – +6000 min ⁻¹ / 0.2 min ⁻¹ over the entire range		
GENERAL				
Power loss at S _N ¹⁾	P _{Vmax}	126 W	142 W	210 W
Cooling air consumption		40 m³/h		
Mass		2.8 kg		
Dimensions	W × H × D	105 mm × 314 mm × 234 mm		
Cross section of device terminals X1, X2, X3, X4		Separable terminal strip 4 mm² conductor end sleeve DIN 46228		
Tightening torque		0.6 Nm		

1) The performance data applies to $f_{PWM} = 4 kHz$.

MDX61B standard design		0015-2A3-4-00	0022-2A3-4-00	0037-2A3-4-00
Part number		08279942	08279950	08279969
MDX61B application version		0015-2A3-4-0T	0022-2A3-4-0T	0037-2A3-4-0T
Part number		08280037	08280045	08280053
Recommended motor power				
	P_{Mot}	1.5 kW	2.2 kW	3.7 kW
Constant load				
	P_{Mot}	2.2 kW	3.7 kW	5.0 kW
Variable torque load or constant load without overload				
Recommended motor power		→ MOVIDRIVE® B system manual, chapter "Basic recommendations for motor selection" (→ 353)		

2.4.2 MOVIDRIVE® MDX61B0055/0075 size 2 (AC 230 V devices)

MOVIDRIVE® MDX61B		0055-2A3-4-0_	0075-2A3-4-0_
INPUT			
Nominal supply voltage (to EN 50160)	V _{line}	3 × AC 200 V - 240 V	
Line frequency	f _{line}	50 Hz – 60 Hz ±5%	
Nominal supply current I _{line}	100%	AC 19.5 A	AC 27.4 A
(at V _{line} = 3 × AC 230 V)	125%	AC 24.4 A	AC 34.3 A
OUTPUT			
Apparent output power ¹⁾ (at V _{line} = 3 × AC 380 – 240 V)	S _N	8.8 kVA	11.6 kVA
Nominal output current (at V _{line} = 3 × AC 230 V)	I _N	AC 22 A	AC 29 A
Continuous output current (= 125% I _N) (at V _{line} = 3 × AC 230 V with f _{PWM} = 4 kHz)	I _D	AC 27.5 A	AC 36.3 A
Continuous output current (= 100% I _N) (at V _{line} = 3 × AC 230 V with f _{PWM} = 8 kHz)	I _D	AC 22 A	AC 29 A
Max. output frequency	f _{max}	599 Hz	
Current limiting	I _{max}	Motor and generator mode 150% I _N , duration depending on the capacity utilization	
Internal current limit		I _{max} = 0 – 150% adjustable	
Permitted minimum braking resistance value (4Q operation)	R _{BWmin}	12 Ω	
Output voltage	V _O	Max. V _{line}	
PWM frequency	f _{PWM}	Adjustable: 4/8/12/16 kHz	
Speed range/resolution	n _R / Δn _R	-6000 – 0 – +6000 min ⁻¹ / 0.2 min ⁻¹ over the entire range	
GENERAL			
Power loss at S _N ¹⁾	P _{Vmax}	330 W	423 W
Cooling air consumption		80 m³/h	
Mass		5.9 kg	
Dimensions	W × H × D	130 mm × 315 mm × 285 mm	
Cross section of device terminals X1, X2, X3, X4		M4 screw and washer assembly with terminal clip 4 mm² conductor end sleeve DIN 46228 6 mm² crimp cable lug DIN 46234	
Tightening torque		1.5 Nm	

1) The performance data applies to $f_{PWM} = 4 \text{ kHz}$.

MDX61B standard design		0055-2A3-4-00	0075-2A3-4-00
Part number		08279977	08279985
MDX61B application version		0055-2A3-4-0T	0075-2A3-4-0T
Part number		08280061	08280088
Recommended motor power			
 Constant load	P_{Mot}	5.5 kW	7.5 kW
 Variable torque load or constant load without overload	P_{Mot}	7.5 kW	11 kW
Recommended motor power		→ MOVIDRIVE® B system manual, chapter "Basic recommendations for motor selection" (→ 353)	

2.4.3 MOVIDRIVE® MDX61B0110/0150 size 3 (AC 230 V devices)

MOVIDRIVE® MDX61B		0110-203-4-0_	0150-203-4-0_
INPUT			
Nominal supply voltage (to EN 50160)	V _{line}	3 × AC 200 V - 240 V	
Line frequency	f _{line}	50 Hz – 60 Hz ±5%	
Nominal supply current I _{line}	100%	AC 40 A	AC 49 A
(at V _{line} = 3 × AC 230 V)	125%	AC 50 A	AC 61 A
OUTPUT			
Apparent output power ¹⁾ (at V _{line} = 3 × AC 380 – 240 V)	S _N	17.1 kVA	21.5 kVA
Nominal output current (at V _{line} = 3 × AC 230 V)	I _N	AC 42 A	AC 54 A
Continuous output current (= 125% I _N) (at V _{line} = 3 × AC 230 V with f _{PWM} = 4 kHz)	I _D	AC 52.5 A	AC 67.5 A
Continuous output current (= 100% I _N) (at V _{line} = 3 × AC 230 V with f _{PWM} = 8 kHz)	I _D	AC 42 A	AC 54 A
Max. output frequency	f _{max}	599 Hz	
Current limiting	I _{max}	Motor and generator mode 150% I _N , duration depending on the capacity utilization	
Internal current limit		I _{max} = 0 – 150% adjustable	
Permitted minimum braking resistance value (4Q operation)	R _{BWmin}	7.5 Ω	5.6 Ω
Output voltage	V _O	Max. V _{line}	
PWM frequency	f _{PWM}	Adjustable: 4/8/12/16 kHz	
Speed range/resolution	n _R / Δn _R	-6000 – 0 – +6000 min ⁻¹ / 0.2 min ⁻¹ over the entire range	
GENERAL			
Power loss at S _N ¹⁾	P _{Vmax}	580 W	760 W
Cooling air consumption		180 m³/h	
Mass		14.3 kg	
Dimensions	W × H × D	200 mm × 465 mm × 308 mm	
Cross section of device terminals X1, X2, X3, X4		M6 bolt with nut, max. 25 mm², crimp cable lug DIN 46235	
Tightening torque		3.5 Nm	

1) The performance data applies to $f_{PWM} = 4 \text{ kHz}$.

MDX61B standard design		0110-203-4-00	0150-203-4-00
Part number		08279993	08280002
MDX61B application version		0110-203-4-0T	0150-203-4-0T
Part number		08280096	08280118
Recommended motor power			
	P_{Mot}	11 kW	15 kW
Constant load			
	P_{Mot}	15 kW	22 kW
Variable torque load or constant load without overload			
Recommended motor power		→ MOVIDRIVE® B system manual, chapter "Basic recommendations for motor selection" (→ 353)	

2.4.4 MOVIDRIVE® MDX61B0220/0300 size 4 (AC 230 V devices)

MOVIDRIVE® MDX61B		0220-203-4-0_	0300-203-4-0_
INPUT			
Nominal supply voltage (to EN 50160)	V _{line}	3 × AC 200 V - 240 V	
Line frequency	f _{line}	50 Hz – 60 Hz ±5%	
Nominal supply current I _{line}	100%	AC 72 A	AC 86 A
(at V _{line} = 3 × AC 230 V)	125%	AC 90 A	AC 107 A
OUTPUT			
Apparent output power ¹⁾ (at V _{line} = 3 × AC 380 – 240 V)	S _N	31.9 kVA	37.8 kVA
Nominal output current (at V _{line} = 3 × AC 230 V)	I _N	AC 80 A	AC 95 A
Continuous output current (= 125 % I _N) (at V _{line} = 3 × AC 230 V with f _{PWM} = 4 kHz)	I _D	AC 100 A	AC 118 A
Continuous output current (= 100% I _N) (at V _{line} = 3 × AC 230 V with f _{PWM} = 8 kHz)	I _D	AC 80 A	AC 95 A
Max. output frequency	f _{max}	599 Hz	
Current limiting	I _{max}	Motor and generator mode 150% I _N , duration depending on the capacity utilization	
Internal current limit		I _{max} = 0 – 150% adjustable	
Permitted minimum braking resistance value (4Q operation)	R _{BWmin}	3 Ω	
Output voltage	V _O	Max. V _{line}	
PWM frequency	f _{PWM}	Adjustable: 4/8/12/16 kHz	
Speed range/resolution	n _R / Δn _R	-6000 – 0 – +6000 min ⁻¹ / 0.2 min ⁻¹ over the entire range	
GENERAL			
Power loss at S _N ¹⁾	P _{Vmax}	1100 W	1300 W
Cooling air consumption		180 m³/h	
Mass		26.3 kg	
Dimensions	W × H × D	280 mm × 522 mm × 307 mm	
Cross section of device terminals X1, X2, X3, X4		M10 bolt with nut max. 70 mm² Press cable lug DIN 46235	
Tightening torque		3.5 Nm	

1) The performance data applies to $f_{PWM} = 4 \text{ kHz}$.

MDX61B standard design		0220-203-4-00	0300-203-4-00
Part number		08280010	08280029
MDX61B application version		0220-203-4-0T	0300-203-4-0T
Part number		08280126	08280134
Recommended motor power			
	P_{Mot}	22 kW	30 kW
Constant load			
	P_{Mot}	30 kW	37 kW
Variable torque load or constant load without overload			
Recommended motor power		→ MOVIDRIVE® B system manual, chapter "Basic recommendations for motor selection" (→ 353)	

2.5 MOVIDRIVE® MDX60/61B electronics data

MOVIDRIVE® MDX60/61B		General electronics data	
Voltage supply X11:1 For setpoint input X11:5		REF1: DC +10 V +5%/-0%, I_{max} = DC 3 mA REF2: DC -10 V +0%/-5%, I_{max} = DC 3 mA	Reference voltages for setpoint potentiometer
Setpoint input n1 (differential input) Operating mode AI11/AI12 Resolution Accuracy Internal resistance	X11:2/X11:3	AI11/AI12: Voltage or current input, can be set with S11 and P11_, sampling cycle 1 ms Voltage input: n1 = DC 0 – +10 V or DC -10 V – 0 – +10 V 12-bit $\pm 0.2\%$ (40 mV) R_i 40 k Ω (external voltage supply) R_i = 20 k Ω (supply of REF1/REF2)	Current input: n1 = DC 0 – 20 mA or DC 4 – 20 mA 11-bit $\pm 0.2\%$ (40 mV) R_i = 250 Ω
Internal setpoints		Parameter set 1: n11/n12/n13 = -6000 – 0 – +6000 min ⁻¹ Parameter set 2: n21/n22/n23 = -6000 – 0 – +6000 min ⁻¹	
Time ranges of the speed ramps with Δn = 3000 min ⁻¹		1. Ramp t11/t21 2. Ramp t12/t22 Stop ramp t13/t23 Emergency stop ramp t14/t24 Motor potentiometer t3	Up: 0 – 2000 s Down: 0 – 2000 s Up = Down: 0 – 2000 s Down: 0 – 20 s Down: 0 – 20 s Up: 0.2 – 50 s Down: 0.2 – 50 s
Auxiliary voltage output ¹⁾ X13:8/X10:8		VO24: V_{OUT} = DC 24 V, maximum current carrying capacity I_{max} = DC 400 mA	
External voltage supply ¹⁾ X10:9		VI24: V = DC 24 V -15%/+20% to EN 61131-2 With size 7, connect 24 V backup voltage via the DC power supply unit. No connection at the control unit	
Digital inputs X13:1 – X13:6 and X16:1/X16:2 Internal resistance Signal level		Isolated (optocoupler), PLC-compatible (EN 61131 type 2), sampling cycle 1 ms DIØØ – DIØ5 and DIØ6/DIØ7 $R_i \approx 3$ k Ω , $I_E \approx$ DC 10 mA	
Function	X13:1	DC +13 V – +30 V = "1" = contact closed DC -3 V – +5 V = "0" = contact open	According to EN 61131
	X13:2 – X13:6, X16:1/X16:2	DIØØ: With fixed assignment "Controller inhibit" DIØ1 – DIØ5, DIØ6/DIØ7: Selection option → Parameter menu P60_	
Digital output ¹⁾ X10:3/X10:7 and X16:3 – X16:5 Signal level		PLC-compatible (EN 61131-2), response time 1 ms DBØØ/DOØ2 and DOØ3 – DOØ5 "0" = DC 0 V "1" = DC +24 V Important: Do not apply external voltage!	
Function	X10:3	DBØØ: With fixed assignment "Brake", I_{max} = DC 150 mA, short-circuit proof, protected against external voltage to DC 30 V DOØ2, DOØ3 – DOØ5: Selection option → Parameter menu P62_	
	X10:7, X16:3 – X16:5	I_{max} = DC 50 mA, short-circuit proof, protected against external voltage to DC 30 V	
Relay output Function	X10:4 – X10:6	DOØ1: Current-carrying capacity of the relay contacts V_{max} = DC 30 V, I_{max} = DC 800 mA	
	X10:4	DOØ1-C: Shared relay contact	Selection option → Parameter menu P62_
	X10:5	DOØ1-NO: NO contact	
	X10:6	DOØ1-NC: NC contact	
System bus (SBus)	X12:1	DGND: Reference potential	CAN bus to CAN specification 2.0, parts A and B, transmission technology to ISO 11898, max. 64 participants, terminating resistor (120 Ω) can be activated using DIP switches
	X12:2	SC11: SBus high	
	X12:3	SC12: SBus low	
RS485 interface	X13:10 X13:11	ST11: RS485 + ST12: RS485 -	EIA standard, 9.6 kBaud, max. 32 stations Max. cable length 200 m Dynamic terminating resistor with fixed installation
TF/TH/KTY/PK input	X10:1	TF1: Response threshold at $R_{TF} \geq 2.9$ k $\Omega \pm 10\%$	

1) The device provides a current of I_{max} = DC 400 mA for the DC+24 V outputs (VO24, digital outputs). If this value is insufficient, a DC 24 V voltage supply must be connected to X10:9 (VI24).

MOVIDRIVE® MDX60/61B		General electronics data	
Reference terminals	X11:4 X12:1/X13:9/X16:6/X10:2/X10:10	AGND: Reference potential for analog signals and terminals X11:1 and X11:5 (REF1/REF2) DGND: Reference potential for binary signals, system bus, RS485 interface and TF/TH	

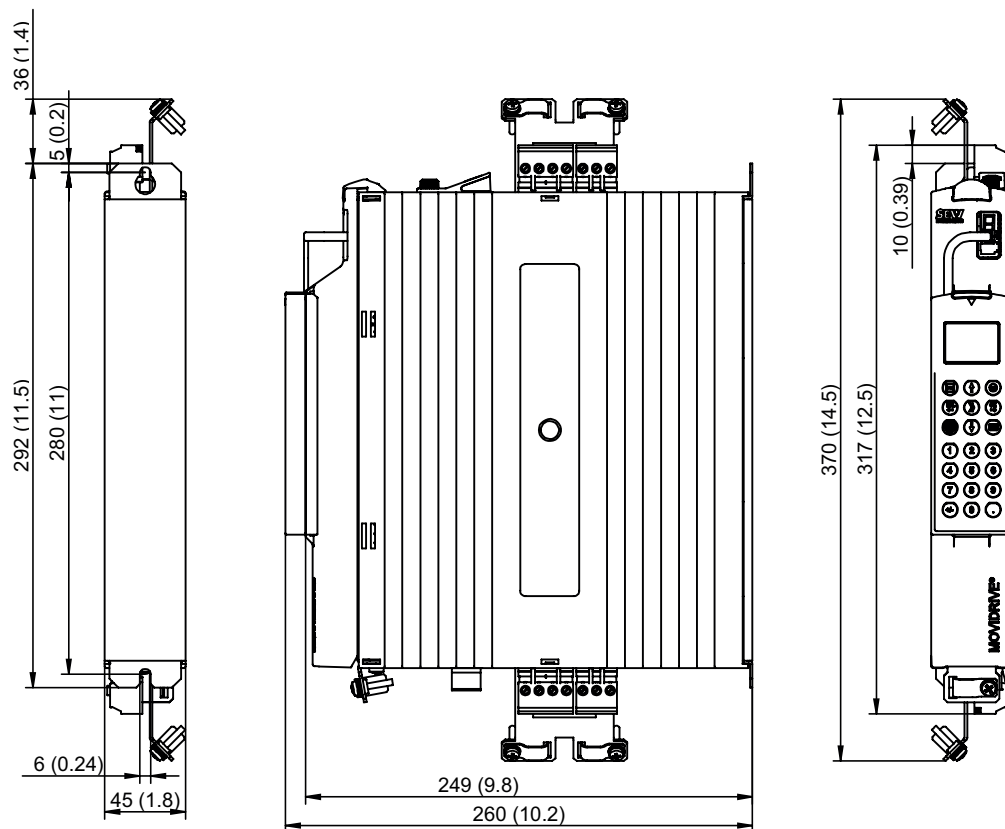
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MOVIDRIVE® MDX60/61B		General electronics data
	X13:7	DCOM: Reference potential of digital inputs X13:1 – X13:6 and X16:1/X16:2 (DIØØ – DIØ5 and DIØ6/DIØ7)
Permitted cable cross section		One core per terminal: 0.20 – 2.5 mm ² (AWG 24 – 12)
		Two cores per terminal: 0.25 – 1 mm ² (AWG 22 – 17)
		Tightening torque: 0.6 Nm
Safety contact	X17:1	DGND: Reference potential for X17:2
Input capacitance	X17:2	VO24: V _{OUT} = DC 24 V, only to supply X17:4 of the same device plus maximally 1 BST; must not be used to supply other devices
	X17:3	SOV24: Reference potential for DC +24 V "STO" input (safety contact)
	X17:4	SVI24: DC+24 V "STO" input (safety contact)
Permitted cable cross section		One core per terminal: 0.08 – 1.5 mm ² (AWG28 – 16)
		Two cores per terminal: 0.25 – 1.0 mm ² (AWG23 – 17)
Power consumption X17:4		Size 0: 3 W
		Size 1: 5 W
		Size 2, 2S: 6 W
		Size 3: 7.5 W
		Size 4: 8 W
		Size 5: 10 W
		Size 6: 6 W
		Size 7: 6 W
Input capacitance	X17:4	Size 0: 27 µF
		Sizes 1 – 7: 270 µF
Time for restart		t _A = 200 ms
Time to inhibit output stage		t _S ≤ 100 ms

2.6 MOVIDRIVE® MDX60B dimension drawings

2.6.1 MOVIDRIVE® MDX60B size 0S

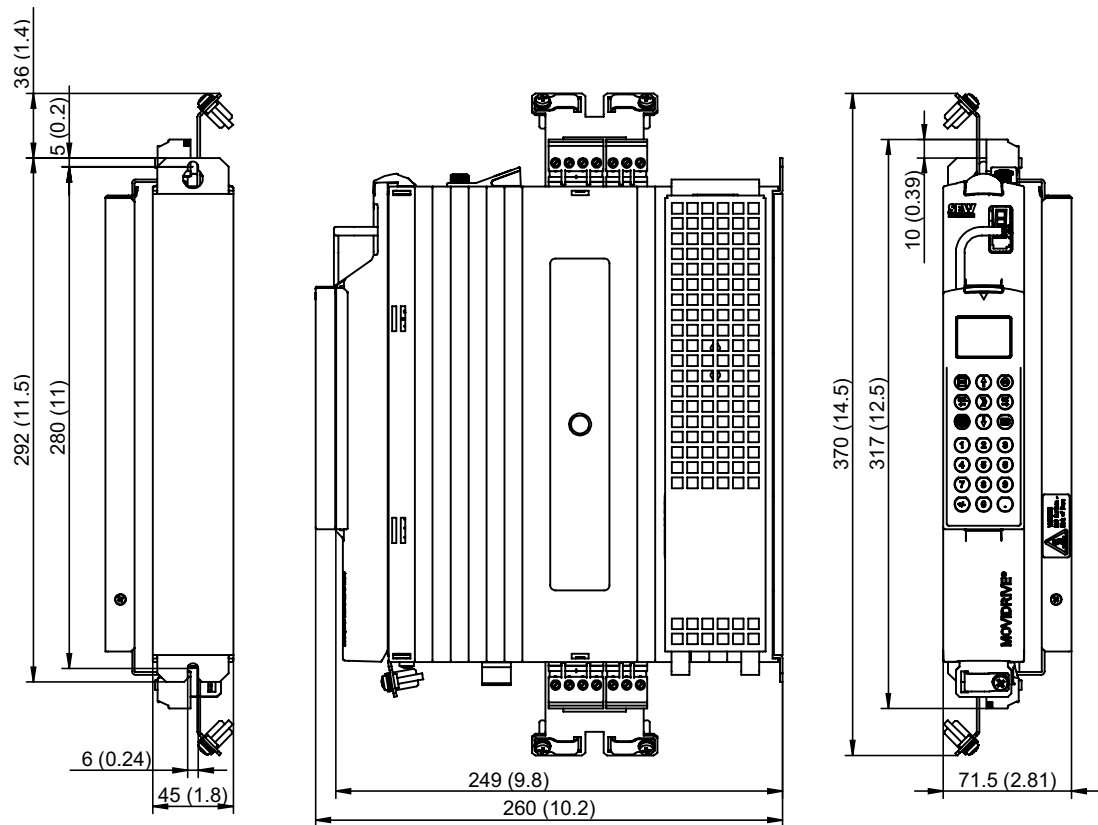
The following dimension drawing shows MDX60B size 0S, dimensions in mm (in)



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2.6.2 MOVIDRIVE® MDX60B, size 0S with mounted braking resistor

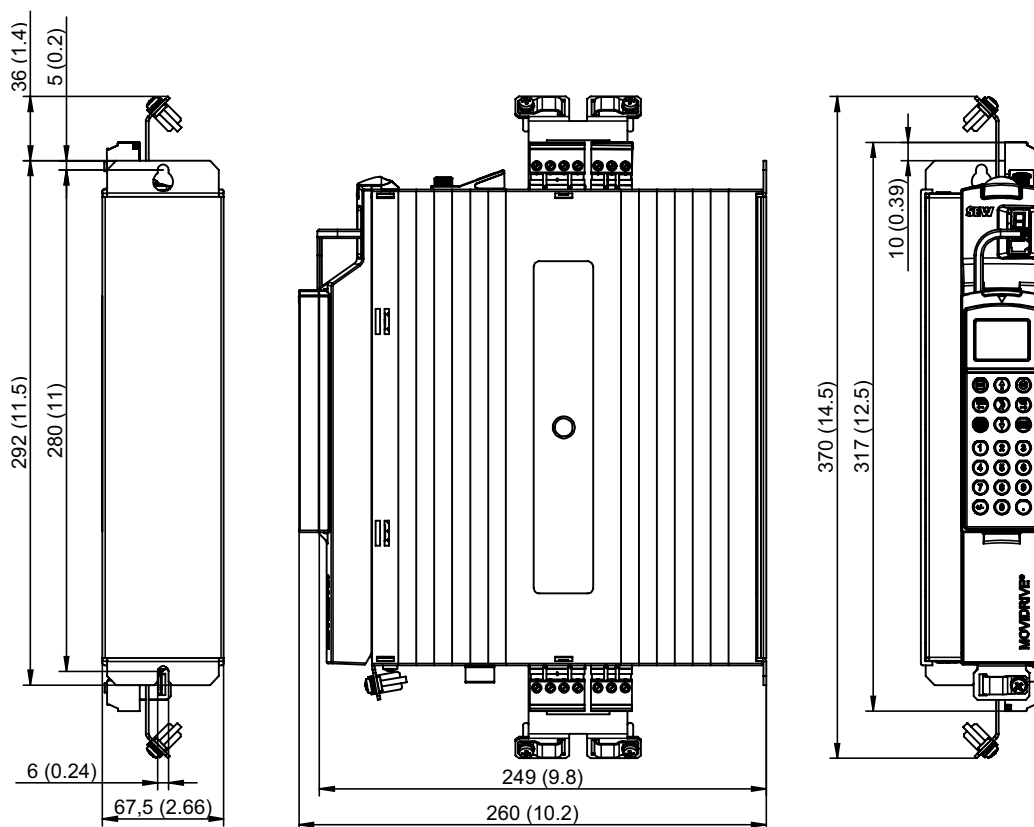
The following dimension drawing shows MDX60B size 0S with braking resistor, dimensions in mm (in)



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2.6.3 MOVIDRIVE® MDX60B size 0M

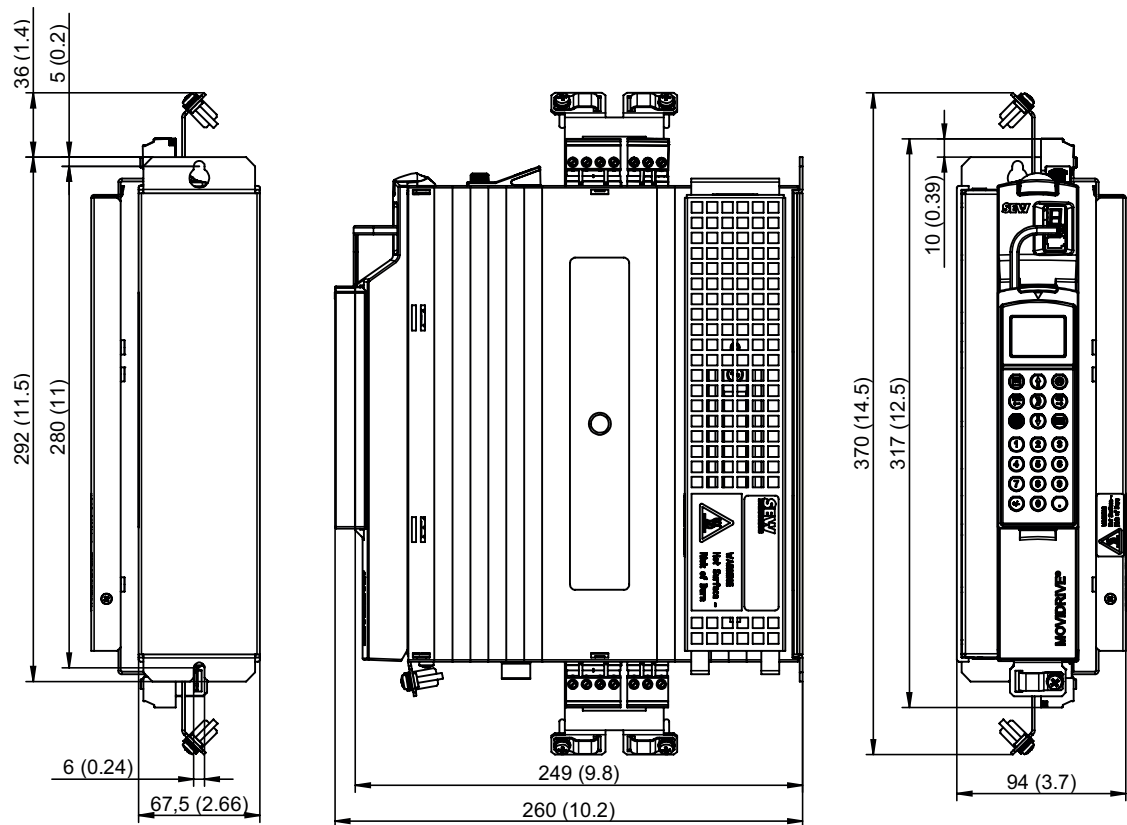
The following dimension drawing shows MDX60B size 0M, dimensions in mm (in)



9007201195584907

2.6.4 MOVIDRIVE® MDX60B size 0M with mounted braking resistor

The following dimension drawing shows MDX60B size 0M with braking resistor, dimensions in mm (in)



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2.7 MOVIDRIVE® MDX61B dimension drawings

INFORMATION

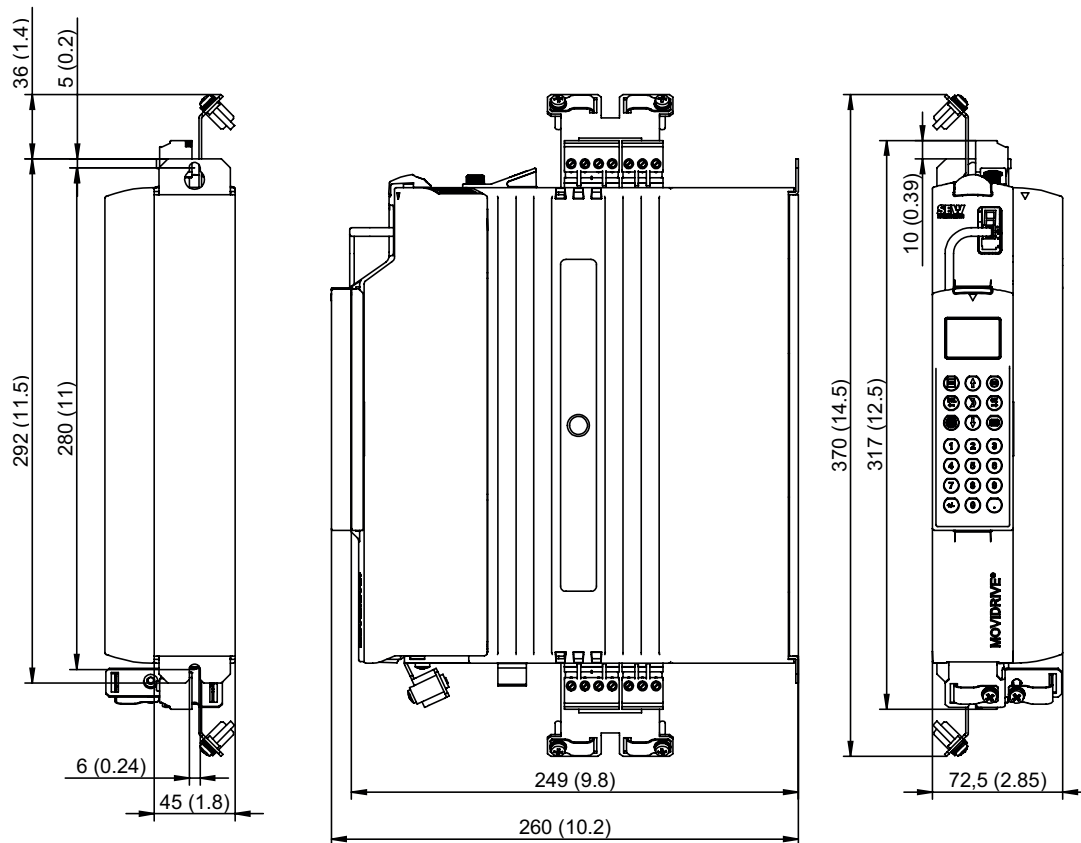


With MOVIDRIVE®

For MOVIDRIVE® MDX61B size 0, installing a braking resistor does not affect the dimensions. Therefore, MOVIDRIVE® MDX61B size 0 dimensions are displayed without an installed braking resistor.

2.7.1 MOVIDRIVE® MDX61B size 0S

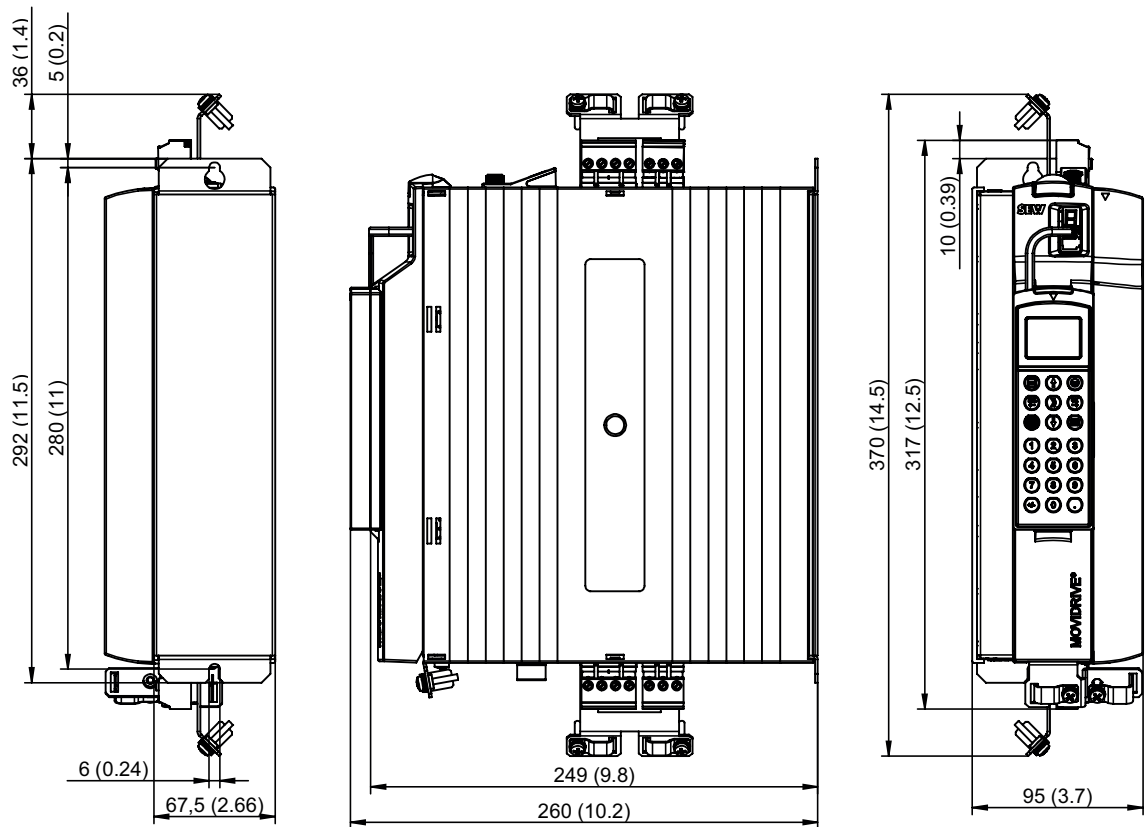
The following dimension drawing shows MDX61B size 0S, dimensions in mm (in)



9007201195592331

2.7.2 MOVIDRIVE® MDX61B size 0M

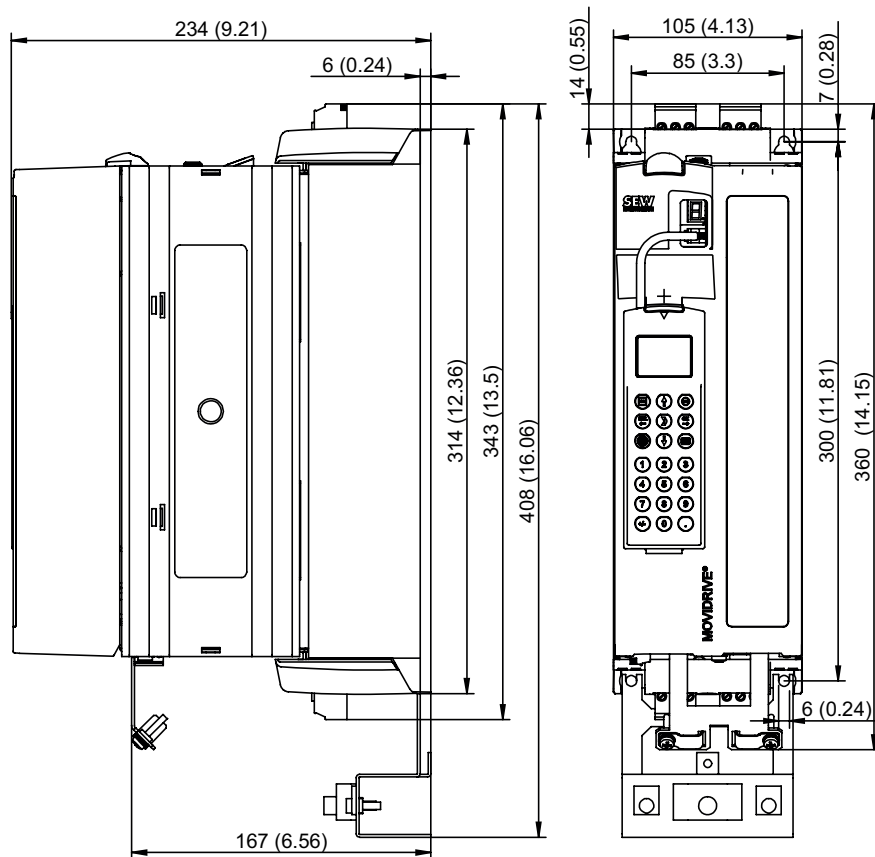
The following dimension drawing shows MDX61B size 0M, dimensions in mm (in)



9007201313669643

2.7.3 MOVIDRIVE® MDX61B size 1

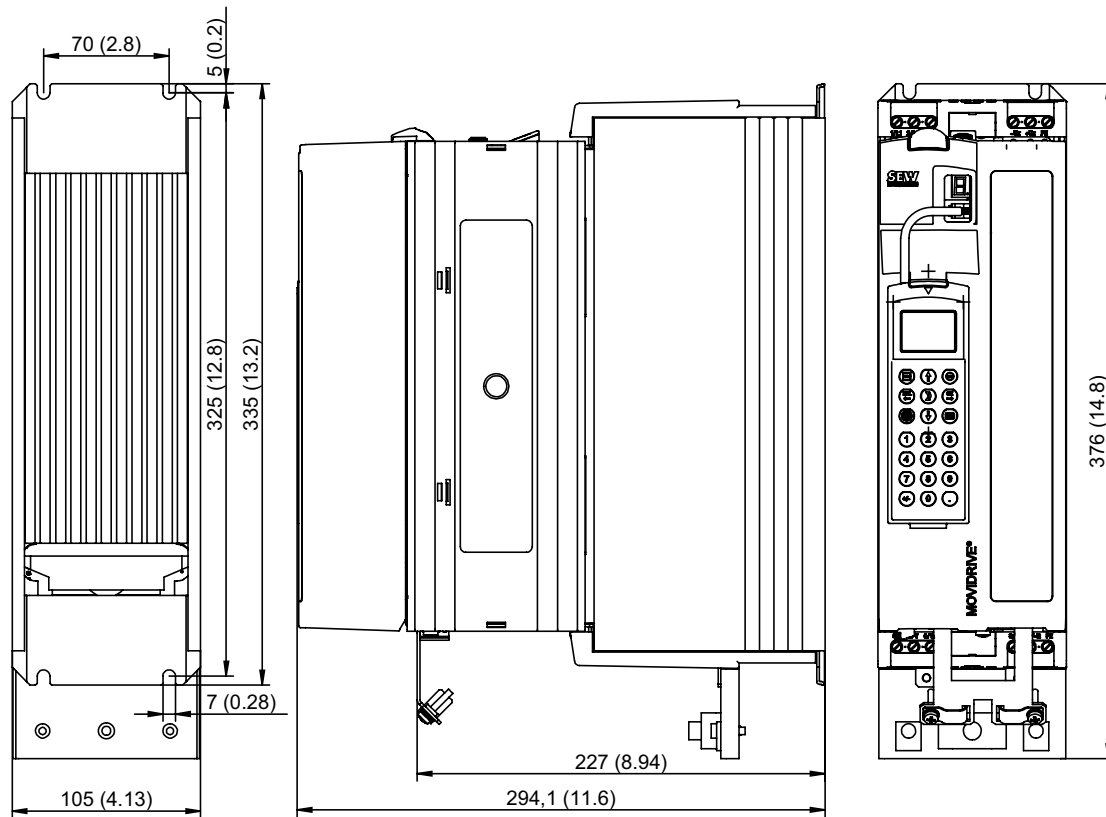
The following dimension drawing shows MDX61B size 1, dimensions in mm (in)



9007201313674123

2.7.4 MOVIDRIVE® MDX61B size 2S

The following dimension drawing shows MDX61B size 2S, dimensions in mm (in)

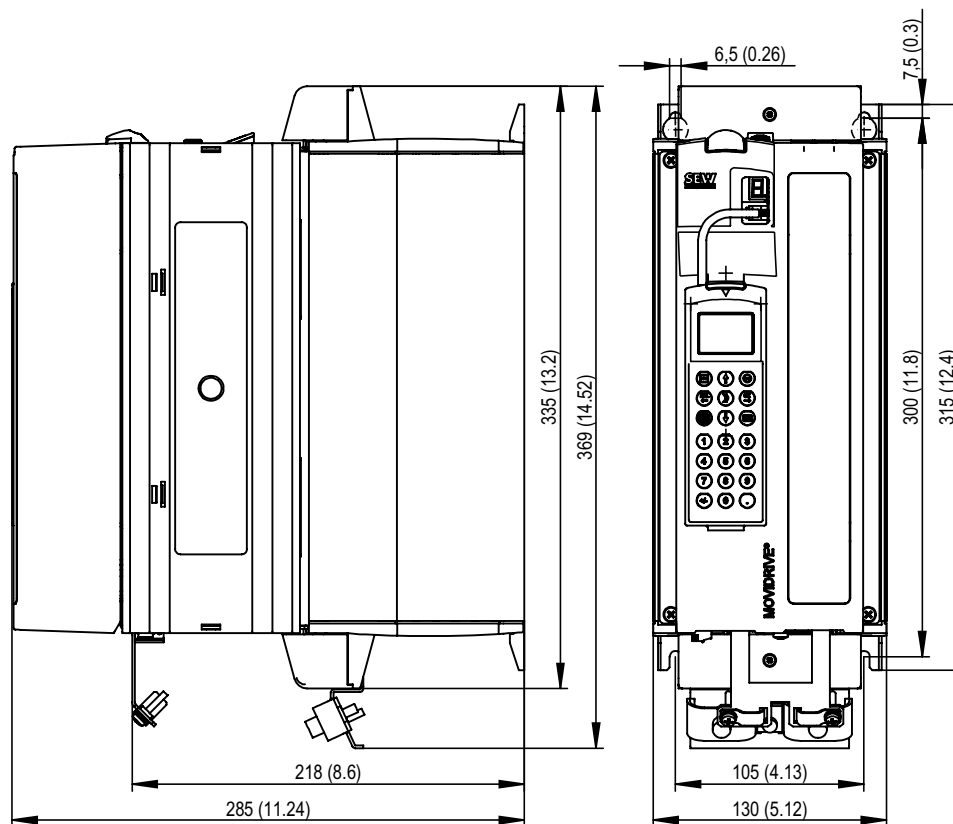


9007201313689995

2.7.5 MOVIDRIVE® MDX61B size 2

The following dimension drawing shows MDX61B size 2, dimensions in mm (in)

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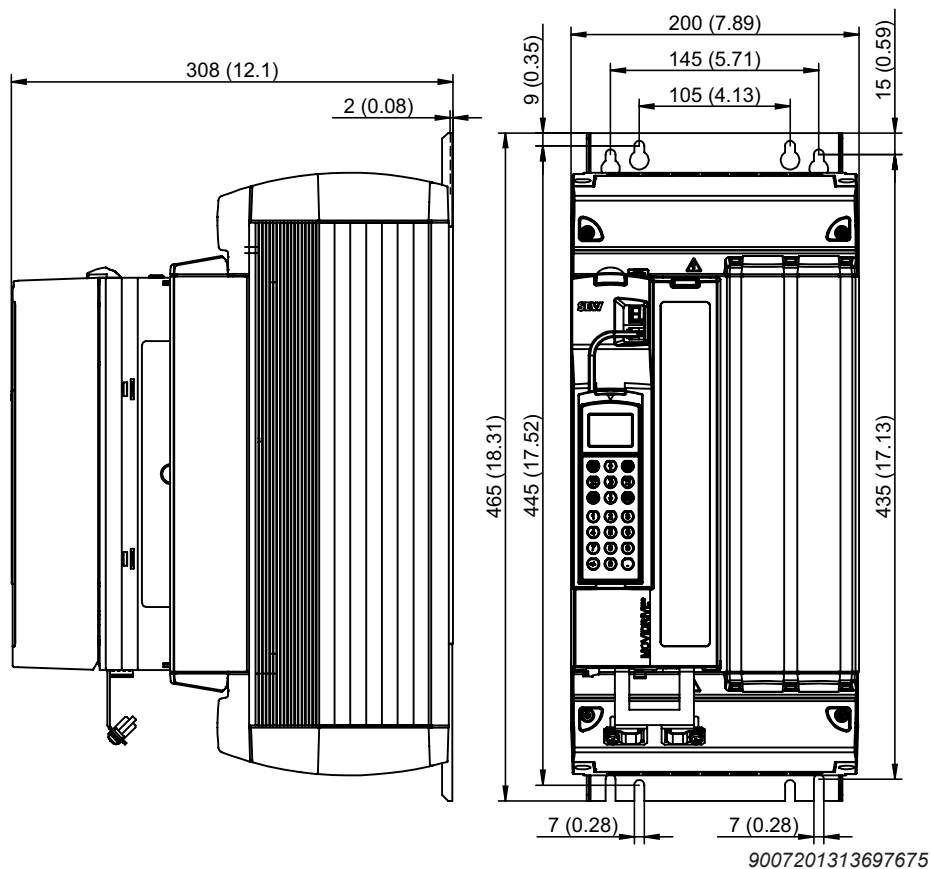


9007201313694091

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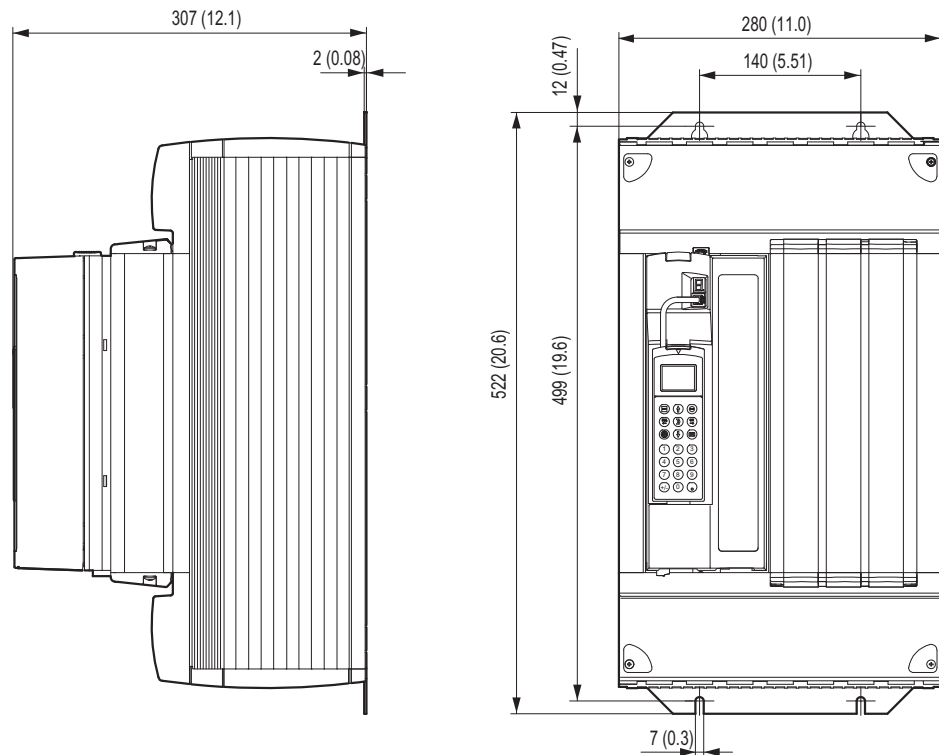
2.7.6 MOVIDRIVE® MDX61B size 3

The following dimension drawing shows MDX61B size 3, dimensions in mm (in)



2.7.7 MOVIDRIVE® MDX61B size 4

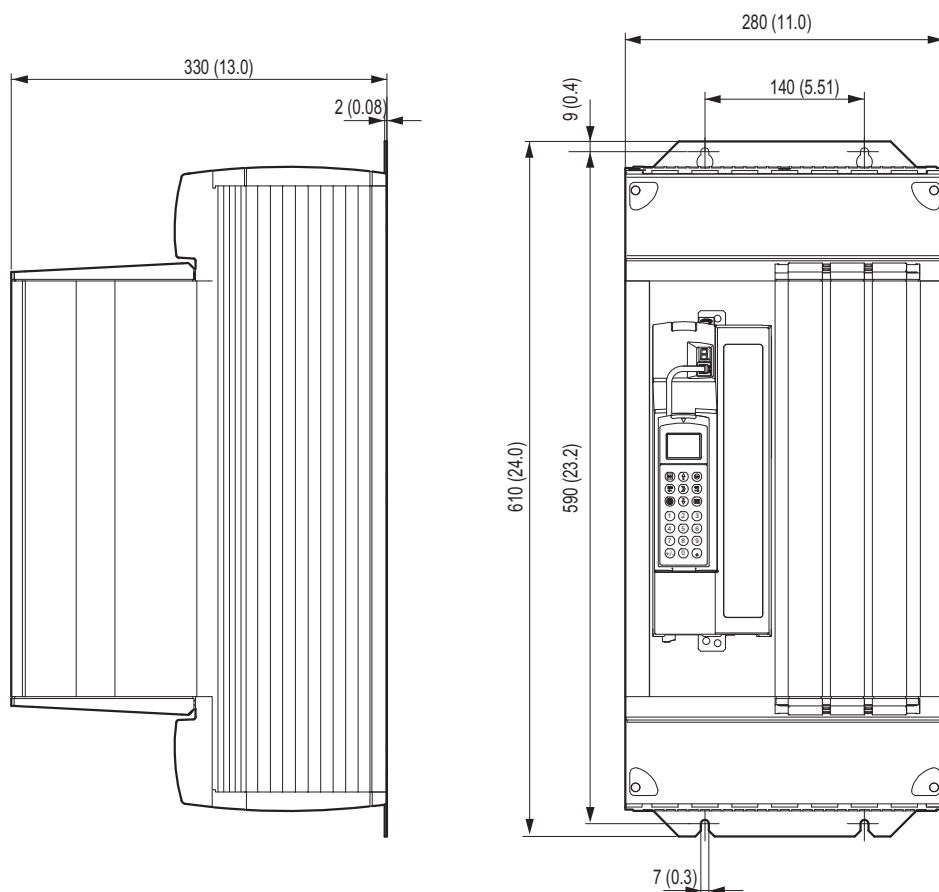
The following dimension drawing shows MDX61B size 4, dimensions in mm (in)



2058960267

2.7.8 MOVIDRIVE® MDX61B size 5

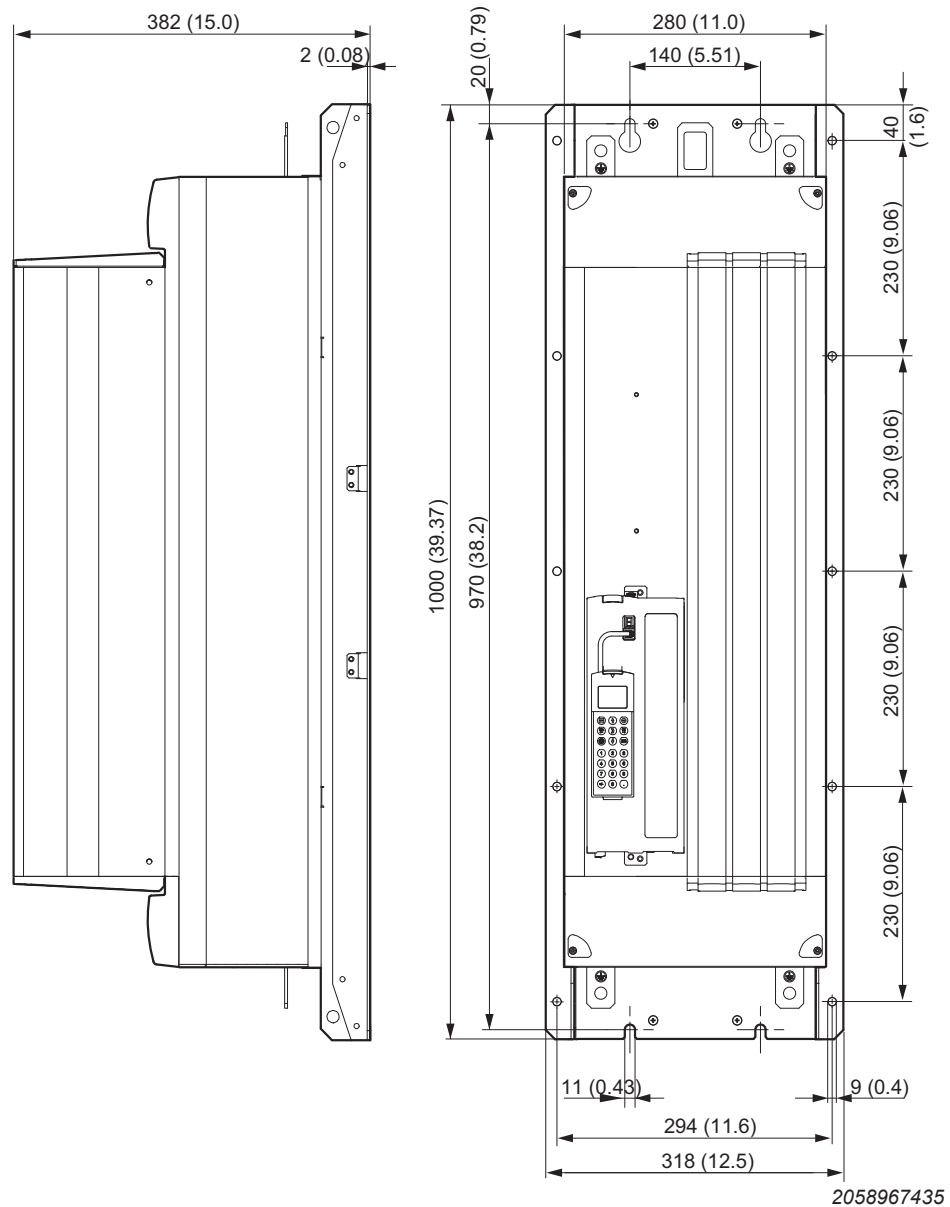
The following dimension drawing shows MDX61B size 5, dimensions in mm (in)



2058963851

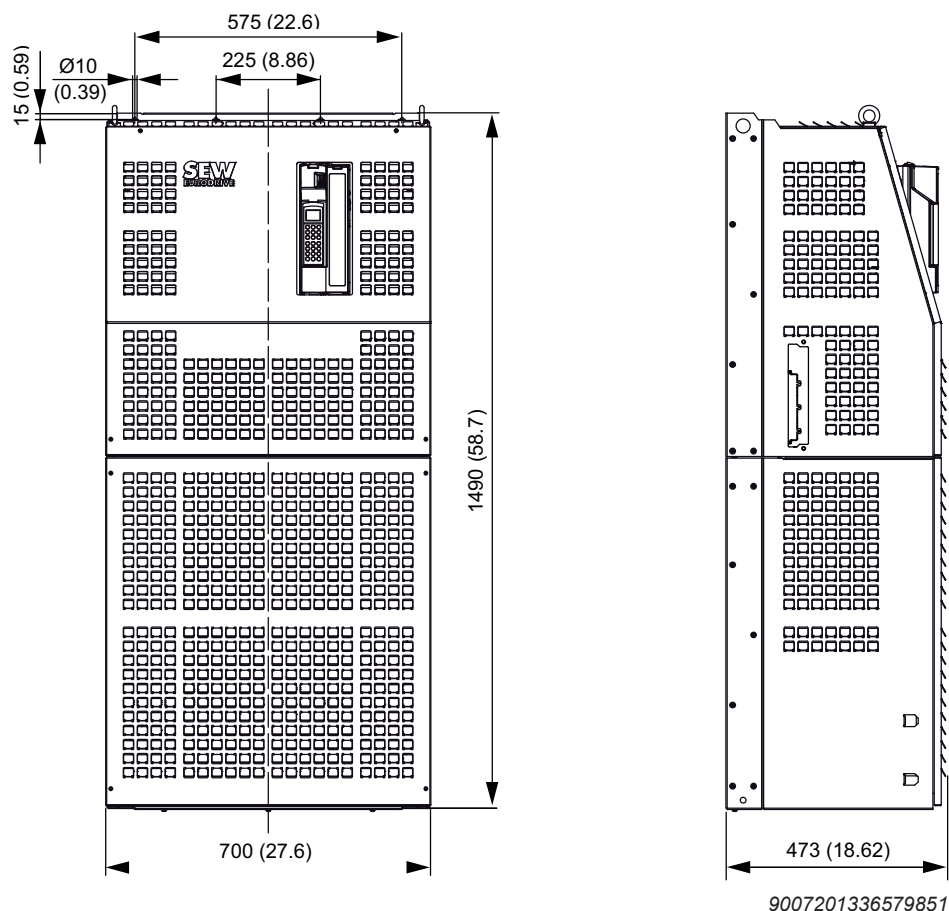
2.7.9 MOVIDRIVE® MDX61B size 6

The following dimension drawing shows MDX61B size 6, dimensions in mm (in)



2.7.10 MOVIDRIVE® MDX61B size 7

The following dimension drawing shows MDX61B size 7, dimensions in mm (in)



2.8 IPOS^{PLUS}®

2.8.1 Description

IPOS^{PLUS}® positioning and sequence control is integrated into every MOVIDRIVE® inverter as standard. With IPOS^{PLUS}® control functions and positioning tasks can be performed either simultaneously or independently of one another.

The IPOS^{PLUS}® sequence control system makes it possible to run a user program, regardless of any encoder feedback or the selected control mode (VFC, CFC, SERVO). In conjunction with encoder feedback, the IPOS^{PLUS}® positioning control provides a high-performance point-to-point positioning capability. The IPOS^{PLUS}® program is written using the MOVITOOLS® engineering software. Starting up the inverter, accessing parameters and editing variables are all possible either with the software or the DBG60B keypad (startup in VFC mode only).

2.8.2 Properties

- Program execution independent of encoder feedback and operating mode
- The user program is continued even if a device malfunction occurs (troubleshooting is possible in the user program)
- Three user programs can be run in parallel and independently of one another (task 1, task 2 and task 3, each of them interrupt-capable)
- The user programs programmed in assembler can contain up to 3200 program lines
- User-friendly and comprehensive control options for the inverter
- Access to all available options
- Extensive options for communication via system bus (SBus), RS485, and fieldbus (direct communication with MOVIMOT® is possible)
- Processing of digital and analog input/output signals

With encoder feedback only

- Positioning with selectable travel speed, positioning ramp and jerk limitation
- Precontrol for position, speed and torque control loops with minimized lag error
- Two touch probe inputs
- Ramp types: Linear, jerk limited, sine, and square
- Status and monitoring functions: Lag error monitoring, position signal, software and hardware limit switches
- 9 types of reference travel
- Possibility of changing the target position, travel speed, positioning ramp and torque while movement is in progress
- "Endless positioning" is possible
- Override function
- Cam switch
- Synchronous operation and electronic cam

Max. program length of task 1, task 2 and task 3	Total of ca. 3200 program lines
Command processing time per program line	Task 1: 1 – 10 commands/ms can be configured Task 2: 2 – 11 commands/ms can be configured Task 3: at least 1 command/ms (typical is 40 commands/ms)
Variables	1024, of which 128 (0 – 127) can be stored to non-volatile memory; range of values: $-2^{31} - +(2^{31}-1)$
Touch probe inputs	2 inputs, processing time < 100 µs
Sampling cycle of digital and analog inputs	1 ms
Digital inputs/outputs	8 inputs/5 outputs
Analog inputs/outputs	1 input (DC 0 – 10 V, DC±10 V, DC 0 – 20 mA, DC 4 – 20 mA) 1 input (DC 0 – 10 V, DC±10 V) 2 outputs (DC 0 – 20 mA, DC 4 – 20 mA, DC±10 V)

2.9 DBG60B keypad

2.9.1 Description

The basic version of MOVIDRIVE® does not have a DBG60B keypad, but can be upgraded to include the keypad as an option.

Keypad	Language variants	Part no.
	DBG60B-10	DE/EN/FR/IT/ES/PT/NL/FI/SV/DA/TR/RU/PL/CS/ZH (German/English/French/Italian/Spanish/Portuguese/Dutch/Finnish/Swedish/Danish/Turkish/Russian/Polish/Czech/Chinese)
	Door installation set ¹⁾	Description (= scope of delivery)
	DBM60B	- Housing for DBG60B (IP65) - DKG60B extension cable, length 5 m
	Extension cable	Description (= scope of delivery)
	DKG60B	- length 5 m 4-core, shielded cable

1) The DBG60B keypad is not included in the scope of delivery and must be ordered separately.

Functions

- Display process values and status
- Status displays of digital inputs/outputs
- Fault memory and error reset queries
- Option to display and set the operating parameters and service parameters
- Data backup and transfer of parameter sets to other MOVIDRIVE® devices
- User-friendly startup menu for VFC mode
- Manual control of MOVIDRIVE® B and MOVITRAC® B
- Manual operation of MOVIMOT® (→ Decentralized technology documentation)

Features

- Illuminated text display, range of languages
- Keypad with 21 keys
- Selection between user menu, detailed parameter menu and startup menu in VFC mode (CFC and SERVO startup is not possible with the DBG60B)
- Can be plugged into MOVIDRIVE®
- Can be connected via extension cable DKG60B (5 m)
- Degree of protection IP40 (EN 60529)

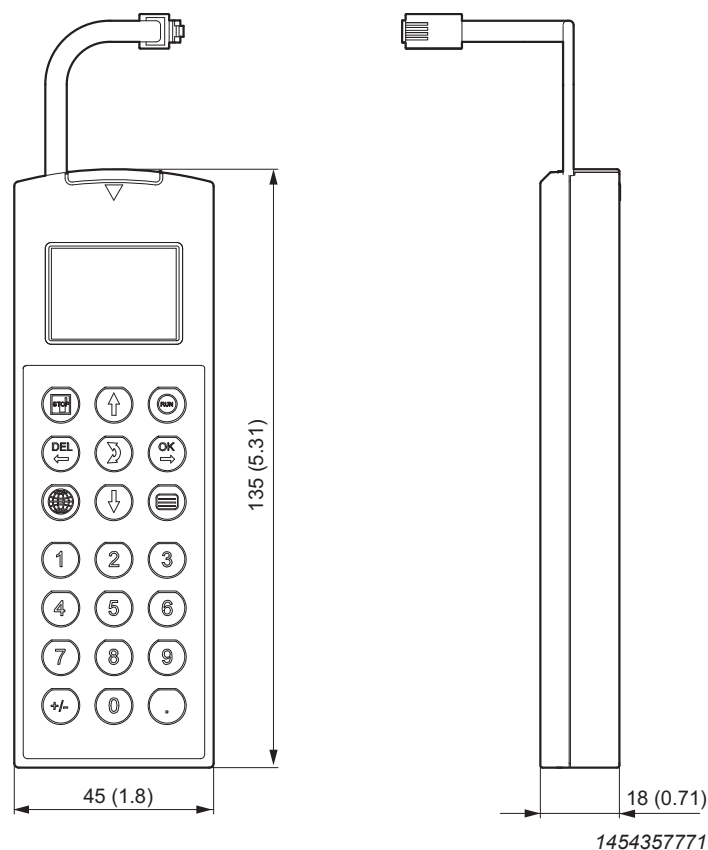
INFORMATION



The DBG60B keypad option and the interface adapter are plugged into the same inverter slot (XT) and therefore cannot be used at the same time.

2.9.2 Dimension drawing for DBG60B

The following figure shows the mechanical dimensions in mm (in).



All dimensions in mm (in)

2.10 DBM60B/DKG60B housing for DBG60B

2.10.1 Description

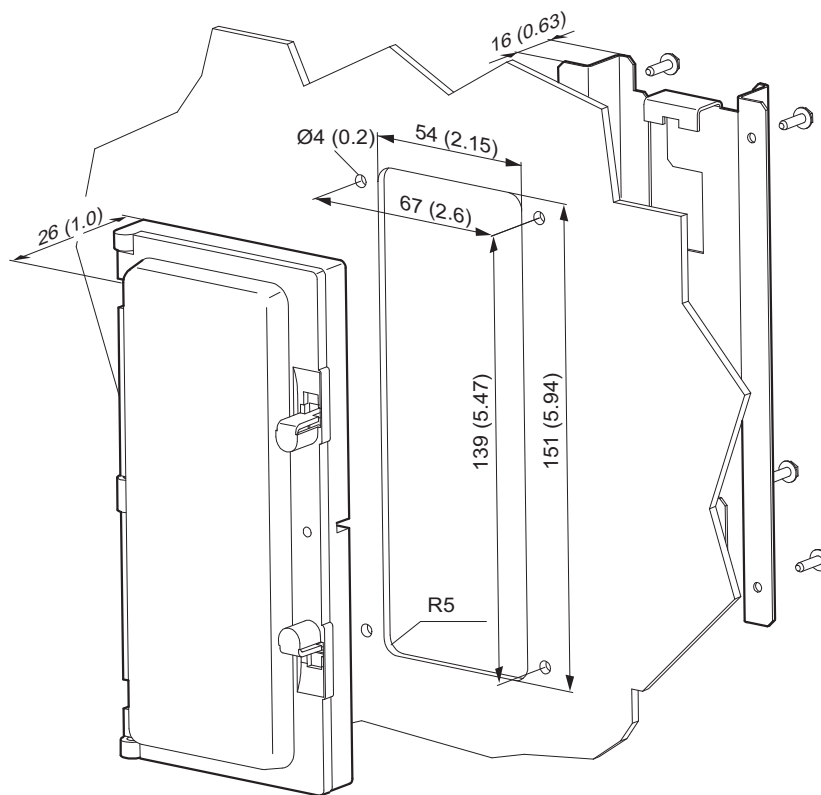
The DBM60B option can be used to mount the keypad close to the inverter (e.g. in the control cabinet door). The DBM60B option consists of a housing in IP65 degree of protection, and a 5 m DKG60B extension cable.

Part numbers

- DBM60B: 08248532
- DKG60B: 08175837

2.10.2 Dimension drawing DBM60B/DKG60B

The following figure shows the mechanical dimensions in mm (in).



1454360843

All dimensions in mm (in)

3 Technical data of regenerative power supply unit

3.1 MOVIDRIVE® MDR60A/61B regenerative power supply unit

MOVIDRIVE® drive inverters operating in regenerative mode (4Q operation) can use the MOVIDRIVE® MDR60A/61B regenerative power supply unit as an alternative to braking resistors. The prerequisite is a powerful supply system. For more detailed information, refer to the "MOVIDRIVE® MDR60A/61B Regenerative Power Supply Unit" system manual. This manual can be ordered from SEW-EURODRIVE.

MOVIDRIVE® MDR60A/61B supplies the DC link circuit of the connected MOVIDRIVE® drive inverters with electrical power from the supply system in motor operation and returns regenerative power to the supply system in regenerative operation.

3.1.1 UL approval



UL and cUL approval has been granted for MOVIDRIVE® MDR60A0150-503-00, MDR60A0370-503-00, MDR60A0750-503-00, MDR61B1600-503-00, and MDR61B2500-503-00 devices. cUL is equivalent to CSA approval. The MOVIDRIVE® MDR60A1320-503-00 does not have UL or cUL approval.

3.1.2 Protection and monitoring functions

- Monitoring and protection against thermal overload.
- Detection of power failure within one supply system half-wave.
- Overvoltage protection.



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3.1.3 Features of a regenerative power supply unit compared to an inverter with braking resistors

- Energy balance: Regenerative power is fed back into the supply system instead of being converted into waste heat.
- Reduced complexity of installation when there are several inverters (mains and braking resistor connections). However, a braking resistor is required for bringing the drive to a controlled stop even when there is a disruption in the supply system.
- Reduction in use of control cabinet space and fan power if the braking resistor was previously installed in the control cabinet.

3.1.4 General technical data

MOVIDRIVE® MDR60A regenerative power supply unit

MOVIDRIVE® MDR60A	0150-503-00 (size 2) 0370-503-00 (size 3) 0750-503-00 (size 4)	1320-503-00 (size 6)
Interference immunity	Meets EN 61800-3	Meets EN 61000-6-1 and EN 61000-6-2
Interference emission with EMC-compliant installation	Meets EN 61800-3: • With line filter NF035-503 (MDR60A0150-503-00) • With line filter NF048-503 (MDR60A0150-503-00) • With line filter NF085-503 (MDR60A0370-503-00) • With line filter NF150-503 (MDR60A0750-503-00)	Meets EN 61000-6-4 with line filter NF300-503
Ambient temperature ϑ_{amb}	0 °C – +40 °C	0 °C – +40 °C
Ambient temperature derating	I_N reduction: 3% I_N per K up to 60 °C	I_N reduction: 3% I_N per K up to 55 °C
Climate class	EN 60721-3-3, class 3K3	
Storage temperature ¹⁾ ϑ_F	-25 °C – +70 °C (EN 60721-3-3, class 3K3)	-25 °C – +55 °C (EN 60721-3-3, class 3K3)
Cooling types (DIN 51751)	External cooling (temperature-controlled fan, response threshold 50 °C)	External cooling (temperature-controlled fan, response threshold 45 °C)
Degree of protection Size 2 Size 3 EN 60529 (NEMA1) Size 4	IP20 IP20 IP00 IP10 • With fitted plexiglass cover supplied as standard • With fitted heat shrink tubing (not included in delivery) IP20 • With fitted DLB11B touch guard	IP20
Operating mode	Continuous duty	
Overvoltage category	III according to IEC 60664-1 (VDE 0110-1)	
Installation altitude	At $h \leq 1000$ m without restrictions At $h \geq 1000$ m, the following restrictions apply: • From 1000 m to max. 4000 m: – I_N reduction by 1% per 100 m • From 2000 m to max. 4000 m: – The protective separation of power and electronics connections can no longer be assured above 2000 m. This requires external measures (IEC 60664-1/EN 61800-5-1) – You have to connect an overvoltage protection device in order to reduce the overvoltages from category III to category II.	At $h \leq 1000$ m: No limitation From 1000 m to max. 4000 m: I_N reduction: 0.5% per 100 m

1) In case of extended storage, connect the device to the power supply for at least 5 minutes every two years, otherwise the device's service life may be reduced.

MOVIDRIVE® MDR61B regenerative power supply unit

MOVIDRIVE® MDR61B	1600-503-00/L (size 7) 2500-503-00/L (size 7)
Interference immunity	Meets EN 61800-3
Interference emission with EMC-compliant installation	Meets EN 61800-3: • With NF600-503 line filter
Ambient temperature ϑ_{amb}	0 °C – +50 °C at $I_D = 100\% I_{DC}$
Ambient temperature derating	0 °C – +40 °C at $I_D = 125\% I_{DC}$ 2.5% I_{DC} per K at 40 °C – +50 °C 3% I_{DC} per K at 50 °C – +60 °C
Climate class	EN 60721-3-3, class 3K3
Storage temperature ¹⁾ ϑ_F	-25 °C – +70 °C (EN 60721-3-3, class 3K3)
Cooling types (DIN 51751)	External cooling (temperature-controlled fan, response threshold 50 °C)
Degree of protection EN 60529 (NEMA1)	IP00 IP20 • With fitted DLB31B touch guard
Operating mode	Continuous duty
Overvoltage category	III according to IEC 60664-1 (VDE 0110-1)
Pollution class	2 according to IEC 60664-1 (VDE 0110-1)
Installation altitude	At $h \leq 1000$ m without restrictions The following restrictions apply at $h \geq 1000$ m: • From 1000 m to max. 4000 m – I_N reduction by 1% per 100 m • From 2000 m to max. 4000 m – Above an installation altitude of 2000 m the protective separation of power and electronic connections is not ensured. In this case, external measures are required: (IEC 60664-1/EN 61800-5-1) – You have to connect an overvoltage protection device in order to reduce the overvoltages from category III to category II.

1) In case of extended storage, connect the device to the power supply for at least 5 minutes every two years, otherwise the device's service life may be reduced.

3.1.5 Technical data of MOVIDRIVE® MDR60A/61B and MDX62B

MOVIDRIVE® MDR60A0150/0370 size 2 and size 3

MOVIDRIVE® MDR60A		Size 2	Size 3
Standard design		0150-503-00	0370-503-00
Design with coated printed circuit boards		0150-503-00/L	0370-503-00/L
Part number		18252710 18252729	08266581 08296723
INPUT			
Nominal voltage (according to EN 50160)	V_{line}	3 × AC 380 V – 500 V	
Line frequency	f_{line}	50 Hz – 60 Hz ± 5%	
Rated connected load	P_N	15 kW	37 kW
Nominal line current (at $V_{line} = 3 \times AC 400 V$)	I_{line}	AC 29 A	AC 66 A
ELECTRONICS TERMINALS			
Digital inputs		PLC-compatible (EN 61131), sampling cycle 1 ms	
Internal resistance		$R_i \approx 3.0 k\Omega$, $I_E \approx 10 mA$	
Signal level		+13 V – +30 V = "1" = contact closed -3 V – +5 V = "0" = contact open	
Digital outputs		PLC-compatible (EN 61131-2), response time 1 ms, short-circuit proof, $I_{max} = 50 mA$	
Signal level		"0" = 0 V, "1" = +24 V, Important: Do not apply external voltage	
DC LINK			
Apparent output power (at $V_{line} = 3 \times AC 380 - 500 V$)	S_A	25 kVA	50 kVA
DC link voltage (at nominal supply current I_{line})	$V_{DC link}$	DC 560 V – 780 V	
Nominal DC link current (at nominal current I_{line})	$I_{DC link}$	DC 35 A	DC 70 A
Max. DC link current	$I_{DC link max}$	DC 53 A	DC 105 A
GENERAL			
Power loss at P_N	P_{Vmax}	120 W	950 W
Cooling air consumption		100 m³/h	180 m³/h
Connection for power terminals	X1, X2	Separable terminal strips Conductor end sleeve DIN 46228	Screw and washer assembly M6
Permitted tightening torque		1.8 Nm	3.5 Nm
Permitted cable cross section		6 mm² (AWG9) PE: M4 with 1.5 Nm	25 mm²
Electronics terminals connection	X3	Permitted cable cross section • One conductor per terminal: 0.20 – 2.5 mm² (AWG 24 – 13) • Two conductors per terminal: 0.25 – 1 mm² (AWG 23 – 17) Tightening torque 0.6 Nm	
Mass		4 kg	16 kg
Dimensions	$W \times H \times D$	118 mm × 320 mm × 127 mm	200 mm × 465 mm × 221 mm
Line choke (always required)		ND045-013, $L_N = 0.1 mH$ Part number 08260133	ND085-013 $L_N = 0.1 mH$ Part number 08260141
Line filter (optional)		NF035-503 up to 15 kW Part number 8271283 NF048-503 up to 22 kW (15 kW × 125%) Part number 08271178	NF085-503, Part number 08274150
For MOVIDRIVE® MDX60B/61B...-5_3		0005 – 0150	0005 – 0370
Recommended line fuse		63 A	100 A

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MOVIDRIVE® MDR60A0750/1320 size 4 and size 6

MOVIDRIVE® MDR60A		Size 4	Size 6
Standard design		0750-503-00	1320-503-00 ¹⁾
Design with coated printed circuit boards		0750-503-00/L	–
Part number		08265569 08296731	08279527
INPUT			
Nominal voltage (according to EN 50160)	V_{line}	3 × AC 380 V – 500 V	
Line frequency	f_{line}	50 Hz – 60 Hz ± 5%	40 Hz – 60 Hz ± 10%
Rated connected load	P_N	75 kW	160 kW
Nominal line current (at $V_{line} = 3 \times AC\ 400\ V$)	I_{line}	AC 117 A	AC 260 A
ELECTRONICS TERMINALS			
Digital inputs		Isolated (optocoupler), PLC-compatible (EN 61131), sampling cycle 1 ms	–
Internal resistance		$R_i \approx 3.0\ k\Omega$, $I_E \approx 10\ mA$	
Signal level		+13 V – +30 V = "1" = Contact closed -3 V – +5 V = "0" = Contact open	
Digital outputs		PLC-compatible (EN 61131-2), response time 1 ms, short-circuit proof, $I_{max} = 50\ mA$	
Signal level		"0" = 0 V, "1" = +24 V, Important: Do not apply external voltage.	
DC LINK			
Apparent output power (at $V_{line} = 3 \times AC\ 380 - 500\ V$)	S_A	90 kVA	175 kVA
DC link voltage	$V_{DC\ link}$	DC 560 V – 780 V	
Nominal DC link current (at nominal line current I_{line})	$I_{DC\ link}$	DC 141 A	DC 324 A
Max. DC link current (at nominal line current I_{line})	I_{DClink_max}	DC 212 A	Motor: • DC 486 A regenerative: • DC 410 A
GENERAL			
Power loss at P_N	P_{Vmax}	1700 W	2400 W
Cooling air consumption		360 m³/h	880 m³/h
Connection for power terminals (L1, L2, L3 for size 6)	X1, X2	M10 terminal studs	M10 terminal studs
Permitted tightening torque		14 Nm	25 – 30 Nm ²⁾
Permitted cable cross section		70 mm² (AWG2/0)	185 mm² (AWG6/0)
Connection for power terminals SKS 1 – 3		–	Terminals not connected
Connection for electronics terminals (X2 with size 6)	X3	Permitted cable cross-section: • One conductor per terminal: 0.20 – 2.5 mm² (AWG 24 – 13) • Two conductors per terminal: 0.25 – 1 mm² (AWG 23 – 17) Tightening torque 0.6 Nm	Permitted cable cross-section: • 0.75 – 2.5 mm² (AWG18 – 14) Terminals A1/A2: • 0.75 – 4 mm² (AWG18 – 12) Tightening torque 0.6 Nm
Mass		24 kg	100 kg
Dimensions	W × H × D	280 mm × 522 mm × 205 mm	378 mm × 942 mm × 389.5 mm
Line choke (always required)		ND200-0033 $L_N = 0.03\ mH$ Part number 08265798	Installed in the basic device
Line filter (optional)		NF150-503, Part number 08274177	NF300-503, Part number 08274193
For MOVIDRIVE® MDX60B/61B..-5 3		0005 – 0750	0005 – 1600

MOVIDRIVE® MDR60A	Size 4	Size 6
Standard design	0750-503-00	1320-503-00¹⁾
Design with coated printed circuit boards	0750-503-00/L	–
Recommended line fuse	175 A	500 A

1) The listed technical data applies to devices with serial no. DCV200xxx. For devices of the previous series with no. DCV185xxx, refer to the provided documentation and the data on the nameplate

2) Note: Do not apply tightening torque directly at terminals L1, L2, L3 and $\pm$ UG; use a second wrench.

MOVIDRIVE® MDR61B1600/2500 size 7

MOVIDRIVE® MDR61B		Size 7	
		1600-503-00/L	2500-503-00/L
Part number		18250955	18250963
INPUT			
Nominal voltage (according to EN 50160)	V_{line}	3 × AC 380 V – 500 V	
Line frequency	f_{line}	50 Hz – 60 Hz ± 5%	
Rated connected load	P_N	160 kW	250 kW
Nominal line current (at $V_{line} = 3 \times AC 400 V$)	I_{line}	AC 250 A	AC 400 A
ELECTRONICS TERMINALS			
Digital inputs		Isolated (optocoupler), PLC-compatible (EN 61131), sampling cycle 1 ms	
Internal resistance		$R_i \approx 3.0 k\Omega$, $I_E \Omega 10 mA$	
Signal level		+13 V – +30 V = "1" = Contact closed -3 V – +5 V = "0" = Contact open	
3 digital outputs		PLC-compatible (EN 61131-2), response time 1 ms, short-circuit proof, $I_{max} = 50 mA$	
Signal level		"0" = 0 V, "1" = +24 V, Important: Do not apply external voltage.	
1 isolated relay contact		max. load capacity of relay contacts DC 30 V, DC 0.08 A	
DC LINK			
Apparent output power (at $V_{line} = 3 \times AC 380 - 500 V$)	S_A	173 kVA	271 kVA
DC link voltage	$V_{DC link}$	DC 620 V – 780 V	
Nominal DC link current (at nominal line current I_{line})	$I_{DC link}$	DC 255 A	DC 407 A
Max. DC link current (at nominal line current I_{line})	I_{DClink_max}	DC 382 A	DC 610 A
Max. continuous DC link current (at nominal line current I_{line})	I_{DClink_Dmax}	DC 318 A	DC 508 A
GENERAL			
Power loss at P_N	P_{Vmax}	5000 W	6600 W
Cooling air consumption		1400 m³/h	
Connection for power terminals	L1, L2, L3	Connection rail with bore for M12 Max. $2 \times 240 mm^2$ Press cable lug DIN 46235	
Tightening torque		70 Nm	
DC link coupling option		- DLZ11B/100 mm (part number: 18231934) - DLZ11B/200 mm (part number: 18235662) - DLZ11B/300 mm (part number: 18235670)	
Electronics terminals connection X2		Permitted cable cross-section: - One conductor per terminal: 0.20 – 2.5 mm² (AWG 24 – 12) - Two conductors per terminal: 0.25 – 1 mm² (AWG 22 – 17) Tightening torque: 0.6 Nm	
External voltage supply		Connect 24 V backup voltage via the DC power supply unit. No connection at the control unit.	
Mass		385 kg	475 kg
Dimensions	W × H × D	899 mm × 1490 mm × 473 mm	
Choke		Installed in the basic device	
Line filter (optional)		NF600-503 Part number 17963389	
For MOVIDRIVE® MDX60B/61B...-5_3		0005 – 2500	
Recommended line fuse		315 A (gS)	500 A (gS)

MOVIDRIVE® MDX62B1600/2000/2500 size 7

MOVIDRIVE® MDX62B		Size 7		
2-Q devices (without brake chopper)		1600-503-2-0T/L	2000-503-2-0T/L	2500-503-2-0T/L
4-Q devices (with brake chopper)		1600-503-4-0T/L	2000-503-4-0T/L	2500-503-4-0T/L
Part number		18250459 18250483	18250467 18250491	18250475 18250505
INPUT				
DC link voltage	V _{DC link}	Supply via DC link connection DC 537 V – 780 V		
OUTPUT				
Apparent output power ¹⁾ (at V _{line} = 3 × AC 380 – 500 V)	S _N	208 kVA	263 kVA	326 kVA
Nominal output current ¹⁾ (at V _{line} = 3 × AC 400 V)	I _N	AC 300 A	AC 380 A	AC 470 A
Continuous output current (= 125% I _N) (at V _{line} = 3 × AC 400 V with f _{PWM} = 2.5 kHz)	I _D	AC 375 A	AC 475 A	AC 588 A
Continuous output current (= 100% I _N) (at V _{line} = 3 × AC 400 V with f _{PWM} = 2.5 kHz Temperature range 0 °C – +50 °C)	I _D	AC 300 A	AC 380 A	AC 470 A
Current limiting	I _{max}	Motor and generator mode 150% I _N , duration depending on the capacity utilization		
Internal current limiting		I _{max} = 0 – 150% adjustable		
Permitted minimum braking resistance value (4Q operation)	R _{BWmin}	1.1 Ω		
Output voltage	V _O	Max. V _{line}		
PWM frequency	f _{PWM}	Adjustable: 2.5 or 4 kHz possible		
Speed range/resolution	n _A /Δn _A	-6000 – 0 – +6000 min ⁻¹ / 0.2 min ⁻¹ over the entire range		
GENERAL				
Power loss at S _N ¹⁾	P _{Vmax}	3000 W	3600 W	4400 W
Cooling air consumption		1200 m³/h		
Mass		2Q design: 180 kg 4Q variant: 200 kg		
Dimensions	W × H × D	700 mm × 1490 mm × 470 mm		
Conductor rails X1, X2, X3		Connection rail with bore for M12 Max. 2 × 240 mm² Press cable lug DIN 46235		
Tightening torque		70 Nm		
	P _{Mot}	160 kW	200 kW	250 kW
Constant load Recommended motor power				
	P _{Mot}	200 kW	250 kW	315 kW
Variable torque load or constant load without overload Recommended motor power				

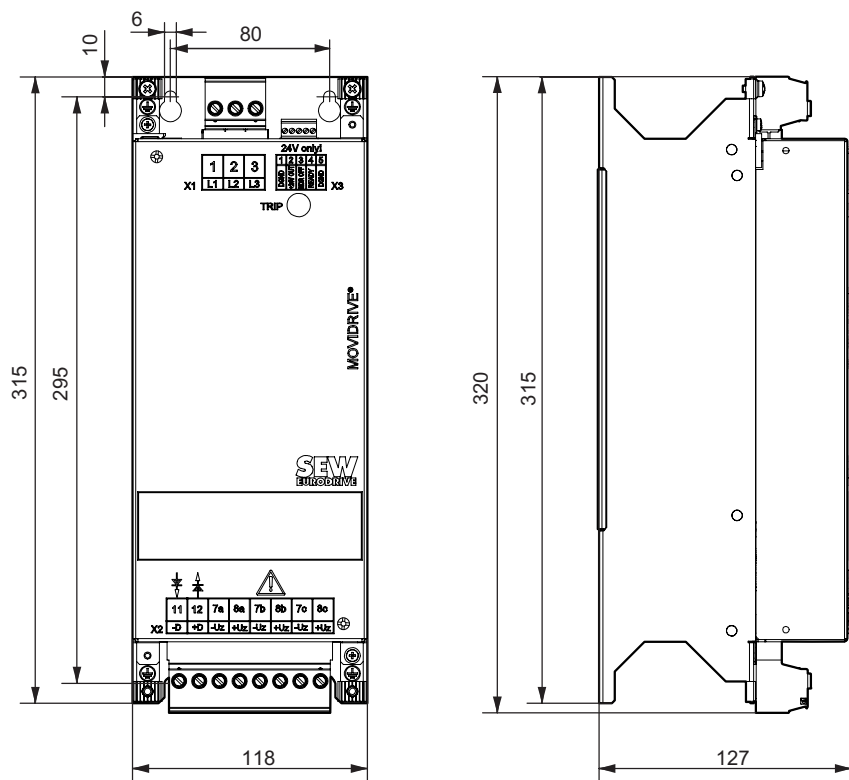
1) The performance data applies to f PWM = 2.5 kHz

3.1.6 Dimension drawings

MOVIDRIVE® MDR60A0150 size 2

Observe the following minimum clearance for control cabinet installation:

- 100 mm above and below
- No clearance required on the side



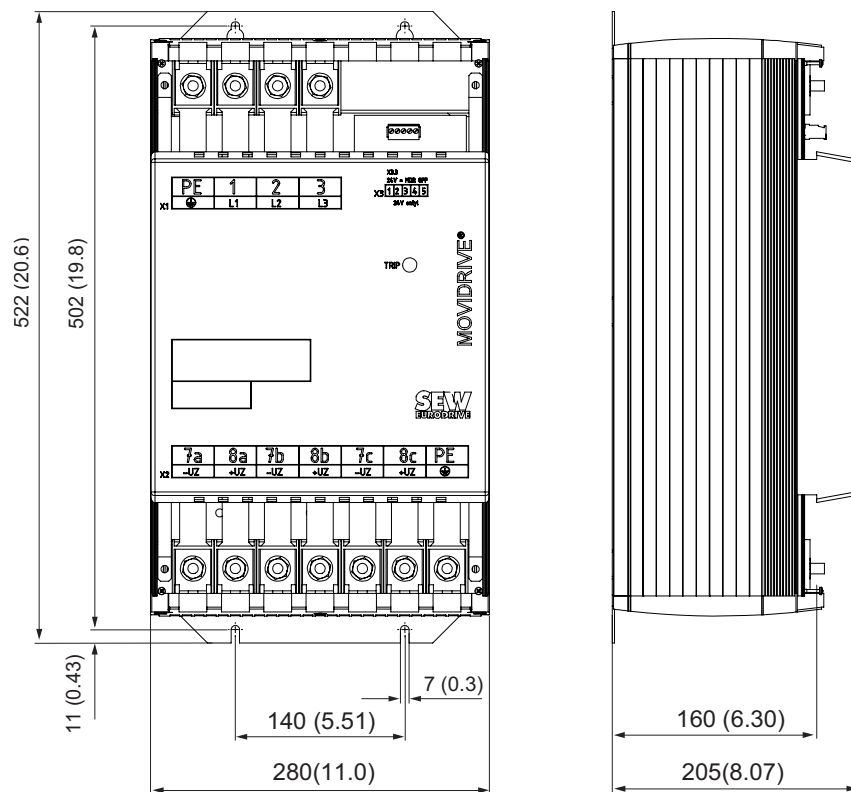
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All dimensions in mm (in)

MOVIDRIVE® MDR60A0750 size 4

Observe the following minimum clearance for control cabinet installation:

- 100 mm above and below
- The minimum distance above the inverter for installing temperature-sensitive components, such as contactors or fuses, is 300 mm
- No clearance required on the side



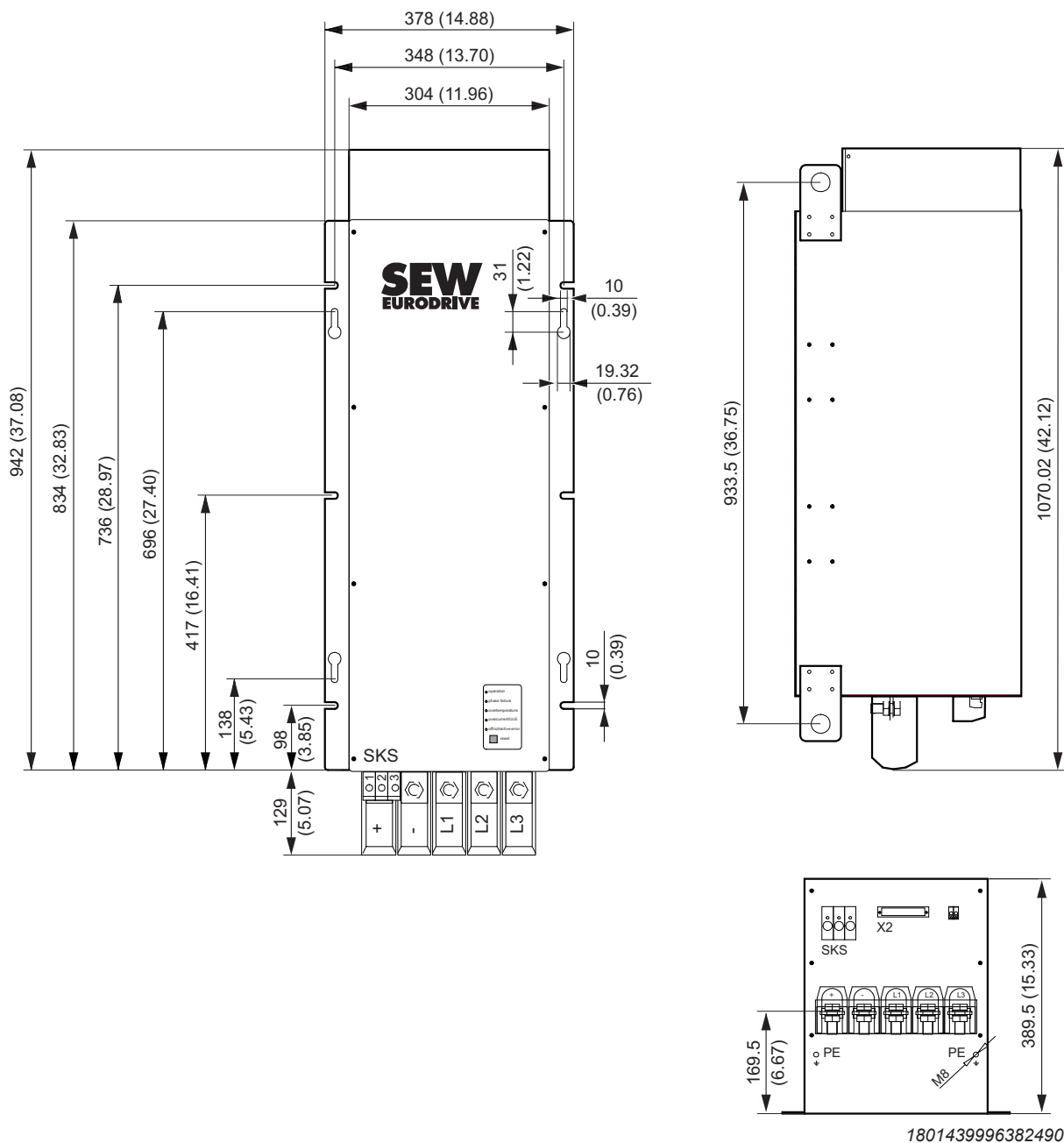
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All dimensions in mm (in)

MOVIDRIVE® MDR60A1320 size 6

Observe the following minimum clearance for control cabinet installation:

- 100 mm above
- Do not install any components that are sensitive to high temperatures within 300 mm above the device, for example contactors or fuses
- No clearance required below
- 70 mm on the side

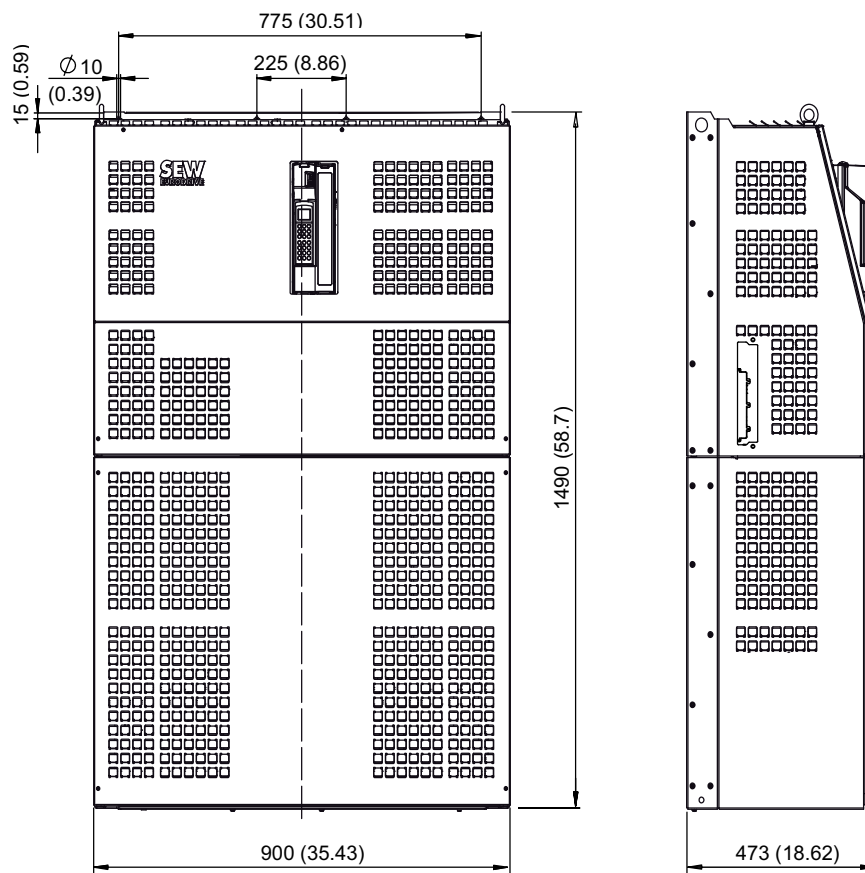


All dimensions in mm (in)

MOVIDRIVE® MDR61B1600/2500 size 7

Observe the following minimum clearance for control cabinet installation:

- 100 mm above
- Do not install any components that are sensitive to high temperatures within 300 mm above the device, for example contactors or fuses
- Mounting on a base (e.g. DLS31B mounting base) is recommended due to the choke ventilation
- No clearance required on the side



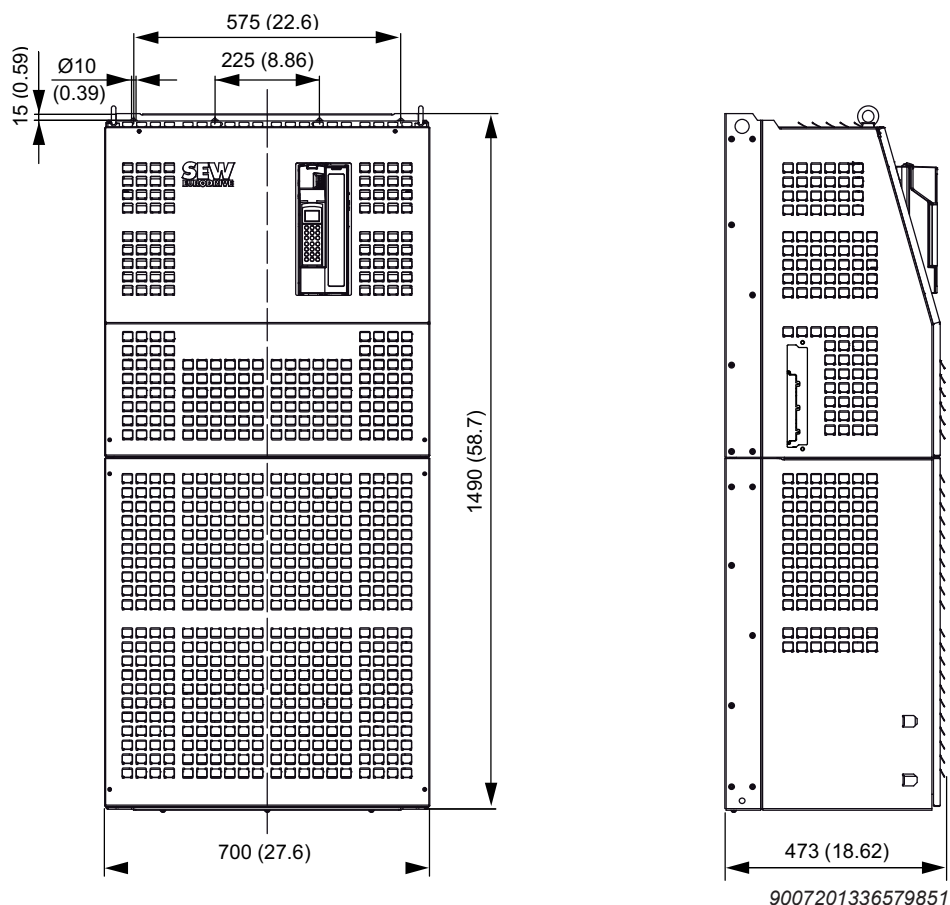
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MOVIDRIVE® MDX62B1600/2000/2500 size 7

Observe the following minimum clearance for control cabinet installation:

- 100 mm above
- Do not install any components that are sensitive to high temperatures within 300 mm above the device, for example contactors or fuses
- No clearance required below
- No clearance required on the side



3.1.7 DC link connection

SEW-EURODRIVE recommends using the following cable sets for the DC link connection. These cable sets offer the appropriate dielectric strength and are also color-coded. Color coding is necessary because cross-polarity and ground faults could cause irreparable damage to the connected equipment.

The length of the cables restricts the DC link connection to the permitted length of 5 m. They can also be cut to length by the customer for connecting several devices. The cable lugs for connection to the regenerative power supply unit and an inverter are supplied with the cable set. Use commercially available cable lugs for connecting additional inverters. The inverters must then be connected to the regenerative power supply unit in star configuration.

Cable set type	DCP12A	DCP13A	DCP15A	DCP16A
Part number	08145679	08142505	08142513	08175934
For connecting MOVIDRIVE®	0005 – 0110	0150 – 0370	0450 – 0750	0900 – 1320

INFORMATION



Refer to the "MOVIDRIVE® MDR60A/61B Regenerative Power Supply Unit and MDX62B Motor Inverter" system manual for information on the DC link connection. This system manual can be ordered from SEW-EURODRIVE.

4 Technical data of options

4.1 HIPERFACE® encoder card DEH11B

4.1.1 Part number

08243107 or 28297806

4.1.2 Description

Option-capable MOVIDRIVE® MDX61B devices can be equipped with the HIPERFACE® encoder card type DEH11B. The encoder card offers one input for motor encoder and one input for external encoder, also referred to as a distance encoder. The input for the external encoder can also be used as an output for incremental encoder simulation.

4.1.3 Electronics data

Option DEH11B		
	Output for incremental encoder simulation or External encoder input X14:	Output for incremental encoder simulation: • Signal level to RS422 • The number of pulses is the same as on X15 motor encoder input External encoder input (max. 200 kHz): Permitted encoder types: • HIPERFACE® encoder • Sin/cos encoder $V_{SS} = AC\ 1\ V$ • TTL encoder with negated tracks • Encoder with signal level to RS422 Encoder voltage supply: • DC +12 V (tolerance range DC 10.5 – 13 V) • $I_{max} = DC\ 650\ mA^{1)}$
	Motor encoder input X15:	Permitted encoder types: • HIPERFACE® encoder • Sin/cos encoder $V_{SS} = AC\ 1\ V$ • TTL encoder with negated tracks • Encoder with signal level to RS422 • Permitted pulses per resolution: 128/256/512/1024/2018 increments Encoder voltage supply: • DC +12 V (tolerance range DC 10.5 – 13 V) • $I_{max} = DC\ 650\ mA$

1) Total current load of DC 12 V encoder supply $\leq DC\ 650\ mA$

4.2 Resolver card DER11B

4.2.1 Part number

08243077

4.2.2 Description

Option-capable MOVIDRIVE® MDX61B devices can be equipped with resolver card type DER11B. The resolver card offers one input for the resolver as motor encoder and one input for external encoder, also referred to as a distance encoder. The input for the external encoder can also be used as an output for incremental encoder simulation.

4.2.3 Electronics data

DER11B option		
	Output for incremental encoder simulation or External encoder input X14:	Output for incremental encoder simulation: • Signal level to RS422 • The number of pulses is 1024 pulses/revolution External encoder input (max. 200 kHz): Permitted encoder types: • HIPERFACE® encoder • Sin/cos encoder $V_{SS} = AC\ 1\ V$ • TTL encoder with negated tracks • Encoder with signal level to RS422 Encoder voltage supply: • DC +12 V (tolerance range DC 10.5 – 13 V) • $I_{max} = DC\ 650\ mA$
	Motor encoder input X15:	Resolvers 2-pole, $V_{ref} = AC\ 7\ V$, 7 kHz $V_{in}/V_{ref} = 0.5 \pm 10\%$
	Maximum cable length	100 m

4.3 DEU21B multi-encoder card

4.3.1 Part number

18221696

4.3.2 Description

Option-capable MOVIDRIVE® MDX61B units can be equipped with a DEU21B multi-encoder card. The encoder card provides one input for the motor encoder and one input for an external encoder, also referred to as a distance encoder.

Both encoder inputs can evaluate incremental and absolute encoders. The input for the external encoder can also be used as an output for incremental encoder simulation.

4.3.3 Electronics data

Option DEU21B ¹⁾		
	External encoder connection X14: Output for incremental encoder simulation: • Signal level to RS422 • The number of pulses is the same as on X15 motor encoder input	Permitted encoder types: • HIPERFACE® encoder • Sin/cos encoder $V_{SS} = AC\ 1\ V$ • CANopen encoder • TTL encoder with negated tracks • HTL encoder • SSI encoder • SSI Combi encoder • EnDat encoder • Encoder with signal level to RS422 • Permitted pulses per resolution: 2-4096 Increments Encoder voltage supply: • DC 24 V encoder supply • DC 12 V encoder supply²⁾
	Motor encoder connection X15:	Permitted encoder types: • HIPERFACE® encoder • Sin/cos encoder $V_{SS} = AC\ 1\ V$ • TTL encoder with negated tracks • HTL encoder • SSI encoder (not for speed control) • SSI Combi encoder • EnDat encoder • Encoder with signal level to RS422 • Permitted pulses per resolution: 2-4096 Increments Encoder voltage supply: • DC 24 V encoder supply³⁾ • DC 12 V encoder supply²⁾

1) The card has a fixed DGND-PE connection. Removing the EMC screw at the basic device has no effect.

2) The maximum load on X14:15 and X15:15 is DC 650 mA in total.

3) If the overall device load on the 24 V level exceeds 400 mA, you must connect an external DC 24 V supply to X10:9/X10:10. Observe the "Project planning" chapter in the "MOVIDRIVE® MDX60B/61B" system manual

4.4 DEH21B/DIP11B absolute encoder card

4.4.1 Part numbers

- DEH21B: 18208185
- DIP11B: 08249695

4.4.2 Description

The DEH21B and DIP11B options extend the MOVIDRIVE® B system to include an SSI interface for absolute encoders. This enables the following options for IPOS^{PLUS}® positioning:

- No reference travel required when the system is started or after a power failure
- Positioning can take place either with the absolute encoder or the incremental encoder/resolver installed on the motor
- No position switch needed on the travel path, even without motor encoder feedback
- Free processing of the absolute position is possible via the IPOS^{PLUS}® program
- In addition to the basic device, 8 digital inputs and 8 digital outputs are available with the DIP11B option
- The absolute encoder can be mounted either on the motor or along the track (e.g. high-bay warehouse)
- Simple encoder adjustment with user-guided startup
- Endless positioning in combination with activated modulo function

4.4.3 Electronics data for DEH21B

DEH21B option			
	Motor encoder connection	X15:	Permitted encoder types: • HIPERFACE® encoder • Sin/cos encoder $V_{SS} = AC\ 1\ V$ • TTL encoder with negated tracks • Encoder with signal level to RS422 • Permitted pulses per resolution: 128/256/512/1024/2048 increments Encoder voltage supply: • DC +12 V (tolerance range 10.5 – 13 V) • $I_{max} = DC\ 650\ mA$
	Encoder connection	X62:	SSI encoder input
	Connection		24VIN: DC 24 V supply voltage for encoder connected to X62
	Voltage supply	X60:1	
	Reference terminal	X60:2	Reference potential 24VIN

4.4.4 Electronics data for DIP11B

DIP11B option		
	Digital input connection	X60:1 – 8
	Internal resistance	$R_i \approx 3 \text{ k}\Omega$, $I_E \approx \text{DC } 10 \text{ mA}$
	Signal level (EN 61131)	DC +13 V – +30 V = "1" / DC -3 V – +5 V = "0"
	Function	X60:1 – 8
		DI10 – DI17; Selection option → Parameter menu P61_
	Digital input connection	X61:1 – 8
		DO1 – DO17, PLC-compatible (EN 61131), short-circuit proof and protected against external voltage to DC 30 V
		Response time 1 ms
	Signal level (EN 61131)	DC +24 V = "1", DC 0 V = "0" Important: Do not apply external voltage!
	Function	X61:1 – 8
		DO10 – DO17: Selection option → Parameter menu P63_
	Encoder connection	X62:
		SSI encoder input
	Reference terminals	X60:9
		X60:10
		DCOM: Reference potential for digital inputs (DI10 – DI17)
		DGND: Reference potential for binary signals and 24VIN
		• Without jumper X60:9 – X60:10 (DCOM-DGND) isolated digital inputs
		• With jumper X60:9 – X60:10 (DCOM-DGND) non-isolated digital inputs
	Permitted cable cross section	One core per terminal: 0.08 – 1.5 mm ² (AWG28 – 16)
		Two cores per terminal: 0.25 – 1 mm ² (AWG22 – 17)
		Tightening torque 0.6 Nm
	Voltage input	X61:9
		24VIN: Supply voltage DC +24 V for digital outputs DO10 – DO17 and encoder (mandatory)

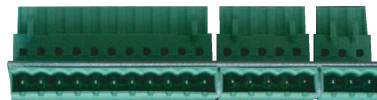
4.5 Connector adapter for device replacement MD_60A - MDX60B/61B

The following adapters are available for quick replacement of a MOVIDRIVE® A with a MOVIDRIVE® B during system operation.

- DAT11B: Terminal adapter, part number 08246718

If the TF/TH option is connected to X10 when using MOVIDRIVE® MD_A, then X10 can be directly replugged. The jumper between X10:1 and X10:2 must be removed if a TF/TH option is connected to encoder input X15. Three connectors have to be rewired. You can avoid such rewiring work by using the DAT11B terminal adapter. Using this adapter will prevent incorrect connection and save time. The terminal adapter is required for terminals X11 (analog input), X12 (SBus) and X13 (digital inputs).

DAT11B



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- DAE15B: Encoder adapter X15, part number 08176299

If a motor with encoder on X15 is in operation on an MDV or MCV, the encoder is connected via a 9-pin connector to MOVIDRIVE® A. Since the DEH11B option for MOVIDRIVE® MDX61B comes equipped with a 15-pin socket, you will either have to convert the encoder cable or use the encoder adapter. The encoder adapter DAE15B for connecting sin/cos and TTL encoders can be inserted directly between the existing encoder cable with a 9-pin connector and the 15-pin socket on DEH11B. This step makes for fail-safe and fast connection of existing drives. HTL encoders have to be connected to MOVIDRIVE® B with the option DWE11B/12B (→ chapter "DWE11B/12B interface adapter option").

DAE15B



1454699659

- Length of DAE15B: 200 mm ± 20 mm
- Cable cross section: 6 x 2 x 0.25 mm² (AWG 23)
- DAE14B: Encoder adapter X14, part number 08176302

If a distance encoder at X14 is operated on a MOVIDRIVE® MDV, MDS, MCV, or MCS, connection is made using a 9-pin socket. Since the DEH11B and DER11B options for MOVIDRIVE® MDX61B come equipped with a 15-pin connector, you will either have to rework the encoder cable or use the DAE14B encoder adapter. The DAE14B encoder adapter can be plugged directly between the existing encoder cable with 9-pin socket and the 15-pin connector on the DEH11B//DER11B option. This step makes for fail-safe and fast connection of existing drives.

DAE14B



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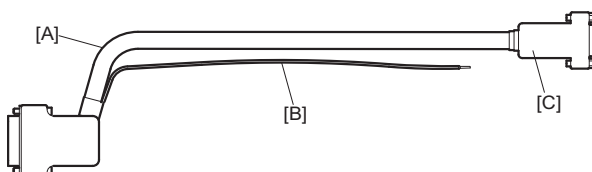
- Length of DAE14B: 200 mm ± 20 mm
Cable cross section: 6 x 2 x 0.25 mm² (AWG 23)

4.6 DWE11B/12B interface adapter

4.6.1 Part number and description

DWE11B, part number 01881876

- The interface adapter DWE11B (HTL→TTL) in the form of an adapter cable is used to **connect single-ended HTL encoders to the DEH11B/DEH21B option**. Only the A, B and C tracks are connected. The interface adapter is suitable for all HTL encoders that were operated on MOVIDRIVE® A, MDV and MCV and can be connected without any rewiring effort.



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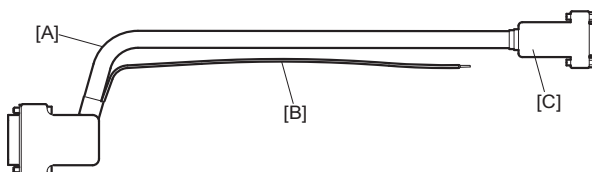
[A] 5 x 2 x 0.25 mm² (AWG 23) / length 1000 mm / max. cable length inverter – encoder: 100 m

[B] DC 24 V connection for HTL encoder; 1 x 0.5 mm² (AWG 20) / length 250 mm

Signal	Terminal of 9-pin D-sub socket [C] (encoder end)
A	1
B	2
C	3
UB	9
GND	5

DWE12B, part number 01881809

- The interface adapter DWE12B (HTL → TTL) in the form of an adapter cable is used to **connect push-pull HTL encoders to the DEH11B/DEH21B options**. In addition to the A, B, and C track, you will also have to connect the negated tracks ($\bar{A}$, $\bar{B}$, $\bar{C}$). SEW-EURODRIVE recommends using this interface adapter for any new system.



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[A] 4 x 2 x 0.25 mm² (AWG 23) / length 1000 mm / max. cable length inverter – encoder: 200 m

[B] DC 24 V connection for HTL encoder; 1 x 0.5 mm² (AWG 20) / length 250 mm

Signal	Terminal of 9-pin D-sub socket [C] (encoder end)
A	1
$\bar{A}$	6
B	2
$\bar{B}$	7
C	3
$\bar{C}$	8
UB	9
GND	5

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4.7 UWS11A interface adapter

4.7.1 Part number

0822689X

4.7.2 Description

The UWS11A option converts RS232 signals, for example from the PC, into RS485 signals. These RS485 signals can then be routed to the RS485 interface of the inverter.

The UWS11A option requires a DC 24 V voltage supply.

4.7.3 RS232 interface

The connection between UWS11A and PC is made using a commercially available serial interface cable (shielded!).

4.7.4 RS485 interface

Max. 32 inverters can be networked for communication (max. line length 200 m) via the RS485 interface of the UWS11A. Do not connect external terminating resistors as dynamic terminating resistors are already installed.

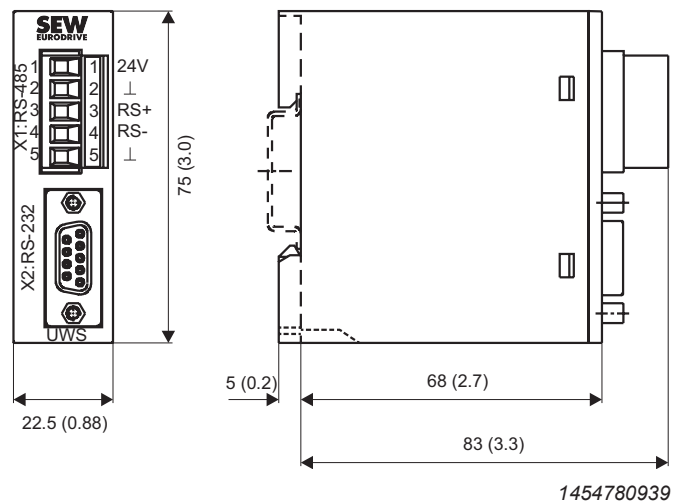
Permitted cable cross-section: 1 core per terminal 0.20 – 2.5 mm² (AWG 24 - 12)

2 cores per terminal 0.20 – 1 mm² (AWG 24 – 17)

4.7.5 Technical data

UWS11A		
Part number		0822689X
Ambient temperature		0 °C to 40 °C
Storage temperature		-25 °C – +70 °C (according to EN 60721-3-3, class 3K3)
Degree of protection		IP20
Voltage supply		DC 24 V (I _{max} = 50 mA)
Current consumption		max. DC 50 mA
Mass		150 g
Dimensions		83 mm × 75 mm × 22.5 mm
Terminal assignment		
X1: RS485	1 / 24 V	DC +24 V voltage input
	2 / ⊥	Reference potential
	3 / RS+	RS485+
	4 / RS-	RS485-
	5 / ⊥	Reference potential
X2: RS232	1	No function
	2	TxD
	3	RxD
	4	No function
	5	Reference potential
	6 – 9	No function

Dimension drawing of UWS11A



All dimensions in mm (in)

The UWS11A option is mounted on a mounting rail (EN 50022-35 × 7.5) in the control cabinet.

4.8 UWS21B interface adapter

4.8.1 Part number

18204562

4.8.2 Description

The UWS21B option converts RS232 signals, for example from the PC, into RS485 signals. These RS485 signals can then be routed to the XT slot of the inverter.

4.8.3 RS232 interface

The connection between UWS21B and PC is made using a commercially available serial interface cable (shielded!).

4.8.4 RS485 interface

UWS21B and inverter are connected using a serial interface cable with RJ10 connectors.

4.8.5 Scope of delivery

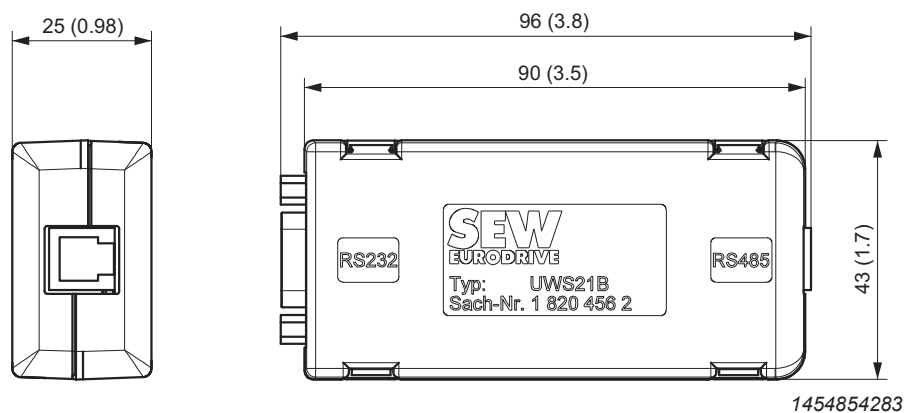
The scope of delivery for the UWS21B option includes:

- UWS21B
- Serial interface cable with 9-pin D-sub socket and 9-pin D-sub connector for the UWS21B – PC connection.
- Serial interface cable with two RJ10 plugs to connect UWS21B and inverter.
- CD-ROM with MOVITOOLS® MotionStudio engineering software

4.8.6 Technical data

UWS21B	
Part number	18204562
Ambient temperature	0 °C to 40 °C
Storage temperature	–25 °C to +70 °C (according to EN 60721-3-3, class 3K3)
Degree of protection	IP20
Mass	300 g
Dimensions	96 mm × 43 mm × 25 mm

Dimension drawing for UWS21B



All dimensions in mm (in)

4.9 USB11A interface adapter

4.9.1 Part number

08248311

4.9.2 Description

Option USB11A enables a PC or laptop with a USB interface to be connected to the XT slot of the inverter. The USB11A interface adapter supports USB 1.1 and USB 2.0.

4.9.3 USB11A – PC

USB11A is connected to the PC using a commercially available, shielded USB connection cable type USB A-B.

4.9.4 MOVIDRIVE® – USB11A

The inverter and USB11A are connected using a serial interface cable with RJ10 connectors.

4.9.5 Scope of delivery

The scope of delivery for the USB11A option includes:

- USB11A interface adapter
- USB connection cable to connect USB11A – PC
- Serial interface cable with two RJ10 plugs to connect inverter and USB11A
- CD-ROM with drivers and MOVITOOLS® MotionStudio engineering software

4.9.6 Technical data

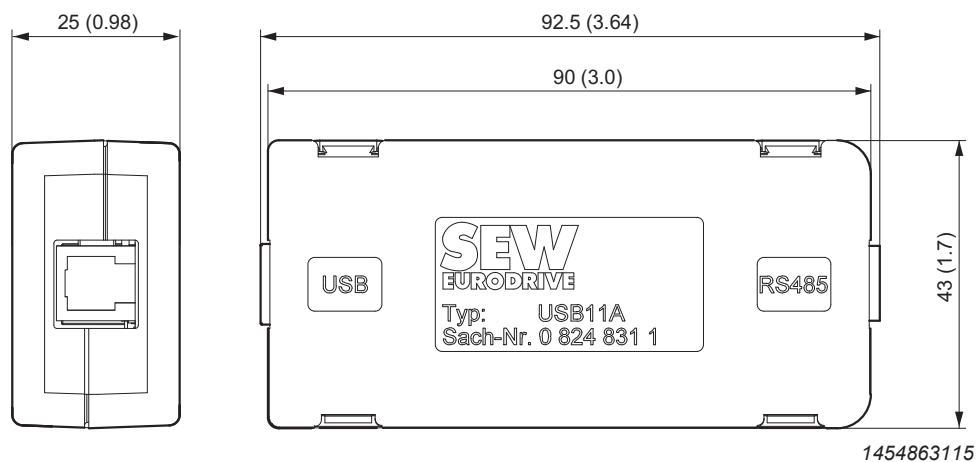
USB11A	
Part number	08248311
Ambient temperature	0 – 40 °C
Storage temperature	–25 °C to +70 °C (according to EN 60721-3-3, class 3K3)
Degree of protection	IP20
Mass	300 g
Dimensions	92.5 mm × 43 mm × 25 mm

4 Technical data of options

USB11A interface adapter

Dimension drawing

All dimensions in mm (in)



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4.10 DWI11A DC 5 V encoder supply

4.10.1 Part number

08227594

4.10.2 Description

If you are using an incremental encoder with a DC 5 V encoder supply, install the DC 5 V encoder supply option type DWI11A between the inverter and the incremental encoder. This option provides a regulated DC 5 V power supply for the encoder. For this purpose, the DC 12 V power supply for the encoder inputs is converted to DC 5 V by means of a voltage controller. A sensor line is used to measure the supply voltage at the encoder and compensate the voltage drop along the encoder cable.

Incremental encoders with DC 5 V encoder supply must not be connected directly to the encoder inputs X14: and X15:. This would cause irreparable damage to the encoder.

INFORMATION

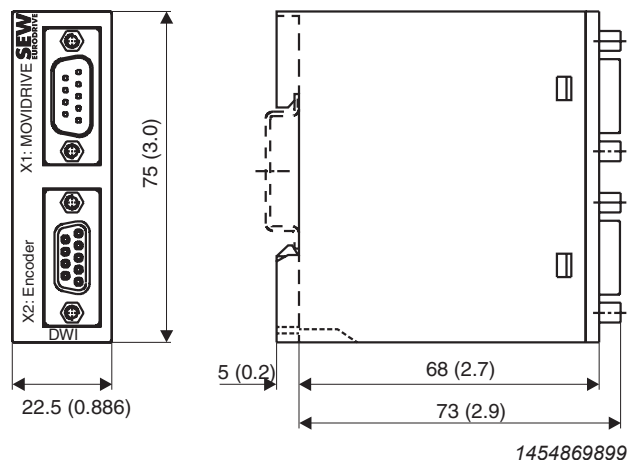


If a short circuit occurs in the sensor cable, the connected encoder may be exposed to a voltage higher than permitted.

4.10.3 Recommendation

Use prefabricated cables from SEW-EURODRIVE for the encoder connection.

4.10.4 Dimension drawing



All dimensions in mm (in)

The DWI11A option is mounted on a support rail (EN 50022-35 × 7.5) in the control cabinet.

4.10.5 Technical data

DC 5 V encoder supply option type DWI11A	
Part number	08227594
Voltage input	DC 10 – 30 V, $I_{\max}$ = DC 120 mA
Encoder voltage supply	DC +5 V (to $V_{\max} \approx +10$ V), $I_{\max}$ = DC 300 mA
Max. line length that can be connected	100 m total Use a shielded twisted-pair cable (A and A , B and B , C and C) for connecting the encoder to the DWI11A and the DWI11A to MOVIDRIVE®.
Encoder types that can be connected	• sin/cos encoder VSS = AC 1 V • TTL encoder with negated tracks • Encoder with signal level to RS422

4.11 DIO11B input/output board

4.11.1 Part number

08243085 or 28300130

4.11.2 Description

The number of inputs/outputs of the basic MOVIDRIVE® B device can be expanded with the DIO11B option. The DIO11B option is plugged into the fieldbus slot. If the fieldbus slot is not available, you can plug the DIO11B option into the expansion slot. The programmable signal types of the additional digital inputs/outputs are the same as the basic device (→ parameter group P6___, terminal assignment).

4.11.3 Electronics data

Option DIO11B			
	Setpoint input n2	X20:1/X20:2	AI21/AI22: Voltage input Differential input or input with AGND reference potential n2 = DC 0 V – +10 V or DC -10 V – +10 V Resolution 12 bit, sampling cycle 1 ms Internal resistance $R_i = 40 \text{ k}\Omega$ Accuracy $\pm 100 \text{ mV} (\pm 0.5\% \text{ of } 20 \text{ V})$
	Analog outputs	X21:1/X21:4 X21:2/X21:5	AOV1/AOV2: Voltage outputs DC -10 V to 0 to +10 V, $I_{\max} = \text{DC } 10 \text{ mA}$, short-circuit proof and protected against external voltage to DC 30 V, selection option → parameter menu P64_ AOC1/AOC2: Current outputs DC 0(4) – 20 mA, max. output voltage DC 15 V, short-circuit proof and protected against external voltages up to DC 30 V, selection option → parameter menu P64_
	Response time		5 ms
	Resolution		10 Bit
	Accuracy of the analog input		0.5% of 20 V $\pm 100 \text{ mV}$
	Accuracy of the analog output		0.2% of 20 V $\pm 40 \text{ mV}$
	Digital inputs	X22:1 – X22:8	Isolated (optocoupler), PLC-compatible (EN 61131) DIØ – DI17 $R_i \approx 3 \text{ k}\Omega$, $I_E \approx \text{DC } 10 \text{ mA}$ Sampling cycle 1 ms
	Internal resistance		
	Signal level		DC +13 V – +30 V = "1" = contact closed DC -3 V – +5 V = "0" = contact open
	Function	X22:1 – X22:8	DI10 – DI17: Selection option → Parameter menu P61_
	Digital outputs	X23:1 – X23:8	DO1Ø – DO17: PLC-compatible (EN 61131-2), response time 1 ms
	Signal level		"0" = DC 0 V "1" = DC +24 V
	Function	X23:1 – X23:8	DO10 – DO17: Selection option → Parameter menu P63_ $I_{\max} = \text{DC } 50 \text{ mA}$, short-circuit proof, and protected against external voltage to DC 30 V
	Reference terminal	X20:3/X21:3/X21:6 X22:9 X22:10	ANGND: Reference potential for analog signals (AI21/AI22/AO_1/AO_2) DCOM: Reference potential for digital inputs X22:1 – X22:8 (DI1Ø – DI17) DGND: Reference potential for binary signals, reference potential for DC 24 V power supply
	Voltage input	X23:9	24VIN: DC +24 V supply voltage for digital outputs DO1Ø – DO17
	Permitted cable cross section		One core per terminal: 0.08 – 1.5 mm ² (AWG 28 – 16) Two cores per terminal: 0.25 – 1 mm ² (AWG 22 – 17) Tightening torque: 0.6 Nm

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4.11.4 Functions

- 8 digital inputs
- 8 digital outputs
- 1 analog differential input (DC 0 – 10 V, DC -10 V – +10 V, DC 0 – 20 mA with corresponding load)
- 2 analog outputs (DC -10 V – +10 V, DC 0 – 20 mA, DC 4 – 20 mA)

4.12 PROFIBUS DFP21B fieldbus interface

4.12.1 Part number

08242402

4.12.2 Description

MOVIDRIVE® B can be equipped with a 12 Mbaud fieldbus interface for the PROFIBUS-DP serial bus system. The device master data (GSD) and type files for MOVIDRIVE® B are available from the SEW website (<http://www.sew-eurodrive.de>) to help with project planning and facilitate startup.

PROFIBUS-DP (Decentralized Periphery) is primarily used at the sensor/actuator level where fast response times are required. The principal task of PROFIBUS-DP is to exchange data, e.g. setpoints or binary commands, in rapid cycles between central automation equipment (PROFIBUS master) and decentralized peripheral devices (e.g. drive inverters). The DFP21B option supports PROFIBUS-DP and DP-V1. Consequently, MOVIDRIVE® B can be controlled via PLC and PROFIBUS-DP/DP-V1.

4.12.3 Electronics data

DFP21B option		
	Protocol variant	PROFIBUS-DP and DPV1 to IEC 61158
	Baud rate	Automatic detection of baud rate from 9.6 kbaud to 12 Mbaud
	Connection technology	9-pin D-sub socket, pin assignment to IEC 61158
	Bus termination	Not integrated, implement using suitable PROFIBUS connector with terminating resistors that can be activated
	Station address	1 – 125, can be set via DIP switches
	GSD file name	DP: SEW_6003.GSD DP-V1: SEWA6003.GSD
	DP ID number	6003 _{hex} (24579 _{dec})
	Max. number of process data	10 process data entries

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4.13 INTERBUS fieldbus interface DFI11B

4.13.1 Part number

08243093

4.13.2 Description

MOVIDRIVE® B can be equipped with a fieldbus interface for the non-proprietary and standardized INTERBUS sensor/actuator bus system.

INTERBUS is defined in EN 50254/DIN 19258 and, as far as its function is concerned, it consists of a process data channel and a parameter data channel. Intelligent actuators such as the MOVIDRIVE® B drive inverters can be controlled and configured in a user-friendly way.

4.13.3 Electronics data

DFI11B option		
	Supported baud rates	500 kBaud and 2 MBaud, can be selected via DIP switch
	Connection technology	Fieldbus input: 9-pin D-sub connector Fieldbus output: 9-pin D-sub socket RS485 transmission technology, 6-core shielded and twisted-pair cable
	DP identity numbers	$E3_{\text{hex}} = 227_{\text{dec}}$ (1 PCP word) $E0_{\text{hex}} = 224_{\text{dec}}$ (2 PCP words) $E1_{\text{hex}} = 225_{\text{dec}}$ (4 PCP words) $38_{\text{hex}} = 56_{\text{dec}}$ (microprocessor not ready) $03_{\text{hex}} = 3_{\text{dec}}$ (no PCP word)
	Max. number of process data	6 process data entries

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4.14 INTERBUS FOC fieldbus interface DFI21B

4.14.1 Part number

08243115

4.14.2 Description

MOVIDRIVE® B can be equipped with a fieldbus interface for the non-proprietary and standardized sensor/actuator bus system INTERBUS/INTERBUS with optical fibers (INTERBUS FOC).

INTERBUS is defined in EN 50254/DIN 19258 and, as far as its function is concerned, it consists of a process data channel and a parameter data channel. Intelligent actuators such as the MOVIDRIVE® B drive inverters can be controlled and configured in a user-friendly way.

4.14.3 Electronics data

DFI21B option		
	Supported baud rates	500 kBaud and 2 MBaud, can be selected via DIP switch
	Connection technology	F-SMA connector
	DP identity numbers	$E3_{hex} = 227_{dec}$ (1 PCP word) $E0_{hex} = 224_{dec}$ (2 PCP words) $E1_{hex} = 225_{dec}$ (4 PCP words) $38_{hex} = 56_{dec}$ (microprocessor not ready) $03_{hex} = 3_{dec}$ (no PCP word)
	Max. number of process data	6 process data entries

4.15 Fieldbus interface PROFINET IO RT DFE32B

4.15.1 Part number

18213456

4.15.2 Description

The MOVIDRIVE® MDX61B drive inverter enables you to use the DFE32B option to connect to higher-level automation, project planning and visualization systems via Ethernet (PROFINET IO protocol) thanks to its powerful, universal fieldbus interface. You can use option DFS32B to communicate directly with the inverters via Ethernet and operate the MOVITOOLS® MotionStudio engineering software to change parameters and IPOS^{PLUS}® programs. An integrated Web server makes it possible for the user to access diagnostic values quickly and easily using a standard browser (e.g. Internet Explorer).

4.15.3 Electronics data

DFE32B option		
	Application protocols	• PROFINET IO (Ethernet frames with frame identification 8892_{hex}) to control and set parameters for the drive inverter. • HTTP (Hypertext Transfer Protocol) for diagnostics using a web browser. • SMLP (Simple MOVILINK® Protocol), protocol used by MOVITOOLS® MotionStudio.
	Port numbers used	• 300 (SMLP) • 80 (HTTP)
	Ethernet services	• ARP • ICMP (ping)
	ISO / OSI layer 2	Ethernet II
	Baud rate	100 Mbaud in full duplex process
	Connection technology	Two RJ45 plug connectors with integrated switch and auto-crossing
	Addressing	4 byte IP address or MAC-ID (00:0F:69:xx:xx:xx)
	Manufacturer ID (Vendor ID)	010A _{hex}
	Tools for startup	• MOVITOOLS® MotionStudio engineering software • DBG60B keypad
	Maximum number of process data:	10

4.15.4 Functions

- PROFINET IO protocol
- Two RJ45 plug connectors for star or line type cabling
- Up to 10 process data and PROFINET diagnostic parameter data items can be transferred at the same time
- The PROFINET IO controller assigns the IP address
- Engineering access using MOVITOOLS® MotionStudio via Ethernet TCP/IP
- Inverter diagnostics using a standard browser (e.g. Internet Explorer) via the integrated Web server:
 - Transfer display values
 - DFE32B configuration (after login)

4.16 DFE33B fieldbus interface for EtherNet/IP™ and Modbus TCP

4.16.1 Part number

18213464

4.16.2 Description

The MOVIDRIVE® MDX61B drive inverter enables you to use the DFE33B option to connect to higher-level automation, project planning and visualization systems via Ethernet (EtherNet/IP™ and Modbus TCP protocol) thanks to its powerful, universal fieldbus interface. You can use option DFS33B to communicate directly with the inverters via Ethernet and operate the MOVITOOLS® MotionStudio engineering software to change parameters and IPOS^{PLUS}® programs. An integrated Web server makes it possible for the user to access diagnostic values quickly and easily using a standard browser (e.g. Internet Explorer).

4.16.3 Electronics data

DFE33B option		
	Application protocols	• EtherNet/IP™ (Ethernet Industrial Protocol) or Modbus TCP to control and parameterize the drive inverter. • HTTP (Hypertext Transfer Protocol) for diagnostics using a Web browser. • SMLP (Simple MOVILINK® Protocol), protocol used by MOVITOOLS® MotionStudio. • DHCP (Dynamic Host Configuration Protocol) to assign address parameter automatically.
	Port numbers used	• 44818 EtherNet/IP™ (TCP) • 2222 EtherNet/IP™ (UDP) • 502 Modbus TCP • 300 SMLP (TCP, UDP) • 80 HTTP • 67 / 68 DHCP
	Ethernet services	• ARP • ICMP (ping)
	ISO / OSI layer 1/2 ISO / OSI layer 4/5	Ethernet II TCP/IP and UDP/IP
	Automatic baud rate detection	10 MBaud / 100 MBaud
	Connection technology	2 x RJ45 with integrated switch and autocrossing
	Addressing	4 byte IP address or MAC-ID (00-0F-69-xx-xx-xx)
	Manufacturer ID (Vendor ID)	• 013B_{hex} (EtherNet/IP™) • "SEW-EURODRIVE" (Modbus TCP)
	Tools for startup	• MOVITOOLS® MotionStudio engineering software • DBG60B keypad
	Maximum number of process data:	10

4.16.4 Functions

- EtherNet/IP™ protocol
- Two RJ45 plug connectors for star or line type cabling
- Up to 10 process data and parameter data items can be transferred at the same time
- Two ways to allocate the IP address:
 1. Setting via DBG60B keypad and MOVITOOLS® MotionStudio
 2. Use the DHCP server to assign the IP address
- Engineering access using MOVITOOLS® MotionStudio via Ethernet TCP/IP
- Inverter diagnostics using a standard browser (e.g. Internet Explorer) via the integrated Web server:
 - Transfer display values
 - DFE33B configuration (after login)

4.17 EtherCAT® DFE24B fieldbus interface

4.17.1 Part number

18211267

4.17.2 Description

The MOVIDRIVE® MDX61B drive inverter enables you to use the DFE24B option to connect to higher-level automation, project planning and visualization systems via EtherCAT® thanks to its powerful, universal fieldbus interface. You can use the DFE24B option to communicate with the inverters via the EtherCAT® master and operate the MOVITOOLS® MotionStudio engineering software via EtherCAT® to change parameters and IPOS^{PLUS}® programs.

4.17.3 Electronics data

DFE24B option		
	Standards	IEC 61158, IEC 61784-2
	Baud rate	100 MBaud full duplex
	Connection technology	Two RJ45 plug connectors
	Bus termination	Not integrated because bus termination is automatically activated.
	OSI layer	Ethernet II
	station address	Setting via EtherCAT® master (→ Display with P093)
	XML file name	SEW_DFE24B.xml
	Vendor ID	0x59 (CANopenVendor ID)
	EtherCAT® services	• CoE (CANopen over EtherCAT®) • VoE (Simple MOVILINK® protocol over EtherCAT®)
	Maximum number of process data:	10
	Tools for startup	• MOVITOOLS® MotionStudio engineering software • DBG60B keypad

4.17.4 Functions

- EtherCAT®
- Two RJ45 plug connectors for line type cabling
- Simultaneous communication of up to 10 process data and parameter data as well as access (Rx, Tx) to 8 IPOS^{PLUS}® variables
- Automatic addressing via EtherCAT® master
- Engineering access using MOVITOOLS® MotionStudio via EtherCAT®

4.18 DeviceNet™ DFD11B fieldbus interface

4.18.1 Part number

08249725

4.18.2 Description

The MOVIDRIVE® MDX61B drive inverter enables you to use the DFD11B option to connect to higher-level automation, project planning and visualization systems via the non-proprietary and standardized DeviceNet™ fieldbus system.

The type DFD11B DeviceNet™ fieldbus interface can be plugged into the fieldbus slot. The DFD11B option enables communication with the higher-level controller for a maximum of 10 process data. You need an EDS file to be able to integrate the DFD11B in the higher-level control. You can download this file from the SEW-EURODRIVE website.

4.18.3 Electronics data

Option DFD11B		
	Communication protocol	Master/slave connection set acc. to DeviceNet™ specification version 2.0
	Number of process data words	Adjustable via DIP switches: • 1 – 10 process data words • 1 – 4 process data words with bit-strobe I/O
	Baud rate	125, 250 or 500 kBaud, to be set via DIP switches
	Bus cable length	For thick cable according to DeviceNet™ specification 2.0 appendix B: • 500 m at 125 kbaud • 250 m at 250 kbaud • 100 m at 500 kBaud
	Transmission level	ISO 11 98 - 24 V
	Connection technology	• 2-wire bus and 2-wire supply voltage DC 24 V with 5-pin Phoenix terminal • Pin assignment according to DeviceNet™ specification
	MAC ID	0 – 63, can be set via DIP switch Max. 64 stations
	Supported services	• Polled I/O: 1 – 10 words • Bit strobe I/O: 1 – 4 words • Explicit messages: – Get_Attribute_Single – Set_Attribute_Single – Reset – Allocate_MS_Connection_Set – Release_MS_Connection_Set
	Tools for startup	• MOVITOOLS® MotionStudio engineering software • DBG60B keypad

4.19 CAN/CANopen DFC11B fieldbus interface

4.19.1 Part number

08243174

4.19.2 Description

The MOVIDRIVE® MDX61B drive inverter in conjunction with the DFC11B option allows connection to higher-level automation, project planning and visualization systems via the open and standardized CANopen fieldbus system thanks to the option's high-performance universal fieldbus interface. You can also access parameters and process data using the MOVILINK® protocol designed especially for devices from SEW-EURODRIVE.

The DFC11B fieldbus interface can be plugged into the fieldbus slot. In this way, a second system bus (CAN) on MOVIDRIVE® is made available. The DFC11B option enables communication with the higher-level controller for a maximum of 10 process data. You need an EDS file to be able to integrate the DFC11B in the higher-level CANopen control. You can download this file from the SEW-EURODRIVE website.

4.19.3 Electronics data

DFC11B option		
	Communication profile	• SEW-MOVILINK® • CANopen • CAN Layer 2
	Number of process data words	1 – 10 process data words
	Baud rate	Setting using parameter P894: 125 kBaud/250 kBaud/500 kBaud/1 MBaud
	Connection technology	9-pole D-sub connector X30 (pin assigned to CIA standard) or terminal X31
	Permitted cable cross section X31 (CAN bus connection)	One core per terminal: 0.20 – 2.5 mm ² (AWG24 – 12) Two cores per terminal: 0.25 – 1 mm ² (AWG22 – 17)
	Terminating resistor	120 Ω (set using DIP switch S1-R)
	Addressing	Setting via parameter P891 (SBus MOVILINK®) or P896 (CANopen)
	Tools for startup	• MOVITOOLS® MotionStudio engineering software • DBG60B keypad

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4.19.4 Functions

- CAN Layer 2 and communication profile MOVILINK® or CANopen
- Electrical isolation via optocoupler

INFORMATION



If electrical isolation is not required, the CAN-Bus can be connected directly to the basic device at X12:SC11/SC12 without the DFC11B option. This does not effect the functionality.

4.20 Synchronous operation card DRS11B

4.20.1 Part number

08246726

4.20.2 Description

The DSR11B option allows for a group of motors to be operated in phase-synchronous operation in relation to one another, or with an adjustable proportional relationship. For detailed information, refer to the "DRS11B Synchronous Operation Card" manual, which can be ordered from SEW-EURODRIVE. The basis for synchronous operation is the continuous comparison of the rotor angle positions of the master and the slave motors. Therefore, the motors must be equipped with encoders. The DRS11B option is plugged into the expansion slot.

4.20.3 Electronics data

Option DRS11B		
	Digital inputs	X40:1 – X40:6
	Internal resistance	EINGØ – EING5: isolated (optocoupler) PLC-compatible (EN 61131) $R_i \approx 3 \text{ k}\Omega$, $I_E \approx \text{DC } 10 \text{ mA}$ Sampling cycle 5 ms
	Signal level	DC +13 V – +30 V = "1" = contact closed DC -3 V – +5 V = "0" = contact open
	Function	Fixed assignment with: • EINGØ = Free-running • EING1 = offset 1 • EING2 = offset 2 • EING3 = offset 3 • EING4 = IPOS ^{PLUS} variable H477.0 • EING5 = IPOS ^{PLUS} variable H477.1
	Digital outputs	X40:9/X40/10
	Signal level	OUTPØ/OUTP1: PLC-compatible (EN 61131-2) Response time 5 ms "0" = DC 0 V "1" = DC +24 V Important: Do not apply external voltage!
	Function	Fixed assignment with: • AUSGØ = IPOS ^{PLUS} variable H476.0 • AUSG1 = IPOS ^{PLUS} variable H476.1 $I_{\text{max}} = \text{DC } 50 \text{ mA}$, short-circuit proof, protected against external voltage to DC 30 V
	Reference terminals	X40:11 X40:7
	Voltage output	X40:8
	Distance encoder input	X41: Max. 200 kHz, signal level according to RS422 or sin/cos
	Encoder voltage supply	DC +24 V, $I_{\text{max}} = 650 \text{ mA}^{1)}$ 9-pin D-sub socket
	Master encoder input	X42: Max. 200 kHz, signal level according to RS422 or sin/cos
	Encoder voltage supply	DC +24 V, $I_{\text{max}} = \text{DC } 650 \text{ mA}$ 9-pin D-sub socket
	Encoder simulation output	X43: Signal level to RS422 9-pin D-sub connector
	Voltage input	X44:1 GND X44:2 DC +24 V supply voltage for digital outputs X40:9/X40:10 and encoder X44:3 GND
	Permitted cable cross section	One core per terminal: 0.08 – 1.5 mm ² (AWG28 – 16) Two cores per terminal: 0.25 – 1 mm ² (AWG22 – 16) Tightening torque: 0.6 Nm

1) Total current load (X41 and X42) of the DC 24 V encoder supply $\leq \text{DC } 650 \text{ mA}$

4.21 Fieldbus interface PROFIBUS DP-V1 with PROFIsafe DFS11B

4.21.1 Part number

18238408

4.21.2 Description

MOVIDRIVE® B can be equipped with the 12 Mbaud fieldbus interface DFS11B for the serial bus system PROFIBUS DP-V1 with PROFIsafe. In addition to cyclical and acyclical data exchange, safety-related communication takes place that allows to switch a safe F-DO output. The device master data (GSD) and type files for MOVIDRIVE® B are available from the SEW website (<http://www.sew-eurodrive.de>) to help with project planning and facilitate startup.

For more detailed information, refer to the "DFS11B Fieldbus Interface PROFIBUS DP-V1 with PROFIsafe" manual. You can order this manual from SEW-EURODRIVE.

4.21.3 Electronics data

DFS11B option		
	PROFIBUS protocol variants	PROFIBUS-DP and DP-V1 to IEC 61158
	Automatic baud rate detection	9.6 kBaud – 12 MBaud
	Connection technology	9-pin D-sub socket - Pin assignment acc. to IEC 61158
	Bus termination	Not integrated, implement using suitable PROFIBUS connector with terminating resistors that can be activated.
	Station address	1 – 125, can be set via DIP switches
	GSD file name	SEW_600C.GSD
	DP ID number	600C = 24588 _{hex}
	Diagnostics data	- Max. 8 bytes - Standard diagnostics: 6 bytes
	Tools for startup	- MOVITOOLS® MotionStudio engineering software - DBG60B keypad
	F address	1 – 1022 DIP switch for setting the failsafe address
	Ambient temperature	0 – 55 °C

4.21.4 Safety section

Safety characteristics	
Maximum possible safety class	- SIL 3 according to EN 61508 - Performance level e according to EN ISO 13849-1
System structure	2 channels with diagnostics (1002D)
Operating mode selection	"High demand" rate according to EN 61508
Probability of dangerous failure per hour (PFH value)	< 1.00E-09 (1 FIT)
Proof test interval (EN 61508)	20 years, after which the component must be replaced with a new one
Repair time	100 hours
Safe state	Value "0" for all safety-related F-DO process values (output disabled)
Safe output	
Sourcing/sinking (from load voltage supply)	DC 24 V output according to EN 61131-2, protected against short circuits and overloads
Rated current	1A
Leakage current (for "0" signal)	Typically -2 mA (with 2 V / 1 kΩ load resistance) (Information: Current flows from F-DO_M to F-DO_P)
Internal voltage drop (P and M output)	max. 3 V
Short-circuit protection	Electronic, response value: 2.8 A – 9 A
Overload protection	Trigger value: 1.4 A – 1.6 A
Load resistance range	24 kΩ – 1 kΩ
Voltage limitation when switching off inductive loads	Typically -70 V
Response time (command via PROFIsafe → the output switches)	≤ 25 ms
Maximum line length	30 m

4.22 Fieldbus interface PROFIBUS DP-V1 with PROFIsafe DFS12B

4.22.1 Part number

28204239

4.22.2 Description

MOVIDRIVE® B can be equipped with the 12 Mbaud fieldbus interface DFS12B for the serial bus system PROFIBUS DP-V1 with PROFIsafe. In addition to cyclical and acyclical data exchange, safety-related communication takes place in conjunction with the DCS21B/22B option. The device master data (GSD) and type files for MOVIDRIVE® B are available from the SEW website (<http://www.sew-eurodrive.de>) to help with project planning and facilitate startup.

For more detailed information, refer to the "DFS12B Fieldbus Interface PROFIBUS DP-V1 with PROFIsafe" manual. You can order this manual from SEW-EURODRIVE.

4.22.3 Electronics data

DFS12B option		
	PROFIBUS protocol variants	PROFIBUS-DP and DP-V1 to IEC 61158
	Automatic baud rate detection	9.6 kBaud – 12 MBaud
	Connection technology	9-pin D-sub socket - Pin assignment acc. to IEC 61158
	Bus termination	Not integrated, implement using suitable PROFIBUS connector with terminating resistors that can be activated.
	station address	1 – 125, can be set via DIP switches
	GSD file name	SEW_600C.GSD
	DP ID number	600C = 24588 _{hex}
	Diagnostics data	- Max. 8 bytes - Standard diagnostics: 6 bytes
	Tools for startup	- MOVITOOLS® MotionStudio engineering software - DBG60B keypad
	F address	The failsafe address is set using the DCS21B/22B option
	Ambient temperature	0 – 55 °C

4.23 PROFINET IO fieldbus interface with PROFIsafe DFS21B

4.23.1 Part number

18238637

4.23.2 Description

The MOVIDRIVE® MDX61B drive inverter enables you to use the DFE21B option to connect to higher-level automation, project planning and visualization systems via Ethernet (PROFINET IO protocol) thanks to its powerful, universal fieldbus interface. In addition to cyclical and acyclical data exchange, safety-related communication takes place that allows to switch a safe F-DO output. You can use option DFS21B to communicate directly with the inverters via Ethernet and operate the MOVITOOLS® MotionStudio engineering software to change parameters and IPOS^{PLUS}® programs. An integrated Web server makes it possible for the user to access diagnostic values quickly and easily using a standard browser (e.g. Internet Explorer).

For more detailed information, refer to the "DFS21B Fieldbus Interface PROFINET IO with PROFIsafe" manual. You can order this manual from SEW-EURODRIVE.

4.23.3 Electronics data

DFS21B option		
 The image shows the DFS21B option module. It features a vertical row of connectors on the left: a 20-pin header labeled 'F-ADDRESS', an X30 connector, and an X32 connector. Above these are two rows of switches: 'R' and 'FS' in the top row, and 'BF' and 'FDO' in the bottom row. Below the X32 connector is a 'DEF IP' switch with 'AS' and '0 1' positions. At the bottom, there is a 'PROFINET IO' label and a small circular indicator.	Application protocols	• PROFINET IO (Ethernet frames with frame identification 8892_{hex}) to control and set parameters for the drive inverter. • HTTP (Hypertext Transfer Protocol) for diagnostics using a Web browser. • SMLP (Simple MOVILINK® Protocol), protocol used by MOVITOOLS® MotionStudio.
	Port numbers used	• 300 (SMLP) • 80 (HTTP)
	Ethernet services	• ARP • ICMP (ping)
	ISO/OSI layer 2	Ethernet II
	Baud rate	100 Mbaud in full duplex process
	Connection technology	Two RJ45 plug connectors with integrated switch and auto-crossing
	Addressing	4 byte IP address or MAC-ID (00:0F:69:xx:xx:xx)
	Manufacturer ID (Vendor ID)	010A _{hex}
	Tools for startup	• MOVITOOLS® MotionStudio engineering software • DBG60B keypad
	F address	1 – 1022 DIP switch for setting the failsafe address
	Ambient temperature	0 – 55 °C

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4.23.4 Safety section

Safety characteristics	
Maximum possible safety class	- SIL 3 according to EN 61508 - Performance level e according to EN ISO 13849-1
System structure	2 channels with diagnostics (1oo2D)
Operating mode selection	"High demand" rate according to EN 61508
Probability of dangerous failure per hour (PFH value)	< 1.00E-09 (1 FIT)
Proof test interval (EN 61508)	20 years, after which the component must be replaced with a new one
Repair time	100 hours
Safe state	Value "0" for all safety-related F-DO process values (output disabled)
Safe output	
Sourcing/sinking (from load voltage supply)	DC 24 V output according to EN 61131-2, protected against short circuits and overloads
Rated current	1A
Leakage current (for "0" signal)	Typically -2 mA (with 2 V / 1 kΩ load resistance) (Information: Current flows from F-DO_M to F-DO_P)
Internal voltage drop (P and M output)	max. 3 V
Short-circuit protection	Electronic, response value: 2.8 A – 9 A
Overload protection	Trigger value: 1.4 A – 1.6 A
Load resistance range	24 kΩ – 1 kΩ
Voltage limitation when switching off inductive loads	Typically -70 V
Response time (command via PROFIsafe → the output switches)	≤ 25 ms
Maximum line length	30 m

4.24 PROFINET IO fieldbus interface with PROFIsafe DFS22B

4.24.1 Part number

28204247

4.24.2 Description

The MOVIDRIVE® MDX61B drive inverter enables you to use the DFS22B option to connect to higher-level automation, project planning and visualization systems via Ethernet (PROFINET IO RT protocol) thanks to its powerful, universal fieldbus interface. In addition to cyclical and acyclical data exchange, safety-oriented communication takes place in conjunction with the DCS21/22B option. You can use option DFS22B to communicate directly with the inverters via Ethernet and operate the MOVITOOLS® MotionStudio engineering software to change parameters and IPOS^{PLUS}® programs. An integrated Web server makes it possible for the user to access diagnostic values quickly and easily using a standard browser (e.g. Internet Explorer).

For more detailed information, refer to the "DFS22B Fieldbus Interface PROFINET IO with PROFIsafe" manual. You can order this manual from SEW-EURODRIVE.

4.24.3 Electronics data

DFS22B option		
	Application protocols	PROFINET IO (Ethernet frames with frame identification 8892_{hex}) to control and set parameters for the drive inverter. HTTP (Hypertext Transfer Protocol) for diagnostics using a web browser. SMLP (Simple MOVILINK® Protocol), protocol used by MOVITOOLS® MotionStudio.
	Port numbers used	300 (SMLP) 80 (HTTP)
	Ethernet services	- ARP - ICMP (ping)
	ISO/OSI layer 2	Ethernet II
	Baud rate	100 Mbaud in full duplex process
	Connection technology	Two RJ45 plug connectors with integrated switch and auto-crossing
	Addressing	4 byte IP address or MAC-ID (00:0F:69:xx:xx:xx)
	Manufacturer ID (Vendor ID)	010A _{hex}
	Tools for startup	- MOVITOOLS® MotionStudio engineering software - DBG60B keypad
	F address	The failsafe address is set using the DCS21B/22B option
	Ambient temperature	0 – 55 °C

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4.25 MOVISAFE® DCS21B/22B/31B/32B safety module

4.25.1 Part numbers

- DCS21B safety module with prefabricated DAE34B cable: 28200993
- DCS21B safety module for replacement (without DAE34B): 28200977
- DCS22B safety module with prefabricated DAE34B cable: 28207572
- DCS22B safety module for replacement (without DAE34B): 18247369
- DCS31B safety module: 28200985
- DCS32B safety module: 18247377

4.25.2 Description

The DCS21B/22B and DCS31B/32B options of the MOVISAFE® series are designed as expansion options for functional safety. They are capable of performing various drive monitoring functions, such as standstill, speed, direction of rotation or position monitoring. Additionally, sensor signals can be processed via safe inputs and outputs and MOVIDRIVE® B can be switched off according to stop categories 0, 1, or 2.

To being able to communicate with a higher-level safety controller in a safety-related manner, the DCS21B/22B option must be used together with the DFS12B fieldbus interface (PROFIBUS DP-V1) or DFS21B (PROFINET IO). The DCS2.B/3.B option is plugged into the expansion slot.

For more detailed information refer to the manual "MOVIDRIVE® MDX61B Safety Module Option MOVISAFE® DCS21B/22B/31B/32B" that can be ordered from SEW-EURODRIVE or downloaded from the official website.

INFORMATION



EMC screw

Removing the EMC screw is without effect as this card has a fixed DGND-PE connection.

For more detailed information on prefabricated cables for connecting MOVIDRIVE® B, refer to the manual "MOVIDRIVE® MDX61B Safety Module Option MOVISAFE® DCS21B/22B/31B/32B" that can be ordered from SEW-EURODRIVE or downloaded from the official website.

4.25.3 Electronics data

Option DCS21B/22B/31B/32B		
		LED alarm/error
		LED watchdog
		LED system B
		LED system A
		X80: Voltage supply connection
		X81: Digital input connection
		X82: Connection of digital outputs DO0, DO1
		X83: Connection of digital output DO2
		X84: Connection of incremental, sin/cos, HTL, or absolute encoder (encoder 1)
		X85: Connection of incremental, sin/cos, HTL, or absolute encoder (encoder 2)
		X86: CAN bus connection (only for DCS21B/22B)
		X87: Connection for service interface

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4.26 MOVI-PLC® basic DHP11B controller

4.26.1 Part numbers

The MOVI-PLC® *basic* controller DHP11B.. is available in 3 versions, which differ in the modules available from a range of libraries.

Part number	MOVI-PLC® basic DHP11B device design	Description
18204724	DHP11B-T0	MOVI-PLC® <i>basic</i> controller
18208223	DHP11B-T1	Application version I (in addition to version T0, enables additional functions including electronic cam and synchronous operation)
18208231	DHP11B-T2	Application version II (in addition to version T1, enables additional functions including handling)

4.26.2 Description

MOVI-PLC® is a series of controllers available from SEW-EURODRIVE. MOVI-PLC® can be programmed by users according to IEC 61131-3 and PLCopen.

The MOVI-PLC® *basic* controller DHP11B is equipped with a PROFIBUS DP-V1 slave interface, two SBus interfaces (CAN), RS485 and eight digital inputs/outputs, five of which are interrupt-capable. MOVI-PLC® *basic* DHP11B can control 12 devices at the same time (MOVIDRIVE® B/compact, MOVITRAC® B, MOVIAxis®, MOVIMOT®).

4.26.3 Electronics data

MOVI-PLC® basic DHP11B option		
 The image shows the front panel of the MOVI-PLC basic DHP11B controller. It features a black plastic housing with several connectors and labels. At the top, there are labels for X31, X32, X33, X30, X34, and T0. The T0 label is at the bottom. The panel includes a 9-pin D-sub connector (X30), a 15-pin D-sub connector (X34), and several other connectors (X31, X32, X33). There is also a small ON/OFF switch and some status LEDs.	Status displays	LEDs for the voltage supply to the I/Os, firmware, program, PROFIBUS, system bus
	Fieldbus	- PROFIBUS DP and DP-V1 acc. to IEC 61158 - Automatic detection of baud rate from 9.6 kbaud to 12 Mbaud - Bus connection implemented with suitable connector - GSD file SEW_6007.GSD - DP ID number 6007_{hex} (24579_{dec}) - Maximum 32 process data
	System bus	2 system buses (CAN) to control 12 inverters and CANopen I/O modules - CAN layer 2 (SCOM cyclic, acyclic) or via the SEW MOVILINK® protocol - Baud rate: 125 kbaud – 1 Mbaud - External bus terminator - Address range: 0 – 127
	Engineering	Via RS485, PROFIBUS and the system buses
	Panel operation	via RS485
	Connection technology	- PROFIBUS: 9-pole D-sub connector according to IEC 61158 - System buses and I/Os: Plug-in terminals - RS485: RJ10
	Digital inputs/outputs	8 I/Os to IEC 61131-2; can be configured as inputs or outputs. Five are interrupt-capable
	Memory	- Program: 512 kByte - Data: 128 kB - Retain: 24 kB
	Tools for startup	MOVITOOLS® MotionStudio with integrated PLC Editor (programming languages IL, ST, LD, FBD, CFC, SFC; libraries for optimized inverter control)

4.27 OST11B

4.27.1 Part number

18205445

4.27.2 Description

Option OST11B provides an additional RS485 interface (COM2) for MOVI-PLC® *basic* DHP11B in terminal design or as an engineering interface. Only use option OST11B in conjunction with the MOVI-PLC® *basic* controller DHP11B.

When the MOVI-PLC® *basic* DHP11B option is plugged into the fieldbus slot, option OST11B is plugged into the encoder slot. When the MOVI-PLC® *basic* DHP11B option is plugged into the expansion slot, option OST11B is installed in the expansion slot above the option MOVI-PLC® *basic* DHP11B.

4.27.3 Electronics data

OST11B option		
	RS485 interface COM2 X35:1 – X35:4 X36:1 – X36:3	- For connection of an Engineering PC, a DOP11A/B operator terminal or a gearmotor with integrated frequency inverter MOVIMOT® - I/O standard, 57.6 kBd, max. total cable length 200 m, integrated dynamic terminating resistor permanently installed
	Potential level	COM2 is galvanically isolated from the MOVI-PLC® <i>basic</i> DHP11B controller.

4.28 DHE/DHF/DHR21 and DHE/DHF/DHR41B controller

Three types of DH.21B/41B controllers are available, which differ in the fieldbus interfaces:

DH.21B/41B design	Fieldbus interfaces
DHE21B/41B	Ethernet TCP/IP, UDP
DHF21B/41B	Ethernet TCP/IP, UDP, PROFIBUS DP-V1, DeviceNet™
DHR21B/41B	Ethernet TCP/IP, UDP, PROFINET, EtherNet/IP™, ModbusTCP/IP

4.28.1 Description

Freely programmable motion and logic controller (MOVI-PLC®)

The controller can be operated as freely programmable motion and logic controller MOVI-PLC® when using SD memory cards of the type OMH41B. MOVI-PLC® is a series of programmable motion and logic controllers. It allows drive solutions, logic processes and sequence controls to be automated simply and efficiently using IEC 61131-3 compliant programming languages.

- MOVI-PLC® is a **universal** solution because it is able to control the entire portfolio of SEW inverters and offers a simple upgrade to a more powerful MOVI-PLC® version thanks to the universal execution of the programs.
- MOVI-PLC® is **scalable** due to several different hardware platforms (standard, advanced, etc.) and modular software concepts (libraries for numerous applications).
- MOVI-PLC® is **powerful** due to extensive technologies (such as electronic cam, synchronous operation) and the control of demanding applications (such as material handling).

MOVI-PLC® standard performance class

- DH.21B controllers enable coordinated single axis movements and integration of external inputs/outputs as well as Drive Operator Panels (DOP). The DH.21B.. option is therefore suitable for use as a module controller or stand-alone controller for machines of medium complexity.

MOVI-PLC® advanced performance class

- The DH.41B controller is characterized by a greater variety of interfaces and a higher performance level, which allows complex calculations and interpolated movements, for example. The DH.41B option is therefore suitable for the automation of cells and machines. The integrated Ethernet interface enables direct connection of the DH.41B controller to the control level.

Configurable application controller (CCU)

The controller can be used as configurable application controller (CCU) by using SD memory cards of the type OMC41B. Only standardized application modules created by SEW-EURODRIVE can be executed. The application modules can be started up quickly and conveniently by graphical configuration. A defined process data interface provides this functionality to a higher-level controller. A process data monitor with control mode is available to support the startup procedure.

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CCU standard performance class

The "CCU standard" performance class is intended for application modules with single-axis functionality and medium response times. A maximum of 16 axes can be connected to a configurable application controller. The following application modules are available and can be started up using the *AxisConfigurator* tool.

- Velocity control
- Cam positioning
- Bus positioning with 6 process data
- Single-axis universal module

CCU advanced performance class

The "CCU advanced" performance class is intended for application modules with single-axis and multi-axis functionality and fast response times. The following application modules are available:

- Single-axis functionality:
 - Velocity control
 - Cam positioning
 - Bus positioning with 6 process data words
 - Single-axis universal module
- Multi-axis functionality:
 - SyncCrane
 - Energy-efficient SRS

4.28.2 DHE21B/41B electronics data

DHE21B/41B option		
	Part number	DHE21B option: 18236073 DHE41B option: 18211607
	Potential levels	Option DHE21B/41B has the following potential levels: • Potential control / CAN 1 / COM1 • Potential COM2 • Potential digital inputs and outputs • Potential system bus CAN 2
	Memory	• Retain data: 32 kB • System variables (retain): 8 kB Program memory: • DHE21B: 2 MB (for user program, incl. IEC libraries) • DHE41B: 6 MB (for user program, incl. IEC libraries) Data memory: • DHE21B: 4 MByte (for IEC application) • DHE41B: 8 MB (for IEC application)
	CAN 2 system bus X32:1 – X32:3 System bus CAN 1 X33:1 – X33:3	• System bus CAN 1 and CAN 2 to CAN specification 2.0, part A and B, transmission technology to ISO 11898 • The CAN 2 system bus is electrically isolated • Max. 64 stations per CAN system bus • Max. 64 SCOM transmit objects / 32 receive objects per CAN system bus • Address range 0 – 127 • Baud rate: 125 kBaud – 1 MBaud • If X32 or X33 is the bus terminator, you must connect a terminating resistor (120 Ω) externally • You can remove connector X32 or X33 without interrupting the system bus • The system bus can be run in layer 2 (SCOM cyclic, acyclic) or in accordance with the SEW MOVILINK® protocol
	Ethernet 1 X36	System bus, reserved
	Ethernet 2 X37	• TCP/IP • Possible connections: engineering PC, other control, intranet
	USB	USB 1.0 to connect an engineering PC (in preparation)
	RS485 Interface COM1/2 X34:1 – C34:4	• For connection of a DOP11A/B operator terminal or a gearmotor with integrated MOVIMOT® frequency inverter • E/A standard, 57.6 / 9.6 kBaud, max. cable length 200 m • Dynamic terminating resistor with fixed installation
	SD memory card	• PC-readable • Contents – Firmware – IEC program – Data • At least 128 MB memory
	Engineering	Engineering takes place via one of the following interfaces: • Ethernet 2 (X37) • USB (X35) Engineering for all SEW-EURODRIVE components connected to the MOVI-PLC® <i>advanced</i> DHE41B control card can be performed using the MOVI-PLC® <i>advanced</i> DHE41B control card. Engineering of the MOVI-PLC® <i>advanced</i> DHE41B controller cannot be performed via the inverters. • MOVITOOLS® engineering software • MotionStudio with PLC Editor

4.28.3 DHF21B/41B electronics data

INFORMATION



For connections identical with DHE41B, refer to the "DHE41B electronics data" section.

DHF21B/41B option		
	Part number	- DHF21B: 18236081 - DHF41B: 18211615
	Potential levels	Option DHF21B/41B has the following potential levels: - Potential control / CAN 1 / COM1 - Potential COM2 - Potential digital inputs and outputs - Potential system bus CAN 2 - Potential PROFIBUS
	PROFIBUS connection X30P:1 - X30P:9	Via 9-pin D-sub connector, pin assignment according to IEC 61158
	Automatic baud rate detection	9.6 kBaud - 12 MBaud
	SD memory card	- PC-readable - Contents - Firmware - IEC program - Data - At least 128 MB memory
	DeviceNet™ connection X30D:1 - X30D:5	2-wire bus and 2-wire supply voltage DC 24 V with 5-pole Phoenix terminal - Pin assignment according to DeviceNet™ specification

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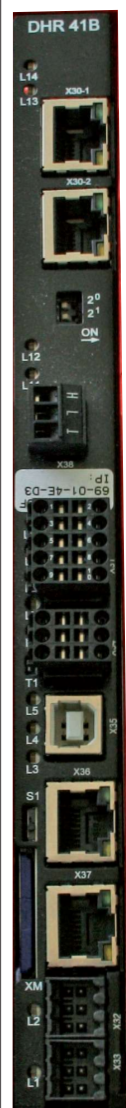
4.28.4 DHR21B/41B electronics data

INFORMATION



Connections identical with those of the DHE21B/41B and DHF21B/41B options are described chapters "DHE21B/41B option" and "DHF21B/41B option".

DHR21B/41B option



Part number	- DHR21B: 18236103 - DHR41B: 18216323
Electrical supply	Installed in MOVIDRIVE® MDX61B: - Power consumption: $P_{max} = 9.5 \text{ W}$ Installed in the MOVIAXIS® master module (MXM): - Power consumption: $P_{max} = 12 \text{ W}$
Ethernet connection X30-1, X30-2	Via RJ45 socket, pin assignment according to IEC 11801 Integrated Ethernet switch with auto-crossing and auto-negotiation functionality.
SD memory card	- PC-readable - Contents - Firmware - IEC program - Data - At least 128 MB memory
Engineering	Additional engineering access via PROFINET, EtherNet/IP™ and Modbus TCP/IP interface (X30:1/2)

4.29 Safety-related BST brake module

4.29.1 Part numbers

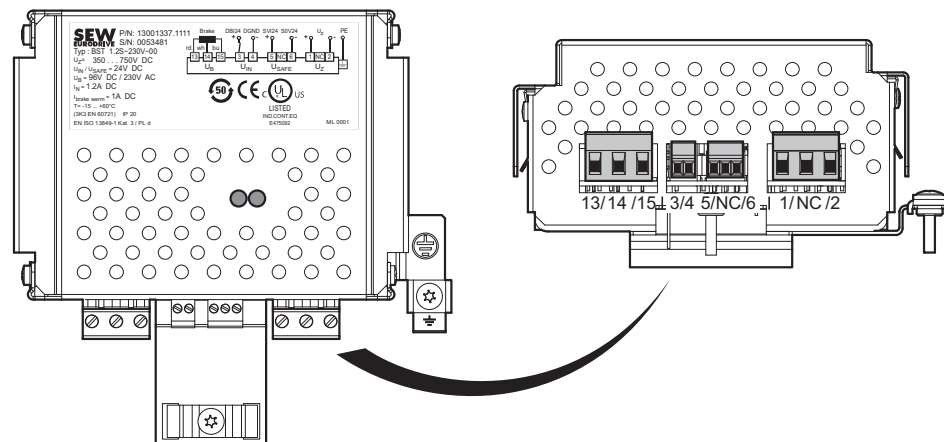
The safety-related brake module is available in three variants:

Type designation	Part number	Approved SEW disk brakes
BST 0.6S-460V-00	08299714	All brake coils with a brake coil voltage of AC 460 V and a coil power ≤ 120 W. Several brake coils can be connected for redundant systems. In this case, the total power must not exceed 120 W.
BST 0.7S-400V-00	13000772	All brake coils with a brake coil voltage of AC 400 V and a coil power ≤ 120 W. Several brake coils can be connected for redundant systems. In this case, the total power must not exceed 120 W.
BST 1.2S-230V-00	13001337	All brake coils with a brake coil voltage of AC 230 V and a coil power ≤ 120 W. Several brake coils can be connected for redundant systems. In this case, the total power must not exceed 120 W.

4.29.2 Description

- The safety-related BST brake module enables the connection of an external fail-safe safety switching device/safety controller. The safety switching device disconnects the safety-related control voltage V_{safe} when a connected control device (e.g. emergency stop device) is activated.
- UL approved
- Disconnecting the safety-related control voltage V_{safe} means the connected brake is disconnected from the power supply. The power supply required for releasing the connected brake is interrupted safely.
- Instead of separating the brake control galvanically from the power supply using contactors or switches, the disconnection procedure described here prevents the power semiconductors in the safety-related BST brake module from being activated, in this way ensuring safe disconnection. This means that all connected brakes are de-energized although the supply voltage is still present at the safety-related BST brake module.

4.29.3 Electronics data



9007202044464779

Terminal		Function
1	+U _Z	DC link voltage input +
2	+U _Z	DC link voltage input -
5	SVI24	Input for safety-related control voltage V _{safe}
6	S0V24	Reference potential for safety-related control voltage V _{safe}
3	DBI24	Functional control voltage V _{IN} input
4	DGND	Reference potential for functional control voltage V _{IN}
13	RD	Brake output
14	WH	
15	BU	
⏏		Ground connection

5 Technical data of external accessories

5.1 DMP11B mounting panel

5.1.1 Part number

08183988

5.1.2 Description

DMP11B



1454393867

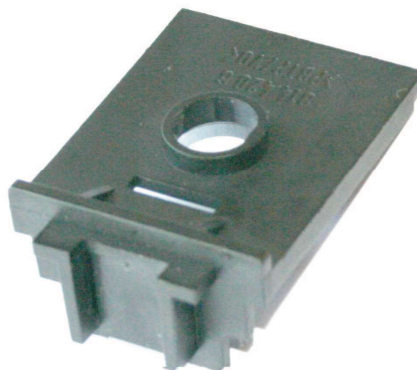
If a MOVIDRIVE® MD_60A size 2 device is to be replaced by MOVIDRIVE® MDX61B size 2S, the MDX61B size 2S can be fitted on the existing mounting plate with the DMP11B mounting panel. New retaining holes do not have to be drilled.

5.2 DLB11B touch guard

5.2.1 Part number

08231117 (Scope of delivery 12 pieces)

5.2.2 Description



1454399115

Degree of protection IP20 can be achieved for the following devices with DLB11B touch guard:

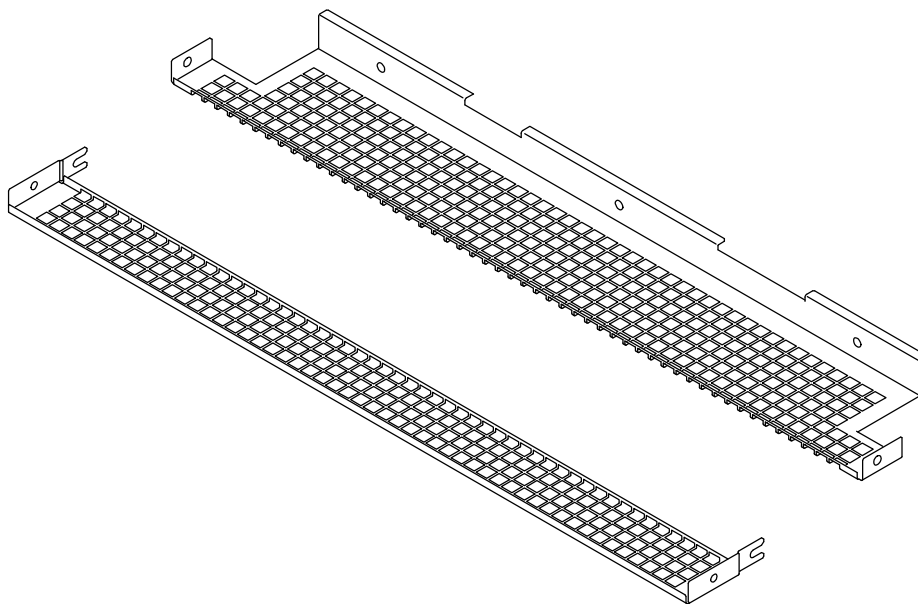
- MOVIDRIVE® MDX61B size 4 (AC 500 V devices: MDX61B0370/0450; AC 230 V devices: MDX61B0220/0300)
- MOVIDRIVE® MDX61B size 5 (AC 500 V devices: MDX61B0550/0750)
- Regenerative power supply MOVIDRIVE® MDR60A size 4 (MDR600750-503-00)

5.3 DLB21B touch guard (for size 7)

5.3.1 Part number

18226086

5.3.2 Description



2422310283

You can use the DLB21B touch guard to achieve degree of protection IP20 for the following devices:

- MOVIDRIVE® MDX61B size 7
(AC 500 V devices: MDX61B1600/2000/2500)

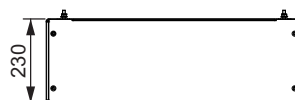
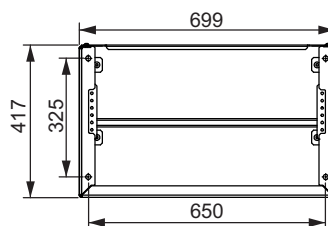
Fixing material for the touch guard is included in the scope of delivery. The customer must adapt the touch guard to the individual cable routing (cutting the hole matrix for supply system and motor cables).

5.4 DLS11B mounting base (for size 7)

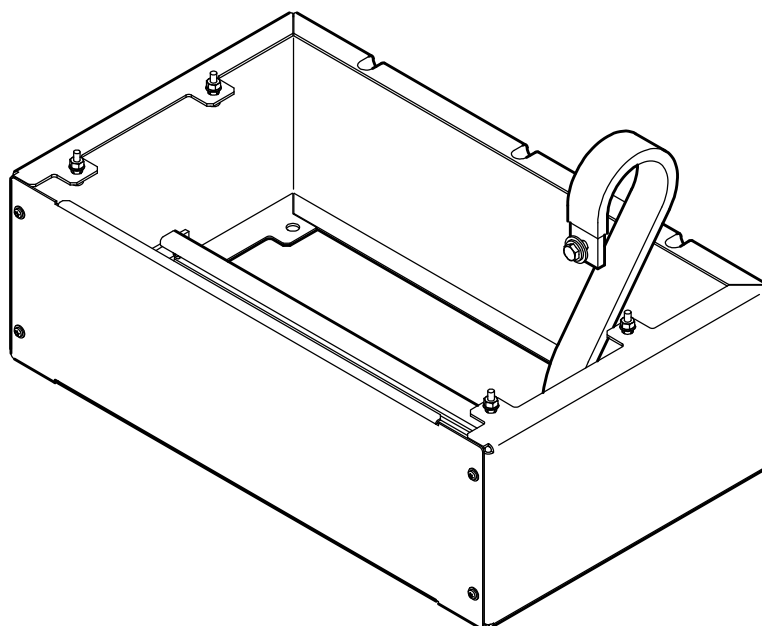
5.4.1 Part number

18226027

5.4.2 Description



2076984331



2422224267

The mounting base is designed specifically for installation of MOVIDRIVE® B size 7 (MDX61B1600/2000/2500) in the control cabinet. The base is equipped with an integrated cable clamping rail. It ensures sufficient space for connecting the supply system and motor cables. The front cover can be removed for installation work. Fixing material for mounting the inverter to the mounting base is included in the scope of delivery.

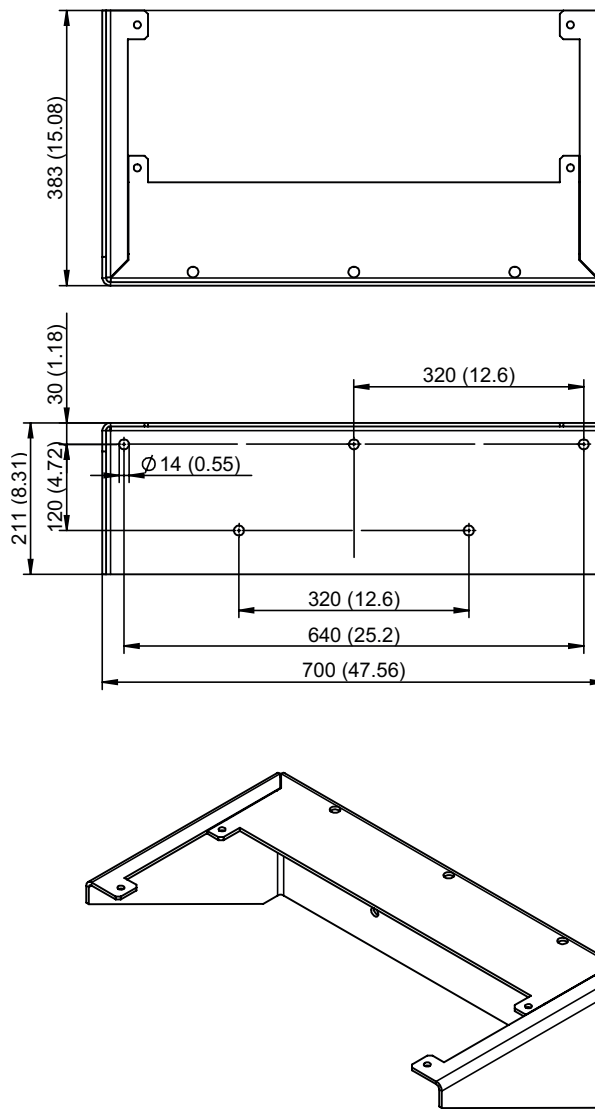
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5.5 DLH11B wall bracket (for size 7)

5.5.1 Part number

18226108

5.5.2 Description



9007201676959499

The wall bracket is used for attaching MOVIDRIVE® B size 7 (MDX61B1600/2000/2500) to a wall. The fixing material for mounting the inverter to the wall bracket is included in the scope of delivery. The fixing material for mounting the bracket to the wall is not included in the scope of delivery.

5.6 DLA11B connection kit (for size 7)

5.6.1 Part number

18223125

5.6.2 Description

Connection material for connecting supply system and motor cables with cross sections up to 240 mm² to the following devices:

- MOVIDRIVE® MDX61B size 7
(AC 500 V devices: MDX61B1600/2000/2500)

The connection kit includes the following material:

- 9 × bolts M12×30
- 9 × M12 nuts
- Lock washers
- Washers
- 3 × PE terminals for PE busbar (up to 240 mm²)

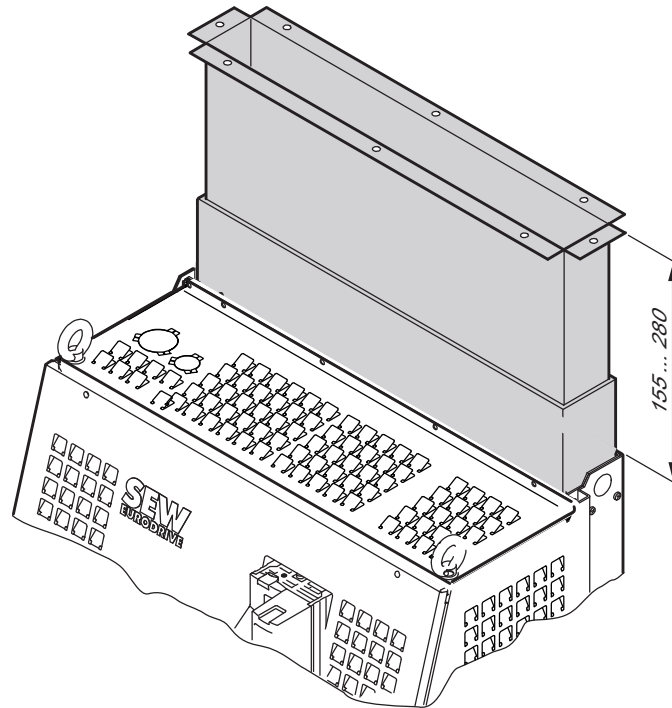
5.7 DLK11B air duct (for size 7)

5.7.1 Part number

18226035

5.7.2 Description

The following figure shows the air duct for dissipating heat from MOVIDRIVE® B size 7 (MDX61B1600/2000/2500):



18014400586472715

The air duct extends the integrated device air duct of size 7 to the control cabinet roof to dissipate heat from the control cabinet. It improves the temperature management. A prerequisite is that air can be dissipated via the control cabinet roof (dust protection, etc.).

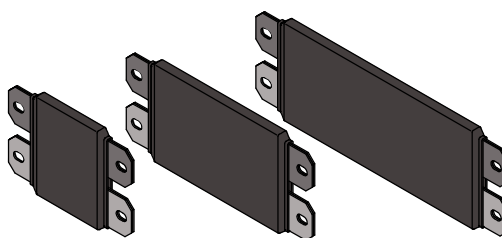
5.8 DLZ11B DC link coupling (for size 7)

5.8.1 Part number

The DLZ11B DC link coupling is available in three different lengths:

Type	Part number
DLZ11B / 100 mm	18231934
DLZ11B / 200 mm	18235662
DLZ11B / 300 mm	18235670

5.8.2 Description



9007201677055883

DC link connection to connect inverters and size 7 regenerative power supply unit side by side.

- MOVIDRIVE® MDX61B size 7
(MDX61B1600/2000/2500)
- MOVIDRIVE® MDR61B regenerative power supply size 7
(MDR61B1600/2500)
- MOVIDRIVE® MDX62B motor inverter size 7

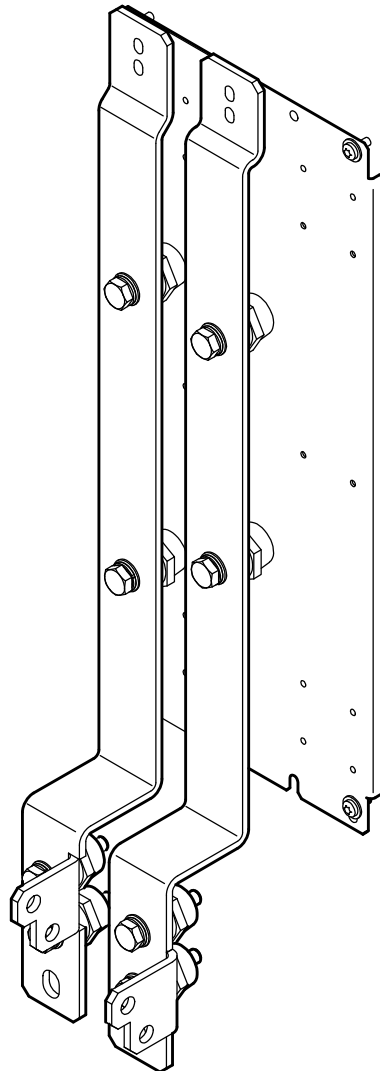
The DC link connection (+U_z; -U_z) of size 7 can be connected on the side as standard. The DLZ11B DC link coupling can be used to connect two size 7 MOVIDRIVE® B devices. Depending on the DC link coupling, the devices must be installed at a distance of 100 mm, 200 mm, or 300 mm; tolerance range: approx. 4 mm. Two insulated conductor rails and fixing material are included in the delivery.

5.9 2Q DLZ12B DC link adapter (for size 7)

5.9.1 Part number

18227295

5.9.2 Description



2422222347

DC link adapter for routing the DC link connection to the bottom of the device.

For devices:

- MDX61B1600-503-2-OT/L
- MDX61B2000-503-2-OT/L
- MDX61B2500-503-2-OT/L

and

- MDX62B1600-503-2-OT/L

- MDX62B2000-503-2-0T/L
- MDX62B2500-503-2-0T/L

The DC link connection (+U_z; -U_z) of size 7 can be connected on the side as standard. The 2Q DC link adapter provides a connection option for +U_z and -U_z at the bottom of the device.

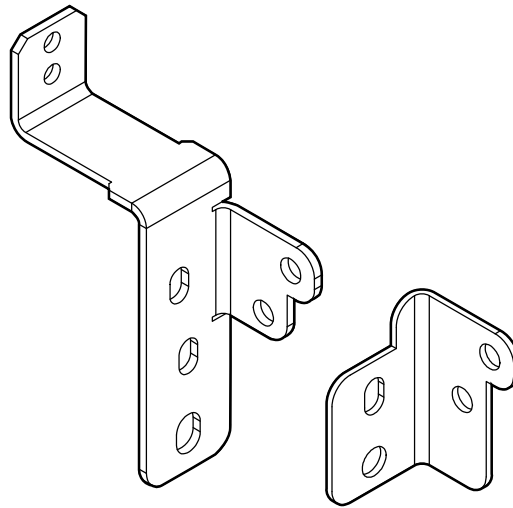
The DC link adapter can be used for DC link coupling with MOVIDRIVE® B sizes 0 – 6.

5.10 4Q DLZ14B DC link adapter (for size 7)

5.10.1 Part number

18227287

5.10.2 Description



2435823499

DC link adapter for routing the DC link connection to the bottom of the device.

For devices:

- MDX61B1600-503-4-0T/L
- MDX61B2000-503-4-0T/L
- MDX61B2500-503-4-0T/L

and

- MDX62B1600-503-4-0T/L
- MDX62B2000-503-4-0T/L
- MDX62B2500-503-4-0T/L

The DC link connection (+U_z; -U_z) of size 7 can be connected on the side as standard. The 4Q DC link adapter provides a connection option for +U_z and -U_z at the bottom of the device. The DC link adapter should be used for DC link coupling with MOVIDRIVE® B sizes 0 – 6.

6 Technical data of braking resistors, chokes and filters

6.1 Braking resistors BW.. / BW...-T / BW...-P

6.1.1 General information

- Braking resistors BW... / BW...-T and BW...-P match the technical features of the MOVIDRIVE® drive inverters.
- Take account of a power reduction of 4% per 10 K from an ambient temperature of 40 °C. Do not exceed a maximum ambient temperature of 80 °C.

PTC resistor BW090-P52B

- Direct installation on MOVIDRIVE® MDX60B/61B size 0 (0005 – 0014) (→ chapter "Dimensions drawings for MOVIDRIVE® MDX60B")
- The MOVIDRIVE® devices can be lined up even with mounted braking resistor BW090-P52B.
- The resistor protects itself (reversible) against regenerative overload by changing abruptly to high resistance and no longer consuming any more energy. The inverter then switches off and signals a brake chopper fault (F04).

Flatpack resistors

- Protection against contact (IP54)
- In the documented assignments of drive inverters and flat-design resistors, flat-design resistors have an internal thermal protection (non-replaceable fuse) that interrupts the current circuit in the event of overload. The project planning guidelines and the documented assignments of drive inverter and braking resistor must be adhered to.
- Touch guard and mounting rail attachment available from SEW-EURODRIVE as accessories

Wire and grid resistors

- Perforated sheet cover (IP20) open to mounting surface
- The short-term load capacity of the wire and grid resistors is higher than in the flat-type braking resistors (→ MOVIDRIVE® MDX60B/61B system manual, chapter "Braking resistor selection")
- A temperature switch is integrated in the BW...-T braking resistor
- A thermal overcurrent relay is integrated in the BW...-P braking resistor

SEW-EURODRIVE recommends implementing additional protection against overload for the wire and grid resistors by using a bimetallic relay with trip characteristics of trip class 10 or 10 A (in accordance with EN 60947-4-1). Set the tripping current to the value I_F (→ following tables). Do not use electronic or electromagnetic fuses because these can be triggered even in case of short-term excess currents that are still within the tolerance range.

For braking resistors in the BW...-T / BW...-P series, you can connect the integrated temperature sensor / overcurrent relay using a 2-core, shielded cable as an alternative to a bimetallic relay. The cable entry for the BW...-T and BW...-P braking resistors can be run from the front or the back (→ dimension drawing for BW... / BW...-T / BW...-P braking resistors). Use filler plugs for tapped holes that are not connected.

The surfaces of the resistors get very hot if loaded with P_N . Make sure that you select an installation site that will accommodate these high temperatures. For this reason, braking resistors are usually mounted on top of the control cabinet.

The performance data listed in the tables below show the load capacity of the braking resistors according to their cyclic duration factor (cyclic duration factor = cdf of the braking resistor in % in relation to a cycle duration ≤ 120 s).

6.1.2 UL and cUL approval

Type BW... braking resistors are UL and cUL approved in conjunction with MOVIDRIVE® B drive inverters. SEW-EURODRIVE will provide certification on request. The BW...T and BW...-P braking resistors have cRUus approval independent of the MOVIDRIVE® inverter.

6.1.3 Parallel connection

Two braking resistors with the same value must be connected in parallel for some inverter/resistor combinations. In this case, the tripping current must be set on the bimetallic relay to twice the value of I_F entered in the table. For the BW...-T BW...-P braking resistors, the temperature switch/overcurrent relay must be connected in series.

6.1.4 Mounting position

Only horizontal mounting positions are permitted for BW braking resistors, with the exception of flatpack design.

Make sure to provide a clearance of 20 cm on the sides and 30 cm above the braking resistors.

6.1.5 Assignment to AC 400/500 V devices (...-5_3)

Braking resistor type BW...	BW090-P52B	BW100-005	BW100-006	BW072-003	BW072-005	BW168	BW268
Part number	08245630	08262691	08217017	08260583	08260605	0820604X	08207151
Braking resistor type BW...-T			BW100-006-T			BW168-T	BW268-T
Part number			18204198			18201334	18204171
Continuous braking power (= 100% cdf)	0.10 kW	0.45 kW	0.6 kW	0.23 kW	0.45 kW	0.8 kW	1.2 kW
Load capacity 50% cdf ¹⁾	0.15 kW	0.60 kW	1.1 kW	0.31 kW	0.60 kW	1.4 kW	2.2 kW
At 25% cdf	0.2 kW	0.83 kW	1.9 kW	0.42 kW	0.83 kW	2.6 kW	3.8 kW
12% cdf	0.4 kW	1.11 kW	3.6 kW	0.58 kW	1.11 kW	4.8 kW	7.2 kW
6% cdf	0.7 kW	2.00 kW	5.7 kW	1.00 kW	2.00 kW	7.6 kW	11 kW
	Observe the regenerative power limit of the inverter. (= 150% of the recommended motor power → Technical Data)						
Resistance value R _{BW}	90 Ω ±35%	100 Ω ±10%		72 Ω ±10%		68 Ω ±10%	
Tripping current (of F16) I _F	-	1 A	2.4 A	0.6 A	1 A	3.4 A	4.2 A
Design	PTC	Flat design	Wire resistor on ceramic core	Flat design		Wire resistor on ceramic core	
Connections / Tightening torque	Cables	Cables	Ceramic terminals 2.5 mm ² (AWG13) 0.5 Nm	Cables		Ceramic terminals 2.5 mm ² (AWG13) 0.5 Nm	
Degree of protection	IP20	IP54	IP20 (when installed)	IP54		IP20 (when installed)	
Ambient temperature ϑ_{amb}	-20 – +40 °C						
Type of cooling	KS = self-cooling						
For MOVIDRIVE® (recommended)	0005 – 0014	0005 – 0022	0015 – 0040	0005 – 0014		0005 – 0040	0015 – 0040

1) cdf = Cyclic duration factor of the braking resistor in relation to a cycle duration T D ≤ 120 s.

Braking resistor type BW...	BW147	BW247	BW347	BW039-012		
Part number	08207135	08207143	08207984	08216894		
Braking resistor type BW...-T	BW147-T	BW247-T	BW347-T	BW039-012-T	BW039-026-T	BW039-050-T
Part number	18201342	18200842	18201350	18201369	18204155	18201377
Continuous braking power (= 100% cdf)	1.2 kW	2.0 kW	4.0 kW	1.2 kW	2.6 kW	5.0 kW
Load capacity 50% cdf ¹⁾	2.2 kW	3.6 kW	7.2 kW	2.1 kW	4.7 kW	8.5 kW
At 25% cdf	3.8 kW	6.4 kW	12.8 kW	3.8 kW	8.3 kW	15.0 kW
12% cdf	7.2 kW	12 kW	20 kW ²⁾	7.2 kW	15.6 kW	24.0 kW ²⁾
6% cdf	11 kW	19 kW	20 kW ²⁾	11.4 kW	24.0 kW	24.0 kW ²⁾
	Observe the regenerative power limit of the inverter. (= 150% of the recommended motor power → Technical Data)					
Resistance value R _{BW}	47 Ω ±10%			39 Ω ±10%		
Tripping current (of F16) I _F	5 A	6.5 A	9.2 A	5.5 A	8.1 A	11.3 A
Design	Wire resistor on ceramic core					Grid resistor
Connections / Tightening torque	Ceramic terminals 2.5 mm ² (AWG13) / 0.5 Nm BW347-T: Ceramic terminals 10 mm ² (AWG8) / 1.6 Nm					M8 stud / 6 Nm
Degree of protection	IP20 (when installed)					
Ambient temperature θ _{amb}	-20 – +40 °C					
Type of cooling	KS = self-cooling					
For MOVIDRIVE® (recommended)	0055/0075			0110		

1) cdf = Cyclic duration factor of the braking resistor in relation to a cycle duration T D ≤ 120 s.

2) Physical power limit due to DC link voltage and resistance value

Braking resistor type BW...	BW018-015			
Part number	08216843			
Braking resistor type BW...-T/-P	BW018-015-P	BW018-035-T	BW018-075-T	BW915-T
Part number	18204163	18201385	18201393	18204139
Continuous braking power (= 100% cdf)	1.5 kW	3.5 kW	7.5 kW	16 kW
Load capacity 50% cdf ¹⁾	2.5 kW	5.9 kW	12.7 kW	27.2 kW

Braking resistor type BW...	BW018-015			
At 25% cdf	4.5 kW	10.5 kW	22.5 kW	48 kW
12% cdf	6.7 kW	15.7 kW	33.7 kW	62.7 kW ²⁾
6% cdf	11.4 kW	26.6 kW	52.2 kW ²⁾	62.7 kW ²⁾
	Observe the regenerative power limit of the inverter. (= 150% of the recommended motor power → Technical Data)			
Resistance value R _{BW}	18 Ω ±10%			15 Ω ±10%
Tripping current (of F16) I _F	9.1 A	13.9 A	20.4 A	32.6 A
Design	Wire resistor on ceramic core	Grid resistor		
Connections / Tightening torque	BW018-015: -Ceramic terminals 2.5 mm² (AWG13) / 0.5 Nm BW018-015-P: Terminal 2.5 mm² (AWG13) / 1 Nm	M8 bolts/6 Nm		
Degree of protection	IP20 (when installed)			
Ambient temperature ϑ_{amb}	-20 – +40 °C			
Type of cooling	KS = self-cooling			
For MOVIDRIVE® (recommended)	0150/0220 and 2 × parallel with 0370/0450 ³⁾			0220

1) cdf = Cyclic duration factor of the braking resistor in relation to a cycle duration $T_D \leq 120$ s.

2) Physical power limit due to DC link voltage and resistance value

3) When connected in parallel, the load capacity and trip current are doubled.

Braking resistor type BW...-	BW012-025		
Part number	08216800		
Braking resistor type BW...-T/-P	BW012-025-P	BW012-050-T	BW012-100-T
Part number	18204147	18201407	18201415
Continuous braking power (= 100% cdf)	2.5 kW	5.0 kW	10 kW
Load capacity 50% cdf ¹⁾	4.2 kW	8.5 kW	17 kW
At 25% cdf	7.5 kW	15.0 kW	30 kW
12% cdf	11.2 kW	22.5 kW	45 kW
6% cdf	19.0 kW	38.0 kW	76 kW
	Observe the regenerative power limit of the inverter. (= 150% of the recommended motor power → Technical Data)		
Resistance value R_{BW}	12 $\Omega \pm 10\%$		
Tripping current (of F16) I_F	14.4 A	20.4 A	28.8 A
Design	Grid resistor		
Connections / Tightening torque	M8 bolts/6 Nm		
Degree of protection	IP20 (when installed)		
Ambient temperature ϑ_{amb}	-20 – +40 °C		
Type of cooling	KS = self-cooling		
For MOVIDRIVE® (recommended)	0300		

1) cdf = Cyclic duration factor of the braking resistor in relation to a cycle duration $T_D \leq 120$ s.

Braking resistor type BW...-T/-P	BW106-T	BW206-T	BW1.4-170	BW003-420-T
Part number	18200834	18204120	13301527	13302345
Continuous braking power (= 100% cdf)	13.5 kW	18 kW	17 kW	42 kW
Load capacity 50% cdf ¹⁾	23 kW	30.6 kW	29 kW	71 kW
At 25% cdf	40 kW	54 kW	51 kW	126 kW
12% cdf	61 kW	81 kW	76 kW	189 kW
6% cdf	102 kW	136.8 kW	129 kW	319 kW
Resistance value R_{BW}	6 $\Omega \pm 10\%$		1.4 $\Omega \pm 10\%$	2.5 $\Omega \pm 10\%$
Tripping current (of F16) I_F	47.4 A	54.7 A	110 A	129 A
Design	Grid resistor			

Braking resistor type BW..-T/-P	BW106-T	BW206-T	BW1.4-170	BW003-420-T
Connections / Tightening torque	M8 bolts/6 Nm		Bolt M12 / 15.5 Nm	
Degree of protection	IP20 (when installed)			
Ambient temperature ϑ_{amb}	-20 °C – +40 °C			
Type of cooling	KS = self-cooling			
For MOVIDRIVE® (recommended)	0370 – 0750 and 2 × parallel with 0900/1100/1320 ²⁾		1600/2000/2500	

1) cdf = Cyclic duration factor of the braking resistor in relation to a cycle duration T D ≤ 120 s

2) When connected in parallel, the load capacity and tripping current are doubled.

6.1.6 Assignment to AC 230 V devices (...-2_3)

Braking resistor type BW...	BW039-0 03	BW039-0 06	BW039-01 2		BW027-00 6	BW027-01 2		
Part number	08216878	08216886	0821689 4		8224226	8224234		
Braking resistor type BW...-T			BW039-012 -T	BW039-026 -T			BW018-015 -P	BW018-035 -T
Part number			18201369	18204155			18204163	18201385
Continuous braking power (= 100% cdf)	0.3 kW	0.6 kW	1.2 kW	2.6 kW	0.6 kW	1.2 kW	1.5 kW	3.5 kW
Load capacity 50% cdf ¹⁾	0.5 kW	1.1 kW	2.1 kW	4.6 kW	1.1 kW	2.1 kW	2.5 kW	5.9 kW
At 25% cdf	1.0 kW	1.9 kW	3.8 kW	6.0 kW ²⁾	1.9 kW	3.8 kW	4.5 kW	10.5 kW
12% cdf	1.8 kW	3.6 kW	6.0 kW ²⁾	6.0 kW ²⁾	3.6 kW	7.2 kW	6.7 kW	13.0 kW ²⁾
6% cdf	2.8 kW	5.7 kW	6.0 kW	6.0 kW ²⁾	5.7 kW	8.7 kW	11.4 kW	13.0 kW ²⁾
	Observe the regenerative power limit of the inverter. (= 150% of the recommended motor power → Technical Data)							
Resistance value R _{BW}	39 Ω ±10%				27 Ω ±10%		18 Ω ±10%	
Tripping current (of F16) I _F	2.7 A	3.9 A	5.5 A	8.1 A	4.7 A	6.6 A	9.1 A	13.9 A
Design	Wire resistor						Grid resistor	
Connections / Tightening torque	Ceramic terminals 2.5 mm ² (AWG12) / 0.5 Nm							M8 stud / 6 Nm
Degree of protection	IP20 (when installed)							
Ambient temperature ϑ_{amb}	-20 – +40 °C							
Type of cooling	KS = self-cooling							
For MOVIDRIVE® (recommended)	0015/0022				0015 – 0037		2 × parallel with 0110 3)	

1) cdf = Cyclic duration factor of the braking resistor in relation to a cycle duration of TD ≤ 120 s.

2) Physical power limit due to DC link voltage and resistance value

3) When connected in parallel, the load capacity and trip current are doubled.

Braking resistor type BW...-T/-P	BW018-075-T	BW915-T	BW012-025-P	BW012-050-T	BW012-100-T	BW106-T	BW206-T
Part number	18201393	18204139	18204147	18201407	18201415	18200834	18204120
Continuous braking power (= 100% cdf)	7.5 kW	15.6 kW	2.5 kW	5.0 kW	10 kW	13.5 kW	18 kW
Load capacity 50% cdf ¹⁾	12.7 kW	15.6 kW ²⁾	4.2 kW	8.5 kW	17 kW	23 kW	30.6 kW
At 25% cdf	13.0 kW	15.6 kW ²⁾	7.5 kW	15.0 kW	19.6 kW ²⁾	39.2 kW ²⁾	39.2 kW ²⁾
12% cdf	13.0 kW ²⁾	15.6 kW ²⁾	11.2 kW	19.6 kW	19.6 kW ²⁾	39.2 kW ²⁾	39.2 kW ²⁾
6% cdf	13.0 kW ²⁾	15.6 kW ²⁾	19.0 kW	19.6 kW ²⁾	19.6 kW ²⁾	39.2 kW ²⁾	39.2 kW ²⁾
Observe the regenerative power limit of the inverter. (= 150% of the recommended motor power → Technical Data)							
Resistance value R _{BW}	18 Ω ±10%	15 Ω ±10%	12 Ω ±10%			6 Ω ±10%	
Tripping current (of F16) I _F	20.4 A	32.6 A	14.4 A	20.4 A	28.8 A	47.4 A	54.7 A
Design	Grid resistor						
Connections / Tightening torque	M8 stud / 6 Nm						
Degree of protection	IP20 (when installed)						
Ambient temperature ϑ_{amb}	-20 – +40 °C						
Type of cooling	KS = self-cooling						
For MOVIDRIVE® (recommended)	2 × parallel with 0110		0055/0075			0150 and 2 × parallel with 0220/0300 ³⁾	

1) cdf = Cyclic duration factor of the braking resistor in relation to a cycle duration T D ≤ 120 s.

2) Physical power limit due to DC link voltage and resistance value

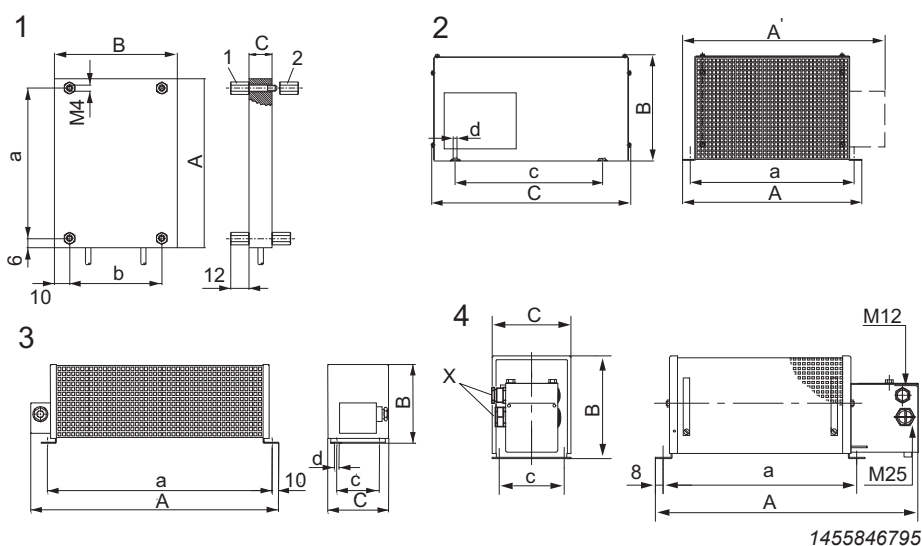
3) When connected in parallel, the load capacity and tripping current are doubled.

6.1.7 Technical data of BW...-T / BW...-P braking resistors

BW...-T / BW...-P	
Connection cross section for signal contact/tightening torque	1 x 2.5 mm ² / 1 Nm
Switching capacity of the temperature switch signal contact	• DC 2 A / DC 24 V (DC11) • AC 2 A / AC 230 V (AC11)
Switch contact (NC contact)	According to EN 60730

6.1.8 Dimension drawing of BW.../BW...-T/BW...-P braking resistors

The following figure shows the mechanical dimensions in mm (in).



BW... :

- 1 = Flat design
The connection lead is 500 mm long. The scope of delivery includes 4 M4 stud bolts each of type 1 and 2.
- 2 = Grid resistor
- 3 = Wire resistor
- 4 = Wire resistor with temperature switch (-T/-P)
Cable entry (X) is possible from both sides.

Design 1

BW... type	Main dimensions in mm			Fastening parts mm			Cable gland	Mass kg
BW...-T/BW...-P	A/A'	B	C	a	b/c	d		
BW072-003	110	80	15	98	60	–	–	0.3
BW072-005	216	80	15	204	60	–	–	0.6
BW100-005	216	80	15	204	60	–	–	0.6
BW047-005	216	80	15	204	60	–	–	0.6

Mounting position 2

BW... type	Main dimensions in mm			Fastening parts mm			Cable gland	Mass kg
BW...-T/BW...-P	A/A'	B	C	a	b/c	d		
BW106-T	795	270	490	770	380	10.5	–	32
BW206-T	995	270	490	970	380	10.5	–	40
BW012-025	295	260	490	270	380	10.5	M12 + M25	8.0
BW012-025-P	295/355	260	490	270	380	10.5	M12 + M25	8.0
BW012-050-T	395	260	490	370	380	10.5	–	12
BW012-100-T	595	270	490	570	380	10.5	–	21
BW915-T	795	270	490	770	380	10.5	–	30
BW018-035-T	295	270	490	270	380	10.5	–	9.0
BW018-075-T	595	270	490	570	380	10.5	–	18.5
BW039-050-T	395	260	490	370	380	10.5	–	12
BW206-120-T	595	270	490	570	380	10.5	2×2×M8	22.0

Design 3

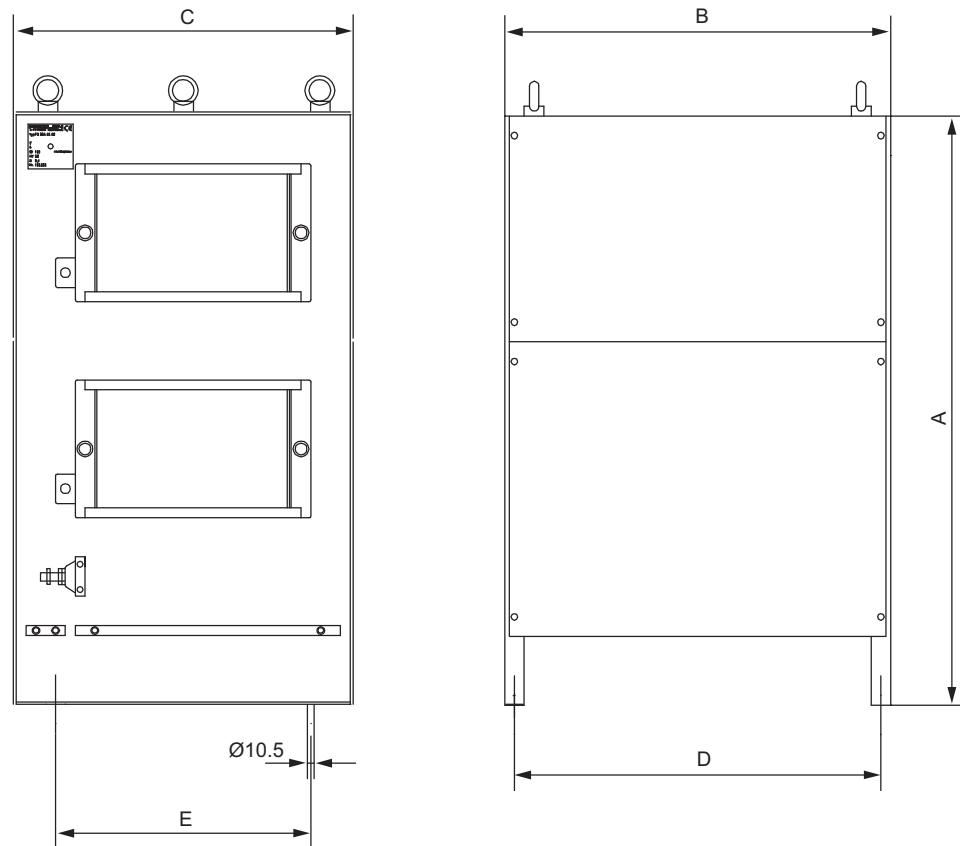
BW... type	Main dimensions in mm			Fastening parts mm			Cable gland	Mass kg
BW...-T/BW...-P	A/A'	B	C	a	b/c	d		
BW018-015	620	120	92	544	64	6.5	PG11	4.0
BW027-006	486	120	92	430	64	6.5	PG11	2.2
BW027-012	486	120	185	426	150	6.5	PG11	4.3
BW039-003	286	120	92	230	64	6.5	PG11	1.5
BW039-006	486	120	92	430	64	6.5	PG11	2.2
BW039-012	486	120	185	426	150	6.5	PG11	4.3
BW147	465	120	185	426	150	6.5	PG13.5	4.3
BW247	665	120	185	626	150	6.5	PG13.5	6.1
BW347	670	145	340	630	300	6.5	PG13.5	13.2
BW168	365	120	185	326	150	6.5	PG13.5	3.5
BW268	465	120	185	426	150	6.5	PG13.5	4.3

Design 4

BW... type	Main dimensions in mm			Fastening parts mm			Cable gland	Mass kg
BW...-T/BW...-P	A/A'	B	C	a	b/c	d		
BW018-015-P	649	120	185	530	150	6.5	M12 + M25	5.8
BW039-012-T	549	120	185	426	150	6.5	M12 + M25	4.9
BW039-026-T	649	120	275	530	240	6.5	M12 + M25	7.5
BW147-T	549	120	185	426	150	6.5	M12 + M25	4.9
BW247-T	749	120	185	626	150	6.5	M12 + M25	9.2
BW347-T	749	210	185	630	150	6.5	M12 + M25	12.4
BW168-T	449	120	185	326	150	6.5	M12 + M25	3.6
BW268-T	549	120	185	426	150	6.5	M12 + M25	4.9
BW100-006	486	120	92	430	64	6.5	PG11	2.2
BW100-006-T	549	120	92	430	80	6.5	M12 + M25	3.0

6.1.9 Dimension drawings of BW1.4-170 and BW003-420-T braking resistors

The following figure shows the mechanical dimensions in mm.



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BW... type	Main dimensions in mm					Mass kg
BW...-T/BW...-P	A	B	C	D	E	
BW1.4-170	460	795	490	770	380	51
BW003-420-T	710	995	490	970	380	93

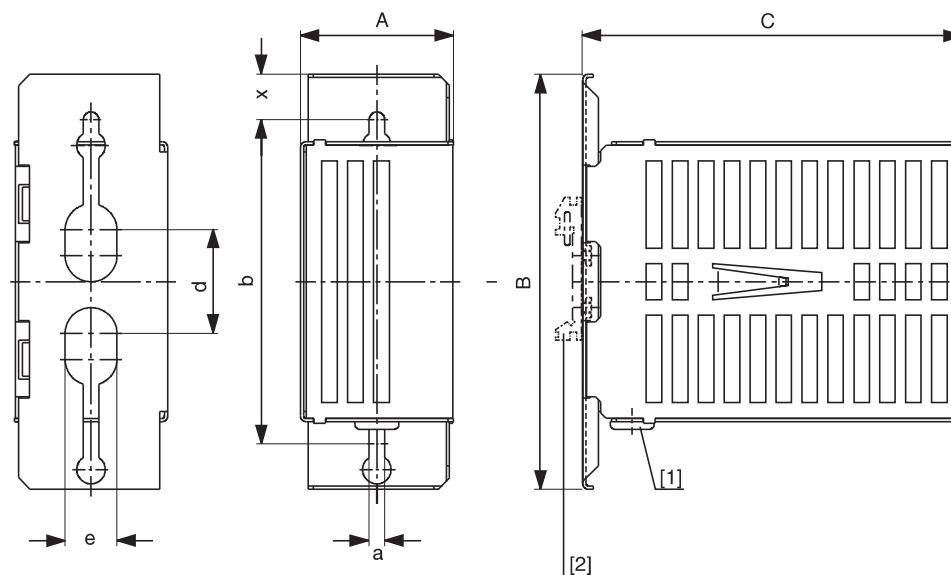
6.1.10 BS... touch guard

Description

A BS.. touch guard is available for braking resistors in flat design.

Touch guard	BS003	BS005
Part number	08131511	0813152X
for braking resistor	BW027-003 BW072-003	BW027-005 BW072-005 BW100-005

Dimension drawing for BS...



1455849867

[1] Grommet

[2] Support rail mounting

Type	Main dimensions in mm			Mounting dimensions mm					Mass kg
	A	B	C	b	d	e	a	x	
BS-003	60	160	146	125	40	20	6	17.5	0.35
BS-005	60	160	252	125	4	20	6	17.5	0.5

Mounting rail installation

A mounting rail attachment HS001 is available from SEW-EURODRIVE, part number 8221944, for mounting the touch guard on a mounting rail.

6.1.11 DKB11A heat sink for braking resistors in flatpack design

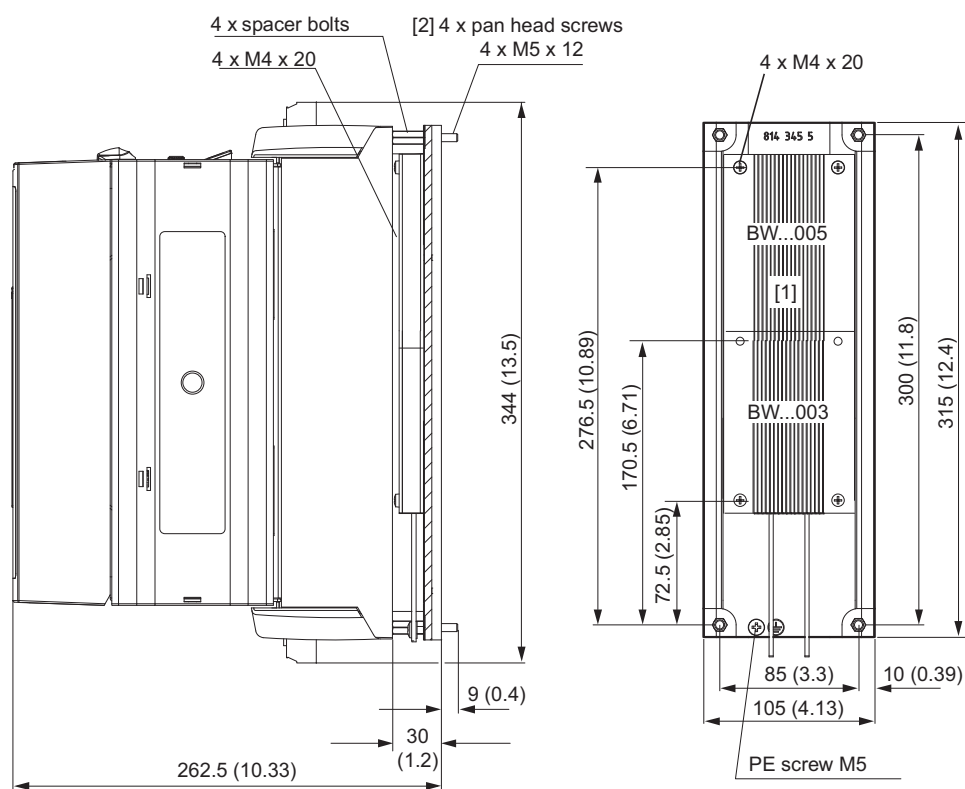
Part number

08143455

Description

The DKB11A heat sink for braking resistors in flatpack design provides a compact means for mounting the braking resistors (BW072-005, BW100 – 005) beneath MOVIDRIVE® B size 1 (400/500 V devices: 0015 – 0040; 230 V devices: 0015 – 0037). The resistor is inserted into the heat sink and attached using the supplied screws (M4 × 20).

Dimension drawing



1455852939

All dimensions in mm (in)

- [1] Mounting surface for the braking resistor
- [2] You need 4 × M5 × 12 screws to mount the device on the heat sink. These screws are not included in the scope of delivery.

6.2 ND.. line chokes

Using line chokes is optional:

- To support overvoltage protection
- To smoothen the line current, to reduce harmonics
- For protection in the event of distorted line voltage
- To limit the charging current when several inverters are connected together in parallel on the input end with a shared line contactor (nominal current of line choke = total of inverter currents).

ND.. line chokes have cRUus approval independent of the inverter.

Use is required under the following circumstances:

- When operating 5 or more inverters that are switched on simultaneously. The line choke limits overvoltages caused by the switching.

The following use is recommended:

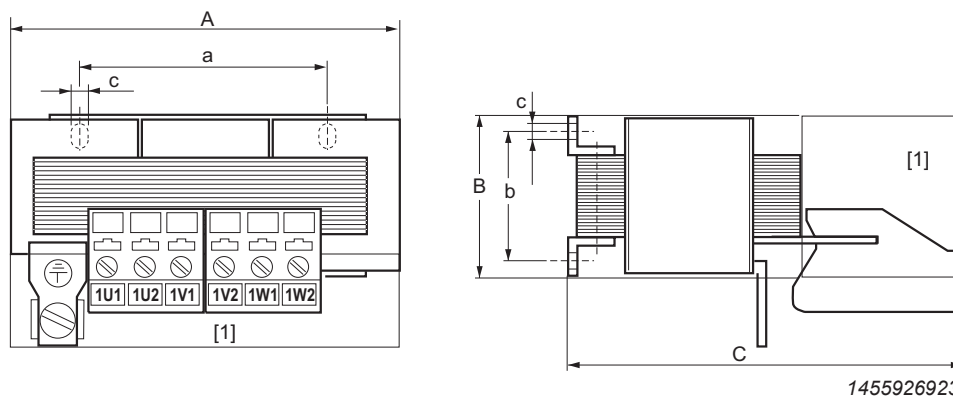
- In supply systems with many switching elements such as regenerative power supply units or thyristor controllers

Line choke type	ND020-013	ND030-023 ¹⁾	ND045-013	ND085-013	ND150-013	ND200-0033	ND300-0053
Part number	08260125	08271518	08260133	08260141	08255482	08265798	08277214
Nominal line voltage V _N (according to EN 50160)	3 × AC 380 V – 500 V, 50/60 Hz						
Rated current ²⁾ I _N	AC 20 A	AC 30 A	AC 45 A	AC 85 A	AC 150 A	AC 200 A	AC 300 A
Power loss at I _N P _V	10 W	30 W	15 W	25 W	65 W	100 W	280 W
Inductance L _N	0.1 mH	0.2 mH	0.1 mH	0.1 mH	0.1 mH	0.03 mH	0.05 mH
Ambient temperature ϑ_{amb}	-25 – +45 °C						
Degree of protection	IP00 (EN 60529)						
Connections	Terminal strips 4 mm ² (AWG12)	Terminal strips 2.5 mm ² – 10 mm ² (AWG13 – AWG8)	Terminal strips 10 mm ² (AWG8)	Terminal strips 35 mm ² (AWG2)	M10 stud PE: M8 stud		M12 stud PE: 2 × M10
Tightening torque	0.6 – 0.8 Nm	max. 2.5 Nm		3.2 – 3.7 Nm	M10 stud: 10 Nm PE: 6 Nm		M12 stud: 15.5 Nm PE: 10 Nm
Assignment to AC 400/500 V devices (MDX60/61B...-5_3)							
Nominal operation (100%)	0005 – 0075	0110/0150	0110 – 0220 and MDR60A0150	0300 – 0450 and MDR60A0370	0550/0750	MDR60A 0750	0900 – 1320
Increased power (125%)	0005 – 0075	0110	0110/0150	0220 – 0370	0450 – 0750		
Assignment to AC 230 V devices (MDX61B...-2_3)							
Nominal operation (100%)	0015 – 0055	-	0075/0110	0150/0220	0300	-	-
Increased power (125%)	0015 – 0037	-	0055/0075	0110/0150	0220/0300	-	-

1) Use ND030-023 for DC link connection without regenerative power supply unit with connection type A or B

2) If more than one MOVIDRIVE® device is connected to a line choke, the total value of the rated currents of the connected devices must not exceed the nominal current of the line choke.

6.2.1 Dimension drawing for line chokes ND020.. / ND030.. / ND045.. / ND085..



[1] Space for installation terminals

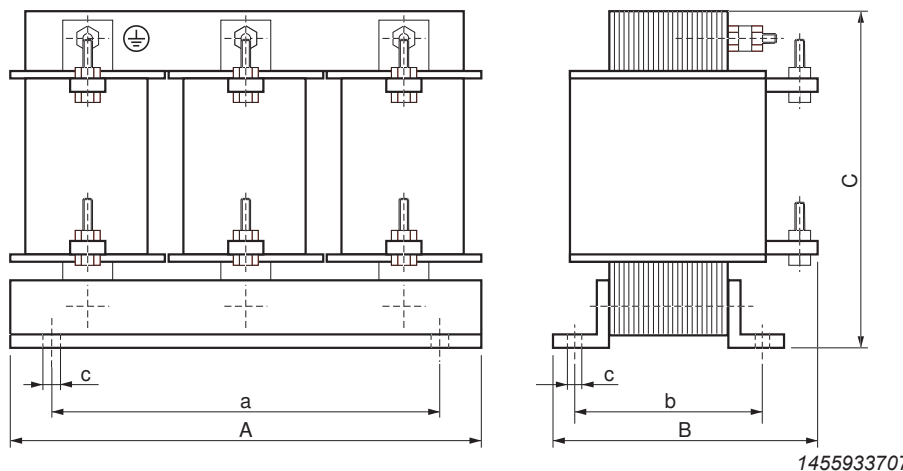
Input: 1U1, 1V1, 1W1

Any mounting position

Output: 1U1, 1V2, 1W2

Line choke type	Main dimensions in mm			Mounting dimensions mm		Hole dimension mm	Mass
	A	B	C	a	b	c	kg
ND020-013	85	60	120	50	31 - 42	5 - 10	0.5
ND030-023	125	95	170	84	55-75	6	2.5
ND045-013							
ND085-013	185	115	235	136	56 - 88	7	7

6.2.2 Dimension drawing for line chokes ND150.. / ND200.. / ND300..



Line choke type	Connection screws	Main dimensions in mm			Mounting dimensions mm		Hole dimension mm	Mass
		A	B	C	a	b	c	kg
ND150-013	M10 × 40	255	140	230	170	77	8	17
ND200-0033	M10 × 40	250	160	230	180	98	8	15
ND300-0053	M12 × 40 ¹⁾	300	190	295	255	145	11	35

1) Except PE: M10 × 30

6.3 NF...-... line filters

- To suppress interference emission on the line side of inverters.
- Do not switch between the NF... line filter and inverter.
- NF.. line filters have cRUus approval independent of inverter.

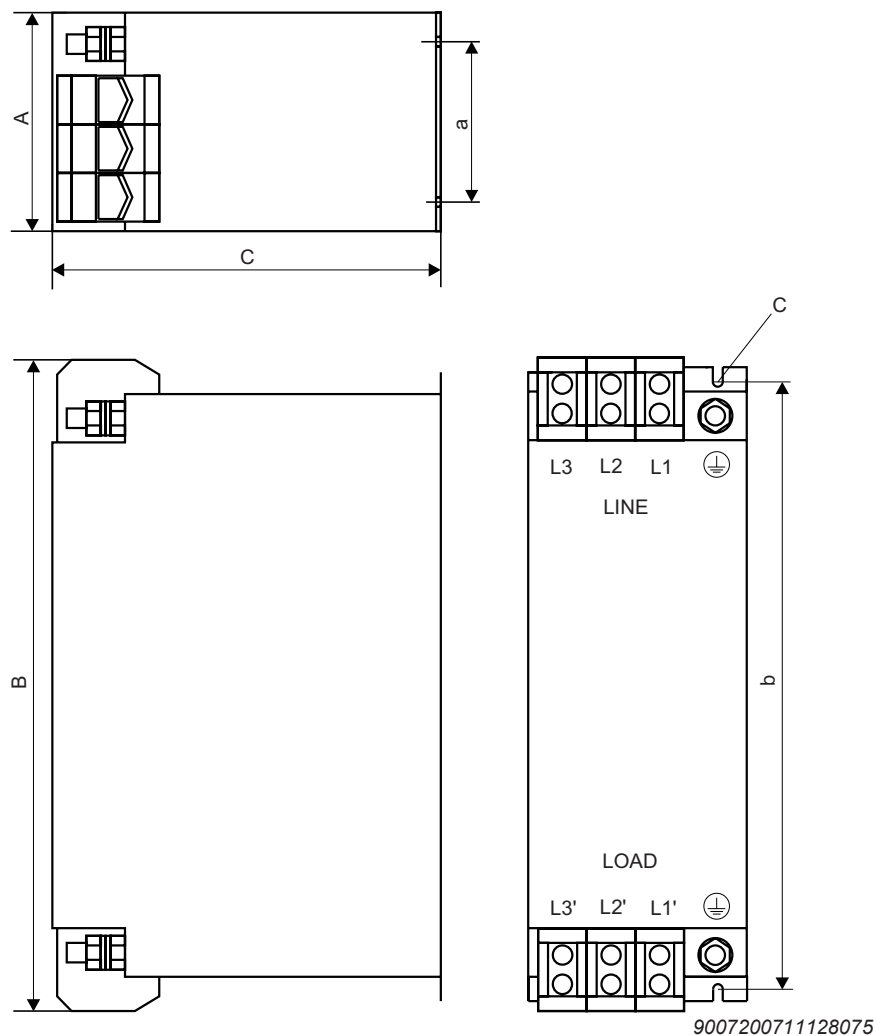
Line filter type	NF009-503	NF014-503	NF018-503	NF035-503	NF048-503
Part number	08274126	0827116X	08274134	08271283	08271178
Nominal line voltage V _N (according to EN 50160)	3 × AC 200 V – 500 V, 50/60 Hz				
Nominal current I _N	AC 9 A	AC 14 A	AC 18 A	AC 35 A	AC 48 A
Power loss at I _N P _V	6 W	9 W	12 W	15 W	22 W
Leakage current at V _N	< 25 mA	< 25 mA	< 25 mA	< 25 mA	< 40 mA
Ambient temperature ϑ_{amb}	-25 – +40 °C				
Degree of protection	IP20 (EN 60529)				
Connections L1-L3/L1'-L3'	4 mm ² (AWG 10)			10 mm ² (AWG 8)	10 mm ² (AWG 8)
Tightening torque L1-L3/L1'-L3'	0.8 Nm			1.8 Nm	1.8 Nm
Connection PE	M5 stud			M5 stud	M6 stud
Tightening torque PE	3.4 Nm			3.4 Nm	5.5 Nm
Assignment to AC 400/500 V devices (MDX60/61B...-5_3)					
Nominal operation (100%)	0005 – 0040	0055/0075	-	0110/0150	0220
Increased power (125%)	0005 – 0030	0040/0055	0075	0110	0150
Assignment to AC 230 V devices (MDX61B...-2_3)					
Nominal operation (100%)	0015/0022	0037	-	0055/0075	0110
Increased power (125%)	0015	0022	0037	0055/0075	-

Line filter type	NF063-503	NF085-503	NF115-503	NF150-503	NF210-503
Part number	08274142	08274150	08274169	08274177	08274185
Nominal line voltage V_N (according to EN 50160)	3 × AC 200 V – 500 V, 50/60 Hz				
Nominal current I_N	AC 63 A	AC 85 A	AC 115 A	AC 150 A	AC 210 A
Power loss at I_N P_V	30 W	35 W	60 W	90 W	150 W
Leakage current at V_N	< 30 mA	< 30 mA	< 30 mA	< 30 mA	< 40 mA
Ambient temperature ϑ_{amb}	-25 – +40 °C				
Degree of protection	IP20 (EN 60529)				
Connections L1-L3/L1'-L3'	16 mm ² (AWG 6)	35 mm ² (AWG 2)	50 mm ² (AWG1/0)	50 mm ² (AWG1/0)	95 mm ² (AWG4/0)
Tightening torque L1-L3/L1'-L3'	4 Nm	4.5 Nm	6 Nm	6 Nm	12 Nm
Connection PE	M6	M8	M10	M10	M10
Tightening torque PE	3.9 Nm	9 Nm	17 Nm	17 Nm	17 Nm
Assignment to AC 400/500 V devices (MDX60/61B...-5_3)					
Nominal operation (100%)	0300	0370/0450	0550	0750	0900/1100
Increased power (125%)	0220	0300/0370	0450	0550/0750	0750/0900
Assignment to AC 230 V devices (MDX61B...-2_3)					
Nominal operation (100%)	0150	0220	0300	-	-
Increased power (125%)	0110/0150	-	0220/0300	-	-

Line filter type	NF300-503	NF600-503
Part number	08274193	17963389
Nominal line voltage V_N (according to EN 50160)	3 × AC 380 V – 500 V, 50/60 Hz	
Nominal current I_N	AC 300 A	AC 600 A
Power loss at I_N P_V	180 W	44 W
Leakage current at V_N	< 45 mA	< 6 mA
Ambient temperature ϑ_{amb}	-25 – +40 °C	
Degree of protection	IP20 (EN 60529)	IP00 (EN 60529)

Line filter type	NF300-503	NF600-503
Connections L1-L3/L1'-L3'	150 mm ² (AWG300-2)	Connection rail with bore for M12 Max. 2 × 240 mm ²
Tightening torque L1-L3/L1'-L3'	20 Nm	70 Nm
Connection PE	M12	M12
Tightening torque PE	17 Nm	36 Nm
Assignment to AC 400/500 V devices (MDX60/61B...-5_3)		
Nominal operation (100%)	1320/1600	2000/2500
Increased power (125%)	1100/1320	1600/2000/2500
Assignment to AC 230 V devices (MDX61B...-2_3)		
Nominal operation (100%)	-	-
Increased power (125%)	-	-

6.3.1 Dimension drawing of NF009-503 – NF300-503 line filter

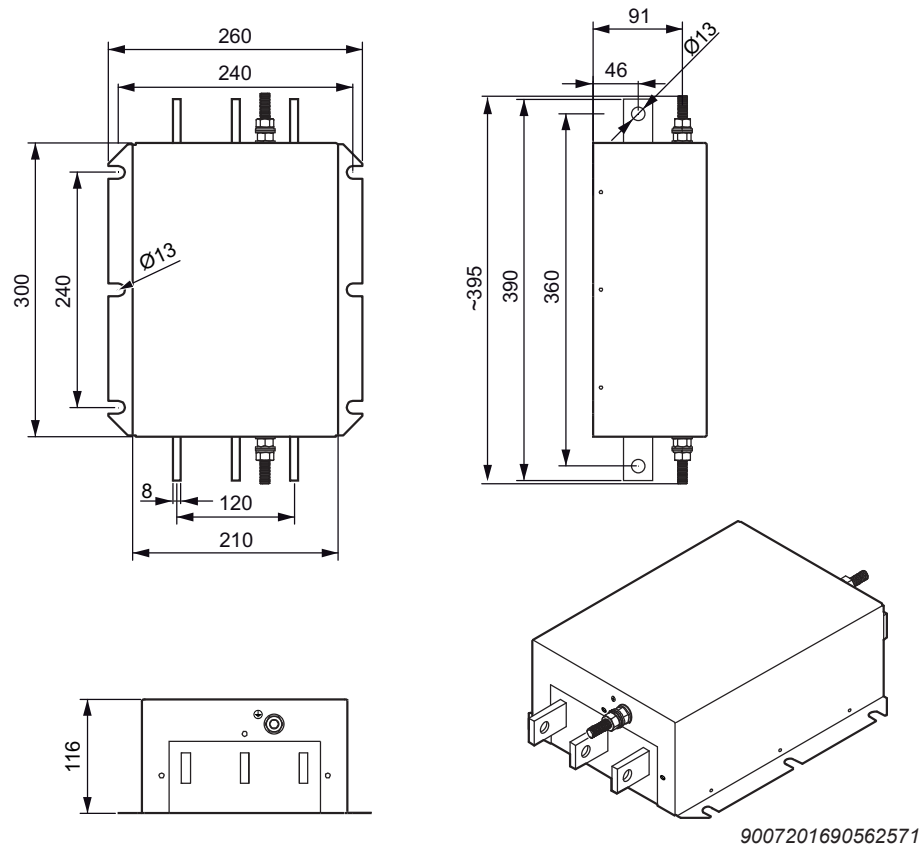


Any mounting position

Line filter type	Main dimensions in mm			Mounting dimensions mm		Hole dimension mm	PE connection	Mass
	A	B	C	a	b	c		kg
NF009-503	55	195	80	20	180	5.5	M5	0.8
NF014-503		225			210			0.9
NF018-503	50	255	240	1.1				
NF035-503	60	275	100	30	255			M6
NF048-503		315			295	2.1		
NF063-503	90	260	140	60	235	6.5	M8	2.4
NF085-503		320			255			3.5
NF115-503	100	330	155	65	255		M10	4.8
NF150-503								5.6
NF210-503	140	450	190	102	365	M12		8.9
NF300-503	170	540	230	125	435		12.2	

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6.3.2 Dimension drawing of NF600-503 line filter



Any mounting position

Line filter type	PE connection	Mass
		kg
NF600-503	M12	16.8

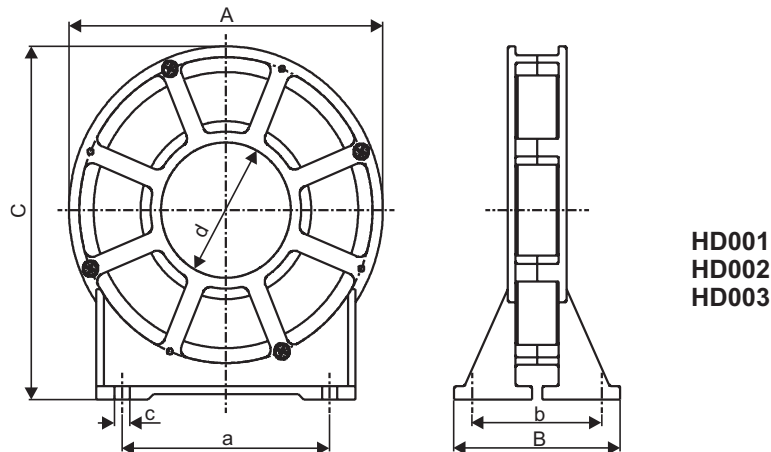
6.4 HD... output chokes

- For suppression of interference from the unshielded motor cable. For HD001 to HD003 we recommend routing the motor cable through the output choke with 5 loops. Less than 5 loops are possible if the cable has a large diameter. To make up for this, 2 or 3 output chokes should be connected in series. If you use 4 loops, connect 2 output chokes in series, and if you use 3 loops, connect 3 output chokes.
- Output chokes HD001 to HD003 are allocated using the cable cross sections of the motor cables. Consequently, there is no separate assignment table for the AC 230 V devices.
- The HD004 output choke is assigned to size 6 devices (0900 – 1320).
- The HD005 output choke is assigned to size 7 devices (1600 – 2500).

Output choke type	HD001	HD002	HD003	HD004	HD005
Part number	08133255	08135576	08135584	08168857	17963362
Maximum power loss Power loss P_{Vmax}	15 W	8 W	30 W	100 W	162
For cable cross sections/connections/ Tightening torque	1.5 – 16 mm ² (AWG 16 – 6)	≤ 1.5 mm ² (AWG 16)	≥ 16 mm ² (AWG 6)	Terminal stud M12 36 Nm	M12 cable lugs 70 Nm PE connection M12 36 Nm
Degree of protection	-	-	-	IP10	IP00
UL/cUL approval	No UL/cUL relevant component			Yes	Yes

6.4.1 Dimension drawing HD001 – HD003

The following figure shows the mechanical dimensions in mm (in):



HD001
HD002
HD003

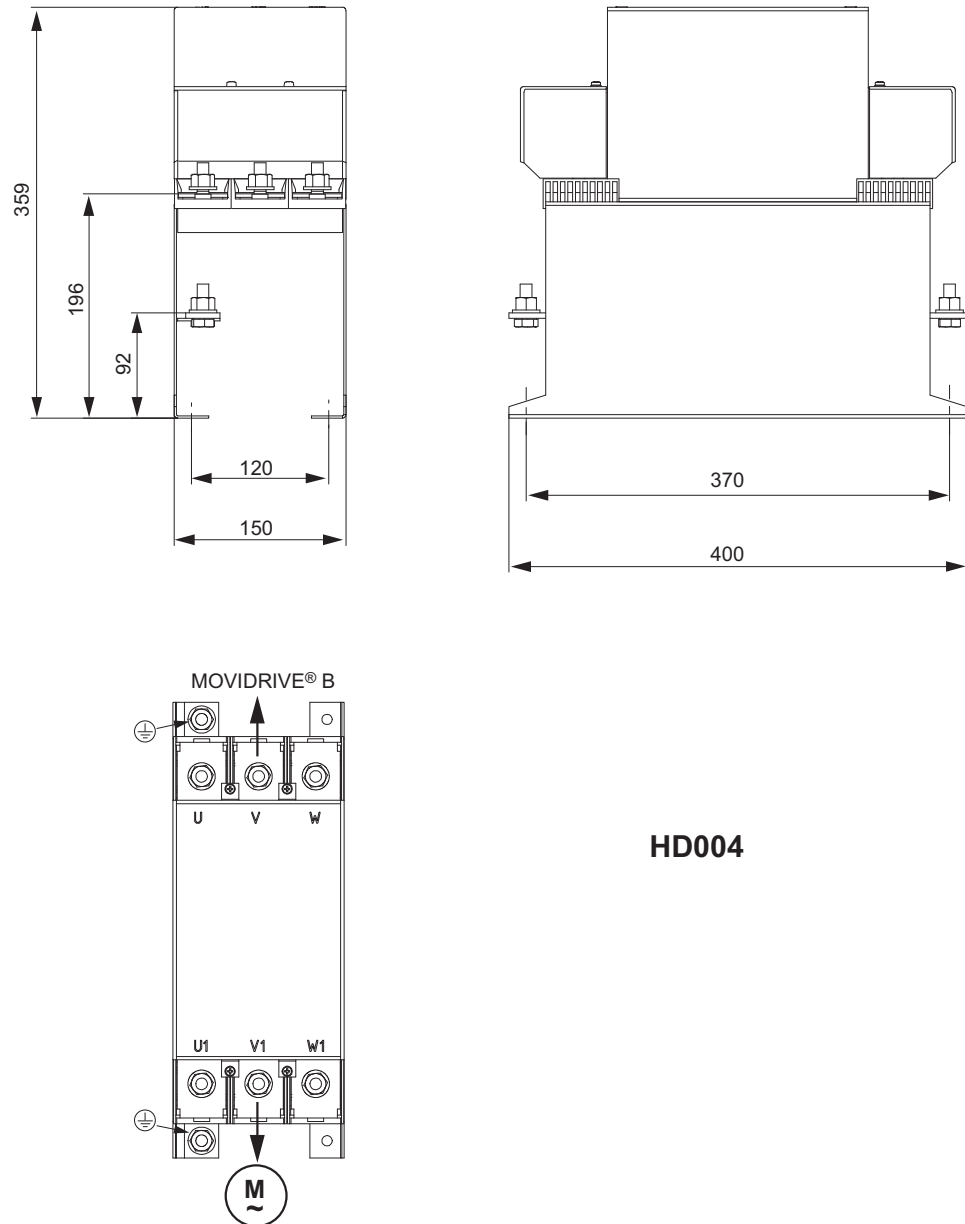
1456392203

Output choke type	Main dimensions in mm			Mounting dimensions mm		Inner diameter in mm	Hole dimension mm	Weight
	A	B	C	a	b	d	c	kg
HD001	121	64	131	80	50	50	5.8	0.5
HD002	66	49	73	44	38	23		0.2
HD003	170	64	185	120	50	88	7.0	1.1

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6.4.2 Dimension drawing of HD004

The following figure shows the mechanical dimensions in mm (in):



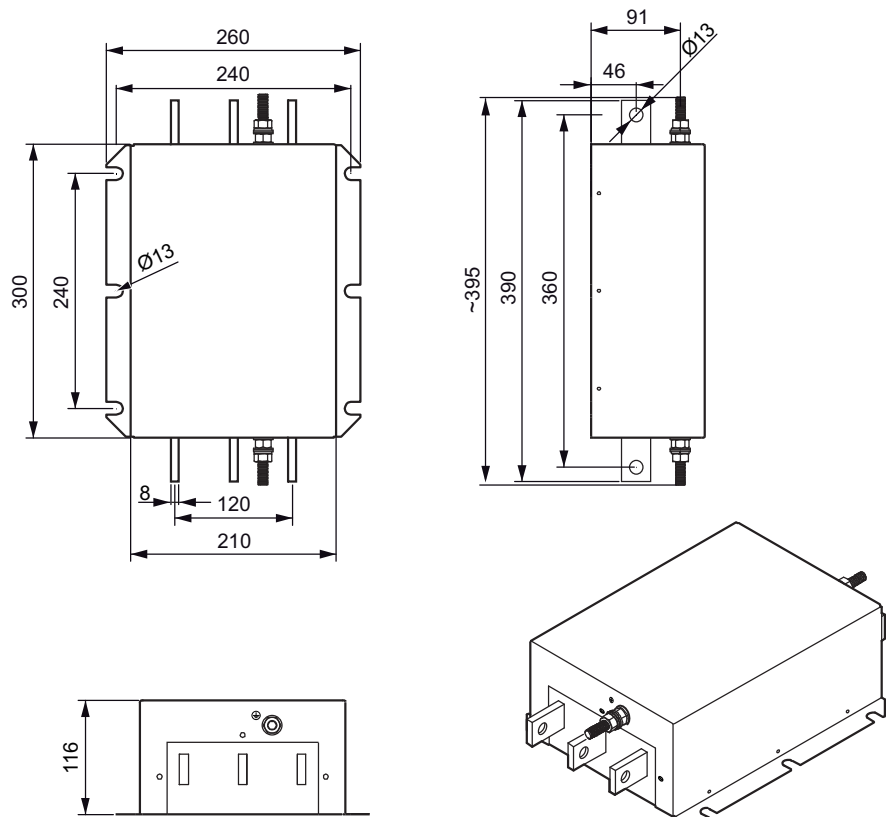
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Output choke type	Main dimensions in mm			Mounting dimensions mm		Inner diameter in mm	Hole dimension mm	Mass
	A	B	C	a	b	d	c	kg
HD004	150	400	360	120	370	—	9.0	12.5

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6.4.3 Dimension drawing of HD005

The following figure shows the mechanical dimensions in mm (in).



Output choke type	PE connection	Mass
		kg
HD005	M12	16

6.5 HF... output filter

HF... output filters are sine filters used to smooth output voltage of inverters. HF... output filters (with the exception of HF450-503, HF180-403, HF325-403) are approved to UL/cUL in combination inverters.

HF... output filters are used in the following cases:

- In group drives (several motor leads in parallel); the discharge currents in the motor cables are suppressed.
- To protect the motor winding insulation of third-party motors which are not suitable for inverters.
- For protection against overvoltage peaks in long motor cables (> 100 m).

Observe the following notes:

INFORMATION



- Output filters must only be operated in V/f and VFC operating modes.
- Do not use output filters in hoist applications.
- During project planning of the drive, take the voltage drop in the output filter into account and the reduced motor torque that results. This applies particularly to AC 230 V devices with output filters.

Output filter type	HF008-503 ¹⁾	HF015-503 ¹⁾	HF022-503 ¹⁾	HF030-503 ¹⁾	HF040-503 ¹⁾	HF055-503 ¹⁾
Part number	0826029X	08260303	08260311	0826032X	08263116	08263124
Nominal voltage V _N	3 × AC 230 V – 500 V, 50/60 Hz ²⁾					
Leakage current at V _N ΔI	0 mA					
Power loss at I _N P _V	25 W	35 W	55 W	65 W	90 W	115 W
Interference emission via unshielded motor cable	According to limit value class C1/C2 in accordance with EN 61800-3 ³⁾					
Ambient temperature θ _{amb}	0 – +45 °C (reduction: 3% I _N per K to max. 60 °C)					
Degree of protection (EN 60529)	IP20					
Connections / Tightening torque	M4 terminal stud 1.6 Nm ± 20%					
Mass	3.1 kg	4.4 kg			10.8 kg	
Assignment to AC 400/500 V devices (MDX60/61B...-5_3)						
Voltage drop at I _N ΔU	< 6.5% (7.5%) at AC 400 V / < 4% (5%) at AC 500 V with f _{Amax} = 50 Hz (60 Hz)					
Nominal through current ⁴⁾ I _{N 400 V} (at V _{line} = 3 × AC 400 V)	AC 2.5 A	AC 4 A	AC 6 A	AC 8 A	AC 10 A	AC 12 A
Nominal throughput current I _{N 500 V} (at V _{line} = 3 × AC 500 V)	AC 2 A	AC 3 A	AC 5 A	AC 6 A	AC 8 A	AC 10 A
Nominal operation (100%) ³⁾	0005 – 0011	0014 / 0015	0022	0030	0040	0055
Increased power (125%) ³⁾	0005	0008 / 0011	0014 / 0015	0022	0030	0040
Assignment to AC 230 V devices (MDX61B...-2_3)						
Voltage drop at I _N ΔU	-	< 18.5 % (19 %) at AC 230 V with f _{Amax} = 50 Hz (60 Hz)				
Nominal throughput current I _{N 230 V} (at V _{line} = 3 × AC 230 V)	AC 4.3 A	AC 6.5 A	AC 10.8 A	AC 13 A	AC 17.3 A	AC 22 A
Nominal operation (100%) ³⁾	–	–	0015/0022	–	0037	0055
Increased power (125%) ³⁾	–	–	0015/0022	–	–	0037

1) UL/cUL approved in combination with MOVIDRIVE® drive inverters. SEW-EURODRIVE will provide certification on request.

2) A reduction of 6% I_N per 10 Hz applies above $f_A = 60$ Hz for the nominal through current I_N .

3) Observe the chapter on EMC-compliant installation according to EN 61800-3 in the SEW documentation

4) Only applies for operation without VDC link connection. For operating the inverter with VDC link connection, observe the project planning notes in the system manual of the respective inverter.

Output filter type	HF075-503 ¹⁾	HF023-403 ¹⁾	HF033-403 ¹⁾	HF047-403 ¹⁾	HF450-503	HF180-403	HF325-403
Part number	08263132	08257841	0825785X	08257868	08269483	08299099	08299102
Nominal voltage V_N	3 × AC 230 V – 500 V, 50/60 Hz ²⁾						
Leakage current at $V_N \Delta I$	0 mA						
Power loss at $I_N P_V$	135 W	90 W	120 W	200 W	400 W	860 W	1430 W
Interference emission via unshielded motor cable	According to limit value class C1/C2 in accordance with EN 61800-3 ³⁾						
Ambient temperature ϑ_{amb}	0 – +45 °C (reduction: 3% I_N per K to max. 60 °C)					-25 – +85 °C	
Degree of protection (EN 60529)	IP 20	IP20			IP 10	IP00	IP00
Connections / Tightening torque	M4 terminal stud 1.6 Nm ± 20 %	35 mm ² (AWG 2) 3.2 Nm				M10 terminal studs / 70 mm ² (AWG 3/0)30 Nm	
Mass	10.8 kg	15.9 kg	16.5 kg	23 kg	32 kg	85.3 kg	170 kg
Assignment to AC 400/500 V devices (MDX60/61B...-5_3)							
Voltage drop at $I_N \Delta U$	< 6.5% (7.5%) at AC 400 V / < 4% (5%) at AC 500 V with $f_{Amax} = 50$ Hz (60 Hz)						
Nominal through current ⁴⁾ $I_{N 400 V}$ (at $V_{line} = 3 \times AC 400 V$)	AC 16 A	AC 23 A	AC 33 A	AC 47 A	AC 90 A	AC 180 A	AC 325 A
Nominal throughput current $I_{N 500 V}$ (at $V_{line} = 3 \times AC 500 V$)	AC 13 A	AC 19 A	AC 26 A	AC 38 A	AC 72 A	AC 180 A	AC 325 A
Nominal operation (100%) ³⁾	0075	0110	0150/0300 ⁵⁾	0220	0370/0450/ 0550 ⁵⁾ /0750 ⁵⁾ / 0900 ⁵⁾	0550/0750/0 900	1100/1320
Increased power (125%) ³⁾	0055	0075	0110/0220 ⁵⁾	0150	0300/0370/0 450 /0550 ⁵⁾ /0750 ⁵⁾	0550/0750	0900/1100/1 320
Assignment to AC 230 V devices (MDX61B...-2_3)							
Voltage drop at $I_N \Delta U$	< 18.5% (19%) at AC 230 V with $f_{Amax} = 50$ Hz (60 Hz)						
Nominal throughput current $I_{N 230 V}$ (at $V_{line} = 3 \times AC 230 V$)	AC 29 A	AC 42 A	AC 56.5 A	AC 82.6 A	AC 156 A	–	–
Nominal operation (100%) ³⁾	0075	0110	0150/0300 ⁵⁾	0220	0300	–	–
Increased power (125%) ³⁾	0055	0075	0110/0220 ⁵⁾	0150	0220/0300	–	–

1) Approved to UL/cUL in combination with MOVIDRIVE® drive inverters. SEW-EURODRIVE will provide certification on request.

2) A reduction of 6% I_N per 10 Hz applies above $f_A = 60$ Hz for the nominal through current I_N .

3) Observe the chapter on EMC-compliant installation according to EN 61800-3 in the SEW documentation

4) Only applies for operation without Uz connection. For operation with Uz connection, observe the project planning notes in the MOVIDRIVE® MDX60/61B system manual, section "Project Planning/Connecting the optional power components".

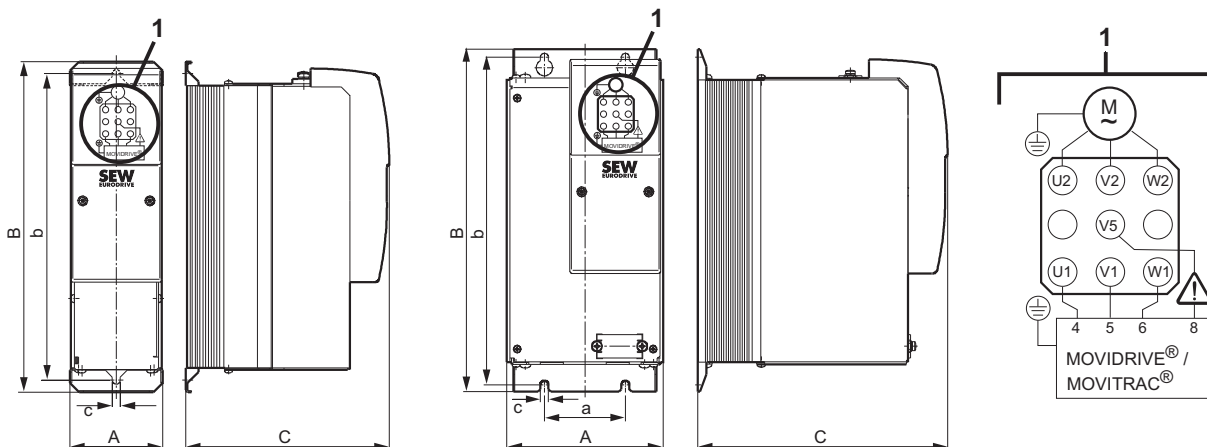
5) Connect two HF...-... output filters in parallel for operation with these MOVIDRIVE® devices.

6.5.1 Dimension drawings of HF...-503 output filters

The following figures show the mechanical dimensions in mm (in).

HF008/015/022/030-503

HF040/055/075-503



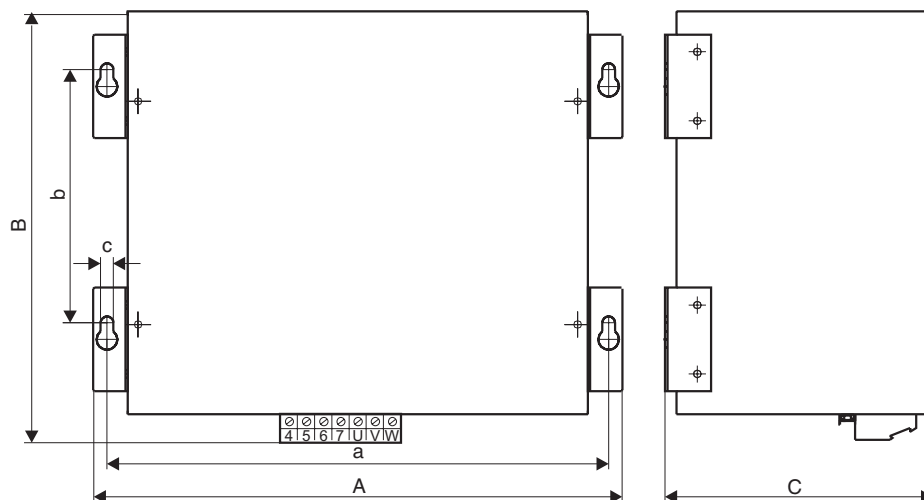
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Only the mounting position shown in the dimension drawing is permitted.

Output filter type	Main dimensions in mm			Mounting dimensions mm		Hole dimension mm	Ventilation clearances ¹⁾ mm	
	A	B	C	a	b		Top	Bottom
HF008/015/022/030-503	80	286	176	–	265	7	100	100
HF040/055/075-503	135	296	216	70	283			

1) There is no need for clearance at the sides. You can line up the devices next to one another.

HF450-503



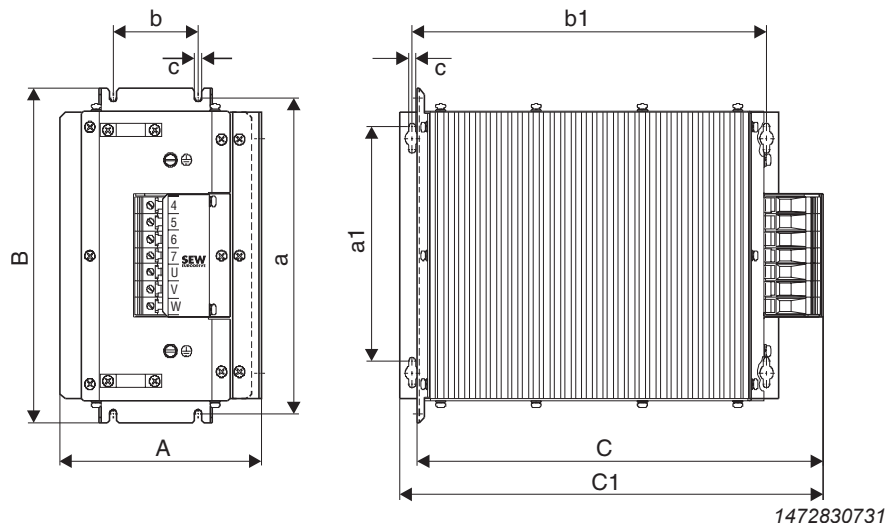
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Only the mounting position shown in the dimension drawing is permitted.

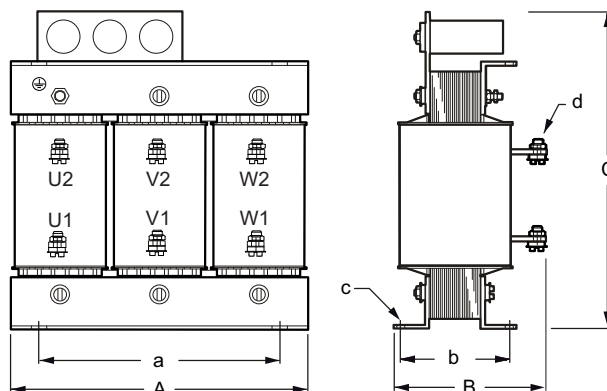
Output filter type	Main dimensions in mm			Mounting dimensions mm		Hole dimension mm	Ventilation clearances mm	
	A	B	C	a	b		Top	Bottom
HF450-503	465	385	240	436	220	8.5	100	100

6.5.2 Dimension drawings of HF...-403 output filters

The following figures show the mechanical dimensions in mm (in).



Type	Main dimensions in mm			Mounting dimensions mm				Hole di- mension mm	Ventilation clearances mm		
				Standard installa- tion		Horizontal mount- ing position					
	A	B	C/C1	a	b	a1	b1	c	On the side	Top	Bottom
HF023-403	145	284	365/390	268	60	210	334	6.5	30 each	150	150
HF033-403											
HF047-403	190	300	385/400	284	80						



The ring cable lug must be attached directly to the copper clip.

Only the mounting positions depicted in the dimension drawing are permitted

Output filter type	Main dimensions in mm			Mounting dimensions mm		Hole dimension mm		Ventilation clearances mm		
	A	B	C	a	b	c	d	On the side	Top	Bottom
HF180-403	480	260	510	430	180	18 x 13	11	192 each	510	510
HF325-403	480	300	730	430	230	18 x 13	11	192 each	730	730