



Compact Operating Instructions



MOVIDRIVE® MDR60A/61B Regenerative Power Supply Unit





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1 General Information

1.1 *Scope of this documentation*

This documentation comprises the general safety notes and selected information regarding the MOVIDRIVE® MDX60B/61B regenerative power supply unit.

- Please note that this documentation does not replace the detailed operating instructions.
- Read the detailed operating instructions before you start working with MOVIDRIVE® MDX60A/61B.
- Observe the information, instructions and notes in the detailed operating instructions. This is essential for fault-free operation of the unit and fulfillment of any rights to claim under guarantee.
- The enclosed CD or DVD contains PDF files of the detailed operating instructions as well as other MOVIDRIVE® MDX60A/61B documentation.
- All technical documentation from SEW-EURODRIVE is available for download in PDF on the SEW-EURODRIVE website: www.sew-eurodrive.com



1.2 Structure of the safety notes

1.2.1 Meaning of the signal words

The following table shows the grading and meaning of the signal words for safety notes, notes on potential risks of damage to property, and other notes.

Signal word	Meaning	Consequences if disregarded
▲ DANGER	Imminent danger	Severe or fatal injuries
▲ WARNING	Possible dangerous situation	Severe or fatal injuries
▲ CAUTION	Possible dangerous situation	Minor injuries
NOTICE	Possible damage to property	Damage to the drive system or its environment
INFORMATION	Useful information or tip: Simplifies the handling of the drive system.	

1.2.2 Structure of the section-related safety notes

Section safety notes do not apply to a specific action, but to several actions pertaining to one subject. The used symbols indicate either a general or a specific hazard.

This is the formal structure of a section safety note:



▲ SIGNAL WORD

Type and source of danger.

Possible consequence(s) if disregarded.

- Measure(s) to prevent the danger.

1.2.3 Structure of the embedded safety notes

Embedded safety notes are directly integrated in the instructions just before the description of the dangerous action.

This is the formal structure of an embedded safety note:

- **▲ SIGNAL WORD** Nature and source of hazard.

Possible consequence(s) if disregarded.

- Measure(s) to prevent the danger.



2 Safety Notes

The following basic safety notes must be read carefully to prevent injury to persons and damage to property. The operator must ensure that the basic safety notes are read and adhered to. Make sure that persons responsible for the system and its operation, as well as persons who work independently on the unit, have read through the operating instructions carefully and understood them. If you are unclear about any of the information in this documentation or if you require further information, please contact SEW-EURO-DRIVE.

2.1 General

Never install or start up damaged products. Submit a complaint to the shipping company immediately in the event of damage.

During operation, regenerative power supply units can have live, bare and movable or rotating parts as well as hot surfaces, depending on their degree of protection.

Removing covers without authorization, improper use as well as incorrect installation or operation may result in severe injuries to persons or damage to property.

Refer to the documentation for additional information.

2.2 Target group

Only qualified electricians are authorized to install, startup or service the units or correct unit faults (observing IEC 60364 or CENELEC HD 384 or DIN VDE 0100 and IEC 60664 or DIN VDE 0110 as well as national accident prevention guidelines).

Qualified personnel in the context of these basic safety notes are: All persons familiar with installation, assembly, startup and operation of the product who possess the necessary qualifications.

Any activities regarding transportation, storage, operation, and disposal must be carried out by persons who have been instructed appropriately.



2.3 Designated use

Regenerative power supply units are components intended for installation in electrical systems or machines.

In case of installation in machines, startup of the regenerative power supply unit (meaning the start of designated use) is prohibited until it is determined that the machine meets the requirements stipulated in the Machinery Directive 2006/42/EC; EN 60204 must be observed.

Startup (i.e. the start of designated use) is only permitted under observance of the EMC (2004/108/EC) directive.

Regenerative power supply units meet the requirements stipulated in the low voltage directive 2006/95/EC. The harmonized standards of the EN 61800-5-1/DIN VDE T105 series in connection with EN 60439-1/VDE 0660 part 500 and EN 60146/VDE 0558 are applied to these drive inverters.

You must observe the technical data and information on the connection requirements as provided on the nameplate and in the documentation.

2.4 Transportation and storage

You must observe the notes on transportation, storage and proper handling. Observe the climatic conditions as stated in the section "General technical data".



2.5 Installation

The units must be installed and cooled according to the regulations and specifications in the corresponding documentation.

Protect the regenerative power supply units from improper strain. Ensure that components are not deformed and/or insulation spaces are maintained, particularly during transportation. Avoid contact with electronic components and contacts.

Drive inverters contain components that can be damaged by electrostatic energy and improper handling. Prevent mechanical damage or destruction of electric components (may pose health risk)

The following applications are prohibited unless the unit is explicitly designed for such use:

- Use in potentially explosive atmospheres.
- Use in areas exposed to harmful oils, acids, gases, vapors, dust, radiation, etc.
- Use in non-stationary applications which are subject to mechanical vibration and impact loads in excess of the requirements in EN 61800-5-1.

2.6 Electrical connection

Observe the applicable national accident prevention guidelines when working on live drive inverters (for example, BGV A3).

Electrical installation is to be carried out in compliance with pertinent regulations (e.g. cable cross sections, fusing, protective conductor connection). For any additional information, refer to the applicable documentation.

You will find notes on EMC compliant installation, such as shielding, grounding, arrangement of filters and routing of lines, in the documentation of the drive inverters. Always observe these notes even with drive inverters bearing the CE marking. The manufacturer of the system or machine is responsible for maintaining the limits established by EMC legislation.

Protective measures and protection devices must comply with the regulations in force (e.g. EN 60204 or EN 61800-5-1).

Required preventive measure: Grounding the unit.

MOVIDRIVE® B, size 7 has an additional display LED under the lower front cover. The lit display LED indicates a DC link voltage. Do not touch power connections. Check that there is no voltage present before touching power connections even if the LED display indicates that there is no voltage.

2.7 Safe disconnection

The unit meets all requirements for safe disconnection of power and electronic connections in accordance with EN 61800-5-1. All connected circuits must also satisfy the requirements for safe disconnection.

2.8 Operation

Systems with integrated regenerative power supply units must be equipped with additional monitoring and protection devices according to the applicable safety guidelines,



such as the law governing technical equipment, accident prevention regulations, etc. The operating software may be used to make changes to the drive inverter.

Do not touch live components or power connections immediately after disconnecting the drive inverters from the supply voltage because there may still be some charged capacitors. Note the respective reference plates on the drive inverter.

Keep all covers and doors closed during operation.

The fact that the status LED and other display elements (such as the display LED on size 7 units) are no longer illuminated does not indicate that the unit has been disconnected from the power supply and no longer carries any voltage.

Check that there is no voltage present before touching power connections even if the LED display indicates that there is no voltage.

Mechanical blocking or internal safety functions of the unit can cause a motor standstill. Eliminating the cause of the problem or performing a reset may result in the drive re-starting automatically. If, for safety reasons, this is not permitted for the driven machine, disconnect the unit from the supply system before correcting the error.



3 Installation (MDR60A0150/0370/0750 and MDR61B1600/2500)

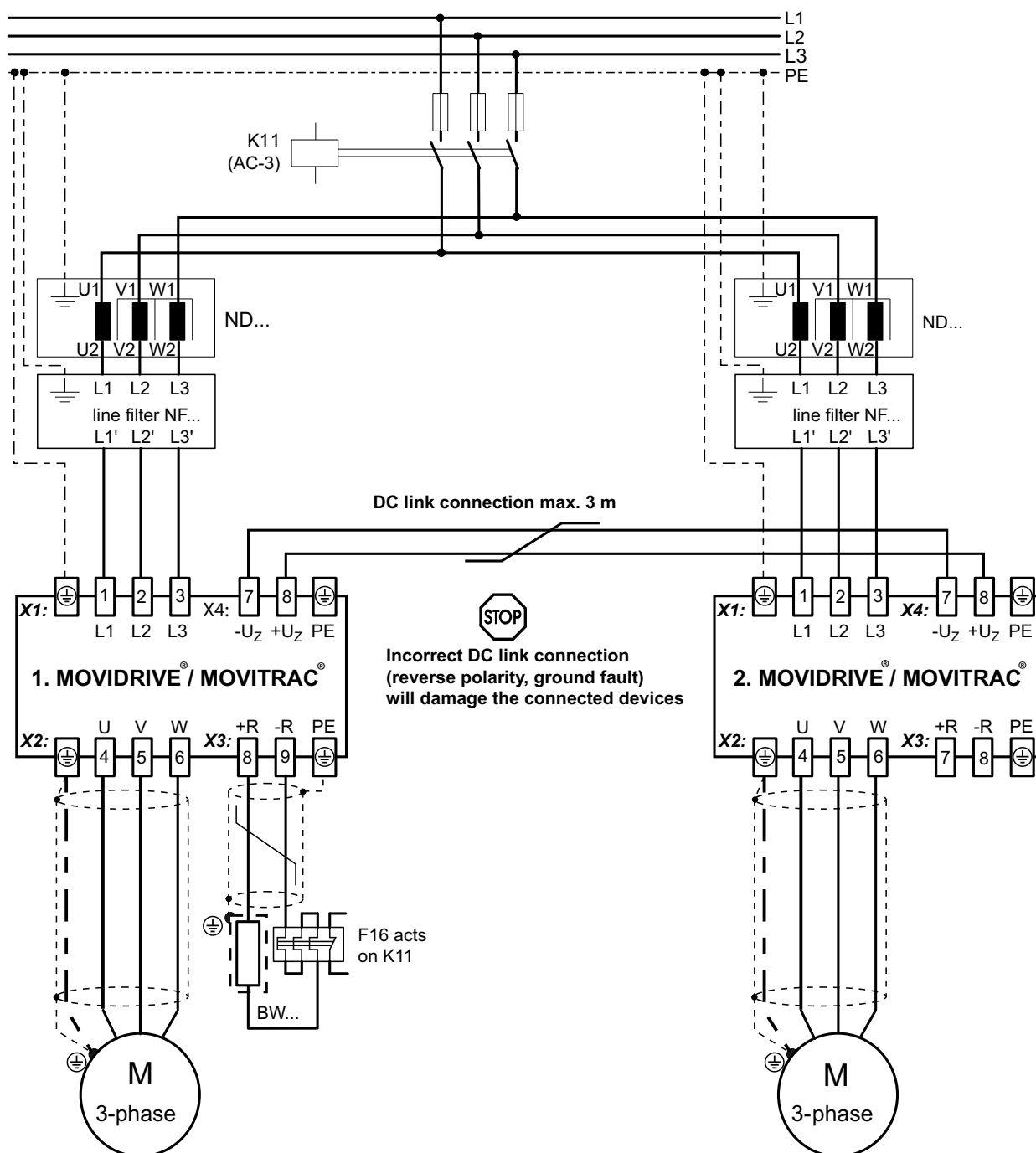
This chapter illustrates the installation of the following regenerative power supply units:

- MOVIDRIVE® MDR60A0150-503-00
- MOVIDRIVE® MDR60A0370-503-00
- MOVIDRIVE® MDR60A0750-503-00
- MOVIDRIVE® MDR61B1600-503-00/L
- MOVIDRIVE® MDR61B2500-503-00/L



3.1 Wiring diagrams

3.1.1 DC link connection without MDR60A/61B regenerative power supply unit in connection type A



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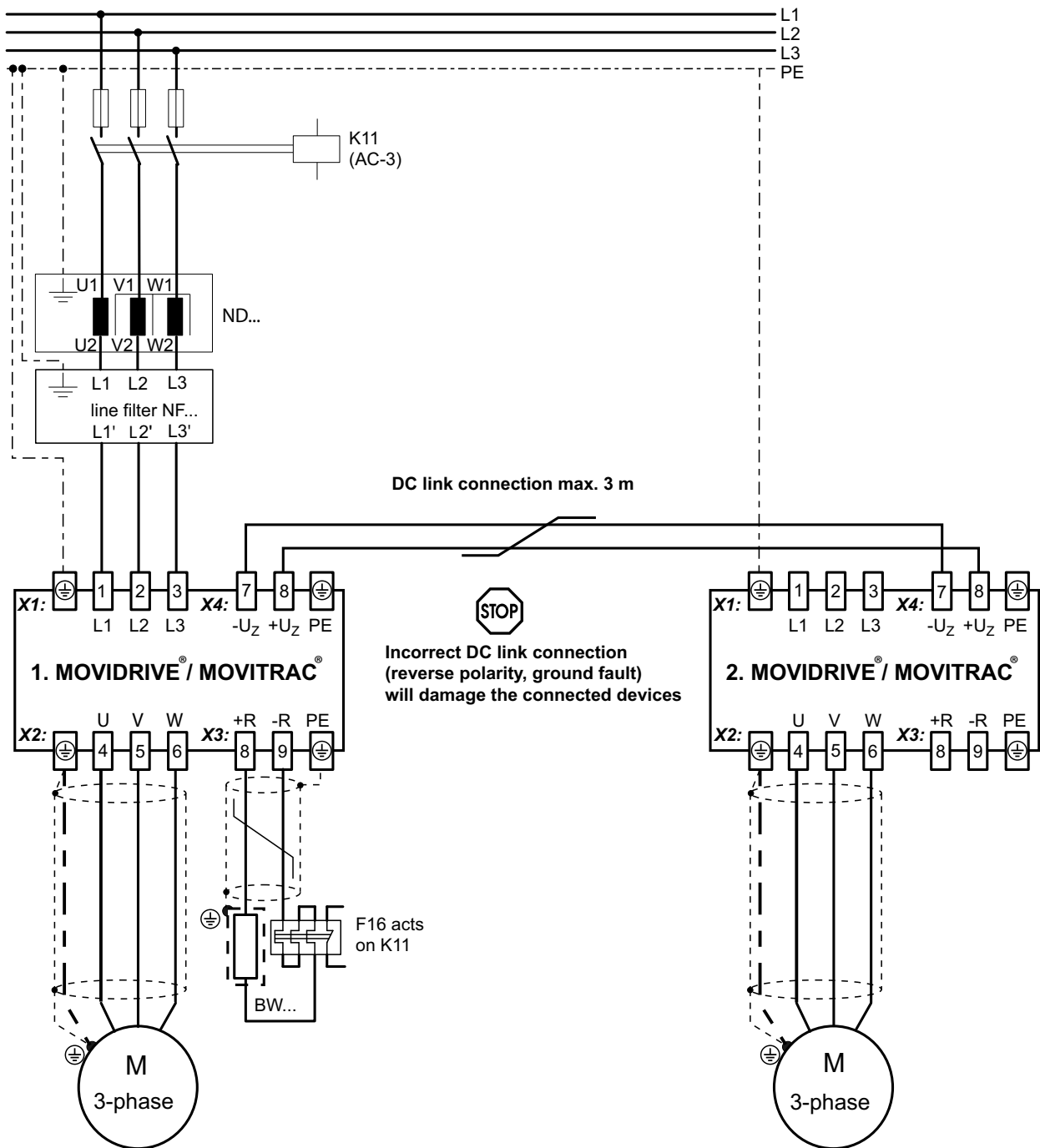


INFORMATION

- MOVIDRIVE® MDX61B1600/2000/2500 size 7 must be installed without line choke (ND..).



3.1.2 DC link connection without MDR60A/61B regenerative power supply unit in connection type B



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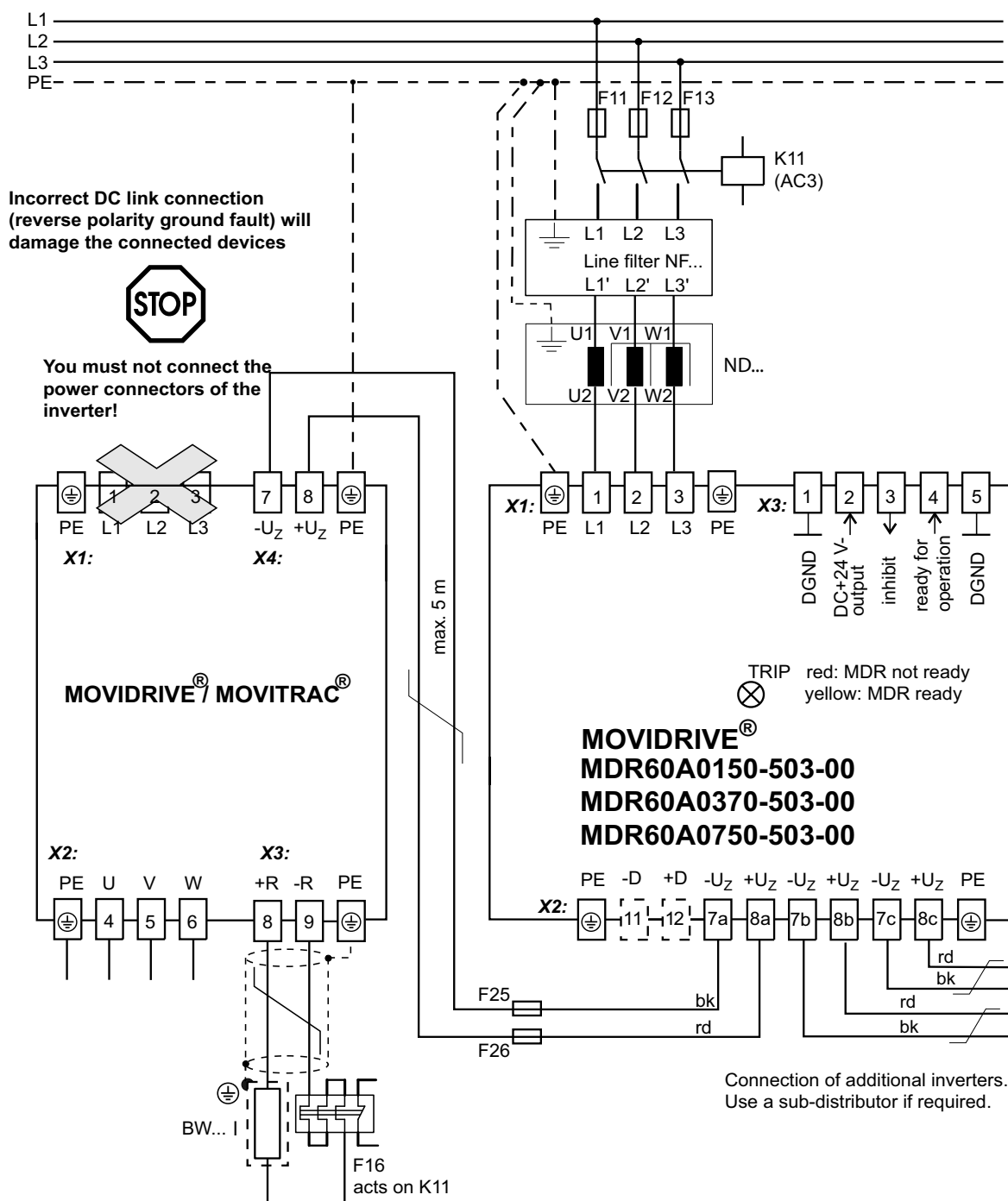


INFORMATION

- MOVIDRIVE® MDX61B1600/2000/2500 size 7 must be installed without line choke (ND..).
- Use MDX62B1600 inverters only in conjunction with MOVIDRIVE® MDX61B1600/2000 size 7 in connection type B. Observe section "Connection type B" (page).

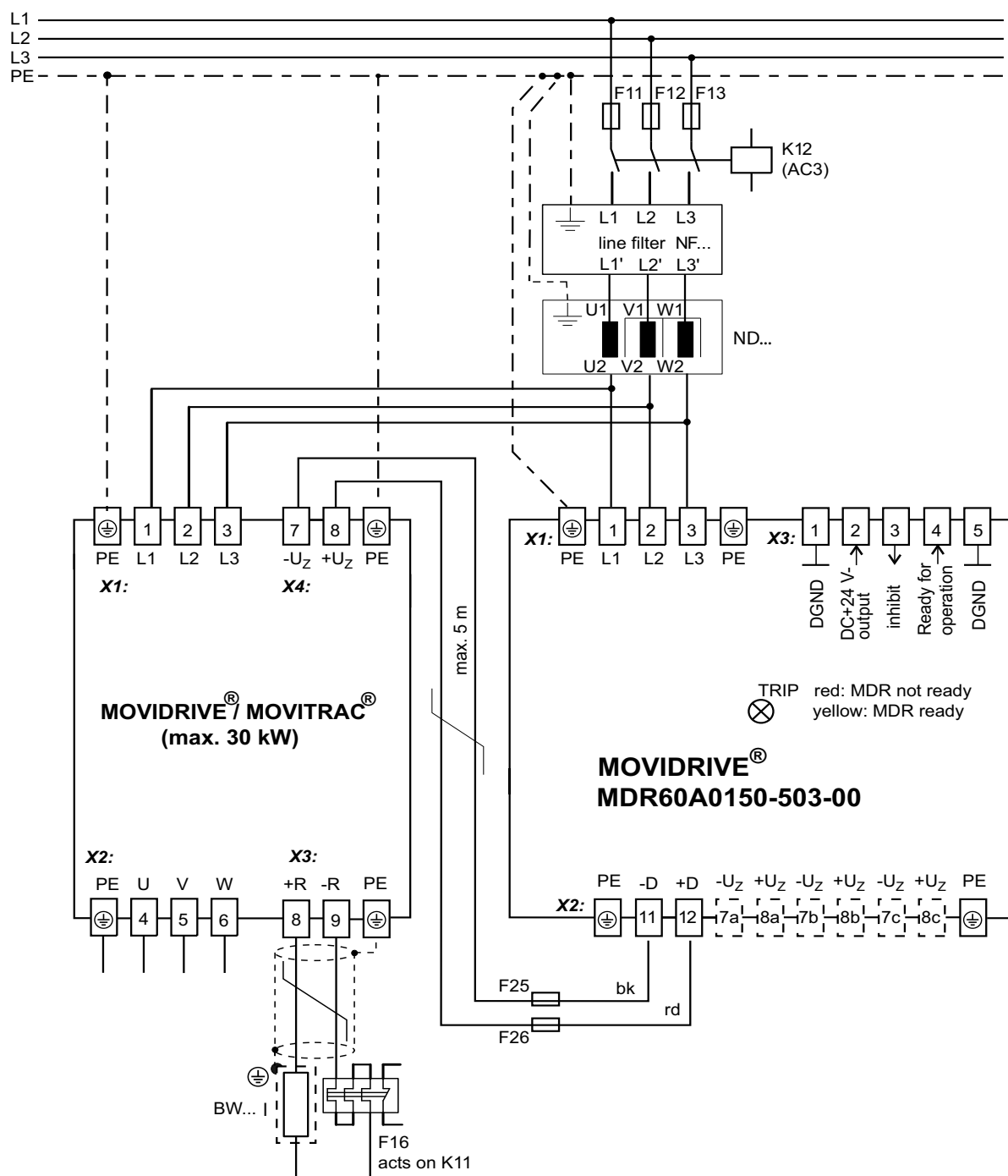


3.1.3 DC link connection with MDR60A0150/0370/0750 regenerative power supply unit



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3.1.4 DC link connection with MDR60A0150 regenerative power supply unit as brake module

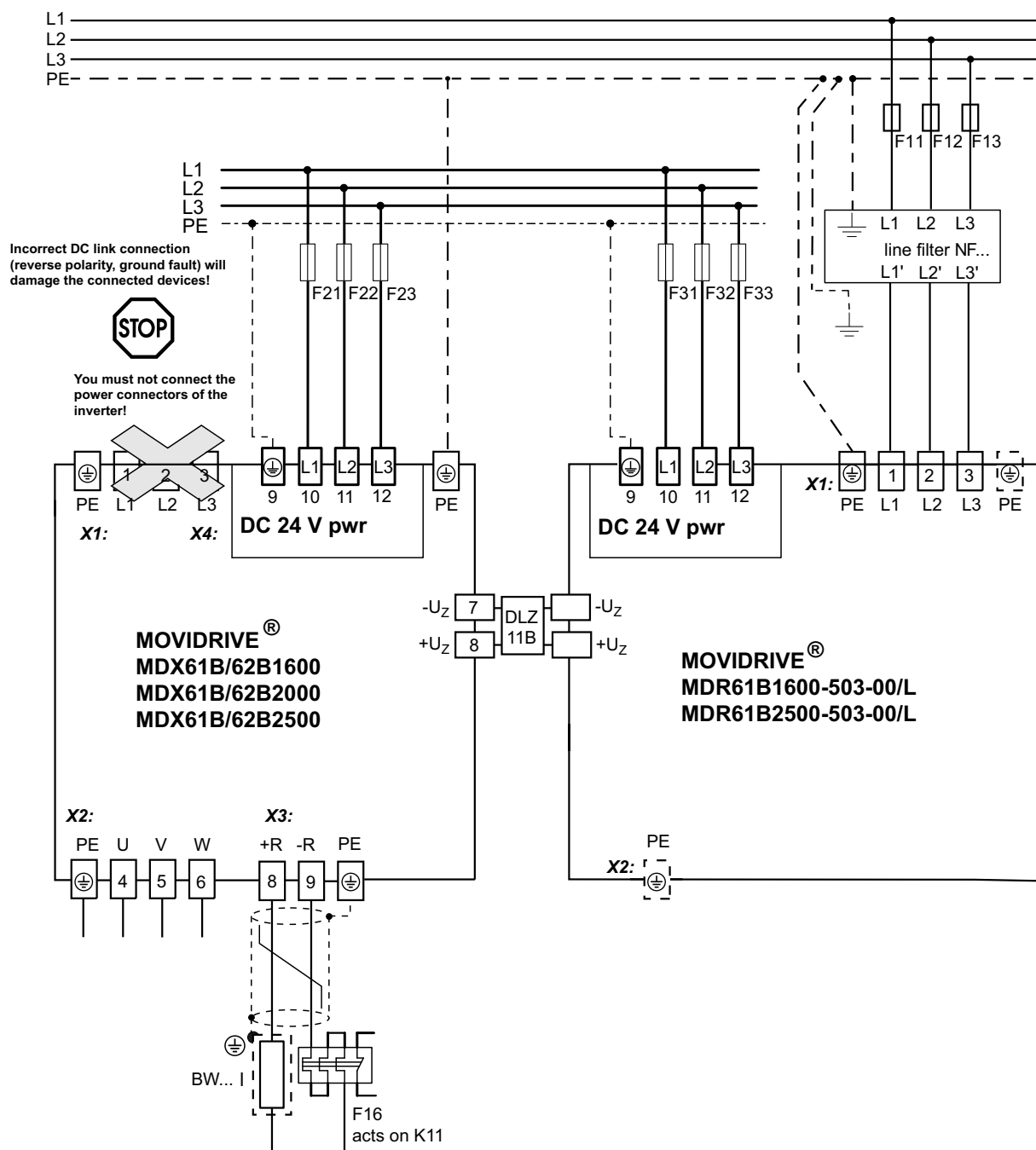


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3.1.5 DC link connection with MDR61B1600/2500 regenerative power supply unit

In conjunction with MOVIDRIVE® MDX61B/62B1600 – 2500 (size 7)

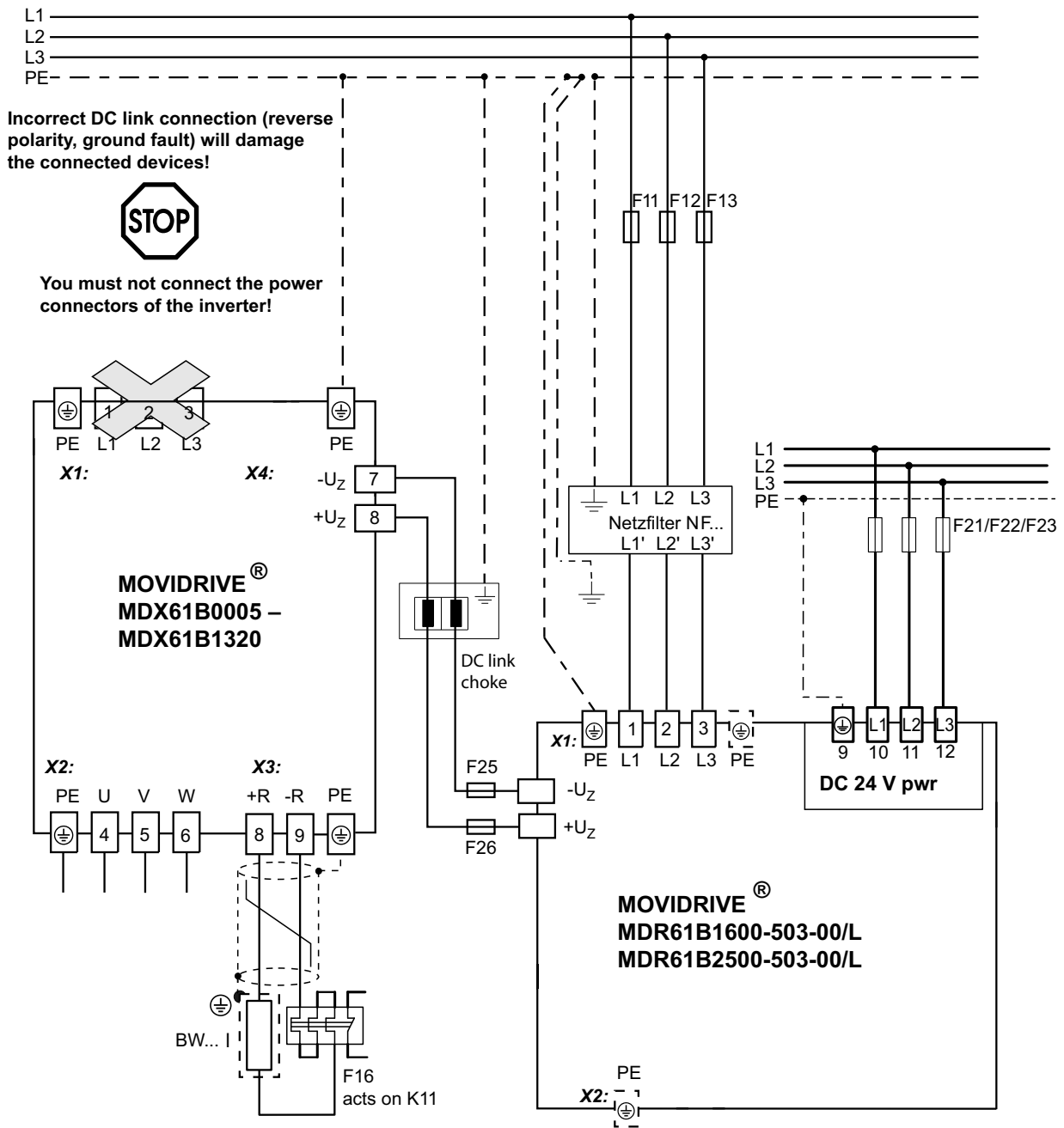


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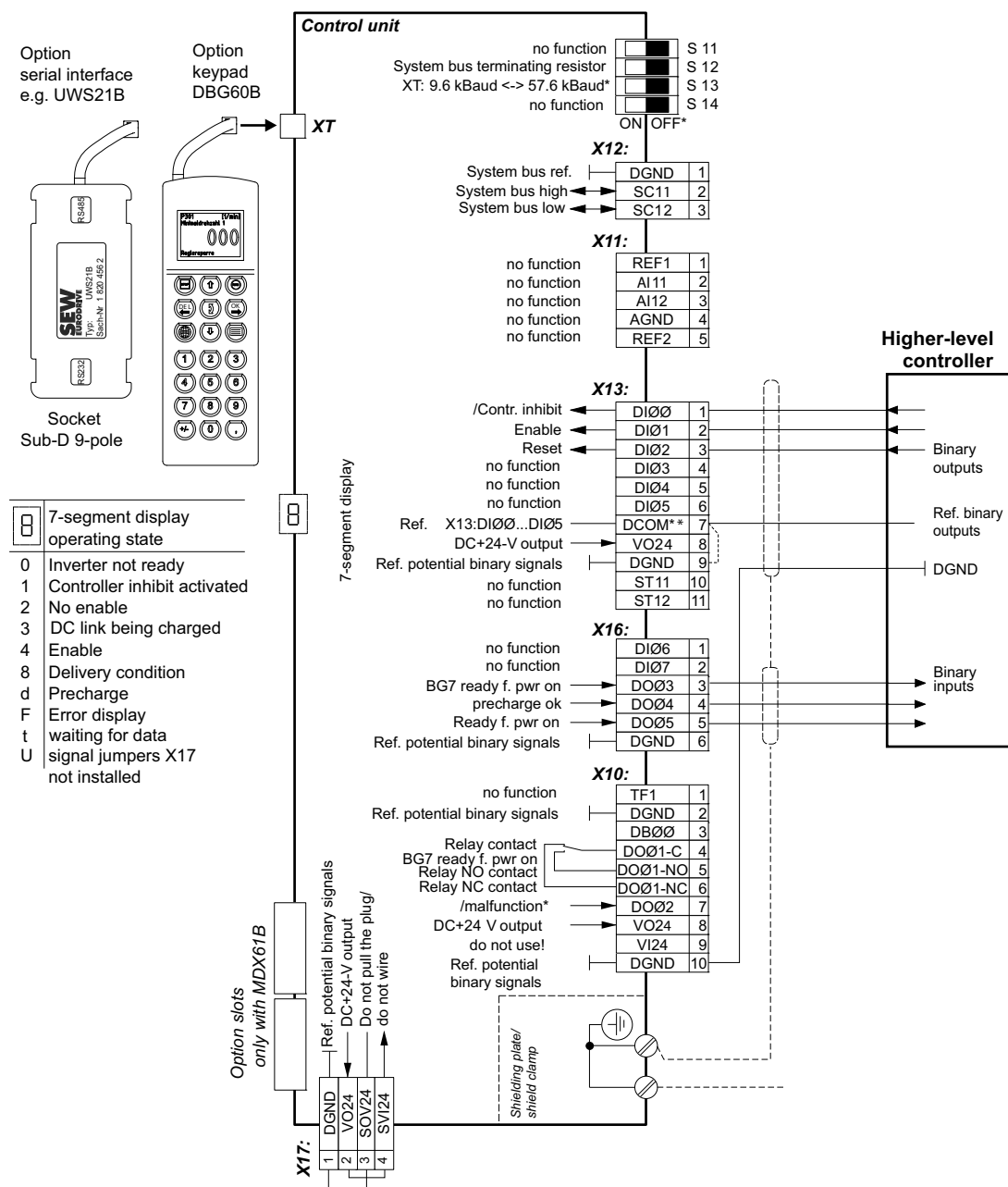


Installation (MDR60A0150/0370/0750 and MDR61B1600/2500) Wiring diagrams

In conjunction with MOVIDRIVE® MDX61B0005 – 1320 (size 0 – 6)



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** If the binary inputs are connected to the DC 24 V voltage supply X13:8 "VO24", install a jumper between X13:7 (DCOM) and X13:9 (DGND) on MOVIDRIVE®.

DGND (X10, X12, X13, X16, X17) is connected with PE as standard (threaded hole, see chapter "Unit structure"). You can establish galvanic isolation by removing the M4 x 14 grounding screw.



The following applies to MOVIDRIVE® MDR61B1600/2500:

- For supply voltages > 480 V, set the "Enable" and "Controller inhibit" signals simultaneously



4 Startup (MDR60A0150/0370/0750 and MDR61B1600/2500)

This chapter illustrates the startup of the following regenerative power supply units:

- MOVIDRIVE® MDR60A0150-503-00
- MOVIDRIVE® MDR60A0370-503-00
- MOVIDRIVE® MDR60A0750-503-00
- MOVIDRIVE® MDR61B1600-503-00/L
- MOVIDRIVE® MDR61B2500-503-00/L

4.1 Operation of MOVITOOLS® MotionStudio

You can startup the MOVIDRIVE® MDR61B regenerative power supply unit with the MOVITOOLS® MotionStudio engineering software. You can use the engineering software to display and set parameters.

MOVITOOLS® MotionStudio cannot be used in conjunction with the MOVIDRIVE® MDR60A regenerative power supply unit.

4.1.1 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:

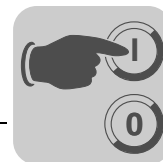
- Serial (RS-485) via interface adapters
- System bus (SBus) via interface adapters
- Ethernet
- EtherCAT®
- Fieldbus (PROFIBUS DP/DP-V1)
- Tool Calling Interface

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.



Startup (MDR60A0150/0370/0750 and MDR61B1600/2500)

Operation of MOVITOOLS® MotionStudio

Technical support

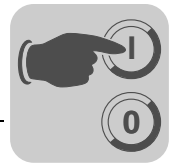
SEW-EURODRIVE offers you a 24-hour service hotline.

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:

- The 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.



4.1.2 First steps

Starting the software and creating a project

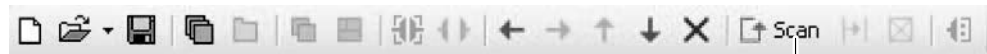
Proceed as follows to start MOVITOOLS® MotionStudio and create a project:

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.



[1]

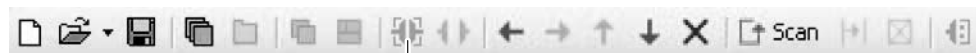
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3. Select the unit you want to configure.
4. Right-click to open the context menu.
As a result you will see a number of unit-specific tools to execute various functions with the units.

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.



[1]

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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.

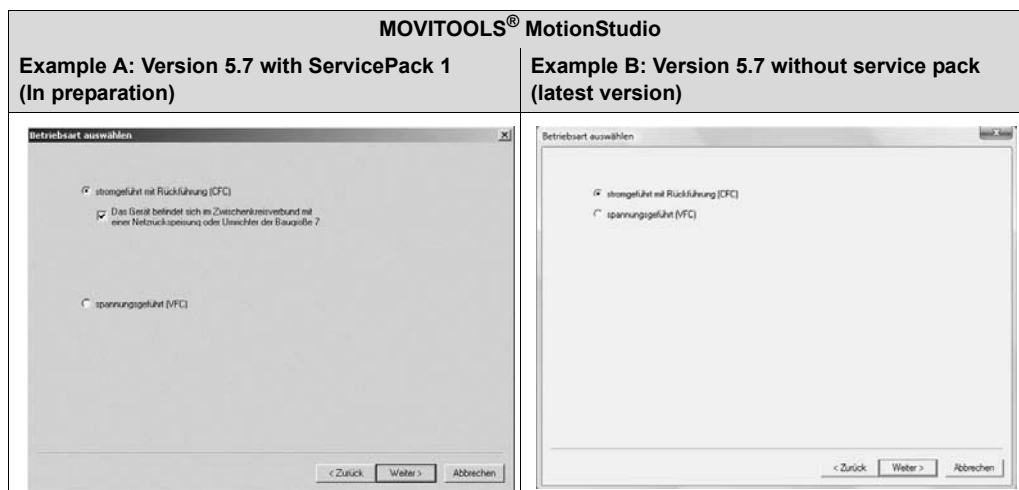


Startup (MDR60A0150/0370/0750 and MDR61B1600/2500) Setting for CFC/servo mode

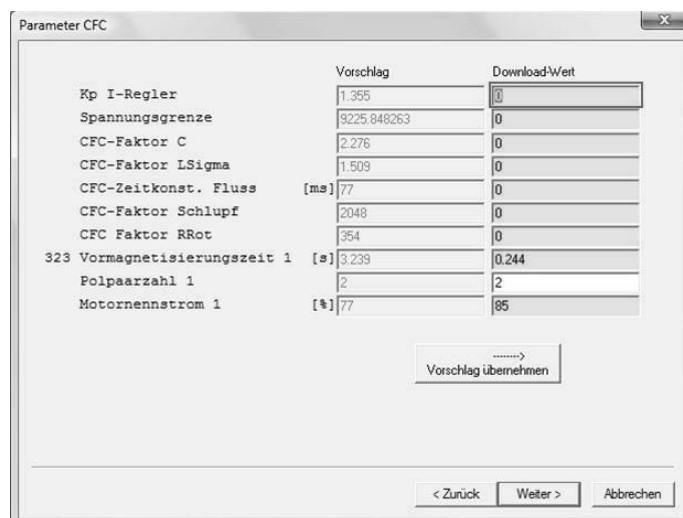
4.2 Setting for CFC/servo mode

If you use CFC mode, you have to make the corresponding selection during startup. The following section illustrates the selection and the further procedure depending on the MOVITOOLS® MotionStudio version.

- Select operating mode CFC "current-controlled with feedback".



- **Example A (version 5.7 with ServicePack 1):** Activate the checkbox "Unit is in DC link connection...".
- **Example B (version 5.7 without ServicePack 1)** you additionally have to halve the gain of the current controller (Kp I controller).
 - Press <Shift> + Next> to confirm your selection.
 - Change the setting Kp I controller setting to 50% of the suggested value.



INFORMATION

The following unit combinations do not allow the operation of synchronous servomotors with MOVIDRIVE®:

- MOVIDRIVE® MDR61B regenerative power supply unit size 7 in DC link connection with MOVIDRIVE® MDX61B inverters size 0 – 6
- MOVIDRIVE® MDX61B inverters size 7 in connection type A or B with MOVIDRIVE® MDX61B inverters size 0 – 6



5 Operation (MDR60A0150/0370/0750 and MDR61B1600/2500)



⚠ WARNING

Electric shock due to charged capacitors

Severe or fatal injuries.

- Observe a minimum switch-off time of 10 minutes after disconnecting the power supply.
- Regardless of the LED display, make sure that the unit is deenergized before you touch any power elements.

5.1 Operating characteristics

The regenerative power supply unit permits safe operating characteristics at an overload capacity of $I_N = 150\%$ for at least 60 s when maintaining the power supply system prerequisites.

5.1.1 Inhibit inverter of regenerative power supply unit

To keep the power supply disturbances to a minimum, you can inhibit the inverter of the regenerative power supply unit using a DC 24 V signal at terminal X3:3 (inhibit). For the MOVIDRIVE® MDR60A0150/0370/0750 regenerative power supply unit (size 2 – 4), the minimum inhibit time is 1.5 s. If the DC 24 V signal is active for < 1.5 s, the regenerative power supply unit remains inhibited for 1.5 s. Then, once the inhibit signal is removed, the regenerative power supply is immediately enabled.

MOVIDRIVE® MDR60A0150/0370/0750 (size 2 – 4) displays the "Ready" even when inhibited. Take this fact into account in your system's sequence control.



5.2 Operating displays

5.2.1 MOVIDRIVE® MDR60A0150/0370/0750 operating displays

Ready signal

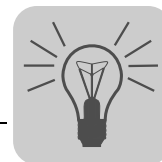
Supply system failures (affecting one or more phases) are detected within one supply system half-wave. The regenerative function is inhibited and the ready signal revoked. The return supply voltage is also detected within one supply system half-wave. It is fed back automatically into the supply system after a switch-on delay of 200 ms. The ready signal is then set again. The supply system rectifier of the regenerative power unit always remains switched on.

The ready signal is revoked when a thermal overload occurs in the regenerative power unit or in case of power failure. This ready signal must be evaluated in order to provide thermal protection for the regenerative power supply unit.

A braking resistor must be connected to the inverter to be able to bring the drives to a controlled stop in case of an interruption in the power supply or power failure. This resistor is only energized during braking when there is a power supply interruption.

Unit status/ supply system status	Response	Ready signal	Ready signal indicator
Supply system failure or Unit fault → MDR60A not ready	Power failure is detected under load within one supply system half-wave. Immediate inhibit of the regenerative power supply Input rectifier remains switched on.	Not ready	Red
Supply system OK again and no unit fault → MDR60A ready	Supply system O.K. is detected within one supply system half-wave. After 200 ms delay ¹⁾ , the regenerative power supply is started automatically.	Ready after 200 ms	Yellow

1) ensures safe operation in the event of contactor chatter



5.2.2 MOVIDRIVE® MDR61B1600/2500 operating displays

7-segment display The 7-segment display shows the operating condition of the MOVIDRIVE® MDR 1600/2500 regenerative power supply unit 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	DC link is loaded
4	4	Enable
8	8	Delivery state
d	13	Precharge
F	Error number	Error indicator (flashing)
t	16	Inverter is waiting for data
U	17	X17 signal jumpers not installed
7 ² ... 7 ⁴	-	RAM defective

DBG60B keypad

Basic displays:

50.0Hz
0.000Amp
CONTROLLER INHIBIT

Display when X13:1 (DI00 "/CONTROL.INHIBIT") = "0".

50.0Hz
0.000Amp
NO ENABLE

Display when X13:1 (DI00 "/CONTROL.INHIBIT") = "1" and inverter is not enabled ("ENABLE/STOP" = "0").

50.0Hz
0.990Amp
ENABLE

Display for enabled inverter.

NOTE 6:
VALUE TOO HIGH

Information message

(DEL)=Quit
ERROR 9
STARTUP

Error display



Operation (MDR60A0150/0370/0750 and MDR61B1600/2500) Key assignment for DBG60B

DC link voltage
display of size 7

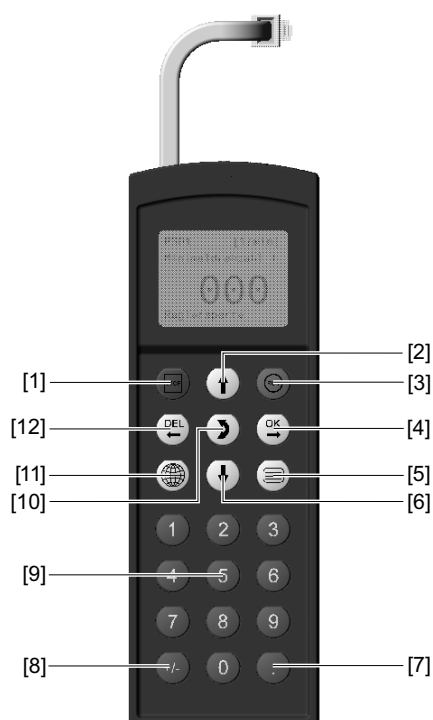
MOVIDRIVE® B, size 7 has an additional display LED under the lower front cover. The lit display LED indicates a DC link voltage. Do not touch power connections. Check that there is no voltage present before touching power connections even if the LED display indicates that there is no voltage.



INFORMATION

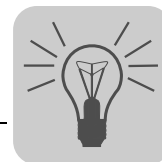
The DC link voltage display goes out about 20 seconds after the power off.

5.3 Key assignment for DBG60B



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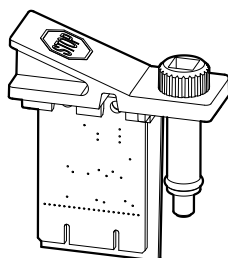
[1]	Key		Stop
[2]	Key		Up arrow, moves up to the next menu item
[3]	Key		Start
[4]	Key		OK, confirms the entry
[5]	Key		Activate the context menu
[6]	Key		Down arrow, moves down to the next menu item
[7]	Key		Decimal point
[8]	Key		Sign reversal
[9]	Key	0 – 9	Digits 0... 9
[10]	Key		Change menu
[11]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



5.4 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.

The following figure shows the memory card.



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- Only plug in the memory card when the MOVIDRIVE® MDR61B unit is switched off.



6 Service (MDR60A0150/0370/0750 and MDR61B1600/2500)



⚠ WARNING

Electric shock due to charged capacitors

Severe or fatal injuries.

- Observe a minimum switch-off time of 10 minutes after disconnecting the power supply.
- Regardless of the LED display, make sure that the unit is deenergized before you touch any power elements.

6.1 Fault information

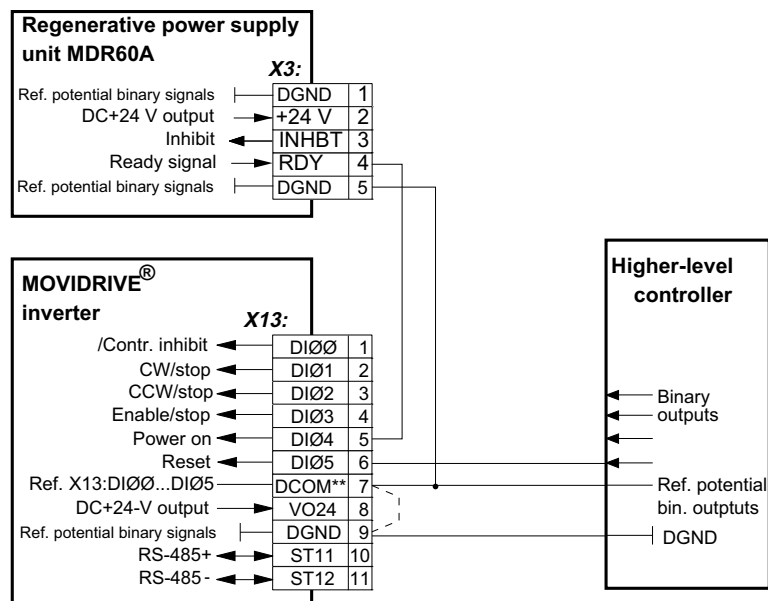
6.1.1 MOVIDRIVE® MDR60A0150/0370/0750 error information

Regenerative power supply reset

After a switch-off the regenerative power supply is reset automatically (→ chapter "Operating behavior").

Inverter

The power off response does not produce an error message in the inverter (no reset required). Other errors, such as "U_Z overvoltage" must be reset. Program a binary input on the inverter to "RESET" for that purpose. The reset is activated by a positive edge ("0" → "1" signal). A reset can also be achieved by switching the supply voltage off and on again.



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** If the binary inputs are connected to the DC 24 V voltage supply X13:8 "VO24", install a jumper between X13:7 and X13:9 (DCOM - DGND) on the MOVIDRIVE® inverter.



6.1.2 MOVIDRIVE® MDR61B1600/2500 error information

Error memory

The error memory (P080) stores the last five error messages (errors t-0 ... t-4). The oldest error message is deleted whenever more than 5 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 · Output current · Active current · Unit utilization
· DC link voltage · ON hours · Enable hours.

Switch-off responses

There are 3 switch-off responses depending on the error; the inverter remains blocked during the error status:

Immediate disconnection

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

Reset

An error message can be acknowledged by:

- DC 24 V power supply switch-off
Recommendation: Observe a minimum switch-off time of 10 s for the line contactor K11.
- Reset via input terminals DIØ2, i.e. via binary input
- Manual reset in SHELL (P840 = "YES" or [Parameter] / [Manual reset]).
- Manual reset using the DBG60B.
- Auto reset performs up to 5 unit resets with an adjustable restart time.



⚠ WARNING

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

Severe or fatal injuries.

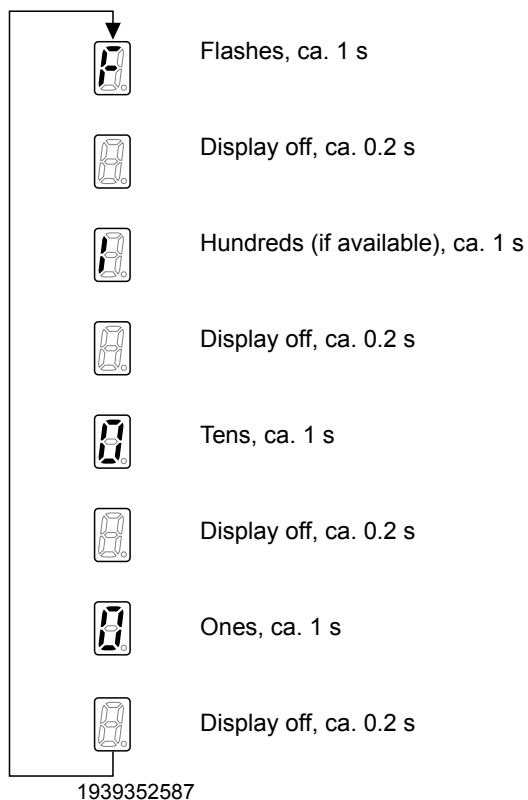
- Do not use auto reset with drives where an automatic restart represents a danger to people or units.
- Perform a manual reset.



6.2 Error messages and list of errors

6.2.1 Error messages and error list for MOVIDRIVE® MDR61B1600/2500

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



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

Suberror code – display

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



Error list

Error			Suberror		Possible cause	Measure
Code	Designation	Response (P)	Code	Designation		
00	No error					
01	Overcurrent	Immediate disconnection	1	VCE monitoring or under-voltage monitoring of the unit driver	<ul style="list-style-type: none">Short circuit at the power inputregenerative power rating too highDefective output stagePower supplyCurrent converterDefective phase moduleSupply voltage 24 V or 24 V generated from it is instableInterruption or short circuit on the signal lines from the phase modules	<ul style="list-style-type: none">Rectify the short circuitLimit regenerative power rating; e.g. extend ramp times of the motor inverterContact SEW Service for advice if the output stage is defective.
			6	UCE monitoring or under-voltage monitoring of gate driver or overcurrent of current converter ..Phase U		
			7	..Phase V		
			8	..Phase W		
			9	..Phases U and V		
			10	..Phases U and W		
			11	..Phases V and W		
			12	..Phases U and V and W		
			13	Voltage supply Current converter in mains operation		
			14	MFE signal lines defective	Defective output stage	
03	Ground fault	Immediate disconnection	0	Ground fault	<p>Ground fault</p> <ul style="list-style-type: none">in the supply cablein the regenerative power supply	<ul style="list-style-type: none">Eliminate ground faultConsult SEW Service
			1	Ground fault or current converter error	<ul style="list-style-type: none">Ground fault<ul style="list-style-type: none">in the supply cablein the regenerative power supplydefective current converterDefective cable between phase module and current converter	<ul style="list-style-type: none">Eliminate ground faultConsult SEW Service
06	Line phase failure	Immediate disconnection (+ open line contactor)	0	DC link voltage periodically too low	<ul style="list-style-type: none">Phase failureInadequate line voltage quality	<ul style="list-style-type: none">Check the line cableCheck configuration of the supply system.Check supply (fuses, contactor)
			3	Mains voltage failure		
			4	Line frequency fault		
07	DC link	Immediate disconnection	0	DC link voltage too high	DC link voltage too high	<ul style="list-style-type: none">Extend deceleration ramps of the motor inverterCheck braking resistor supply cable (if available)Check technical data of braking resistor (if available)Check configuration of the supply system.For supply voltages > 480 V, set the "Enable" and "Controller inhibit" signals simultaneously
		Immediate disconnection (+ open line contactor)	5	DC link undervoltage	DC link voltage too low	
		Immediate disconnection	6	DC link voltage too high.. Phase U	DC link voltage too high	
			7	.. Phase V		
			8	.. Phase W		
		Immediate disconnection (+ open line contactor)	9	DC link voltage (Software detection)		
09	Startup	Immediate disconnection (+ open line contactor)	0	Startup missing	The regenerative power supply has not been started up in the hardware configuration yet.	Restore the factory settings in the setup or load matching data set.



Service (MDR60A0150/0370/0750 and MDR61B1600/2500)

Error messages and list of errors

Error			Suberror		Possible cause	Measure
Code	Designation	Response (P)	Code	Designation		
11	Overtemperature	Immediate disconnection	0	heat sink temperature limit exceeded	<ul style="list-style-type: none"> Thermal overload of the regenerative power supply Temperature sensor of a phase module faulty. (size 7) Line chokes overloaded 	<ul style="list-style-type: none"> Reduce load and/or ensure adequate cooling. Check fan (Phase modules or line chokes) 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	Overttemperature switched-mode power supply		
			6	Heat sink temperature too high or defective temperature sensor.. ..Phase U		
			7	..Phase V		
			8	..Phase W		
			9	Heat sink temperature of rectifier or line choke too high during regeneration		
17	System malfunction	Immediate disconnection (+ open line contactor)	48	Computer internal; exception error	Inverter electronics disrupted, possibly due to effect of EMC.	<ul style="list-style-type: none"> Check grounding and shielding and improve, if necessary. Consult SEW Service if the error reoccurs.
18	System malfunction	No response, (display only)	101	Invalid error code requested		
		Immediate disconnection (+ open line contactor)	300	Internal error Software-Modul MovLink Lib		
			301	Internal error Software-Modul ParameterData		
			302	Internal error Software-Modul ASMOS		
			303	Internal error Software-Modul Utilities		
		No response, (display only)	304	Internal error Software-Modul A/D conversion		
25	Non-volatile parameter memory	Immediate disconnection	2	NV memory runtime error (Memory Device)	Access to the NV memory card has failed	<ul style="list-style-type: none"> Activate factory settings, perform reset and reset parameters. Contact SEW service if the error occurs again. Replace memory card.
			3	NV memory import error		
			4	NV memory setup error		
			5	NV memory data error		
			7	NV memory initialization error		
			15	Used NV memory cannot be operated with the firmware.		
			17	NV memory runtime error (NV memory)		
			18	NV memory initialization error (Memory Device)		
36	Option missing	Immediate disconnection (+ open line contactor)	2	Encoder slot error.	<ul style="list-style-type: none"> "MDR" mdata logging option card defective 	Consult SEW Service.
37	System watchdog	Immediate disconnection (+ open line contactor)	0	"System watchdog overflow" error	Error while executing system software	Consult SEW Service.
43	RS485 timeout	No response, (display only)(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.



Error			Suberror		Possible cause	Measure
Code	Designation	Response (P)	Code	Designation		
44	Unit utilization	Immediate disconnection	0	Unit utilization error	<ul style="list-style-type: none"> Unit utilization (IxT value) > 125% 	<ul style="list-style-type: none"> Decrease power output Extend ramps of the motor inverter If suggested actions not possible, use larger regenerative power supply unit. Reduce load
45	Initialization	Immediate disconnection (+ open line contactor)	1	Offsets of the current measurement outside the permitted range	<ul style="list-style-type: none"> No parameters set for EEPROM in power section, or parameters set incorrectly. Option card not in contact with backplane bus. Current measurement is defective Error in the processor periphery 	<ul style="list-style-type: none"> Restore factory settings Consult SEW Service if the error still cannot be reset. Insert the option card correctly.
47	System bus 1 timeout	No response, (display only)(P)	0	Timeout system bus CAN1	Error during communication via system bus 1.	Check system bus connection.
80	RAM test	Immediate disconnection	0	"RAM test" error	Internal unit fault, RAM defective.	Consult SEW Service.
94	Unit configuration data	Immediate disconnection	1	CRC checksum error	Inverter electronics disrupted, possibly due to effect of EMC or a defect.	Send unit in for repair.
			11	Power section data CRC checksum error		
97	Copy error	Immediate disconnection	1	Download of parameter set to unit cancelled.	<ul style="list-style-type: none"> Memory card cannot be written or read. Error during data transmission 	<ul style="list-style-type: none"> Repeat copying process Restore default setting (P802) and repeat copying process
98	CRC error	Immediate disconnection (+ open line contactor)	0	"CRC via internal flash" error	Internal unit error, flash memory defective.	Send unit in for repair.
107	Line components	Immediate disconnection (+ open line contactor)	1	Line contactor feedback contact error	<ul style="list-style-type: none"> Defective main contactor Supply cable missing Output stage defective Control cables defective 	<ul style="list-style-type: none"> Check main contactor Check control cables and line connection Check line filter connection
			4	Internal line cables are swapped		
			5	Missing line cable or faulty branch of the output stage		
			6	Unable to perform self-test due to controller inhibit.		
124	Ambient condition	Immediate disconnection	1	Permitted ambient temperature exceeded	Ambient temperature > 60 °C	Improve ventilation and cooling conditions, improve air supply in the control cabinet, check filter mats.



Service (MDR60A0150/0370/0750 and MDR61B1600/2500)

Error messages and list of errors

Error			Suberror		Possible cause	Measure
Code	Designation	Response (P)	Code	Designation		
196	Power section	Immediate disconnection (+ open line contactor)	1	Discharge resistor	Discharge resistor overload	Observe waiting time for power on/off
			2	Hardware ID precharge/discharge control	Incorrect precharge/discharge control variant	<ul style="list-style-type: none"> Consult SEW Service Replace precharge/discharge control
		Immediate disconnection	3	Inverter coupling PLD Live	Defective inverter coupling	<ul style="list-style-type: none"> Consult SEW Service Replace inverter coupling
			4	Inverter coupling reference voltage	Defective inverter coupling	<ul style="list-style-type: none"> Consult SEW Service Replace inverter coupling
			5	Power section configuration	Different phase modules installed in the unit	<ul style="list-style-type: none"> Inform SEW service. Check and replace phase modules
		Immediate disconnection (+ open line contactor)	6	Control unit configuration	Control unit line inverter or motor inverter incorrect	Replace or correctly assign the control unit of line and motor inverter.
		Immediate disconnection	7	Communication power section control unit	No communication	Check control unit installation.
		Immediate disconnection (+ open line contactor)	8	Communication precharge/discharge control inverter coupling	No communication	<ul style="list-style-type: none"> 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
		Immediate disconnection	13	Communication power section control unit	Faulty communication with inverter coupling during operation: More than once per second a CRC error.	Replace inverter coupling
		Immediate disconnection (+ open line contactor)	14	Control unit configuration	Missing PLD functionality for EEPROM data set size 7.	Replace control unit
		Immediate disconnection	15	Inverter coupling error	Inverter coupling processor has signaled internal error.	<ul style="list-style-type: none"> Consult SEW service if the error reoccurs Replace inverter coupling
196	Power section	Immediate disconnection (+ open line contactor)	16	Inverter coupling error: PLD version incompatible		Replace inverter coupling
			17	Precharge/discharge control error	Precharge/discharge control processor has signaled internal error	<ul style="list-style-type: none"> Consult SEW service if the error reoccurs Replace precharge/discharge control
		Immediate disconnection	18	Defective DC link fan	The DC link fan is faulty.	<ul style="list-style-type: none"> 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.	<ul style="list-style-type: none"> 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.	<ul style="list-style-type: none"> Consult SEW Service if the error reoccurs. Replace inverter coupling
			21	U _z measurement implausible phase R	Defective phase module	Consult SEW service if the error reoccurs
			22	U _z measurement implausible phase S		
			23	U _z measurement implausible phase T		



Error			Suberror		Possible cause	Measure
Code	Designation	Response (P)	Code	Designation		
197	Power failure	Immediate disconnection (+ open line contactor)	0	Power failure	Inadequate line voltage quality.	<ul style="list-style-type: none"> Check supply (fuses, contactor) Check configuration of the supply system
			1	Supply system overvoltage		
			2	Supply system undervoltage		
		No response, (display only)	3	Supply system quality, frequency error		
199	DC link charging	Immediate disconnection (+ open line contactor)	1	Precharging was aborted (timeout)	Unable to charge DC link.	<ul style="list-style-type: none"> Precontrol overload Connected DC link capacity too high Short circuit in the DC link; check DC link connection in case of several units.
		Immediate disconnection	3	Charging to voltage setpoint was aborted (timeout)		
		Immediate disconnection (+ open line contactor)	4	Precharging was aborted		



6.3 SEW Electronics Service

6.3.1 Send in for repair

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

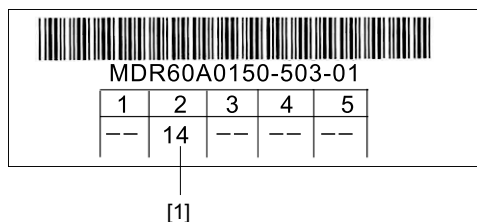
When contacting SEW electronics service, always quote the digits on the status label so that our service personnel can assist you more effectively.

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

- Serial number (→ nameplate)
- Type designation
- Digits on the status label
- Short description of application (drive application, control via terminals or serial)
- Connected components (inverter, etc.)
- Nature of the fault
- Accompanying circumstances
- Your own presumptions as to what has happened
- Any unusual events preceding the problem, etc.

6.3.2 Status label

MOVIDRIVE® MDR60A regenerative power supply units have a service label attached to them; the label is located at the side of the unit.



1877052683

[1] = Hardware status

MOVIDRIVE® MDR61B regenerative power supply units have a service label attached to them; the label is located on the upper front cover.



4092426507



7 Declarations of Conformity

7.1 MOVIDRIVE® MDR60A/61B

EC Declaration of Conformity



900920110

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

declares under sole responsibility that the



regenerative power supply units of the series **MOVIDRIVE® MDR60A**
MOVIDRIVE® MDR61B

are in conformity with

Low Voltage Directive 2006/95/EC

EMC Directive 2004/108/EC 4)

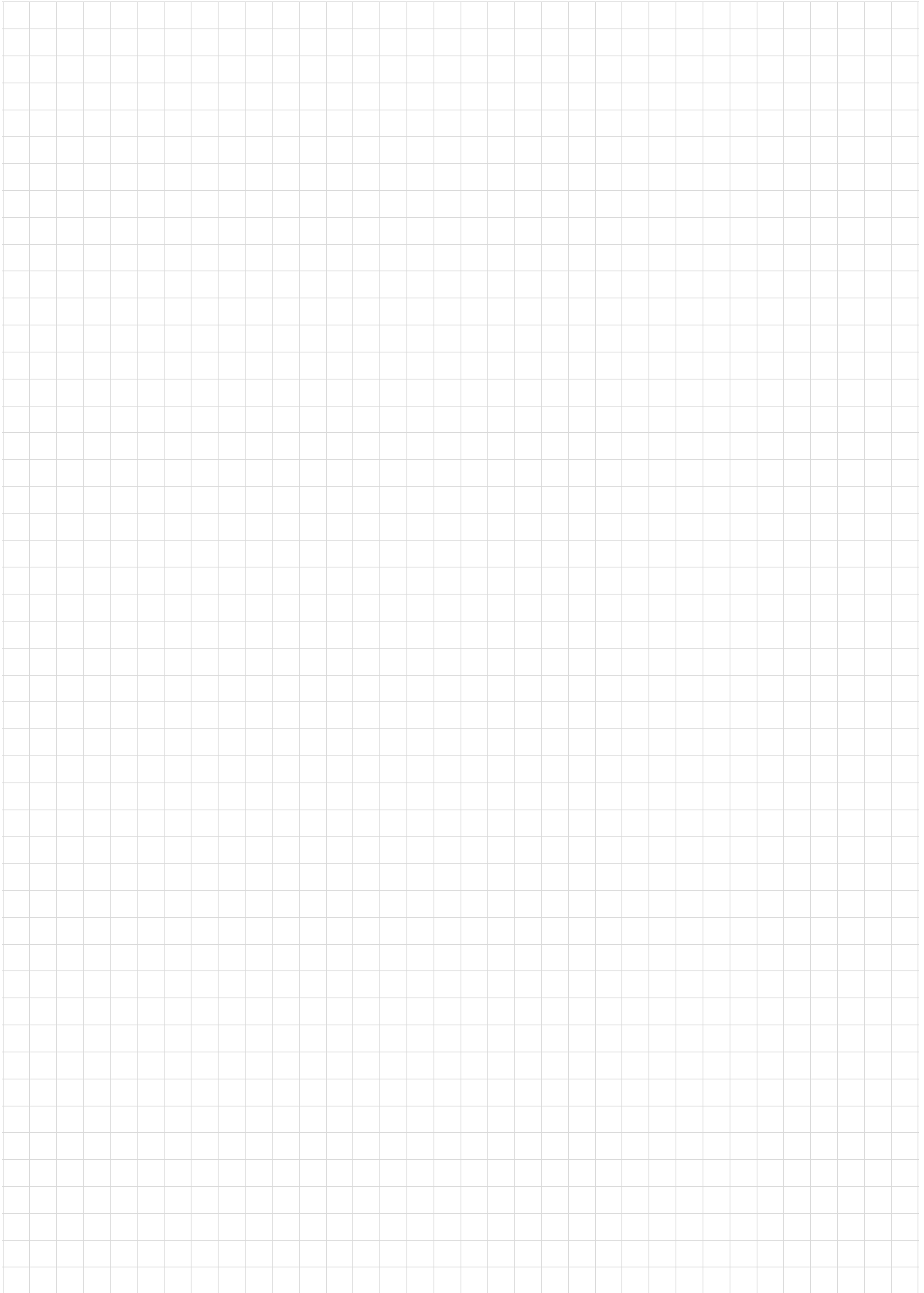
Applied harmonized standards **EN 61800-5-1:2007**
EN 61800-3:2007

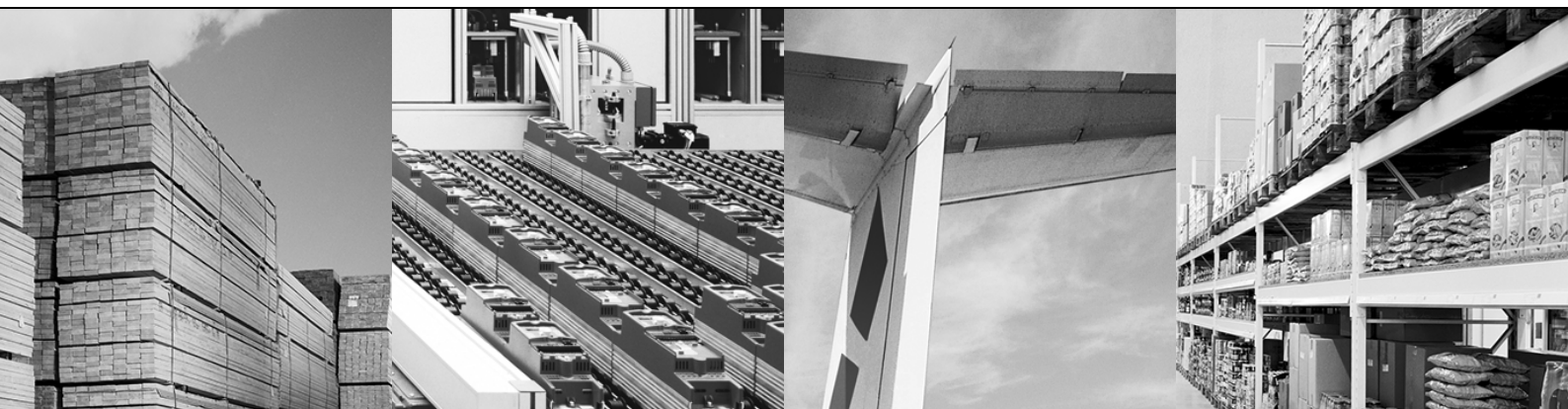
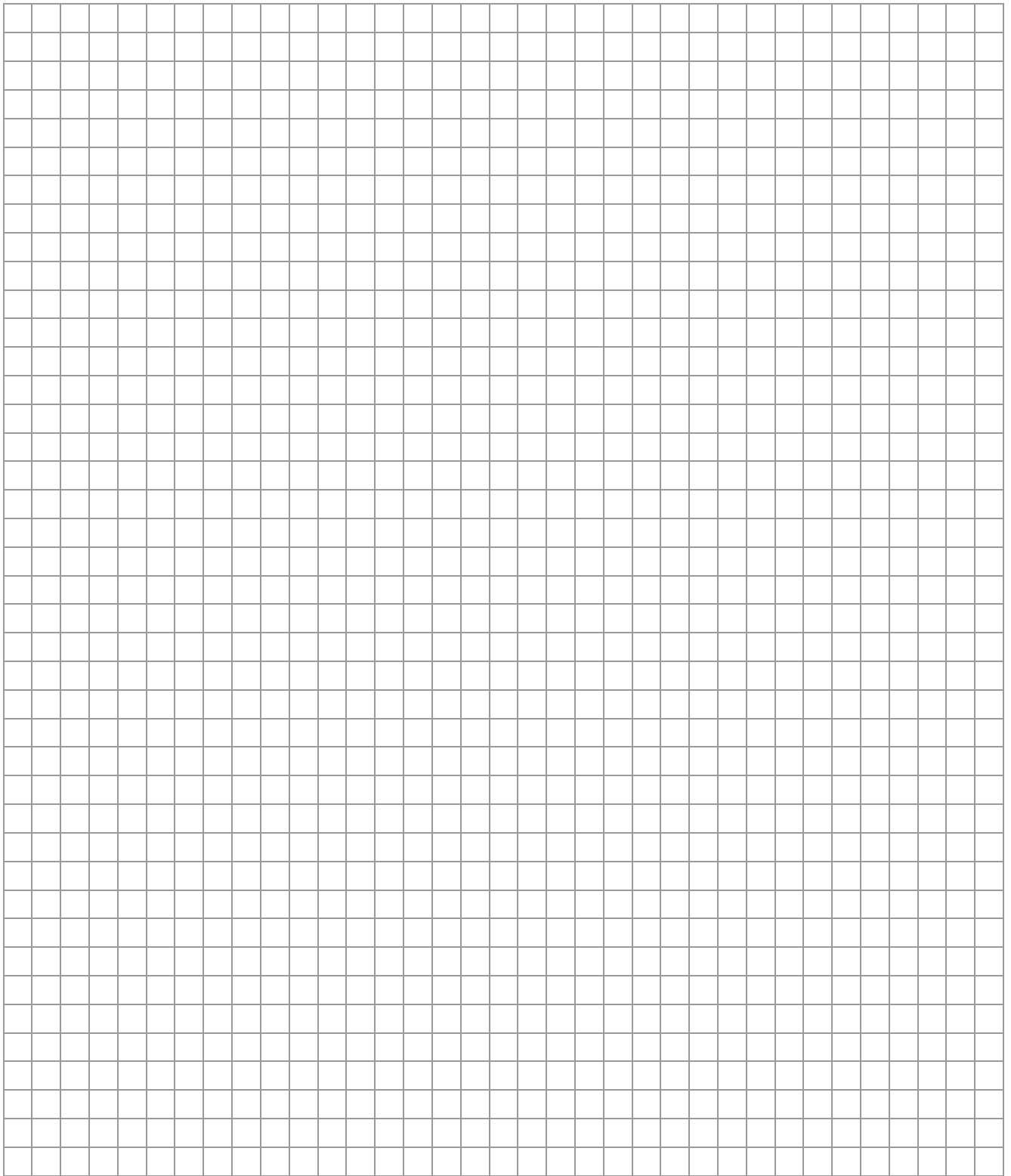
- 4) According to the EMC Directive, the listed products are not independently operable products. EMC assessment is only possible after these products have been integrated in an overall system. The assessment was verified for a typical system constellation, but not for the individual product.

Bruchsal 16.05.11

Place Date Johann Soder 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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Driving the world

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