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Find the *SEW Eurodrive MDX61B0022-5A3-4-OT* at our website: *Click HERE*

5.3.6 Setting parameters

Proceed in this order to set the parameters:

- Call up the context menu using the ☰ key. In the context menu, select the "PARAMETER MODE" menu item. Confirm your entry with the OK key. The flashing cursor under the parameter number indicates that the keypad is in parameter mode.
- Press the ↵ key to change to edit mode. The flashing cursor disappears.
- You can use the ↑ key or ↓ key to select or set the correct parameter value.
- Confirm the setting by pressing the OK key.
- Press the ↵ key to return to the parameter mode. The flashing cursor appears again.
- Press the ↑ key to select the next parameter.

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5.4 Operation of MOVITOOLS® MotionStudio

5.4.1 Via MOVITOOLS® MotionStudio

Tasks

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

- Establishing communication with units
- Executing functions with the units

Establishing communication with other units

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

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

MOVITOOLS® MotionStudio supports the following types of communication channels:

- Serial (RS-485) 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 units and its communication options.

Executing functions with the units

The software package offers uniformity in executing the following functions:

- Parameterization (for example in the parameter tree of the unit)
- Startup
- Visualization and diagnostics
- Programming

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

- MotionStudio
- MOVITOOLS®

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

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Technical support

SEW-EURODRIVE offers you a 24-hour service hotline.

Simply dial **(+49) 0 18 05** and then enter the letters **SEWHELP** via the telephone keypad. Of course, you can also dial **(+49) 0 18 05 - 7 39 43 57**.

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" control field, 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 unit parameters.

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5.4.2 First steps

Starting the software and creating a project

Proceed as follows to start MOVITOOLS® MotionStudio and create a project:

1. Start the MOVITOOLS® MotionStudio from the Windows start menu via:

   [Start]/[Programs]/[SEW]/[MOVITOOLS-MotionStudio]/[MOVITOOLS-MotionStudio]
2. Create a project with name and storage location.

Establishing communication and scanning the network

Proceed as follows to establish a communication with MOVITOOLS® MotionStudio and scan your network:

1. Set up a communication channel to communicate with your units.

   For detailed information on how to configure a communication channel, see the section regarding the relevant communication type.
2. Scan your network (unit scan). Press the [Start network scan] button [1] in the toolbar.



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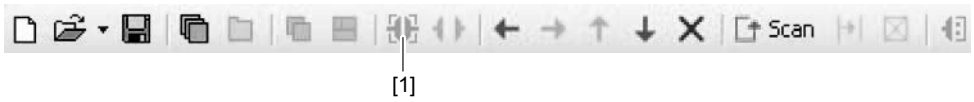
1. Select the unit you want to configure.
2. Right-click to open the context menu.

   As a result you will see a number of unit-specific tools to execute various functions with the units.

Starting up the units (online)

Proceed as follows to start up the units (online):

1. Switch to the network view.
2. Click on "Switch to online mode" [1] in the toolbar.



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[1] "Switch to online mode" symbol

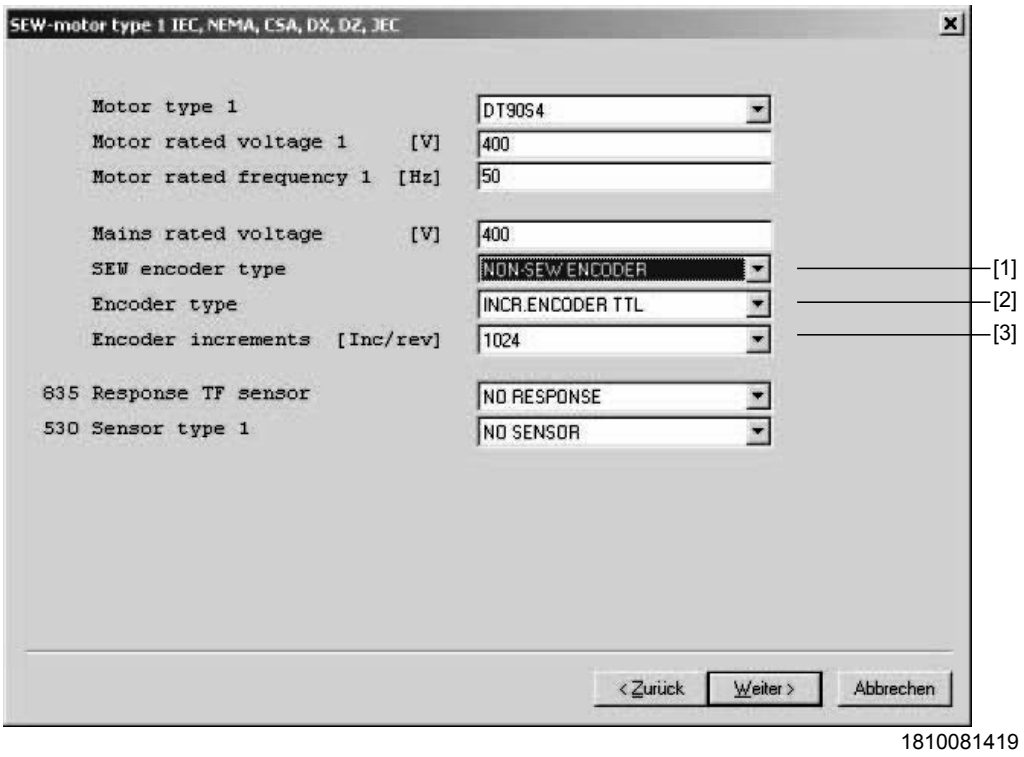
3. Select the unit you want to startup.
4. Open the context menu and select the command [Startup] / [Startup].

   The Startup wizard opens.
5. Follow the instructions of the startup wizard and then load the startup data onto your unit.

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Startup for HTL motor encoders

Observe the following safety notes when starting up an HTL motor encoder to MOVIDRIVE® MDX61B:



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Fig. 23: Settings for startup of a motor with HTL motor encoder

[1] "SEW encoder type" selection list
[2] "Encoder type" selection list
[3] "PPR count" selection list

- Select "Non-SEW encoder" from the "SEW encoder type" list [1].
- Select "INCREM. ENC. TTL" from the "Encoder type" list [2].
- In the dropdown menu "PPR count" [3] select the PPR count (1024 for SEW HTL encoders) printed on the HTL motor encoder.

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5.5 Starting the motor

5.5.1 Analog setpoint selection

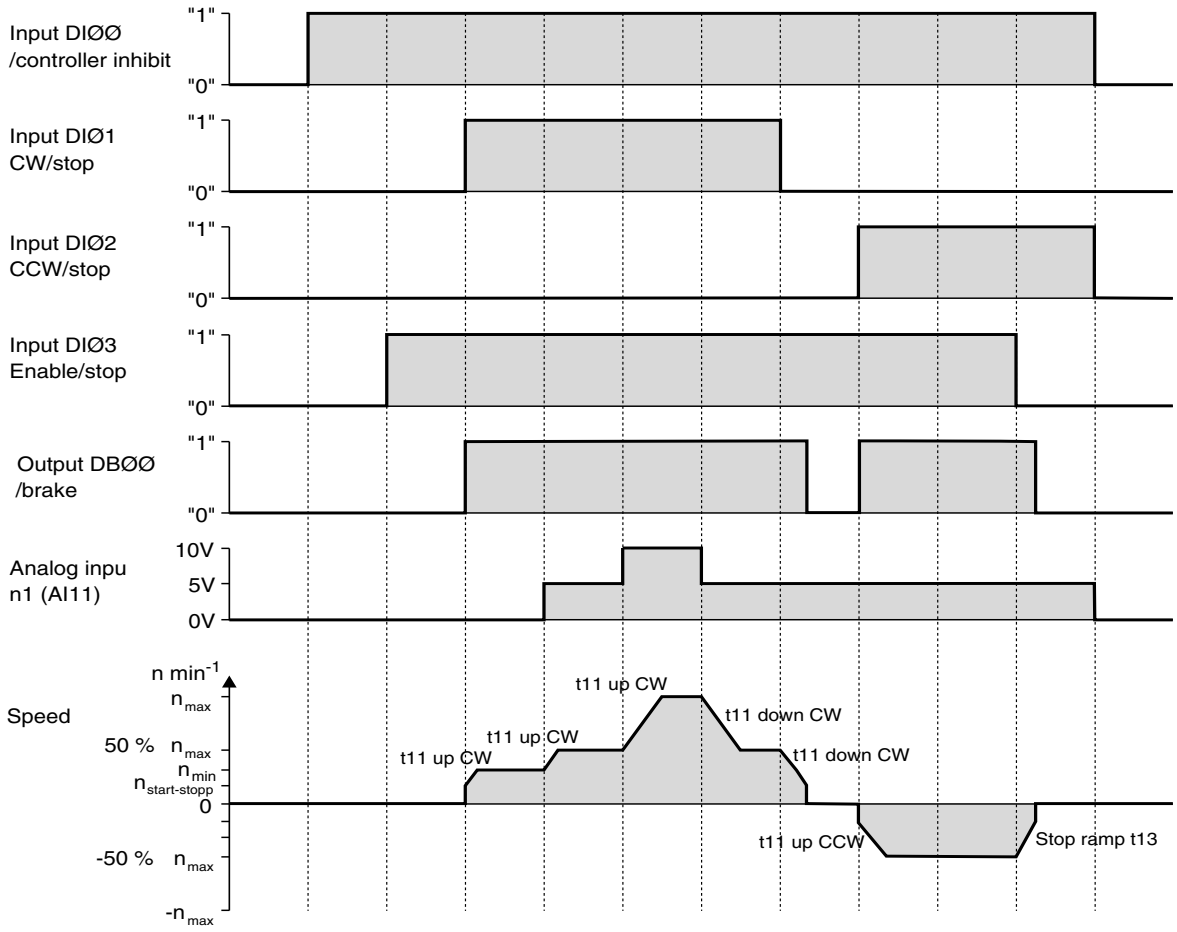
The following table shows the signals that must be present on terminals X11:2 (AI1) and X13:1 – X13:6 (DIØØ – DIØ5) when the "UNIPOL/FIX.SETPT" setpoint is selected (P100) to operate the drive with an analog setpoint entry.

Function	X11:2 (AI11) Analog input n1	X13:1 (DIØØ) /Controller inhibit	X13:2 (DIØ1) CW/stop	X13:3 (DIØ2) CCW/stop	X13:4 (DIØ3) Enable/stop	X13:5 (DIØ4) n11/n21	X13:6 (DIØ5) n12/n22
Controller inhibit	X	"0"	X	X	X	"0"	"0"
Stop	X	"1"	X	X	"0"	"0"	"0"
Enable and stop	X	"1"	"0"	"0"	"1"	"0"	"0"
Clockwise at 50 % n_{max}	5 V	"1"	"1"	"0"	"1"	"0"	"0"
Clockwise with n_{max}	10 V	"1"	"1"	"0"	"1"	"0"	"0"
Counterclockwise with 50 % n_{max}	5 V	"1"	"0"	"1"	"1"	"0"	"0"
Counterclockwise with n_{max}	10 V	"1"	"0"	"1"	"1"	"0"	"0"

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5.5.2 Travel diagram

The following travel diagram shows by way of example how the motor is started with the wiring of terminals X13:1 – X13:4 and analog setpoints. Binary output X10:3 (DBØØ "/ Brake") is used for switching brake contactor K12.



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	INFORMATION
	The motor is not energized in the event of a controller inhibit (DIØØ = "0"). A motor without brake will coast to standstill.

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5.5.3 Fixed setpoints

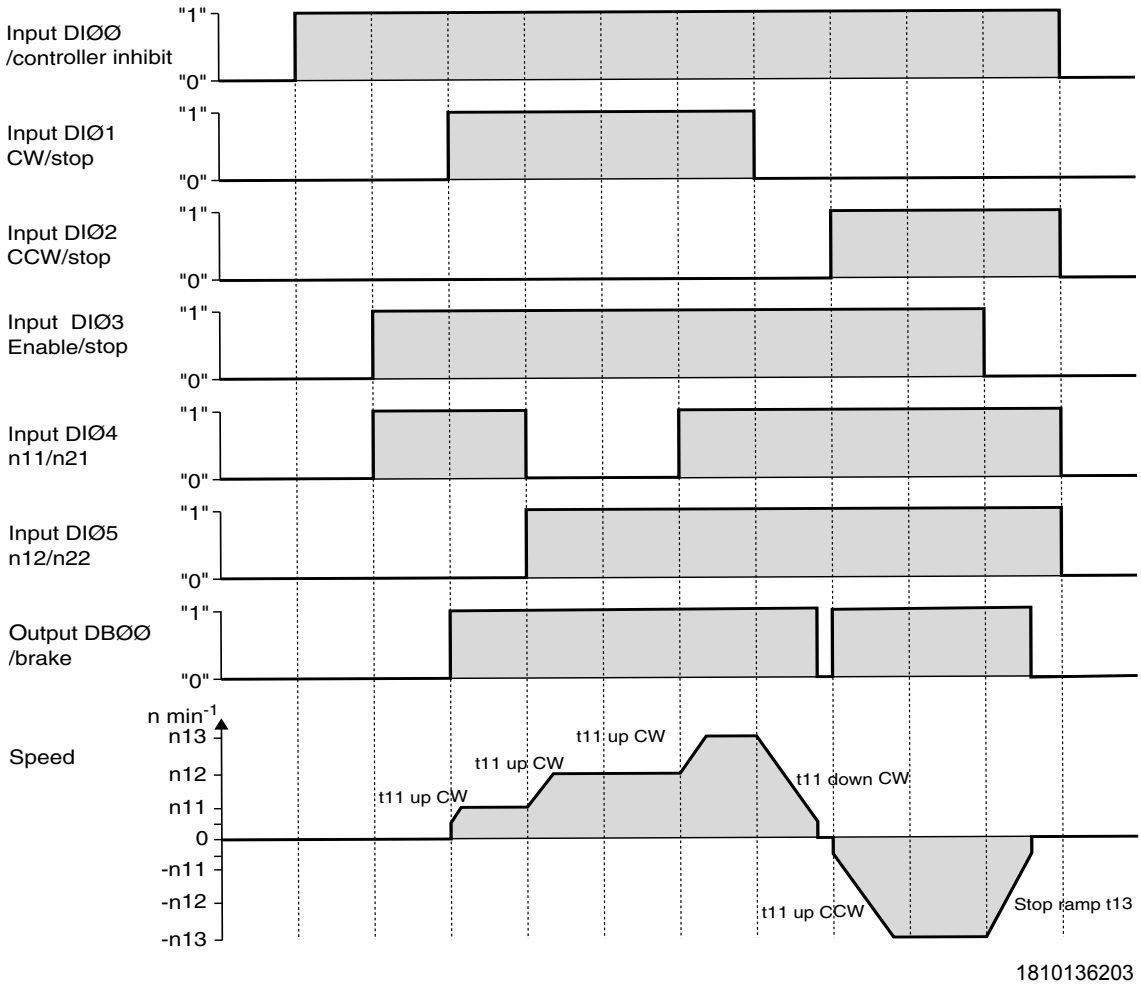
The following table shows the signals that must be present on terminals X13:1 – X13:6 (DIØØ – DIØ5) when the "UNIPOL/FIX.SETPT" setpoint is selected (P100) to operate the drive with the fixed setpoints.

Function	X13:1 (DIØØ) /Controller inhibit	X13:2 (DIØ1) CW/stop	X13:3 (DIØ2) CCW/stop	X13:4 (DIØ3) Enable/stop	X13:5 (DIØ4) n11/n21	X13:6 (DIØ5) n12/n22
Controller inhibit	"0"	X	X	X	X	X
Stop	"1"	X	X	"0"	X	X
Enable and stop	"1"	"0"	"0"	"1"	X	X
CW operation with n11	"1"	"1"	"0"	"1"	"1"	"0"
CW operation with n12	"1"	"1"	"0"	"1"	"0"	"1"
CW operation with n13	"1"	"1"	"0"	"1"	"1"	"1"
CCW operation with n11	"1"	"0"	"1"	"1"	"1"	"0"

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5.5.4 Travel diagram

The following travel diagram shows an example of how the drive is started with the wiring of terminals X13:1 – X13:6 and internal fixed setpoints. Binary output X10:3 (DBØØ "/Brake") is used for switching brake contactor K12.



	INFORMATION
	The motor is not energized in the event of a controller inhibit (DIØØ = "0"). A motor without brake will coast to standstill.

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5.5.5 Manual operation

The inverter can be controlled using the DBG60B keypad in manual operation (context menu → manual operation). The 7-segment display on the unit shows "H" during manual operation.

The binary inputs are then without any functions for the duration of manual operation, with the exception of X13:1 (DIØØ "/Controller inhibit"). Binary input X13:1 (DIØØ "/Controller inhibit") must get a "1" signal to enable the drive to be started in manual operation. The drive can also be stopped in manual operation by X13:1 = "0".

The direction of rotation is not determined by the "CW/stop" or "CCW/stop" binary inputs. Instead, you select the direction of rotation using the DBG60B keypad. Enter the required speed and then the direction of rotation (+ ≙ CW / – ≙ CCW) using the sign key (+/–).

Manual operation remains active when the power supply is switched off and on; however, the inverter is then inhibited. Use the "Run" key to enable and start the inverter at n_{min} in the selected direction of rotation. The speed is increased and decreased using the ↑ and ↓ keys.

	**INFORMATION** The signals at the binary inputs take effect as soon as manual operation is finished. Binary input X13:1 (DIØØ) /Controller inhibit does not have to be switched from "1" to "0" and back to "1". The drive can start according to the signals at the binary inputs and the setpoint sources.

	**⚠ DANGER** Risk of crushing if the motor starts up unintentionally. Severe or fatal injuries. • Ensure that the motor cannot start inadvertently, for example, by removing the signal terminal block X13. • Additional safety precautions must be taken depending on the application to avoid injury to people and damage to machinery.

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5.5.6 Startup in "VFC & Flying start" operating mode

The parameter *P320 Automatic adjustment* is deactivated in the "VFC & Flying start" mode. It is important that the stator resistance (*P322 IxR compensation 1)* is set correctly to ensure that the flying start function is performed properly.

	INFORMATION
	Due to exact motor data, the proper function of the flying start function has only been tested with SEW motors. SEW-EURODRIVE does not guarantee a proper function of the flying start function for non-SEW motors.

Note the following when performing **startup for an SEW motor** with DBG60B or MOVITOOLS® MotionStudio:

The value of the stator resistance (*P322 IxR compensation 1)* is set for an SEW motor at operating temperature (winding temperature 80 °C). For flying start with a cold motor, you have to reduce the stator resistance *(P322 IxR compensation 1)* by 0.34 % per Kelvin.

Note the following when performing **startup for a non-SEW motor** with DBG60B or MOVITOOLS® MotionStudio:

Measure the stator resistance *(P322 IxR compensation 1)* at startup. Proceed as follows:

1. Start up the motor in "VFC" operation mode.
2. Enable the **motor in standstill**.
3. **Note** the value of *P322 IxR compensation 1* (stator resistance) for step 6.
4. Select the "VFC & Flying start" operating mode.
5. Set *P320 "Automatic adjustment 1"* to "Off".
6. In *P322 IxR compensation 1* (stator resistance) enter the **value you noted** in step 3.

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5.6 Complete parameter list

5.6.1 General information

- The parameters in the quick menu are marked by a "\" (= display on the DBG60B keypad).
- The factory setting for the parameter is highlighted in bold.

Par.	Name	Value range
DISPLAY VALUES		
00_	**Process values**	
000	Speed	-6100 – 0 – 6100 rpm
\001	User display	"Text"
002	Frequency	0 – 600 Hz
003	Actual position	0 – 2^{31}-1 inc
004	Output current	0 – 250 % I_N
005	Active current	-250 – 0 – 250 % I_N
\006	Motor utilization 1	0 – 200 %
007	Motor utilization 2	0 – 200 %
008	DC link voltage	0 – 1000 V
009	Output current	A
01_	**Status displays**	
010	Inverter status	
011	Operating status	
012	Error status	
013	Current parameter set	1/2
014	Heat sink temperature	-20 – 0 – 100 °C
015	Operating hours	h
016	Enable hours	h
017	Work	kWh
018	KTY utilization 1	0 – 200 %
019	KTY utilization 2	0 – 200 %
02_	**Analog setpoints**	
020	Analog input AI1	-10 – 0 – 10 V
021	Analog input AI2	-10 – 0 – 10 V
022	External current limit	0 – 100 %
03_	**Binary inputs of basic unit**	
030	Binary input DIØØ	/CONTR. INHIBIT
031	Binary input DIØ1	Not in DBG60B
032	Binary input DIØ2	
033	Binary input DIØ3	
034	Binary input DIØ4	
035	Binary input DIØ5	
036	Binary input DIØ6	
037	Binary input DIØ7	
\039	Status of binary inputs DIØØ – DIØ7	

Par.	Name	Value range
04_	**Binary input options**	
040	Binary input DI1Ø	Not in DBG60B
041	Binary input DI11	
042	Binary input DI12	
043	Binary input DI13	
044	Binary input DI14	
045	Binary input DI15	
046	Binary input DI16	
047	Binary input DI17	
\048	Status of binary inputs DI1Ø - DI17	
05_	**Binary outputs of basic unit**	
050	Binary output DBØØ	/BRAKE
051	Binary output DOØ1	Not in DBG60B
052	Binary output DOØ2	
053	Binary output DOØ3	
054	Binary output DOØ4	
055	Binary output DOØ5	
\059	Status of binary outputs DBØØ, DOØ1 – DOØ5	
06_	**Binary outputs option**	
060	Binary output DO1Ø	Not in DBG60B
061	Binary output DO11	
062	Binary output DO12	
063	Binary output DO13	
064	Binary output DO14	
065	Binary output DO15	
066	Binary output DO16	
067	Binary output DO17	
\068	Status of binary outputs DO1Ø - DO17	
07_	**Unit data**	
070	Unit type	
071	Rated output current	
072	Option 1 encoder slot	
073	Option 2 fieldbus slot	
074	Option 3 expansion slot	
076	Basic unit firmware	
077	DBG firmware	Only in DBG60B
078	Technology function	
079	Unit type	Standard Application

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08_	**Error memory**	
\080	Error t-0	
081	Error t-1	
082	Error t-2	
083	Error t-3	
084	Error t-4	
09_	**Bus diagnostics**	
090	PD configuration	
091	Fieldbus type	

092	Fieldbus baud rate	
093	Fieldbus address	
094	PO1 Setpoint	
095	PO2 Setpoint	
096	PO3 Setpoint	
097	PI1 Actual value	
098	PI2 Actual value	
099	PI3 Actual value	

Par.	Name Selectable par. Parameter set 1/2	Setting range Factory setting	Comment
1__	**SETPOINTS / RAMP GENERATORS**		
10_	**Setpoint selection**		
\100	Setpoint source	UNIPOL./FIX.SETPT. BIPOL./FIX.SETPT UNIPOL./FIX.SETPT. RS485 Fieldbus Motor potentiometer Motor pot.+analog 1 Fix.setpt.+analog 1 Master SBus1 Master-RS485 SBus 1 Frequency input SBus 2 IPOS setpoint	
101	Control signal source	**Terminals**	
102	Frequency scaling	0.1 – **10 –** 65 kHz	
105	Fault response to wire breakage AI1	**No response** Immediate stop/fault Rapid stop/fault Rapid stop/warning	
11_	**Analog input AI1**		
110	AI1 scaling	-10 – -0.1 / 0.1 – **1 –** 10	
111	AI1 Offset	-500 – **0 –** 500 mV	
112	AI1 operating mode	Ref. N-MAX Ref. 3000 rpm U-Off., N-MAX N-Off., N-MAX N-MAX, 0-20 mA N-MAX, 4-20 mA	
113	AI1 voltage offset	-10 – **0** – 10 V	
114	AI1 speed offset	-6000 – **0 –** 6000 rpm	
115	Filter speed setpoint	0 – **5** – 100 ms 0 = Filter off	
12_	**Analog inputs (optional)**		
120	AI2 operating mode	No function 0 – 10 V + setpt.1 0 – 10 V I-limit: Actual value PID controller	
13_	**Speed ramps 1**		

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Par.	Name Selectable par. Parameter set 1/2	Setting range Factory setting	Comment
\130	Ramp t11 up CW	0 – **2** – 2000 s	
\131	Ramp t11 down CW	0 – **2** – 2000 s	
\132	Ramp t11 up CCW	0 – **2** – 2000 s	
\133	Ramp t11 down CCW	0 – **2** – 2000 s	
\134	Ramp t12 UP=DOWN	0 – **10** – 2000 s	
135	S pattern t12	**0 –** 3	
\136	Stop ramp t13	0 – **2** – 20 s	
\137	Emergency stop ramp t14	0 – **2** – 20 s	
138	Ramp limit VFC	**Yes** No	
139	Ramp monitoring 1	Yes **No**	
14_	**Speed ramps 2**		
140	Ramp t21 up CW	0 – **2** – 2000 s	
141	Ramp t21 down CW	0 – **2** – 2000 s	
142	Ramp t21 up CCW	0 – **2** – 2000 s	
143	Ramp t21 down CCW	0 – **2** – 2000 s	
144	Ramp t22 UP=DOWN	0 – **10** – 2000 s	
145	S pattern t22	**0 –** 3	
146	Stop ramp t23	0 – **2** – 20 s	
147	Emergency stop ramp t24	0 – **2** – 20 s	
149	Ramp monitoring 2	**No** Yes	
15_	**Motor potentiometer (parameter sets 1 and 2)**		
150	Ramp t3 up	0.2 – **20 –** 50 s	
151	Ramp t3 down	0.2 – **20 –** 50 s	
152	Save last setpoint	**OFF** ON	
16_	**Fixed setpoints 1**		
\160	Internal setpoint n11	-6000 – **150** – 6000 rpm (% I_N)	
\161	Internal setpoint n12	-6000 ... **750** ... 6000 rpm (% I_N)	
\162	Internal setpoint n13	-6000 ... **1500** ... 6000 rpm (% I_N)	
17_	**Fixed setpoints 2**		
170	Internal setpoint n21	-6000 – **150** – 6000 rpm (% I_N)	
171	Internal setpoint n22	-6000 – **750** – 6000 rpm (% I_N)	
172	Internal setpoint n23	-6000 – **1500** – 6000 rpm (% I_N)	
2__	**CONTROLLER PARAMETERS**		
20_	**Speed control (only parameter set 1)**		
200	P-gain n-controller	0.01 – **2** – 32	
201	Time constant n-controller	0 – **10** – 300 ms	
202	Gain Accel. prectrl.	**0** – 65	
203	Filter acceleration precontrol	**0** – 100 ms	
204	Filter actual speed value	**0 –** 32 ms	
205	Load precontrol CFC	**– 150 % –** 0 – 150 %	

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Par.	Name Selectable par. Parameter set 1/2	Setting range Factory setting	Comment
206	Sampling time n-controller	**1 ms** 0.5 ms	
207	Load precontrol VFC	**– 150 %** – 0 – 150 %	
21_	**Hold controller**		
210	P gain hold controller	0.1 – **0.5** – 32	
22_	**Synchronous operation control (only parameter set 1)**		
220	P-gain (DRS)	1 – **10** – 200	
221	Master gear ratio factor	**1** – 3 999 999 999	
222	Slave gear ratio factor	**1 –** 3 999 999 999	
223	Mode selection	**Mode 1** Mode 2 Mode 3 Mode 4 Mode 5 Mode 6 Mode 7 Mode 8	
224	Slave counter	-99 999 999 – -10 / **10 –** 99 999 999 Inc	
225	Offset 1	-32 767 – -10 / **10** – 32 767 Inc	
226	Offset 2	-32 767 – -10 / **10 –** 32 767 Inc	
227	Offset 3	-32 767 – -10 / **10** – 32 767 Inc	
228	Precontrol filter (DRS)	**0 –** 100 ms	With MOVITOOLS® MotionStudio only. Not visible on the DBG60B keypad.
23_	**Synchr. oper. with synchr. encoder**		
230	Synchronous encoder	**Off** Equal-ranked Chain	
231	Factor slave encoder	**1** – 1000	
232	Factor slave synchronous encoder	**1 –** 1000	
233	Synchronous encoder resolution	128 / 256 / 512 / **1024** / 2048	
234	Master encoder resolution	128 / 256 / 512 / **1024** / 2048	
24_	**Synchronous operation with catch up**		
240	Synchronous speed	-6000 – **1500 –** 6000 rpm	
241	Synchronous ramp	0 – **2 –** 50 s	
26_	**Process controller parameters**		
260	Operating mode	**Controller off** / Control / Step response	
261	Cycle time	1 / **5** / 10 ms	
262	Interruption	**No response** / Move closer to setpoint	
263	Factor K_p	0 – **1** – 32,767	
264	Integrative time T_n	**0** – 10 – 65535 ms	
265	Derivative time T_V	**0** – 1 – 30 ms	
266	Precontrol	–32767 – **0** – 32767	
27_	**Process controller input values**		
270	Setpoint source	**Parameters** / IPOS variable / Analog 1 / Analog 2	
271	Setpoint	–32767 – **0** – 32767	
272	IPOS setpoint address	**0** – 1023	
273	Time constant	**0** – 0.01 – 2000 s	
274	Scaling setpoints	–32,767 – **1** – 32,767	

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Par.	Name Selectable par. Parameter set 1/2	Setting range Factory setting	Comment
275	Actual value source	**Analog 1** / Analog 2 / IPOS Variable	
276	IPOS actual value address	**0** – 1023	
277	Actual value scaling factor	–32.767 – **1** – 32.767	
278	Actual offset value	–32767 – **0** – 32767	
279	Time constant actual value	**0** – 500 ms	
28_	**Process controller limits**		
280	Minimum offset + actual value	–32767 – **0** – 32767	
281	Maximum offset + actual value	–32767 – **10000** – 32767	
282	Minimum output PID controller	–32767 – **-1000** – 32767	
283	Maximum output PID controller	–32767 – **10000** – 32767	
284	Minimum output process controller	–32767 – **0** – 32767	
285	Maximum output process controller	–32767 – **7500** – 32767	
3__	**MOTOR PARAMETERS**		
30_ / 31_	**Limits 1 / 2**		
\300 / 310	Start/stop speed 1 / 2	0 – 150 rpm	
\301 / 311	Minimum speed 1 / 2	0 – **15** – 6100 rpm	
\302 / 312	Maximum speed 1 / 2	0 – **1500 –** 6100 rpm	
\303 / 313	Current limit 1 / 2	0 – 150 % (BG0: 0 – 200 % I_N)	
304	Torque limit	**0 –** 150 % (BG0: 0 – 200 %)	
32_ / 33_	**Motor compensation 1 / 2 (asynchronous)**		
\320 / 330	Automatic adjustment 1/2	Off **On**	
321 / 331	Boost 1/2	**0 –** 100 %	
322 / 332	IxR adjustment 1	0 – 100 %	
323 / 333	Premagnetizing time 1 / 2	0 – 2 s	
324 / 334	Slip compensation 1 / 2	0 – 500 rpm	
34_	**Motor protection**		
340 / 342	Motor protection 1/2	**Off** On (asynchronous) On (synchronous)	
341 / 343	Type of cooling 1/2	**Fan cooled** Forced cooling	
344	Interval for motor protection	0.1 – **4 –** 20 s	
345 / 346	I_N/U_L monitoring 1 / 2	0.1 – 500 A	
35_	**Motor direction of rotation**		
350 / 351	Direction of rotation reversal 1 / 2	**Off** On	
36_	**Startup (only available in DBG60B)**		
360	Startup	Yes/**No**	Only available in DBG60B, not in MOVITOOLS® Motion Studio/SHELL.
4__	**REFERENCE SIGNALS**		
40_	**Speed reference signal**		
400	Speed reference value	0 – **1500** – 6000 rpm	
401	Hysteresis	0 – **100** – 500 rpm	
402	Delay time	0 – **1** – 9 s	

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Par.	Name Selectable par. Parameter set 1/2	Setting range Factory setting	Comment
403	Signal = "1" if:	**$n < n_{ref}$** $n > n_{ref}$	
41_	**Speed window signal**		
410	Window center	0 – **1500 –** 6000 rpm	
411	Range width	**0 –** 6000 rpm	
412	Delay time	0 – **1** – 9 s	
413	Signal = "1" if:	**Inner** Outside	
42_	**Speed setpoint/actual value comparison**		
420	Hysteresis	0 – **100** – 300 rpm	
421	Delay time	0 – **1** – 9 s	
422	Signal = "1" if:	$n \neq n_{setp}$ **$n = n_{setp}$**	
43_	**Current reference signal**		
430	Current reference value	0 – **100** – 200 % I_N	
431	Hysteresis	0 – **5 –** 30 % I_N	
432	Delay time	0 – **1** – 9 s	
433	Signal = "1" if:	**$I < I_{ref}$** $I > I_{ref}$	
44_	**Imax signal**		
440	Hysteresis	0 – **5** – 50 % I_N	
441	Delay time	0 – **1** – 9 s	
442	Signal = "1" if:	$I = I_{max}$ / **$I < I_{max}$**	
5__	**MONITORING FUNCTIONS**		
50_	**Speed monitoring**		
500 / 502	Speed monitoring 1/2	Off Motor Regenerative **Mot. & regener.**	
501 / 503	Delay time 1/2	0 – **1** – 10 s	
504	Encoder monitoring motor	**No** Yes	
505	Synchronous encoder monitoring	**No** Yes	
51_	**Synchronous operation monitoring**		
510	Positional tolerance slave	10 – **25** – 32 768 Inc	
511	Lag error prewarning	**50 –** 99 999 999 Inc	
512	Lag error limit	100 – **4000 –** 99 999 999 Inc	
513	Deceler. Lag error signal	0 – **1** – 99 s	
514	Counter LED display	10 – **100 –** 32 768 Inc	
515	Delay time position signal	5 – **10** – 2000 ms	
516	X41 Encoder monitoring	Yes **No**	
517	X41 Pulse count monitoring	Yes **No**	
518	X42 Encoder monitoring	Yes **No**	
519	X42 Pulse count monitoring	Yes **No**	

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Par.	Name Selectable par. Parameter set 1/2	Setting range Factory setting	Comment
52_	**Mains OFF monitoring**		
520	Mains OFF response time	**0 –** 5 s	
521	Mains OFF response	**Controller inhibit** Emergency stop	
522	Phase failure monitoring	**On** Off	
53_	**Motor temperature protection**		
530	Sensor type 1	**No sensor** TF/TH/KTY (KTY: only for DS/CM motors)	
531	Sensor type 2	**No sensor** TF/TH/KTY (KTY: only for DS/CM motors)	
532	Source of motor temperature 1	X10/**X15**	
533	Source of motor temperature 2	X10/**X15**	
54_	**Gear unit/motor monitoring**		
540	Response to drive vibration / warning	**Display error**	**The following fault responses can be programmed:** No response • display error • imm. stop/fault • emerg.st./fault • rapid stop/fault • rapid stop/warng. • emerg.st./warng. • rapid stop/warng.
541	Response to drive vibration / fault	**Rapid stop/warning**	
542	Response to oil aging/warning	**Display error**	
543	Response to oil aging/fault	**Display error**	
544	Response to oil aging/overtemperature	**Display error**	
545	Response to oil aging/ready	**Display error**	
549	Response to brake wear	**Display error**	
55_	**DCS safety monitor**		
550	Status DCS safety monitor	Display value that cannot be changed	
551	Binary inputs DCS 1 – 8		
552	Binary outputs DCS DO0_P – DO2_M		
553	Serial number DCS		
554	CRC DCS		
555	Fault response DCS	**Immediate stop** Malfunction	**The following fault responses can be programmed:** No response • display error
556	DCS alarm response		
557	Actual position source DCS	**Motor encoder (X15)** Ext. encoder (X14) Absolute encoder (X62)	
56_	**Current limit Ex-e motor:**		
560	Current limit Ex-e motor:	On **Off**	
561	Frequency A	0 – **5** – 60 Hz	
562	Current limit A	0 – **50** – 150 %	
563	Frequency B	0 – **10** – 104 Hz	
564	Current limit B	0 – **80** – 200 %	
565	Frequency C	0 – **25** – 104 Hz	
566	Current limit C	0 – **100** – 200 %	

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Par.	Name Selectable par. Parameter set 1/2	Setting range Factory setting	Comment
6__	**TERMINAL ASSIGNMENT**		
60_	**Binary inputs of basic unit**		
-	Binary input DIØØ	Fixed assignment with: **/CONTR. INHIBIT**	
600	Binary input DIØ1	**CW/stop**	**The following functions can be programmed:** No function • enable/stop • CW/stop • CCW/stop • n11/n21 • n12/n22 • fix. setpt. sw.over • param. sw.over • ramp sw.over • Motor potentiometer up • motor potentiometer down • /Ext. error • error reset • /hold control • /CW limit switch • /CCW limit switch • IPOS input • reference cam • ref. trav. start • slave free run • setpoint hold • mains on • set DRS zero point • DRS slave start • DRS teach in • DRS master stopped • oscillation/warning • break wear • oil aging/warning • oil aging/error • oil aging overtemp. • oil aging/ready
601	Binary input DIØ2	**CCW/stop**	
602	Binary input DIØ3	**Enable/stop**	
603	Binary input DIØ4	**n11/n21**	
604	Binary input DIØ5	**n12/n22**	
605	Binary input DIØ6	**No function**	
606	Binary input DIØ7	**No function**	
61_	**Binary inputs option**		
610	Binary input DI1Ø	**No function**	
611	Binary input DI11	**No function**	
612	Binary input DI12	**No function**	
613	Binary input DI13	**No function**	
614	Binary input DI14	**No function**	
615	Binary input DI15	**No function**	
616	Binary input DI16	**No function**	
617	Binary input DI17	**No function**	
62_	**Binary outputs of basic unit**		
-	Binary output DBØØ	Fixed assignment with: **/Brake**	
620	Binary output DOØ1	**Ready**	**The following signals can be programmed:** No function • /malfunction • ready • output stage on • rotating field on • brake rel • brake engaged • motor standstill • parameter set • speed reference • speed window • nom./act.val.comp. • curr. reference • Imax signal • /motor utilization 1 • /motor utiliz. 2 • /DRS PREWARN. • /DRS lag error • DRS slave in pos. • IPOS in position • IPOS reference • IPOS output • /IPOS malfunction • reserved • Ex-e current limit • LSM commutation • S pattern • safe stop
621	Binary output DOØ2	**/fault**	
622	Binary output DOØ3	**IPOS output**	
623	Binary output DOØ4	**IPOS output**	
624	Binary output DOØ5	**IPOS output**	
63_	**Binary outputs option**		
630	Binary output DO1Ø	**No function**	
631	Binary output DO11	**No function**	
632	Binary output DO12	**No function**	
633	Binary output DO13	**No function**	
634	Binary output DO14	**No function**	
635	Binary output DO15	**No function**	
636	Binary output DO16	**No function**	
637	Binary output DO17	**No function**	
64_	**Optional analog outputs**		
640	Analog output AO1	**Actual speed**	**The following functions can be programmed:** No function • ramp input • setpoint speed • actual speed • actual frequency • output current • active current • unit utilization • IPOS output • relative torque • IPOS output 2
641	Scaling AO1	-10 – 0 – **1** – 10	
642	Operating mode AO1	OFF / **-10 – +10 V** / 0 – 20 mA / 4 – 20 mA	
643	Analog output AO2	**Output current**	
644	Scaling AO2	-10 – 0 – **1** – 10	
645	Operating mode AO2	OFF / **-10 – +10 V** / 0 – 20 mA / 4 – 20 mA	

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Par.	Name Selectable par. Parameter set 1/2	Setting range Factory setting	Comment
7__	**CONTROL FUNCTIONS**		
70_	**Operating modes**		
700	Operating mode 1	**VFC 1** VFC 1 & GROUP VFC 1 & HOIST VFC 1 & DC BRAK. VFC 1 & FLYSTART VFC-n CONTROL VFC-n-CTRL&GRP. VFC-n-CTRL&HOIST VFC-n-CTRL&SYNC VFC-n-CTRL& IPOS CFC CFC & M-CONTROL CFC&IPOS CFC&SYNC. SERVO SERVO&M-CONTROL SERVO&IPOS SERVO&SYNC.	
701	Operating mode 2	**VFC 2** VFC 2 & GROUP VFC 2 & HOIST VFC 2 & DC BRAK. VFC 2 & FLYSTART	
702	Motor category	**Rotational** Linear	
71_	**Standstill current**		
710 / 711	Standstill current 1 / 2	**0 –** 50 % I_{Mot}	
72_	**Setpoint stop function**		
720 / 723	Setpoint stop function 1 / 2	**Off** On	
721 / 724	Stop setpoint 1 / 2	0 – **30** – 500 rpm	
722 / 725	Start offset 1 / 2	0 – **30** – 500 rpm	
73_	**Brake function**		
730 / 733	Brake function 1 / 2	Off **On**	
731 / 734	Brake release time 1 / 2	**0 –** 2 s	
732 / 735	Brake application time 1 / 2	0 – 2 s	
74_	**Speed skip function**		
740 / 742	Skip window center 1 / 2	0 – **1500** – 6000 rpm	
741 / 743	Skip width 1/2	**0 –** 300 rpm	
75_	**Master/slave function**		
750	Slave setpoint	**Master/slave off** Speed (RS485) Speed (SBus) speed (485+SBus) Torque (RS485) Torque (SBus) Torque (485+SBus) Load share (RS485) Load share (SBus) Load share (485+SBus)	

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Par.	Name Selectable par. Parameter set 1/2	Setting range Factory setting	Comment
751	Scaling slave setpoint	– 10 – 0 – **1** – 10	
76_	**Manual operation**		
760	Lockout run/stop keys	**No** Yes	
77_	**Energy-saving function**		
770	Energy-saving function	**Off** On	
78_	**Ethernet configuration**		
780	IP address	000.000.000.000 – **192.168.10.x** – 223.255.255.255	
781	Subnet mask	000.000.000.000 – **255.255.255.000** – 223.255.255.255	
782	Standard gateway	**000.000.000.000** – 223.255.255.255	
783	Baud rate	Display value that cannot be changed (0 – 100 – 1000 MBaud)	
784	MAC address	Display value that cannot be changed (00-0F-69-XX-XX-XX)	
785	EtherNet/IP startup configuration	**DHCP** Saved IP parameters	
8__	**UNIT FUNCTIONS**		
80_	**Setup**		
800	User menu	**On** / off (only in DBG60B)	
801	Language	Dependent on DBG60B version	
\802	Factory setting	**No** Default Delivery state	
\803	Parameter lock	**Off** On	
804	Reset statistics data	**No** Error memory kWh counter Operating hours	
806	Copy DBG60B → MDX	Yes/**No**	Only in DBG60B
807	Copy MDX → DBG60B	Yes/**No**	Only in DBG60B
81_	**Serial communication**		
810	RS-485 address	**0 –** 99	
811	RS485 group address	**100 –** 199	
812	RS485 timeout interval	**0 –** 650 s	
819	Fieldbus timeout interval	0 – **0.5** – 650 s	
82_	**Brake operation**		
\820 / 821	4-quadrant operation 1/2	Off **On**	
83_	**Error responses**		
830	Response EXT. ERROR	**Emergency stop/malf.**	**The following fault responses can be programmed:** No response • display error • imm. stop/fault • emerg.st./fault • rapid stop/fault • rapid stop/warng. • emerg.st./warng. • rapid stop/warng.
831	Response FIELDBUS TIMEOUT	**Rapid stop/warning**	
832	Response MOTOR OVERLOAD	**Emergency stop/malf.**	
833	Response RS485 TIMEOUT	**Rapid stop/warning**	
834	LAG ERROR response	**Emergency stop/malf.**	
\835	Response TF SIGNAL	**No response**	
836 / 837	Response SBus TIMEOUT 1 / 2	**EMERG. ST/FAULT**	
838	Response SW limit switch	**Emergency stop/malf.**	

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Par.	Name Selectable par. Parameter set 1/2	Setting range Factory setting	Comment
839	Response to positioning interruption	**No response**	
84_	**Reset behavior**		
\840	Manual reset	**No** Yes	
841	Auto reset	**Off** On	
842	Restart time	1 – **3** – 30 s	
85_	**Scaling actual speed value**		
850	Scaling factor numerator	**1 –** 65535	Can only be set via MOVITOOLS® MotionStudio
851	Scaling factor denominator	**1 –** 65535	
852	User-defined unit	**rpm**	
86_	**Modulation**		
860 / 861	PWM frequency 1 / 2 VFC	2.5 kHz **4 kHz** 8 kHz 12 kHz 16 kHz	Factory setting of MOVIDRIVE® MDX61B size 7 (AC 500 V units: MDX61B1600/2000/2500) = **2.5 kHz**
862 / 863	PWM fix 1 / 2	**Off** On	
864	PWM frequency CFC	2.5 kHz **4 kHz** 8 kHz 16 kHz	Factory setting of MOVIDRIVE® MDX61B size 7 (AC 500 V units: MDX61B1600/2000/2500) = **2.5 kHz**
87_	**Process data description**		
870	Setpoint description PO1	**Control word 1**	**The following PO assignment can be set:** No function • speed current • position LO • max. speed • Max. current • slip • ramp • control word 1 • control word 2 • Speed [%] • IPOS PO DATA
871	Setpoint description PO2	**Speed**	
872	Setpoint description PO3	**No function**	
873	Actual value description PI1	**Status word 1**	**The following PI assignment can be set:** No function • speed • output current • active current • position LO • position HI • status word 1 • status word 2 • speed [%] • IPOS PI DATA • reserved • status word 3
874	Actual value description PI2	**Speed**	
875	Actual value description PI3	**Output current**	
876	PO data enable	Off **On**	
88_ / 89_	**Serial communication SBus 1 / 2**		
880 / 890	Protocol SBus 1 / 2	**SBus MOVILINK®** CANopen	
881 / 891	SBus address 1 / 2	**0** – 63	
882 / 892	SBus group address 1 / 2	**0** – 63	
883 / 893	SBus timeout interval 1 / 2	**0** – 650 s	
884 / 894	Baud rate SBus 1 / 2	125 kBd 250 kBd **500 kBd** 1000 kBd	
885 / 895	Synchronization ID SBus 1 / 2	**0** – 2047	

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Par.	Name Selectable par. Parameter set 1/2	Setting range Factory setting	Comment
886 / 896	CANopen address 1 / 2	1 – **127**	
887	Synchronization ext. Controller	**Off** On	
888	Synchronization time SBus 1/2	1 – **5** – 10 ms	
889 / 899	Parameter channel 2	Yes **No**	
9__	**IPOS PARAMETERS**		
90_	**IPOS reference travel**		
900	Reference offset	– (2^{31} – 1) – **0** – 2^{31} – 1 Inc	
901	Reference speed 1	0 – **200 –** 6000 rpm	
902	Reference speed 2	0 – **50** – 6000 rpm	
903	Reference travel type	**0 –** 8	
904	Reference travel to zero pulse	**Yes** No	
905	HIPERFACE® Offset (X15)	– (2^{31} – 1) – **0** – 2^{31} – 1 Inc	
906	Cam distance	– (2^{31} – 1) – **0** – 2^{31} – 1 Inc	
910	Gain X controller	0.1 – **0.5 –** 32	
911	Positioning ramp 1	0.01 – **1 –** 20 s	
912	Positioning ramp 2	0.01 – **1** – 20 s	
913	Travel speed CW	0 – **1500** – 6000 rpm	
914	Travel speed CCW	0 – **1500** – 6000 rpm	
915	Velocity precontrol	-199.99 – 0 – **100** – 199.99 %	
916	Ramp type	**Linear** Sine Square Bus ramp Jerk-limited Electronic cam Synchronous operation Cross cutter	
917	Ramp mode	**Mode 1** Mode 2	
918	Bus setpoint source	H0 – **H499** – H1023	

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Par.	Name Selectable par. Parameter set 1/2	Setting range Factory setting	Comment
92_	**IPOS Monitoring**		
920	SW limit switch CW	– (2^{31}– 1) ... **0** ... 2^{31}– 1 Inc	
921	SW limit switch CCW	– (2^{31}– 1) ... **0** ...2^{31}– 1 Inc	
922	Position window	0 ... **50** ... 32767 inc	
923	Lag error window	0 ... **5000** ... 2^{31}-1 inc	
924	'Position monitoring' detection	On/**off**	
93_	**IPOS Special functions**		
930	Override	On/**off**	
931	IPOS ctrl word Task 1	**Stop** / Start / Stop	Only available in DBG60B, not in MOVITOOLS® MotionStudio/SHELL.
932	IPOS ctrl word Task 2	Start / **Stop**	Only available in DBG60B, not in MOVITOOLS® MotionStudio/SHELL.
933	Jerk time	**0.005** ... 2 s	
938	IPOS speed task 1	**0** ... 9 additional commands/ms	
939	IPOS speed task 2	**0** ... 9 additional commands/ms	
94_	**IPOS Variables/encoder**		
940	IPOS variables edit	On/**off**	This parameter is only available on the DBG60B keypad, not in MOVITOOLS® MotionStudio.
941	Source actual position	**Motor encoder (X15)** Ext. encoder (X14) Absolute encoder (X62)	
942	Encoder factor numerator	**1** ... 32767	
943	Encoder factor denominator	**1** ... 32767	
944	Encoder scaling ext. Encoder	**x1**/x2/x4/x8/x16/x32/x64	With MOVITOOLS® MotionStudio only. Not visible on the DBG60B keypad.
945	Synchronous encoder type (X14)	**TTL** SIN/COS HIPERFACE®	
946	Synchronous encoder counting direction (X14)	**Normal** Inverted	
947	HIPERFACE® Offset (X14)	– (2^{31}– 1) ... **0** ...2^{31}– 1 Inc	
948	Automatic encoder replacement detection	**On**/off	
95_	**Absolute encoder**		
950	Encoder type	**No encoder**	
951	Counting direction	**Normal** Inverted	
952	Clock frequency	**1** ... 200 %	
953	Position offset	– (2^{31}– 1) ... **0** ...2^{31}– 1 Inc	
954	Zero point offset	– (2^{31}– 1) ... **0** ...2^{31}– 1 Inc	
955	Encoder scaling	**x1**/x2/x4/x8/x16/x32/x64	
956	CAN encoder baud rate		
96_	**IPOS Modulo function**		
960	Modulo function	**Off** Short Right CCW	
961	Modulo numerator	0 ... **1** ... 2^{31} – 1	

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Par.	Name Selectable par. Parameter set 1/2	Setting range Factory setting	Comment
962	Modulo denominator	0 ... **1** ... 2^{31} – 1	
963	Modulo encoder resolution	0 ... **4096** ... 20000	
97_	**IPOS synchronization**		
970	DRAM synchronization	**No** / yes	
971	Synchronization phase	–2 ... **0**...2 ms	
924	'Position monitoring' detection	On/**off**	

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6 Operation

6.1 Operating displays

6.1.1 7-segment display

The 7-segment display shows the operating condition of MOVIDRIVE® and, in the event of an error, an error or warning code.

7-segment display	Unit status (high byte in status word 1)	Meaning
0	**0**	24 V operation (inverter not ready)
1	**1**	Controller inhibit active
2	**2**	No enable
3	**3**	Standstill current
4	**4**	Enable
5	**5**	n-control (speed control)
6	**6**	M-control (torque control)
7	**7**	Hold control
8	**8**	Factory setting
9	**9**	Limit switch contacted
A	**10**	Technology option
c	**12**	IPOS$^{plus®}$ reference travel
d	**13**	Flying start
E	**14**	Calibrate encoder
F	**Error number**	Error display (flashing)
H	**Status display**	Manual operation
t	**16**	Inverter is waiting for data
U	**17**	"Safe Stop" active
² (blinking dot)	-	IPOS$^{plus®}$ program is running
Flashing display	-	STOP via DBG60B
⊐1 ...⊐9	-	RAM defective



WARNING

Incorrect interpretation of display U = "Safe stop" active.

Severe or fatal injuries.

The display U = "Safe stop" is not safety-related and must not be used as a safety function.

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6.1.2 DC link voltage display of size 7

	INFORMATION
	The DC link voltage display goes out about 20 seconds after the power off.

6.1.3 DBG60B keypad

Basic displays:

0.00rpm 0.000Amp CONTROLLER INHIBIT	Display when X13:1 (DIØØ "/CONTROL.INHIBIT") = "0".
0.00rpm 0.000Amp NO ENABLE	Display when X13:1 (DIØØ "/CONTROL.INHIBIT") = "1" and inverter is not enabled ("ENABLE/STOP" = "0").
950.00rpm 0.990Amp ENABLE (VFC)	Display for enabled inverter.
NOTE 6: VALUE TOO HIGH	Information message
(DEL)=Quit ERROR 9 STARTUP	Error display

6.2 *Information messages*

Information messages on the DBG60B (ca. 2 s in duration) or in MOVITOOLS® MotionStudio/SHELL (message that can be acknowledged):

No.	Text DBG60B/SHELL	Description
1	ILLEGAL INDEX	Index addressed via interface not available.
2	NOT IMPLEMENT.	• Attempt to execute a non-implemented function. • An incorrect communication service has been selected. • Manual operation selected via invalid interface (e.g. fieldbus).
3	READ ONLY VALUE	Attempt to edit a read-only value.
4	PARAM. INHIBITED	Parameter lock P 803 = "ON", parameter cannot be altered.
5	SETUP ACTIVE	You tried to change parameters during setup.
6	VALUE TOO HIGH	You tried to enter a value that is too high.
7	VALUE TOO LOW	You tried to enter a value that is too low.
8	REQ. CARD MISSING	The option card required for the selected function is missing.
10	ONLY VIA ST1	Manual operation must be completed using X13:ST11/ST12 (RS 485).
11	ONLY TERMINAL	Manual operation must be exited via TERMINAL (DBG60B or UWS21B).
12	NO ACCESS	Access to selected parameter denied.
13	CTRL. INHIBIT MISSING	Set terminal DIØØ "/Controller inhibit" = "0" for the selected function.
14	INVALID VALUE	You tried to enter an invalid value.
16	PARAM. NOT LOCKED	Overflow of EEPROM buffer, e.g., due to cyclic write access. Parameter not stored in non-volatile EEPROM.

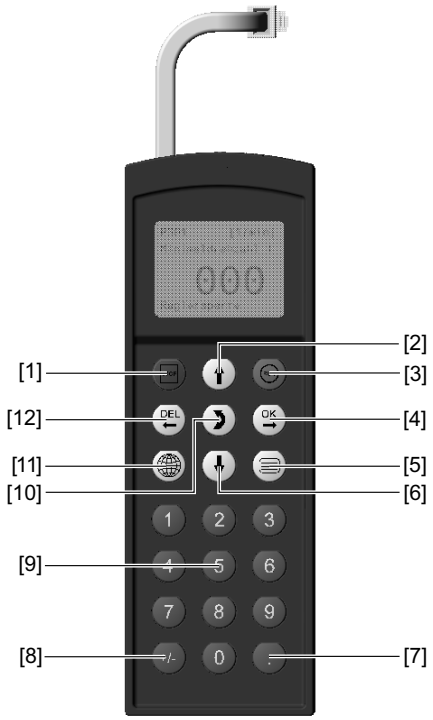
SEW EURODRIVE
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No.	Text DBG60B/SHELL	Description
17	INVERTER ENABLED	• Parameter to be changed can only be set in the state "CONTROLLER INHIBIT". • Attempt to change to manual mode during enabled operation.

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6.3 Functions of the DBG60B keypad

6.3.1 Key assignment for DBG60B



1810609803

[1]	Key	STOP	Stop
[2]	Key	↑	Up arrow, moves up to the next menu item
[3]	Key	RUN	Start
[4]	Key	OK	OK, confirms the entry
[5]	Key	☰	Activate the context menu
[6]	Key	↓	Down arrow, moves down to the next menu item
[7]	Key	·	Decimal point
[8]	Key	+/-	Sign reversal
[9]	Key	0 – 9	Digits 0... 9
[10]	Key		Change menu
[11]	Key		Select language
[12]	Key	DEL	Delete previous entry

6.3.2 Copy function of the DBG60B

The DBG60B keypad can be used for copying complete parameter sets from one MOVIDRIVE® unit to other MOVIDRIVE® units. Proceed as follows:

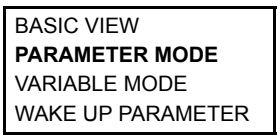
- In the context menu, select the menu item "COPY TO DBG". Confirm the setting by pressing the OK key.
- After the copying process has finished, plug the keypad in the other inverter.
- In the context menu, select the menu item "COPY TO MDX". Confirm the setting by pressing the OK key.

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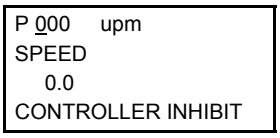
6.3.3 Parameter mode

Proceed as follows to set the parameters in parameter mode:

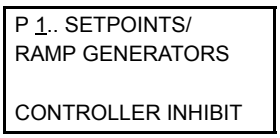
1. Activate the context menu by pressing the ☰ key.



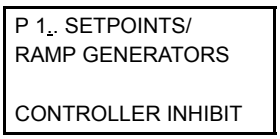
2. Press the OK key to start the PARAMETER MODE. The first display parameter P000 "SPEED" appears. Press the ↑ key or ↓ key to select the main parameter groups 0 to 9.



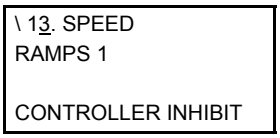
3. Press the ↑ key or ↓ key to select the required main parameter group. The flashing cursor is positioned under the number of the main parameter group.



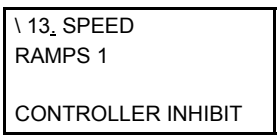
4. Activate parameter subgroup selection in the main parameter group by pressing the OK key. The flashing cursor moves one position to the right.



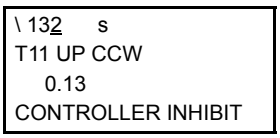
5. Press the ↑ key or ↓ key to select the required parameter subgroup. The flashing cursor is positioned under the number of the parameter subgroup.



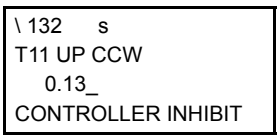
6. Activate parameter selection in the required parameter subgroup by pressing the OK key. The flashing cursor moves one position to the right.



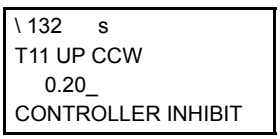
7. Press the ↑ key or ↓ key to select the desired parameter. The flashing cursor is positioned under the third digit of the parameter number.



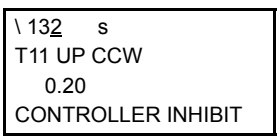
8. Press the OK key to activate the setting mode for the selected parameter. The cursor is positioned under the parameter value.



9. Press the ↑ key or ↓ key to select the desired parameter value.



10. Confirm the setting by pressing the OK key. Exit the setting mode by pressing the ↩ key. The flashing cursor is positioned under the third digit of the parameter number again.



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11. Press the ↑ key or ↓ key to select another parameter or go back to the parameter subgroup menu using the DEL key.

\ 13. SPEED RAMPS 1
CONTROLLER INHIBIT

12. Press the ↑ key or ↓ key to select another parameter subgroup or go back to the main parameter group menu using the DEL key.

P 1.. SETPOINTS/ RAMP GENERATORS
CONTROLLER INHIBIT

13. Press the ☰ key to return to the context menu.

BASIC VIEW
PARAMETER MODE
VARIABLE MODE
WAKE UP PARAMETER

6.3.4 Variable mode

H... variables are displayed in the variable mode. To call up the variable mode, proceed as follows:

- Use the ☰ key to call up the context menu. Select the "VARIABLE MODE" menu item and confirm with the OK key. The variable mode display appears.
- You can use the ↵ key to edit the variables.

6.3.5 User menu

The DBG60B keypad has a standard user menu containing the parameters that are used most often. The parameters in the user menu are displayed with a "\" before the parameter number (→ Sec. "Complete parameter list"). You can add or delete parameters. You can save a maximum of 50 parameter entries. The parameters are displayed in the order in which they are stored in the inverter. The parameters are not sorted automatically.

- Use the ☰ key to call up the context menu. Select the menu item "USER MENU" and press the OK key to confirm. The user menu with the most frequently used parameters appears.

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Adding parameters to the user menu

Proceed in this order to add parameters to the user menu:

- Use the ☰ key to call up the context menu. Select the "PARAMETER MODE" menu item.
- Choose the parameter you require and confirm your entry using the OK key.
- Press the ☰ key to return to the context menu. In the context menu, select the menu item "ADD Pxxx". "xxx" is the parameter you selected previously. Confirm the setting by pressing the OK key. The selected parameter is stored in the user menu.

Deleting parameters from the user menu

Proceed in this order to delete parameters from the user menu:

- Use the ☰ key to call up the context menu. Select the menu item "USER MENU".
- Select the parameter that is to be deleted. Confirm the setting by pressing the OK key.
- Press the ☰ key to return to the context menu. In the context menu, select the menu item "DELETE Pxxx". "xxx" is the parameter you selected previously. Confirm the setting by pressing the OK key. The selected parameter is deleted from the user menu.

6.3.6 Wake-up parameter

The wake-up parameter is the parameter that is displayed when the DBG60B is switched on. The factory setting for the wake up parameter is the basic display. You can select which parameter should be the wake-up parameter. The following options can be used as the wake-up parameter:

- Parameter (→ parameter mode)
- Parameter from the user menu (→ user menu)
- H variable (→ variable mode)
- Basic display

Proceed as follows to save a wake-up parameter:

- First select the required parameter in parameter mode.
- In the context menu, select the menu item "XXXX INITIAL PARAM.". "XXXX" is the selected initial parameter. Confirm the setting by pressing the OK key.

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6.3.7 IPOS$^{plus®}$

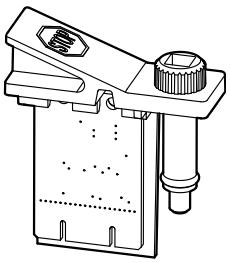
MOVITOOLS® MotionStudio is required for programming IPOS$^{plus®}$. You can only use the DBG60B keypad to edit or change IPOS$^{plus®}$ variables (H__).

The IPOS$^{plus®}$ program is also stored in the DBG60B keypad when it is saved and is consequently also transferred when the parameter set is copied to another MOVIDRIVE® unit.

Parameter P931 can be used for starting and stopping the IPOS$^{plus®}$ program from the DBG60B keypad.

6.4 Memory card

The pluggable memory card is installed in the basic unit. The basic data is stored on the memory card and is always up-to-date. If a unit has to be replaced, the plant can be started up again quickly without PC and data backup by simply re-plugging the memory card. You can install as many option cards as required.



1810728715

Fig. 34: MDX60B/61B memory card

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6.4.1 Notes for replacing the memory card

- Only plug in the memory card when the MOVIDRIVE® B unit is switched off.
- You can install the memory card from the original unit in a new inverter. The following combinations are permitted:

Original unit MOVIDRIVE® MDX60B/61B...	New inverter MOVIDRIVE® MDX60B/61B...
00	00 or 0T
0T	0T

- The same options that were available in the original unit must be installed in the new inverter.

  If this is not the case, the error message "79 HW configuration" (hardware configuration) is displayed. You can remedy the error by calling up the "DELIVERY CONDITION" menu item from the context menu (P802 factory setting). This resets the unit to its initial delivery condition. You must then restart the unit.
- The counter status of the DRS11B option and the data of the DH..1B and DCS..B options are not stored on the memory card. When you replace the memory card, you have to install the DRS11B, DH..1B and DCS..B option cards from the original unit in the new inverter.

  If the original unit was a MOVIDRIVE® B size 0 unit with the option DHP11, you have to use a new DHP11B option card with the configuration data set (file name.sewcopy) that you saved previously.
- If an absolute encoder is used as a motor or synchronous encoder, you must reference the encoder after you have replaced the unit.
- When replacing an absolute encoder, you have to reference it again.

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7 Service

7.1 Error information

7.1.1 Error memory

The fault memory (P080) stores the last five error messages (errors t-0...t-4). The oldest error message is deleted whenever more than five error messages have occurred. The following information is stored when a malfunction occurs:

Error that has occurred · Status of binary inputs/outputs · Operating status of the inverter · Inverter status · Heat sink temperature · Speed · Output current · Active current · Unit utilization · DC link voltage · ON hours · Enable hours · Parameter set · Motor utilization.

7.1.2 Switch-off responses

There are three switch-off responses depending on the fault; the inverter remains inhibited in fault status:

Immediate disconnection: The unit can no longer brake the drive; the output stage goes to high resistance in the event of a fault and the brake is applied immediately (DBØØ "/Brake" = "0").

Rapid stop: The drive is braked with the stop ramp t13/t23. Once the stop speed is reached, the brake is applied (DBØØ "/Brake" = "0"). The output stage goes to high resistance after the brake reaction time has elapsed (P732 / P735).

Emergency stop: The drive is braked with the emergency ramp t14/t24. Once the stop speed is reached, the brake is applied (DBØØ "/Brake" = "0"). The output stage goes to high resistance after the brake reaction time has elapsed (P732 / P735).

7.1.3 Reset

An error message can be acknowledged by:

- Switching the supply system off and on again

  Recommendation: Observe a minimum switch-off time of 10 s for the supply system contactor K11.
- Reset via input terminals; that is, via an appropriately assigned binary input (DIØ1 to DIØ7 with the basic unit, DI1Ø to DI17 with the DIO11B option).
- Manual reset in SHELL (P840 = "YES" or [Parameter] / [Manual reset]).
- Manual reset using the DBG60B.
- Auto reset performs up to five unit resets with an adjustable restart time.



⚠ DANGER

Risk of crushing if the motor starts up automatically after an auto reset.

Severe or fatal injuries.

- Do not use auto reset with drives where an automatic restart represents a danger to people or units.
- Perform a manual reset.

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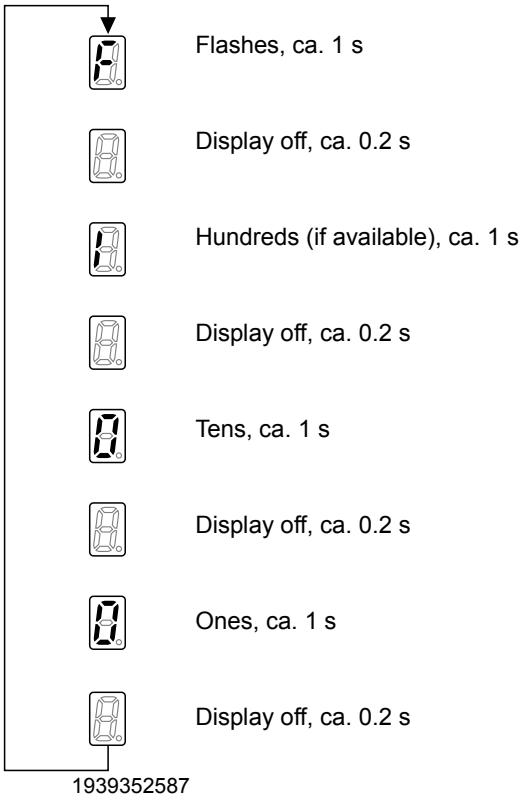
7.1.4 Inverter is waiting for data

If the inverter is controlled via a communication interface (fieldbus, RS485 or SBus) and the power was switched off and back on again or a fault reset was performed, then the enable remains ineffective until the inverter receives valid data again via the interface, which is monitored with a timeout.

7.2 Error messages and list of errors

7.2.1 Error message via 7-segment display

The fault code is shown in a 7-segment display. The following display sequence is used (e.g. fault code 100):



Following a reset or if the error code resumes the value "0", the display switches to the operating display.

7.2.2 Suberror code – display

The suberror code is displayed in MOVITOOLS® MotionStudio (version 4.50 and higher) or in the DBG60B keypad.

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7.2.3 Error list

The factory set error response is listed in the "Response P" column. (P) indicates that the response is programmable (via *P83_error response* or with IPOS$^{plus®}$). In the event of error 108, (P) indicates that the response can be programmed via *P555 DCS error response* In the event of error 109, (P) indicates that the response can be programmed via *P556 DCS alarm response*

Error			Suberror			
Code	**Designation**	**Response (P)**	**Code**	**Designation**	**Possible cause**	**Measure**
00	No error					
01	Overcurrent	Immediate disconnection	0	Output stage	• Short circuit at output • Motor too large • Defective output stage • Power supply Current converters • Ramp limit is deactivated and set ramp time is too short • Defective phase module • Supply voltage 24 V or 24V generated from it is instable • Interruption or short circuit on the signal lines from the phase modules	• Rectify the short circuit • Connect a smaller motor • Contact SEW Service for advice if the output stage is defective. • Activate P138 and/or increase ramp time
			1	V_{CE} monitoring or undervoltage monitoring of the gate driver		
			5	Inverter remains in hardware current limit		
			6	V_{CE} monitoring or undervoltage monitoring of the gate driver or overcurrent of the current converter. ..Phase U		
			7	..Phase V		
			8	..Phase W		
			9	..Phase U and V		
			10	..Phase U and W		
			11	..Phase V and W		
			12	..Phase U and V and W		
			13	Voltage supply Current converter in status mains operation		
			14	MFE signal lines		
03	Ground fault	Immediate disconnection	0	Ground fault	Ground fault • in the motor lead • in the inverter • in the motor	• Eliminate ground fault • Consult SEW Service
04	Brake chopper	Immediate disconnection	0	DC link voltage too high in 4Q operation	• Too much regenerative power • Braking resistor circuit interrupted • Short circuit in the braking resistor circuit • Brake resistance too high • Brake chopper is defective	• Extend deceleration ramps • Check supply cable to braking resistor • Check technical data of braking resistor • Replace MOVIDRIVE® if the brake chopper is defective
			1			
06	Mains phase failure	Immediate disconnection	0	DC link voltage periodically too low	• Phase failure • Inadequate line voltage quality	• Check the line cable • Check configuration of the supply system. • Check supply (fuses, contactor)
			3	Line frequency fault		
			4	-		
07	DC link overvoltage	Immediate disconnection	0	DC link voltage too high in 2Q operation	DC link voltage too high	• Extend deceleration ramps • Check supply cable to the braking resistor • Check technical data of braking resistor
			1			
			2	DC link voltage too high in 4Q operation .. .. Phase U		
			3	.. Phase V		
			4	.. Phase W		

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Error			Suberror			
Code	Designation	Response (P)	Code	Designation	Possible cause	Measure
08	Speed monitoring	Immediate disconnection (P)	0	Inverter in current limit or in slip limit	• Speed controller or current controller (in VFC operating mode without encoder) operating at setting limit due to mechanical overload or phase failure in the power supply or motor. • Encoder not connected correctly or incorrect direction of rotation. • n_{max} is exceeded during torque control. • In operating mode VFC: Output frequency ≥ 150 Hz • In operating mode V/f: Output frequency ≥ 600 Hz	• Reduce load • Increase deceleration time (P501 or P503). • Check encoder connection, swap A/A and B/B pairs if necessary • Check encoder voltage supply • Check current limitation • Extend ramps if necessary • Check motor cable and motor • Check mains phases
			3	"Actual speed" system limit exceeded. Speed difference between ramp setpoint and actual value for 2×ramp time higher than expected slip.		
			4	Maximum rotating field speed exceeded. Maximum rotating field frequency (with VFC max 150 Hz and V/f max 600 Hz) exceeded.		
09	Startup	Immediate disconnection	0	Startup missing	Inverter has not been started up for the selected operating mode.	Perform startup for the required operating mode.
			1	Wrong operating mode selected		
			2	Wrong encoder type or defective encoder card		
10	IPOS-ILLOP	Emergency stop	0	Invalid IPOS command	• Incorrect command detected during IPOS$^{plus®}$ program execution. • Incorrect conditions during command execution.	• Check the content of the program memory and, if necessary, correct. • Load the correct program into the program memory. • Check program sequence (→ IPOS$^{plus®}$ manual)
11	Overtemperature	Emergency stop (P)	0	Heat sink temperature too high or temperature sensor defective	• Thermal overload of inverter • Temperature sensor of a phase module faulty. (size 7)	• Reduce load and/or ensure adequate cooling. • Check fan. • If F-11 is issued even though the temperatures is obviously not too high, this indicates a faulty temperature sensor of the phase module. Replace the phase module (Size 7)
			3	Overtemperature switched-mode power supply		
			6	Heat sink temperature too high or temperature sensor defective. ..Phase U		
			7	..Phase V		
			8	..Phase W (size 7)		
13	Control signal source	Immediate disconnection	0	Control signal source not available, e.g. control signal source fieldbus without fieldbus card	Control signal source not defined or defined incorrectly.	Set correct control signal source (P101).

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Error			Suberror		Possible cause	Measure
Code	Designation	Response (P)	Code	Designation		
14	Encoder	Immediate disconnection	0	Encoder not connected, defective encoder, defective encoder cable	• Encoder cable or shield not connected correctly • Short circuit/broken encoder wire • Encoder defective	Check encoder cable and shield for correct connection, short circuit and broken wire.
			25	Encoder error X15 - Speed range exceeded. Encoder at X15 turns faster than 6542 rpm.		
			26	Encoder error X15 - Card is defective. Error in the quadrant evaluation.		
			27	Encoder error – encoder connection or encoder is defective		
			28	Encoder error X15 - Communication error RS485 channel.		
			29	Encoder error X14 - Communication error RS485 channel.		
			30	Unknown encoder type at X14/X15		
			31	Plausibility check fault X14/X15 Increments have been lost.		
			32	Encoder error X15 Hiperface®. Hiperface® encoder at X15 reports error.		
			33	Encoder error X14 Hiperface®. Hiperface® encoder at X14 reports error.		
			34	Encoder error X15 resolver. Encoder connection or encoder is defective.		
17	System malfunction	Immediate disconnection	0	"Stack overflow" error	Inverter electronics disrupted, possibly due to effect of EMC.	• Check grounding and shielding and improve, if necessary. • Consult SEW service if the error reoccurs.
18			0	"Stack underflow" error		
19			0	Fault "External NMI"		
20			0	Fault "Undefined opcode"		
21			0	"Protection fault" error		
22			0	"Illegal word operand access" error		
23			0	"Illegal instruction access" error		
24			0	"Illegal external bus access" error		
25	EEPROM	Rapid stop	0	Read or write error on EEPROM power section	Access to the EEPROM of the memory card has failed	• Activate factory settings, perform reset and reset parameters. • Contact SEW service if the error occurs again. • Replace memory card.
			11	NV memory read error NV-RAM inside the unit		
			13	NV memory chip card System module defective		
			14	NV memory chip card Memory card defective		
			16	NV memory initialization error		
26	External terminal	Emergency stop (P)	0	External terminal	Read in external error signal via programmable input.	Eliminate respective cause; reprogram terminal if necessary.

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Error			Suberror			
Code	Designation	Response (P)	Code	Designation	Possible cause	Measure
27	No limit switches	Emergency stop	0	Both limit switches missing or open circuit	• Open circuit/both limit switches missing. • Limit switches are swapped over in relation to direction of rotation of motor	• Check wiring of limit switches. • Swap over limit switch connections. • Reprogram terminals
			2	Limit switch reversed		
			3	Both limit switches are active simultaneously		
28	Fieldbus Timeout	Rapid stop (P)	0	Fault "Fieldbus timeout"	No communication between master and slave within the projected response monitoring.	• Check communications routine of the master • Extend fieldbus timeout time (P819) or deactivate monitoring
			2	Fieldbus card does not boot		
29	Limit switch contacted	Emergency stop	0	Hardware limit switch approached	A limit switch was reached in IPOS$^{plus®}$ operating mode.	• Check travel range. • Correct user program.
30	Emergency stop Timeout	Immediate disconnection	0	Time violation stop emergency stop rate	• Drive overloaded • Emergency stop ramp too short.	• Check configuration • Extend emergency stop ramp
31	TF/TH sensor tripped	No response (P)	0	Thermal motor protection error	• Motor too hot, TF/TH has triggered • TF/TH of the motor not connected or connected incorrectly • MOVIDRIVE® connection and TF/TH connection on motor interrupted	• Let motor cool off and reset error • Check connections/link between MOVIDRIVE® and TF/TH. • If a TF/TH is not connected: Jumper X10:1 with X10:2. • Set P835 to "No response".
32	IPOS index overflow	Emergency stop	0	IPOS program defective	Programming principles violated leading to system internal stack overflow	Check and correct the IPOS$^{plus®}$ user program (see IPOS$^{plus®}$ manual).
33	Setpoint source	Immediate disconnection	0	Setpoint source not available, e.g. control signal source fieldbus without fieldbus card	Setpoint source not defined or defined incorrectly.	Set correct setpoint source (P100).
34	Ramp Timeout	Immediate disconnection	0	Time violation rapid stop ramp	Time of downward ramps exceeded, e.g. due to overload.	• Extend the downwards ramps • Eliminate overload
35	Operating mode	Immediate disconnection	0	Operating mode not available	• Operating mode not defined or defined incorrectly • P916 was used to set a ramp function that is needed by a MOVIDRIVE® unit in technology version. • P916 was used to set a ramp type that does not match the selected technology function. • P916 was used to set a ramp type that does not match the selected synchronization time (P888).	• Use P700 or P701 to set correct operating mode. • Use MOVIDRIVE® in technology version (..OT). • From the "Startup → Select technology function..." menu, select the technology function that matches P916. • Check the settings of P916 and P888
			1	Wrong assignment operating mode - hardware		
			2	Wrong assignment operating mode - technology function		
36	Option missing	Immediate disconnection	0	Hardware is missing or not permitted.	• Type of option card not allowed • Setpoint source, control signal source or operating mode not permitted for this option card • Incorrect encoder type set for DIP11B.	• Use correct option card • Set correct setpoint source (P100) • Set correct control signal source (P101) • Set correct operating mode (P700 or P701) • Set the correct encoder type
			2	Encoder slot error.		
			3	Fieldbus slot error.		
			4	Expansion slot error.		
37	System watchdog	Immediate disconnection	0	Error "watchdog overflow system"	Error while executing system software	Consult SEW Service.
38	System software	Immediate disconnection	0	"System software" error	System malfunction	Consult SEW Service.

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Error			Suberror			
Code	Designation	Response (P)	Code	Designation	Possible cause	Measure
39	Reference travel	Immediate disconnection (P)	0	"Reference travel" error	• The reference cam is missing or does not switch • Limit switches are connected incorrectly • Reference travel type was changed during reference travel	• Check reference cam • Check limit switch connection • Check reference travel type setting and required parameters.
40	Boot synchronization	Immediate disconnection	0	Timeout at boot synchronization with option.	• Error during boot synchronization between inverter and option. • Synchronization ID not/ incorrectly transmitted	Install a new option card if this error reoccurs.
41	Watchdog option	Immediate disconnection	0	Error – Watchdog timer from/to option.	• Error in communication between system software and option software • Watchdog in the IPOS$^{plus®}$ program • An application module without the application version has been loaded in a MOVIDRIVE® B unit • The wrong technology function has been set if an application module is used	• Consult SEW Service. • Check IPOS program • Check whether the unit has been activated for the application version (P079) • Check the selected technology function (P078)
			17	Watchdog IPOS error.		
42	Lag error	Immediate disconnection (P)	0	Positioning lag error	• Encoder connected incorrectly • Acceleration ramps too short • P component of positioning controller too small • Incorrectly set speed controller parameters • Value of lag error tolerance too small	• Check encoder connection • Extend ramps • Set P component to higher value • Reset speed controller parameters • Increase lag error tolerance • Check wiring of encoder, motor and mains phase. • Check whether mechanical system components can move freely or if they are blocked
43	RS485-Timeout	Rapid stop (P)	0	Communication timeout at RS485 interface.	Error during communication via interface RS485	Check RS485 connection (e.g. inverter - PC, inverter - DBG60B). If necessary, contact SEW Service.
44	Unit utilization	Immediate disconnection	0	Unit utilization error	• Unit utilization (IxT value) > 125%	• Decrease power output • Extend ramps • If suggested actions not possible, use larger inverter. • Reduce load
			8	UL monitoring error		
45	Initialization	Immediate disconnection	0	General error during initialization	• No parameters set for EEPROM in power section, or parameters set incorrectly. • Option card not in contact with backplane bus.	• Restore factory settings Consult SEW Service if the error still cannot be reset. • Insert the option card correctly.
			3	Data bus error during RAM check		
			6	CPU clock error.		
			7	Error in the current evaluation.		
			10	Error setting the flash protection		
			11	Data bus error during RAM check		
			12	Parameter setting error synchronous operation (internal synchronous operation)		

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Error			Suberror			
Code	Designation	Response (P)	Code	Designation	Possible cause	Measure
46	System bus 2 timeout	Rapid stop (P)	0	Timeout system bus CAN2	Error during communication via system bus 2.	Check system bus connection.
47	System bus 1 timeout	Rapid stop (P)	0	Timeout system bus CAN1	Error during communication via system bus 1.	Check system bus connection.
48	Hardware DRS	Immediate disconnection	0	Hardware synchronous operation	**Only with DRS11B:** • Encoder signal from master/ synchronous encoder faulty. • Hardware required for synchronous operation is faulty.	• Check encoder signals of master/synchronous encoder. • Check encoder wiring. • Replace synchronous operation card.
77	IPOS control word	No response (P)	0	Invalid control word IPOS	**Only in IPOS$^{plus®}$ operating mode:** • An attempt was made to set an invalid automatic mode (via external controller). • P916 = BUS RAMP is set.	• Check serial connection to external control. • Check write values of external control. • Set correct value for P016.
78	IPOS SW limit switch	No response (P)	0	Software limit switch reached	**Only in IPOS$^{plus®}$ operating mode:** Programmed target position is outside travel range delimited by software limit switches.	• Check the user program • Check position of the software limit switches
79	Hardware configuration	Immediate disconnection	0	Deviating hardware configuration when replacing the memory card	The following items do not match anymore after having replaced the memory card: • Power • Rated voltage • Variant identification • Unit series • Application or standard version • Option cards	Ensure identical hardware or restore factory setting (parameter = factory setting).
80	RAM test	Immediate disconnection	0	"RAM test" error	Internal unit fault, RAM defective.	Consult SEW Service.
81	Start condition	Immediate disconnection	0	Start condition error with VFC hoist	**Only in "VFC hoist" operating mode:** The motor could not be supplied with the correct amount of current during the pre-magnetizing time: • Rated motor power too small in relation to rated inverter power. • Motor cable cross section too small. **Only for operation with a linear motor (as of firmware 18):** • The drive has been set to "Enable" although the commutation offset between linear motor and linear encoder is not known. This means that the inverter cannot set the current indicator correctly.	• Check startup data and perform new startup, if necessary. • Check connection between inverter and motor. • Check cross section of motor cable and increase if necessary. • Perform commutation travel in the "No enable" state and then switch to "Enable" once the inverter has acknowledged in status word bit 25 that commutation was successful.
82	Open output	Immediate disconnection	0	Output open with VFC hoist	**Only in "VFC hoist" operating mode:** • Two or all output phases interrupted. • Rated motor power too small in relation to rated inverter power.	• Check connection between inverter and motor. • Check startup data and perform new startup, if necessary.

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Error			Suberror			
Code	Designation	Response (P)	Code	Designation	Possible cause	Measure
84	Motor protection	Emergency stop (P)	0	"Motor temperature simulation" error	• Motor utilization too high. • I_N-U_L monitoring 1 triggered • P530 set later to "KTY"	• Reduce load. • Extend ramps. • Observe longer pause times. • Check P345/346 • Select a larger motor
			2	Short circuit or open circuit in the temperature sensor		
			3	No thermal motor model available		
			4	UL monitoring error		
86	Memory module	Immediate disconnection	0	Error in connection with memory module	• No memory card • Memory card defective	• Tighten knurled screw • Insert and secure memory card • Replace memory card
			2	Hardware card detection wrong memory card		
87	Technology function	Immediate disconnection	0	Technology function selected with standard unit	A technology function was activated in a standard version.	Disable technology function
88	Flying start	Immediate disconnection	0	"Flying start" error	**Only in VFC n-CTRL operating mode:** Actual speed > 6000 rpm with the inverter enabled.	Inverter not enabled before actual speed is ≤ 6000 rpm.
92	DIP encoder problem	Error display (P)	1	Stahl WCS3 dirt problem	Encoder signals an error	Possible cause: Encoder is dirty → clean encoder
93	DIP encoder error	Emergency stop (P)	0	Fault "Absolute encoder"	The encoder signals an error, e.g. power failure. • Connection cable between the encoder and DIP11B does not meet the requirements (twisted pair, shielded). • Cycle frequency for cable length too high. • Permitted max. speed/ acceleration of encoder exceeded. • Encoder defective.	• Check absolute encoder connection. • Check connection cables. • Set correct cycle frequency. • Reduce maximum traveling velocity or ramp. • Replace absolute encoder.
94	EEPROM checksum	Immediate shut-off	0	Power section parameters	Inverter electronics disrupted, possibly due to effect of EMC or a defect.	Send unit in for repair.
			5	Control unit data		
			6	Power section data		
			7	Invalid version of the configuration data set		
95	DIP plausibility error	Emergency stop (P)	0	Validity check of absolute position	No plausible position could be determined. • Incorrect encoder type set. • IPOS$^{plus®}$ travel parameter set incorrectly. • Numerator/denominator factor set incorrectly. • Zero adjustment performed. • Encoder defective.	• Set the correct encoder type. • Check IPOS$^{plus®}$ travel parameters. • Check traveling velocity. • Correct numerator/ denominator factor. • After zero adjustment reset. • Replace absolute encoder.
97	Copy error	Immediate disconnection	0	Parameter set upload is/ was faulty	• Memory card cannot be written or read. • Error during data transmission	• Repeat copying process • Restore default setting (P802) and repeat copying process
			1	Download of parameter set to unit cancelled.		
			2	Not possible to adopt parameters. Not possible to adopt parameters from memory card.		
98	CRC error	Immediate disconnection	0	"CRC via internal flash" error	Internal unit error Flash memory defective	Send unit in for repair.

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Error			Suberror			
Code	Designation	Response (P)	Code	Designation	Possible cause	Measure
99	IPOS ramp calculation	Immediate disconnection	0	"Ramp calculation" error	**Only in IPOS$^{plus®}$ operating mode:** Positioning ramp is sinusoidal or square and an attempt is made to change ramp times and traveling velocities with enabled inverter.	Rewrite the IPOS$^{plus®}$ program so that ramp times and traveling velocities can only be altered when the inverter is inhibited.
100	Vibration warning	Display error (P)	0	Vibrations diagnostics warning	Vibration sensor warning (→ "DUV10A" operating instructions).	Determine cause of vibrations. Continue operation until F101 occurs.
101	Vibration error	Rapid stop (P)	0	Vibration diagnostics error	Vibration sensor reports error.	SEW-EURODRIVE recommends that you remedy the cause of the vibrations immediately
102	Oil aging warning	Display error (P)	0	Oil aging warning	Error message from the oil aging sensor	Schedule oil change.
103	Oil aging error	Display error (P)	0	Oil aging error	Error message from the oil aging sensor	SEW-EURODRIVE recommends that you change the gear unit oil immediately.
104	Oil aging overtemperature	Display error (P)	0	Oil aging overtemperature	Overtemperature signal from the oil aging sensor	• Let oil cool down • Check if the gear unit cools properly
105	Oil aging ready signal	Display error (P)	0	Oil aging ready signal	Oil aging sensor is not ready for operation	• Check voltage supply of oil aging sensor • Check and, if necessary, replace the oil aging sensor
106	Brake wear	Display error (P)	0	Brake wear error	Brake lining worn	Replace brake lining (→ "Motors" operating instructions).
107	Line components	Immediate disconnection	1	No feedback signal from main contactor.	Defective main contactor	• Check main contactor • Check control cables.

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Error			Suberror			
Code	Designation	Response (P)	Code	Designation	Possible cause	Measure
108	DCS error	Immediate stop/malfunction (P)	0	DCS error		
			1	Error during transfer of configuration data to the monitoring unit.	Interruption in connection during program download	Send the configuration files again
			2	Configuration data for software version of the subassembly is invalid.	Subassembly configured with incorrect software version of the programming interface.	Configure subassembly with permitted version of the programming interface. Then switch subassembly off and on again.
			3	Unit was programmed with incorrect programming interface.	Program or configuration data was loaded into the unit with an incorrect programming interface.	Check the design of the subassembly. Configure again with a valid programming interface. Then switch the unit off and on again.
			4	Faulty reference voltage.	• Supply voltage of the subassembly is defective. • Faulty component in the subassembly	• Check supply voltage • Switch unit off and on again
			5			
			6	Faulty system voltage.		
			7			
			8	Faulty test voltage		
			9			
			10	Faulty DC 24 V voltage supply		
			11	Ambient temperature of the unit is not in the defined range.	Temperature at the place of operation is not in the permitted range.	Check the ambient temperature.
			12	Plausibility error for position changeover	For the position changeover, ZSC, JSS or DMC is permanently activated.	• Check ZSC activation • Check JSS activation • Check DMC activation (only for monitoring via position)
			13	Faulty switching of the LOSIDE driver DO02_P / DO02_M	Short circuit of the output.	Check wiring at the output.
			14	Faulty switching of the HISIDE driver DO02_P / DO02_M		
			15	Faulty switching of the LOSIDE driver DO0_M		
			16	Faulty switching of the HISIDE driver DO0_P		
			17	Faulty switching of the LOSIDE driver DO01_M		
			18	Faulty switching of the HISIDE driver DO01_P		

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Error			Suberror			
Code	Designation	Response (P)	Code	Designation	Possible cause	Measure
109	DCS alarm	Rapid stop/ warning (P)	0	DCS alarm		
			1	Communication error at the CAN interface of the inverter.	The DCS21B/31B option does not receive any valid data from the inverter.	• Check hardware connection to the inverter • Check version of the inverter
			2 3	Plausibility error digital input at pulse P1	No pulse1 voltage present at binary input DI1	• Check configuration of the DI1 binary input according to configuration and wiring diagram • Check the wiring
			4 5	Plausibility error digital input at pulse P2		• Check configuration of the DI2 binary input according to configuration and wiring diagram • Check the wiring
			6 7	Pulse 1 plausibility error at binary input DI3		• Check configuration of the DI3 binary input according to configuration and wiring diagram • Check the wiring
			8 9	Pulse 1 plausibility error at binary input DI4		• Check configuration of the DI4 binary input according to configuration and wiring diagram • Check the wiring
			10 11	Pulse 1 plausibility error at binary input DI5		• Check configuration of the DI5 binary input according to configuration and wiring diagram • Check the wiring
			12 13	Pulse 1 plausibility error at binary input DI6		• Check configuration of the DI6 binary input according to configuration and wiring diagram • Check the wiring
			14 15	Pulse 1 plausibility error at binary input DI7		• Check configuration of the DI7 binary input according to configuration and wiring diagram • Check the wiring
			16 17	Pulse 1 plausibility error at binary input DI8		• Check configuration of the DI8 binary input according to configuration and wiring diagram • Check the wiring

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Error			Suberror			
Code	Designation	Response (P)	Code	Designation	Possible cause	Measure
109	DCS alarm	Rapid stop/ warning (P)	18 19	Pulse 2 plausibility error at binary input DI1	No pulse 2 voltage present at binary input DI1.	• Check configuration of the DI1 binary input according to configuration and wiring diagram • Check the wiring
			20 21	Pulse 2 plausibility error at binary input DI2		• Check configuration of the DI2 binary input according to configuration and wiring diagram • Check the wiring
			22 23	Pulse 2 plausibility error at binary input DI3		• Check configuration of the DI3 binary input according to configuration and wiring diagram • Check the wiring
			24 25	Pulse 2 plausibility error at binary input DI4		• Check configuration of the DI4 binary input according to configuration and wiring diagram • Check the wiring
			26 27	Pulse 2 plausibility error at binary input DI5		• Check configuration of the DI5 binary input according to configuration and wiring diagram • Check the wiring
			28 29	Pulse 2 plausibility error at binary input DI6		• Check configuration of the DI6 binary input according to configuration and wiring diagram • Check the wiring
			30 31	Pulse 2 plausibility error at binary input DI7		• Check configuration of the DI7 binary input according to configuration and wiring diagram • Check the wiring
			32 33	Pulse 2 plausibility error at binary input DI8		• Check configuration of the DI8 binary input according to configuration and wiring diagram • Check the wiring
			34 35	Plausibility error in the speed recording	The difference between the two velocity sensors is higher than the configured speed cut-off threshold.	• Check track again with the data of the encoder configuration. • Check the velocity sensor • Use the SCOPE function to set speed signals so that they are congruent
			36 37	Plausibility error in the position acquisition	The difference between the two position sensors is higher than the configured value.	• Check track with the configured data of the encoder setting • Check position signal • Are all signals connected correctly to the 9-pin encoder connector? • Check the encoder connector for correct wiring. Is the jumper between pin 1 and pin 2 on the 9-pin encoder connector closed (SSI absolute encoder)? • Use the SCOPE function to set positions signals so that they are congruent

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Error			Suberror			
Code	Designation	Response (P)	Code	Designation	Possible cause	Measure
109	DCS alarm	Rapid stop/ warning (P)	38 39	Plausibility error incorrect position range	The current position is outside the configured range.	• Check track with the configured data of the encoder setting • Check position signal, correct offset if necessary • Use the SCOPE function to read off the position and set in ratio to the configured values
			40 41	Plausibility error incorrect speed.	The current velocity exceeds the configured maximum velocity.	• The drive moves outside the permitted and configured velocity range • Check configuration (set max. velocity) • Analyze the velocity development using the SCOPE function
			42 43	Configuration error: Acceleration	The current acceleration is outside the configured acceleration range.	• Check encoder type and configuration (SSI/ incremental) • Check the encoder connection/wiring • Check polarity of the encoder data • Check function of the encoder
			44 45	Plausibility error in encoder interface (A3401 = encoder 1 and A3402 = encoder 2).	The wiring of the encoder does not correspond to the configured data.	• Check encoder type and configuration (SSI/ incremental) • Check the encoder connection/wiring • Check polarity of the encoder data • Check function of the encoder
			46 47	Encoder supply voltage error (A3403 = encoder 1 and A3404 = encoder 2)	Encoder voltage supply is outside the defined range (min. DC 20 V / max. DC 29 V).	• Overload in the supply voltage of the encoder; internal fuse has triggered • Check supply voltage of the DCS21B/31B option
			48 49	Reference voltage error	The reference voltage input of the encoder system is outside the defined range.	Check reference voltage input of the encoder system.
			50 51	Difference level RS485 driver 1 (error INC_B or SSI_CLK) faulty	No encoder connection, incorrect encoder type.	Check the encoder connection.
			52 53	Difference level RS485 driver 2 (error INC_A or SSI_DATA) faulty.		
			54 55	Incremental counter deviation		
			56 57	Plausibility error in encoder interface (A3401 = encoder 1 and A3402 = encoder 2)	The wiring of the encoder does not correspond to the configured data.	• Check encoder type and configuration (SSI/ incremental) • Check the encoder connection/wiring • Check polarity of the encoder data • Check function of the encoder

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Error			Suberror			
Code	Designation	Response (P)	Code	Designation	Possible cause	Measure
109	DCS alarm	Rapid stop/ warning (P)	58	Plausibility error SIN/COS encoder connection.	Incorrect encoder type connected.	• Check the encoder connection • Check the encoder connection (jumper between pin 1 and pin2)
			59			
			60	Plausibility error incremental encoder connection		
			61			
			62		Phase error of the incremental or sin/cos encoder.	• Check the encoder connection • Replace the defective encoder
			63			
			64	Plausibility error - SSI encoder connection.	Connected encoder type does not correspond to the configuration.	• Check the encoder connection • Check connected encoder
			65			
			66	Plausibility error - SSI listener encoder connection		
			67			
			68	Faulty switching of the LOSIDE driver DO2_M	DC 0 V short circuit at the output.	Check wiring at the output.
			69	Faulty switching of the HISIDE driver DO2_P		
			70	Faulty switching of the LOSIDE driver DO0_M		
			71	Faulty switching of the HISIDE driver DO0_P		
			72	Faulty switching of the LOSIDE driver DO1_M		
			73	Faulty switching of the HISIDE driver DO1_P		
			74	Undervoltage test watchdog for LOSIDE driver	DC 0 V short circuit at on of the DC 0 V outputs.	Check wiring at the outputs.
			75	Undervoltage test watchdog for HISIDE driver	DC 24 V short circuit at on of the DC 24 V outputs.	
			76	CCW and CW monitoring (in DMC module) activated simultaneously	Multiple activation.	Only one direction of rotation can be activated in the DMC module.
			77			
			78	CCW and CW monitoring range of the OLC activated simultaneously		
			79			
			80	CCW and CW monitoring (in JSS module) was activated simultaneously		
			81			
			82	Timeout error MET. Time monitoring start signal for confirmation button.	Input element with time monitoring is faulty.	• Check wiring of input element • Input element is faulty
			83			
			84	Timeout error MEZ. Time monitoring for two-hand button.	Two-hand operation with time monitoring is faulty.	
			85			
			86	EMU1 monitoring error	Faulty monitoring of the external disconnection channel	• Check hardware connections • Pick-up or release time to short • Check switching contacts
			87			
			88	EMU2 monitoring error		
			89			
110	"Ex-e protection" error	Emergency stop	0	Duration of operation below 5 Hz exceeded	Duration of operation below 5 Hz exceeded	• Check configuration • Shorten duration of operation below 5 Hz
113	Analog input open circuit	No response (P)	0	AI1 analog input open circuit	AI1 analog input open circuit	Check wiring
116	"Timeout MOVI-PLC" error	Rapid stop/ warning	0	MOVI-PLC® communication timeout		• Check startup • Check wiring
123	Positioning interruption	Emergency stop (P)	0	Error "Positioning/Positioning interruption"	Target monitoring when interrupted positioning is resumed. Target would be overrun.	Perform positioning process without interruption until it is complete.

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Error			Suberror			
Code	Designation	Response (P)	Code	Designation	Possible cause	Measure
124	Ambient conditions	Emergency stop (P)	1	Permitted ambient temperature exceeded	Ambient temperature > 60°C	• Improve ventilation and cooling conditions • Improve air supply to the control cabinet; check filter mats.
196	Power section	Immediate disconnection	1	Discharge resistor	Discharge resistor overload	Observe waiting time for power on/off
			2	Hardware ID precharge/discharge control	Incorrect precharge/discharge control variant	• Consult SEW Service • Replace precharge/discharge control
			3	Inverter coupling PLD Live	Defective inverter coupling	• Consult SEW Service • Replace inverter coupling
			4	Inverter coupling reference voltage	Defective inverter coupling	• Consult SEW Service • Replace inverter coupling
			5	Power section configuration	Different phase modules installed in the unit	• Inform SEW service. • Check and replace phase modules
			6	Control unit configuration	Control unit line inverter or motor inverter incorrect	Replace or correctly assign the control unit of line and motor inverter.
			7	Communication power section control unit	No communication	Check control unit installation.
			8	Communication precharge/discharge control inverter coupling	No communication	• Check wiring • Consult SEW Service
			10	Communication power section control unit	The inverter coupling does not support protocol	Replace inverter coupling
			11	Communication power section control unit	Faulty communication with inverter coupling at power-up (CRC error).	Replace inverter coupling
			12	Communication power section control unit	Inverter coupling uses protocol that does not match control unit	Replace inverter coupling
			13	Communication power section control unit	Faulty communication with inverter coupling during operation: More than once per second a CRC error.	Replace inverter coupling
			14	Control unit configuration	Missing PLD functionality for EEPROM data set size 7.	Replace control unit
			15	Inverter coupling error	Inverter coupling processor has signaled internal error.	• Consult SEW service if the error reoccurs • Replace inverter coupling
			16	Inverter coupling error: PLD version incompatible		Replace inverter coupling
			17	Precharge/discharge control error	Precharge/discharge control processor has signaled internal error	• Consult SEW service if the error reoccurs • Replace precharge/discharge control
			18	Defective DC link fan	The DC link fan is faulty.	• Consult SEW Service • Check whether DC link choke fan is connected or faulty
			19	Communication power section control unit	Faulty communication with inverter coupling during operation: More than once per second an internal error.	• Consult SEW service if the error reoccurs. • Replace inverter coupling
			20	Communication power section control unit	The control unit has not sent any messages to the inverter coupling for a while.	• Consult SEW service if the error reoccurs. • Replace inverter coupling
			21	Uz measurement implausible phase R	Defective phase module	Consult SEW service if the error reoccurs
			22	Uz measurement implausible phase S		
			23	Uz measurement implausible phase T		

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Error			Suberror			
Code	Designation	Response (P)	Code	Designation	Possible cause	Measure
197	Supply system	Immediate disconnection	1	Line overvoltage (motor inverter only at start of precharging process)	Inadequate line voltage quality.	• Check supply (fuses, contactor) • Check configuration of the supply system
			2	Line undervoltage (only with line inverter)		
199	DC link charging	Immediate disconnection	4	Precharging was aborted	Unable to charge DC link.	• Precontrol overload • Connected DC link capacity too high • Short circuit in the DC link; check DC link connection in case of several units.

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7.3 SEW Electronics Service

7.3.1 Send in for repair

Please contact the **SEW-EURODRIVE electronics service if an error cannot be rectified** (→ "Customer and spare parts service").

When contacting SEW electronics service, always quote the digits on the status label so that our service personnel can assist you more effectively.

Provide the following information when sending the unit in for repair:

- Serial number (→ nameplate)
- Unit designation
- Standard version or application version
- Digits on the status label
- Short description of application (drive application, control via terminals or serial)
- Connected motor (motor type, motor voltage, connection ⅄ or △)
- Nature of the fault
- Accompanying circumstances
- Your own presumptions as to what has happened
- Any unusual events preceding the problem, etc.

7.4 Extended storage

If the unit is stored for a long time, connect it to the mains voltage for at least 5 minutes every 2 years. Otherwise, the unit's service life may be reduced.

Procedure when maintenance has been neglected:

Electrolytic capacitors are used in the inverters. They are subject to aging effects when deenergized. This effect can damage the capacitors if the unit is connected using the rated voltage after a longer period of storage.

If you have not performed maintenance regularly, SEW-EURODRIVE recommends that you increase the line voltage slowly up to the maximum voltage. This can be done, for example, by using a variable transformer for which the output voltage has been set according to the following overview.

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The following stages are recommended:

AC 400/500 V units:

- Stage 1: AC 0 V to AC 350 V within a few seconds
- Stage 2: AC 350 V for 15 minutes
- Stage 3: AC 420 V for 15 minutes
- Stage 4: AC 500 V for 1 hour

AC 230 V units:

- Stage 1: AC 170 V for 15 minutes
- Stage 2: AC 200 V for 15 minutes
- Stage 3: AC 240 V for 1 hour

After you have completed the regeneration process, the unit can be used immediately or stored again for an extended period with maintenance.

7.5 Disposal

Please follow the current instructions. Dispose in accordance with the material structure and the regulations in force for instance as:

- Electronics scrap (circuit boards)
- Plastic (housing)
- Sheet metal
- copper

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8 Technical Data and Dimension Drawings

8.1 CE marking, UL approval and C-Tick

8.1.1 CE-marking

- Low voltage directive

  MOVIDRIVE® MDX60B/61B inverters comply with the regulations of the Low Voltage Directive 2006/95/EC.

- Electromagnetic compatibility (EMC)

  The designated use of MOVIDRIVE® inverters and regenerative power supply units is 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 2004/108/EC. For detailed information on EMC compliant installation, refer to the publication "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 can provide detailed information on request.

CE

The CE-mark on the nameplate indicates conformity with the low voltage directive 2006/95/EC. We can provide a declaration of conformity on request.

8.1.2 UL- / cUL / GOST-R

c UL us

UL, cUL approval (USA) and the GOST-R certificate (Russia) have been approved for the entire MOVIDRIVE® unit series. cUL is equivalent to CSA approval.

8.1.3 C-Tick

C-Tick approval has been granted for the entire MOVIDRIVE® range of units. C-Tick certifies conformity with ACMA (Australian Communications and Media Authority) standards.

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8.2 General technical data

The following table lists the technical data applicable to all MOVIDRIVE® MDX60B/61B inverters, regardless of their type, version, size and performance.

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 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_U **I_N reduction** **Ambient temperature** **Climate class**	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 7: 4 kHz 2.5 % I_N per K between 40 °C - 50 °C 3 % I_N per K at 50 °C - 60 °C 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 3** **Sizes 4 to 6** **Size 7**	 IP20 IP00 (power connections) IP10 (power connections) with • fitted Plexiglas cover supplied as standard and • shrink tubing (not included in scope of delivery) IP10 (power connections) Refer to section "Touch guard" (page 56).
Operating mode	Continuous operation 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	391
Protection against chemically active substances	3C2
Installation altitude h	Up to h ≤ 1000 m (3281 ft) without restrictions. The following restrictions apply at h ≥ 1000 m (3281 ft): • from 1000 m (3281 ft) to max. 4000 m (13120 ft): – I_N reduction by 1 % per 100 m (328 ft) • from 2000 m (6562 ft) to max. 4000 m (13120 ft): – AC 230 V units: U_N reduction by AC 3 V per 100 m (328 ft) – AC 500 V units: U_N reduction by AC 6 V per 100 m (328 ft) Over 2000 m (6562 ft) only overvoltage class 2, external measures are required for overvoltage class 3. Overvoltage classes according to DIN VDE 0110-1.

1) In case of long-term storage, the unit must be connected to the mains voltage for at least 5 minutes every two years, otherwise the unit's service life may be reduced.

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8.2.1 MOVIDRIVE® MDX60/61B unit series, size 0

The following figure shows the MOVIDRIVE® MDX60/61B unit series, size 0



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8.2.2 MOVIDRIVE® MDX61B unit series, sizes 1 to 7

The following figure shows the MOVIDRIVE® MDX61B unit series, sizes 1 to 7



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

8.3.1 Size 0

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_{supply}	3 × AC 380 V - 500 V			
Line frequency	f_{supply}	50 Hz ... 60 Hz ±5 %			
Nominal supply system current[1] (at V_{supply} = 3 × AC 400 V)	I_{supply} 100 % 125 %	AC 1.8 A AC 2.3 A	AC 2.2 A AC 2.7 A	AC 2.8 A AC 3.5 A	AC 3.6 A AC 4.5 A
OUTPUT					
Apparent output power[2] (at V_{supply} = 3 × AC 380...500 V)	S_N	1.4 kVA	1.6 kVA	2.1 kVA	2.8 kVA
Rated output current[1] (at V_{supply} = 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_{supply} = 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_{supply} = 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
Current limitation	I_{max}	Motor and regenerative 200 % I_N, duration depending on capacity utilization			
Internal current limitation		I_{max} = 0...200 % adjustable			
Minimum permitted brake 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_A / Δn_A	–6000 ... 0 ... +6000 min^{-1} / 0.2 min^{-1} across the entire range			
GENERAL INFORMATION					
Power loss at S_N [2]	P_{Vmax}	42 W	48 W	58 W	74 W
Cooling air consumption		3 m^3/h		9 m^3/h	
Cross section of unit terminals X1, X2, X3, X4		Terminal blocks 4 mm^2 conductor end sleeves DIN 46228			
Tightening torque		0.6 Nm			

1) The system and output currents must be reduced by 20 % from the nominal values for V_{supply} = 3 x 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
Part number	827 722 2	827 723 0	827 724 9	827 725 7
MDX61B Application version	0005-5A3-4-0T	0008-5A3-4-0T	0011-5A3-4-0T	0014-5A3-4-0T
Part number	827 726 5	827 727 3	827 728 1	827 729 X
 Constant load Recommended motor power P_{Mot}	0.55 kW (0.74 HP)	0.75 kW (1.0 HP)	1.1 kW (1.5 HP)	1.5 kW (2.0 HP)
 Variable torque load or constant load without overload recommended motor power P_{Mot}	0.75 kW (1.0 HP)	1.1 kW (1.5 HP)	1.5 kW (2.0 HP)	2.2 kW (3.0 HP)
Weight	2.0 kg (4.4 lb)		2.5 kg (5.5 lb)	
Dimensions W × H × D	45 mm × 317 mm × 260 mm (1.8 in x 12.5 in x 10.2 in)		67,5 mm × 317 mm × 260 mm (2.66 in x 12.5 in x 10.2 in)	

MDX61B standard version (VFC/CFC/SERVO)	0005-5A3-4-00	0008-5A3-4-00	0011-5A3-4-00	0014-5A3-4-00
Part number	827 730 3	827 731 1	827 732 X	827 733 8
MDX61B Application version (VFC/CFC/SERVO)	0005-5A3-4-0T	0008-5A3-4-0T	0011-5A3-4-0T	0014-5A3-4-0T
Part number	827 734 6	827 735 4	827 736 2	827 737 0
Weight	2.3 kg (5.1 lb)		2.8 kg (6.2 lb)	
Dimensions W × H × D	72.5 mm × 317 mm × 260 mm (2.85 in ×12.5 in ×10.2 in)		95 mm × 317 mm × 260 mm (3.7 in ×12.5 in ×10.2 in)	
Recommended motor power	→ MOVIDRIVE® B system manual, section "Motor selection"			

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8.3.2 Size 1 (AC 400/500 V units)

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_{supply}	3 × AC 380 V - 500 V			
supply frequency f_{supply}	50 Hz ... 60 Hz ±5 %			
Nominal supply system current[1] I_{supply} 100 % **(at V_{supply} = 3 × AC 400 V) 125 %**	AC 3.6 A AC 4.5 A	AC 5.0 A AC 6.2 A	AC 6.3 A AC 7.9 A	AC 8.6 A AC 10.7 A
OUTPUT				
Apparent output power[2] S_N **(at V_{supply} = 3 × AC 380...500 V)**	2.8 kVA	3.8 kVA	4.9 kVA	6.6 kVA
Rated output current[1] I_N **(at V_{supply} = 3 × AC 400 V)**	AC 4 A	AC 5.5 A	AC 7 A	AC 9.5 A
Continuous output current (= 125 % I_N) I_D **(at V_{supply} = 3 × AC 400 V and f_{PWM} = 4 kHz)**	AC 5 A	AC 6.9 A	AC 8.8 A	AC 11.9 A
Continuous output current (= 100 % I_N) I_D **(at V_{supply} = 3 × AC 400 V and f_{PWM} = 8 kHz)**	AC 4 A	AC 5.5 A	AC 7 A	AC 9.5 A
Current limitation I_{max}	Motor and regenerative 150 % I_N, duration depending on capacity utilization			
Internal current limitation	I_{max} = 0...150 % adjustable			
Minimum permitted brake R_{BWmin} resistance value (4Q operation)	68 Ω			
Output voltage V_O	Max. V_{supply}			
PWM frequency f_{PWM}	Adjustable: 4/8/12/16 kHz			
Speed range/resolution n_A / Δn_A	–6000 ... 0 ... +6000 min^{-1} / 0.2 min^{-1} across the entire range			
GENERAL INFORMATION				
Power loss at S_N [2] P_{Vmax}	85 W	105 W	130 W	180 W
Cooling air consumption	40 m^3/h			
Weight	3.5 kg (7.7 lb)			
Dimensions W × H × D	105 mm × 314 mm × 234 mm (4.13 in ×12.4 in ×9.21 in)			
Cross section of unit terminals X1, X2, X3, X4	Terminal blocks 4 mm^2 conductor end sleeves DIN 46228			
Tightening torque	0.6 Nm			

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

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

MDX61B Standard version	0015-5A3-4-00	0022-5A3-4-00	0030-5A3-4-00	0040-5A3-4-00
Part number	827 957 8	827 958 6	827 959 4	827 960 8
MDX61B Application version	**0015-5A3-4-0T**	**0022-5A3-4-0T**	**0030-5A3-4-0T**	**0040-5A3-4-0T**
Part number	827 975 6	827 976 4	827 977 2	827 978 0
Constant load **Recommended motor power P_{Mot}**	1.5 kW (2.0 HP)	2.2 kW (3.0 HP)	3.0 kW (4.0 HP)	4.0 kW (5.4 HP)
Variable torque load or constant load without overload recommended motor power P_{Mot}	2.2 kW (3.0 HP)	3.0 kW (4.0 HP)	4.0 kW (5.4 HP)	5.5 kW (7.4 HP)
Recommended motor power	→ MOVIDRIVE® B system manual, section "Motor selection"			

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8.3.3 Sizes 2S and 2 (AC 400/500 V units)

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_{supply}	3 × AC 380 V - 500 V		
supply frequency f_{supply}	50 Hz ... 60 Hz ±5 %		
Nominal supply system current[1] I_{supply} 100 % **(at V_{supply} = 3 × AC 400 V) 125 %**	AC 11.3 A AC 14.1 A	AC 14.4 A AC 18.0 A	AC 21.6 A AC 27.0 A
OUTPUT			
Apparent output power[2] S_N **(at V_{supply} = 3 × AC 380...500 V)**	8.7 kVA	11.2 kVA	16.8 kVA
Rated output current[1] I_N **(at V_{supply} = 3 × AC 400 V)**	AC 12.5 A	AC 16 A	AC 24 A
Continuous output current (= 125 % I_N) I_D **(at V_{supply} = 3 × AC 400 V with f_{PWM} = 4 kHz)**	AC 15.6 A	AC 20 A	AC 30 A
Continuous output current (= 100 % I_N) I_D **(at V_{supply} = 3 × AC 400 V with f_{PWM} = 8 kHz)**	AC 12.5 A	AC 16 A	AC 24 A
Current limitation I_{max}	Motor and regenerative 150 % I_N, duration depending on capacity utilization		
Internal current limitation	I_{max} = 0...150 % adjustable		
Minimum permitted brake resistance value (4Q operation) R_{BWmin}	47 Ω		22 Ω
Output voltage V_O	Max. V_{supply}		
PWM frequency f_{PWM}	Adjustable: 4/8/12/16 kHz		
Speed range/resolution n_A / Δn_A	–6000 ... 0 ... +6000 min^{-1} / 0.2 min^{-1} across the entire range		
GENERAL INFORMATION			
Power loss at S_N [2] P_{Vmax}	220 W	290 W	400 W
Cooling air consumption	80 m^3/h		
Weight	6.6 kg (15 lb)		
Dimensions W × H × D	105 mm × 335 mm × 294 mm (4.13 in ×13.2 in ×11.6 in)		135 mm × 315 mm × 285 mm (5.31 in ×12.4 in ×11.2 in)
Cross section of unit terminals X1, X2, X3, X4	Terminal blocks 4 mm^2 conductor end sleeves DIN 46228		M4 screw and washer assembly with terminal clip 4 mm^2 conductor end sleeve DIN 46228 6 mm^2 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_{supply} = 3 x AC 500 V.

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

MDX61B Standard version	0055-5A3-4-00	0075-5A3-4-00	0110-5A3-4-00
Part number	827 961 6	827 962 4	827 963 2
MDX61B Application version	**0055-5A3-4-0T**	**0075-5A3-4-0T**	**0110-5A3-4-0T**
Part number	827 979 9	827 980 2	827 981 0
 **Constant load** **Recommended motor power P_{Mot}**	5.5 kW (7.4 HP)	7.5 kW (10 HP)	11 kW (15 HP)
 **Variable torque load or constant load without overload recommended motor power P_{Mot}**	7.5 kW (10 HP)	11 kW (15 HP)	15 kW (20 HP)
Recommended motor power	→ MOVIDRIVE® B system manual, section "Motor selection"		

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8.3.4 Size 3 (AC 400/500 V units)

MOVIDRIVE® MDX61B		0150-503-4-0_	0220-503-4-0_	0300-503-4-0_
INPUT				
Nominal supply voltage (to EN 50160)	V_{supply}	3 × AC 380 V - 500 V		
supply frequency	f_{supply}	50 Hz ... 60 Hz ±5 %		
Nominal supply system current[1] **(at V_{supply} = 3 × AC 400 V)**	I_{supply} 100 % 125 %	AC 28.8 A AC 36 A	AC 41.4 A AC 51.7 A	AC 54 A AC 67.5 A
OUTPUT				
Apparent output power[2] **(at V_{supply} = 3 × AC 380...500 V)**	S_N	22.2 kVA	31.9 kVA	41.6 kVA
Rated output current[1] **(at V_{supply} = 3 × AC 400 V)**	I_N	AC 32 A	AC 46 A	AC 60 A
Continuous output current (= 125 % I_N) (at V_{supply} = 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_{supply} = 3 × AC 400 V with f_{PWM} = 8 kHz)	I_D	AC 32 A	AC 46 A	AC 60 A
Current limitation	I_{max}	Motor and regenerative 150 % I_N, duration depending on capacity utilization		
Internal current limitation		I_{max} = 0...150 % adjustable		
Minimum permitted brake resistance value (4Q operation)	R_{BWmin}	15 Ω	12 Ω	
Output voltage	V_O	Max. V_{supply}		
PWM frequency	f_{PWM}	Adjustable: 4/8/12/16 kHz		
Speed range/resolution	n_A / Δn_A	–6000 ... 0 ... +6000 min^{-1} / 0.2 min^{-1} across the entire range		
GENERAL INFORMATION				
Power loss at S_N [2]	P_{Vmax}	550 W	750 W	950 W
Cooling air consumption		180 m^3/h		
Weight		15.0 kg (33 lb)		
Dimensions	W × H × D	200 mm × 465 mm × 308 mm (7.87 in ×18.3 in ×12.1 in)		
Cross section of unit terminals X1, X2, X3, X4		M6 screw with washer max. 25 mm^2 Crimp cable lug DIN 46234		
Tightening torque		3.5 Nm		

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

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

MDX61B Standard version	0150-503-4-00	0220-503-4-00	0300-503-4-00
Part number	827 964 0	827 965 9	827 966 7
MDX61B Application version	**0150-503-4-0T**	**0220-503-4-0T**	**0300-503-4-0T**
Part number	827 982 9	827 983 7	827 984 5
 **Constant load** **Recommended motor power P_{Mot}**	15 kW (20 HP)	22 kW (30 HP)	30 kW (40 HP)
 **Variable torque load or constant load without overload recommended motor power P_{Mot}**	22 kW (30 HP)	30 kW (40 HP)	37 kW (50 HP)
Recommended motor power	→ MOVIDRIVE® B system manual, section "Motor selection"		

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8.3.5 Size 4 (AC 400/500 V units)

MOVIDRIVE® MDX61B		0370-503-4-0_	0450-503-4-0_
INPUT			
Nominal supply voltage (to EN 50160)	V_{supply}	3 × AC 380 V - 500 V	
supply frequency	f_{supply}	50 Hz ... 60 Hz ±5 %	
Nominal supply system current[1]	I_{supply} **100 %**	AC 65.7 A	AC 80.1 A
(at V_{supply} = 3 × AC 400 V)	**125 %**	AC 81.9 A	AC 100.1 A
OUTPUT			
Apparent output power[2] **(at V_{supply} = 3 × AC 380...500 V)**	S_N	51.1 kVA	62.3 kVA
Rated output current[1] **(at V_{supply} = 3 × AC 400 V)**	I_N	AC 73 A	AC 89 A
Continuous output current (= 125 % I_N) (at V_{supply} = 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_{supply} = 3 × AC 400 V with f_{PWM} = 8 kHz)	I_D	AC 73 A	AC 89 A
Current limitation	I_{max}	Motor and regenerative 150 % I_N, duration depending on capacity utilization	
Internal current limitation		I_{max} = 0...150 % adjustable	
Minimum permitted brake resistance value (4Q operation)	R_{BWmin}	6 Ω	
Output voltage	V_O	Max. V_{supply}	
PWM frequency	f_{PWM}	Adjustable: 4/8/12/16 kHz	
Speed range/resolution	n_A / Δn_A	–6000 ... 0 ... +6000 min^{-1} / 0.2 min^{-1} across the entire range	
GENERAL INFORMATION			
Power loss at S_N [2]	P_{Vmax}	1200 W	1450 W
Cooling air consumption		180 m^3/h	
Weight		27 kg (60 lb)	
Dimensions	**W × H × D**	280 mm × 522 mm × 307 mm (11.0 in ×20.6 in ×12.1 in)	
Cross section of unit terminals X1, X2, X3, X4		M10 bolt with nut Max. 70 mm^2 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_{supply} = 3 x AC 500 V.

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

MDX61B Standard version	0370-503-4-00	0450-503-4-00
Part number	827 967 5	827 968 3
MDX61B Application version	**0370-503-4-0T**	**0450-503-4-0T**
Part number	827 985 3	827 986 1
 **Constant load Recommended motor power P_{Mot}**	37 kW (50 HP)	45 kW (60 HP)
 **Variable torque load or constant load without overload recommended motor power P_{Mot}**	45 kW (60 HP)	55 kW (74 HP)
Recommended motor power	→ MOVIDRIVE® B system manual, section "Motor selection"	

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8.3.6 Size 5 (AC 400/500 V units)

MOVIDRIVE® MDX61B		0550-503-4-0_	0750-503-4-0_
INPUT			
Nominal supply voltage (to EN 50160)	V_{supply}	3 × AC 380 V - 500 V	
supply frequency	f_{supply}	50 Hz ... 60 Hz ±5 %	
Nominal supply system current[1] **(at V_{supply} = 3 × AC 400 V)**	I_{supply} 100 % 125 %	AC 94.5 A AC 118.1 A	AC 117 A AC 146.3 A
OUTPUT			
Apparent output power[2] **(at V_{supply} = 3 × AC 380...500 V)**	S_N	73.5 kVA	91.0 kVA
Rated output current[1] **(at V_{supply} = 3 × AC 400 V)**	I_N	AC 105 A	AC 130 A
Continuous output current (= 125 % I_N) (at V_{supply} = 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_{supply} = 3 × AC 400 V with f_{PWM} = 8 kHz)	I_D	AC 105 A	AC 130 A
Current limitation	I_{max}	Motor and regenerative 150 % I_N, duration depending on capacity utilization	
Internal current limitation		I_{max} = 0...150 % adjustable	
Minimum permitted brake resistance value (4Q operation)	R_{BWmin}	6 Ω	4 Ω
Output voltage	V_O	Max. V_{supply}	
PWM frequency	f_{PWM}	Adjustable: 4/8/12/16 kHz	
Speed range/resolution	n_A / Δn_A	–6000 ... 0 ... +6000 min^{-1} / 0.2 min^{-1} across the entire range	
GENERAL INFORMATION			
Power loss at S_N [2]	P_{Vmax}	1700 W	2000 W
Cooling air consumption		360 m^3/h	
Weight		35 kg (77 lb)	
Dimensions	W × H × D	280 mm × 610 mm × 330 mm (11.0 in ×24.0 in ×13.0 in)	
Cross section of unit terminals X1, X2, X3, X4		M10 bolt with nut Max. 70 mm^2 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_{supply} = 3 x AC 500 V.

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

MDX61B Standard version	0550-503-4-00	0750-503-4-00
Part number	827 969 1	827 970 5
MDX61B Application version	**0550-503-4-0T**	**0750-503-4-0T**
Part number	827 988 8	827 989 6
 **Constant load** **Recommended motor power P_{Mot}**	55 kW (74 HP)	75 kW (100 HP)
 **Variable torque load or constant load without overload recommended motor power P_{Mot}**	75 kW (100 HP)	90 kW (120 HP)
Recommended motor power	→ MOVIDRIVE® B system manual, section "Motor selection"	

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8.3.7 Size 6 (AC 400/500 V units)

MOVIDRIVE® MDX61B		0900-503-4-0_	1100-503-4-0_	1320-503-4-0_
INPUT				
Nominal supply voltage (to EN 50160)	V_{supply}	3 × AC 380 V - 500 V		
supply frequency	f_{supply}	50 Hz ... 60 Hz ±5 %		
Nominal supply system current[1]	I_{supply} 100 %	AC 153 A	AC 180 A	AC 225 A
(at V_{supply} = 3 × AC 400 V)	125 %	AC 191 A	AC 225 A	AC 281 A
OUTPUT				
Apparent output power[2] **(at V_{supply} = 3 × AC 380...500 V)**	S_N	118 kVA	139 kVA	174 kVA
Rated output current[1] **(at V_{supply} = 3 × AC 400 V)**	I_N	AC 170 A	AC 200 A	AC 250 A
Continuous output current (= 125 % I_N) (at V_{supply} = 3 × AC 400 V with f_{PWM} = 4 kHz)	I_D	AC 212 A	AC 250 A	AC 312 A
Continuous output current (= 100 % I_N) (at V_{supply} = 3 × AC 400 V with f_{PWM} = 4 kHz) Temperature range 0 °C ... +50 °C	I_D	AC 170 A	AC 200 A	AC 250 A
Current limitation	I_{max}	Motor and regenerative 150 % I_N, duration depending on capacity utilization		
Internal current limitation		I_{max} = 0...150 % adjustable		
Minimum permitted brake resistance value (4Q operation)	R_{BWmin}	2.7 Ω		
Output voltage	V_O	Max. V_{supply}		
PWM frequency	f_{PWM}	Adjustable: 4 or 8 kHz		
Speed range/resolution	n_A / Δn_A	–6000 ... 0 ... +6000 min^{-1} / 0.2 min^{-1} across the entire range		
GENERAL INFORMATION				
Power loss at S_N [2]	P_{Vmax}	2300 W	2500 W	2700 W
Cooling air consumption		600 m^3/h		
Weight		60 kg (130 lb)		
Dimensions	W × H × D	280 mm × 1000 mm × 382 mm (11.0 in ×39.37 in × 15.0 in		
Cross section of unit terminals X1, X2, X3, X4		M12 bolt with nut Max. 185 mm^2 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_{supply} = 3 x AC 500 V.

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

MDX61B Standard version	0900-503-4-00	1100-503-4-00	1320-503-4-00
Part number	827 971 3	827 972 1	827 974 8
MDX61B Application version	**0900-503-4-0T**	**1100-503-4-0T**	**1320-503-4-0T**
Part number	827 991 8	827 992 6	827 993 4
 **Constant load Recommended motor power P_{Mot}**	90 kW (120 HP)	110 kW (148 HP)	132 kW (177 HP)
 **Variable torque load or constant load without overload recommended motor power P_{Mot}**	110 kW (148 HP)	132 kW (177 HP)	160 kW (215 HP)
Recommended motor power	→ MOVIDRIVE® B system manual, section "Motor selection"		

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8.3.8 Size 7 (AC 400/500 V units)

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_{supply}	3 × AC 380 V - 500 V		
supply frequency	f_{supply}	50 Hz ... 60 Hz ±5 %		
Nominal supply current[1] **(at V_{supply} = 3 × AC 400 V)**	I_{supply} 100 % 125 %	AC 280 A AC 340 A	AC 340 A AC 425 A	AC 435 A AC 535 A
OUTPUT				
Apparent output power[2] **(at V_{supply} = 3 × AC 380...500 V)**	S_N	208 kVA	263 kVA	326 kVA
Rated output current[1] **(at V_{supply} = 3 × AC 400 V)**	I_N	AC 300 A	AC 380 A	AC 470 A
Continuous output current (= 125 % I_N) (at V_{supply} = 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_{supply} = 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 limitation	I_{max}	Motor and regenerative 150 % I_N, duration depending on capacity utilization		
Internal current limitation		I_{max} = 0...150 % adjustable		
Minimum permitted brake resistance value (4Q operation)	R_{BWmin}	1.1 Ω		
Output voltage	V_O	Max. V_{supply}		
PWM frequency	f_{PWM}	Adjustable: 2.5 or 4 kHz		
Speed range/resolution	n_A / Δn_A	–6000 ... 0 ... +6000 min^{-1} / 0.2 min^{-1} across the entire range		
GENERAL INFORMATION				
Power loss at S_N [2]	P_{Vmax}	3000 W	3600 W	4400 W
Cooling air consumption		1200 m^3/h		
Weight		2Q variant: 260 kg (573 lb) 4Q variant: 280 kg (617 lb)		
Dimensions	W × H × D	700 mm × 1490 mm × 470 mm (27.6 in ×58.7 in ×18.5 in)		
Conductor rails X1, X2, X3		Connection rail with bore for M12 Max. 2 x 240 mm^2 Press cable lug DIN 46235		
Tightening torque		70 Nm (620 lb in)		

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

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

MDX61B Application version With coated printed circuit boards	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
Part number	829 976 5 829 980 3	829 977 3 829 981 1	829 978 1 829 983 8
 **Constant load Recommended motor power P_{Mot}**	160 kW (215 HP)	200 kW (268 HP)	250 kW (335 HP)
Variable torque load or constant load without overload Recommended motor power P_{Mot} 	200 kW (268 HP)	250 kW (335 HP)	315 kW (422 HP)
Recommended motor power	See MOVIDRIVE® B system manual, section "Motor selection"		

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

8.4.1 Size 1 (AC 230 V units)

MOVIDRIVE® MDX61B		0015-2A3-4-0_	0022-2A3-4-0_	0037-2A3-4-0_
INPUT				
Nominal supply voltage (to EN 50160)	V_{supply}	3 × AC 200 V - 240 V		
supply frequency	f_{supply}	50 Hz ... 60 Hz ±5 %		
Rated supply current (at V_{supply} = 3 × AC 230 V)	I_{supply} 100 % 125 %	AC 6.7 A AC 8.4 A	AC 7.8 A AC 9.8 A	AC 12.9 A AC 16.1 A
OUTPUT				
Apparent output power[1] (at V_{supply} = 3 × AC 230...240 V)	S_N	2.7 kVA	3.4 kVA	5.8 kVA
Nominal output current (at V_{supply} = 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_{supply} = 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_{supply} = 3 × AC 230 V with f_{PWM} = 8 kHz)	I_D	AC 7.3 A	AC 8.6 A	AC 14.5 A
Current limitation	I_{max}	Motor and regenerative 150 % I_N, duration depending on capacity utilization		
Internal current limitation		I_{max} = 0...150 % adjustable		
Minimum permitted brake resistance value (4Q operation)	R_{BWmin}	27 Ω		
Output voltage	V_O	Max. V_{supply}		
PWM frequency	f_{PWM}	Adjustable: 4/8/12/16 kHz		
Speed range/resolution	n_A / Δn_A	–6000 ... 0 ... +6000 min^{-1} / 0.2 min^{-1} across the entire range		
GENERAL INFORMATION				
Power loss at S_N [1]	P_{Vmax}	110 W	126 W	210 W
Cooling air consumption		40 m^3/h		
Weight		2.8 kg (6.2 lb)		
Dimensions	W × H × D	105 mm × 314 mm × 234 mm (4.13 in ×12.4 in ×9.21 in)		
Cross section of unit terminals X1, X2, X3, X4		Separable terminal strip 4 mm^2 conductor end sleeve DIN 46228		
Tightening torque		0.6 Nm		

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

MDX61B Standard version	0015-2A3-4-00	0022-2A3-4-00	0037-2A3-4-00
Part number	827 994 2	827 995 0	827 996 9
MDX61B Application version	**0015-2A3-4-0T**	**0022-2A3-4-0T**	**0037-2A3-4-0T**
Part number	828 003 7	828 004 5	828 005 3
 **Constant load** **Recommended motor power P_{Mot}**	1.5 kW (2.0 HP)	2.2 kW (3.0 HP)	3.7 kW (5.0 HP)
 **Variable torque load or constant load without overload recommended motor power P_{Mot}**	2.2 kW (3.0 HP)	3.7 kW (5.0 HP)	5.0 kW (6.7 HP)
Recommended motor power	→ MOVIDRIVE® B system manual, section "Motor selection"		

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8.4.2 Size 2 (AC 230 V units)

MOVIDRIVE® MDX61B		0055-2A3-4-0_	0075-2A3-4-0_
INPUT			
Nominal supply voltage (to EN 50160)	V_{supply}	3 × AC 200 V - 240 V	
supply frequency	f_{supply}	50 Hz ... 60 Hz ±5 %	
Rated supply current (at V_{supply} = 3 × AC 230 V)	I_{supply} 100 % 125 %	AC 19.5 A AC 24.4 A	AC 27.4 A AC 34.3 A
OUTPUT			
Apparent output power[1] (at V_{supply} = 3 × AC 230...240 V)	S_N	8.8 kVA	11.6 kVA
Nominal output current (at V_{supply} = 3 × AC 230 V)	I_N	AC 22 A	AC 29 A
Continuous output current (= 125 % I_N) (at V_{supply} = 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_{supply} = 3 × AC 230 V with f_{PWM} = 8 kHz)	I_D	AC 22 A	AC 29 A
Current limitation	I_{max}	Motor and regenerative 150 % I_N, duration depending on capacity utilization	
Internal current limitation		I_{max} = 0...150 % adjustable	
Minimum permitted brake resistance value (4Q operation)	R_{BWmin}	12 Ω	
Output voltage	V_O	Max. V_{supply}	
PWM frequency	f_{PWM}	Adjustable: 4/8/12/16 kHz	
Speed range/resolution	n_A / Δn_R	–6000 ... 0 ... +6000 min^{-1} / 0.2 min^{-1} across the entire range	
GENERAL INFORMATION			
Power loss at S_N [1]	P_{Vmax}	300 W	380 W
Cooling air consumption		80 m^3/h	
Weight		5.9 kg (13 lb)	
Dimensions	W × H × D	135 mm × 315 mm × 285 mm (5.31 in ×12.4 in ×11.2 in)	
Cross section of unit terminals X1, X2, X3, X4		M4 screw and washer assembly with terminal clip 4 mm^2 conductor end sleeve DIN 46228 6 mm^2 crimp cable lug DIN 46234	
Tightening torque		1.5 Nm	

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

MDX61B Standard version		0055-2A3-4-00	0075-2A3-4-00
Part number		827 997 7	827 998 5
MDX61B Application version		**0055-2A3-4-0T**	**0075-2A3-4-0T**
Part number		828 006 1	828 008 8
 **Constant load Recommended motor power**	P_{Mot}	5.5 kW (7.4 HP)	7.5 kW (10 HP)
 **Variable torque load or constant load without overload recommended motor power**	P_{Mot}	7.5 kW (10 HP)	11 kW (15 HP)
Recommended motor power		→ MOVIDRIVE® B system manual, section "Motor selection"	

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8.4.3 Size 3 (AC 230 V units)

MOVIDRIVE® MDX61B		0110-203-4-0_	0150-203-4-0_
INPUT			
Nominal supply voltage (to EN 50160)	V_{supply}	3 × AC 200 V - 240 V	
supply frequency	f_{supply}	50 Hz ... 60 Hz ±5 %	
Rated supply current (at V_{supply} = 3 × AC 230 V)	I_{supply} 100 % 125 %	AC 40 A AC 50 A	AC 49 A AC 61 A
OUTPUT			
Apparent output power[1] (at V_{supply} = 3 × AC 230...240 V)	S_N	17.1 kVA	21.5 kVA
Nominal output current (at V_{supply} = 3 × AC 230 V)	I_N	AC 42 A	AC 54 A
Continuous output current (= 125 % I_N) (at V_{supply} = 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_{supply} = 3 × AC 230 V with f_{PWM} = 8 kHz)	I_D	AC 42 A	AC 54 A
Current limitation	I_{max}	Motor and regenerative 150 % I_N, duration depending on capacity utilization	
Internal current limitation		I_{max} = 0...150 % adjustable	
Minimum permitted brake resistance value (4Q operation)	R_{BWmin}	7.5 Ω	5.6 Ω
Output voltage	V_O	Max. V_{supply}	
PWM frequency	f_{PWM}	Adjustable: 4/8/12/16 kHz	
Speed range/resolution	n_A / Δn_A	–6000 ... 0 ... +6000 min^{-1} / 0.2 min^{-1} across the entire range	
GENERAL INFORMATION			
Power loss at S_N[1]	P_{Vmax}	580 W	720 W
Cooling air consumption		180 m^3/h	
Weight		14.3 kg (31.5 lb)	
Dimensions	W × H × D	200 mm × 465 mm × 308 mm (7.87 in ×18.3 in ×12.1 in)	
Cross section of unit terminals X1, X2, X3, X4		M6 screw and washer assembly with washer max. 25 mm^2 Crimp cable lug DIN 46234	
Tightening torque		3.5 Nm	

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

MDX61B Standard version	0110-203-4-00	0150-203-4-00
Part number	827 999 3	828 000 2
MDX61B Application version	**0110-203-4-0T**	**0150-203-4-0T**
Part number	828 009 6	828 011 8
 **Constant load** **Recommended motor power P_{Mot}**	11 kW (15 HP)	15 kW (20 HP)
 **Variable torque load or constant load without overload recommended motor power** P_{Mot}	15 kW (20 HP)	22 kW (30 HP)
Recommended motor power	→ MOVIDRIVE® B system manual, section "Motor selection"	

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8.4.4 Size 4 (AC 230 V units)

MOVIDRIVE® MDX61B		0220-203-4-0_	0300-203-4-0_
INPUT			
Nominal supply voltage (to EN 50160)	V_{supply}	3 × AC 200 V - 240 V	
supply frequency	f_{supply}	50 Hz ... 60 Hz ±5 %	
Rated supply current (at V_{supply} = 3 × AC 230 V)	I_{supply} 100 % 125 %	AC 72 A AC 90 A	AC 86 A AC 107 A
OUTPUT			
Apparent output power[1] (at V_{supply} = 3 × AC 230...240 V)	S_N	31.8 kVA	37.8 kVA
Nominal output current (at V_{supply} = 3 × AC 230 V)	I_N	AC 80 A	AC 95 A
Continuous output current (= 125 % I_N) (at V_{supply} = 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_{supply} = 3 × AC 230 V with f_{PWM} = 4 kHz)	I_D	AC 80 A	AC 95 A
Current limitation	I_{max}	Motor and regenerative 150 % I_N, duration depending on capacity utilization	
Internal current limitation		I_{max} = 0...150 % adjustable	
Minimum permitted brake resistance value (4Q operation)	R_{BWmin}	3 Ω	
Output voltage	V_O	Max. V_{supply}	
PWM frequency	f_{PWM}	Adjustable: 4/8/12/16 kHz	
Speed range/resolution	n_A / Δn_A	–6000 ... 0 ... +6000 min^{-1} / 0.2 min^{-1} across the entire range	
GENERAL INFORMATION			
Power loss at S_N [1]	P_{Vmax}	1100 W	1300 W
Cooling air consumption		180 m^3/h	
Weight		26.3 kg (57 lb)	
Dimensions	W × H × D	280 mm × 522 mm × 307mm (11.0 in × 20.6 in × 12.1 in)	
Cross section of unit terminals X1, X2, X3, X4		M10 bolt with nut max. 70 mm^2 Press cable lug DIN 46235	
Tightening torque		3.5 Nm	

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

MDX61B Standard version	0220-203-4-00	0300-203-4-00
Part number	828 001 0	828 002 9
MDX61B Application version	**0220-203-4-0T**	**0300-203-4-0T**
Part number	828 012 6	828 013 4
 **Constant load** **Recommended motor power P_{Mot}**	22 kW (30 HP)	30 kW (40 HP)
 **Variable torque load or constant load without overload recommended motor power P_{Mot}**	30 kW (40 HP)	37 kW (50 HP)
Recommended motor power	→ MOVIDRIVE® B system manual, section "Motor selection"	

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8.5 MOVIDRIVE® MDX60/61B electronics data

MOVIDRIVE® MDX60/61B		General electronics data	
Voltage supply for setpoint input	X11:1 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 Internal resistance	X11:2/X11:3	AI11/AI12: Voltage or current input, can be set with S11 and P11_, sampling interval 1 ms Voltage input: n1 = DC 0...+10 V or DC –10 V...0...+10 V 12 bit R_i = 40 kΩ (external voltage supply) R_i = 20 kΩ (supply from REF1/REF2)	Current input: n1 = DC 0...20 mA or DC 4...20 mA 11 bit R_i = 250 Ω
Internal setpoints		Parameter set 1: n11/n12/n13 = –6000...0...+6000 rpm Parameter set 2: n21/n22/n23 = –6000...0...+6000 rpm	
Time ranges of the speed ramps at Δn = 3000 rpm		1. Ramp t11/t21 up: 0...2000 s down: 0..2000 s 2. Ramp t12/t22 up = down: 0...2000 s Stop ramp t13/t23 down: 0...20 s Emergency ramp t14/t24 down: 0...20 s Motor potentiometer t3 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: U_{IN} = DC 24 V –15 % / +20 % according to EN 61131-2 With size 7, connect 24 V backup voltage via the DC power supply unit. No connection at the control unit.	
Binary inputs X13:1...X13:6 and X16:1/X16:2 Internal resistance		Isolated (optocoupler), PLC-compatible (EN 61131), sampling interval 1 ms DIØØ...DIØ5 and DIØ6/DIØ7 R_i ≈ 3 kΩ, I_E ≈ DC 10 mA	
Signal level		DC +13 V...+30 V = "1" = Contact closed DC –3 V...+5 V = "0" = Contact open	According to EN 61131
Function X13:2...X13:6, X16:1/X16:2	X13:1	DIØØ: With fixed assignment "/Controller inhibit" DIØ1...DIØ5, DIØ6/DIØ7: Selection option → Parameter menu P60_	
Binary outputs[1] X10:3/X10:7 and X16:3...X16:5		PLC-compatible (EN 61131-2), response time 1 ms DBØØ/DOØ2 and DOØ3...DOØ5	
Signal level		"0" = DC 0 V "1" = DC +24 V **Important:** Do not apply external voltage!	
Function X10:7, X16:3...X16:5	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_, I_{max} = DC 50 mA, short-circuit proof, protected against external voltage to DC 30 V	
Relay output	X10:4...X10:6	DOØ1: Load capacity of the relay contacts U_{max} = DC 30 V, I_{max} = DC 800 mA	
Function	X10:4 X10:5 X10:6	DOØ1-C: Shared relay contact DOØ1-NO: Normally open contact DOØ1-NC: NC contact	Selection option → Parameter menu P62_
System bus (SBus)	X12:1 X12:2 X12:3	DGND: Reference potential SC11: SBus high SC12: SBus low	CAN bus according to CAN specification 2.0, parts A and B, transmission technology according to ISO 11898, max. 64 stations, terminating resistor (120 Ω) can be activated using DIP switches
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 input	X10:1	TF1: Response threshold at R_{TF} ≥ 2.9 kΩ ± 10 %	

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

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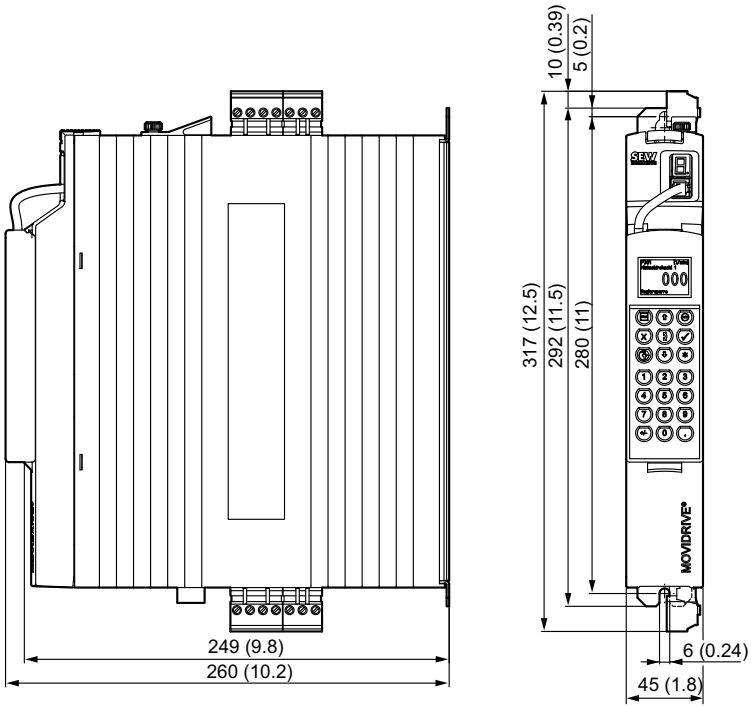
MOVIDRIVE® MDX60/61B		General electronics data
Reference terminals X12:1/X13:9/X16:6/X10:2/X10:10 X13:7	X11:4	AGND: Reference potential for analog signals and terminals X11:1 and X11:5 (REF1/REF2) DGND: Reference potential for binary signals, system bus, RS485 interface and TF/TH DCOM: Reference potential for binary 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)
Safety contact	X17:1	DGND: Reference potential for X17:2
	X17:2	VO24: : V_{OUT} = DC 24 V, only to supply X17:4 of the same unit; **cannot be used** to supply other units.
	X17:3	SOV24: Reference potential for DC+24 V "safe stop" input (safety contact)
	X17:4	SVI24: DC+24 V "safe stop" 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 sizes 6 to 7: 6 W
Input capacitance	X17:4	Size 0: 27 µF Sizes 1...7: 270 µF
Time for restart Time to inhibit output stage		t_A = 200 ms t_S = 100 ms
Signal level		DC +19.2 V...+30 V = "1" = Contact closed DC –30 V...+5 V = "0" = Contact open

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8.6 MOVIDRIVE® MDX60B dimension drawings

8.6.1 Size 0S

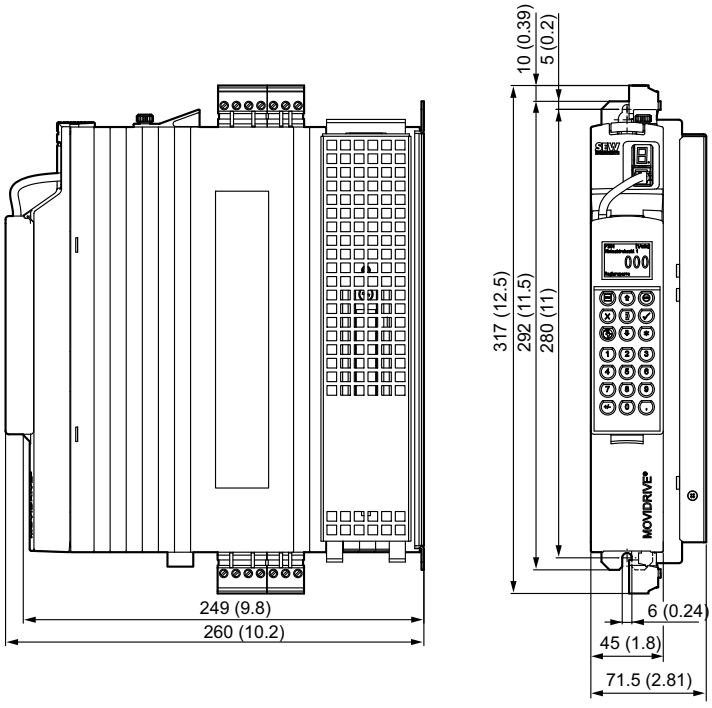
The following dimension drawing shows MDX60B size 0S, dimensions in mm (in)



1940795915

8.6.2 Size 0S with mounted braking resistor

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

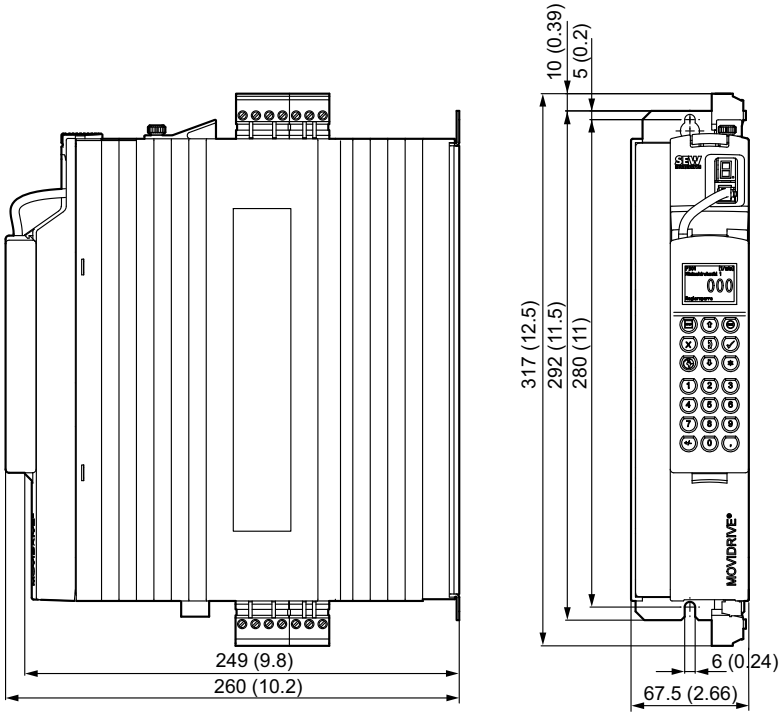


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8.6.3 Size 0M

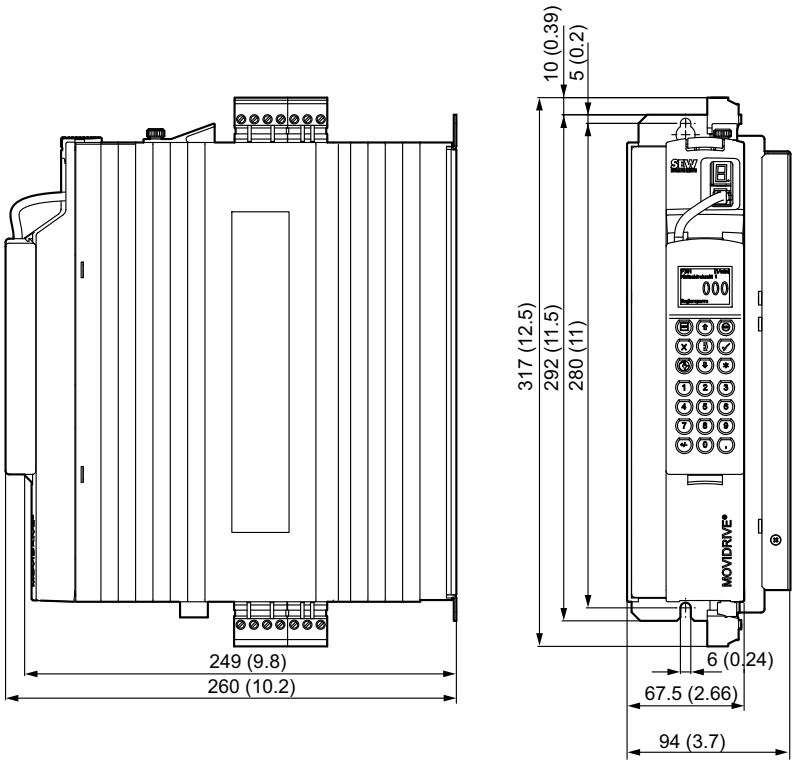
The following dimension drawing shows MDX60B size 0M, dimensions in mm (in)



1940843915

8.6.4 Size 0M with mounted braking resistor

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



1940846987

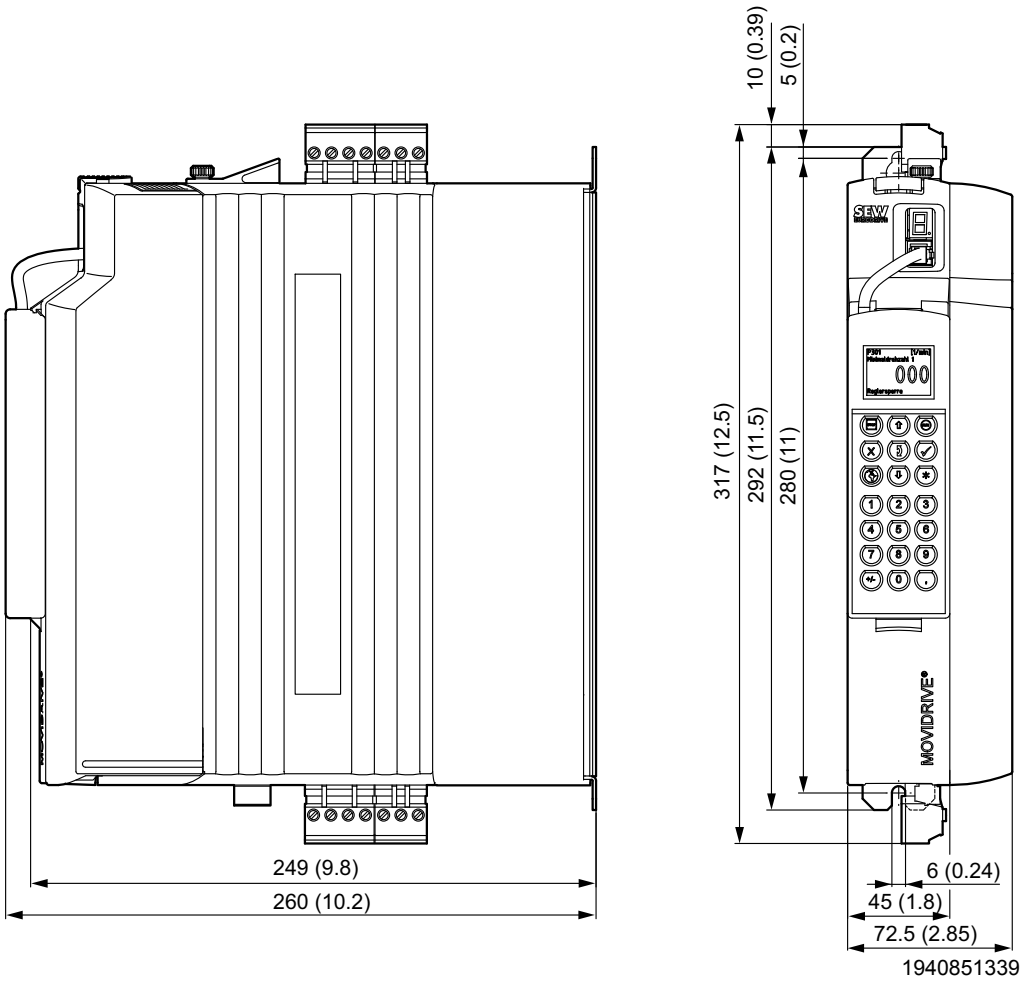
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8.7 MOVIDRIVE® MDX61B dimension drawings

	INFORMATION
	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.

8.7.1 Size 0S

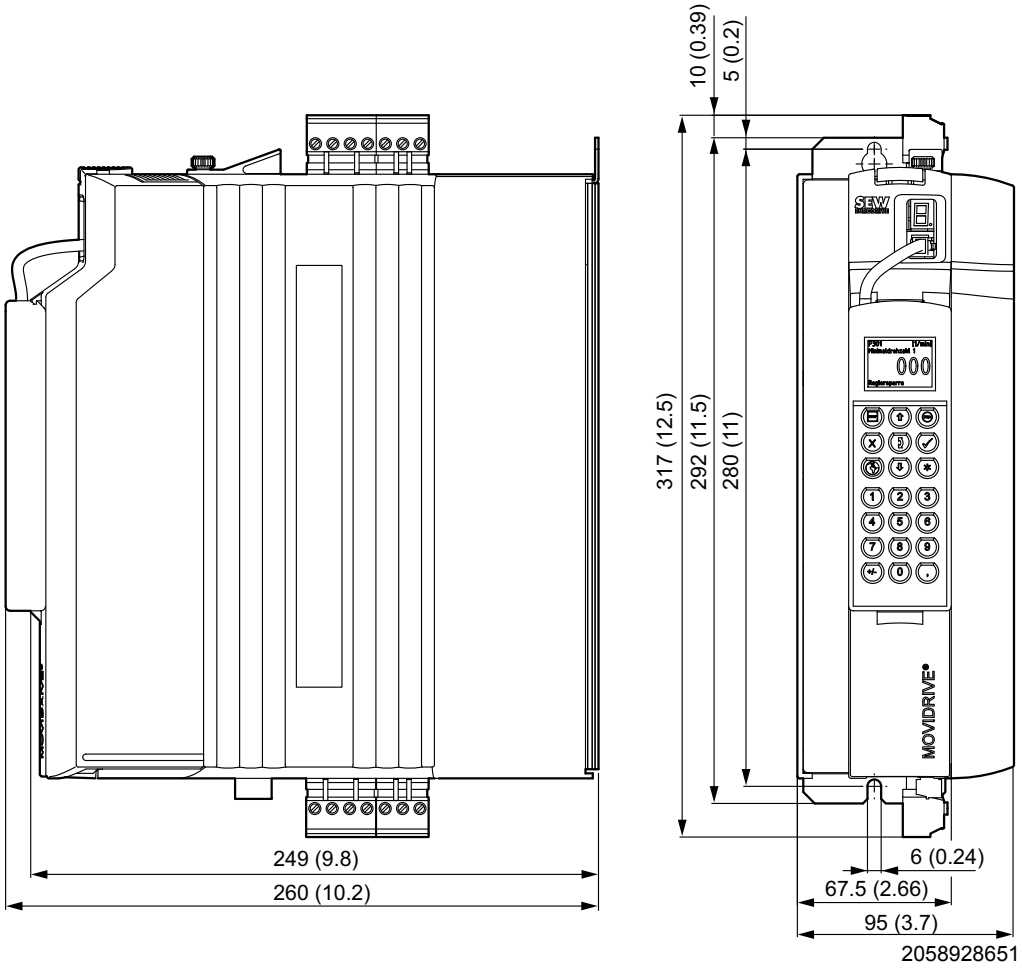
The following dimension drawing shows MDX61B size 0S, dimensions in mm (in)



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8.7.2 Size 0M

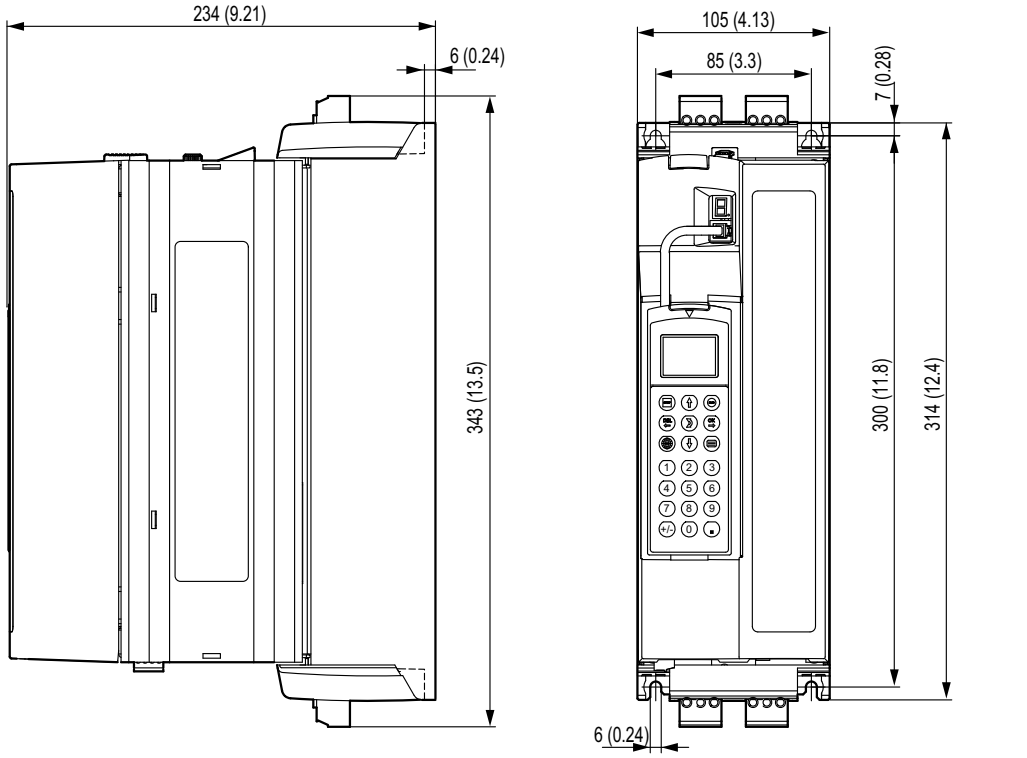
The following dimension drawing shows MDX61B size 0M, dimensions in mm (in)



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8.7.3 Size 1

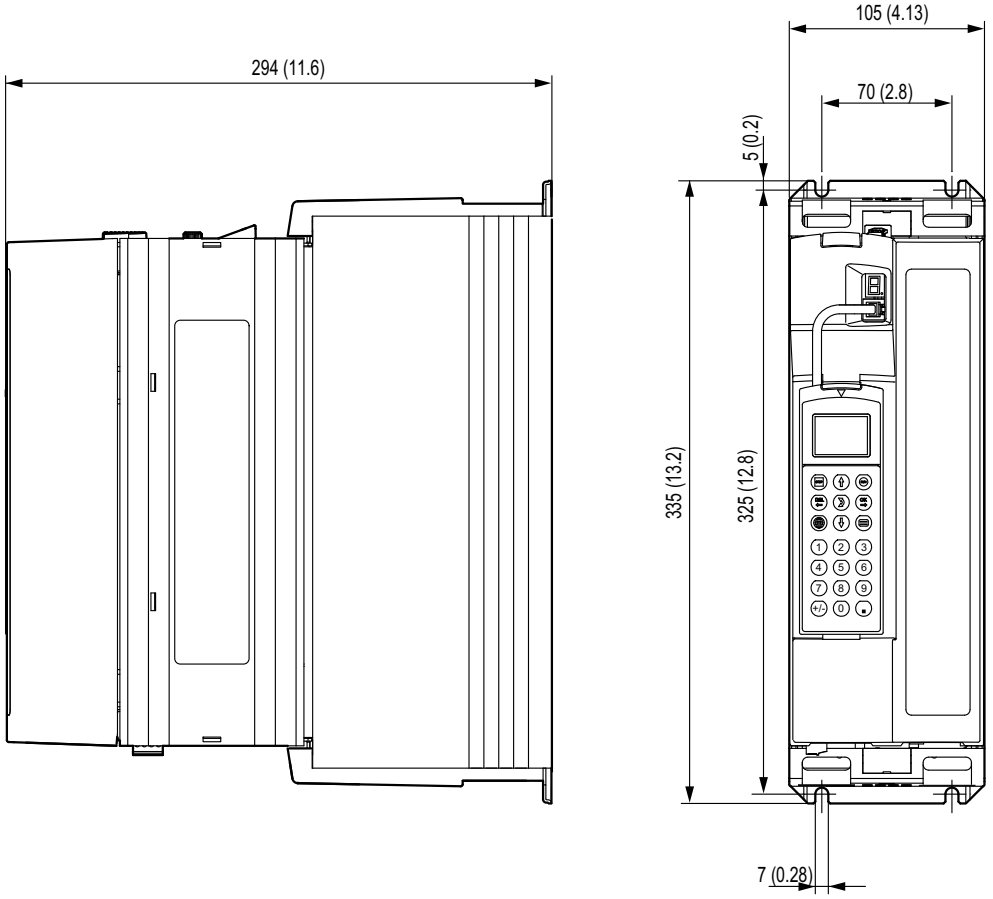
The following dimension drawing shows MDX61B size 1, dimensions in mm (in)



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8.7.4 Size 2S

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

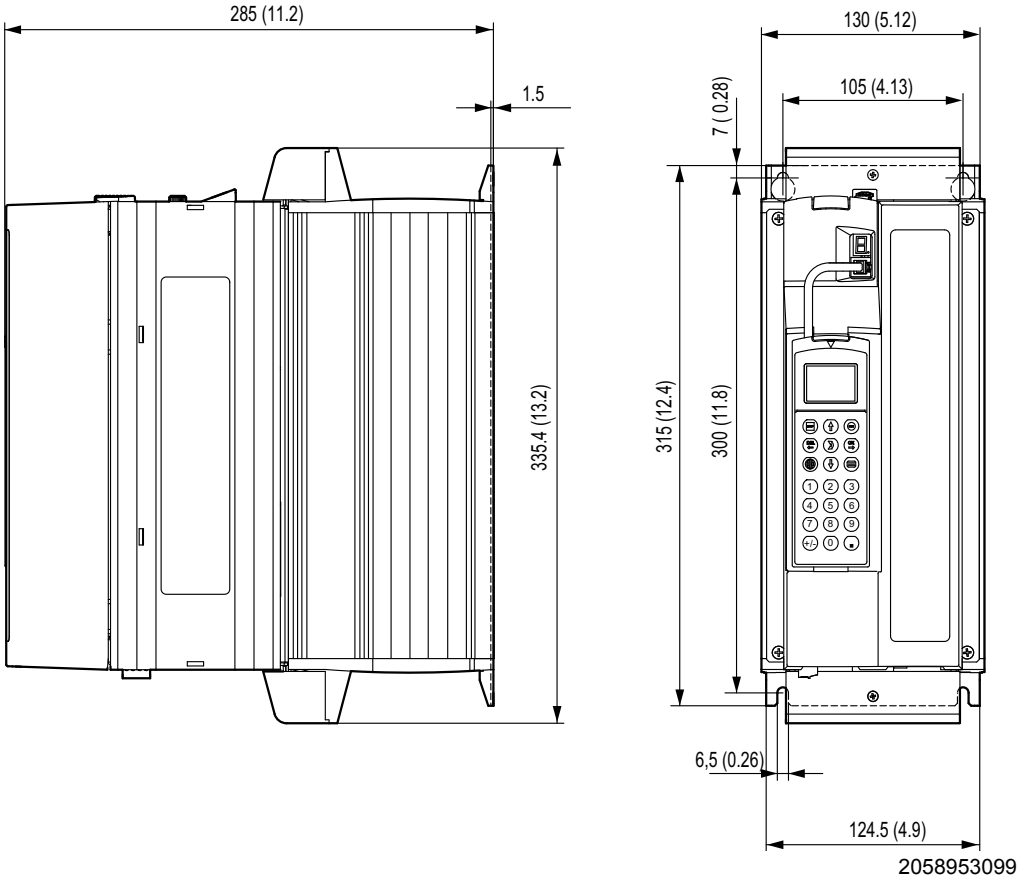


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8.7.5 Size 2S

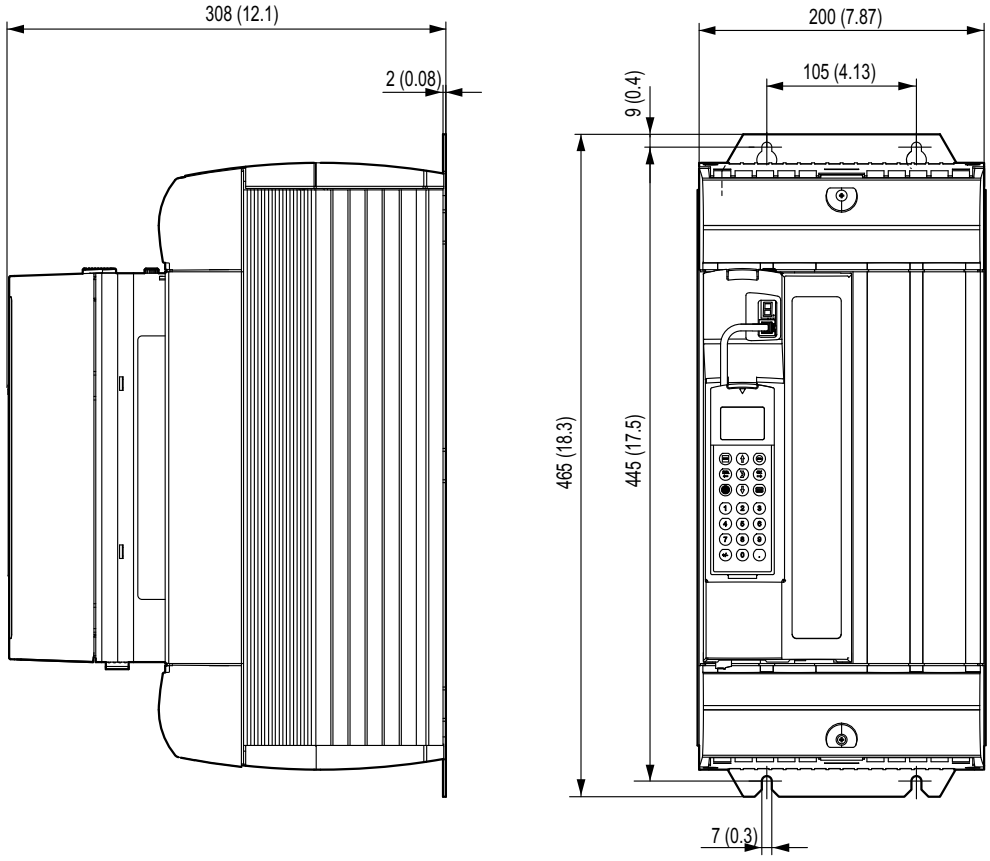
The following dimension drawing shows MDX61B size 2, dimensions in mm (in)



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8.7.6 Size 3

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

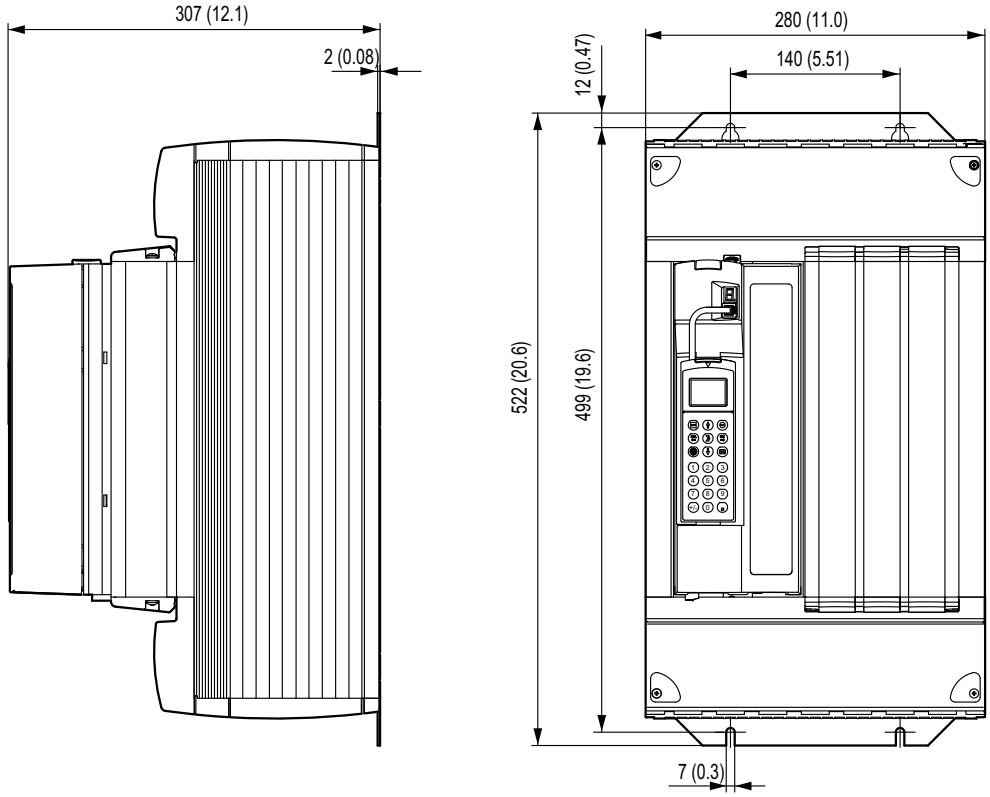


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8.7.7 Size 4

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

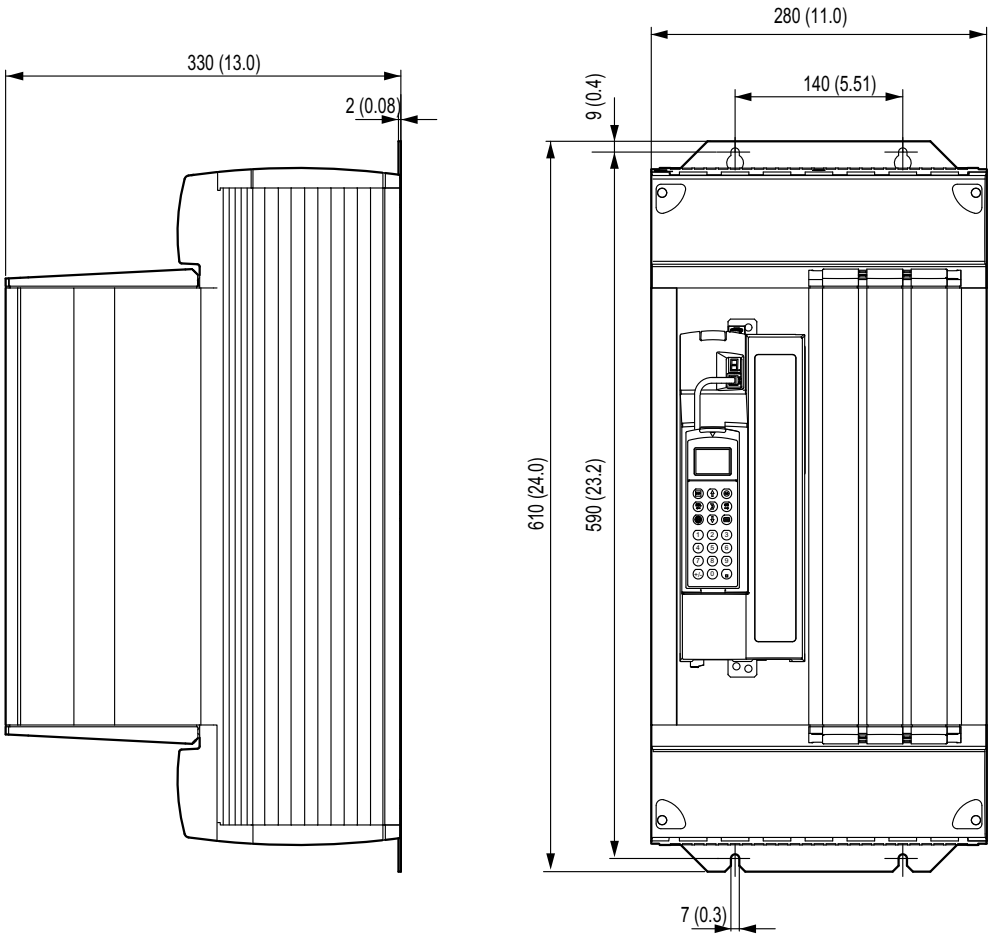


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8.7.8 Size 5

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

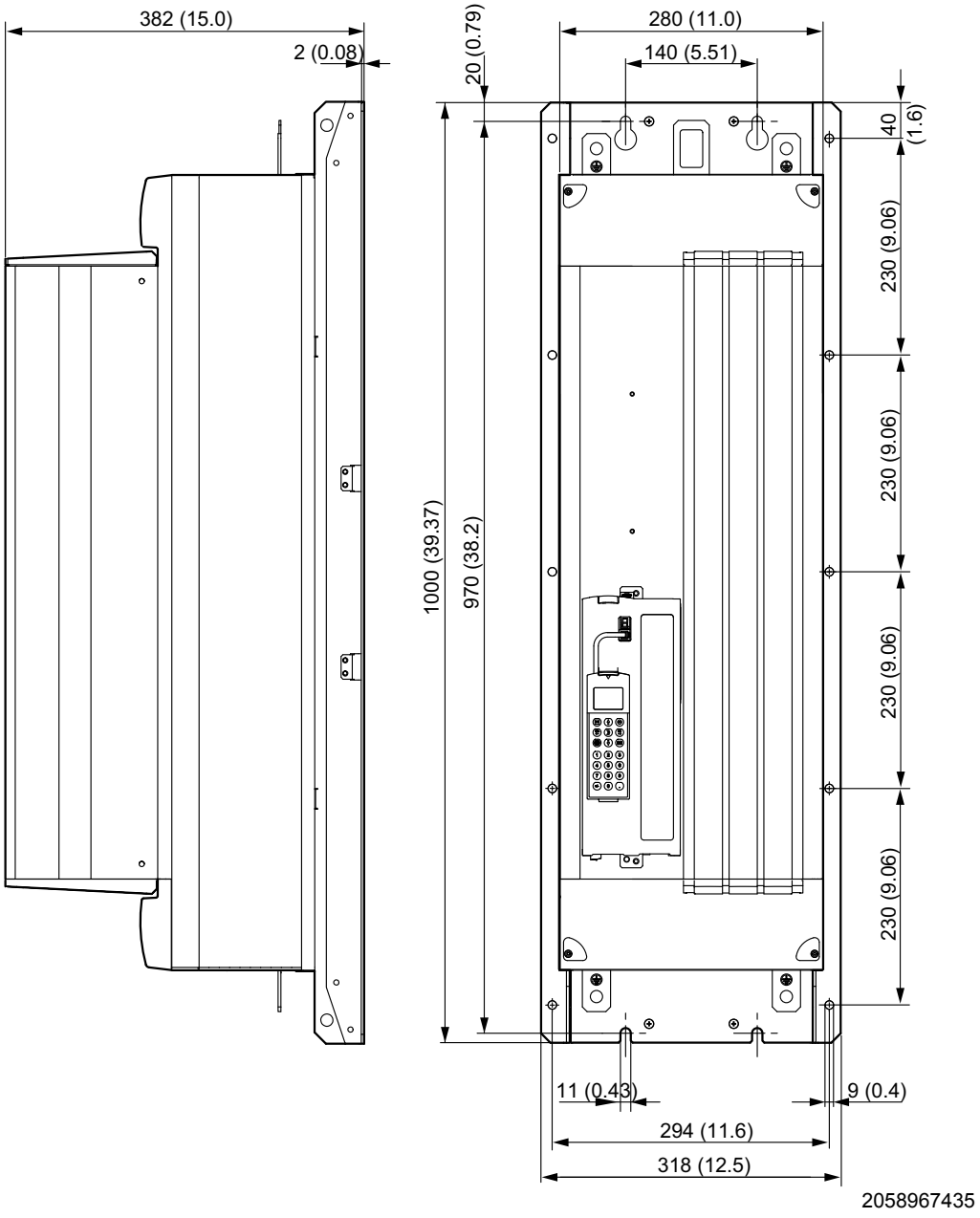


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8.7.9 Size 6

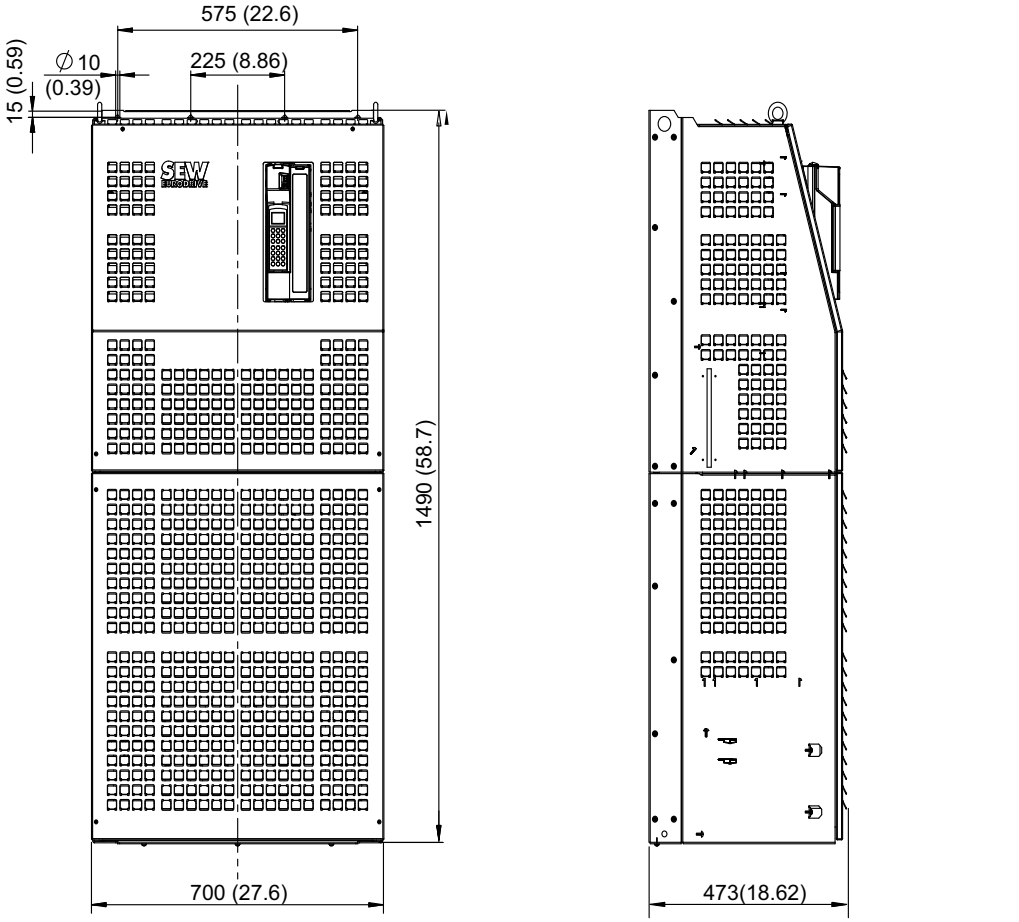
The following dimension drawing shows MDX61B size 6, dimensions in mm (in)



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8.7.10 Size 7

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



2058967435

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8.8 Technical data for options DEH11B, DEH21B, DEU21B, DER11B, BW...-T/...-P

8.8.1 "HIPERFACE® encoder card type DEH11B" option

Option DEH11B			
 2058970635	Output for incremental encoder simulation or Input for external encoder X14:	Output for incremental encoder simulation: Signal level to RS422 The number of pulses at X14 corresponds to the number of pulses at X15 motor encoder input	External encoder input (max. 200 kHz): Permitted encoder types: • HIPERFACE® encoder • sin/cos encoder AC 1 V_{pp} • TTL encoder with negated tracks • Encoder with signal level to RS422 Encoder power supply: • DC+12 V[1] (tolerance range DC 10.5 - 13 V) • I_{max} = DC 650 mA
	Motor encoder input X15:	Permitted encoder types: • HIPERFACE® encoder • sin/cos encoder AC 1 V_{pp} • TTL encoder with negated tracks • Encoder with signal level to RS422 • Permitted PPR count: 128/256/512/1024/2048 Encoder power supply: • DC+12 V[1] (tolerance range DC 10.5 - 13 V) • I_{max} = DC 650 mA	

1) Total current load of DC 12 V encoder supply ≤ DC 650 mA.

8.8.2 "Encoder card type DEH21B" option

DEH21B option		
 2058987019	Encoder input X62:	SSI encoder input
	Motor encoder input X15:	Permitted encoder types: • HIPERFACE® encoder • sin/cos encoder AC 1 V_{pp} • TTL encoder with negated tracks • Encoder with signal level to RS422 • Permitted PPR count: 128/256/512/1024/2048 Encoder power supply: • DC+12 V[1] (tolerance range DC 10.5 - 13 V) • I_{max} = DC 650 mA
	External power supply connection X60:	24VIN: DC 24 V power supply for encoder connected to X62

1) Total current load of DC 12 V encoder supply ≤ DC 650 mA.

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8.8.3 "Encoder card type DEU21B" option

DEU21B option		
	**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® encoders • sin/cos encoder AC 1 V_{pp} • CANopen encoder • TTL encoder with negated tracks • HTL encoder • SSI encoder • SSI combination encoder • EnDat encoder • Encoder with signal level to RS422 • Permitted PPR count: 2-4096 increments Encoder power supply: • DC 24 V encoder supply[1)] • DC 24 V encoder supply[1)]
	Motor encoder connection X15:	Permitted encoder types: • HIPERFACE® encoders • sin/cos encoder AC 1 V_{pp} • TTL encoder with negated tracks • HTL encoder • SSI encoder • SSI combination encoder • EnDat encoder • Encoder with signal level to RS422 • Permitted PPR count: 2-4096 increments Encoder power supply: • DC 24 V voltage supply[1)] • DC 12 V voltage supply[1)]

1) The maximum load on X14:13 and X15:13 is DC 650 mA in total. If the overall unit 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.

8.8.4 "Resolver card type DER11B" option

DER11B option			
 2058990603	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 AC 1 V_{pp} • TTL encoder with negated tracks Encoder power supply: • DC+12 V[1)] (tolerance range DC 10.5 - 13 V) • I_{max} = DC 650 mA
	Motor encoder input X15:	Resolver 2-pole, U_{ref} = AC 7 V_{eff}, 7 kHz U_{in} / U_{ref} = 0.5	

1) Total current load of DC 12 V encoder supply ≤ DC 650 mA.

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8.8.5 "BW...-T / BW...-P braking resistor" option

BW...-T / BW...-P braking resistor	
Connection cross section for signal contact	1 x 2.5 mm^2
Switching capability of the thermostat's signal contact	• DC 2 A / DC 24 V (DC11) • AC 2 A / AC 230V (AC11)
Switching contact	According to EN 61800-5-1

8.9 Technical data of DIO11B and DFC11B options

8.9.1 "Input/output card type DIO11B" option

Option DIO11B			
 2058995467	Setpoint input n2	X20:1/X20:2	AI21/AI22: Voltage input Differential input or input with AGND reference potential
	AI21/AI22 operating mode		n2 = DC 0...+10 V or DC -10 V...0...+10 V
	Resolution		12 bit, sampling time 1 ms
	Internal resistance		R_i > 40 kΩ
	Analog outputs	X21:1/X21:4	AOV1/AOV2: Voltage outputs DC-10 V...0...+10 V, I_{max} = DC 10 mA, short-circuit proof and protected against external voltage to DC 30 V, selection option → parameter menu P64_
		X21:2/X21:5	AOC1/AOC2: Current outputs DC 0(4)...20 mA, short-circuit proof and protected against external voltage to DC 30 V, selection option → parameter menu P64_
	Response time		5 ms
	Resolution		12 bit
	Binary inputs	X22:1...X22:8	Isolated (optocoupler), PLC compatible (EN 61131) DI1Ø...DI17
	Internal resistance		R_i ≈ 3 kΩ, I_E ≈ DC 10 mA Sampling interval 1 ms
	Signal level		DC+13 V...+30 V= "1" = Contact closed DC –3 V...+5 V = "0" = Contact open Complies with EN 61131
	Function	X22:1...X22:8	DI10...DI17: Selection option → Parameter menu P61_
	Binary 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} = DC 50 mA, short-circuit proof and protected against external voltage to DC 30 V
	Reference terminals	X20:3/X21:3/ X21:6 X22:9 X22:10	AGND: Reference potential for analog signals (AI21/AI22/AO_1/AO_2) DCOM: Reference potential for binary inputs X22:1...X22:8 (DI1Ø...DI17) DGND: Reference potential for binary signals, reference potential for DC 24 V supply
	Voltage input	X23:9	24VIN: Supply voltage DC +24 V for binary outputs DO1Ø...DO17
	Permitted line 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)

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8.9.2 "CAN-Bus interface type DFC11B" option

DFC11B option		
 2058998539	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	Sub-D9 plug connector X30 (plug assigned to CIA standard) or via terminal X31
	Permitted line 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 software • DBG60B keypad

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9 Declarations of Conformity

9.1 MOVIDRIVE®

EC Declaration of Conformity

SEW EURODRIVE

900230010

SEW-EURODRIVE GmbH & Co KG
Ernst-Blickle-Straße 42, D-76646 Bruchsal

declares under sole responsibility that the

frequency inverters of the series	**MOVIDRIVE® B**	
are in conformity with		
Machinery Directive	**2006/42/EC**	**1)**
Low Voltage Directive	**2006/95/EC**	
EMC Directive	**2004/108/EC**	**4)**
applied harmonized standards	**EN 13849-1:2008** **EN 61800-5-1:2007** **EN 61800-3:2007**	**5)**

1) These products are intended for installation in machines. Startup is prohibited until it has been established that the machinery into which these products are to be incorporated complies with the provisions of the aforementioned Machinery Directive.

4) According to the EMC Directive, the listed products are not independently operable products. EMC assessment is only possible after these products have been integrated in an overall system. The assessment was verified for a typical system constellation, but not for the individual product.

5) All safety-relevant requirements of the product-specific documentation (operating instructions, manual, etc.) must be met over the entire product life cycle.

Bruchsal	11.12.09	Johann Soder	
Place	Date	Managing Director Technology	a) b)

a) Authorized representative for issuing this declaration on behalf of the manufacturer
b) Authorized representative for compiling the technical documents

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9.2 MOVIDRIVE® with DFS11B/DFS21B

EC Declaration of Conformity

SEW EURODRIVE

900010010

SEW-EURODRIVE GmbH & Co KG
Ernst-Blickle-Straße 42, D-76646 Bruchsal

declares under sole responsibility that the

frequency inverters of the series	**MOVIDRIVE® B**	
with built-in	**DFS11B** **DFS21B**	**PROFIsafe®** **PROFIsafe®**
are in conformity with		
Machinery Directive	**2006/42/EC**	**1)**
Low Voltage Directive	**2006/95/EC**	
EMC Directive	**2004/108/EC**	**4)**
applied harmonized standards	**EN 13849-1:2008** **EN 62061: 2006** **EN 61800-5-1:2007** **EN 61800-3:2007**	**5)**

1) These products are intended for installation in machines. Startup is prohibited until it has been established that the machinery into which these products are to be incorporated complies with the provisions of the aforementioned Machinery Directive.

4) According to the EMC Directive, the listed products are not independently operable products. EMC assessment is only possible after these products have been integrated in an overall system. The assessment was verified for a typical system constellation, but not for the individual product.

5) All safety-relevant requirements of the product-specific documentation (operating instructions, manual, etc.) must be met over the entire product life cycle.

Bruchsal	11.12.09	Johann Soder	
Place	Date	Managing Director Technology	a) b)

a) Authorized representative for issuing this declaration on behalf of the manufacturer
b) Authorized representative for compiling the technical documents

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9.3 MOVIDRIVE® with DCS21B/DCS31B

EC Declaration of Conformity

SEW EURODRIVE

900020010

SEW-EURODRIVE GmbH & Co KG
Ernst-Blickle-Straße 42, D-76646 Bruchsal

declares under sole responsibility that the

frequency inverters of the series	**MOVIDRIVE® B**	
with built-in	**DCS21B** **DCS31B**	**PROFIsafe®**
are in conformity with		
Machinery Directive	**2006/42/EC**	**1)**
Low Voltage Directive	**2006/95/EC**	
EMC Directive	**2004/108/EC**	**4)**
applied harmonized standards	**EN 13849-1:2008** **EN 61800-5-1:2007** **EN 61800-3:2007**	**5)**

1) These products are intended for installation in machines. Startup is prohibited until it has been established that the machinery into which these products are to be incorporated complies with the provisions of the aforementioned Machinery Directive.

4) According to the EMC Directive, the listed products are not independently operable products. EMC assessment is only possible after these products have been integrated in an overall system. The assessment was verified for a typical system constellation, but not for the individual product.

5) All safety-relevant requirements of the product-specific documentation (operating instructions, manual, etc.) must be met over the entire product life cycle.

Bruchsal	11.12.09	Johann Soder	
Place	Date	Managing Director Technology	a) b)

a) Authorized representative for issuing this declaration on behalf of the manufacturer
b) Authorized representative for compiling the technical documents

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	Nord-Pas de Calais	SEW-USOCOME 209 route d'Hesdigneul F-62360 Hesdin l'Abbé	Tel. +33 3 21 10 86 86 Fax +33 3 21 10 86 87
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	Rhône-Alpes nord	SEW-USOCOME Parc d'Affaires Roosevelt Rue Jacques Tati F-69120 Vaulx en Velin	Tel. +33 4 72 15 37 03 Fax +33 4 72 15 37 15

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France			
	Rhône-Alpes ouest	SEW-USOCOME Parc d'Affaires Roosevelt Rue Jacques Tati F-69120 Vaulx en Velin	Tel. +33 4 72 15 37 04 Fax +33 4 72 15 37 15

Algeria			
Sales	**Alger**	Réducom 16, rue des Frères Zaghnoun Bellevue El-Harrach 16200 Alger	Tel. +213 21 8222-84 Fax +213 21 8222-84 reducom_sew@yahoo.fr

Argentina			
Assembly **Sales** **Service**	**Buenos Aires**	SEW EURODRIVE ARGENTINA S.A. Centro Industrial Garin, Lote 35 Ruta Panamericana Km 37,5 1619 Garin	Tel. +54 3327 4572-84 Fax +54 3327 4572-21 sewar@sew-eurodrive.com.ar http://www.sew-eurodrive.com.ar

Australia			
Assembly **Sales** **Service**	**Melbourne**	SEW-EURODRIVE PTY. LTD. 27 Beverage Drive Tullamarine, Victoria 3043	Tel. +61 3 9933-1000 Fax +61 3 9933-1003 http://www.sew-eurodrive.com.au enquires@sew-eurodrive.com.au
	Sydney	SEW-EURODRIVE PTY. LTD. 9, Sleigh Place, Wetherill Park New South Wales, 2164	Tel. +61 2 9725-9900 Fax +61 2 9725-9905 enquires@sew-eurodrive.com.au
Sales **Service**	**Adelaide**	SEW-EURODRIVE PTY. LTD. 9C Park Way Mawson Lakes, SA 5095	Tel. +61 8 8161 4000 Fax +61 8 8161 4002 enquires@sew-eurodrive.com.au
	Brisbane	SEW-EURODRIVE PTY.LTD. 1 /34 Collinsvale St Rocklea, Queensland, 4106	Tel. +61 7 3276 5100 Fax +61 7 3276 5102 enquires@sew-eurodrive.com.au
	Perth	SEW-EURODRIVE PTY. LTD. 105 Robinson Avenue Belmont, W.A. 6104	Tel. +61 8 9478-2688 Fax +61 8 9277-7572 enquires@sew-eurodrive.com.au
Technical Office	**Townsville**	SEW-EURODRIVE PTY. LTD. 12 Leyland Street Garbutt, QLD 4814	Tel. +61 7 4779 4333 Fax +61 7 4779 5333 enquires@sew-eurodrive.com.au

Austria			
Assembly **Sales** **Service**	**Wien**	SEW-EURODRIVE Ges.m.b.H. Richard-Strauss-Strasse 24 A-1230 Wien	Tel. +43 1 617 55 00-0 Fax +43 1 617 55 00-30 http://www.sew-eurodrive.at sew@sew-eurodrive.at
Technical Offices	**Linz**	SEW-EURODRIVE Ges.m.b.H. Reuchlinstr. 6/3 A-4020 Linz	Tel. +43 732 655 109-0 Fax +43 732 655 109-20 tb-linz@sew-eurodrive.at
	Graz	SEW-EURODRIVE Ges.m.b.H. Grabenstraße 231 A-8045 Graz	Tel. +43 316 685 756-0 Fax +43 316 685 755 tb-graz@sew-eurodrive.at
	Dornbirn	SEW-EURODRIVE Ges.m.b.H. Lustenauerstraße 27/1 A-6850 Dornbirn	Tel. +43 5572 3799-0 Fax +43 5572 3725 99-20 tb-dornbirn@sew-eurodrive.at

Bangladesh			
Sales	**Dhaka**	Jainex Industrial and Engineering Ltd B 12 Apon Nibash East Nasirabad Bangladesh	Tel. +880 1713103502 Fax +880 31 613041 jainexbd@onlinectg.net

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Belarus			
Sales	**Minsk**	SEW-EURODRIVE BY RybalkoStr. 26 BY-220033 Minsk	Tel.+375 (17) 298 38 50 Fax +375 (17) 29838 50 sales@sew.by

Belgium			
Assembly **Sales** **Service**	**Brüssel**	**SEW Caron-Vector** Avenue Eiffel 5 B-1300 Wavre	Tel. +32 10 231-311 Fax +32 10 231-336 http://www.sew-eurodrive.be info@caron-vector.be
Service Competence Center	**Industrial Gears**	**SEW Caron-Vector** Rue de Parc Industriel, 31 BE-6900 Marche-en-Famenne	Tel. +32 84 219-878 Fax +32 84 219-879 http://www.sew-eurodrive.be service-wallonie@sew-eurodrive.be
	Antwerp	**SEW Caron-Vector** Glasstraat, 19 BE-2170 Merksem	Tel. +32 3 64 19 333 Fax +32 3 64 19 336 http://www.sew-eurodrive.be service-antwerpen@sew-eurodrive.be

Brazil			
Production **Sales** **Service**	**Sao Paulo**	SEW-EURODRIVE Brasil Ltda. Avenida Amâncio Gaiolli, 152 - Rodovia Presidente Dutra Km 208 Guarulhos - 07251-250 - SP SAT - SEW ATENDE - 0800 7700496	Tel. +55 11 2489-9133 Fax +55 11 2480-3328 http://www.sew-eurodrive.com.br sew@sew.com.br

Bulgaria			
Sales	**Sofia**	BEVER-DRIVE GmbH Bogdanovetz Str.1 BG-1606 Sofia	Tel. +359 2 9151160 Fax +359 2 9151166 bever@fastbg.net

Cameroon			
Sales	**Douala**	Electro-Services Rue Drouot Akwa B.P. 2024 Douala	Tel. +237 33 431137 Fax +237 33 431137

Canada			
Assembly **Sales** **Service**	**Toronto**	SEW-EURODRIVE CO. OF CANADA LTD. 210 Walker Drive Bramalea, ON L6T 3W1	Tel. +1 905 791-1553 Fax +1 905 791-2999 http://www.sew-eurodrive.ca l.watson@sew-eurodrive.ca
	Vancouver	SEW-EURODRIVE CO. OF CANADA LTD. Tilbury Industrial Park 7188 Honeyman Street Delta, BC V4G 1G1	Tel. +1 604 946-5535 Fax +1 604 946-2513 b.wake@sew- eurodrive.ca
	Montreal	SEW-EURODRIVE CO. OF CANADA LTD. 2555 Rue Leger Lasalle, PQ H8N 2V9	Tel. +1 514 367-1124 Fax +1 514 367-3677 a.peluso@sew- eurodrive.ca
	Additional addresses for service in Canada provided on request!		

Chile			
Assembly **Sales** **Service**	**Santiago de Chile**	SEW-EURODRIVE CHILE LTDA. Las Encinas 1295 Parque Industrial Valle Grande LAMPA RCH-Santiago de Chile P.O. Box Casilla 23 Correo Quilicura - Santiago - Chile	Tel. +56 2 75770-00 Fax +56 2 75770-01 http://www.sew-eurodrive.cl ventas@sew-eurodrive.cl

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China			
Production **Assembly** **Sales** **Service**	**Tianjin**	SEW-EURODRIVE (Tianjin) Co., Ltd. No. 46, 7th Avenue, TEDA Tianjin 300457	Tel. +86 22 25322612 Fax +86 22 25322611 info@sew-eurodrive.cn http://www.sew-eurodrive.cn
Assembly **Sales** **Service**	**Suzhou**	SEW-EURODRIVE (Suzhou) Co., Ltd. 333, Suhong Middle Road Suzhou Industrial Park Jiangsu Province, 215021	Tel. +86 512 62581781 Fax +86 512 62581783 suzhou@sew-eurodrive.cn
	Guangzhou	SEW-EURODRIVE (Guangzhou) Co., Ltd. No. 9, JunDa Road East Section of GETDD Guangzhou 510530	Tel. +86 20 82267890 Fax +86 20 82267891 guangzhou@sew-eurodrive.cn
	Shenyang	SEW-EURODRIVE (Shenyang) Co., Ltd. 10A-2, 6th Road Shenyang Economic Technological Development Area Shenyang, 110141	Tel. +86 24 25382538 Fax +86 24 25382580 shenyang@sew-eurodrive.cn
	Wuhan	SEW-EURODRIVE (Wuhan) Co., Ltd. 10A-2, 6th Road No. 59, the 4th Quanli Road, WEDA 430056 Wuhan	Tel. +86 27 84478398 Fax +86 27 84478388
	Xi'An	SEW-EURODRIVE (Xi'An) Co., Ltd. No. 12 Jinye 2nd Road Xi'An High-Technology Industrial Development Zone Xi'An 710065	Tel. +86 29 88241718 Fax +86 29 68686296 logistic-xa@sew-eurodrive.cn

Colombia			
Assembly **Sales** **Service**	**Bogotá**	SEW-EURODRIVE COLOMBIA LTDA. Calle 22 No. 132-60 Bodega 6, Manzana B Santafé de Bogotá	Tel. +57 1 54750-50 Fax +57 1 54750-44 http://www.sew-eurodrive.com.co sewcol@sew-eurodrive.com.co

Croatia			
Sales **Service**	**Zagreb**	KOMPEKS d. o. o. PIT Erdödy 4 II HR 10 000 Zagreb	Tel. +385 1 4613-158 Fax +385 1 4613-158 kompeks@inet.hr

Czech Republic			
Sales	**Praha**	SEW-EURODRIVE CZ S.R.O. Business Centrum Praha Lužná 591 CZ-16000 Praha 6 - Vokovice	Tel. +420 255 709 601 Fax +420 220 121 237 http://www.sew-eurodrive.cz sew@sew-eurodrive.cz
Technical Offices	**Brno**	SEW-EURODRIVE CZ S.R.O. Křenová 52 CZ -60200 Brno	Tel. +420 543 256 151 +420 543 256 163 Fax +420 543 256 845
	Hradec Králové	SEW-EURODRIVE CZ S.R.O. Čechova 498 CZ-50202 Hradec Králové	Tel. +420 495 510 141 Fax +420 495 521 313
	Plzeň	SEW-EURODRIVE CZ S.R.O. Areal KRPA a.s. Zahradni 173/2 CZ-32600 Plzeň	Tel. +420 378 775 300 Fax +420 377 970 710
	Ostrava	SEW-EURODRIVE CZ S.R.O. Studenská 6202/17 CZ-708 00 Ostrava-Poruba	Tel. +420 738 339 044 Mobile +420 724 889 965

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Czech Republic			
	Klatovy	SEW-EURODRIVE CZ S.R.O. Technická kancelář Klatovy Domažlická 800 CZ-33901 Klatovy	Tel. +420 376 310 729 Fax +420 376 310 725

Denmark			
Assembly **Sales** **Service**	**Kopenhagen**	SEW-EURODRIVEA/S Geminivej 28-30 DK-2670 Greve	Tel. +45 43 9585-00 Fax +45 43 9585-09 http://www.sew-eurodrive.dk sew@sew-eurodrive.dk

Egypt			
Sales **Service**	**Cairo**	Copam Egypt for Engineering & Agencies 33 El Hegaz ST, Heliopolis, Cairo	Tel. +20 2 22566-299 + 1 23143088 Fax +20 2 22594-757 http://www.copam-egypt.com/ copam@datum.com.eg
Service	**Sharjah**	Copam Middle East (FZC) Sharjah Airport International Free Zone P.O. Box 120709 Sharjah **United Arabian Emirates**	Tel. +971 6 5578-488 Fax +971 6 5578-499 copam_me@eim.ae

Estonia			
Sales	**Tallin**	ALAS-KUUL AS Reti tee 4 EE-75301 Peetri küla, Rae vald, Harjumaa	Tel. +372 6593230 Fax +372 6593231 veiko.soots@alas-kuul.ee

Finland			
Assembly **Sales** **Service**	**Lahti**	SEW-EURODRIVE OY Vesimäentie 4 FIN-15860 Hollola 2	Tel. +358 201 589-300 Fax +358 3 780-6211 sew@sew.fi http://www.sew-eurodrive.fi
Technical Offices	**Helsinki**	SEW-EURODRIVE OY Luutnantintie 5 FIN-00410 Helsinki	Tel. +358 201 589-300 Fax + 358 9 5666-311 sew@sew.fi
	Vaasa	SEW-EURODRIVE OY Hietasaarenkatu 18 FIN-65100 Vaasa	Tel. +358 201 589-300 Fax +358 6 3127-470 sew@sew.fi
	Rovaniemi	SEW-EURODRIVE OY Valtakatu 4 A FIN-96100 Rovaniemi	Tel. +358 201 589-300 Fax +358 201 589-239 sew@sew.fi
Production **Assembly**	**Karkkila**	SEW Industrial Gears Oy Valurinkatu 6, PL 8 FI-03600 Karkkila, 03601 Karkkila	Tel. +358 201 589-300 Fax +358 201 589-310 sew@sew.fi http://www.sew-eurodrive.fi

Gabon			
Sales	**Libreville**	ESG Electro Services Gabun Feu Rouge Lalala 1889 Libreville Gabun	Tel. +241 741059 Fax +241 741059

Great Britain			
Assembly **Sales** **Service**	**Normanton**	SEW-EURODRIVE Ltd. Beckbridge Industrial Estate P.O. Box No.1 GB-Normanton, West- Yorkshire WF6 1QR	Tel. +44 1924 893-855 Fax +44 1924 893-702 http://www.sew-eurodrive.co.uk info@sew-eurodrive.co.uk

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Great Britain			
Technical Offices	**London**	SEW-EURODRIVE Ltd. 764 Finchely Road, Temple Fortune GB-London N.W.11 7TH	Tel. +44 20 8458-8949 Fax +44 20 8458-7417
	Midlands	SEW-EURODRIVE Ltd. 5 Sugar Brook court, Aston Road, Bromsgrove, Worcs B60 3EX	Tel. +44 1527 877-319 Fax +44 1527 575-245
	Scotland	SEW-EURODRIVE Ltd. Scottish Office No 37 Enterprise House Springkerse Business Park GB-Stirling FK7 7UF Scotland	Tel. +44 17 8647-8730 Fax +44 17 8645-0223
	Northern Ireland	Heyn Engineering (NI) Ltd. 1 Corry Place, Belfast, BT3 9AH	Tel. +44 02890350022 Fax +44 02890350012 info@heyn.co.uk http://www.heyn.co.uk

Greece			
Sales **Service**	**Athen**	Christ. Boznos & Son S.A. 12, Mavromichali Street P.O. Box 80136, GR-18545 Piraeus	Tel. +30 2 1042 251-34 Fax +30 2 1042 251-59 http://www.boznos.gr info@boznos.gr
Technical Office	**Thessaloniki**	Christ. Boznos & Son S.A. Asklipiou 26 562 24 Evosmos, Thessaloniki	Tel. +30 2 310 7054-00 Fax +30 2 310 7055-15 info@boznos.gr

Hong Kong			
Assembly **Sales** **Service**	**Hong Kong**	SEW-EURODRIVE LTD. Unit No. 801-806, 8th Floor Hong Leong Industrial Complex No. 4, Wang Kwong Road Kowloon, Hong Kong	Tel. +852 36902200 Fax +852 36902211 contact@sew-eurodrive.hk

Hungary			
Sales **Service**	**Budapest**	SEW-EURODRIVE Kft. H-1037 Budapest Kunigunda u. 18	Tel. +36 1 437 06-58 Fax +36 1 437 06-50 office@sew-eurodrive.hu

Iceland			
Sales	**Reykjavik**	Vélaverk ehf. Bolholti 8, 3h. IS - 105 Reykjavik	Tel. +354 568 3536 Fax +354 568 3537 velaverk@velaverk.is

India			
Registered Office **Assembly** **Sales** **Service**	**Vadodara**	SEW-EURODRIVE India Private Limited Plot No. 4, GIDC POR Ramangamdi • Vadodara - 391 243 Gujarat	Tel. +91 265 3045200, +91 265 2831086 Fax +91 265 3045300, +91 265 2831087 http://www.seweurodriveindia.com sales@seweurodriveindia.com subodh.ladwa@seweurodriveindia.com
Assembly **Sales** **Service**	**Chennai**	SEW-EURODRIVE India Private Limited Plot No. K3/1, Sipcot Industrial Park Phase II Mambakkam Village Sriperumbudur - 602105 Kancheepuram Dist, Tamil Nadu	Tel. +91 44 37188888 Fax +91 44 37188811 c.v.shivkumar@seweurodriveindia.com

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India			
Technical Offices	**Ahmedabad**	SEW-EURODRIVE India Private Limited 306, Shaan office complex, Behind Sakar-IV, Ellisebridge, Ashram Road Ahmedabad – Gujarat	Tel. +91 79 40072067/68 Fax +91 79 40072069 bankim.barot@seweurodriveindia.com
	Bengaluru	SEW-EURODRIVE India Private Limited 308, Prestige Centre Point 7, Edward Road Bengaluru - 560052 - Karnataka	Tel. +91 80 22266565 Fax +91 80 22266569 salesbang@seweurodriveindia.com ganesh@seweurodriveindia.com
	Chandigarh	SEW EURODRIVE India Private Limited Sujit Kumar Mishra H.No.5464/3 Modern Housing Complex Manimajra Chandigarh -160101	Tel. +91 9878469579 Fax +91 1722738664 saleschand@seweurodriveindia.com
	Chennai	SEW-EURODRIVE India Private Limited 2nd Floor, Josmans Complex, No. 5, McNichols Road, Chetpet Chennai - 600031 - Tamil Nadu	Tel. +91 44 42849813 Fax +91 44 42849816 saleschen@seweurodriveindia.com c.v.shivkumar@seweurodriveindia.com
	Coimbatore	SEW-EURODRIVE India Private Limited Office No 60 Arpee Centre (Opp Annapoorna Hotel) 420 N, NSR Road, Saibaba Colony Coimbatore 641 0111 - Tamil Nadu	Tel. +91 422 2455420 Fax +91 422 2443988 salescmb@seweurodriveindia.com p.selvakumar@seweurodriveindia.com
	Cuttack	SEW-EURODRIVE India Private Limited Plot No.- 1764, Nuasahi, Nayapalli Bhubaneswar-12 Orissa	Tel. +91 9937446333 manoranjan.sahoo@seweurodrivein-dia.com
	Hyderabad	SEW-EURODRIVE India Private Limited 408, 4th Floor, Meridian Place Green Park Road Amerpeet Hyderabad - 500016 - Andhra Pradesh	Tel. +91 40 23414698 Fax +91 40 23413884 saleshyd@seweurodriveindia.com ma.choudary@seweurodriveindia.com
	Jamshedpur	SEW-EURODRIVE India Private Limited Flat No.: B/2, B.S. Apartment Road No.: 4, Contractor's area, Bistupur Jamshedpur 831 001 - Chhattisgarh	Tel. +91 9934123671 siddaratha.mishra@seweurodrivein-dia.com
	Kolkata	SEW EURODRIVE India Private Limited 2nd floor, Room No. 35 Chowringhee Court 55, Chowringhee Road Kolkata - 700 071 - West Bengal	Tel. +91 33 22827457 Fax +91 33 22894204 saleskal@seweurodriveindia.com a.j.biswas@seweurodriveindia.com
	Lucknow	SEW-EURODRIVE India Private Limited 69, Shiv Vihar Colony Vikas Nagar-5 Lucknow 226022 - Uttar Pradesh	Tel. +91 9793627333 amit.nigam@seweurodriveindia.com
	Madgaon	SEW-EURODRIVE India Private Limited Flat No.-G1, Shivas-Laxmi Prasad Co-Operative Housing Society, Padmanarayan Estate, Near Jivottaam Math, Gagole Madgao, Goa - 403 602	samrat.chakravorty@seweurodrivein-dia.com

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India			
	Mumbai	SEW-EURODRIVE India Private Limited 312 A, 3rd Floor, Acme Plaza, J.B. Nagar, Andheri Kurla Road, Andheri (E) Mumbai - 400059 - Maharashtra	Tel. +91 22 28348440 Fax +91 22 28217858 salesmumbai@seweurodriveindia.com p.s.ray@seweurodriveindia.com
	New Delhi	SEW-EURODRIVE India Private Limited 418-419, Suneja Tower-1 District Centre, Janak Puri New Delhi 110 058	Tel. +91 11 25544111 Fax +91 11 25544113 salesdelhi@seweurodriveindia.com vikram.juneja@seweurodriveindia.com
	Pune	SEW-EURODRIVE India Private Limited Lunawat Prism 4th floor, S. No. 148, Neena Co-Operative Housing Society, Paud Road, Pune 411038 - Maharashtra	Tel. +91 20 25380730 / 735 Fax +91 20 25380721 salespune@seweurodriveindia.com praveen.hosur@seweurodriveindia.com
	Raipur	SEW-EURODRIVE India Private Limited A-42, Ashoka Millenium Complex, Ring Road-1, Raipur 492 001 - Chhattisgarh	Tel. +91 771 4090765 Fax +91 771 4090765 sutanu.sarkar@seweurodriveindia.com

Indonesia			
Represented by	**Singapore**	SEW-EURODRIVE PTE. LTD. No 9, Tuas Drive 2 Jurong Industrial Estate Singapore 638644	Tel. +65 68621701 Fax +65 68612827 http://www.sew-eurodrive.com.sg sewsingapore@sew-eurodrive.com

Ireland			
Sales **Service**	**Dublin**	Alperton Engineering Ltd. 48 Moyle Road Dublin Industrial Estate Glasnevin, Dublin 11	Tel. +353 1 830-6277 Fax +353 1 830-6458 info@alperton.ie http://www.alperton.ie

Israel			
Sales	**Tel-Aviv**	Liraz Handasa Ltd. Ahofer Str 34B / 228 58858 Holon	Tel. +972 3 5599511 Fax +972 3 5599512 http://www.liraz-handasa.co.il office@liraz-handasa.co.il

Italy			
Assembly **Sales** **Service**	**Milano**	SEW-EURODRIVE di R. Blickle & Co.s.a.s. Via Bernini,14 I-20020 Solaro (Milano)	Tel. +39 02 96 9801 Fax +39 02 96 799781 http://www.sew-eurodrive.it sewit@sew-eurodrive.it
Technical Offices	**Bologna**	SEW-EURODRIVE di R. Blickle & Co.s.a.s. Via della Grafica, 47 I-40064 Ozzano dell'Emilia (Bo)	Tel. +39 051 65-23-801 Fax +39 051 796-595
	Caserta	SEW-EURODRIVE di R. Blickle & Co.s.a.s. Viale Carlo III Km. 23,300 I-81020 S. Nicola la Strada (Caserta)	Tel. +39 0823 219011 Fax +39 0823 421414
	Pescara	SEW-EURODRIVE di R. Blickle & Co.s.a.s. Viale Europa,132 I-65010 Villa Raspa di Spoltore (PE)	Tel. +39 085 41-59-427 Fax +39 085 41-59-643
	Torino	SEW-EURODRIVE di R. Blickle & Co.s.a.s. Filiale Torino c.so Unione Sovietica 612/15 - int. C I-10135 Torino	Tel. +39 011 3473780 Fax +39 011 3473783
	Verona	SEW-EURODRIVE di R. Blickle & Co.s.a.s. Via P. Sgulmero, 27/A I-37132 Verona	Tel. +39 045 89-239-11 Fax +39 045 97-6079

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Ivory Coast			
Sales	**Abidjan**	SICA Ste industrielle et commerciale pour l'Afrique 165, Bld de Marseille B.P. 2323, Abidjan 08	Tel. +225 2579-44 Fax +225 2584-36

Japan			
Assembly **Sales** **Service**	**Iwata**	SEW-EURODRIVE JAPAN CO., LTD 250-1, Shimoman-no, Iwata Shizuoka 438-0818	Tel. +81 538 373811 Fax +81 538 373814 http://www.sew-eurodrive.co.jp sewjapan@sew-eurodrive.co.jp
Technical Offices	**Fukuoka**	SEW-EURODRIVE JAPAN CO., LTD. C-go, 5th-floor, Yakuin-Hiruzu-Bldg. 1-5-11, Yakuin, Chuo-ku Fukuoka, 810-0022	Tel. +81 92 713-6955 Fax +81 92 713-6860 sewkyushu@jasmine.ocn.ne.jp
	Osaka	SEW-EURODRIVE JAPAN CO., LTD. Higobashi Shimizu Bldg. 10th flor 1-3-7 Tosabori, Nishi-ku Osaka, 550-0001	Tel. +81 6 6444--8330 Fax +81 6 6444--8338 sewosaka@crocus.ocn.ne.jp
	Tokyo	SEW-EURODRIVE JAPAN CO., LTD. Omarimon Yusen Bldg. 13th floor 3-23-5 Nishinbashi, Minato-ku Tokyo 105-0003	Tel. +81 3 3239-0469 Fax +81 3 3239-0943 sewtokyo@basil.ocn.ne.jp

Kazakhstan			
Sales	**Almaty**	SEW-EURODRIVE LLP Raimbek Ave. 348 KZ-050061 Almaty	Tel.+7 (727) 334 1880 Fax +7 (727) 334 1881 http://www.sew-eurodrive.kz sew@sew-eurodrive.kz

Korea			
Assembly **Sales** **Service**	**Ansan-City**	SEW-EURODRIVE KOREA CO., LTD. B 601-4, Banweol Industrial Estate 1048-4, Shingil-Dong Ansan 425-120	Tel. +82 31 492-8051 Fax +82 31 492-8056 http://www.sew-korea.co.kr master@sew-korea.co.kr
	Busan	SEW-EURODRIVE KOREA Co., Ltd. No. 1720 - 11, Songjeong - dong Gangseo-ku Busan 618-270	Tel. +82 51 832-0204 Fax +82 51 832-0230 master@sew-korea.co.kr
Technical Offices	**Daegu**	SEW-EURODRIVE KOREA Co., Ltd. No.1108 Sungan officetel 87-36, Duryu 2-dong, Dalseo-ku Daegu 704-712	Tel. +82 53 650-7111 Fax +82 53 650-7112
	DaeJeon	SEW-EURODRIVE KOREA Co., Ltd. No. 1502, Hongin officetel 536-9, Bongmyung-dong, Yusung-ku Daejeon 305-301	Tel. +82 42 828-6461 Fax +82 42 828-6463
	Kwangju	SEW-EURODRIVE KOREA Co., Ltd. 4fl., Dae-Myeong B/D 96-16 Unam-dong, Buk-ku Kwangju 500-170	Tel. +82 62 511-9172 Fax +82 62 511-9174
	Seoul	SEW-EURODRIVE KOREA Co., Ltd. No.504 Sunkyung officetel 106-4 Kuro 6-dong, Kuro-ku Seoul 152-054	Tel. +82 2 862-8051 Fax +82 2 862-8199

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Latvia			
Sales	**Riga**	SIA Alas-Kuul Katlakalna 11C LV-1073 Riga	Tel. +371 7139253 Fax +371 7139386 http://www.alas-kuul.com info@alas-kuul.com

Lebanon			
Sales	**Beirut**	Gabriel Acar & Fils sarl B. P. 80484 Bourj Hammoud, Beirut	Tel. +961 1 4947-86 +961 1 4982-72 +961 3 2745-39 Fax +961 1 4949-71 ssacar@inco.com.lb
	Beirut	Middle East Drives S.A.L. (offshore) Sin El Fil. B. P. 55-378 Beirut	Tel. +961 1 494 786 Fax +961 1 494 971 philipppe.acar@medrives.com

Lithuania			
Sales	**Alytus**	UAB Irseva Naujoji 19 LT-62175 Alytus	Tel. +370 315 79204 Fax +370 315 56175 info@irseva.lt http://www.sew-eurodrive.lt

Luxembourg			
Assembly **Sales** **Service**	**Brüssel**	CARON-VECTOR S.A. Avenue Eiffel 5 B-1300 Wavre	Tel. +32 10 231-311 Fax +32 10 231-336 http://www.sew-eurodrive.lu info@caron-vector.be

Malaysia			
Assembly **Sales** **Service**	**Johore**	SEW-EURODRIVE SDN BHD No. 95, Jalan Seroja 39, Taman Johor Jaya 81000 Johor Bahru, Johor West Malaysia	Tel. +60 7 3549409 Fax +60 7 3541404 sales@sew-eurodrive.com.my
Technical Offices	**Kota Kinabalu**	SEW-EURODRIVE Sdn Bhd (Kota Kinabalu Branch) Lot No. 2,1st Floor, Inanam Baru Phase III, Miles 5.1 /2, Jalan Tuaran, Inanam 89350 Kota Kinabalu Sabah, Malaysia	Tel. +60 88 424792 Fax +60 88 424807
	Kuala Lumpur	SEW-EURODRIVE Sdn. Bhd. No. 2, Jalan Anggerik Mokara 31/46 Kota Kemuning Seksyen 31 40460 Shah Alam Selangor Darul Ehsan	Tel. +60 3 5229633 Fax +60 3 5229622 sewpjy@po.jaring.my
	Kuching	SEW-EURODRIVE Sdn. Bhd. Lot 268, Section 9 KTLD Lorong 9, Jalan Satok 93400 Kuching, Sarawak East Malaysia	Tel. +60 82 232380 Fax +60 82 242380
	Penang	SEW-EURODRIVE Sdn. Bhd. No. 38, Jalan Bawal Kimsar Garden 13700 Prai, Penang	Tel. +60 4 3999349 Fax +60 4 3999348 seweurodrive@po.jaring.my

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Mauritania			
Sales	**Zouérate**	AFRICOM - SARL En Face Marché Dumez P.B. 88 Zouérate	Tel. +222 54 40134 Fax +222 54 40538 cybertiris@mauritel.mr

Mexico			
Assembly **Sales** **Service**	**Quéretaro**	SEW-EURODRIVE MEXICO SA DE CV SEM-981118-M93 Tequisquiapan No. 102 Parque Industrial Quéretaro C.P. 76220 Quéretaro, México	Tel. +52 442 1030-300 Fax +52 442 1030-301 http://www.sew-eurodrive.com.mx scmexico@seweurodrive.com.mx

Morocco			
Sales	**Casablanca**	Afit 5, rue Emir Abdelkader MA 20300 Casablanca	Tel. +212 522618372 Fax +212 522618351 ali.alami@premium.net.ma

Netherlands			
Assembly **Sales** **Service**	**Rotterdam**	VECTOR Aandrijftechniek B.V. Industrieweg 175 NL-3044 AS Rotterdam Postbus 10085 NL-3004 AB Rotterdam	Tel. +31 10 4463-700 Fax +31 10 4155-552 http://www.vector.nu info@vector.nu
		VECTOR Aandrijftechniek B.V. Gelderhorst 10 NL-7207 BH Zutphen Industrieterrein de Revelhorst	Tel. +31 575 57 44 94 Fax +31 575 57 24 43 oost@vector.nu
		VECTOR Aandrijftechniek B.V. Mercuriusweg 8A NL-5971 LX Grubbenvorst	Tel. +31 77 36 61 873 Fax +31 77 36 62 109 zuid@vector.nu
		VECTOR Aandrijftechniek B.V. Weberstraat 74 NL-1446 VV Purmerend Industrieterrein "De Baanstee"	Tel. +31 299 66 63 38 Fax +31 299 47 60 55 noordwest@vector.nu

New Zealand			
Assembly **Sales** **Service**	**Auckland**	SEW-EURODRIVE NEW ZEALAND LTD. P.O. Box 58-428 82 Greenmount drive East Tamaki Auckland	Tel. +64 9 2745627 Fax +64 9 2740165 http://www.sew-eurodrive.co.nz sales@sew-eurodrive.co.nz
	Christchurch	SEW-EURODRIVE NEW ZEALAND LTD. 10 Settlers Crescent, Ferrymead Christchurch	Tel. +64 3 384-6251 Fax +64 3 384-6455 sales@sew-eurodrive.co.nz
Technical Office	**Palmerston North**	SEW-EURODRIVE NEW ZEALAND LTD. C/-Grant Shearman, RD 5, Aronui Road Palmerston North	Tel. +64 6 355-2165 Fax +64 6 355-2316 sales@sew-eurodrive.co.nz

Norway			
Assembly **Sales** **Service**	**Moss**	SEW-EURODRIVE A/S Solgaard skog 71 N-1599 Moss	Tel. +47 69 24 10 20 Fax +47 69 24 10 40 http://www.sew-eurodrive.no sew@sew-eurodrive.no

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Peru			
Assembly **Sales** **Service**	**Lima**	SEW DEL PERU MOTORES REDUCTORES S.A.C. Los Calderos, 120-124 Urbanizacion Industrial Vulcano, ATE, Lima	Tel. +51 1 3495280 Fax +51 1 3493002 http://www.sew-eurodrive.com.pe sewperu@sew-eurodrive.com.pe

Philippines			
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Poland			
Assembly **Sales** **Service**	**Lodz**	SEW-EURODRIVE Polska Sp.z.o.o. ul. Techniczna 5 PL-92-518 Łódź	Tel. +48 42 676 53 00 Fax +48 42 676 53 45 http://www.sew-eurodrive.pl sew@sew-eurodrive.pl
		24 Hour Service	Tel. +48 602 739 739 (+48 602 SEW SEW) serwis@sew-eurodrive.pl
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	Poznan	SEW-EURODRIVE Polska Sp.z.o.o. ul. Romana Maya 1 PL-61-371 Poznań	Tel. +48 61 8741640 Fax +48 61 8741641
	Radom	SEW-EURODRIVE Polska Sp.z.o.o. ul. Słowackiego 84 PL-26-600 Radom	Tel. +48 48 365 40 50 Fax +48 48 365 40 51
	Szczecinek	SEW-EURODRIVE Polska Sp.z.o.o. ul. Mickiewicza 2 PL-78-400 Szczecinek	Tel. +48 94 3728820 Fax +48 94 3728821

Portugal			
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Technical Offices	**Lisboa**	SEW-EURODRIVE, LDA. Núcleo Empresarial I de São Julião do Tojal Rua de Entremuros, 54 Fracção I P-2660-533 São Julião do Tojal	Tel. +351 21 958-0198 Fax +351 21 958-0245 esc.lisboa@sew-eurodrive.pt
	Porto	SEW-EURODRIVE, LDA. Av. 25 de Abril, 68 4440-502 Valongo	Tel. +351 229 350 383 Fax +351 229 350 384 MobilTel. +351 9 32559110 esc.porto@sew-eurodrive.pt

Romania			
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	Novosibirsk	ZAO SEW-EURODRIVE pr. K Marksa, d.30 RUS-630087 Novosibirsk	Tel. +7 383 3350200 Fax +7 383 3462544 nso@sew-eurodrive.ru
	Togliatti	ZAO SEW-EURODRIVE Sportivnaya Str. 4B, office 2 Samarskaya obl. RUS-445057 Togliatti	Tel. +7 8482 710529 Fax +7 8482 810590

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Singapore			
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Slovakia			
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	Banská Bystrica	SEW-Eurodrive SK s.r.o. Rudlovská cesta 85 SK-974 11 Banská Bystrica	Tel. +421 48 414 6564 Fax +421 48 414 6566 sew@sew-eurodrive.sk
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South Africa			
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	Cape Town	SEW-EURODRIVE (PROPRIETARY) LIMITED Rainbow Park Cnr. Racecourse & Omuramba Road Montague Gardens Cape Town P.O.Box 36556 Chempet 7442 Cape Town	Tel. +27 21 552-9820 Fax +27 21 552-9830 Telex 576 062 cfoster@sew.co.za
	Durban	SEW-EURODRIVE (PROPRIETARY) LIMITED 2 Monaco Place Pinetown Durban P.O. Box 10433, Ashwood 3605	Tel. +27 31 700-3451 Fax +27 31 700-3847 cdejager@sew.co.za
	Nelspruit	SEW-EURODRIVE (PTY) LTD. 7 Christie Crescent Vintonia P.O.Box 1942 Nelspruit 1200	Tel. +27 13 752-8007 Fax +27 13 752-8008 robermeyer@sew.co.za
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	Richards Bay	SEW-EURODRIVE PTY LTD. 103 Bulion Blvd Richards Bay P.O. Box 458 Richards Bay, 3900	Tel. +27 35 797-3805 Fax +27 35 797-3819 jswart@sew.co.za

Spain			
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Technical Offices	**Barcelona**	Delegación Barcelona Avenida Francesc Maciá 40-44 Oficina 4.2 E-08208 Sabadell (Barcelona)	Tel. +34 93 7162200 Fax +34 93 7233007
	Lugo	Delegación Noroeste Apartado, 1003 E-27080 Lugo	Tel. +34 639 403348 Fax +34 982 202934
	Madrid	Delegación Madrid Gran Via. 48-2° A-D E-28220 Majadahonda (Madrid)	Tel. +34 91 6342250 Fax +34 91 6340899
	Seville	MEB Pólogono Calonge, C/A Nave 2 - C E-41.077 Sevilla	Tel. +34 954 356 361 Fax +34 954 356 274 mebsa.sevilla@mebsa.com

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Spain			
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Sri Lanka			
Sales	**Colombo**	SM International (Pte) Ltd 254, Galle Raod Colombo 4, Sri Lanka	Tel. +94 1 2584887 Fax +94 1 2582981

Sweden			
Assembly **Sales** **Service**	**Jönköping**	SEW-EURODRIVE AB Gnejsvägen 6-8 S-55303 Jönköping Box 3100 S-55003 Jönköping	Tel. +46 36 3442 00 Fax +46 36 3442 80 http://www.sew-eurodrive.se jonkoping@sew.se
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	Stockholm	SEW-EURODRIVE AB Björkholmsvägen 10 S-14146 Huddinge	Tel. +46 8 44986 80 Fax +46 8 44986 93 stockholm@sew.se
	Malmö	SEW-EURODRIVE AB Borrgatan 5 S-21124 Malmö	Tel. +46 40 68064 80 Fax +46 40 68064 93 malmo@sew.se
	Skellefteå	SEW-EURODRIVE AB Trädgårdsgatan 8 S-93131 Skellefteå	Tel. +46 910 7153 80 Fax +46 910 7153 93 skelleftea@sew.se

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	Bern / Solothurn	Rudolf Bühler Muntersweg 5 CH-2540 Grenchen	Tel. +41 32 652 2339 Fax +41 32 652 2331
	Central Switzerland and Ticino	Beat Lütolf Baumacher 11 CH-6244 Nebikon	Tel. +41 62 756 4780 Fax +41 62 756 4786
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	Zürich, Ticino	Gian-Michele Muletta Fischerstrasse 61 CH-8132 Egg bei Zürich	Tel. +41 44 994 81 15 Fax +41 44 994 81 16
	Bodensee and East Switzerland	Markus Künzle Eichweg 4 CH-9403 Goldach	Tel. +41 71 845 2808 Fax +41 71 845 2809

Taiwan (R.O.C.)			
Sales	**Nan Tou**	Ting Shou Trading Co., Ltd. No. 55 Kung Yeh N. Road Industrial District Nan Tou 540	Tel. +886 49 255353 Fax +886 49 257878

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Technical Offices	**Bangkok**	SEW-EURODRIVE (Thailand) Ltd. 6th floor, TPS Building 1023, Phattanakarn Road Suanluang Bangkok,10250	Tel. +66 2 7178149 Fax +66 2 7178152 sewthailand@sew-eurodrive.com
	Hadyai	SEW-EURODRIVE (Thailand) Ltd. Hadyai Country Home Condominium 59/101 Soi.17/1 Rachas-Utid Road. Hadyai, Songkhla 90110	Tel. +66 74 359441 Fax +66 74 359442 sewthailand@sew-eurodrive.com
	Khonkaen	SEW-EURODRIVE (Thailand) Ltd. 4th Floor, Kaow-U-HA MOTOR Bldg, 359/2, Mitraphab Road. Muang District Khonkaen 40000	Tel. +66 43 225745 Fax +66 43 324871 sew-thailand@sew-eurodrive.com

Tunisia			
Sales	**Tunis**	T. M.S. Technic Marketing Service Zone Industrielle Mghira 2 Lot No. 39 2082 Fouchana	Tel. +216 71 4340-64 + 71 4320-29 Fax +216 71 4329-76 tms@tms.com.tn

Turkey			
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Technical Offices	**Adana**	SEW-EURODRIVE Hareket Sistemleri San. ve Tic. Ltd. Sti. Kizilay Caddesi 8 Sokak No 6 Daðtekin Is Merkezi Kat 4 Daire 2 TR-01170 SEYHAN / ADANA	Tel. +90 322 359 94 15 Fax +90 322 359 94 16
	Ankara	SEW-EURODRIVE Hareket Sistemleri San. ve Tic. Ltd. Sti. Özcelik Is Merkezi, 14. Sok, No. 4/42 TR-06370 Ostim/Ankara	Tel. +90 312 385 33 90 Fax +90 312 385 32 58
	Bursa	SEW-EURODRIVE Hareket Sistemleri San. ve Tic. Ltd. Sti. Üçevler Mah. Bayraktepe Sok. Akay İş Merkezi Kat:3 No: 7/6 TR Nilüfer/Bursa	Tel. +90 224 443 45 60 Fax +90 224 443 45 58
	Izmir	SEW-EURODRIVE Hareket Sistemleri San. ve Tic. Ltd. Sti. 1203/11 Sok. No. 4/613 Hasan Atli Is Merkezi TR-35110 Yenisehir-İzmir	Tel. +90 232 469 62 64 Fax +90 232 433 61 05

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Sales	**Kiev**	SEW-EURODRIVE GmbH S. Oleynika str. 21 02068 Kiev	Tel. +380 44 503 95 77 Fax +380 44 503 95 78 kso@sew-eurodrive.ua
	Donetsk	SEW-EURODRIVE GmbH 25th anniversary of RKKA av. 1-B, of. 805 Donetsk 83000	Tel. +380 62 38 80 545 Fax +380 62 38 80 533 dso@sew-eurodrive.ua

Uruguay			
Sales	**Montevideo**	SEW-EURODRIVE Uruguay, S. A. Jose Serrato 3569 Esqina Corumbe CP 12000 Montevideo	Tel. +598 2 21181-89 Fax +598 2 21181-89 sewuy@sew-eurodrive.com.uy

USA			
Production **Assembly** **Sales** **Service** **Corporate Offices**	**Southeast Region**	SEW-EURODRIVE INC. 1295 Old Spartanburg Highway P.O. Box 518 Lyman, S.C. 29365	Tel. +1 864 439-7537 Fax Sales +1 864 439-7830 Fax Manufacturing +1 864 439-9948 Fax Assembly +1 864 439-0566 Fax Confidential/HR +1 864 949-5557 http://www.seweurodrive.com cslyman@seweurodrive.com
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	Midwest Region	SEW-EURODRIVE INC. 2001 West Main Street Troy, Ohio 45373	Tel. +1 937 335-0036 Fax +1 937 440-3799 cstroy@seweurodrive.com
	Southwest Region	SEW-EURODRIVE INC. 3950 Platinum Way Dallas, Texas 75237	Tel. +1 214 330-4824 Fax +1 214 330-4724 csdallas@seweurodrive.com
	Western Region	SEW-EURODRIVE INC. 30599 San Antonio St. Hayward, CA 94544	Tel. +1 510 487-3560 Fax +1 510 487-6433 cshayward@seweurodrive.com
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