



SEW
EURODRIVE

Catalog



Frequency Inverters **MOVITRAC® LTP-B**



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1 Product description

1.1 Technology

The MOVITRAC® LTP-B device family is part of SEW-EURODRIVE's powerful portfolio of frequency inverters. The devices are characterized by a simple installation and startup philosophy, together with a powerful range of functions for this class.

The power spectrum ranges from 0.75 kW to a maximum rating of 250 kW.

The inverters are available with the IP66/NEMA 4X and IP55/NEMA 12 K degrees of protection for use in environments that are heavily subjected to dust and splash water. The inverters with the IP66/NEMA 4X degree of protection are alternatively available with or without an integrated switch option. The switch option is equipped with a main switch, direction switch, and potentiometer. Devices with the IP20/NEMA 1 degree of protection are also available for control cabinet installation.

All variants feature an integrated keypad as standard which, in combination with the removable "help card", enables simple and intuitive startup and operation.

The inverter supports a multitude of control modes for operating many different types of motors. As a result, motors can be operated with speed and torque control, as well as with an encoder to some extent.

Extensive diagnostics methods are available to the user to ensure smooth system operation and to minimize downtimes.

In addition to diagnostics parameters, MOVITRAC® LTP-B also offers a powerful scope function that can be operated using the LT Shell software.

The extensive functionality is rounded off by Modbus RTU, CANopen and SEW-EURODRIVE's SBus bus systems, which are included as standard, which means that the MOVITRAC® LTP-B can be easily integrated into the fieldbus network of the application via gateway.

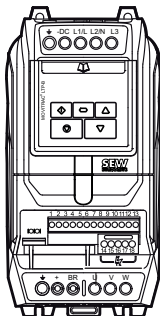
1.2 Markets and applications

Frequency inverters of the MOVITRAC® LTP-B series are optimally tailored to meet the requirements of indoor applications outside a control cabinet.

They have been designed and developed for the open-loop speed control of asynchronous and synchronous motors without an encoder, and are particularly economical in conveyor applications, hoists, as well as in fans and pumps.

Depending on the application requirement, the frequency inverter is available in many different power ratings, voltages, and degrees of protection.

1.3 Product overview of MOVITRAC® LTP-B

Frequency inverter	
LTP-B	 • Performance classes: 0.75 – 250 kW • Voltage range: – 1 × 200 – 240 V – 3 × 200 – 240 V – 3 × 380 – 480 V – 3 × 500 – 600 V – 3 × 480 – 525 V • Overload capacity: 150% for 60 s, 175% for 2 s • Integrated keypad: – IP20: 7-segment display – IP66: TFT display – IP55: OLED display • Integrated engineering interface • Integrated Modbus RTU and CANopen interface • Housing variants: – IP20/NEMA 1 – IP55/NEMA 12 K – IP66/NEMA 4X (with or without switch option) For information about this device, refer to the following documents: • Operating instructions "MOVITRAC® LTP-B frequency inverter"
Option cards	
LT OB 3ROUT A	Relay expansion card
LT OB IO A	Digital I/O expansion card
LT OB ENC A	TTL encoder card
LT OB ENH A	HTL encoder card
LT FP 11A	PROFIBUS DP (M30)
LT FE 32A	PROFINET IO (M30)
LT FE 34A	PROFINET IO (M40)
LT FE 33A	EtherNet/IP™ (M30)
LT FE 24A	EtherCAT® (M30)
LT FD 11A	DeviceNet™ (M30)
LT FE 31A	Modbus TCP (M30)
System components	
BW	Braking resistor
NF LT	Line filter
ND LT	Line choke
HD LT	Output choke
Remote keypads	
LT BG-C	7-segment display keypad
LT BG OLED A	Full-text OLED keypad
Accessories	
LT OP 003 A2	Basic package (cable set A)
LT OP 005 B2, LT OP 010 B2	Extension package (cable set B)
LT OP 003 C	PC engineering package (cable set C)
LT RJ CS 21 C	Cable splitter 1 to 2
LT RJ CS TR C	Terminating resistor
USM21A	USB/RS485/SBus/CAN interface adapter
CKS13A	RJ10/RJ45 connection cable
UOH65A	UOH65A housing
LT BP D	Bluetooth® parameter module

Accessories	
LT OB LOCMO B	Control board with switch and potentiometer
LT SB 23 A	Shield plate for IP20 devices of size 2 + 3
Software	
MOVITOOLS® MotionStudio	Software for parameterization and data backup Connection possible via: • USB11A or USM21A via SEW gateway or MOVI-PLC® • USM21A with CKS13A (RJ10/RJ45 connection cable)
LT Shell	Software for parameterization, data backup, firmware updates, manual mode and scope Connection possible via: • USB11A or USM21A and cable set C • Parameter module and Bluetooth

1.4 The inverters at a glance

Line connection	Motor power	Nominal output current	Type designation	Degree of protection	Size
200 – 240 V 1-phase	0.75 kW/1 HP	4.3 A	MCLTPB0008-2B1-4-00	IP20	2
			MCLTPB0008-2B1-4-30	IP66	2
			MCLTPB0008-2B1-4-40	IP66	2
	1.5 kW/2 HP	7 A	MCLTPB0015-2B1-4-00	IP20	2
			MCLTPB0015-2B1-4-30	IP66	2
			MCLTPB0015-2B1-4-40	IP66	2
	2.2 kW/3 HP	10.5 A	MCLTPB0022-2B1-4-00	IP20	2
			MCLTPB0022-2B1-4-30	IP66	2
			MCLTPB0022-2B1-4-40	IP66	2

Line connection	Motor power	Nominal output current	Type designation	Degree of protection	Size
200 – 240 V 3-phase	0.75 kW/1 HP	4.3 A	MCLTPB0008-2A3-4-00	IP20	2
			MCLTPB0008-2A3-4-30	IP66	2
			MCLTPB0008-2A3-4-40	IP66	2
	1.5 kW/2 HP	7 A	MCLTPB0015-2A3-4-00	IP20	2
			MCLTPB0015-2A3-4-30	IP66	2
			MCLTPB0015-2A3-4-40	IP66	2
	2.2 kW/3 HP	10.5 A	MCLTPB0022-2A3-4-00	IP20	2
			MCLTPB0022-2A3-4-30	IP66	2
			MCLTPB0022-2A3-4-40	IP66	2
	3 kW/4 HP	14 A	MCLTPB0030-2A3-4-00	IP20	3
			MCLTPB0030-2A3-4-30	IP66	3
			MCLTPB0030-2A3-4-40	IP66	3
	4 kW/5 HP	18 A	MCLTPB0040-2A3-4-00	IP20	3
			MCLTPB0040-2A3-4-30	IP66	3
			MCLTPB0040-2A3-4-40	IP66	3
	5.5 kW/7.5 HP	24 A	MCLTPB0055-2A3-4-00	IP20	3
			MCLTPB0055-2A3-4-30	IP66	3
			MCLTPB0055-2A3-4-40	IP66	3
			MCLTPB0055-2A3-4-10	IP55	4
	7.5 kW/10 HP	30 A	MCLTPB0075-2A3-4-30	IP66	4
			MCLTPB0075-2A3-4-40	IP66	4
			MCLTPB0075-2A3-4-10	IP55	4
	11 kW/15 HP	46 A	MCLTPB0110-2A3-4-30	IP66	4
			MCLTPB0110-2A3-4-40	IP66	4
			MCLTPB0110-2A3-4-10	IP55	4
	15 kW/20 HP	61 A	MCLTPB0150-2A3-4-10	IP55	5
	18.5 kW/25 HP	72 A	MCLTPB0185-2A3-4-10	IP55	5
	22 kW/30 HP	90 A	MCLTPB0220-2A3-4-10	IP55	6
	30 kW/40 HP	110 A	MCLTPB0300-2A3-4-10	IP55	6
	37 kW/50 HP	150 A	MCLTPB0370-2A3-4-10	IP55	6
	45 kW/60 HP	180 A	MCLTPB0450-2A3-4-10	IP55	6
	55 kW/75 HP	202 A	MCLTPB0550-2A3-4-10	IP55	7
	75 kW/100 HP	248 A	MCLTPB0750-2A3-4-10	IP55	7

Line connection	Motor power	Nominal output current	Type designation	Degree of protection	Size
380 – 480 V 3-phase	0.75 kW/1 HP	2.2 A	MCLTPB0008-5A3-4-00	IP20	2
			MCLTPB0008-5A3-4-30	IP66	2
			MCLTPB0008-5A3-4-40	IP66	2
	1.5 kW/2 HP	4.1 A	MCLTPB0015-5A3-4-00	IP20	2
			MCLTPB0015-5A3-4-30	IP66	2
			MCLTPB0015-5A3-4-40	IP66	2
	2.2 kW/3 HP	5.8 A	MCLTPB0022-5A3-4-00	IP20	2
			MCLTPB0022-5A3-4-30	IP66	2
			MCLTPB0022-5A3-4-40	IP66	2
	4 kW/5 HP	9.5 A	MCLTPB0040-5A3-4-00	IP20	2
			MCLTPB0040-5A3-4-30	IP66	2
			MCLTPB0040-5A3-4-40	IP66	2
	5.5 kW/7.5 HP	14 A	MCLTPB0055-5A3-4-00	IP20	3
			MCLTPB0055-5A3-4-30	IP66	3
			MCLTPB0055-5A3-4-40	IP66	3
	7.5 kW/10 HP	18 A	MCLTPB0075-5A3-4-00	IP20	3
			MCLTPB0075-5A3-4-30	IP66	3
			MCLTPB0075-5A3-4-40	IP66	3
	11 kW/15 HP	24 A	MCLTPB0110-5A3-4-00	IP20	3
			MCLTPB0110-5A3-4-30	IP66	3
			MCLTPB0110-5A3-4-40	IP66	3
			MCLTPB0110-5A3-4-10	IP55	4
			MCLTPB0110-503-4-15	IP55	4
	15 kW/20 HP	30 A	MCLTPB0150-5A3-4-30	IP66	4
			MCLTPB0150-5A3-4-40	IP66	4
			MCLTPB0150-5A3-4-10	IP55	4
			MCLTPB0150-503-4-15	IP55	4
			MCLTPB0150-503-4-15	IP55	4
	18.5 kW/25 HP	39 A	MCLTPB0185-5A3-4-30	IP66	4
			MCLTPB0185-5A3-4-40	IP66	4
			MCLTPB0185-5A3-4-10	IP55	4
			MCLTPB0185-503-4-15	IP55	4
			MCLTPB0185-503-4-15	IP55	4
	22 kW/30 HP	46 A	MCLTPB0220-5A3-4-30	IP66	4
			MCLTPB0220-5A3-4-40	IP66	4
			MCLTPB0220-5A3-4-10	IP55	4
			MCLTPB0220-503-4-15	IP55	4
			MCLTPB0220-503-4-15	IP55	4
	30 kW/40 HP	61 A	MCLTPB0300-5A3-4-10	IP55	5
			MCLTPB0300-503-4-15	IP55	5
	37 kW/50 HP	72 A	MCLTPB0370-5A3-4-10	IP55	5
			MCLTPB0370-503-4-15	IP55	5
	45 kW/60 HP	90 A	MCLTPB0450-5A3-4-10	IP55	6
			MCLTPB0450-503-4-15	IP55	6
	55 kW/75 HP	110 A	MCLTPB0550-5A3-4-10	IP55	6
			MCLTPB0550-503-4-15	IP55	6
	75 kW/100 HP	150 A	MCLTPB0750-5A3-4-10	IP55	6
			MCLTPB0750-503-4-15	IP55	6
	90 kW/150 HP	180 A	MCLTPB0900-5A3-4-10	IP55	6
			MCLTPB0900-503-4-15	IP55	6
	110 kW/175 HP	202 A	MCLTPB1100-5A3-4-10	IP55	7
			MCLTPB1100-503-4-15	IP55	7
	132 kW/200 HP	240 A	MCLTPB1320-5A3-4-10	IP55	7
			MCLTPB1320-503-4-15	IP55	7
	160 kW/250 HP	302 A	MCLTPB1600-5A3-4-10	IP55	7
			MCLTPB1600-503-4-15	IP55	7
	200 kW/300 HP	370 A	MCLTPB2000-5A3-4-10	IP55	8
	250 kW/400 HP	480 A	MCLTPB2500-5A3-4-10	IP55	8

Line connection	Motor power	Nominal output current	Type designation	Degree of protection	Size
500 – 600 V 3-phase	0.75 kW/1 HP	2.1 A	MCLTPB0008-603-4-00	IP20	2
			MCLTPB0008-603-4-30	IP66	2
			MCLTPB0008-603-4-40	IP66	2
	1.5 kW/2 HP	3.1 A	MCLTPB0015-603-4-00	IP20	2
			MCLTPB0015-603-4-30	IP66	2
			MCLTPB0015-603-4-40	IP66	2
	2.2 kW/3 HP	4.1 A	MCLTPB0022-603-4-00	IP20	2
			MCLTPB0022-603-4-30	IP66	2
			MCLTPB0022-603-4-40	IP66	2
	4.0 kW/5 HP	6.5 A	MCLTPB0040-603-4-00	IP20	2
			MCLTPB0040-603-4-30	IP66	2
			MCLTPB0040-603-4-40	IP66	2
	5.5 kW/7.5 HP	9 A	MCLTPB0055-603-4-00	IP20	2
			MCLTPB0055-603-4-30	IP66	2
			MCLTPB0055-603-4-40	IP66	2
	7.5 kW/10 HP	12 A	MCLTPB0075-603-4-00	IP20	3
			MCLTPB0075-603-4-30	IP66	3
			MCLTPB0075-603-4-40	IP66	3
	11 kW/15 HP	17 A	MCLTPB0110-603-4-00	IP20	3
			MCLTPB0110-603-4-30	IP66	3
			MCLTPB0110-603-4-40	IP66	3
	15 kW/20 HP	22 A	MCLTPB0150-603-4-00	IP20	3
			MCLTPB0150-603-4-30	IP66	3
			MCLTPB0150-603-4-40	IP66	3
			MCLTPB0150-603-4-10	IP55	4
	18.5 kW/25 HP	28 A	MCLTPB0185-603-4-30	IP66	4
			MCLTPB0185-603-4-40	IP66	4
			MCLTPB0185-603-4-10	IP55	4
	22 kW/30 HP	34 A	MCLTPB0220-603-4-30	IP66	4
			MCLTPB0220-603-4-40	IP66	4
			MCLTPB0220-603-4-10	IP55	4
	30 kW/40 HP	43 A	MCLTPB0300-603-4-30	IP66	4
			MCLTPB0300-603-4-40	IP66	4
			MCLTPB0300-603-4-10	IP55	4
	37 kW/50 HP	54 A	MCLTPB0370-603-4-10	IP55	5
	45 kW/60 HP	65 A	MCLTPB0450-603-4-10	IP55	5
	55 kW/75 HP	78 A	MCLTPB0550-603-4-10	IP55	6
	75 kW/100 HP	105 A	MCLTPB0750-603-4-10	IP55	6
	90 kW/125 HP	130 A	MCLTPB0900-603-4-10	IP55	6
	110 kW/150 HP	150 A	MCLTPB1100-603-4-10	IP55	6
480 – 525 V 3-phase	132 kW	185 A	MCLTPB1320-U03-4-10	IP55	6
	160 kW	205 A	MCLTPB1600-U03-4-10	IP55	6
	185 kW	255 A	MCLTPB1850-U03-4-10	IP55	6
	200 kW	275 A	MCLTPB2000-U03-4-10	IP55	6

1.5 Input voltage ranges

Depending on the model and nominal power, the inverters are designed for direct connection to the following voltage sources:

MOVITRAC® LTP-B			
Nominal voltage according to EN 50160	Power	Connection type	Rated frequency
200 – 240 V ±10%	0.75 – 2.2 kW	1-phase*	50 – 60 Hz ±5%
200 – 240 V ±10%	0.75 – 75 kW	3-phase	
380 – 480 V ±10%	0.75 – 250 kW		
500 – 600 V ±10%	0.75 – 110 kW		
480 – 525 V ±10%	132 – 200 kW		

Units that are connected to a 3-phase supply system are designed for a maximum power grid imbalance of 3% between the phases. For supply systems with a power grid imbalance of more than 3% (for example, in India and parts of the Asia-Pacific region including China), SEW-EURODRIVE recommends that you use input chokes.

INFORMATION



* It is also possible to connect the single-phase inverter to 2 phases of a three-phase power supply system of 200 – 240 V.

INFORMATION



All inverters with degree of protection IP20/NEMA 1 and IP55/NEMA 12K with a 3-phase power supply can also be operated in a single-phase configuration with the corresponding line voltage at device terminals L1 and L2, taking into account a derating of 50% of the output current. Application example with SWER (Single-Wire Earth Return) supply systems.

Excluded from this rule:

- Inverters with degree of protection IP66/NEMA 4X
- Inverters with degree of protection IP55/NEMA 12 with the power ratings 200 kW and 250 kW
- Inverters with a voltage of 3 x AC 480 to 525 V

1.6 Permitted voltage supply systems

- **Voltage supply systems with grounded star point**

Inverters of all protection degrees are intended for operation on TN and TT voltage supply systems with a directly grounded star point.

- **Voltage supply systems with non-grounded star point**

The following inverters can be used on supply systems with a non-grounded star point (e.g. IT systems) after a corresponding conversion (see chapter "Operation in IT Systems"):

- All devices with degree of protection IP20/NEMA 1
- All devices with degree of protection IP66/NEMA 4X
- Devices with 200/250 kW with the IP55/NEMA 12K degree of protection
- Inverters of sizes 4 to 7 with IP55 degree of protection in the LTP-B....-...-15 device variant can be operated directly on an IT system, see chapter "3-phase system AC 380 to 480 V as IT system version – device without filter" (→ 35).

- **Voltage supply systems with grounded outer conductor**

Inverters of any protection degree may be operated only on voltage supply systems with a maximum phase-to-ground AC voltage of 300 V.

1.7 Controls/control signal source

The product includes the following control signal sources:

- Terminals
- Keypad
- Fieldbus

1.8 Operating modes / motor controls

The following operating modes apply for the MOVITRAC® LTP-B frequency inverter:

- U/f controller for asynchronous motors
- VFC speed and torque control for asynchronous motors
- PMVC speed and torque control for synchronous motors
- LSPM speed control for SEW-EURODRIVE motors with LSPM technology
- SYN-R speed control for synchronous reluctance motors
- BLDC speed control for brushless DC motors

1.9 Functions

The MOVITRAC® LTP-B frequency inverter has the following functions:

- Process control (PID controller)
- 8 fixed setpoints
- Flying start function
- Fire mode/emergency mode
- Fieldbus/manual mode switch
- Standby function/energy-saving function
- Parameter lock
- Parameter backup
- DC braking
- Master-slave speed/torque control
- Load distribution
- Hoist function
- Start and stop delay
- Overload management for pump warm-up
- 3-wire control
- Motor potentiometer

1.10 Protection function

The MOVITRAC® LTP-B frequency inverter offers the following protection functions:

- Output short circuit, phase-phase, phase-ground
- Output overcurrent
- Overload protection
 - Inverter responds to overload as described in chapter "Overload capacity".
- Overvoltage fault
 - Set to 123% of the maximum nominal line voltage of the inverter.
- Undervoltage fault
- Overtemperature fault
- Undertemperature fault
 - The inverter is switched off at a temperature below the specified ambient temperature ("Ambient conditions" (→ 23)).
- Line phase failure
 - An enabled inverter switches off with delay depending on the load.
- Thermal motor overload protection according to NEC (National Electrical Code, US)
- Evaluation of TF, TH, KTY84, and PT1000
- Motor phase failure identification in all vector operating modes

1.11 Overload capacity

Inverters

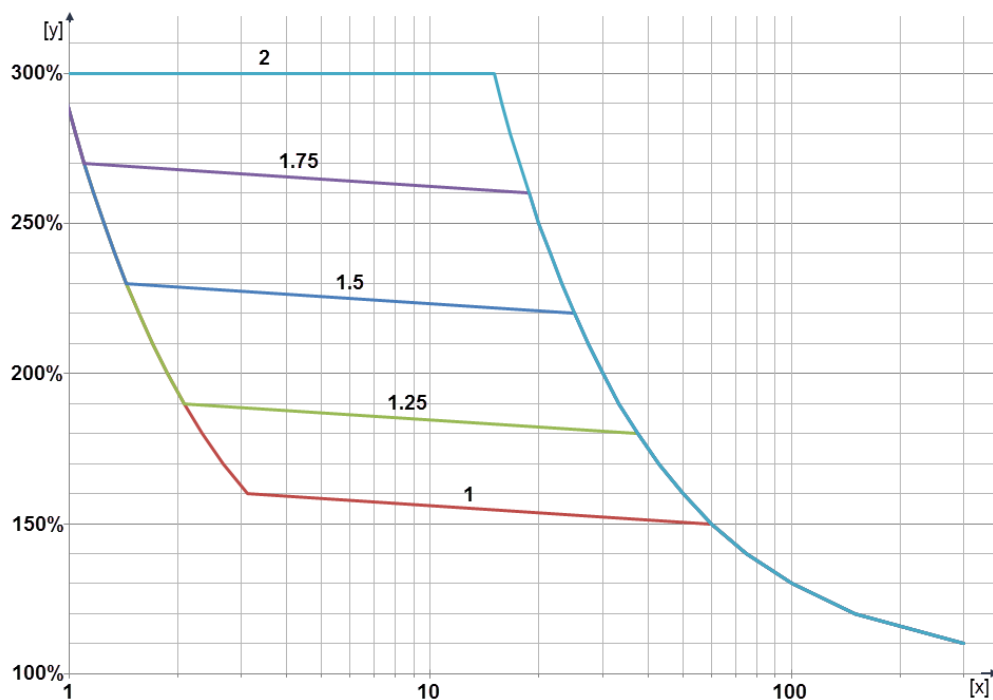
The inverter supplies a constant output current of 100%.

The following table shows the overload capacity based on the nominal inverter current:

Overload capacity based on nominal inverter current	60 s	2 s
MOVITRAC® LTP-B	150%	175%

Motors

The following chart shows the overload capacity of the inverter with regard to the ratio of rated inverter current to the rated motor current:



x = Overload duration in s

y = Motor overload with regard to its rated current

Overload capacity with regard to assignment

MGF...DSM	MOVITRAC® LTP-B	60 seconds	2 seconds
MGF...-2-DSM-B	LTP-B 0015-5A3-4-xx	200%	220%
MGF...-4-DSM-B	LTP-B 0022-5A3-4-xx	190%	220%
MGF...-4-DSM-B/XT	LTP-B 0040-5A3-4-xx	% ¹⁾	% ¹⁾
MGF...-1-DSM-C	LTP-B 0008-5A3-4-xx	% ¹⁾	% ¹⁾
MGF...-2-DSM-C	LTP-B 0015-5A3-4-xx	% ¹⁾	% ¹⁾
MGF...-4-DSM-C	LTP-B 0022-5A3-4-xx	% ¹⁾	% ¹⁾
MGF...-4-DSM-C/XT	LTP-B 0040-5A3-4-xx	% ¹⁾	% ¹⁾

1) In preparation

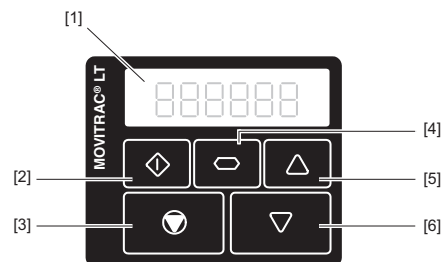
1.12 Keypads

The inverters in IP20 design are equipped with a standard keypad.

The inverters in IP55/IP66 design are equipped with a full text display with language switching function.

Both keypads allow for operation and setup of the inverter without additional devices.

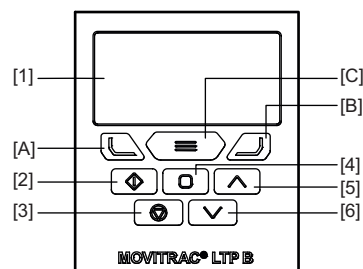
1.12.1 Standard keypad



27021600697887371

- | | |
|-------------------------------|---------------------|
| [1] 6-digit 7-segment display | [4] Navigate button |
| [2] Start button | [5] Up button |
| [3] Stop/Reset button | [6] Down button |

1.12.2 Keypad with full text display



34354222219

- | | |
|--------------------------------------|---------------------|
| [1] Full text display (multilingual) | [4] Navigate button |
| [2] Start button | [5] Up button |
| [3] Stop/Reset button | [6] Down button |

The following keys are only available on IP66 devices with TFT display:

- | |
|---------------------|
| [A] F1 function key |
| [B] F2 function key |
| [C] Info/help menu |

1.13 Markings

The following table explains all markings that can be shown on the nameplate or be appended to the motor.

Mark	Definition
	The CE mark indicates compliance with the following European directives: • Low Voltage Directive 2014/35/EU • EMC Directive 2014/30/EU • Machinery Directive 2006/42/EC • Directive 2011/65/EU for limiting the use of certain hazardous substances in electrical and electronic equipment
	The UKCA mark indicates compliance with British guidelines.
	The China RoHS mark indicates compliance with the directive SJ/T 11364-2014 regarding the restriction of use of certain hazardous substances in electrical and electronic equipment and its packaging.
	The waste disposal of this product is performed in compliance with the WEEE Directive 2012/19/EU.
	The NM mark states the compliance with the following Moroccan guidelines: • Low Voltage Directive No 2573-14 (16 July, 2015) • EMC Directive No 2574-14 (16 July, 2015)
	TÜV/FS mark with code number to identify functional safety relevant components
	The UL and cUL mark indicates UL approval. cUL is equally eligible for approval by the CSA.
	The EAC mark indicates compliance with the requirements of the technical regulations of the Customs Union (Eurasian Economic Union), Armenia, Belarus, Kazakhstan, Kyrgyzstan, and Russia.
	The RCM mark indicates compliance with the technical regulations of the Australian Communications and Media Authority (ACMA).

All products comply with the following international standards:

- UL 508C Power Conversion Equipment
- EN 61800-3:2004/A1:2012 Adjustable-Speed Electrical Drive Systems – Part 3
- EN ISO 13849-1 Safe Torque Off (STO) according to PL d
- Degree of protection according to NEMA 250, EN 60529
- Flammability class according to UL 94

- Protection against environmental influences according to IEC 60721-3-3, IP20 inverter: 3S2/3C2 IP55- & IP66 inverter: 3S3/3C3
- Shock resistance/vibration resistance according to: IEC 60068-2-29, IEC 60068-2-64, IEC 60068-2-6

1.14 Type designation

Example: MCLTPB0015-2B1-4-00 (60 Hz)		
Product name	MCLTP	MOVITRAC® LTP-B
Version	B	Version status of device series
Recommended motor power	0015	0015 = 1.5 kW
Connection voltage	2	2 = 200 to 240 V 5 = 380 to 480 V U = 480 to 525 V 6 = 500 to 600 V
Interference suppression on the input	B	0 = Device without filter (no interference suppression) A = Class C2 B = Class C1
Connection type	1	1 = 1-phase 3 = 3-phase
Quadrants	4	4 = 4-quadrant operation
Design	00	00 = Standard IP20 housing 10 = IP55/NEMA-12K housing 15 = IP55/NEMA-12K housing for operation on IT systems 30 = IP66/NEMA-4X housing without switch 40 = IP66/NEMA-4X housing with switch xH = High-frequency version
Country-specific variant	(60 Hz)	60-Hz design

1.15 Connection of the signal terminals

1.15.1 Main terminals



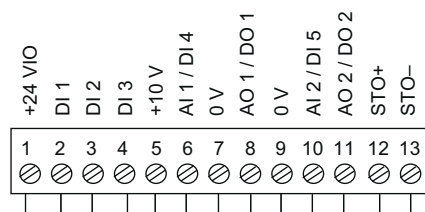
NOTICE

Applying impermissible voltages.

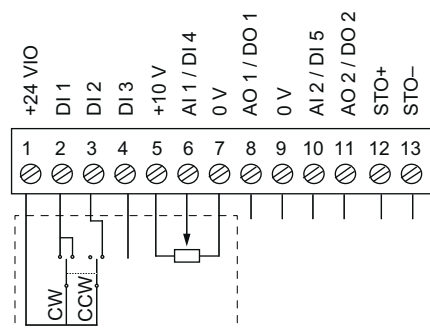
Possible damage to property.

- Do not connect any voltages to the output terminal.
- The voltage applied to the signal terminals must not exceed 30 V.

IP20, IP55, and IP66



IP66 with switch option



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INFORMATION



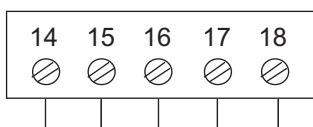
In the device variant IP66 with switch and potentiometer, the assignment to the corresponding terminal functions is connected internally. In the case of the external use of terminals 2, 3, and 6, you can deactivate the internally fitted switches and potentiometers.

For the relevant procedure, refer to chapter "Configuration parameters".

1.15.2 Relay terminals

NOTICE

Do not connect any inductive loads to the relay contact.
Possible damage to property.



Terminal no.	Signal	Relay function selection	Description
14	Relay output 1 supply	P2-15	Relay contact (AC 250 V / DC 30 V, max. 5 A) A brake control must be implemented via a contactor or a brake rectifier.
15	Relay output 1 NO contact		
16	Relay output 1 NC contact		
17	Relay output 2 supply	P2-18	
18	Relay output 2 NO contact		

1.15.3 Signal terminal overview

Digital and analog inputs

Number of DI/AI	3 DI + 2 DI/AI, (+ 3 DI) ¹⁾ .
Functions	Freely parameterizable/scalable
Voltage range DI	DC 0/24 V (max. 30 V)
Voltage range AI	0 – 10 V, 10 – 0 V, -10 – 10 V (scalable)
Current range AI	0 – 20 mA, 4 – 20 mA, 20 – 4 mA (scalable)
DI/AI response time	4 ms
Resolution AI	12 bit
Accuracy AI	+/- 2% in reference to maximum scaling
Temperature sensor	TF, TH, KTY84, PT1000 via AI2
Safe inputs	STO inputs (STO+, STO-)
Internal power supply units	DC 24 V, 100 mA DC 10 V, 10 mA

1) with option card

Digital and analog outputs

Number of DO/AO	2 DO/AO
Functions	Freely parameterizable/scalable
Voltage range DO	DC 0/24 V (max. 20 mA)
Voltage range AO	DC 0 – 10 V, 10 – 0 V

Current range AO	0 – 20 mA, 20 – 0 mA, 4 to 20 mA, 20 to 4 mA
AO/DO response time	64 ms
Resolution AO	10 bit
AO accuracy	+/- 1% in reference to maximum scaling

Relay

Number of relays	2/5 ¹⁾
Functions	Parameterizable
Switching voltage and current	AC 250 V max. 5 A (no inductive loads) DC 30 V max. 5 A (no inductive loads)

1) with option card

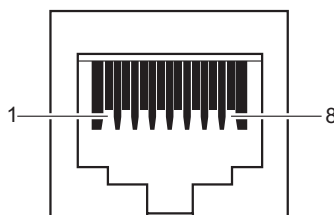
1.16 RJ45 communication socket**NOTICE**

Voltage at socket contact not suitable for PCs.

Damage to PC when connected directly to RJ45 communication socket.

- Use the engineering adapters as described in chapter "Startup with the LT Shell engineering software" (→ 81).
- Inverters with degree of protection IP20/IP55 have one RJ45 socket contact for engineering and communication.
- Inverters with degree of protection IP66 have two RJ45 socket contacts for engineering and communication.

**Socket contact
on the device**



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- [1] SBus-/CAN bus-
- [2] SBus+/CAN bus+
- [3] 0 V
- [4] RS485- (engineering)
- [5] RS485+ (engineering)
- [6] +24 V (output voltage/backup voltage)
- [7] RS485- (Modbus RTU)
- [8] RS485+ (Modbus RTU)

1.17 Coated PCBs

All designs are equipped with partially coated printed circuit boards. This leads to a higher resistance against environmental influences. In case of environments with especially high demands additional measures to protect the frequency inverter are required, for example in case of applications with conducting dusts, fibers or similar materials.

2 Technical data of basic unit

2.1 Electromagnetic compatibility (EMC)

Inverters with EMC filters are designed for use in machines and drive systems. They meet the EMC product standard EN 61800-3 for drives with variable speed. Observe the specifications of Directive 2014/30/EU for EMC-compliant installation of the drive system.

2.1.1 Interference immunity

With regard to interference immunity, the inverter with EMC filter satisfies the limit values of standard EN 61800-3 and can therefore be used both in industrial and household applications (light industry).

2.1.2 Interference emission

With regard to interference emission, the inverter meets the EMC limit values of the standard EN 61800-3:2004. The inverters are suitable for industrial as well as household applications (light industry).

To ensure the best possible electromagnetic compatibility, install the inverters as described in chapter "Installation". In doing so, make sure there are good grounding connections for the inverters. Use shielded motor cables to comply with the specifications on interference emission.

The following table defines the conditions for use in drive applications:

Inverter type	Cat. C1 (class B)	Cat. C2 (class A)	Cat. C3
	according to EN 61800-3		
230 V, 1-phase LTPBxxxx-2B1-x-xx	No additional filtering required. Use a shielded motor cable.		
230 V, 3-phase LTPBxxxx-2A3-x-xx 400 V, 3-phase LTPBxxxx-5A3-x-xx	Use an external filter of type NF LTxxx xxx. Use a shielded motor cable.	No additional filtering required. Use a shielded motor cable.	
575 V, 3-phase LTPBxxxx-603-x-xx 525 V, 3-phase LTPBxxxx-U03-x-xx	These devices are not covered by the EMC standard. Use an external line filter, if necessary, to minimize electromagnetic interference emissions. However, compliance with the aforementioned limit classes cannot be guaranteed. Use a shielded motor cable.		

2.2 Ambient conditions

The following table shows the ambient conditions for the MOVITRAC® LTP-B inverter:

Ambient temperature range during operation (for PWM frequency of 2 kHz)	-10 °C – +50 °C (IP20/NEMA 1) -10 °C – +40 °C (IP55/NEMA 12K) -20 °C – +40 °C (IP66/NEMA 4X)
Derating depending on the ambient temperature	2.5%/°C – 60 °C for inverters with degree of protection IP20/NEMA 1
	3%/°C – 50 °C for inverters with degree of protection IP66/NEMA 4X
	3%/°C – 50 °C for inverters with degree of protection IP55/NEMA 12K
Storage temperature	-40 °C – +60 °C
Maximum installation altitude for nominal operation	1000 m
Derating above 1000 m	1%/100 m – max. 2000 m with UL
	1%/100 m – max. 4000 m without UL
Maximum relative humidity	95% (condensation not permitted)
Unit designs	IP20/NEMA 1 IP55/NEMA 12 K IP66/NEMA 4X

2.3 Technical data of basic device

The "Horsepower" (HP/PS) data is specified as follows.

- 200 to 240 V devices: NEC2002, table 430–150, 230 V
- 380 to 480 V devices: NEC2002, table 430–150, 460 V
- 500 to 600 V devices: NEC2002, table 430–150, 575 V

The uninfluenced short-circuit current according to EN 61800-5-1 is 100 kA.

2.3.1 1-phase system AC 200 – 240 V

Power 0.75 to 2.2 kW (IP20/IP66)

MOVITRAC® LTPB – EMC filter class C1 according to EN 61800-3				
Power in kW		0.75	1.5	2.2
		IP20/NEMA 1		
MCLTPB..		0008-2B1-4-00	0015-2B1-4-00	0022-2B1-4-00
Part number		18251382	18251528	18251641
		IP66/NEMA 4X – housing without switches		
MCLTPB..		0008-2B1-4-30	0015-2B1-4-30	0022-2B1-4-30
Part number		18276512	18276520	18276539
		IP66/NEMA 4X – housing with switches		
MCLTPB..		0008-2B1-4-40	0015-2B1-4-40	0022-2B1-4-40
Part number		18276741	18276768	18276776
INPUT				
Nominal line voltage U _{line} according to EN 50160	V	1 × AC 200 – 240 ±10%		
Line frequency f _{line}	Hz	50/60 ±5%		
Line fuse	A	16 (15) ¹⁾	16 (17.5) ¹⁾	25
Nominal input current	A	8.6	12.9	19.2
OUTPUT				
Recommended motor power	kW	0.75	1.5	2.2
	HP	1	2	3
Output voltage U _{motor}	V	3 × 20 – U _{line}		
Output current	A	4.3	7	10.5
Apparent output power	kVA	1.7	2.8	4.2
PWM frequency	kHz	2/4/6/8/12/16		
Speed range	min ⁻¹	-30000 – 0 – +30000		
Maximum output frequency	Hz	500		
Maximum motor cable length, shielded	m	100		
Maximum motor cable length, unshielded		150		
GENERAL				
Size		2		
Nominal power loss 24 V	W	8		
Minimum braking resistance value	Ω	27		
Maximum device terminal cross section	mm ²	2 × 4 or (6) ²⁾		
Maximum control terminal cross section	mm ²	0.05 – 2.5		

1) Recommended values for UL compliance

2) When using 6 mm², M4 forked cable lugs

2.3.2 3-phase system AC 200 – 240 V

INFORMATION



All inverters with degree of protection IP20/NEMA 1 and IP55/NEMA 12K with a power supply of 3 × AC 200 to 240 V can also be operated with 1 × AC 200 to 240 V at device terminals L1 and L2, taking into account a derating of 50% of the output current. Application example with SWER (Single-Wire Earth Return) supply systems.

Inverters with IP66/NEMA 4X degree of protection are excluded from this rule.

Power 0.75 to 5.5 kW (IP20/IP66)

MOVITRAC® LTPB – EMC filter class C2 according to EN 61800-3							
Power in kW		0.75	1.5	2.2	3	4	5.5 ¹⁾
		IP20/NEMA 1					
MCLTPB..		0008-2A3-4-00	0015-2A3-4-00	0022-2A3-4-00	0030-2A3-4-00	0040-2A3-4-00	0055-2A3-4-00
Part number		18251358	18251471	18251617	18251722	18251765	18251846
		IP66/NEMA 4X – housing without switches					
MCLTPB..		0008-2A3-4-30	0015-2A3-4-30	0022-2A3-4-30	0030-2A3-4-30	0040-2A3-4-30	0055-2A3-4-30
Part number		18276547	18276555	18276563	18276571	18276598	18276601
		IP66/NEMA 4X – housing with switches					
MCLTPB..		0008-2A3-4-40	0015-2A3-4-40	0022-2A3-4-40	0030-2A3-4-40	0040-2A3-4-40	0055-2A3-4-40
Part number		18276784	18276792	18276806	18276814	18276822	18276830
INPUT							
Nominal line voltage U _{line} according to EN 50160	V	3 × AC 200 – 240 ±10%					
Line frequency f _{line}	Hz	50/60 ±5%					
Line fuse	A	10	16 (15) ²⁾	16 (17.5) ²⁾	20 (30) ²⁾	32 (30) ²⁾	32 (35) ²⁾
Nominal input current	A	5.7	10.5	13.2	16.1	20.9	26.4
OUTPUT							
Recommended motor power	kW	0.75	1.5	2.2	3	4	5.5
	HP	1	2	3	4	5	7.5
Output voltage U _{motor}	V	3 × 20 – U _{line}					
Output current	A	4.3	7	10.5	14	18	24
Apparent output power	kVA	1.7	2.8	4.2	5.6	7.2	9.6
PWM frequency	kHz	2/4/6/8/12/16					2/4/6/8
Speed range	min ⁻¹	-30000 – 0 – +30000					
Maximum output frequency	Hz	500					
Max. motor cable length, shielded	m	100					
Max. motor cable length, unshielded		150					
GENERAL							
Size		2			3		
Nominal power loss 24 V	W	8					
Minimum braking resistance value	Ω	27					
Maximum device terminal cross section	mm ²	2 × 4 or (6) ³⁾					
Maximum control terminal cross section	mm ²	0.05 – 2.5					

1) For compatibility reasons, this power rating is available in size 3 (IP66) + size 4 (IP55).

2) Recommended values for UL compliance

3) When using 6 mm², M4 forked cable lugs

Power 5.5 – 18.5 kW (IP55/IP66)

MOVITRAC® LTPB – EMC filter class C2 according to EN 61800-3						
Power in kW		5.5 ¹⁾	7.5	11	15	18.5
		IP55/NEMA 12 K				
MCLTPB..		0055-2A3-4-10	0075-2A3-4-10	0110-2A3-4-10	0150-2A3-4-10	0185-2A3-4-10
Part number		18251854	18251919	18251978	18252036	18252060
		IP66/NEMA 4X – housing without switches				
MCLTPB..		2)	0075-2A3-4-30	0110-2A3-4-30	–	–
Part number		2)	18276628	18276636	–	–
		IP66/NEMA 4X – housing with switches				
MCLTPB..		2)	0075-2A3-4-40	0110-2A3-4-40	–	–
Part number		2)	18276849	18276857	–	–
INPUT						
Nominal line voltage U _{line} according to EN 50160	V	3 × AC 200 – 240 ±10%				
Line frequency f _{line}	Hz	50/60 ±5%				
Line fuse	A	32 (35) ³⁾	40	63 (70) ³⁾	80	100 (90) ³⁾
Nominal input current	A	26.4	33.3	50.1	63.9	74
OUTPUT						
Recommended motor power	kW	5.5	7.5	11	15	18.5
	HP	7.5	10	15	20	25
Output voltage U _{motor}	V	3 × 20 – U _{line}				
Output current	A	24	30	46	61	72
Apparent output power	kVA	9.6	11.9	18.3	24.3	28.7
PWM frequency	kHz	2/4/6/8	2/4/6/8/12			
Speed range	min ⁻¹	-30000 – 0 – +30000				
Maximum output frequency	Hz	500				
Maximum motor cable length, shielded	m	100				
Maximum motor cable length, unshielded		150				
GENERAL						
Size		4			5	
Nominal power loss 24 V	W	11			11.3	
Minimum braking resistance value	Ω	22		12		6
Maximum device terminal cross section	mm ²	16			35	
Maximum control terminal cross section	mm ²	0.05 – 2.5				

1) For compatibility reasons, this power rating is available in size 3 (IP66) + size 4 (IP55).

2) The IP66/NEMA 4X device with this power rating is listed in a previous table.

3) Recommended values for UL compliance

Power 22 – 45 kW (IP55)

MOVITRAC® LTPB – EMC filter class C2 according to EN 61800-3					
Power in kW		22	30	37	45
		IP55/NEMA 12 K			
MCLTPB..		0220-2A3-4-10	0300-2A3-4-10	0370-2A3-4-10	0450-2A3-4-10
Part number		18252087	18252117	18252141	18252176
INPUT					
Nominal line voltage U _{line} according to EN 50160	V	3 × AC 200 – 240 ±10%			
Line frequency f _{line}	Hz	50/60 ±5%			
Line fuse	A	125	160 (150) ¹⁾	200	250 (225) ¹⁾
Nominal input current	A	99.1	121	159.7	187.5
OUTPUT					
Recommended motor power	kW	22	30	37	45
	HP	30	40	50	60
Output voltage U _{motor}	V	3 × 20 – U _{line}			
Output current	A	90	110	150	180
Apparent output power	kVA	35.9	43.8	59.8	71.7
PWM frequency	kHz	2/4/6/8		2/4/6	2/4
Speed range	min ⁻¹	-30000 – 0 – +30000			
Maximum output frequency	Hz	500			
Maximum motor cable length, shielded	m	100			
Maximum motor cable length, un-shielded		150			
GENERAL					
Size		6			
Nominal power loss 24 V	W	11.6			
Minimum braking resistance value	Ω	6	3		
Maximum device terminal cross section		M10 stud with nut, max. 95 mm ² M8 braking resistor connection, max. 70 mm ² Crimp cable lug DIN 46235			
Maximum control terminal cross section	mm ²	0.05 – 2.5			

1) Recommended values for UL compliance

Power 55 – 75 kW (IP55)

MOVITRAC® LTPB – EMC filter class C2 according to EN 61800-3			
Power in kW		55	75
		IP55/NEMA 12 K	
MCLTPB..		0550-2A3-4-10	0750-2A3-4-10
Part number		18252206	18252230
INPUT			
Nominal line voltage U_{line} according to EN 50160	V	3 × AC 200 – 240 ±10%	
Line frequency f_{line}	Hz	50/60 ±5%	
Line fuse	A	250	315 (300) ¹⁾
Nominal input current	A	206.5	246.3
OUTPUT			
Recommended motor power	kW	55	75
	HP	75	100
Output voltage U_{motor}	V	3 × 20 – U_{line}	
Output current	A	202	248
Apparent output power	kVA	80.5	98.8
PWM frequency	kHz	2/4/6/8	2/4/6
Speed range	min ⁻¹	-30000 – 0 – +30000	
Maximum output frequency	Hz	500	
Maximum motor cable length, shielded	m	100	
Maximum motor cable length, unshielded		150	
GENERAL			
Size		7	
Nominal power loss 24 V	W	11.9	
Minimum braking resistance value	Ω	3	
Maximum device terminal cross section		M10 stud with nut, max. 95 mm ² M8 braking resistor connection, max. 70 mm ² Crimp cable lug DIN 46235	
Maximum control terminal cross section	mm ²	0.05 – 2.5	

1) Recommended values for UL compliance

2.3.3 3-phase system AC 380 – 480 V

INFORMATION



All inverters with degree of protection IP20/NEMA 1 and IP55/NEMA 12K with a power supply of 3 × AC 380 – 480 V can also be operated with 1 × AC 380 – 480 V at device terminals L1 and L2, taking into account a derating of 50% of the output current. Application example with SWER (Single-Wire Earth Return) supply systems.

Inverters with degree of protection IP66/NEMA 4X are excluded from this rule.

Inverters with degree of protection IP55/NEMA 12 with the power ratings 200 kW and 250 kW are excluded from this rule.

Power 0.75 to 11 kW (IP20/IP66)

MOVITRAC® LTPB – EMC filter class C2 according to EN 61800-3								
Power in kW		0.75	1.5	2.2	4	5.5	7.5	11 ¹⁾
		IP20/NEMA 1						
MCLTPB..		0008-5A3-4-00	0015-5A3-4-00	0022-5A3-4-00	0040-5A3-4-00	0055-5A3-4-00	0075-5A3-4-00	0110-5A3-4-00
Part number		18251412	18251552	18251684	18251803	18251870	18251927	18251986
		IP66/NEMA 4X – housing without switches						
MCLTPB..		0008-5A3-4-30	0015-5A3-4-30	0022-5A3-4-30	0040-5A3-4-30	0055-5A3-4-30	0075-5A3-4-30	0110-5A3-4-30
Part number		18276644	18276652	18276660	18276679	18276687	18276695	18276709
		IP66/NEMA 4X – housing with switches						
MCLTPB..		0008-5A3-4-40	0015-5A3-4-40	0022-5A3-4-40	0040-5A3-4-40	0055-5A3-4-40	0075-5A3-4-40	0110-5A3-4-40
Part number		18276865	18276873	18276881	18276903	18276911	18276938	18276946
INPUT								
Nominal line voltage U _{line} according to EN 50160	V	3 × AC 380 – 480 ±10%						
Line frequency f _{line}	Hz	50/60 ±5%						
Line fuse	A	6	10		16 (15) ²⁾	25	32 (30) ²⁾	40 (35) ²⁾
Nominal input current	A	3.5	5.6	7.5	11.5	17.2	21.8	27.5
OUTPUT								
Recommended motor power	kW	0.75	1.5	2.2	4	5.5	7.5	11
	HP	1	2	3	5	7.5	10	15
Output voltage U _{motor}	V	3 × 20 – U _{line}						
Output current	A	2.2	4.1	5.8	9.5	14	18	24
Apparent output power	kVA	1.5	2.8	4.0	6.6	9.7	12.5	16.6
PWM frequency	kHz	2/4/6/8/12/16				2/4/6/8/12		2/4/6/8
Speed range	min ⁻¹	-30000 – 0 – +30000						
Maximum output frequency	Hz	500						
Max. motor cable length, shielded	m	100						
Max. motor cable length, unshielded		150						
GENERAL								
Size		2				3		
Nominal power loss 24 V	W	8				10		
Minimum braking resistance value	Ω	68				39		

MOVITRAC® LTPB – EMC filter class C2 according to EN 61800-3								
Power in kW		0.75	1.5	2.2	4	5.5	7.5	11 ¹⁾
Maximum device terminal cross section	mm²	2 × 4 or (6) ³⁾						
Maximum control terminal cross section	mm²	0.05 – 2.5						

- 1) For compatibility reasons, this power rating is available in size 3 (IP66) + size 4 (IP55).
- 2) Recommended values for UL compliance
- 3) When using 6 mm², M4 forked cable lugs

Power 11 – 37 kW (IP55/IP66)

MOVITRAC® LTPB – EMC filter class C2 according to EN 61800-3							
Power in kW		11 ¹⁾	15	18.5	22	30	37
		IP55/NEMA 12 K					
MCLTPB..		0110-5A3-4-10	0150-5A3-4-10	0185-5A3-4-10	0220-5A3-4-10	0300-5A3-4-10	0370-5A3-4-10
Part number		18251994	18252044	18252079	18252095	18252125	18252168
		IP66/NEMA 4X – housing without switches					
MCLTPB..		2)	0150-5A3-4-30	0185-5A3-4-30	0220-5A3-4-30	–	–
Part number		2)	18276717	18276725	18276733	–	–
		IP66/NEMA 4X – housing with switches					
MCLTPB..		2)	0150-5A3-4-40	0185-5A3-4-40	0220-5A3-4-40	–	–
Part number		2)	18276954	18276962	18276970	–	–
INPUT							
Nominal line voltage U _{line} according to EN 50160	V	3 × AC 380 – 480 ±10%					
Line frequency f _{line}	Hz	50/60 ±5%					
Line fuse	A	40 (35) ³⁾	50 (45) ³⁾	63 (60) ³⁾	63 (70) ³⁾	80	100
Nominal input current	A	27.5	34.2	44.1	51.9	66.1	77.3
OUTPUT							
Recommended motor power	kW	11	15	18.5	22	30	37
	HP	15	20	25	30	40	50
Output voltage U _{motor}	V	3 × 20 – U _{line}					
Output current	A	24	30	39	46	61	72
Apparent output power	kVA	16.6	20.8	27.0	31.9	42.3	49.9
PWM frequency	kHz	2/4/6/8	2/4/6/8/12				
Speed range	min ⁻¹	-30000 – 0 – +30000					
Maximum output frequency	Hz	500					
Max. motor cable length, shielded	m	100					
Max. motor cable length, unshielded		150					
GENERAL							
Size		4				5	
Nominal power loss 24 V	W	16.7				19.8	
Minimum braking resistance value	Ω	39	22			12	
Maximum device terminal cross section	mm ²	16				35	
Maximum control terminal cross section	mm ²	0.05 – 2.5					

1) For compatibility reasons, this power rating is available in size 3 (IP66) + size 4 (IP55).

2) The IP66/NEMA 4X device with this power rating is listed in a previous table.

3) Recommended values for UL compliance

Power 45 – 90 kW (IP55)

MOVITRAC® LTPB – EMC filter class C2 according to EN 61800-3					
Power in kW		45	55	75	90
		IP55/NEMA 12 K			
MCLTPB..		0450-5A3-4-10	0550-5A3-4-10	0750-5A3-4-10	0900-5A3-4-10
Part number		18252184	18252214	18252249	18252273
INPUT					
Nominal line voltage U_{line} according to EN 50160	V	3 × AC 380 – 480 ±10%			
Line frequency f_{line}	Hz	50/60 ±5%			
Line fuse	A	125	150 (175) ¹⁾	200	250
Nominal input current	A	102.7	126.4	164.7	192.1
OUTPUT					
Recommended motor power	kW	45	55	75	90
	HP	60	75	100	150
Output voltage U_{motor}	V	3 × 20 – U_{line}			
Output current	A	90	110	150	180
Apparent output power	kVA	62.4	76.2	103.9	124.7
PWM frequency	kHz	2/4/6/8		2/4/6	2/4
Speed range	min ⁻¹	-30000 – 0 – +30000			
Maximum output frequency	Hz	500			
Max. motor cable length, shielded	m	100			
Max. motor cable length, unshielded		150			
GENERAL					
Size		6			
Nominal power loss 24 V	W	31.1			
Minimum braking resistance value	Ω	6			
Maximum device terminal cross section		M10 stud with nut, max. 95 mm ² M8 braking resistor connection, max. 70 mm ² Crimp cable lug DIN 46235			
Maximum control terminal cross section	mm ²	0.05 – 2.5			

1) Recommended values for UL compliance

Power 110 – 160 kW (IP55)

MOVITRAC® LTPB – EMC filter class C2 according to EN 61800-3				
Power in kW		110	132	160
		IP55/NEMA 12 K		
MCLTPB..		1100-5A3-4-10	1320-5A3-4-10	1600-5A3-4-10
Part number		18252303	18252311	18252346
INPUT				
Nominal line voltage U _{line} according to EN 50160	V	3 × AC 380 – 480 ±10%		
Line frequency f _{line}	Hz	50/60 ±5%		
Line fuse	A	250 (300) ¹⁾	315 (300) ¹⁾	400
Nominal input current	A	210.8	241	299
OUTPUT				
Recommended motor power	kW	110	132	160
	HP	175	200	250
Output voltage U _{motor}	V	3 × 20 – U _{line}		
Output current	A	202	240	302
Apparent output power	kVA	139.9	166.3	209.2
PWM frequency	kHz	2/4/6/8	2/4/6	2/4
Speed range	min ⁻¹	-30000 – 0 – +30000		
Maximum output frequency	Hz	500		
Maximum motor cable length, shielded	m	100		
Maximum motor cable length, unshielded		150		
GENERAL				
Size		7		
Nominal power loss 24 V	W	38.5		
Minimum braking resistance value	Ω	6		
Maximum device terminal cross section		M10 stud with nut, max. 95 mm ² M8 braking resistor connection, max. 70 mm ² Crimp cable lug DIN 46235		
Maximum control terminal cross section	mm ²	0.05 – 2.5		

1) Recommended values for UL compliance

Power 200 to 250 kW (IP55)

MOVITRAC® LTPB – EMC filter class C2 according to EN 61800-3			
Power in kW		200	250
		IP55/NEMA 12 K	
MCLTPB..		2000-5A3-4-10	2500-5A3-4-10
Part number		18290647	18290655
INPUT			
Nominal line voltage U_{line} according to EN 50160	V	3 × AC 380 – 480 ±10%	
Line frequency f_{line}	Hz	50/60 ±5%	
Line fuse	A	500	600
Nominal input current	A	370	480
OUTPUT			
Recommended motor power	kW	200	250
	HP	300	400
Output voltage U_{motor}	V	3 × 20 – U_{line}	
Output current	A	370	480
Apparent output power	kVA	256	333
PWM frequency	kHz	2/4/6/8	
Speed range	min ⁻¹	-30000 – 0 – +30000	
Maximum output frequency	Hz	500	
Maximum motor cable length, shielded	m	100	
Maximum motor cable length, unshielded		150	
GENERAL			
Size		8	
Nominal power loss 24 V	W	47	50
Minimum braking resistance value	Ω	3	
Maximum device terminal cross section		M12 stud with nut, max. 240 mm ² M12 braking resistor connection, max. 240 mm ² Crimp cable lug DIN 46235	
Maximum control terminal cross section	mm ²	0.05 – 2.5	

2.3.4 3-phase system AC 380 – 480 V as an IT system version – device without filter

INFORMATION



The listed inverters have no EMC filter and are only suitable for IT systems.

The technical data correspond to the 3 × 380 – 480 V standard devices with the exception of the filter class.

All inverters with IP66/NEMA 4X degree of protection (0.75 – 11 kW) can be directly converted by the user for operation on the IT system.

MOVITRAC® LTP-B – IT system version – devices without filter

Power rating	Size	Housing	Type designation	Part number
11	4	IP55/NEMA 12K housing without switches	MC LTP-B0110-503-4-15	18265650
15	4	IP55/NEMA 12K housing without switches	MC LTP-B0150-503-4-15	18265669
18.5	4	IP55/NEMA 12K housing without switches	MC LTP-B0185-503-4-15	18265677
22	4	IP55/NEMA 12K housing without switches	MC LTP-B0220-503-4-15	18265685
30	5	IP55/NEMA 12K housing without switches	MC LTP-B0300-503-4-15	18265693
37	5	IP55/NEMA 12K housing without switches	MC LTP-B0370-503-4-15	18265707
45	6	IP55/NEMA 12K housing without switches	MC LTP-B0450-503-4-15	18265715
55	6	IP55/NEMA 12K housing without switches	MC LTP-B0550-503-4-15	18265723
75	6	IP55/NEMA 12K housing without switches	MC LTP-B0750-503-4-15	18265731
90	6	IP55/NEMA 12K housing without switches	MC LTP-B0900-503-4-15	18265758
110	7	IP55/NEMA 12K housing without switches	MC LTP-B1100-503-4-15	18265766
132	7	IP55/NEMA 12K housing without switches	MC LTP-B1320-503-4-15	18265774
160	7	IP55/NEMA 12K housing without switches	MC LTP-B1600-503-4-15	18265782

Inverters of size 8 (200 to 250 kW) with degree of protection IP55/NEMA 12K without switches can be directly converted by the user for operation on the IT system.

2.3.5 3-phase system AC 500 – 600 V

INFORMATION



All inverters with degree of protection IP20/NEMA 1 and IP55/NEMA 12K with a power supply of 3 × AC 500 to 600 V can also be operated with 1 × AC 500 to 600 V at device terminals L1 and L2, taking into account a derating of 50% of the output current. Application example with SWER (Single-Wire Earth Return) supply systems.

Inverters with IP66/NEMA 4X degree of protection are excluded from this rule.

Power 0.75 – 5.5 kW (IP20/IP66)

MOVITRAC® LTP-B						
Power in kW		0.75	1.5	2.2	4	5.5
		IP20/NEMA 1				
MCLTPB..		0008-603-4-00	0015-603-4-00	0022-603-4-00	0040-603-4-00	0055-603-4-00
Part number		18251447	18251587	18251714	18410812	18410839
		IP66/NEMA 4X – housing without switches				
MCLTPB..		0008-603-4-30	0015-603-4-30	0022-603-4-30	0040-603-4-30	0055-603-4-30
Part number		18277551	18277578	18277586	18277594	18277608
		IP66/NEMA 4X – housing with switches				
MCLTPB..		0008-603-4-40	0015-603-4-40	0022-603-4-40	0040-603-4-40	0055-603-4-40
Part number		18277675	18277683	18277691	18277705	18277713
INPUT						
Nominal line voltage U _{line} according to EN 50160	V	3 × AC 500 – 600 ±10%				
Line frequency f _{line}	Hz	50/60 ±5%				
Line fuse	A	10 (6) ¹⁾ .		10		16 (15) ¹⁾ .
Nominal input current	A	2.5	3.7	4.9	7.8	10.8
OUTPUT						
Recommended motor power	kW	0.75	1.5	2.2	4	5.5
	HP	1	2	3	5	7.5
Output voltage U _{motor}	V	3 × 20 – U _{line}				
Output current	A	2.1	3.1	4.1	6.5	9
Apparent output power	kVA	2.1	3.1	4.1	6.5	9.0
PWM frequency	kHz	2/4/6/8/12				
Speed range	min ⁻¹	-30000 – 0 – +30000				
Maximum output frequency	Hz	500				
Max. motor cable length, shielded	m	100				
Max. motor cable length, unshielded		150				
GENERAL						
Size		2				
Nominal power loss 24 V	W	8				
Minimum braking resistance value	Ω	68				
Maximum device terminal cross section	mm ²	2 × 4 or (6) ²⁾				
Maximum control terminal cross section	mm ²	0.05 – 2.5				

1) Recommended values for UL compliance

2) When using 6 mm², M4 forked cable lugs

Power 7.5 – 15 kW (IP20/IP66)

MOVITRAC® LTP-B				
Power in kW		7.5	11	15 ¹⁾
		IP20/NEMA 1		
MCLTPB..		0075-603-4-00	0110-603-4-00	0150-603-4-00
Part number		18410855	18410863	18410871
		IP66/NEMA 4X – housing without switches		
MCLTPB..		0075-603-4-30	0110-603-4-30	0150-603-4-30
Part number		18277616	18277624	18277632
		IP66/NEMA 4X – housing with switches		
MCLTPB..		0075-603-4-40	0110-603-4-40	0150-603-4-40
Part number		18277721	18277748	18277756
INPUT				
Nominal line voltage U _{line} according to EN 50160	V	3 × AC 500 – 600 ±10%		
Line frequency f _{line}	Hz	50/60 ±5%		
Line fuse	A	16 (20) ²⁾	25 (30) ²⁾	32 (35) ²⁾
Nominal input current	A	14.4	20.6	26.7
OUTPUT				
Recommended motor power	kW	7.5	11	15
	HP	10	15	20
Output voltage U _{motor}	V	3 × 20 - U _{line}		
Output current	A	12	17	22
Apparent output power	kVA	12.0	16.9	21.9
PWM frequency	kHz	2/4/6/8/12		
Speed range	min ⁻¹	-30000 – 0 – +30000		
Maximum output frequency	Hz	500		
Max. motor cable length, shielded	m	100		
Max. motor cable length, unshielded		150		
GENERAL				
Size		3		
Nominal power loss 24 V	W	10		
Minimum braking resistance value	Ω	39		
Maximum device terminal cross section	mm ²	2 × 4 or (6) ³⁾		
Maximum control terminal cross section	mm ²	0.05 – 2.5		

1) For compatibility reasons, this power rating is available in size 3 (IP66) + size 4 (IP55).

2) Recommended values for UL compliance

3) When using 6 mm², M4 forked cable lugs

Power 15 – 30 kW (IP55/IP66)

MOVITRAC® LTP-B					
Power in kW		15 ¹⁾	18.5	22	30
		IP55/NEMA 12 K			
MCLTPB..		0150-603-4-10	0185-603-4-10	0220-603-4-10	0300-603-4-10
Part number		18252052	18410898	18252109	18252133
		IP66/NEMA 4X – housing without switches			
MCLTPB..	2)	0185-603-4-30	0220-603-4-30	0300-603-4-30	
Part number	2)	18277640	18277659	18277667	
		IP66/NEMA 4X – housing with switches			
MCLTPB..	2)	0185-603-4-40	0220-603-4-40	0300-603-4-40	
Part number	2)	18277764	18277772	18277780	
INPUT					
Nominal line voltage U _{line} according to EN 50160	V	3 × AC 500 – 600 ±10%			
Line frequency f _{line}	Hz	50/60 ±5%			
Line fuse	A	32(35) ³⁾	40(45) ³⁾	50(60) ³⁾	63(60) ³⁾
Nominal input current	A	26.7	34	41.2	48
OUTPUT					
Recommended motor power	kW	15	18.5	22	30
	HP	20	25	30	40
Output voltage U _{motor}	V	3 × 20 - U _{line}			
Output current	A	22	28	34	43
Apparent output power	kVA	21.9	27.9	33.9	42.8
PWM frequency	kHz	2/4/6/8/12			
Speed range	min ⁻¹	-30000 – 0 – +30000			
Maximum output frequency	Hz	500			
Max. motor cable length, shielded	m	100			
Max. motor cable length, unshielded		150			
GENERAL					
Size		4			
Nominal power loss 24 V	W	16.7			
Minimum braking resistance value	Ω	39	22		
Maximum device terminal cross section	mm ²	16			
Maximum control terminal cross section	mm ²	0.05 – 2.5			

1) For compatibility reasons, this power rating is available in size 3 (IP66) + size 4 (IP55).

2) The IP66/NEMA 4X device with this power rating is listed in a previous table.

3) Recommended values for UL compliance

Power 37 – 110 kW (IP55)

MOVITRAC® LTP-B							
Power in kW		37	45	55	75	90	110
		IP55/NEMA 12 K					
MCLTPB..		0370-603-4-10	0450-603-4-10	0550-603-4-10	0750-603-4-10	0900-603-4-10	1100-603-4-10
Part number		18410901	18252192	18252222	18252257	18252281	18410928
INPUT							
Nominal line voltage U _{line} according to EN 50160	V	3 × AC 500 – 600 ±10%					
Line frequency f _{line}	Hz	50/60 ±5%					
Line fuse	A	80	100	125	125 (150) ¹⁾	160 (175) ¹⁾	200
Nominal input current	A	62.2	75.8	90.9	108.2	127.7	160
OUTPUT							
Recommended motor power	kW	37	45	55	75	90	110
	HP	50	60	75	100	125	150
Output voltage U _{motor}	V	3 × 20 – U _{line}					
Output current	A	54	65	78	105	130	150
Apparent output power	kVA	53.8	64.7	77.7	104.6	129.5	149.4
PWM frequency	kHz	2/4/6/8/12		2/4/6/8		2/4/6	
Speed range	min ⁻¹	-30000 – 0 – +30000					
Maximum output frequency	Hz	500					
Max. motor cable length, shielded	m	100					
Max. motor cable length, unshielded		150					
GENERAL							
Size		5		6			
Nominal power loss 24 V	W	19.8		31.1			
Minimum braking resistance value	Ω	22		12		6	
Maximum device terminal cross section	mm ²	35		M10 stud with nut, max. 95 mm ² M8 braking resistor connection, max. 70 mm ² Crimp cable lug DIN 46235			
Maximum control terminal cross section	mm ²	0.05 – 2.5					

1) Recommended values for UL compliance

2.3.6 3-phase system AC 480 – 525 V

INFORMATION



The following devices do not have UL/cUL approval. The recommended motor power is therefore not specified in HP.

Power 132 – 200 kW (IP55)

MOVITRAC® LTP-B					
Power in kW		132	160	185	200
		IP55/NEMA 12 K			
MCLTPB..		1320-U03-4-10	1600-U03-4-10	1850-U03-4-10	2000-U03-4-10
Part number		18298699	18298702	18298710	18298729
INPUT					
Nominal line voltage U _{line} according to EN 50160	V	3 × AC 480 – 525 ±10%			
Line frequency f _{line}	Hz	50/60 ±5%			
Line fuse	A	250	315	315	400
Nominal input current	A	192	215	262	275
OUTPUT					
Recommended motor power	kW	132	160	185	200
	HP	Not specified; see information.			
Output voltage U _{motor}	V	3 × 20 – U _{line}			
Output current	A	185	205	255	275
Apparent output power	kVA	168.2	186.4	231.9	250.1
PWM frequency	kHz	2/4/6/8	2/4/6	2/4	
Speed range	min ⁻¹	-30000 – 0 – +30000			
Maximum output frequency	Hz	500			
Max. motor cable length, shielded	m	100			
Max. motor cable length, unshielded		150			
GENERAL					
Size		7			
Nominal power loss 24 V	W	29.7			
Minimum braking resistance value	Ω	7			
Maximum device terminal cross section	mm ²	M10 stud with nut, max. 95 mm ² M8 braking resistor connection, max. 70 mm ² Crimp cable lug DIN 46235			
Maximum control terminal cross section	mm ²	0.05 – 2.5			

2.4 Housing variants and dimensions

2.4.1 Housing variants

The inverter is available with the following housing variants:

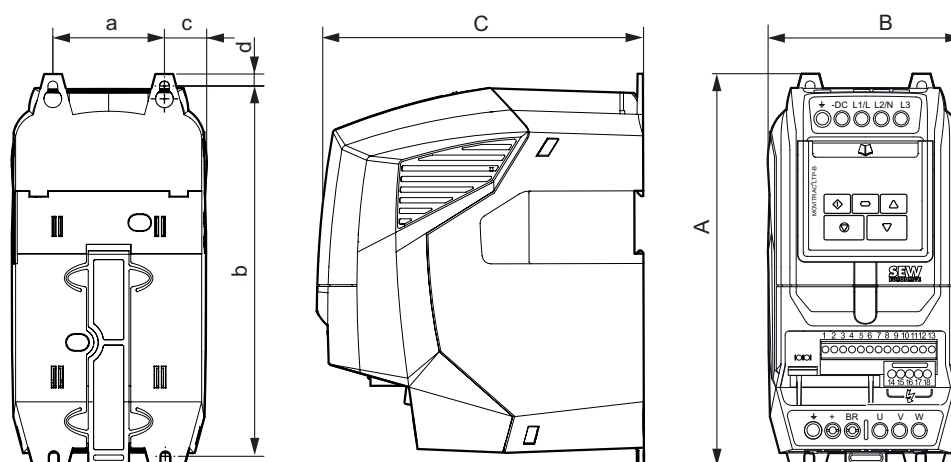
- IP20/NEMA-1 housing for use in control cabinets
- IP66/NEMA-4X housing without switch option
- IP66/NEMA-4X housing with switch option
- IP55/NEMA-12K housing

The IP66/NEMA-4X housing is protected against moisture and dust. These frequency inverters can be operated indoors in a dusty or damp environment.

The device variant IP66/NEMA-4X housing with switch options is fitted with a main switch, a direction of rotation switch, and a potentiometer.

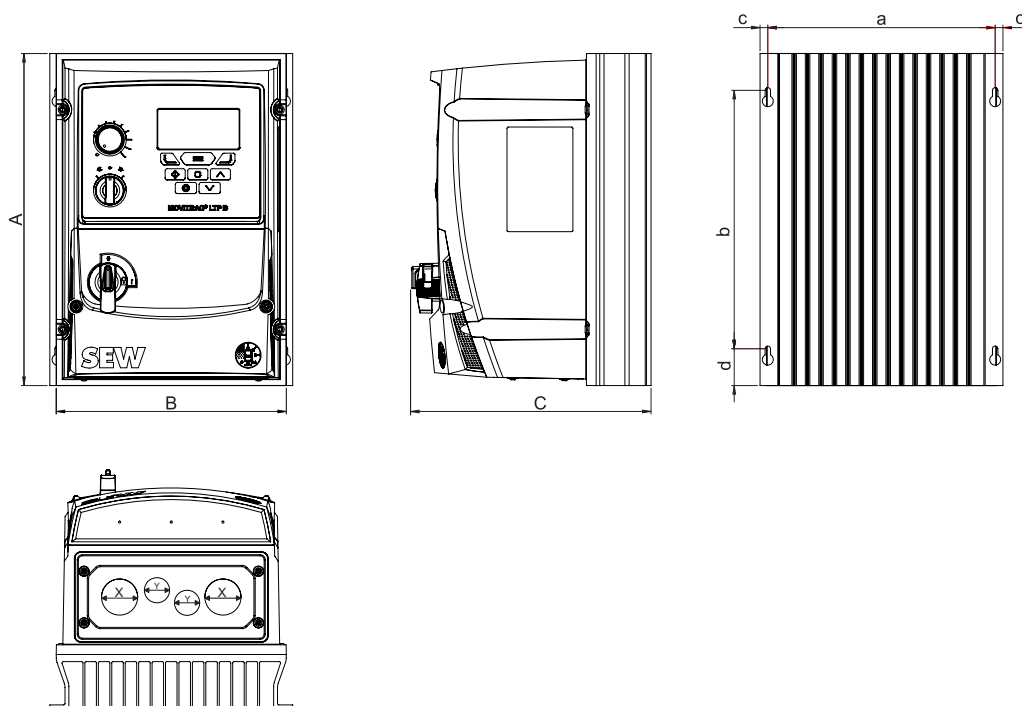
The IP55/NEMA-12K housing also protects against moisture and dust according to the IP degree of protection. These frequency inverters can also be operated indoors outside the control cabinet.

2.4.2 Dimensions of IP20/NEMA 1 housings (LTP xxx -00)



Dimension		230 V: 0.75 – 2.2 kW 400 V: 0.75 – 4 kW 575 V: 0.75 – 5.5 kW	230 V: 3 – 5.5 kW 400 V: 5.5 – 11 kW 575 V: 7.5 – 15 kW
Height (A)	mm	221	261
Width (B)	mm	110	131
Depth (C)	mm	185	205
Mass	kg	1.8	3.5
a	mm	63	80
b	mm	209	247
c	mm	23.5	25.5
d	mm	6	7
Recommended screw size		4 × M4	

2.4.3 Dimensions of IP66/NEMA-4X housings (LTP xxx -30 and -40)



Dimension		230 V: 0.75 – 2.2 kW 400 V: 0.75 – 4 kW 575 V: 0.75 – 5.5 kW	230 V: 3 – 5.5 kW 400 V: 5.5 – 11 kW 575 V: 7.5 – 15 kW	230 V: 7.5 – 11 kW 400 V: 15 – 22 kW 575 V: 18.5 – 30 kW
Size		2	3	4
Height (A)	mm	257	310	360
Width (B)	mm	188	211	240
Depth (C)	mm	182 ¹⁾	235 ¹⁾	271 ¹⁾
Mass	kg	4.3	7.9	9.6
a	mm	176	197	227
b	mm	200	252	300
c	mm	5	7	6.5
d	mm	28.5	33.5	33
Recommended screw size		4 × M4		
X ²⁾	mm	27.2	27.2	37
	PG/M ³⁾	PG21/M25	PG21/M25	PG29/M32
Y ⁴⁾	mm	20.4		
	PG/M ³⁾	PG13.5/M20	PG13.5/M20	PG13.5/M20

1) Devices without a switch option are 10 mm shorter in depth.

2) Cable bushing X is open ex works. Additional rubber seals are included for metric screw fittings.

3) The specified data refers to plastic screw fittings.

4) Cable bushing Y is open ex works but sealed with a cover.

2.4.4 Dimensions of IP55/NEMA 12K housings (LTP xxx -10 and -15)

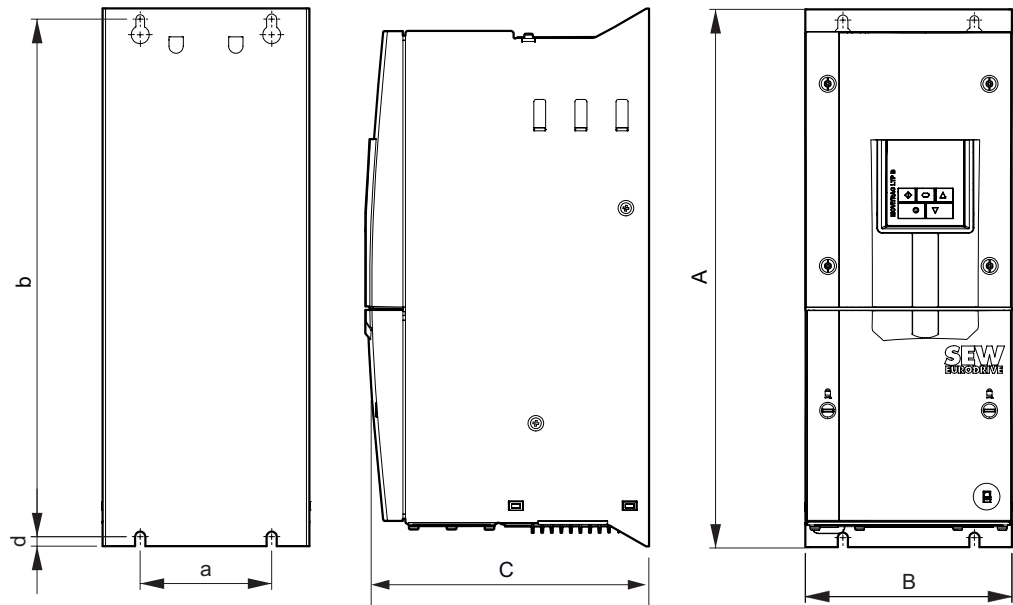


NOTICE

Residual particles after drilling the cable entries can damage the device.

Device can be damaged by a short circuit

- Carefully remove all particles on and in the inverter after drilling.

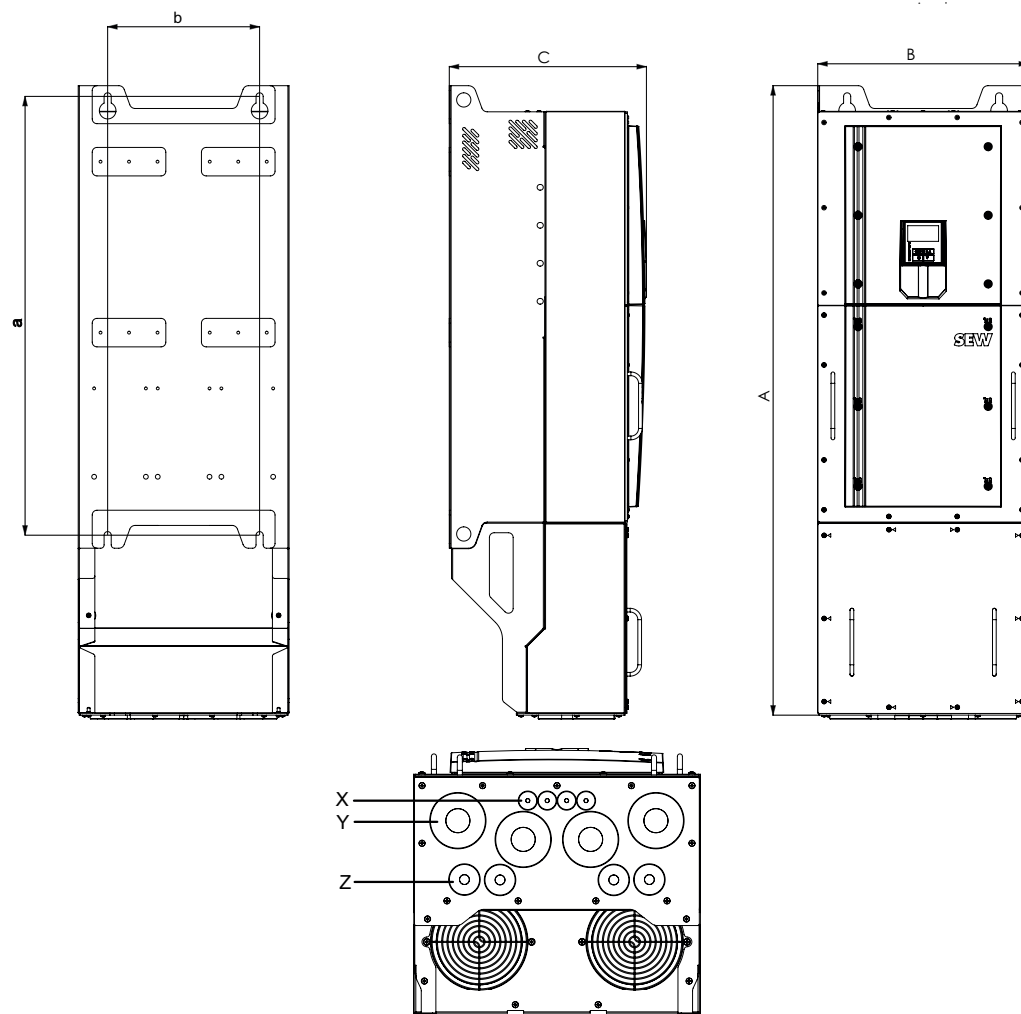


There are no holes in the cable entry plate of devices of sizes 4 – 7. These must be drilled or punched by the user.

Dimension		230 V: 5.5 – 11 kW 400 V: 11 – 22 kW 575 V: 15 – 30 kW	230 V: 15 – 18.5 kW 400 V: 30 – 37 kW 575 V: 37 – 45 kW	230 V: 22 – 45 kW 400 V: 45 – 90 kW 575 V: 55 – 110 kW	230 V: 55 – 75 kW 400 V: 110 – 160 kW 525 V: 132 – 200 kW
Size		4	5	6	7
Height (A)	mm	450	540	865	1280
Width (B)	mm	171	235	330	330
Depth (C)	mm	250	268	335	365
Mass	kg	11.5	23	55	89
a	mm	110	175	200	200
b	mm	433	520	840	1255
c	mm	30.5	30	65	65
d	mm	11	10	12.5	12.5
Recommended screw size		4 × M8		4 × M10	

2 Technical data of basic unit

Housing variants and dimensions



Cable bushings X, Y, and Z are open ex works and sealed with rubber bushings.

Dimension		400 V: 200 – 250 kW
Height [A]	mm	1325
Width [B]	mm	444
Depth [C]	mm	415
Size		8
Mass	kg	130
a	mm	924
b	mm	320
Recommended screw size	mm	4 × M12
X	mm	22.5
Y	mm	76.5
Z	mm	40.5

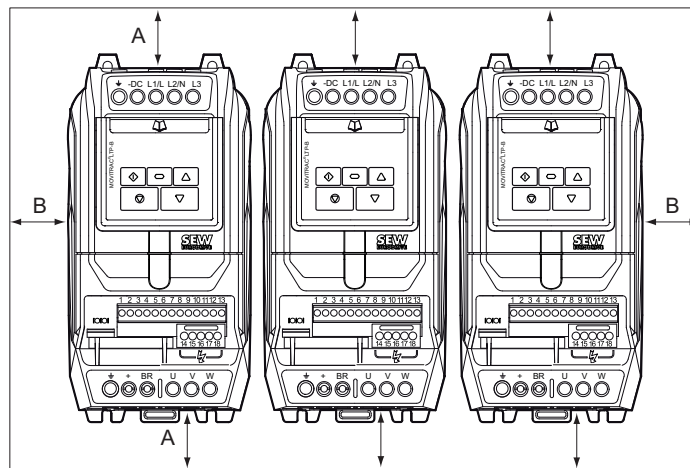
- [X] Signal and communication cables
- [Y] Line and motor connections
- [Z] Braking resistor connections and other cables

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2.5 IP20 housing: Installation and installation space

Inverters with degree of protection IP20 must be installed in a control cabinet. Observe the following requirements:

- The control cabinet must be made of heat-conducting material, unless it has forced air cooling.
- If you use a control cabinet with ventilation openings, the openings must be provided below and above the inverter. This way, you ensure good air circulation. The air must be supplied underneath the inverter and extracted above it.
- If the outer surroundings contain particles such as dust, install a suitable particle filter on the ventilation openings and use forced air cooling. Clean and maintain the filter.
- In environments with high humidity, salt or chemicals concentrations, use a closed control cabinet (without ventilation openings).
- You can install the inverters in IP20 directly next to each other without spacing.



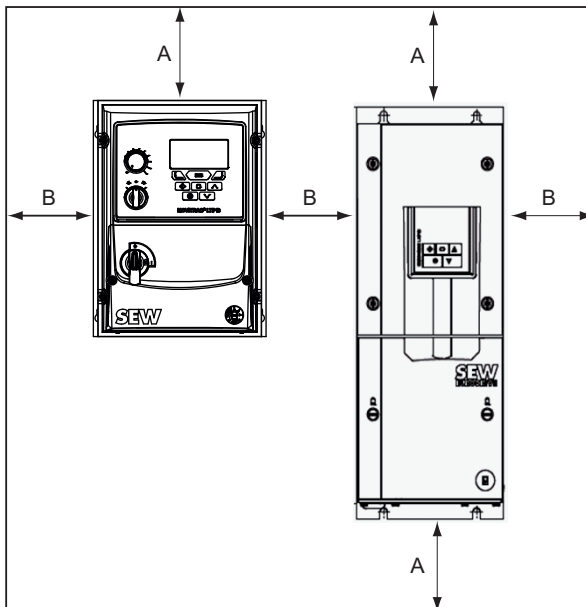
9007217213259787

Inverter power rating	A in mm	B in mm	Air flow rate per in- verter
230 V: 0.75 – 2.2 kW (IP20) 400 V: 0.75 – 4 kW (IP20) 575 V: 0.75 – 5.5 kW (IP20)	75	10	>18 m³/h
230 V: 3 – 5.5 kW (IP20) 400 V: 5.5 – 11 kW (IP20) 575 V: 7.5 – 15 kW (IP20)	100	10	>54 m³/h

2.6 IP55/IP66 housing: Installation and control cabinet dimensions

Inverters with IP55/IP66 degree of protection can be used indoors.

The minimum distances in control cabinets or in the field must not be less than the ones shown here.



Power rating of the inverter	A in mm	B in mm	Cooling
200 to 240 V			
0.75 to 4 kW (IP66)	200	10	Convection
5.5 to 11 kW (IP66)	200	10	Fan
5.5 to 75 kW (IP55)	200	10	Fan
380 to 480 V			
0.75 to 7.5 kW (IP66)	200	10	Convection
11 to 22 kW (IP66)	200	10	Fan
11 to 160 kW (IP55)	200	10	Fan
200 to 250 kW (IP55)	350	50	Fan
500 to 600 V			
0.75 to 11 kW (IP66)	200	10	Convection
15 to 30 kW (IP66)	200	10	Fan
15 to 110 kW (IP55)	200	10	Fan
480 to 525 V			
132 to 200 kW (IP55)	200	10	Fan



INFORMATION

If the IP55/IP66 inverter is installed in a control cabinet, it must be ensured that the control cabinet is sufficiently ventilated. The control cabinet ventilation is dimensioned by the control cabinet manufacturer in consideration of all heat sources.

3 Operator terminals

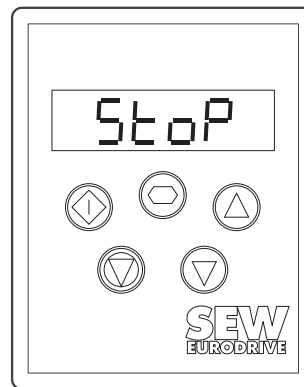
The MOVITRAC® LT basic unit has an integrated operator terminal. Some applications require a remote keypad. The operating terminal option comes equipped with a self-adhesive gasket and a 3 m cable, which is plugged into the RJ45 socket of the frequency inverter. This option is supplied with 24 V via the RJ45 cable of the frequency inverter.

The maximum cable length between keypad and frequency inverter is 25 m with shielded cables. The total length of cables in the network may not exceed 25 m with unshielded cables or 100 m with shielded cables.

3.1 LT BG-C remote keypad

We offer a 7-segment display keypad as an additional option.

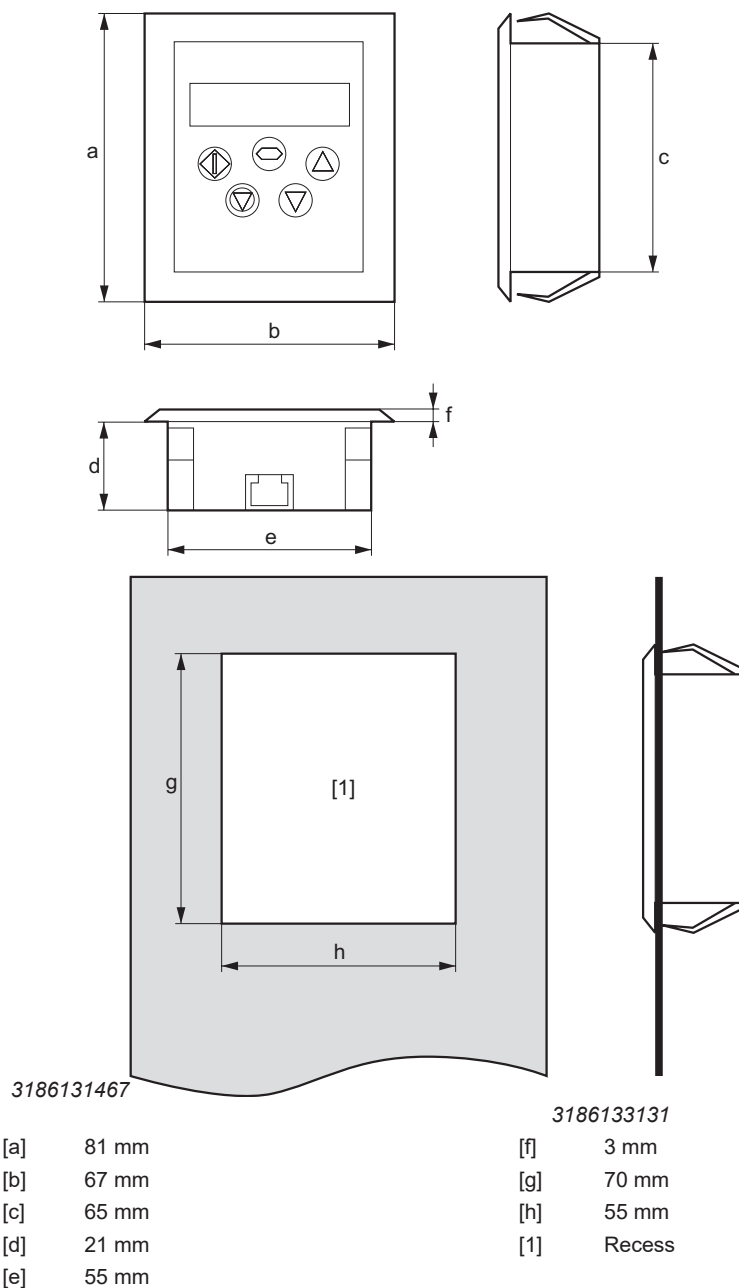
Type	Part number
LT BG-C	18241522



23647163659

3.1.1 Installation in the control cabinet or on a control panel

For installing an LT BG-C in the door of a control cabinet or in a control panel, the metal has to be cut as depicted below. The installed keypad meets degree of protection IP54/NEMA 13 if the self-adhesive gasket enclosed in the delivery is used.



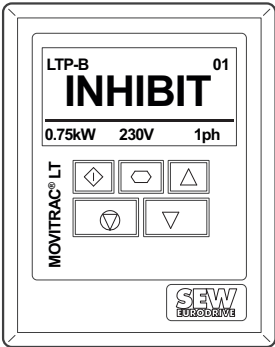
3.1.2 Technical data

Device connections	RJ45
Supply voltage	DC 24 V $\pm$ 10%
Supply current	30 mA
Degree of protection	IP20 (if not installed in the control cabinet) IP54/NEMA 13 (if installed in the control cabinet door)
Ambient temperature during operation	-10 °C to +50 °C
Maximum relative humidity	95%, condensation not permitted

3.2 LT BG OLED A remote keypad

We offer a full-text keypad as an additional option.

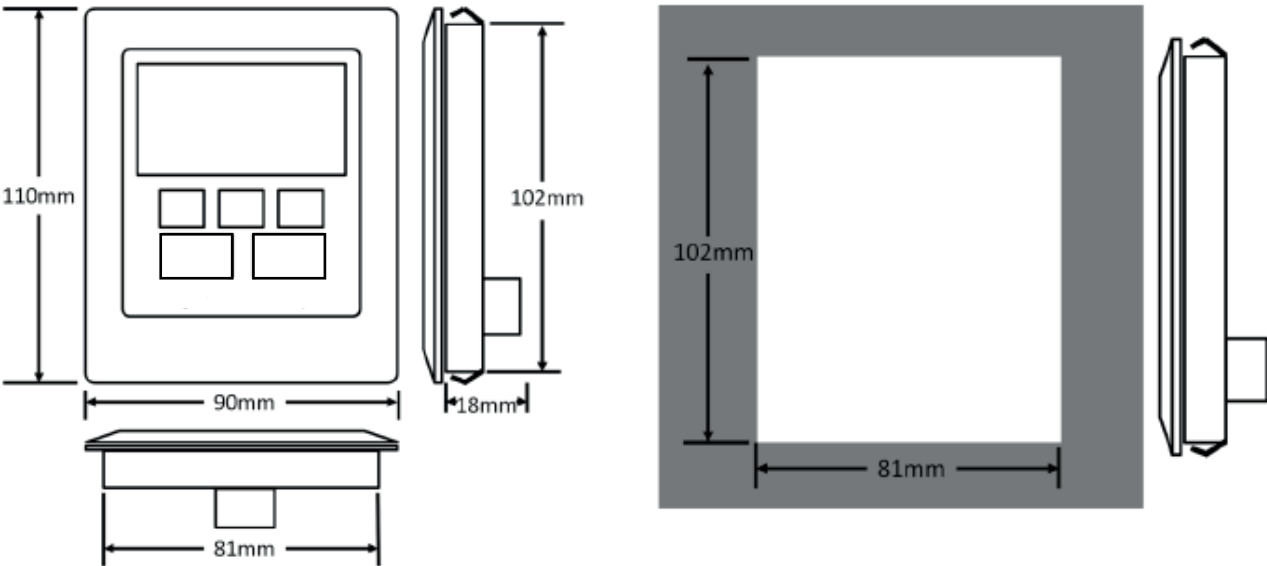
Type	Part number
LT BG OLED A	28205731



23647166091

3.2.1 Installation in the control cabinet or on a control panel

For installation of an LT BG OLED A in the door of a control cabinet or in a control panel, the metal has to be cut as depicted below. The installed keypad meets degree of protection IP54/NEMA 13 if the self-adhesive gasket enclosed in the delivery is used.



9288183563

3.2.2 Technical data

Device connections	RJ45
Supply voltage	DC 24 V $\pm$ 10%
Supply current	30 mA
Degree of protection	IP20 (if not installed in the control cabinet) IP54/NEMA 13 (if installed in the control cabinet door)
Ambient temperature during operation	-10 °C to +50 °C
Maximum relative humidity	95%, condensation not permitted

3.3 LT OB LOCMO B control board

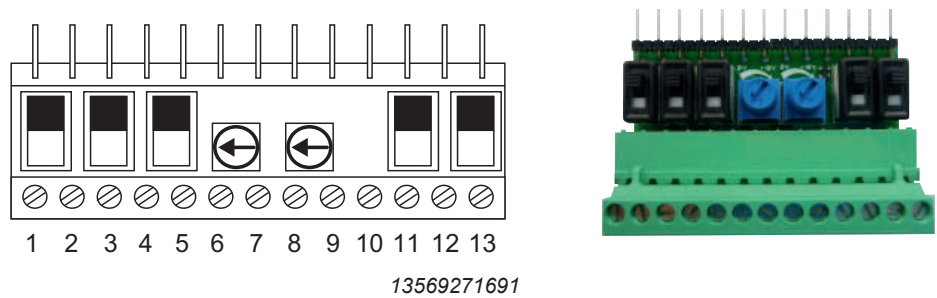
Type	Part number
LT OB LOCMO B	28205758

The control board allows the user to operate the frequency inverter easily and quickly via the terminal control on site. The control board is connected to the 13-pole terminal and supplied with 24 V via terminal 1.

INFORMATION



This option serves for test purposes only. For use in the field, a permanently-wired connection is required for controlling the drive.



3.3.1 Technical data

Degree of protection		IP00
Switch position		Up → open → 0 V → logical "0" Down → closed → 24 V → logical "1"
Potentiometer position		Left stop = 0 V Right stop = 10 V
Ambient temperature		-10 °C – +50 °C
Dimensions	mm	67 × 33 (without pins) × 14

4 Network packages, interfaces, parameter module

4.1 Network packages

The network packages are divided into 3 cable sets:

- The basic package (cable set A) contains all the components to connect the frequency inverter to a gateway, MOVI-PLC®, or a CCU.
- The extension package (cable set B) is used in addition to the basic package (cable set A) to connect more frequency inverters to the network.
- The PC engineering package (cable set C) is used to connect the inverters to the engineering software LT Shell for software updates or for configuration purposes. In addition, an USB11A or USM21A interface adapter is required.

4.1.1 Basic package (cable set A)

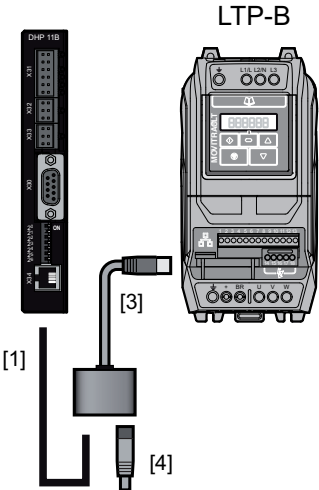
The basic package (cable set A) contains all the components to connect the frequency inverter to a gateway, MOVI-PLC®, or a CCU.

Cable set A also contains a heat shrink tubing for insulation of the cable splitter.

Type	Quantity	Description	Length	Part number
LT OP 005 A2	1	RJ45 cable with open end	0.5 m	28202554
	1	Cable distributor	—	
	1	Terminating connector	—	

Example

The following example shows the use of cable set A between the inverter and SEW gateway/MOVI-PLC®.



9288388363

- [1] RJ45 cable with open end
- [3] Cable splitter
- [4] Terminating connector (120 Ω)

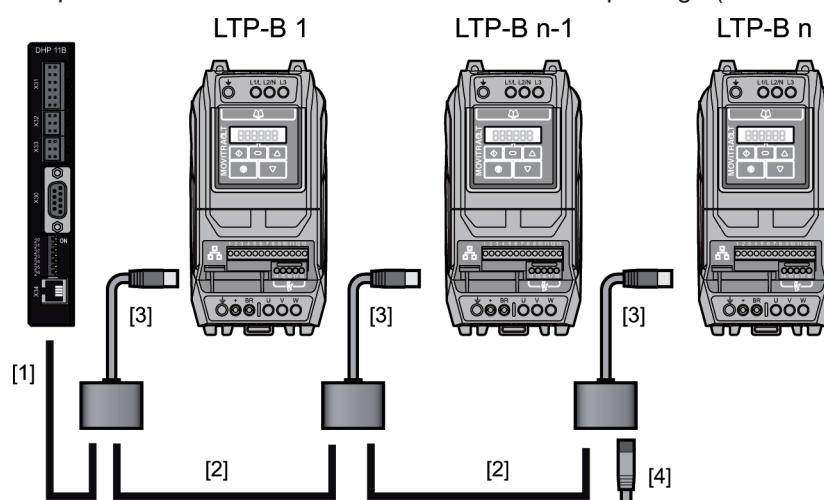
4.1.2 Extension package (cable set B)

The extension package is used in addition to the basic package (cable set A) to connect more frequency inverters in the network. Cable set B also contains a heat shrink tubing for insulation of the cable splitter.

Type	Quantity	Description	length	Part number
LT OP 005 B2	1	RJ45 to RJ45 cable	0.5 m	28202546
	1	Cable splitter	-	
LT OP 010 B2	1	RJ45 to RJ45 cable	1 m	28202562
	1	Cable splitter	-	

Example

The following example shows the operation of three inverters at one gateway (controller). This requires cable set A and two times the extension package (cable set B).



35131923851

- | | |
|------------------------------|-----------------------------------|
| [1] RJ45 cable with open end | [3] Cable splitter |
| [2] RJ45 to RJ45 cable | [4] Terminating connector (120 Ω) |

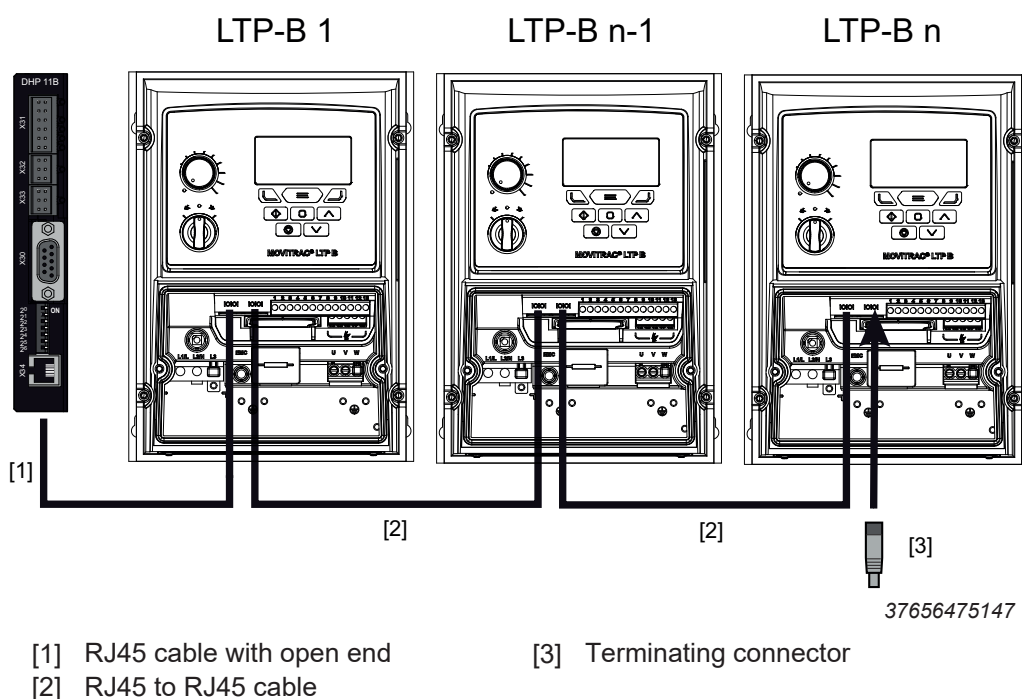
- Inverters with degree of protection IP20 and IP55 have an RJ45 socket contact for engineering and communication.
- Inverters with degree of protection IP66 have two RJ45 sockets for engineering and communication. This means that no cable set is required when using these inverters. Standard network cables are sufficient for connecting the inverters. See the following example:

Example for IP66/NEMA 4X

The following example shows the operation of three IP66 inverters on one gateway (controller). Due to the double RJ45 socket for inverters with degree of protection IP66, the extension package (cable set B) is not required.

To connect the gateway (controller) to the first inverter, the user must make an RJ45 cable with open end according to the assignment and order the terminating resistor individually.

SEW-EURODRIVE recommends standard CAT 5 network cables in individual lengths for connecting the inverters to each other. These network cables are not available from SEW-EURODRIVE.



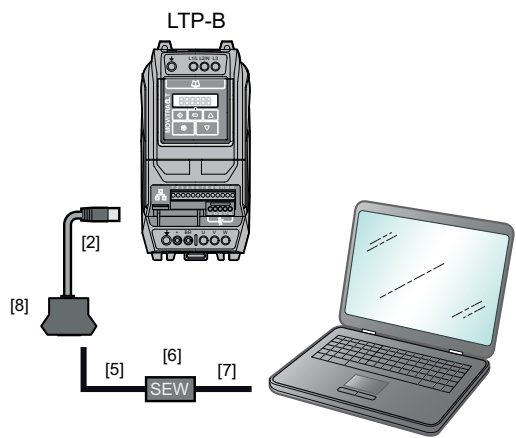
4.1.3 PC engineering package (cable set C)

This cable set is used to connect the inverters to the engineering software LT Shell for software updates or for configuration purposes. In addition, an USB11A or USM21A interface adapter is required.

Type	Quantity	Description	Length	Part number
LT OP 003 C	1	RJ adapter (RJ45, RJ45, RJ10)	-	18243681
	1	1 × RJ45 to RJ45 cable (blue) (LTE-B, LTP-B)	0.5 m	
	1	1 × RJ45 to RJ11 cable (black) (LTP-A, MOVIFIT® basic)	0.5 m	

Example 1

The following example shows how to use the cable set C.

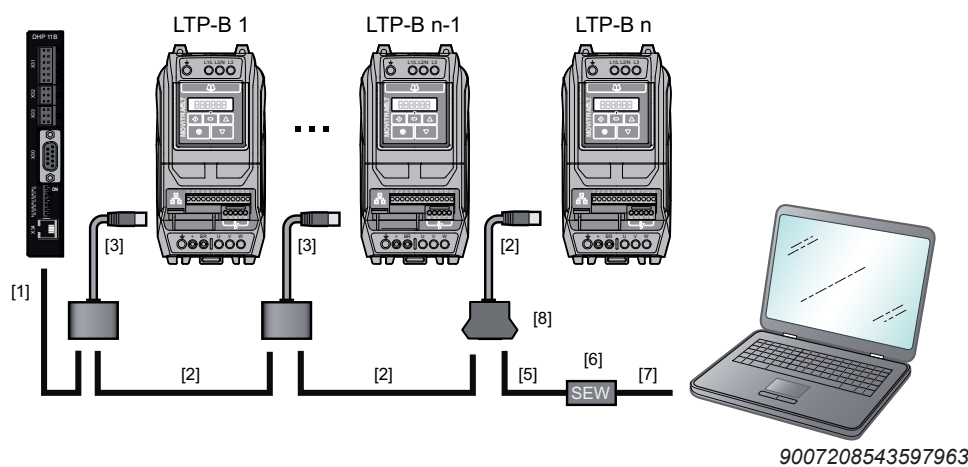


9288836235

- | | | | |
|-----|--------------------|-----|--------------------------------|
| [2] | RJ45 to RJ45 cable | [7] | USB A-B cable |
| [5] | RJ10 to RJ10 cable | [8] | RJ adapter (2 ×RJ45, 1 × RJ10) |
| [6] | USB11A or USM21A | | |

Example 2

The following example shows the use of cable set C within an existing fieldbus network.



- | | |
|-----------------------------------|-------------------------------------|
| [1] RJ45 cable with open end | [5] RJ10 to RJ10 cable |
| [2] RJ45 to RJ45 cable | [6] USB11A or USM21A |
| [3] Cable splitter | [7] USB A-B cable |
| [4] Terminating connector (120 Ω) | [8] RJ adapter (2 × RJ45, 1 × RJ10) |

In an SBus network, the terminating connector or RJ adapter is equipped with a terminating resistor. If you use the PC engineering package (C) with the basic package (A), you have to replace the terminating connector with the RJ adapter.

Connect the RJ10 connector (4-pin) to USB11A or USM21A.

4.1.4 Cable splitter 1 to 2

Type	Part number
LT RJ CS 21 C	28201140



9007204376907403

The RJ45 cable splitter is required to connect the RJ45 communication interface of the MOVITRAC® LT to another frequency inverter or a keypad.

Typical applications are a required communication connection between one of the following sources and several frequency inverters in a network.

- Remote keypad
- Inverter network to MOVI-PLC® via SBus
- Fieldbus communication via UOH/DFx gateway

INFORMATION



The cable sets A and B contain all components for unit connection. No additional splitter is required. Inverters with degree of protection IP66 have two RJ45 sockets for engineering and communication. This means that no cable splitter is required when using these inverters.

4.1.5 Terminating resistor

The 120 ohm terminating resistor is integrated in the RJ45 connector and is used as the bus termination for SBus, CANopen, and Modbus.

Type	Part number	LTE-B+	LTP-B
LT RJ CS TR C	28230299	X	X

X = available

– = not available

INFORMATION



Cable set A contains a terminating resistor; in cable set C, the terminating resistor is integrated in the RJ45-RJ45-RJ10 connector.

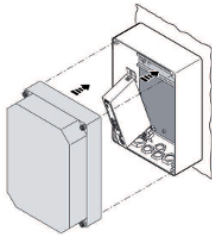
You do not need any additional terminating resistors when using cable set C.

4.1.6 UOH65A housing

With the UOH65A housing option, gateways or controllers can be installed with UOx housing in the field.

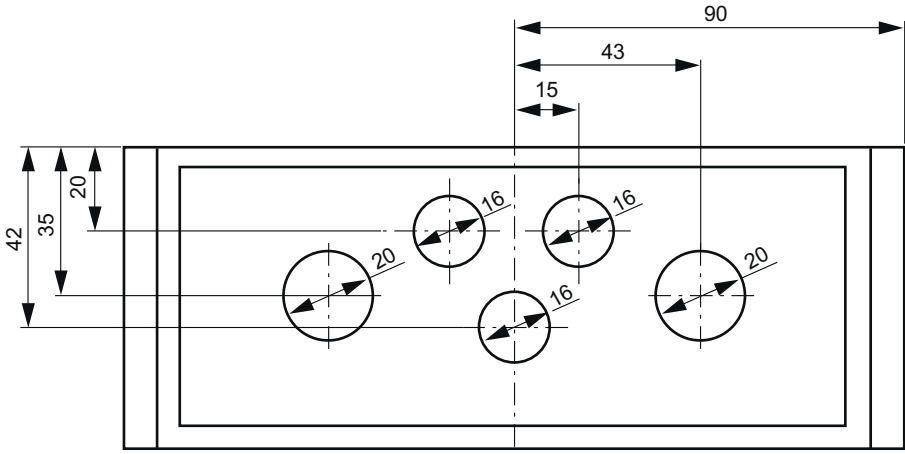
The housing is delivered with prefabricated screw fittings and mounting rail with appropriate accessories for mounting.

Type	Part number
UOH65A	18149227



9450040203

Dimensions of the cable bushings



12263605515

Housing dimensions

Width	Height	Depth
180 mm	254 mm	165 mm

Technical data

Housing material	Lower part	Glass fiber reinforced polycarbonate color light gray
	Top part	Glass fiber reinforced polycarbonate transparent
Degree of protection		IP65 (EN 60529)
Ambient temperature during operation		-10 °C to +55 °C

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4.2 USM21A interface adapter USB/RS485/SBus/CAN

The USM21A option is required for engineering between PC or laptop and inverter.

The connection between USM21A and PC is made using a standard USB cable type A-B (shielded).

If the LT Shell software is used via RS485, the PC engineering package (cable set C) is required.

If the MOVITOOLS® MotionStudio software is used via SBus, the CKS13A (connection cable RJ10/RJ45) is required.

INFORMATION



Use the correct components for the software in use.
Observe the different functionalities of the software.

Type	Part number
USM21A	28231449
CKS13A (connection cable RJ10/RJ45)	28118677

4.2.1 USM21A scope of delivery

- USM21A device
- USB connection cable type USB A-B to connect PC to USM21A
- Serial interface cable with 2 × RJ10 connectors

4.2.2 CKS13A scope of delivery (connection cable RJ10/RJ45)

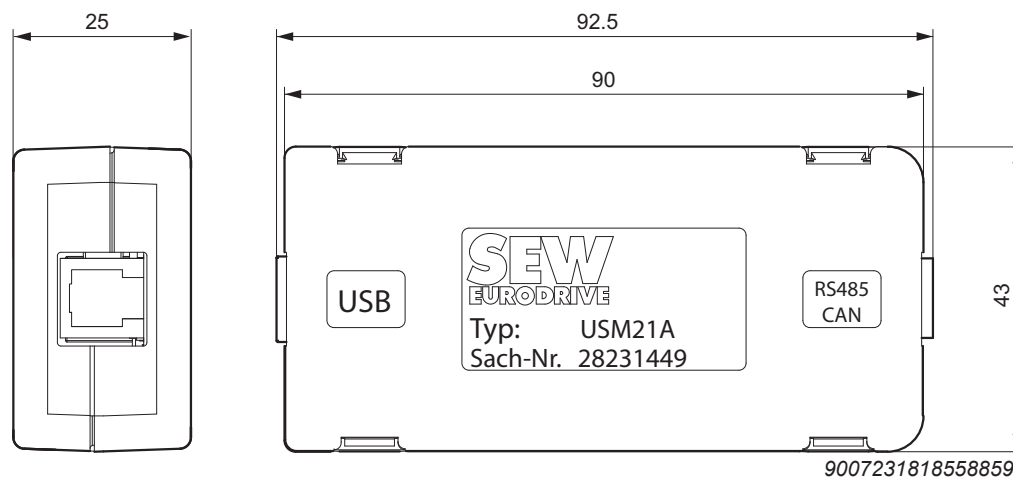
- Serial interface cable with 1 × RJ10 connector to 1 × RJ45 connector for the USM21A – inverter connection.

4.2.3 Technical data

Ambient temperature during operation	0 °C to 40 °C
Degree of protection	IP20

4.2.4 Dimensions

All dimensions are specified in mm.



4.2.5 RS485 interface

A maximum of 63 MOVITRAC® LTP-B and LTE-B devices can be connected via the RS485 interface of the USM21A for communication purposes.

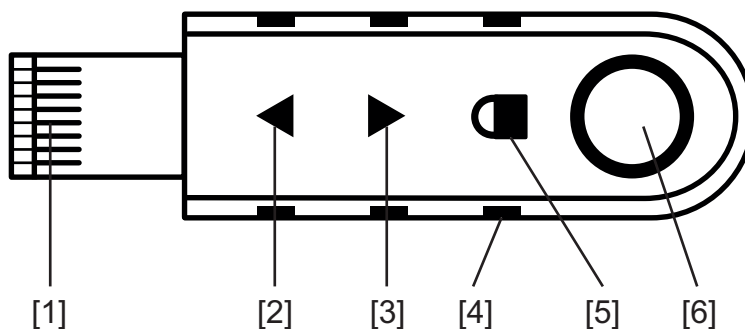
The maximum shielded cable length is 100 m.

Each inverter needs a unique address.

4.3 Parameter module

The parameter module is exclusively designed for operation in the RJ45 port of the frequency inverter.

Type	Part number
LT BP D	28251768



9007231818461835

- [1] Interface (connection to RJ45 socket of the inverter)
- [2] Upload touch button (parameter module > inverter)
- [3] Download touch button (inverter > parameter module)
- [4] Feedback/status LEDs
- [5] Lock/unlock touch button
- [6] Status display Bluetooth

- Functionality:
 - Saves a data set from the frequency inverter to the parameter module.
 - Simultaneously saves a data set from both LT frequency inverter types to the parameter module.
 - Integrated parameter lock – prevents overwriting of saved parameters when activated.
 - Loads data back from the parameter module to the frequency inverter.
 - Bluetooth® interface for communication between engineering software LT Shell and MOVITRAC® LT or directly with the parameter module.

4.3.1 Technical data

Degree of protection	IP20, NEMA 1
Ambient temperature during operation	-10 °C to +50 °C
Range of the Bluetooth interface	< 10 m, depending on ambient conditions
Data transmission	Bluetooth®

5 Option cards

5.1 Overview of option cards

Type	Designation	Part number
"Relay expansion card" (→ 63)	LT OB 3ROUT A	28201159
"Digital I/O expansion card" (→ 65)	LT OB IO A	28201167

INFORMATION

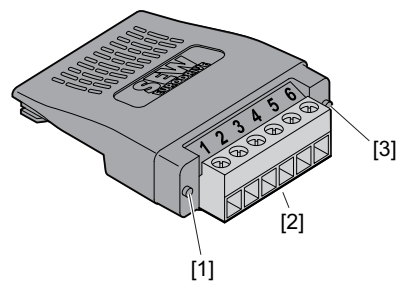


Note that only one option card can be used per frequency inverter.

5.2 Relay expansion card

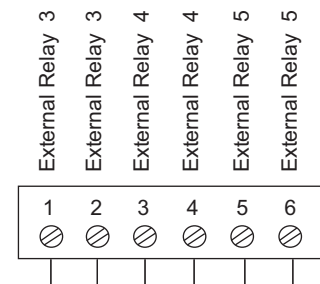
Designation	Part number
LT OB 3ROUT A	28201159

The option card expands the inverter with 3 additional relay outputs.



14600946187

- [1] LED: A
- [2] Inscription: Cascade Control
- [3] LED: B



5.2.1 Technical data

Maximum input voltage	AC 250 V/DC 30 V
Maximum relay switching current	AC 6 A (250 V)/DC 5 A (30 V)
Digital input	8 – 30 V
Digital input response time	< 8 ms
Conformity	IP20, UL94V-0, IP55 (for IP55 devices)
Ambient temperature	-10 °C to +50 °C
Storage temperature	-40 °C to +60 °C
Tightening torque of terminal strip	0.5 Nm

5.2.2 Startup and operation of the relay

Function and limit settings for the following parameters:

Relays 3 (*P5-15*) and 4 (*P5-18*) can be individually programmed according to the parameters specified in the table below. Relay 5 is permanently set to function 3 motor speed ≥ 0 .

Set-tings	Function	Explanation
0	Inverter enabled	Relay contact closed when the inverter is enabled.
1	/Failure. Inverter ready	Relay contact closed when inverter is operable (no error).
2	Motor at setpoint speed	Relay contact closed if output frequency = setpoint frequency (hysteresis <i>P6-04</i>).
3	Motor speed ≥ 0	Relay contact closed if output frequency > speed 0 min ⁻¹ (hysteresis <i>P6-04</i>).
4	Motor speed $\geq$ limit value	Relay contact closed if the level is greater than or equal to the value set in parameter "Upper user relay limit/analog output". Relay contact open if the level is below the value set in parameter "Lower user relay limit/analog output".
5	Motor current $\geq$ limit value	
6	Motor torque $\geq$ limit value	
7	Analog input 2 $\geq$ limit value	
8	Hoist (for <i>P2-18</i> only)	This setting is made automatically if the hoist function is activated via <i>P4-12</i> . The inverter controls the relay according to the hoist function.
9	STO status	Relay contacts closed if STO circuit is supplied with 24 V. Relay contacts open if STO circuit is open (inverter indicates "inhibit").
10	PID error $\geq$ limit value	Relay contact closed if the control error is greater than or equal to the value set in parameter "User relay upper limit". Relay contact open if the control error is less than the value set in parameter "User relay lower limit". The relay opens also with negative control errors.

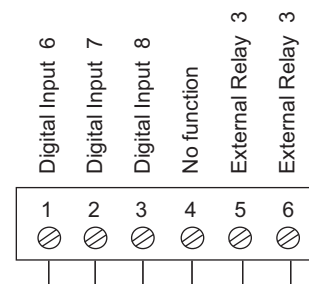
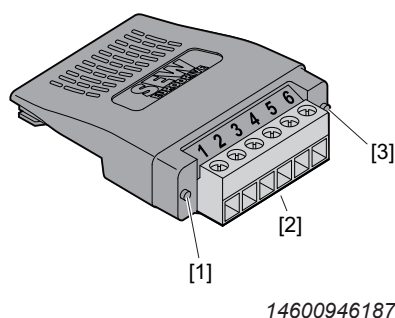
5.3 Digital I/O expansion card

Designation	Part number
LT OB IO A	28201167

If an application requires more digital inputs/outputs than the frequency inverter supplies, the option card digital I/O can be used. The option card features 3 additional binary inputs and one additional relay output. The digital inputs can be assigned to various functions in the frequency inverter. In addition, their status can be read by the higher-level controller via process data communication.

The option card expands the inverter with:

- 3 digital inputs (DI 6, DI 7, DI 8)
- 1 relay output (relay 3)



- [1] LED: A
- [2] Inscription: Digital I/O
- [3] LED: B

5.3.1 Technical data

Maximum input voltage	AC 250 V/DC 30 V
Maximum relay switching current	AC 6 A (250 V)/DC 5 A (30 V)
Digital input	8 – 30 V
Digital input response time	< 8 ms
Conformity	IP20, UL94V-0, IP55 (for IP55 devices)
Ambient temperature	-10 °C to +50 °C
Storage temperature	-40 °C to +60 °C
Tightening torque of terminal strip	0.5 Nm

5.3.2 Startup and operation of the relay

Relay 3 (*P5-15*) can be individually programmed according to the parameters specified in the table below.

Set-tings	Function	Explanation
0	Inverter enabled	Relay contact closed when the inverter is enabled.
1	/Failure. Inverter ready	Relay contact closed when inverter is operable (no error).
2	Motor at setpoint speed	Relay contact closed if output frequency = setpoint frequency (hysteresis <i>P6-04</i>).
3	Motor speed ≥ 0	Relay contact closed if output frequency > speed 0 min ⁻¹ (hysteresis <i>P6-04</i>).
4	Motor speed $\geq$ limit value	Relay contact closed if the level is greater than or equal to the value set in parameter "Upper user relay limit/analog output".
5	Motor current $\geq$ limit value	
6	Motor torque $\geq$ limit value	
7	Analog input 2 $\geq$ limit value	Relay contact open if the level is below the value set in parameter "Lower user relay limit/analog output".
8	Hoist (for <i>P2-18</i> only)	This setting is made automatically if the hoist function is activated via <i>P4-12</i> . The inverter controls the relay according to the hoist function.
9	STO status	Relay contacts closed if STO circuit is supplied with 24 V. Relay contacts open if STO circuit is open (inverter indicates "inhibit").
10	PID error $\geq$ limit value	Relay contact closed if the control error is greater than or equal to the value set in parameter "User relay upper limit". Relay contact open if the control error is less than the value set in parameter "User relay lower limit". The relay opens also with negative control errors.

5.3.3 Startup and operation of the digital inputs

The functions of the digital inputs can be programmed individually.

To do so, set parameter *P1-15* to 0. All digital inputs at the frequency inverter are then set to no function and must be defined via parameter group 9.

For this, observe the description of parameter group 9 in the operating instructions "MOVITRAC® LTP-B".

6 Encoder cards

6.1 Overview of encoder cards

Type	Designation	Part number
"TTL encoder card, 5 V" (→ 68)	LT OB ENC A	28201175
"HTL encoder card, 8 – 30 V" (→ 69)	LT OB ENH A	28226437

INFORMATION

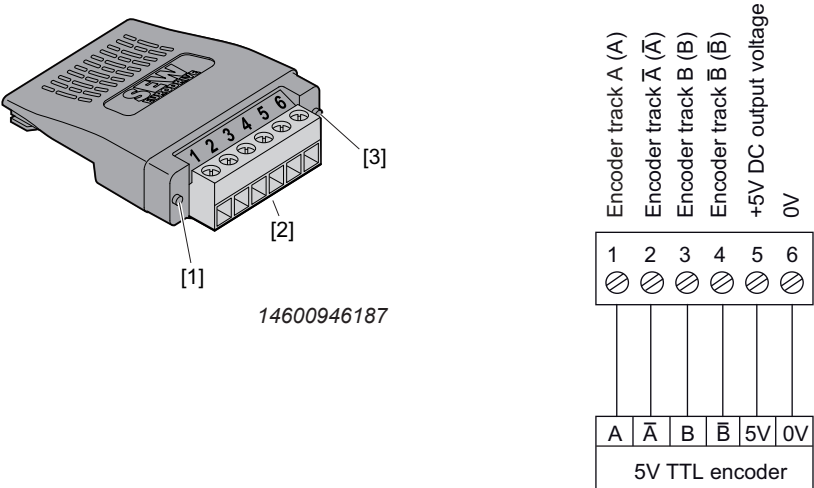


Note that only one option card can be used per frequency inverter.

6.2 TTL encoder card

Designation	Part number
LT OB ENC A	28201175

The TTL encoder card serves only to regulate speed control with the frequency in-
verter and cannot be used for positioning. The TTL encoder card enables a detailed
speed control under 1 Hz and a full torque from a speed of 0 on.



- [1] LED: A
- [2] Labeling: Line Encoder
- [3] LED: B

6.2.1 Technical data

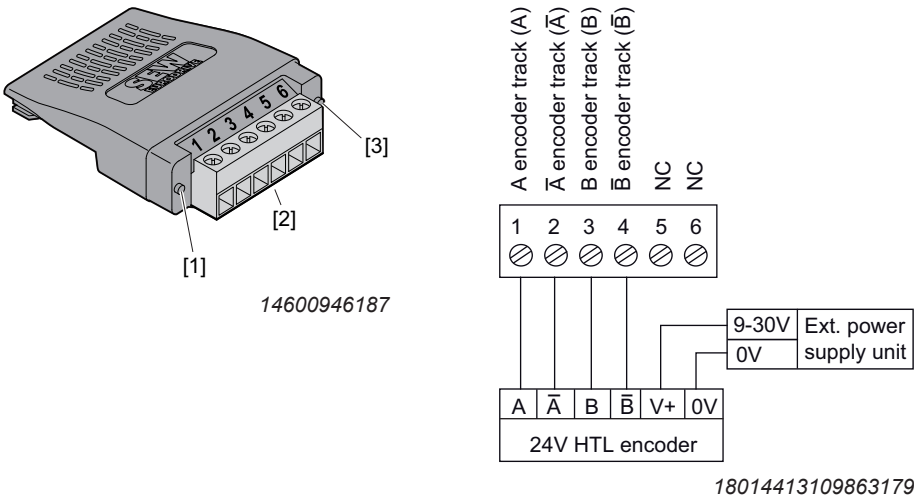
Compatible encoders	5 V, channel A and B with complement
Minimum and maximum PPR count	512 – 4096
Maximum input frequency	500 kHz
Maximum input voltage	DC 5.5 V
Maximum output voltage/current	DC 5.5 V, 200 mA
Maximum cable length	100 m, twisted in pairs, shielded
Relative humidity	95% (without condensation)
Conformity	IP20, IP55 (for IP55 devices)
Ambient temperature	0 °C to +50 °C
Storage temperature	-20 °C to +60 °C
Dimensions (L × W × H)	52 × 50 × 22 mm
Tightening torque of terminal strip	0.5 Nm

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6.3 HTL encoder card

Designation	Part number
LT OB ENH A	28226437

The HTL encoder card serves only to regulate speed control with the frequency inverter and cannot be used for positioning. The HTL encoder card enables a detailed speed control under 1 Hz and a full torque from a speed of 0 on.



- [1] LED: A
- [2] Labeling: Line Encoder
- [3] LED: B

6.3.1 Technical data

Compatible encoders	30 V, channel A and B with complement INFORMATION: The HTL encoder card requires an external DC 24 V power supply
Minimum and maximum PPR count	512 – 4096
Maximum input frequency	500 kHz
Maximum input voltage	DC 30 V
Maximum output voltage/current	External voltage supply
Maximum cable length	200 m, twisted in pairs, shielded
Relative humidity	95% (without condensation)
Conformity	IP20, IP55 (for IP55 devices)
Ambient temperature	0 °C to +50 °C
Storage temperature	-20 °C to +60 °C
Dimensions (L × W × H)	52 × 50 × 22 mm
Tightening torque of terminal strip	0.5 Nm

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7 Fieldbus interface via gateway

The fieldbus gateways convert standard fieldbuses to the SBus of SEW-EURODRIVE. This means that up to 8 inverters can be triggered via 3 process data each using one gateway.

The controller (PLC or PC) and the MOVITRAC® LTP-B frequency inverter exchange process data, such as control words or speed, using the fieldbus.

You can also connect and operate other SEW-EURODRIVE units (e.g. MOVIDRIVE® inverters) via SBus.

7.1 Available gateways

For the fieldbus interfaces, gateways are available for the following bus systems:

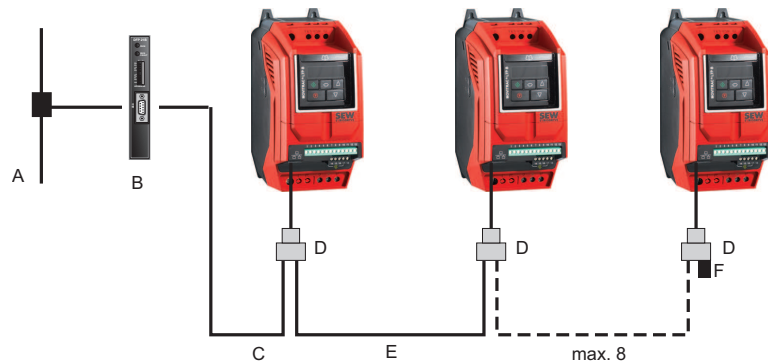
Bus	Separate housing
PROFIBUS	DFP21B/UOH11B
EtherCAT®	DFE24/UOH11B
DeviceNet™	DFD11/UOH11B
PROFINET	DFE32/UOH11B
EtherNet/IP™/Modbus TCP	DFE33B/UOH11B

7.2 Available controllers

Type	Fieldbus interfaces
DHE21B/41B in UOH11B	- Ethernet TCP/IP - UDP
DHF21B/41B in UOH21B	- Ethernet TCP/IP - UDP - PROFIBUS DP-V1 - DeviceNet™
DHR21B/41B in UOH21B	- Ethernet TCP/IP - UDP - PROFINET - EtherNet/IP™ - Modbus TCP/IP

7.3 Operating principle

The fieldbus gateways have standardized interfaces. Connect lower-level MOVITRAC® LTP-B units to the fieldbus gateway via the SBus unit system bus.



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Key		Additional information
A	Bus connection	–
B	Gateway	See chapter "Available gateways" (→ 70)
C	Prefabricated cable	See chapter "Network packages" (→ 53)
D	Cable distributor	See chapter "Cable splitter 1 to 2" (→ 58)
E	Prefabricated cable	See chapter "Network packages" (→ 53)
F	Terminating connector	See chapter "Network packages" (→ 53)

INFORMATION



Inverters with degree of protection IP20 and IP55 have an RJ45 socket contact for engineering and communication.

Inverters with degree of protection IP66 have two RJ45 sockets for engineering and communication. When using these inverters, you do not need a cable set or cable splitter. Standard network cables are sufficient for connecting the inverters.

8 Fieldbus interface via option cards

8.1 Overview of fieldbus interfaces

Module	Designation	Part number
"PROFIBUS DP (M30 module)" (→  73)	LT FP 11A	28203941
"PROFINET IO (M30 module)" (→  75)	LT FE 32A	28226402
"EtherNet/IP™ (M30 module)" (→  76)	LT FE 33A	28203917
"EtherCAT® (M30 module)" (→  77)	LT FE 24A	28226410
"DeviceNet™ (M30 module)" (→  78)	LT FD 11A	28203925
"Modbus TCP (M30 module)" (→  79)	LT FE 31A	28228154
"PROFINET IO (M40 module)" (→  80) ¹⁾ .	LT FE 34A	28233468
EtherNet/IP™ (M40 module) ¹⁾	LT FE 35A	28233476

1) In preparation

INFORMATION



Note that only one option card can be used per frequency inverter. When the fieldbus option card is used, the Modbus RTU is no longer available via the RJ45 bushing at the frequency inverter.

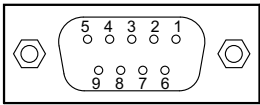
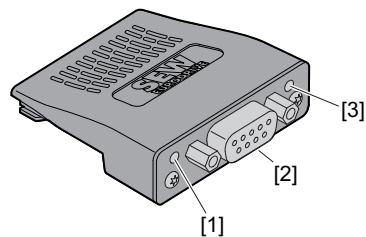
8.2 PROFIBUS DP (M30 module)

Designation	Part number
LT FP 11A	28203941

The PROFIBUS DP option card in combination with the MOVITRAC® LTP-B offers a direct bus connection.

Scope of functions:

- Cyclic process data exchange
- 4 process input words
- 4 process output words



- | | | | |
|-----|-----------------------|---|--|
| [1] | LED: A | 1 | N/C |
| [2] | Labeling: PROFIBUS DP | 2 | N/C |
| [3] | LED: B | 3 | Receiving/sending data P
RxD/TxD-P (not B/B) |
| | | 4 | Repeater control signal (TTL)
CNTR-P |
| | | 5 | Data reference potential (5 V)
DGND |
| | | 6 | Data reference potential (5 V) insu-
lated and short-circuit protection |
| | | 7 | N/C |
| | | 8 | Receiving/sending data P
RxD/TxD-P (not A/A) |
| | | 9 | N/C |

8.2.1 Technical data

Ambient temperature during operation	-40 °C (no hoarfrost) to +70 °C
Storage temperature	-40 °C to +85 °C
Relative humidity	5% to 95%, without condensation
Conformity	IP20/55/66, RoHS, UL
Voltage supply via backplane	DC 3.3 ±0.15 V
Power consumption	< 500 mA
Network interface	Electrically isolated
Dimensions (L × W × H)	52 × 50 × 22 mm
Tightening torque of terminal strip	0.5 Nm
Tightening torque of the connecting terminal	0.5 Nm
Automatic baud rate detection	9.6 – 12 MBaud
Connection technology	9-pin D-sub connector
Bus termination	Not integrated, implement using suitable PROFIBUS connector with terminating resistors that can be activated.

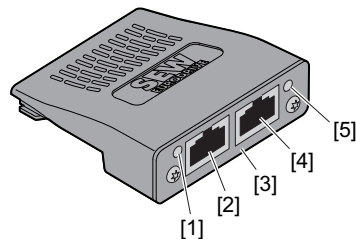
8.3 PROFINET IO (M30 module)

Designation	Part number
LT FE 32A	28226402

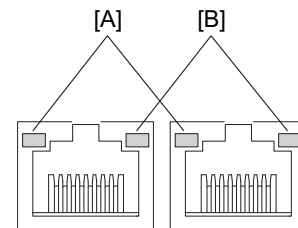
The PROFINET IO option card in combination with the MOVITRAC® LTP-B offers a direct bus connection.

Scope of functions:

- Cyclic process data exchange
- 4 process input words
- 4 process output words



- [1] LED: NS
- [2] RJ45: P1
- [3] Labeling: PROFINET IO
- [4] RJ45: P2
- [5] LED: MS



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- [A] LED: Activity
- [B] LED: Link

8.3.1 Technical data

Ambient temperature during operation	-40 °C (no hoarfrost) to +70 °C
Storage temperature	-40 °C to +85 °C
Relative humidity	5% to 95%, without condensation
Conformity	IP20/55/66, RoHS, UL
Voltage supply via backplane	3.3 ±0.15 V DC
Power consumption	< 500 mA
Network interface	Electrically isolated
Dimensions (L × W × H)	52 × 50 × 22 mm
Tightening torque of terminal strip	0.5 Nm
Baud rate	10/100 MBaud in full duplex mode
Connection technology	2 × RJ45

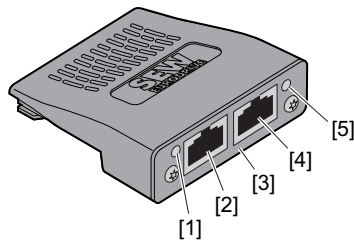
8.4 EtherNet/IP™ (M30 module)

Designation	Part number
LT FE 33A	28203917

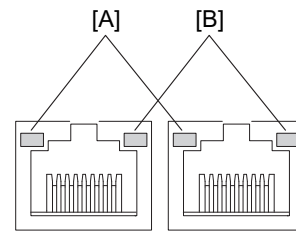
The EtherNet/IP™ option card in combination with the MOVITRAC® LTP-B offers a direct bus connection.

Scope of functions:

- Cyclic process data exchange
- 4 process input words
- 4 process output words
- DLR (Device Level Ring)



- [1] LED: NS
- [2] RJ45: P1
- [3] Labeling: EtherNet/IP™
- [4] RJ45: P2
- [5] LED: MS



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- [A] LED: Activity
- [B] LED: Link

8.4.1 Technical data

Ambient temperature during operation	-40 °C (no hoarfrost) to +70 °C
Storage temperature	-40 °C to +85 °C
Relative humidity	5% to 95%, without condensation
Conformity	IP20/55/66, RoHS, UL
Voltage supply via backplane	3.3 ±0.15 V DC
Power consumption	< 500 mA
Network interface	Electrically isolated
Dimensions (L × W × H)	52 × 50 × 22 mm
Tightening torque of terminal strip	0.5 Nm
Baud rate	10/100 MBaud in full duplex mode
Connection technology	2 × RJ45

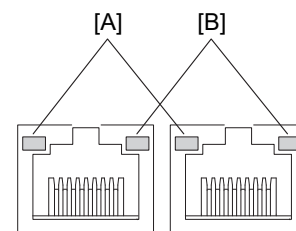
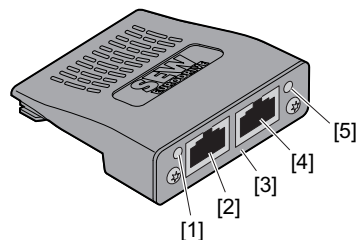
8.5 EtherCAT® (M30 module)

Designation	Part number
LT FE 24A	28226410

The EtherCAT® option card in combination with the MOVITRAC® LTP-B offers a direct bus connection.

Scope of functions:

- Cyclic process data exchange
- 4 process input words
- 4 process output words



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- [1] LED: RUN
- [2] RJ45: IN, incoming EtherCAT® connection
- [3] Labeling: EtherCAT®
- [4] RJ45: OUT, outgoing EtherCAT® connection
- [5] LED: ERR

- [A] LED: Activity
- [B] LED: Link

8.5.1 Technical data

Ambient temperature during operation	-40 °C (no hoarfrost) to +70 °C
Storage temperature	-40 °C to +85 °C
Relative humidity	5% to 95%, without condensation
Conformity	IP20/55/66, RoHS, UL
Voltage supply via backplane	3.3 ±0.15 V DC
Power consumption	< 500 mA
Network interface	Electrically isolated
Dimensions (L × W × H)	52 × 50 × 22 mm
Tightening torque of terminal strip	0.5 Nm
Baud rate	100 MBaud in full duplex process
Connection technology	2 × RJ45

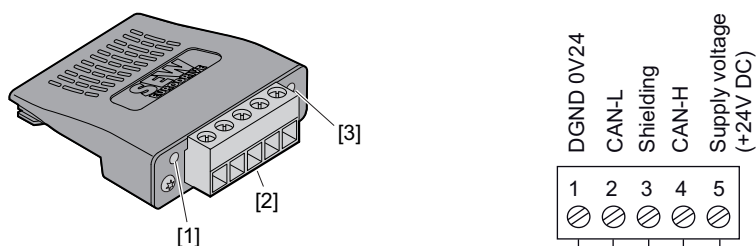
8.6 DeviceNet™ (M30 module)

Designation	Part number
LT FD 11A	28203925

The DeviceNet™ option card in combination with the MOVITRAC® LTP-B offers a direct bus connection.

Scope of functions:

- Cyclic process data exchange
- 4 process input words
- 4 process output words



- [1] LED: NS
 [2] Labeling: DeviceNet™
 [3] LED: MS

8.6.1 Technical data

Ambient temperature during operation	-40 °C (no hoarfrost) to +70 °C
Storage temperature	-40 °C to +85 °C
Relative humidity	5% to 95%, without condensation
Conformity	IP20/55/66, RoHS, UL
Voltage supply via backplane	3.3 ±0.15 V DC
Power consumption	< 500 mA
Network interface	Electrically isolated
Dimensions (L × W × H)	52 × 50 × 22 mm
Tightening torque of terminal strip	0.5 Nm
Baud rate	125, 205, 500 kBd, can be set via parameters
MAC-ID (Media Access Control Identifier)	The MAC-ID supports address range 0 – 63
Connection technology	3-wire bus and 2-wire supply voltage DC 24 V with 5-pin Phoenix terminal
Pin assignment	According to DeviceNet™ specification

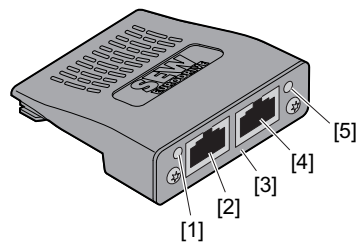
8.7 Modbus TCP (M30 module)

Designation	Part number
LT FE 31A	28228154

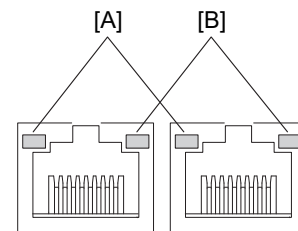
The Modbus TCP option card in combination with the MOVITRAC® LTP-B offers a direct bus connection.

Scope of functions:

- Cyclic process data exchange
- 4 process input words
- 4 process output words



- [1] LED: NS
- [2] RJ45: P1
- [3] Labeling: Modbus TCP
- [4] RJ45: P2
- [5] LED: MS



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- [A] LED: Activity
- [B] LED: Link

8.7.1 Technical data

Ambient temperature during operation	-40 °C (no hoarfrost) to +70 °C
Storage temperature	-40 °C to +85 °C
Relative humidity	5% to 95%, without condensation
Conformity	IP20/55/66, RoHS, UL
Voltage supply via backplane	3.3 ±0.15 V DC
Power consumption	< 500 mA
Network interface	Electrically isolated
Dimensions (L × W × H)	52 × 50 × 22 mm
Tightening torque of terminal strip	0.5 Nm
Baud rate	10/100 MBaud in full duplex mode
Connection technology	2 × RJ45

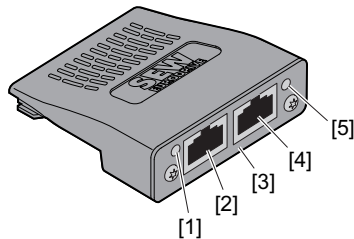
8.8 PROFINET IO (M40 module)

Designation	Part number
LT FE 34A	28233468

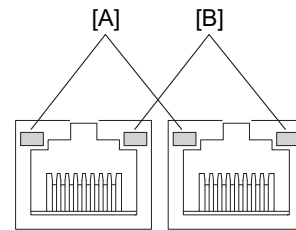
The PROFINET IO option card in combination with the MOVITRAC® LTP-B offers a direct bus connection.

Scope of functions:

- Cyclic process data exchange
- 4 process input words
- 4 process output words
- MRP (Media Redundancy Protocol)
- LLDP (Link Layer Discovery Protocol)



- [1] LED: NS
 [2] RJ45: P1
 [3] Labeling: PROFINET IO
 [4] RJ45: P2
 [5] LED: MS



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- [A] LED: Activity
 [B] LED: Link

8.8.1 Technical data

Ambient temperature during operation	-40 °C (no hoarfrost) to +70 °C
Storage temperature	-40 °C to +85 °C
Relative humidity	5% to 95%, without condensation
Conformity	IP20/55/66, RoHS, UL
Voltage supply via backplane	3.3 ±0.15 V DC
Power consumption	< 500 mA
Network interface	Electrically isolated
Dimensions (L × W × H)	52 × 50 × 22 mm
Tightening torque of terminal strip	0.5 Nm
Baud rate	10/100 MBaud in full duplex mode
Connection technology	2 × RJ45

9 Software

9.1 Startup with the LT Shell engineering software

The LT Shell software enables simple and fast startup of the inverters. It can be downloaded from the SEW-EURODRIVE website. After installation of the software, perform software updates at regular intervals.

The inverter can be connected to the software together with the engineering package (cable set C) and the USB11A or USM21A interface adapter.

A maximum of 63 inverters can be connected to LT Shell in a network.

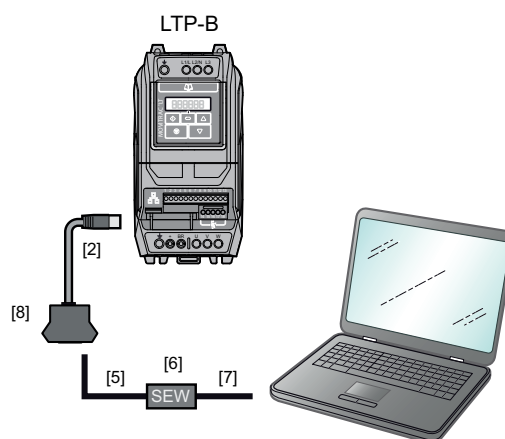
The software can be used to carry out the following tasks:

- Monitor, upload and download parameters
- Parameter printout
- Firmware update (manual and automatic)
- Export inverter parameters to Microsoft Word
- Monitor the state of the inputs and outputs and the motor
- Control inverter / manual mode
- Scope
- Offline startup with subsequent parameter set upload is possible in the 24 V backup mode

9.1.1 Connection to the LT Shell engineering software

The connection can be performed via an RS485 interface (USB11A or USM21A + PC engineering package) or via Bluetooth (parameter module).

Connection to LT Shell via RS485

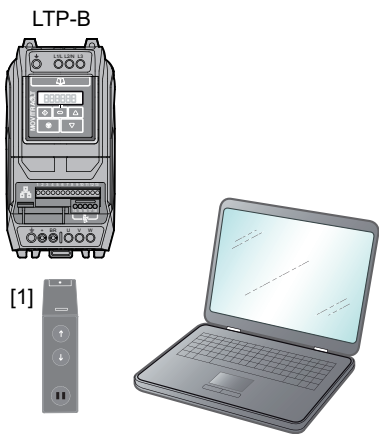


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- [2] RJ45 to RJ45 cable
 [5] RJ10 to RJ10 cable
 [6] USB11A or USM21A

- [7] USB A-B cable
 [8] RJ adapters (2 x RJ45, 1 x RJ10)

Connection to LT Shell via Bluetooth parameter module



18014415695300747

[1] Parameter module

9.2 Startup with the MOVITOOLS® MotionStudio engineering software

The software can be connected to the inverter as follows:

- Via an SBus connection between PC and inverter. The PC can be connected with the inverter via USM21A, for example.
- Via a connection of the PC with a gateway or a MOVI-PLC®. The PC gateway/ MOVI-PLC® connection can be made via USB11A, USM21A, USB or Ethernet, for example.

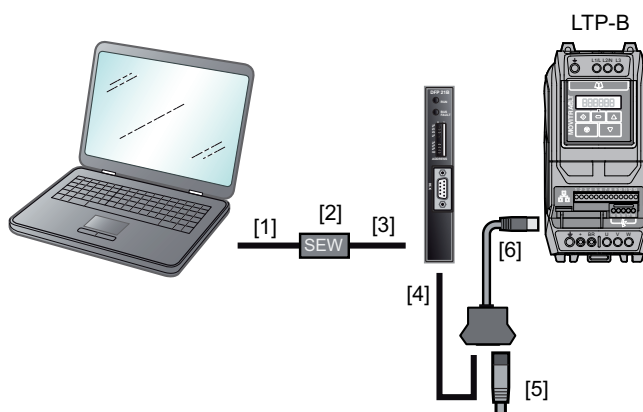
The following functions are available in MOVITOOLS® MotionStudio:

- Monitor, upload and download parameters
- Parameter printout
- Monitor the state of inputs/outputs and of the motor.

9.2.1 Connection to the MOVITOOLS® MotionStudio engineering software

The connection can be carried out indirectly via a gateway from SEW-EURODRIVE or a controller from SEW-EURODRIVE.

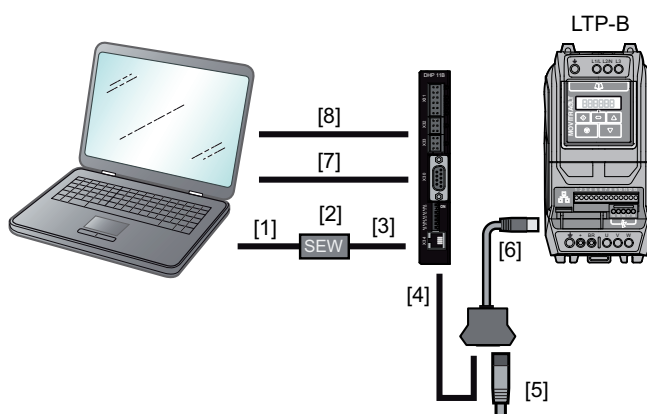
Connection to MOVITOOLS® MotionStudio via gateway



17186235147

- | | | | |
|-----|--------------------|-----|-------------------------------|
| [1] | USB A-B cable | [4] | RJ45 cable with open end |
| [2] | USB11A or USM21A | [5] | Terminating connector (120 Ω) |
| [3] | RJ10 to RJ10 cable | [6] | Cable distributor |

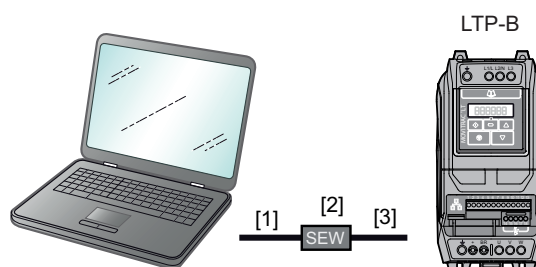
Connection to MOVITOOLS® MotionStudio via SEW-EURODRIVE controller



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- | | | | |
|-----|--------------------------|-----|-------------------------------|
| [1] | USB A-B cable | [5] | Terminating connector (120 Ω) |
| [2] | USB11A or USM21A | [6] | Cable distributor |
| [3] | RJ10 to RJ10 cable | [7] | USB A-B cable |
| [4] | RJ45 cable with open end | [8] | RJ45 Ethernet cable |

Connection to MOVITOOLS® MotionStudio via SBus with USM21A



34210070411

- | | |
|-----|--------------------|
| [1] | USB A-B cable |
| [2] | USM21A |
| [3] | RJ10 to RJ45 cable |

10 System accessories

10.1 Braking resistors

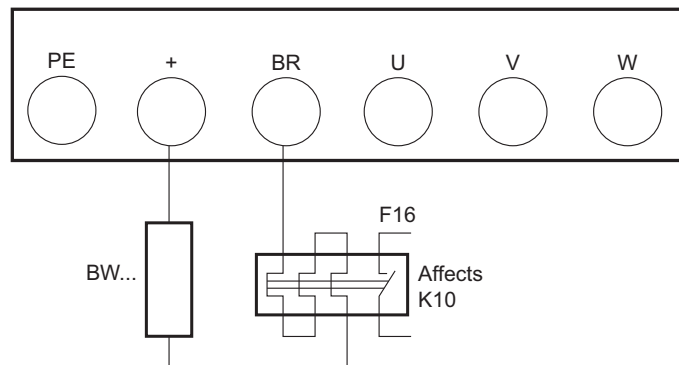
10.1.1 Braking resistor circuit

A braking resistor connected to the MOVITRAC® LTP-B can be used to convert braking energy generated by the motor into thermal energy. This brake circuit is usually necessary for applications with short deceleration ramp or high mass moment of inertia.

SEW-EURODRIVE recommends additionally securing the wire and grid resistors against overload via a bimetallic relay as illustrated below. The relay output disconnects the MOVITRAC® LTP-B from the supply system. **Do not** disconnect the connection between the braking resistor and MOVITRAC® LTP-B.

The bimetallic relay is not required for the BW LT 100 002 braking resistors, for SEW-EURODRIVE flatpack resistors, or for any other braking resistors with overload protection.

The following figure shows the wiring diagram for the braking resistor.



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10.1.2 BW.../BW...-T/BW...-P braking resistors

General information

- The BW.../BW...-T and BW...-P braking resistors are adapted to the technical features of the MOVITRAC® LTP-B drive inverters.
- Take account of a power reduction of 4% per 10 K from an ambient temperature of 40 °C. Do not exceed a maximum ambient temperature of 80 °C.

PTC resistor BW090-P52B

- The resistor protects itself (reversible) against regenerative overload by changing abruptly to high resistance and no longer consuming any more energy. The inverter then trips with the "overvoltage DC link" error.

Flat-type braking resistors

- Protection against contact (IP54)
- With internal thermal overload protection
- With a touch guard on the mounting rail

INFORMATION: The load capacity specified in the assignment tables applies to a horizontal mounting position [2]. Values are reduced by 10% for a vertical mounting position [1].

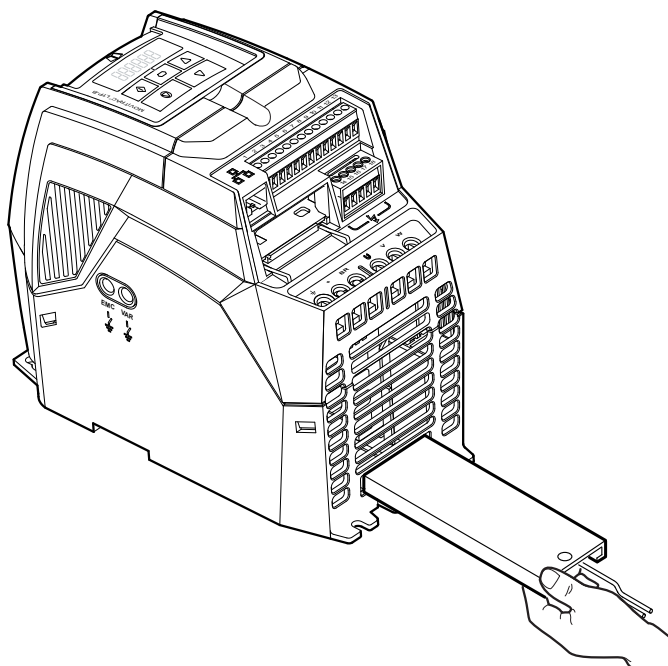


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Plug-in flat-type resistors

A special resistor in flat design is available for MOVITRAC® LTP-B.

With the plug-in flat-type resistors for sizes 2 and 3 in IP20 and sizes 4 and 5 in IP55, you can activate the internal heating function P6-21, which heats the inverter to operating temperature in cold environments.

IP20 size 2 and 3

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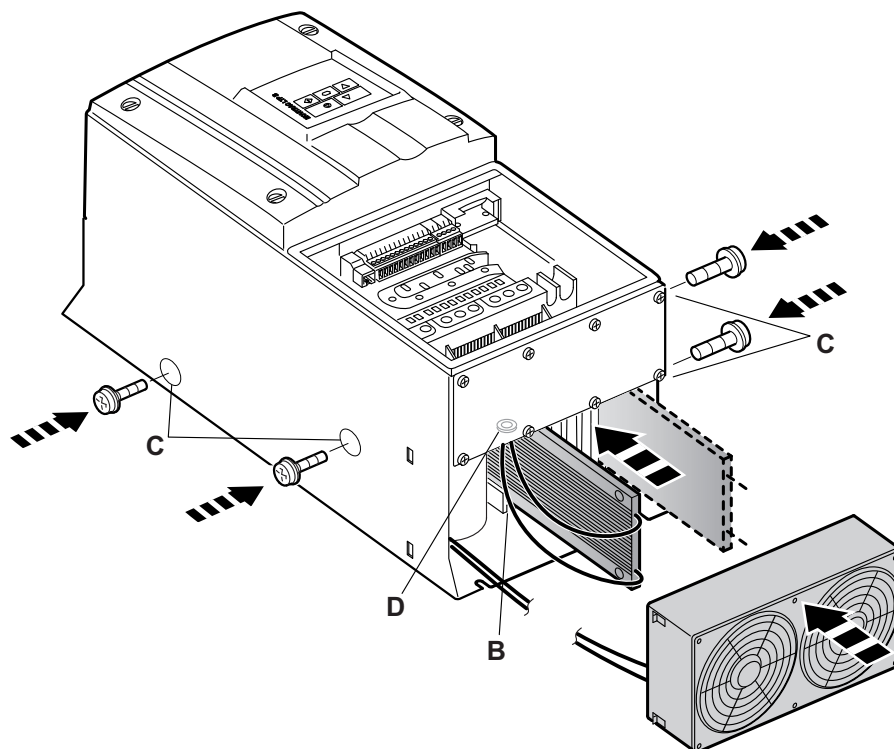
- This resistor can be installed in the inverter.
- No additional space is required for the resistor.
- The resistor is suitable for all MOVITRAC® LTP-B devices in applications with low regenerative energy.

Braking resistor	BW LT 100 002
Part number	18208770
Current-carrying capacity at • Continuous duty • 0.125 s	200 W 12 kW
Resistance value	100 Ω
Connections	Cable
Ambient temperature	-20 °C – +50 °C
Degree of protection	IP20
Suited for MOVITRAC® LTP-B	Size 2 and 3 (only with degree of protection IP20)

IP55 size 4+5

Size 4 can be equipped with one integrated braking resistor.

Size 5 can be equipped with one or two integrated braking resistors.



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- This resistor can be installed in the inverter.
- No additional space is required for the resistor.
- The resistor is suitable for all MOVITRAC® LTP-B devices in applications with low regenerative energy.

Type	BW LT 033 005
Part number	18201938
100% cdf	500 W
Resistance value	33 Ω $\pm$ 10%
Connections	Cables
Ambient temperature	-20 °C to 50 °C
Degree of protection	IP55
Dimensions L × W × H (mm)	330 × 80 × 10
Suited for MOVITRAC® LTP-B	Sizes 4 and 5 (with IP55 degree of protection)

Wire and grid resistors

- Perforated sheet cover (IP20) open to mounting surface.
- The short-time load capacity of the wire and grid resistors is greater than in the flatpack resistors.
- A temperature switch is integrated in the BW...-T braking resistor.
- A thermal overcurrent relay is integrated in the BW...-P braking resistor.

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

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

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

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

cUL approval

The BW...-T and BW...-P braking resistors have cRUus approval independent of the MOVITRAC® LTP-B inverters.

Parallel connection

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

Assignment of braking resistors to AC 230 V units (...-2A3-.../-...-2B1-...)

Braking resistor type BW...	BW039-003	BW039-006	BW039-012		BW027-006	BW027-012
Part number	8216878	8216886	8216894		8224226	8224234
Braking resistor type BW...-T			BW039-012-T	BW039-026-T		
Part number			18201369	18204155		
Continuous braking power (= 100% cdf)	0.3 kW	0.6 kW	1.2 kW	2.6 kW	0.6 kW	1.2 kW
Current-carrying capacity 50% cdf ¹⁾	0.5 kW	1.1 kW	2.1 kW	4.6 kW	1.1 kW	2.1 kW
at 25% cdf	1.0 kW	1.9 kW	3.8 kW	6.0 kW	1.9 kW	3.8 kW
12% cdf	1.8 kW	3.6 kW	6.0 kW ²⁾	6.0 kW	3.6 kW	7.2 kW
6% cdf	2.8 kW	5.7 kW	6.0 kW	6.0 kW	5.7 kW	8.7 kW
	Observe the regenerative power limit of the inverter! (= 150% of recommended motor power → technical data)					
Resistance value R_{BW}	39 $\Omega \pm 10\%$				27 $\Omega \pm 10\%$	
Tripping current (of F16) I_F	2.7 A	3.9 A	5.5 A	8.1 A	4.7 A	6.6 A
Design	Wire resistor					
Connections/tightening torque	Ceramic terminals 2.5 mm ² (AWG12) 0.5 Nm					
Degree of protection	IP20 (in assembled state)					
Ambient temperature ϑ_{amb}	-20 °C to +40 °C					
Type of cooling	KS = Natural cooling					
For MOVITRAC® LTP-B (recom- mendation)	0008 – 0022				0015 – 0040	

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

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

Braking resistor type	BW027-003	BW027-005	BW047-003	BW047-005
Part number	8269491	8269505	8262659	8262683
100% cdf	230 W	450 W	250 W	450 W
50% cdf	310 W	610 W	330 W	610 W
25% cdf	410 W	840 W	430 W	840 W
12% cdf	550 W	1200 W	580 W	1200 W
6% cdf	980 W	2360 W	1050 W	2360 W
Resistance value R_{BW}	27 $\Omega \pm 10\%$		47 $\Omega \pm 10\%$	
Tripping current of external bimetallic relay	1.0 A	1.4 A	0.8 A	1.2 A
Design	Flat design			
Degree of protection	IP65			
Ambient temperature ϑ_A	-20 °C to +45 °C			
For MOVITRAC® LTP-B (Recommendation)	0008 – 0040		0008 – 0055	0008 – 0075

Braking resistor type BW...-	BW012-025		
Part number	8216800		
Braking resistor type BW...-T/-P	BW012-025-P	BW012-050T	BW012-100-T
Part number	18204147	18201407	18201415
Continuous braking power (= 100% cdf)	2.5 kW	5.0 kW	10 kW
Current-carrying capacity 50% cdf ¹⁾	4.2 kW	8.5 kW	17 kW
at 25% cdf	7.5 kW	15.0 kW	30 kW
12% cdf	11.2 kW	22.5 kW	45 kW
6% cdf	19.0 kW	38.0 kW	76 kW
6% cdf	19.0 kW	38.0 kW	76 kW
	Observe the regenerative power limit of the inverter! (= 150% of recommended motor power → technical data)		
Resistance value R_{BW}	12 $\Omega \pm 10\%$		
Tripping current (of F16) I_F	14.4 A	20.4 A	28.8 A

Braking resistor type BW...-	BW012-025		
Design	Grid resistor		
Connections/tightening torque	M8 bolts/6 Nm		
Degree of protection	IP20 (in assembled state)		
Ambient temperature ϑ_{amb}	-20 °C to +40 °C		
Type of cooling	KS = Natural cooling		
For MOVITRAC® LTP-B (recommendation)	0110/0150		

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

Braking resistor type BW...	BW018-015		
Part number	8216843		
Braking resistor type BW...-T/-P	BW018-015-P	BW018-035-T	BW018-075-T
Part number	18204163	18201385	18201393
Continuous braking power (= 100% cdf)	1.5 kW	3.5 kW	7.5 kW
Current-carrying capacity 50% cdf ¹⁾	2.5 kW	5.9 kW	12.7 kW
at 25% cdf	4.5 kW	10.5 kW	22.5 kW
12% cdf	6.7 kW	15.7 kW	33.7 kW
6% cdf	11.4 kW	26.6 kW	52.2 kW ²⁾
	Observe the regenerative power limit of the inverter! (= 150% of recommended motor power → technical data)		
Resistance value R _{BW}	18 Ω ±10%		
Tripping current (of F16) I _F	9.1 A	13.9 A	20.4 A
Design	Wire resistor on ceramic core	Grid resistor	
Connections/tightening torque	BW018-015: Ceramic terminals 2.5 mm ² (AWG13)/0.5 Nm BW018-015-P: Terminal 2.5 mm ² (AWG13)/1 Nm	M8 bolts/6 Nm	
Degree of protection	IP20 (in assembled state)		
Ambient temperature ϑ_{amb}	-20 °C to +40 °C		
Type of cooling	KS = Natural cooling		
For MOVITRAC® LTP-B (recommendation)	0110 – 0185	0110 – 0370	0220 – 0750

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

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

Braking resistor type BW...	BW147	BW247	BW347
Part number	8207135	8207143	8207984
Braking resistor type BW...-T	BW147-T	BW247-T	BW347-T
Part number	18201342	18200842	18201350
Continuous braking power (= 100% cdf)	1.2 kW	2.0 kW	4.0 kW
Current-carrying capacity 50% cdf ¹⁾	2.2 kW	3.6 kW	7.2 kW
at 25% cdf	3.8 kW	6.4 kW	12.8 kW
12% cdf	7.2 kW	12 kW	20 kW ²⁾
6% cdf	11 kW	19 kW	20 kW
Observe the regenerative power limit of the inverter! (= 150% of recommended motor power → technical data)			
Resistance value R_{BW}	47 Ω ±10%		
Tripping current (of F16) I_F	5 A	6.5 A	9.2 A
Design	Wire resistor on ceramic core		
Connections/tightening torque	Ceramic terminals 2.5 mm ² (AWG13) / 0.5 Nm BW347-T: Ceramic terminals 10 mm ² (AWG8) / 1.6 Nm		
Degree of protection	IP20 (in assembled state)		
Ambient temperature ϑ_{amb}	-20 °C to +40 °C		
Type of cooling	KS = Natural cooling		

Braking resistor type BW...	BW147	BW247	BW347
For MOVITRAC® LTP-B (recommendation)	0055/0075		

- 1) cdf = Cyclic duration factor of the braking resistor in relation to a cycle duration $TD \leq 120$ s.
 2) Physical power limit due to DC link voltage and resistance value.

Braking resistor type BW...-T/-P	BW915-T	BW106-T	BW206-T
Part number	18204139	18200834	18204120
Continuous braking power (= 100% cdf)	16 kW	13.5 kW	18 kW
Current-carrying capacity 50% cdf ¹⁾	27.2 kW	23 kW	30.6 kW
at 25% cdf	48 kW	39.2 kW	39.2 kW
12% cdf	62.7 kW	39.2 kW	39.2 kW
6% cdf	62.7 kW	39.2 kW	39.2 kW
	Observe the regenerative power limit of the inverter! (= 150% of recommended motor power → technical data)		
Resistance value R_{BW}	15 $\Omega \pm 10\%$	6 $\Omega \pm 10\%$	
Tripping current (of F16) I_F	32.6 A	47.4 A	54.7 A
Design	Grid resistor		Grid resistor
Connections/ Tightening torque	M8 bolts/6 Nm		
Degree of protection	IP20 (in assembled state)		
Ambient temperature ϑ_{amb}	-20 °C to +40 °C		
Type of cooling	KS = Natural cooling		
For MOVITRAC® LTP-B (recommendation)	0150 – 0185	0185 – 0370 and 2 × parallel with 0450 – 0750 ²⁾	

- 1) cdf = Cyclic duration factor of the braking resistor in relation to a cycle duration $TD \leq 120$ s.
 2) When connected in parallel, the current-carrying capacity and tripping current are doubled.

Assignment of braking resistors to AC 400 V units

Braking resistor type BW...	BW090-P52B	BW100-005	BW100-006	BW072-003	BW072-005
Part number	8245630	8262691	8217017	8260583	8260605
Braking resistor type BW...-T	—	—	BW100-006-T	—	—
Part number	—	—	18204198	—	—
Continuous braking power (= 100% cdf)	0.10 kW	0.45 kW	0.6 kW	0.23 kW	0.45 kW
	0.15 kW	0.60 kW	1.1 kW	0.31 kW	0.60 kW
Current-carrying capacity 50% cdf ¹⁾	0.2 kW	0.83 kW	1.9 kW	0.42 kW	0.83 kW
at 25% cdf	0.4 kW	1.11 kW	3.6 kW	0.58 kW	1.11 kW
12% cdf	0.7 kW	2.00 kW	5.7 kW	1.00 kW	2.00 kW
6% cdf					
	Observe the regenerative power limit of the inverter! (= 150% of recommended motor power → technical data)				
Resistance value R _{BW}	90 Ω ±35%	100 Ω ±10%		72 Ω ±10%	
Tripping current (of F16) I _F	—	0.8 A	2.4 A	0.6 A	1 A
Design	PTC	Flat design	Wire resistor on ceramic core	Flat design	
Connections/tightening torque	Cables	Cables	Ceramic terminals 2.5 mm ² (AWG13) 0.5 Nm	Cables	
Degree of protection	IP20	IP54	IP20 (in assembled state)	IP54	
Ambient temperature ϑ_{amb}	-20 to +40 °C				
Type of cooling	KS = Natural cooling				
For MOVITRAC® LTP-B (recommendation)	0008 – 0015	0008 – 0022	0015 – 0040	0008 – 0015	

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

Braking resistor type BW...	BW168	BW268	BW047-003	BW047-005
Part number	820604X	8207151	8262659	8262683
Braking resistor type BW...-T	BW168-T	BW268-T	—	—
Part number	18201334	18204171	—	—
Continuous braking power (= 100% cdf)	0.8 kW	1.2 kW	250 W	450 W
	1.4 kW	2.2 kW	330 W	610 W
Current-carrying capacity 50% cdf ¹⁾	2.6 kW	3.8 kW	430 W	840 W
at 25% cdf	4.8 kW	7.2 kW	580 W	1200 W
12% cdf	7.6 kW	11 kW	1050 W	2360 W
6% cdf				
	Observe the regenerative power limit of the inverter! (= 150% of recommended motor power → technical data)			
Resistance value R _{BW}	68 Ω ±10%		47 Ω ±10%	
Tripping current (of F16) I _F	3.4 A	4.2 A	0.8 A	1.2 A
Design	Wire resistor on ceramic core		Flat design	
Connections/tightening torque	Ceramic terminals 2.5 mm ² (AWG13) 0.5 Nm		Cables	
Degree of protection	IP20 (in assembled state)		IP54	
Ambient temperature ϑ _{amb}	-20 °C to +40 °C			
Type of cooling	KS = Natural cooling			
For MOVITRAC® LTP-B (recommendation)	0008 – 0040	0015 – 0040	0055 – 0110	

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

Braking resistor type BW...	BW147	BW247	BW347	BW039-012		
Part number	8207135	8207143	8207984	8216894		
Braking resistor type BW...-T	BW147-T	BW247-T	BW347-T	BW039-012-T	BW039-026-T	BW039-050-T
Part number	18201342	18200842	18201350	18201369	18204155	18201377
Continuous braking power (= 100% cdf)	1.2 kW	2.0 kW	4.0 kW	1.2 kW	2.6 kW	5.0 kW
Current-carrying capacity 50% cdf ¹⁾	2.2 kW	3.6 kW	7.2 kW	2.1 kW	4.7 kW	8.5 kW
at 25% cdf	3.8 kW	6.4 kW	12.8 kW	3.8 kW	8.3 kW	15.0 kW
12% cdf	7.2 kW	12 kW	20 kW ²⁾	7.2 kW	15.6 kW	24.0 kW
6% cdf	11 kW	19 kW	20 kW	11.4 kW	24.0 kW	24.0 kW
	Observe the regenerative power limit of the inverter! (= 150% of recommended motor power → technical data)					
Resistance value R_{BW}	47 $\Omega \pm 10\%$			39 $\Omega \pm 10\%$		
Tripping current (of F16) I_F	5 A	6.5 A	9.2 A	5.5 A	8.1 A	11.3 A
Design	Wire resistor on ceramic core					Steel grid resistor
Connections/tightening torque	Ceramic terminals 2.5 mm ² (AWG13) / 0.5 Nm BW347-T: Ceramic terminals 10 mm ² (AWG8) / 1.6 Nm					M8 bolts/6 Nm
Degree of protection	IP20 (in assembled state)					
Ambient temperature ϑ_{amb}	-20 °C to +40 °C					
Type of cooling	KS = Natural cooling					
For MOVITRAC® LTP-B (recommendation)	0055/0075	0055 – 0075 and 2 × parallel with 0150/0185/0220 ³⁾		0055 – 0110		

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

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

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

Braking resistor type BW...	BW018-015		
Part number	8216843		
Braking resistor type BW...-T/-P	BW018-015-P	BW018-035-T	BW018-075-T
Part number	18204163	18201385	18201393
Continuous braking power (= 100% cdf)	1.5 kW	3.5 kW	7.5 kW
Current-carrying capacity 50% cdf ¹⁾	2.5 kW	5.9 kW	12.7 kW
at 25% cdf	4.5 kW	10.5 kW	22.5 kW
12% cdf	6.7 kW	15.7 kW	33.7 kW
6% cdf	11.4 kW	26.6 kW	52.2 kW ²⁾
	Observe the regenerative power limit of the inverter! (= 150% of recommended motor power → technical data)		
Resistance value R _{BW}	18 Ω ±10%		
Tripping current (of F16) I _F	9.1 A	13.9 A	20.4 A
Design	Wire resistor on ceramic core	Grid resistor	
Connections/ Tightening torque	BW018-015: Ceramic terminals 2.5 mm ² (AWG13)/0.5 Nm BW018-015-P: Terminal 2.5 mm ² (AWG13)/1 Nm	M8 bolts/6 Nm	
Degree of protection	IP20 (in assembled state)		
Ambient temperature θ _{amb}	-20 °C to +40 °C		
Type of cooling	KS = Natural cooling		
For MOVITRAC® LTP-B (recommen- dation)	2 × parallel with 0450 ³⁾		

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

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

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

Braking resistor type BW...	BW012-025		
Part number	8216800		
Braking resistor type BW...-T/-P	BW012-025-P	BW012-050T	BW012-100-T
Part number	18204147	18201407	18201415
Continuous braking power (= 100% cdf)	2.5 kW	5.0 kW	10 kW
	4.2 kW	8.5 kW	17 kW
Current-carrying capacity 50% cdf ¹⁾	7.5 kW	15.0 kW	30 kW
at 25% cdf	11.2 kW	22.5 kW	45 kW
12% cdf	19.0 kW	38.0 kW	76 kW
6% cdf	Observe the regenerative power limit of the inverter! (= 150% of recommended motor power → technical data)		
Resistance value R_{BW}	12 Ω $\pm$ 10%		
Tripping current (of F16) I_F	14.4 A	20.4 A	28.8 A
Design	Grid resistor		
Connections/tightening torque	M8 bolts/6 Nm		
Degree of protection	IP20 (in assembled state)		
Ambient temperature ϑ_{amb}	-20 °C to +40 °C		
Type of cooling	KS = Natural cooling		
For MOVITRAC® LTP-B (recommen- dation)	0300/0370		

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

Braking resistor type BW...	BW106-T	BW206-T
Part number	18200834	18204120
Continuous braking power (= 100% cdf)	13.5 kW	18 kW
	23 kW	30.6 kW
Current-carrying capacity 50% cdf ¹⁾	40 kW	54 kW
at 25% cdf	61 kW	81 kW
12% cdf	102 kW	136.8 kW
6% cdf		
Resistance value R_{BW}	6 Ω $\pm$ 10%	
Tripping current (of F16) I_F	47.4 A	54.7 A
Design	Grid resistor	
Connections/tightening torque	M8 bolts/6 Nm	
Degree of protection	IP20 (in assembled state)	
Ambient temperature ϑ_{amb}	-20 °C to +40 °C	
Type of cooling	KS = Natural cooling	
For MOVITRAC® LTP-B (recommen- dation)	0450 – 0750 ²⁾	0900 – 1600 and 2 × parallel with 2000/2500 ²⁾³⁾

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

2) Bear in mind that the resistive load capacity might be insufficient for these sizes. In this case, third party resistors have to be used. Accurate calculation is required.

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

Assignment of braking resistors to AC 575 V units

Braking resistor type BW...	BW090-P52B	BW100-005	BW100-006	BW072-003	BW072-005	BW168	BW268
Part number	8245630	8262691	8217017	8260583	8260605	820604X	8207151
Braking resistor type BW...-T	—	—	BW100-006-T	—	—	BW168-T	BW268-T
Part number	—	—	18204198	—	—	18201334	18204171
Continuous braking power (= 100% cdf)	0.10 kW	0.45 kW	0.6 kW	0.23 kW	0.45 kW	0.8 kW	1.2 kW
	0.15 kW	0.60 kW	1.1 kW	0.31 kW	0.60 kW	1.4 kW	2.2 kW
Current-carrying capacity 50% cdf ¹⁾	0.2 kW	0.83 kW	1.9 kW	0.42 kW	0.83 kW	2.6 kW	3.8 kW
at 25% cdf	0.4 kW	1.11 kW	3.6 kW	0.58 kW	1.11 kW	4.8 kW	7.2 kW
12% cdf	0.7 kW	2.00 kW	5.7 kW	1.00 kW	2.00 kW	7.6 kW	11 kW
6% cdf							
	Observe the regenerative power limit of the inverter! (= 150% of recommended motor power → technical data)						
Resistance value R _{BW}	90 Ω ±35%	100 Ω ±10%		72 Ω ±10%		68 Ω ±10%	
Tripping current (of F16) I _F	—	0.8 A	2.4 A	0.6 A	1 A	3.4 A	4.2 A
Design	PTC	Flat design	Wire resistor on ceramic core	Flat design		Wire resistor on ceramic core	
Connections/tightening torque	Cables	Cables	Ceramic terminals 2.5 mm ² (AWG13) 0.5 Nm	Cables		Ceramic terminals 2.5 mm ² (AWG13) 0.5 Nm	
Degree of protection	IP20	IP54	IP20 (in as-sembled state)	IP54		IP20 (in assembled state)	
Ambient temperature ϑ_{amb}	-20 °C to +40 °C						
Type of cooling	KS = Natural cooling						
For MOVITRAC® LTP-B (recommendation)	0008 – 0015	0008 – 0022	0015 – 0040	0008 – 0015		0008 – 0055	

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

Braking resistor type BW...	BW147	BW247	BW347	–	–
Part number	8207135	8207143	8207984	–	–
Braking resistor type BW...-T	BW147-T	BW247-T	BW347-T	BW106-T	BW206-T
Part number	18201342	18200842	18201350	18200834	18204120
Continuous braking power (= 100% cdf)	1.2 kW	2.0 kW	4.0 kW	13.5 kW	18 kW
Current-carrying capacity 50% cdf ¹⁾	2.2 kW	3.6 kW	7.2 kW	23 kW	30.6 kW
at 25% cdf	3.8 kW	6.4 kW	12.8 kW	40 kW	54 kW
12% cdf	7.2 kW	12 kW	20 kW ²⁾	61 kW	81 kW
6% cdf	11 kW	19 kW	20 kW	102 kW	136.8 kW
	Observe the regenerative power limit of the inverter! (= 150% of recommended motor power → technical data)				
Resistance value R _{BW}	47 Ω ±10%			6 Ω ±10%	
Tripping current (of F16) I _F	5 A	6.5 A	9.2 A	47.4 A	547 A
Design	Wire resistor on ceramic core			Grid resistor	
Connections/tightening torque	Ceramic terminals 2.5 mm ² (AWG13) / 0.5 Nm BW347-T: Ceramic terminals 10 mm ² (AWG8) / 1.6 Nm			M8 bolts/6 Nm	
Degree of protection	IP20 (in assembled state)				
Ambient temperature ϑ _{amb}	-20 °C to +40 °C				
Type of cooling	KS = Natural cooling				
For MOVITRAC® LTP-B (recommendation)	0075	0075/0110/0150 and 2 × in parallel for 0185 – 0220 ³⁾ and 0300 – 0450 ³⁾⁴⁾		0900/1100 ⁴⁾	

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

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

3) Load rating and tripping current double with parallel connection.

4) Bear in mind that the resistive load capacity might be insufficient for these sizes. In this case, third party resistors have to be used. Accurate calculation is required.

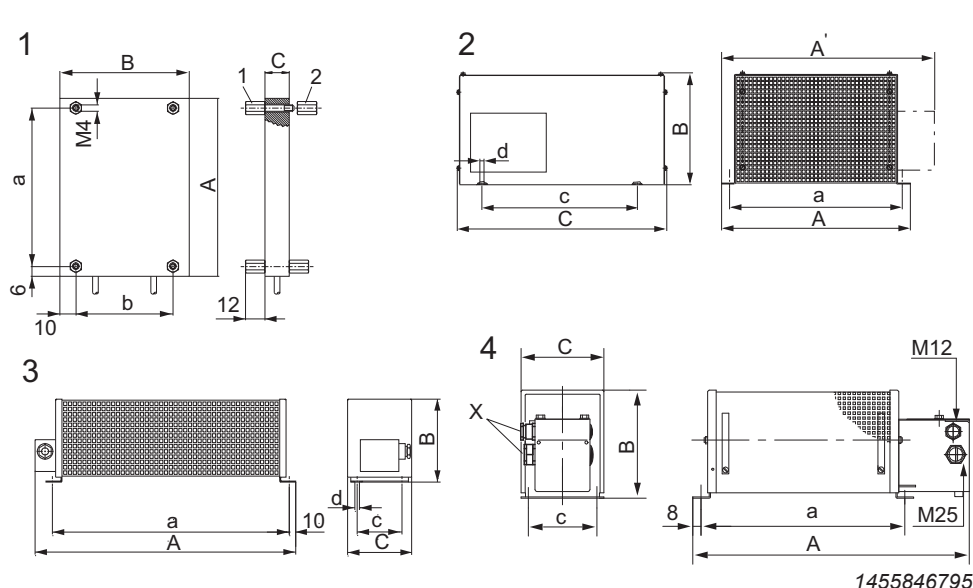
Braking resistor type BW...	BW012-025	–	–
Part number	8216800	–	–
Braking resistor type BW...-T/-P	BW012-025-P	BW012-050T	BW012-100-T
Part number	18204147	18201407	18201415
Continuous braking power (= 100% cdf)	2.5 kW	5.0 kW	10 kW
	4.2 kW	8.5 kW	17 kW
Current-carrying capacity 50% cdf ¹⁾	7.5 kW	15.0 kW	30 kW
at 25% cdf	11.2 kW	22.5 kW	45 kW
12% cdf	19.0 kW	38.0 kW	76 kW
6% cdf	Observe the regenerative power limit of the inverter! (= 150% of recommended motor power → technical data)		
Resistance value R_{BW}	12 Ω $\pm$ 10%		
Tripping current (of F16) I_F	14.4 A	20.4 A	28.8 A
Design	Grid resistor		
Connections/tightening torque	M8 bolts/6 Nm		
Degree of protection	IP20 (in assembled state)		
Ambient temperature ϑ_{amb}	-20 °C to +40 °C		
Type of cooling	KS = Natural cooling		
For MOVITRAC® LTP-B (recommendation)	0550/0750 ²⁾		

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

2) Bear in mind that the resistive load capacity might be insufficient for these sizes. In this case, third party resistors have to be used.
Accurate calculation is required.

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

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



BW... :

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

Design 1

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

Design 2

BW... type	Main dimensions in mm			Fastening parts mm			Cable gland	Mass kg
BW...-T/BW...-P	A/A'	B	C	a	b/c	d		
BW106-T	795	270	490	770	380	10.5	—	32
BW206-T	995	270	490	970	380	10.5	—	40
BW012-025	295	260	490	270	380	10.5	M12 + M25	8.0
BW012-025-P	295/355	260	490	270	380	10.5	M12 + M25	8.0
BW012-050-T	395	260	490	370	380	10.5	—	12
BW012-100-T	595	270	490	570	380	10.5	—	21
BR915-T	795	270	490	770	380	10.5	—	30
BW018-035-T	295	270	490	270	380	10.5	—	9.0
BW018-075-T	595	270	490	570	380	10.5	—	18.5
BW039-050-T	395	260	490	370	380	10.5	—	12
BW206-120-T	595	270	490	570	380	10.5	2 × 2 × M8	22.0

Design 3

BW... type	Main dimensions in mm			Fastening parts mm			Cable gland	Mass kg
BW...-T/BW...-P	A/A'	B	C	a	b/c	d		
BW018-015	620	120	92	544	64	6.5	PG11	4.0
BW027-006	486	120	92	430	64	6.5	PG11	2.2
BW027-012	486	120	185	426	150	6.5	PG11	4.3
BW039-003	286	120	92	230	64	6.5	PG11	1.5
BW039-006	486	120	92	430	64	6.5	PG11	2.2
BW039-012	486	120	185	426	150	6.5	PG11	4.3

BW... type	Main dimensions in mm			Fastening parts mm			Cable gland	Mass kg
BW...-T/BW...-P	A/A'	B	C	a	b/c	d		
BW147	465	120	185	426	150	6.5	PG13.5	4.3
BW247	665	120	185	626	150	6.5	PG13.5	6.1
BW347	670	145	340	630	300	6.5	PG13.5	13.2
BW168	365	120	185	326	150	6.5	PG13.5	3.5
BW268	465	120	185	426	150	6.5	PG13.5	4.3

Design 4

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

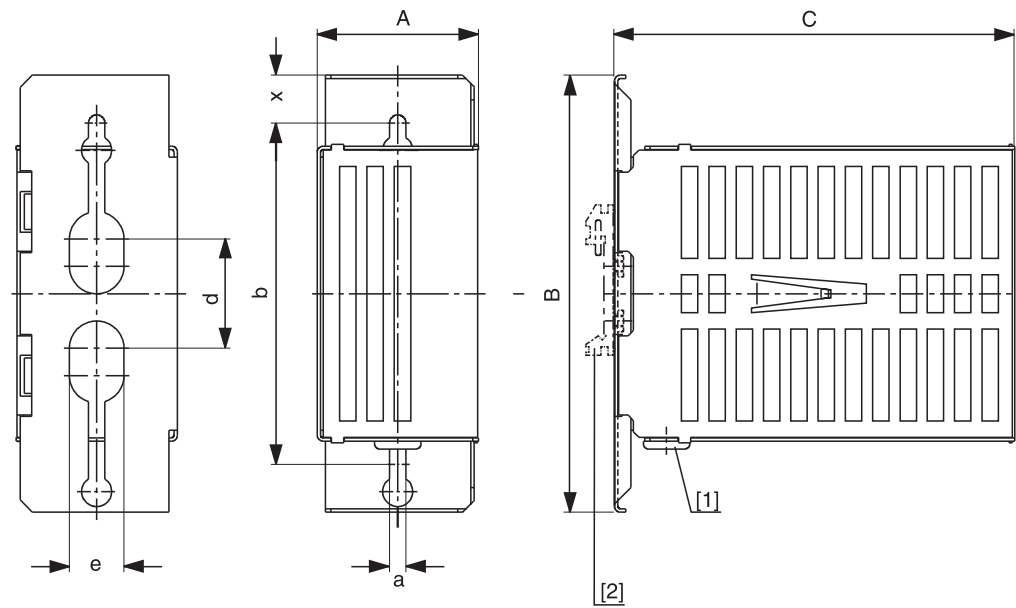
BS... touch guard

Description

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

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

Dimension drawing for BS...



1455849867

- [1] Grommet
- [2] Support rail mounting

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

Mounting rail installation

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

10.2 Line chokes

Using line chokes is optional in the following instances:

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

The following devices are fitted with a direct current choke as standard:

- 240 V, size 5 – 7
- 480 V, size 5 – 8

INFORMATION



600 V devices do not have a built-in choke.

10.2.1 Technical data

IP20, 1 × 200 – 230 V, 3 × 200 – 500 V, 6 – 36 A

Type		ND LT 016 180 21-20	ND LT 025 110 21-20	ND LT 006 480 53-20	ND LT 010 290 53-20	ND LT 036 081 53-20
Part number		28233417	18201652	18201660	18201679	18201687
Nominal voltage (according to EN 50160)	V _N	1 × AC 200 – 230 V, 50/60 Hz		3 × AC 200 – 500 V, 50/60 Hz		
Rated current	I _N	16 A	25 A	6 A	10 A	36 A
Inductance	L _N	1.8 mH	1.1 mH	4.8 mH	2.9 mH	0.81 mH
Power loss	P _V	25 W	32 W	25 W	36 W	67 W
Max. terminal cross-section		4 mm ²	10 mm ²	2.5 mm ²	2.5 mm ²	10 mm ²
Ambient temperature		-25 °C to +45 °C				
IP protection		IP20 (EN 60529)				
Mass	m in kg	1.1	1.8	1.3	2.5	7.2
Assignment to AC 400 V		–	–	0008/0015	0022	0040 – 0150
Assignment to AC 230 V		0008/0015	0022	0008	0015	0022 – 0075
UL/cUL approval		No				

IP00/IP20, 3 × 200 – 500 V, 50 – 300 A

Type		ND LT 050 058 53-20	ND LT 090 032 53-20	ND LT 200 007 53-00	ND LT 300 005 53-00
Part number		18410936	18410944	28233433	28233441
Nominal voltage (according to EN 50160)	V _N	3 × AC 200 – 500 V, 50/60 Hz			
Rated current	I _N	50 A	90 A	200 A	300 A
Inductance	L _N	0.58 mH	0.32 mH	0.0735 mH	0.049 mH
Power loss	P _V	112 W	144 W	187 W	250 W
Max. terminal cross-section		16 mm ²	35 mm ²	10 × 18 mm	10 × 18 mm
Ambient temperature		-25 °C to +40 °C			
IP protection		IP20 (EN 60529)		IP00 (EN 60529)	
Mass	m in kg	8.7	16	35	48
Assignment to AC 400 V		0185 – 0220	0300 – 0370	0450 – 0900	1100 – 1600
Assignment to AC 230 V		0110	0150/0185	0220 – 0450	0550/0750
UL/cUL approval		No			

IP00, 3 × 200 – 500 V, 500 A

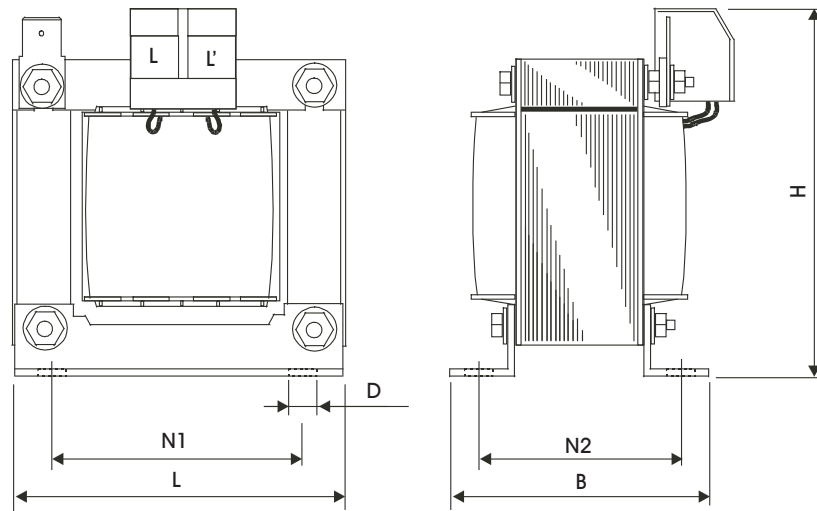
		ND LT 500 002 53-00	ND LT 500 006 53-00
Part number		28229428	28231155
Nominal voltage (according to EN 50160)	V _N	3 × AC 200 – 500 V, 50/60 Hz	
Rated current	I _N	500 A	
Inductance	L _N	0.02 mH	0.06 mH
Power loss	P _V	275 W	423 W
Max. terminal cross-section		10 × 18 mm	10 × 18 mm
Voltage drop		1%	4%
Ambient temperature		-10 to +40 °C	
IP degree of protection		IP00 (EN 60529)	
Mass		45	62
Assignment to AC 400 V		2000/2500	
UL/cUL approval		No	

IP66, 1 × 200 – 230 V, 3 × 200 – 600 V, 6 – 25 A

Type		ND LT 016 183 21-66	ND LT 025 117 21-66	ND LT 006 480 63-66	ND LT 010 386 63-66	ND LT 018 204 63-66
Part number		18217680	18217699	28233409	18217710	28233425
Nominal voltage (according to EN 50160)	V _N	1 × AC 200 – 230 V, 50/60 Hz		3 × AC 200 – 600 V, 50/60 Hz		
Rated current	I _N	16 A	25 A	6 A	10 A	18 A
Inductance	L _N	1.83 mH	1.17 mH	4.8 mH	3.86 mH	2.04 mH
Power loss	P _V	48 W	63 W	25 W	36 W	67 W
Max. terminal cross-section		4 mm ²	10 mm ²	2.5 mm ²	2.5 mm ²	10 mm ²
Ambient temperature		-25 °C to +40 °C				
IP protection		IP66 (EN 60529)				
Mass	m in kg	1	1.3	1.6	3.5	7
Assignment to AC 230 V		0008/0015	0022	0008	0015	0022/0030
Assignment to AC 400 V		–	–	0008/0015	0022	0040/0055
Assignment to AC 575 V		–	–	0008 – 0022	0040	0055/0110
UL/cUL approval		No				

10.2.2 Dimensions

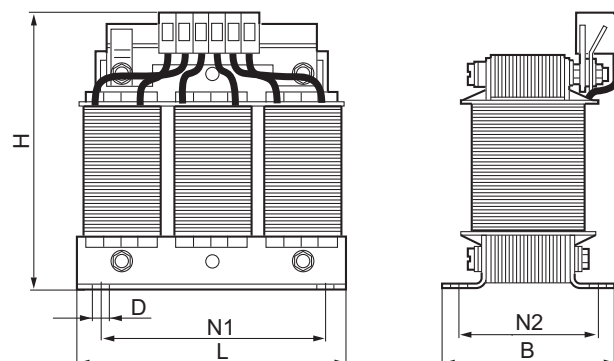
IP20, 1 × 200 – 230 V, 10/25 A



9007202440854667

Type	L	B	H	N1	N2	D
	mm	mm	mm	mm	mm	mm
ND LT 016 180 21-20	78	78	80	56	49	4.8
ND LT 025 110 21-20	85	76	158	100	55	5

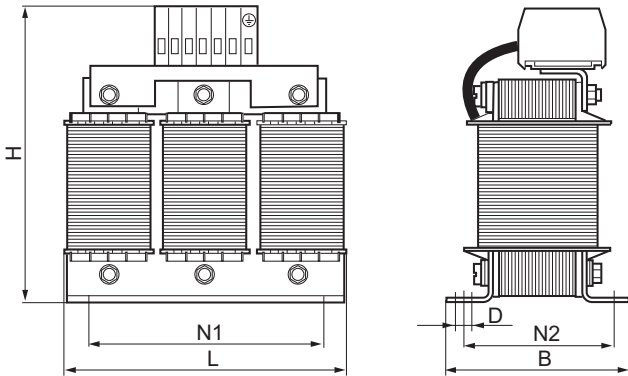
IP20, 3 × 200 – 500 V, 6/10 A



9453581067

Type	L	B	H	N1	N2	D
	mm	mm	mm	mm	mm	mm
ND LT 006 480 53-20	95	56	107	56	43	5 × 9
ND LT 010 290 53-20	125	71	127	100	55	5 × 8

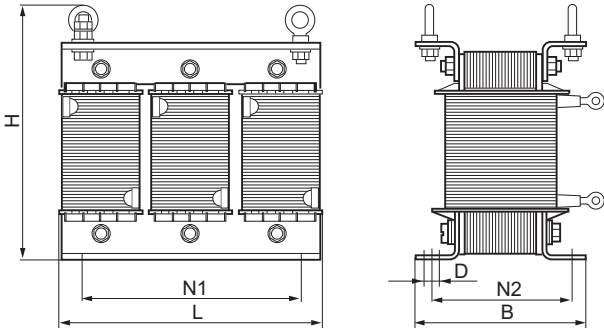
IP20, 3 × 200 – 500 V, 36 – 90 A



9453583371

Type	L	B	H	N1	N2	D
	mm	mm	mm	mm	mm	mm
ND LT 036 081 53-20	190	82	205	170	58	8 × 12
ND LT 050 058 53-20	190	102	220	170	78	8 × 12
ND LT 090 032 53-20	240	107	280	185	85	10 × 18

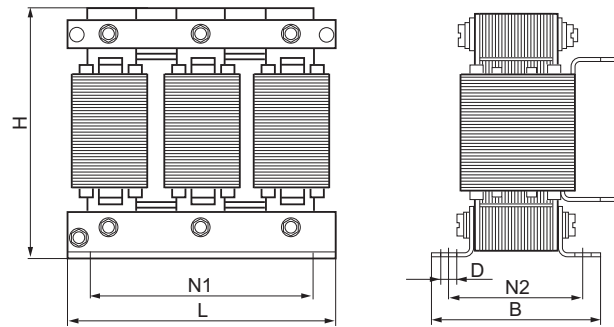
IP00, 3 × 200 – 500 V, 200 A



9453586059

Type	L	B	H	N1	N2	D
	mm	mm	mm	mm	mm	mm
ND LT 200 007 53-00	310	180	260	224	117	10 x 18

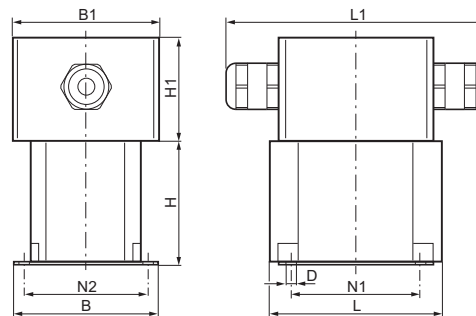
IP00, 3 × 200 – 500 V, 300/500 A



9453588107

Type	L	B	H	N1	N2	D
	mm	mm	mm	mm	mm	mm
ND LT 300 005 53-00	370	180	310	248	139	10 × 18
ND LT 500 002 53-00	370	200	310	264	139	10 × 18
ND LT 500 006 53-00	360	194	320	264	165	10 × 18

IP66, 1 × 200 – 230 V, 3 × 200 – 600 V, 6 – 25 A



9453666955

Type	L	B	H	N1	N2	D	L1	B1	H1
	mm	mm	mm	mm	mm	mm	mm	mm	mm
ND LT 016 183 21-66	82	70	70	70	58	6	151	85	60
ND LT 025 117 21-66	90	84	75	84	72	6	151	85	60
ND LT 006 480 63-66	115	74	88	80	60	5.5 × 7	151	85	60
ND LT 010 386 63-66	175	99	137	130	79	5.5 × 12	151	85	60
ND LT 018 204 63-66	175	114	137	130	94	5.5 × 12	151	85	60

10.3 Output chokes

For applications with special requirements on the output wave shape, an output choke is highly recommended to improve the functionality, reliability and service life of the system. Here are some examples:

- Long motor cables up to 300 m (the nominal length can be doubled when using an output choke), requires PWM frequency ≤ 4 kHz
- High capacity motor cable (e.g. "Pyro" wire for fire protection)
- Several motors connected in parallel
- Motors without insulation suited for inverters (usually older motors)

A series of high-quality output chokes with the following main features are available for MOVITRAC® LTP-B:

- Limiting of output voltage drop, usually < 200 V/ μ s
- Limiting of transient overvoltage at the motor terminals, usually < 1000 V
- Suppressing line-related interference in low frequency ranges
- Compensating capacitive load currents
- Reducing HF interference emission of the motor cable
- Reducing motor losses and audible noise caused by ripple

10.3.1 Technical data

IP20, 3 × 20 – 500 V, 8 – 75 A

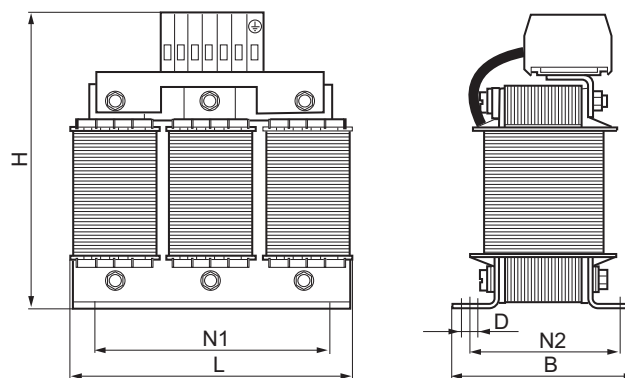
Type		HD LT 008 200 53-20	HD LT 012 130 53-20	HD LT 030 050 53-20	HD LT 075 022 53-20
Part number		18201695	18201709	18201717	18201725
Nominal voltage	V_N	3 × AC 20 – 500 V, 0 – 60 Hz			
Rated current	I_N	8 A	12 A	30 A	75 A
Inductance	L_N	2 mH	1.3 mH	0.5 mH	0.22 mH
Ambient temperature		-25 °C to +40 °C			
Power loss	P_V	35 W	52 W	40 W	100 W
Degree of protection		IP20 (EN 60529)			
Mass	m in kg	1.5	2.8	4.2	8.6
Assignment to AC 400 V		0008 – 0022	0040	0055/0150	0185 – 0370
Assignment to AC 230 V		0008/0015	0022	0030 – 0075	0110 – 0185
UL/cUL approval		No			

IP00, 3 × 20 – 500 V, 180 – 500 A

Type		HD LT 180 009 53-00	HD LT 300 005 53-00	HD LT 500 003 53-00
Part number		18201733	28233549	28231147
Nominal voltage	V_N	3 × AC 20 – 500 V		
Rated current	I_N	180 A	300 A	500 A
Inductance	L_N	0.09 mH	0.053 mH	0.032 mH
Ambient temperature		-25 °C to +40 °C		
Power loss	P_V	160 W	380 W	520 W
Degree of protection		IP00 (EN 60529)		
Mass	m in kg	32	48	58
Assignment to AC 400 V		0450 – 0900	1100 – 1600	2000/2500
Assignment to AC 230 V		0220 – 0450	0550/0750	–
UL/cUL approval		No		

IP66, 3 × 20 – 600 V, 8 – 18 A

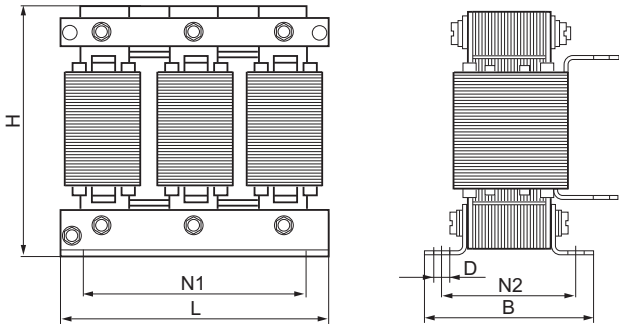
Type		HD LT 008 200 63-66	HD LT 012 120 63-66	HD LT 018 090 63-66
Part number		18216757	18216765	18216773
Nominal voltage	V_N	3 × AC 20 – 600 V		
Rated current	I_N	8 A	12 A	18 A
Inductance	L_N	2 mH	1.2 mH	0.9 mH
Ambient temperature		-25 °C to +40 °C		
Power loss	P_V	35 W	52 W	54 W
Degree of protection		IP66 (EN 60529)		
Mass	m in kg	1.7	3.2	3.2
Assignment to AC 230 V		0008/0015	0022	0030/0040
Assignment to AC 400 V		0008 – 0022	0040	0055/0075
Assignment to AC 575 V		0008 – 0040	0055/0075	0110
UL/cUL approval		No		

10.3.2 Dimensions
IP20, 3 × 20 – 500 V, 8 – 75 A


9453583371

Type	L	B	H	N1	N2	D
	mm	mm	mm	mm	mm	mm
HD LT 008 200 53-20	95	61	107	56	43	4
HD LT 012 130 53-20	125	76	158	100	55	5
HD LT 030 050 53-20	155	66	185	130	57	8
HD LT 075 022 53-20	190	92	223	170	68	8

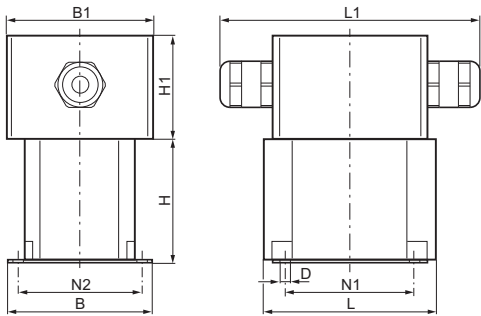
IP00, 3 × 20 – 500 V, 180 – 500 A



9453588107

Type	L	B	H	N1	N2	D
	mm	mm	mm	mm	mm	mm
HD LT 180 009 53-00	340	138	292	248	110	10 × 18
HD LT 300 005 53-00	380	180	310	248	139	10 × 18
HD LT 500 003 53-00	380	210	310	248	184	10 × 18

IP66, 3 × 20 – 600 V, 8 – 18 A



9453666955

Type	L	B	H	N1	N2	D	L1	B1	H1
	mm	mm	mm	mm	mm	mm	mm	mm	mm
HD LT 008 200 63-66	115	74	85	80	60	5.5 × 7	151	85	60
HD LT 012 120 63-66	140	87	110	100	70	5.5 × 12	151	85	60
HD LT 018 090 63-66	140	87	110	100	70	5.5 × 12	151	85	60

10.4 Line filter

A line filter reduces interference emission via the supply system cable, which is generated by the frequency inverter due to its operating principle. It mainly serves to meet interference voltage limit requirements in the frequency range from 150 kHz to 30 MHz at the line connection. In addition, a line filter dampens the interference from the supply system affecting the frequency inverter.

All MOVITRAC® LT devices are developed to minimize interference emission and to ensure a high electromagnetic compatibility for the drives.

Additional EMC filters can be installed to:

- Further reduce grid disturbances.
- Minimize the risk of interference affecting other devices.

The line filter keeps back the interference voltages generated by the frequency inverter from the power supply system and feeds them back to the frequency inverter.

The use of line filters is recommended in the following cases:

- Reduced EMI via the line cable
- Compliance with limit values
- Reduced equipotential bonding currents
- Reduced leakage currents in case of long motor cables

10.4.1 Technical data

IP20/IP66, 1 × 200 – 250 V, 10 – 25 A

Type		NF LT 010 201-20	NF LT 025 201-20	NF LT 010 201-66	NF LT 025 201-66
Part number		18411029	18411037	18411134	18411142
Nominal voltage (according to EN 50160)	V _N	1 × AC 200 – 250 V, 48 – 62 Hz			
Rated current	I _N	10 A	25 A	10 A	25 A
Leakage current	I	< 5 mA			
Ambient temperature	T	-25 °C to +40 °C			
Degree of protection		IP20		IP66	
Mass	kg	1.32	1.5	1.4	1.6
Assignment to AC 230 V		0008	0015/0022	0008	0015/0022
UL/cUL approval		No			

IP20, 3 × 200 – 500 V, 6 – 25 A

Type		NF LT 006 503-20	NF LT 016 503-20	NF LT 025 503-20
Part number		18411045	18411053	18411061
Nominal voltage (according to EN 50160)	V _N	3 × AC 200 – 500 V, 48 – 62 Hz		
Rated current	I _N	6 A	16 A	25 A
Leakage current	I	< 10 mA	< 35 mA	< 35 mA
Ambient temperature	T	-25 °C to +40 °C		
Degree of protection		IP20		
Mass	kg	1.58	2.5	2.7
Assignment to AC 230 V		0008	0015 – 0030	0040/0055
Assignment to AC 400 V		0008 – 0015	0022/0040	0055/0075
UL/cUL approval		No		

IP66, 3 × 200 – 500 V, 6 – 25 A

Type		NF LT 006 503-66	NF LT 016 503-66	NF LT 025 503-66
Part number		18411150	18411169	18411177
Nominal voltage (according to EN 50160)	V _N	3 x AC 200 – 500 V, 48 – 62 Hz		
Rated current	I _N	6 A	16 A	25 A
Leakage current	I	< 10 mA	< 35 mA	< 35 mA
Ambient temperature	T	-25 °C to +40 °C		
Degree of protection		IP66		
Mass	kg	1.6	2.5	2.7
Assignment to AC 230 V		0008	0015 – 0030	0040/0055
Assignment to AC 400 V		0008 – 0015	0022/0040	0055/0075
UL/cUL approval		No		

IP20/IP00, 3 × 200 – 500 V, 50 – 300 A

Type		NF LT 050 503-20	NF LT 080 503-20	NF LT 180 503-20	NF LT 300 503-00
Part number		18411088	18411096	18411118	18411126
Nominal voltage (according to EN 50160)	V_N	3 × AC 200 – 500 V, 48 – 62 Hz			
Rated current	I_N	50 A	80 A	180 A	300 A
Leakage current	I	< 180 mA	< 200 mA	< 220 mA	< 260 mA
Ambient temperature	T	-25 °C to +40 °C			
Degree of protection		IP20			IP00
Mass	kg	2.63	7.35	9.98	17.5
Assignment to AC 230 V		0075/0110	0150/0185	0220 – 0370	0450 – 0750
Assignment to AC 400 V		0110 – 0185	0220/0370	0450 – 0750	0900 – 1600
UL/cUL approval		No			

IP00, 3 x 200 - 500 V, 450 A

Type		NF LT 450 503-00
Part number		28231163
Nominal voltage (according to EN 50160)	V_N	3 x AC 200 – 500 V, 48 - 62 Hz
Rated current	I_N	450 A
Leakage current	I	< 760 mA
Ambient temperature	T	-10 °C to +40 °C
Degree of protection		IP00
Mass	kg	24
Assignment to AC 400 V		2000/2500
UL/cUL approval		No

IP20, 3 × 500 – 600 V, 6 – 25 A

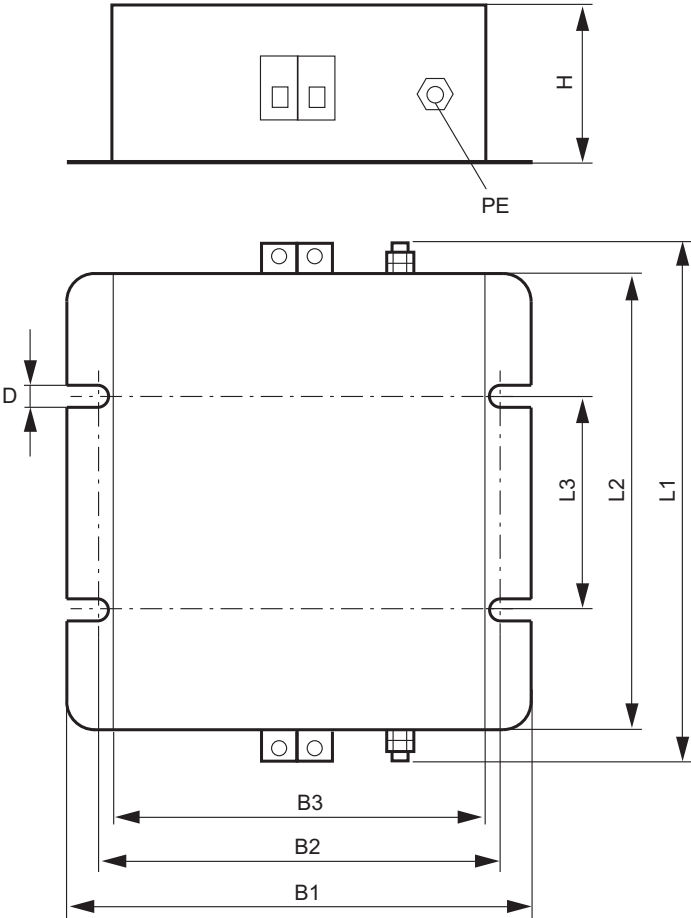
Type		NF LT 006 603-20	NF LT 016 603-20	NF LT 025 603-20
Part number		18411223	18411231	18411258
Nominal voltage (according to EN 50160)	V_N	3 × AC 500 – 600 V, 48 – 62 Hz		
Rated current	I_N	6 A	16 A	25 A
Leakage current	I	< 10 mA	< 35 mA	< 35 mA
Ambient temperature	T	-25 °C to +40 °C		
Degree of protection		IP20		
Mass	kg	2.7		
Assignment to AC 600 V		0008 – 0022	0040 – 0075	0110
UL/cUL approval		No		

IP20, 3 × 500 – 690 V, 50 – 180 A

Type		NF LT 050 603-20	NF LT 080 603-20	NF LT 180 603-20
Part number		18411266	18411274	18411282
Nominal voltage (according to EN 50160)	V_N	3 × AC 500 – 690 V, 48 – 62 Hz		
Rated current	I_N	50 A	80 A	180 A
Leakage current	I	< 80 mA	< 100 mA	< 100 mA
Ambient temperature	T	-25 °C to +40 °C		
Degree of protection		IP20		
Mass	kg	3.38	5.67	6.99
Assignment to AC 600 V		0150 – 0300	0370/0450	0550 – 1100
UL/cUL approval		No		

10.4.2 Dimensions

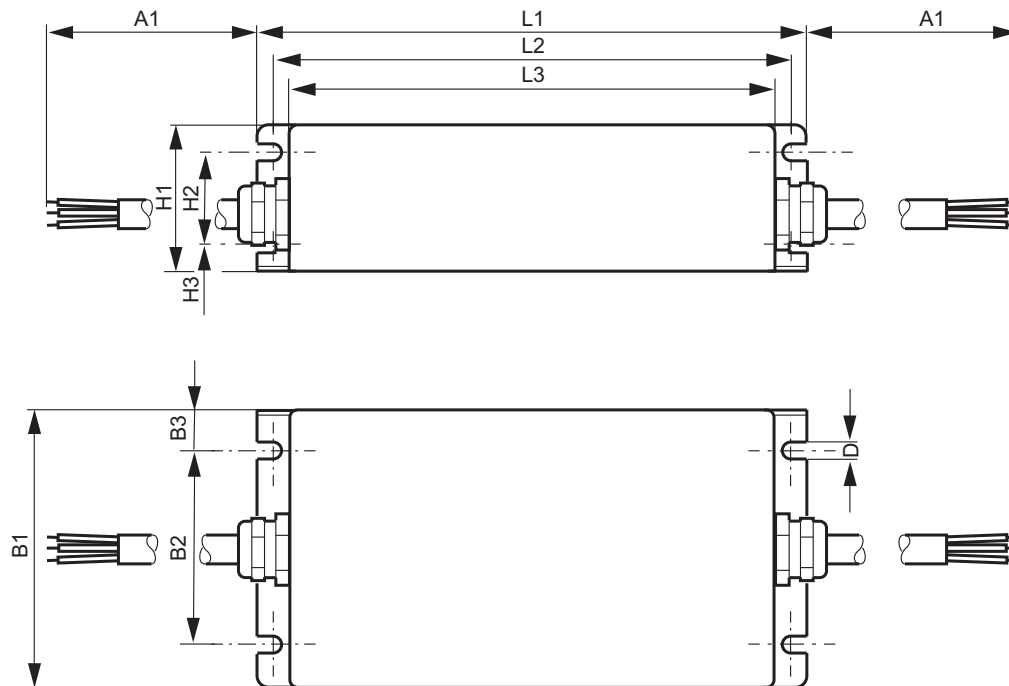
1 × AC 200 – 250 V, 10 – 25 A, IP20



12694590091

Part number	PE connec- tion	L1 mm	L2 mm	L3 mm	B1 mm	B2 mm	B3 mm	H mm	D mm
NF LT 010 201-20	2 × M6	180	160	150	70	45	12.5	65	6.2
NF LT 025 201-20	2 × M6	250	236	220	70	45	12.5	65	6.2

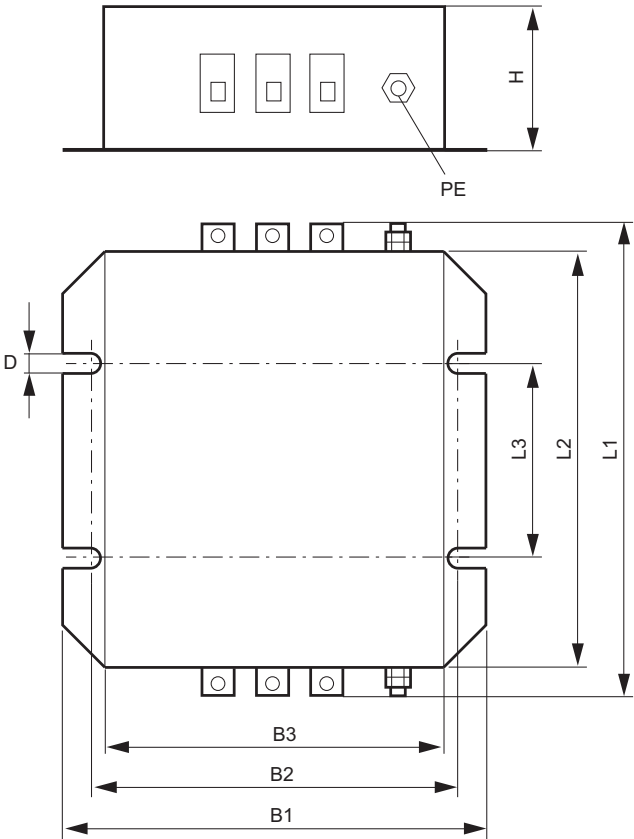
1 × AC 200 – 250 V, 10 – 25 A, IP66



12263312139

Part number	PE connection	L1 mm	L2 mm	L3 mm	B1 mm	B2 mm	B3 mm	H1 mm	H2 mm	H3 mm	D mm	A1 mm
NF LT 010 201-66	3G2.5	180	166	150	70	45	12.5	65	40	12.5	6.2	500
NF LT 025 201-66	3G4.0	250	236	220	70	45	12.5	65	40	12.5	6.2	500

3 × AC 200 – 500 V, 6 – 50 A, IP20

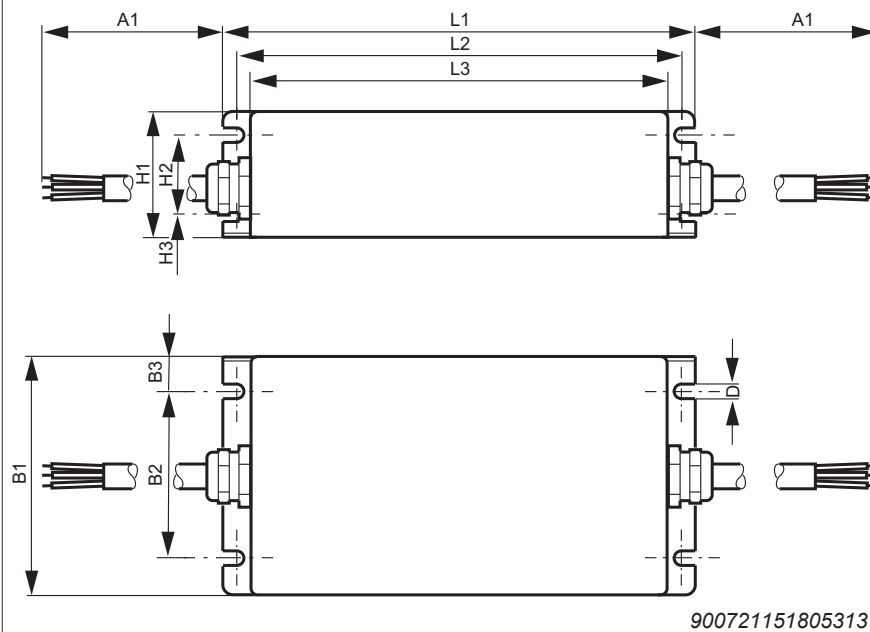


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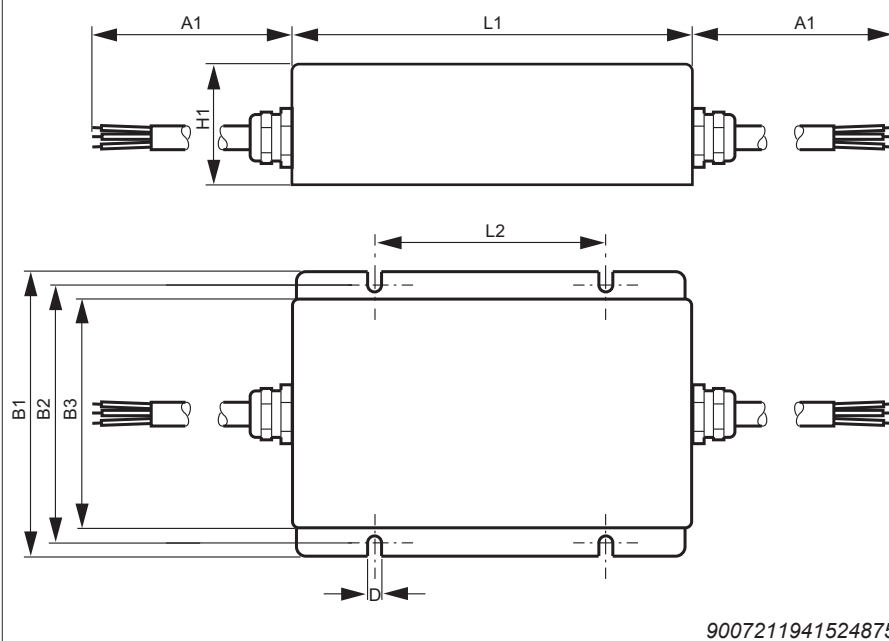
Part number	PE connec- tion	L1 mm	L2 mm	L3 mm	B1 mm	B2 mm	B3 mm	H mm	D mm
NF LT 006 503-20	2 × M6	210	196	180	85	55	15	60	6.2
NF LT 016 503-20	2 × M6	230	216	200	120	80	20	65	6.2
NF LT 025 503-20	2 × M6	230	216	200	120	80	20	65	6.2
NF LT 050 503-20	2 × M6	247	200	115	150	136	120	65	6.2

3 × AC 200 – 500 V, 6 – 25 A, IP66

NF LT 006 503-66, NF LT 016 503-66

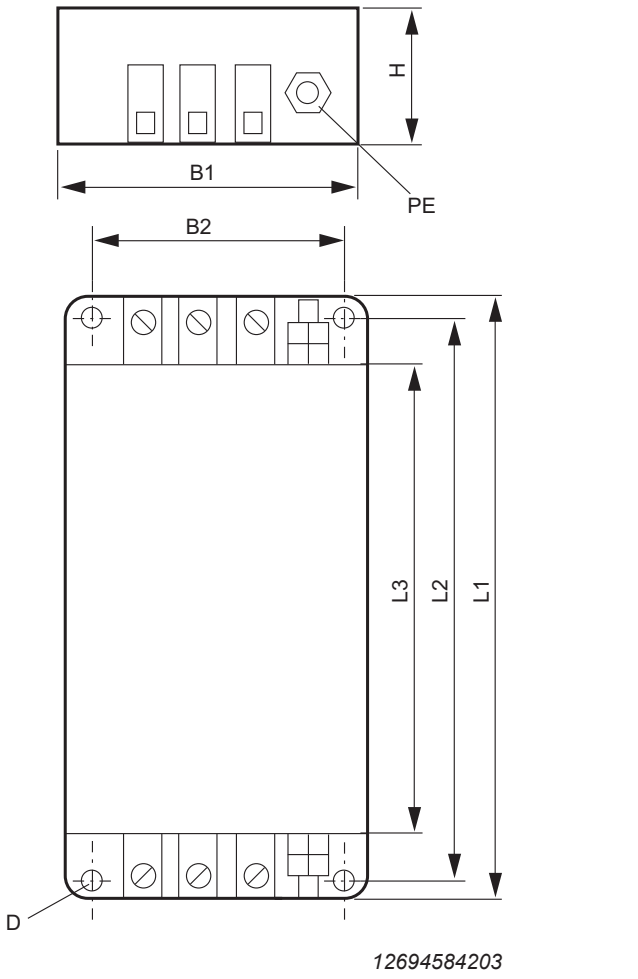
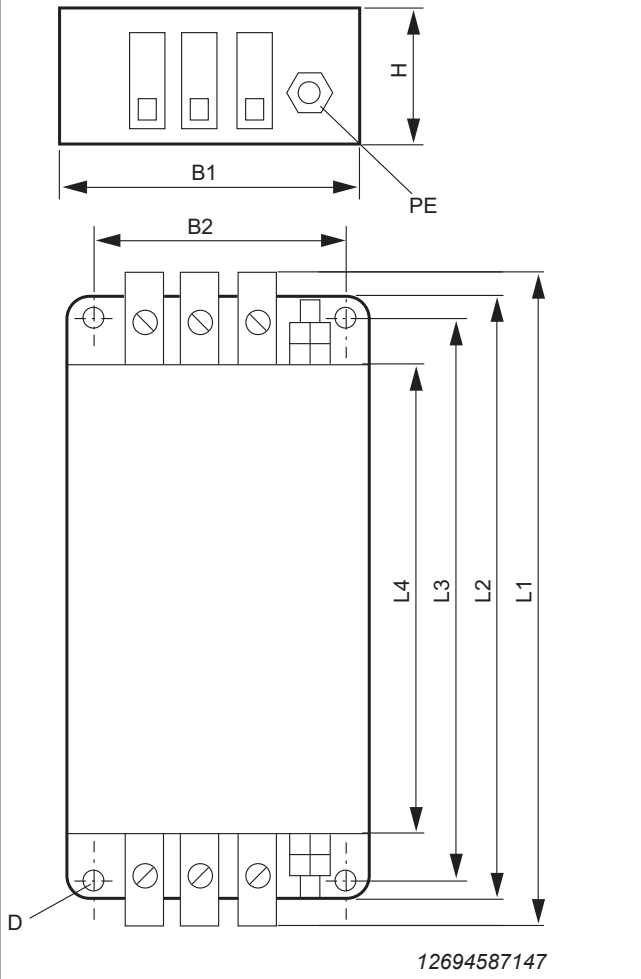


NF LT 025 503-66



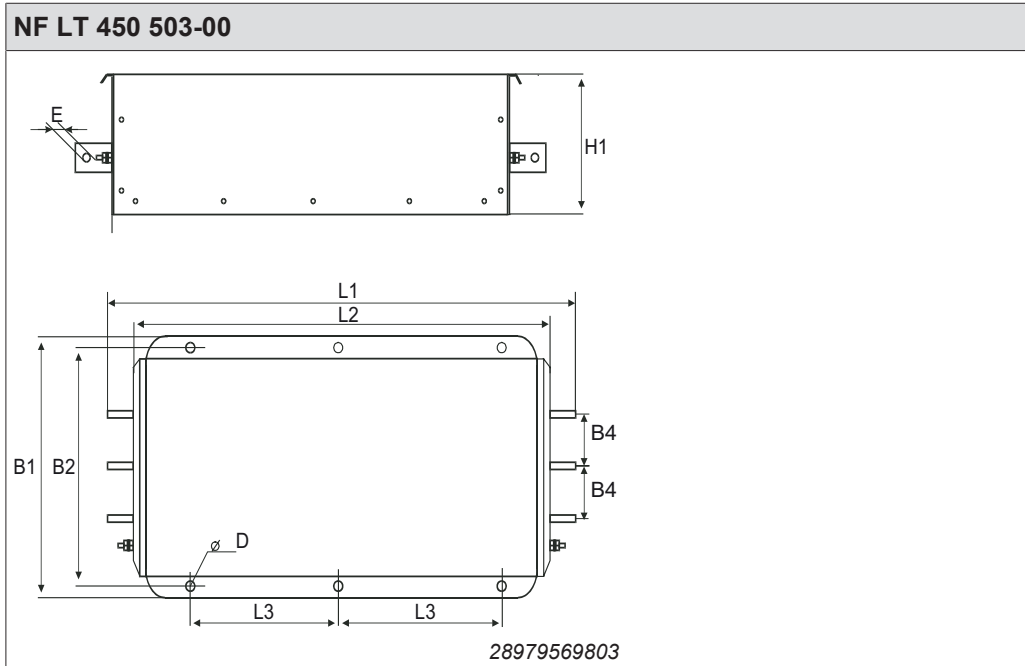
Part number	PE connection	L1 mm	L2 mm	L3 mm	B1 mm	B2 mm	B3 mm	H1 mm	H2 mm	H3 mm	D mm	A1 mm
NF LT 006 503-66	4G1.5	210	196	180	85	55	15	60	40	10	6.2	500
NF LT 016 503-66	4G2.5	230	216	200	120	80	20	65	40	12.5	6.2	500
NF LT 025 503-66	4G4.0	200	115	-	150	136	120	65	-	-	6.2	500

3 × AC 200 – 500 V, 80 – 300 A, IP20/IP00

NF LT 080 503-20, NF LT 180 503-20					NF LT 300 503-00				
									
Part number	PE con- nection	L1 mm	L2 mm	L3 mm	L4 mm	B1 mm	B2 mm	H mm	D mm
NF LT 080 503-20	2 × M10	400	373	350	–	170	130	90	8.5
NF LT 180 503-20	2 × M10	510	470	360	–	180	156	115	10
NF LT 300 503-00	2 × M10	730	700	660	530	260	220	130	12

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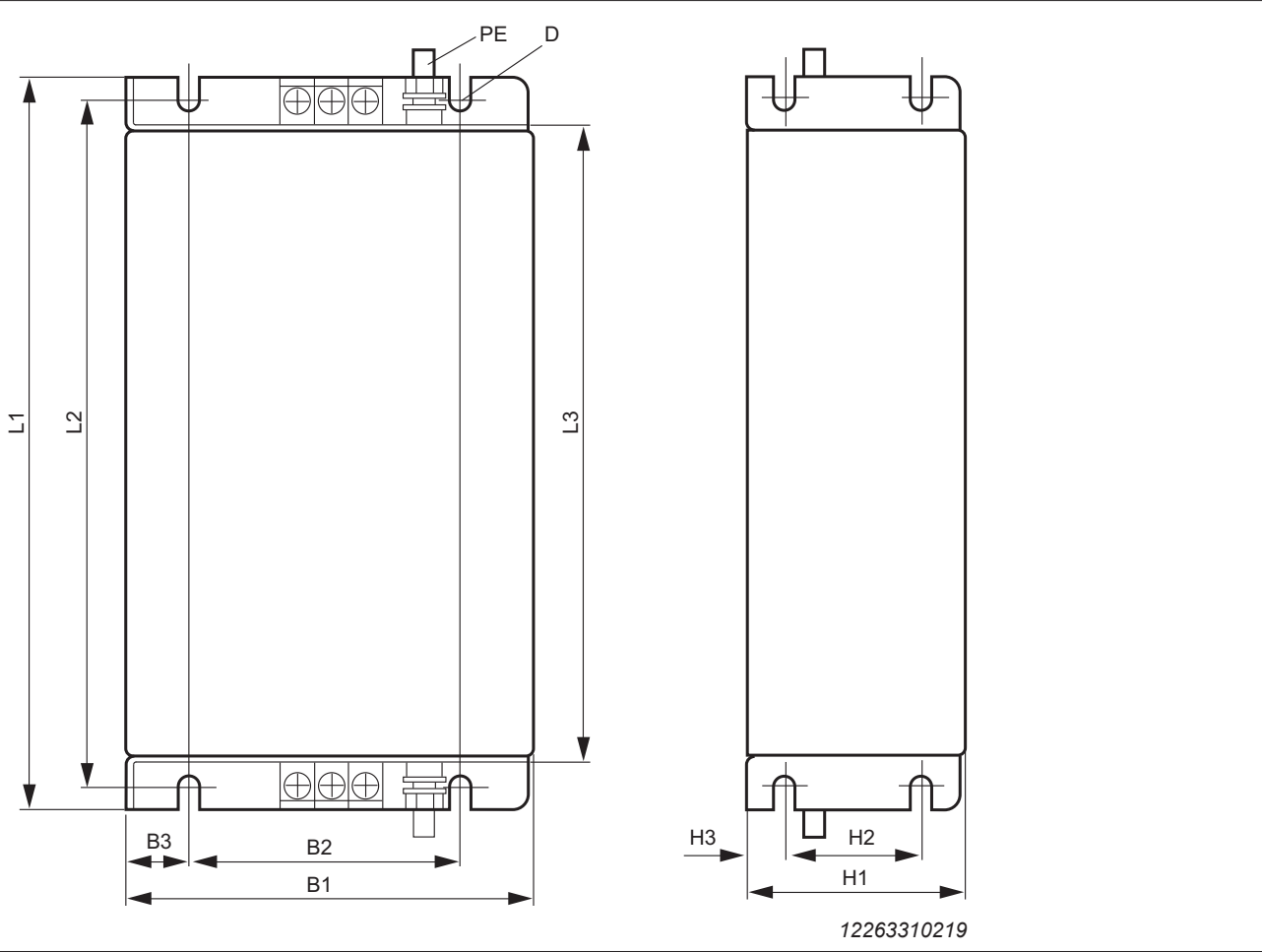
3 × 200 – 500 V, 450 A, IP00



Type	L1	L2	L3	B1	B2	B3	B4	D	E	H
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
NF LT 450 503-00	610	516	210	300	275	250	60	9	10.5	160

3 × AC 500 – 600 V, 6 – 25 A, IP20

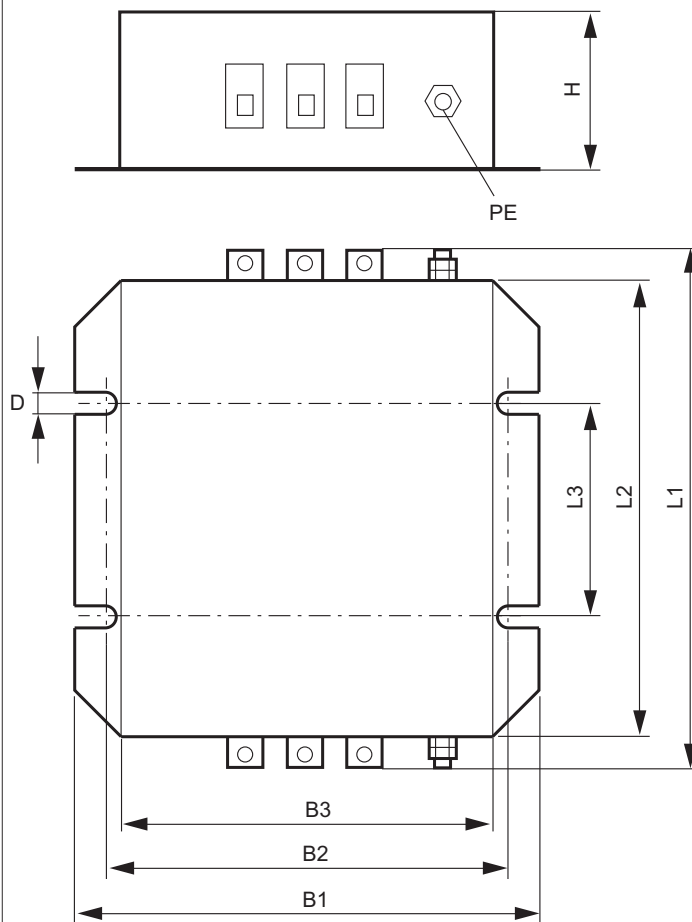
NF LT 006 603-20, NF LT 016 603-20, NF LT 025 603-20



Part number	PE connection	L1 mm	L2 mm	L3 mm	B1 mm	B2 mm	B3 mm	H1 mm	H2 mm	H3 mm	D mm
NF LT 006 603-20	2 × M6	210	196	180	85	55	15	60	40	10	6.2
NF LT 016 603-20	2 × M6	230	216	200	120	80	20	65	40	12.5	6.2
NF LT 025 603-20	2 × M6	230	216	200	120	80	20	65	40	12.5	6.2

3 × AC 500 – 690 V, 50 A, IP20

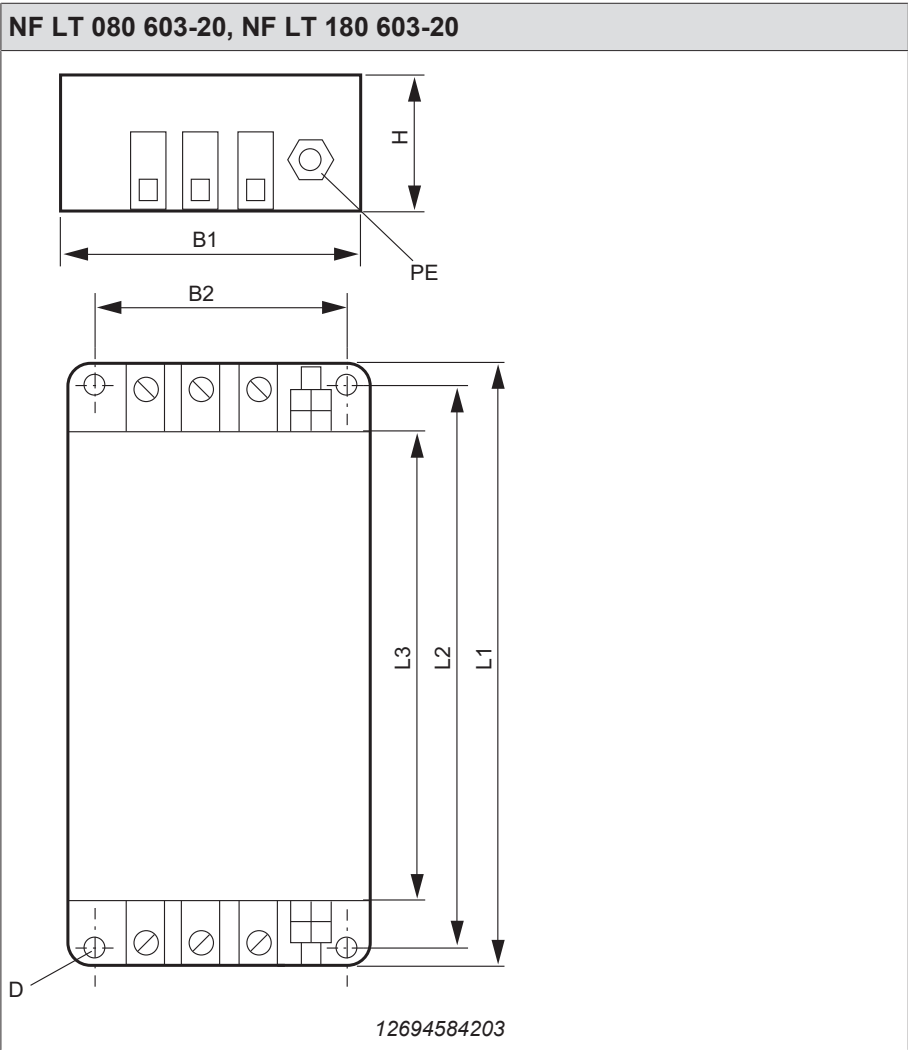
NF LT 050 603-20



12263306379

Part number	PE connection	L1 mm	L2 mm	L3 mm	B1 mm	B2 mm	B3 mm	H1 mm	H2 mm	H3 mm	D mm
NF LT 050 603-20	2 × M6	270	240	160	148	130	120	70	–	–	7

3 × AC 500 – 690 V, 80 – 180 A, IP20

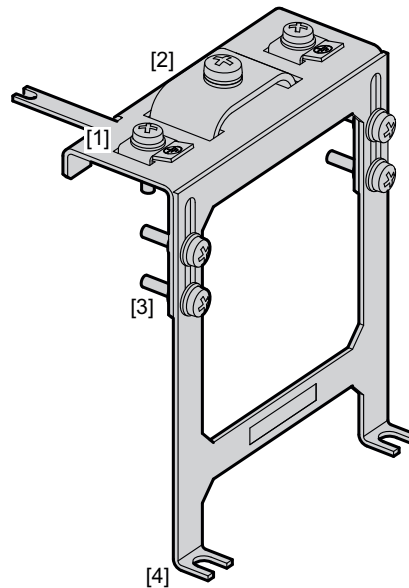


Part number	PE connection	L1 mm	L2 mm	L3 mm	B1 mm	B2 mm	B3 mm	H1 mm	H2 mm	H3 mm	D mm
NF LT 080 603-20	2 × M10	400	373	350	170	130	–	90	–	–	8.5
NF LT 180 603-20	2 × M10	510	470	360	180	156	–	115	–	–	10

10.5 Shield plate for IP20 inverter

The shield terminal can be used optionally with IP20 units of size 2 and 3.

Type	Part number
LT SB 23 A	28214994

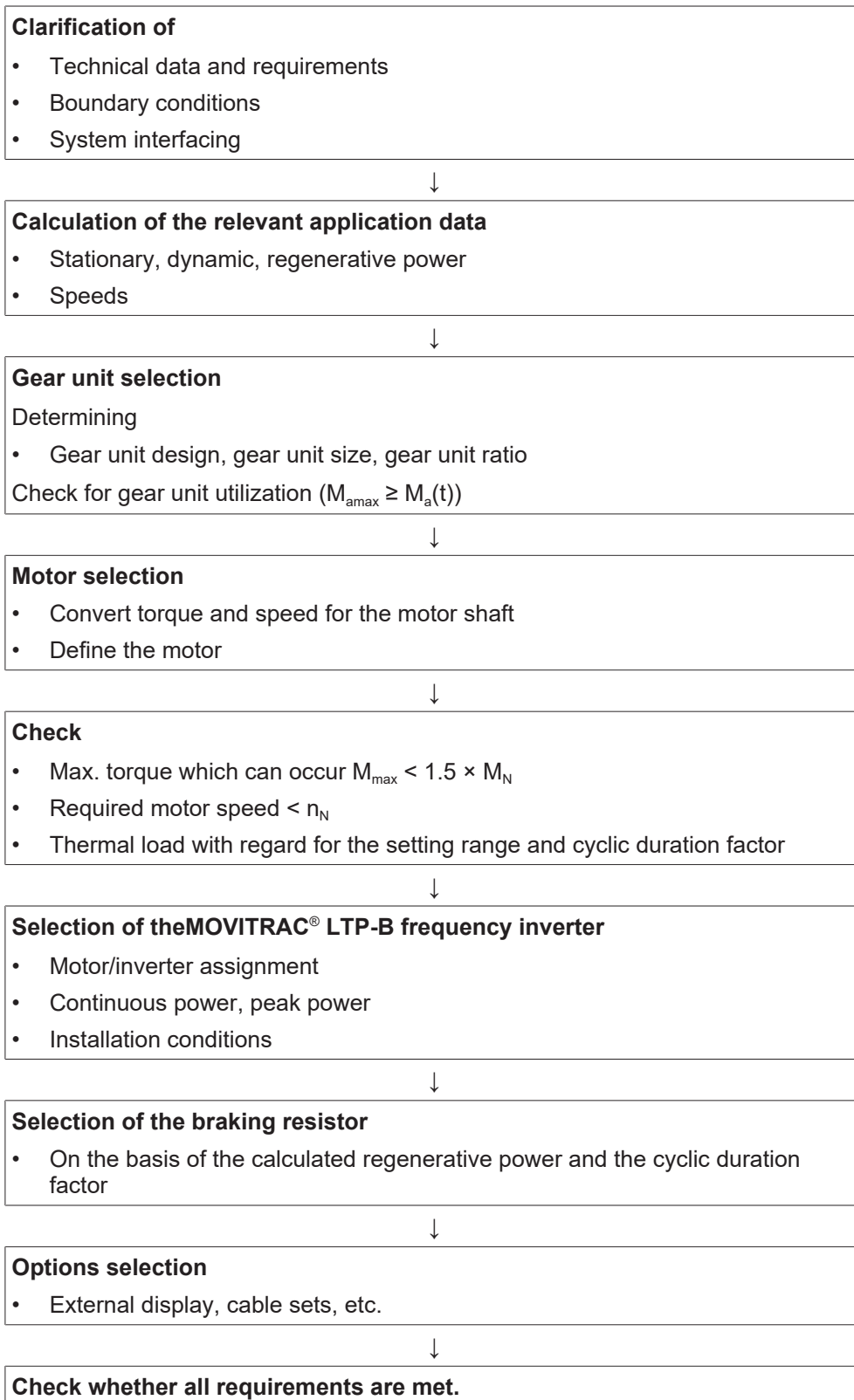


13406635275

- [1] PE terminal
- [2] Terminal for motor cable shield and encoder cable shield
- [3] Adjusting screw for size 2, 3 adjustment
- [4] Fastening on the back panel of the control cabinet

11 Selecting a motor

11.1 Project planning flowchart



12 Address directory SEW-EURODRIVE

Argentina			
Assembly Sales	Buenos Aires	SEW EURODRIVE ARGENTINA S.A. Ruta Panamericana Km 37.5, Lote 35 (B1619IEA) Centro Industrial Garín Prov. de Buenos Aires	Tel. +54 3327 4572-84 Fax +54 3327 4572-21 http://www.sew-eurodrive.com.ar sewar@sew-eurodrive.com.ar
	Córdoba	SEW EURODRIVE ARGENTINA S.A. Ruta Nacional 19, Manzana 97, Lote 5 (X5125) Malvinas Argentinas Prov. de Córdoba	Tel. +54 351-490-0010 http://www.sew-eurodrive.com.ar sewcor@sew-eurodrive.com.ar
	Santa Fe	SEW EURODRIVE ARGENTINA S.A. Ruta Prov. 21 Km 7, Lote 41 Parque Industrial Alvear (2126) Gral. Alvear Prov. de Santa Fe	Tel. +54 341-317-7277 http://www.sew-eurodrive.com.ar sewsfe@sew-eurodrive.com.ar
Service	Mendoza	SEW EURODRIVE ARGENTINA S.A. Francisco Gabrielli (ex Urquiza) 2060-Zona Industrial- Guaymallen- CP 5521	Tel. +54 261-4214150 http://www.sew-eurodrive.com.ar sewmen@sew-eurodrive.com.ar
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Belarus			
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Belgium			
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	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. 2001 Ch. de l'Aviation Dorval Quebec H9P 2X6	Tel. +1 514 367-1124 Fax +1 514 367-3677 n.paradis@sew-eurodrive.ca
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	Guangzhou	SEW-EURODRIVE (Guangzhou) Co., Ltd. No. 9, JunDa Road East Section of GETDD Guangzhou 510530	Tel. +86 20 82267890 Fax +86 20 82267922 guangzhou@sew-eurodrive.cn
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	Taiyuan	SEW-EURODRIVE (Taiyuan) Co., Ltd. No.3, HuaZhang Street, TaiYuan Economic & Technical Development Zone ShanXi, 030032	Tel. +86-351-7117520 Fax +86-351-7117522 taiyuan@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 84478388 Fax +86 27 84478389 wuhan@sew-eurodrive.cn
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Czech Republic			
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	Ostrava	SEW-EURODRIVE CZ s.r.o. Studentská 6202/17 708 00 Ostrava-Poruba	Tel. +420 597 329 044 david.kenkus@sew-eurodrive.cz

	Klatovy	SEW-EURODRIVE CZ s.r.o. Videňská 841 33901 Klatovy	Tel. +420 376 331 634 Fax +420 376 331 634 viktor.kubernat@sew-eurodrive.cz
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Estonia

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	Tornio	SEW-EURODRIVE Oy Lossirannankatu 5 95420 Tornio	Tel. +358 201 589 300 Fax +358 3 780 6211 http://www.sew-eurodrive.fi sew@sew.fi
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	Oulu	SEW Industrial Gears Oy Paulaharjuntie 22 90530 Oulu	Tel. +358 201 589 300 sew@sew.fi
	Vaasa	SEW Industrial Gears Oy Asemakatu 7 65100 Vaasa	Tel. +358 201 589-300 sew@sew.fi
	Kuopio	SEW Industrial Gears Oy Leväsentie 23 70780 Kuopio	Tel. +358 201 589-300 sew@sew.fi
	Tampere	SEW Industrial Gears Oy Kampusareena Korkeakoulunkatu 7, 7.krs 33720 Tampere	Tel. +358 201 589-300 sew@sew.fi
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France			
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Production	Forbach	SEW USOCOME Zone industrielle Technopôle Forbach Sud B. P. 30269 57604 Forbach Cedex	Tel. +33 3 87 29 38 00
	Brumath	SEW USOCOME 1 Rue de Bruxelles 67670 Mommenheim Cedex	Tel. +33 3 88 37 48 00
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	Haguenau	SEW USOCOME 48-54 route de Soufflenheim B. P. 20185 67506 Haguenau Cedex	Tel. +33 3 88 73 67 00 dtchaguenau@usocome.com
	Lyon	SEW USOCOME 75 rue Antoine Condorcet 38090 Vaulx-Milieu	Tel. +33 4 74 99 60 00 dtclyon@usocome.com
	Nantes	SEW USOCOME Parc d'activités de la forêt 4 rue des Fontenelles 44140 Le Bignon	Tel. +33 2 40 78 42 00 dtcnantes@usocome.com
	Paris	SEW USOCOME Zone industrielle 2 rue Denis Papin 77390 Verneuil l'Étang	Tel. +33 1 64 42 40 80 dtcparis@usocome.com
Gabon			
Representation: Cameroon			
Germany			
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Production / Precision Gear Units	Bruchsal	SEW-EURODRIVE GmbH & Co KG Ernst-Blickle-Straße 42 76646 Bruchsal	Tel. +49 7251 75-0 Fax +49 7251 75-1970 sew@sew-eurodrive.de
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	Electronics	SEW-EURODRIVE GmbH & Co KG Christian-Pähr-Straße 12 76646 Bruchsal	Tel. +49 7251 75-1780 Fax +49 7251 75-1769 scc-elektronik@sew-eurodrive.de
Drive Technology Center	MAXOLU- TION® Factory Automation	SEW-EURODRIVE GmbH & Co KG Eisenbahnstraße 11 76646 Bruchsal	Tel. +49 7251 75-0 Fax +49 7251 75-1970 sew@sew-eurodrive.de
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	Bremen	SEW-EURODRIVE GmbH & Co KG Allerkai 4 28309 Bremen	Tel. +49 421 33918-10 Fax +49 421 33918-22 dc-bremen@sew-eurodrive.de
	Hamburg	SEW-EURODRIVE GmbH & Co KG Hasselbinnen 11 22869 Schenefeld	Tel. +49 40298109-60 Fax +49 40298109-70 dc-hamburg@sew-eurodrive.de
	Saarland	SEW-EURODRIVE GmbH & Co KG Gottlieb-Daimler-Straße 4 66773 Schwalbach Saar – Hülzweiler	Tel. +49 6831 48946 10 Fax +49 6831 48946 13 dc-saarland@sew-eurodrive.de
	Ulm	SEW-EURODRIVE GmbH & Co KG Dieselstraße 18 89160 Dornstadt	Tel. +49 7348 9885-0 Fax +49 7348 9885-90 dc-ulm@sew-eurodrive.de
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	Drive Service Hotline / 24 Hour Service		0 800 SEWHELP 0 800 7394357
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Greece			
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Sales	Reykjavik	Varma & Vélaverk ehf. Knarrarvogi 4 104 Reykjavik	Tel. +354 585 1070 Fax +354 585)1071 https://vov.is/ vov@vov.is
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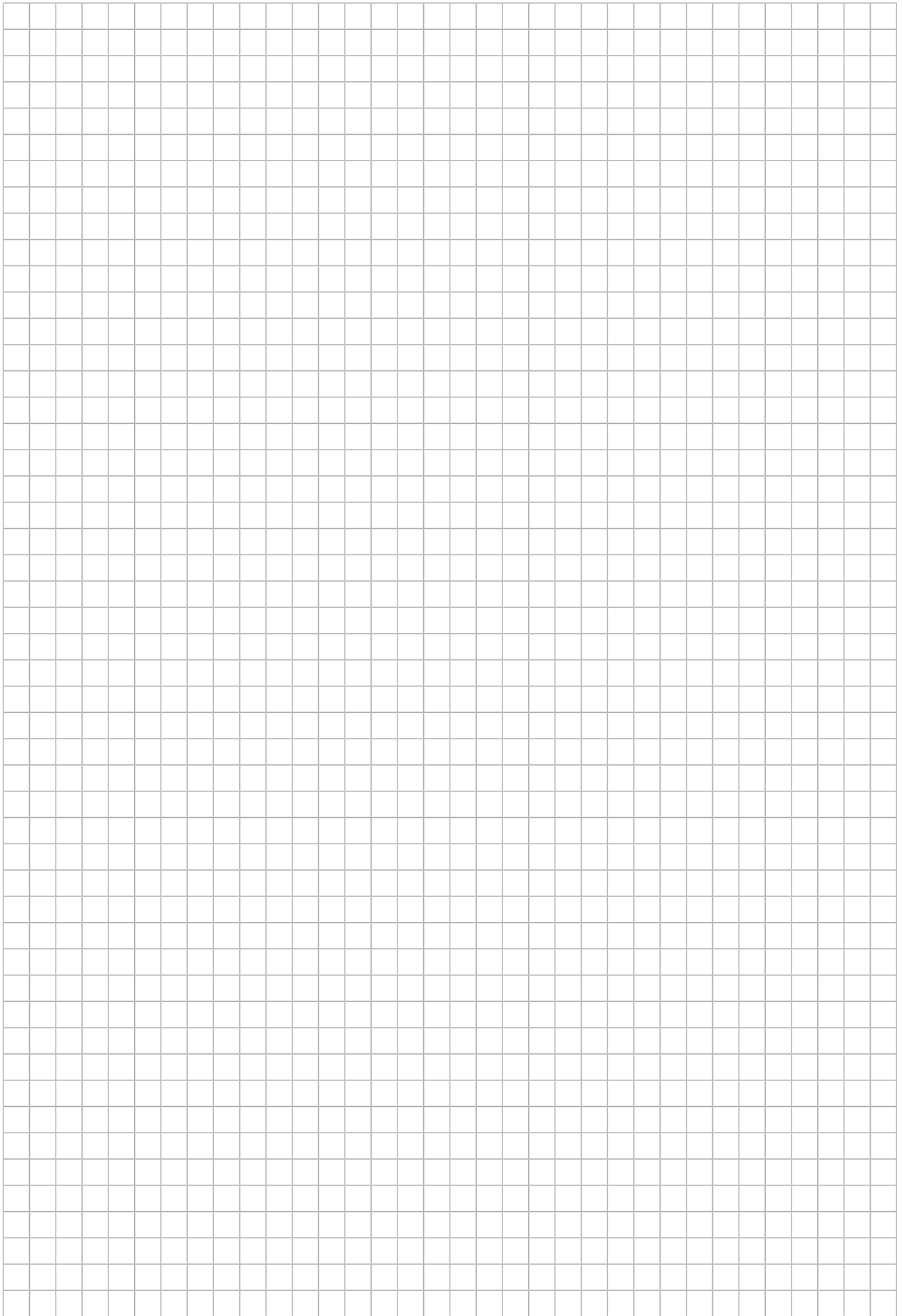
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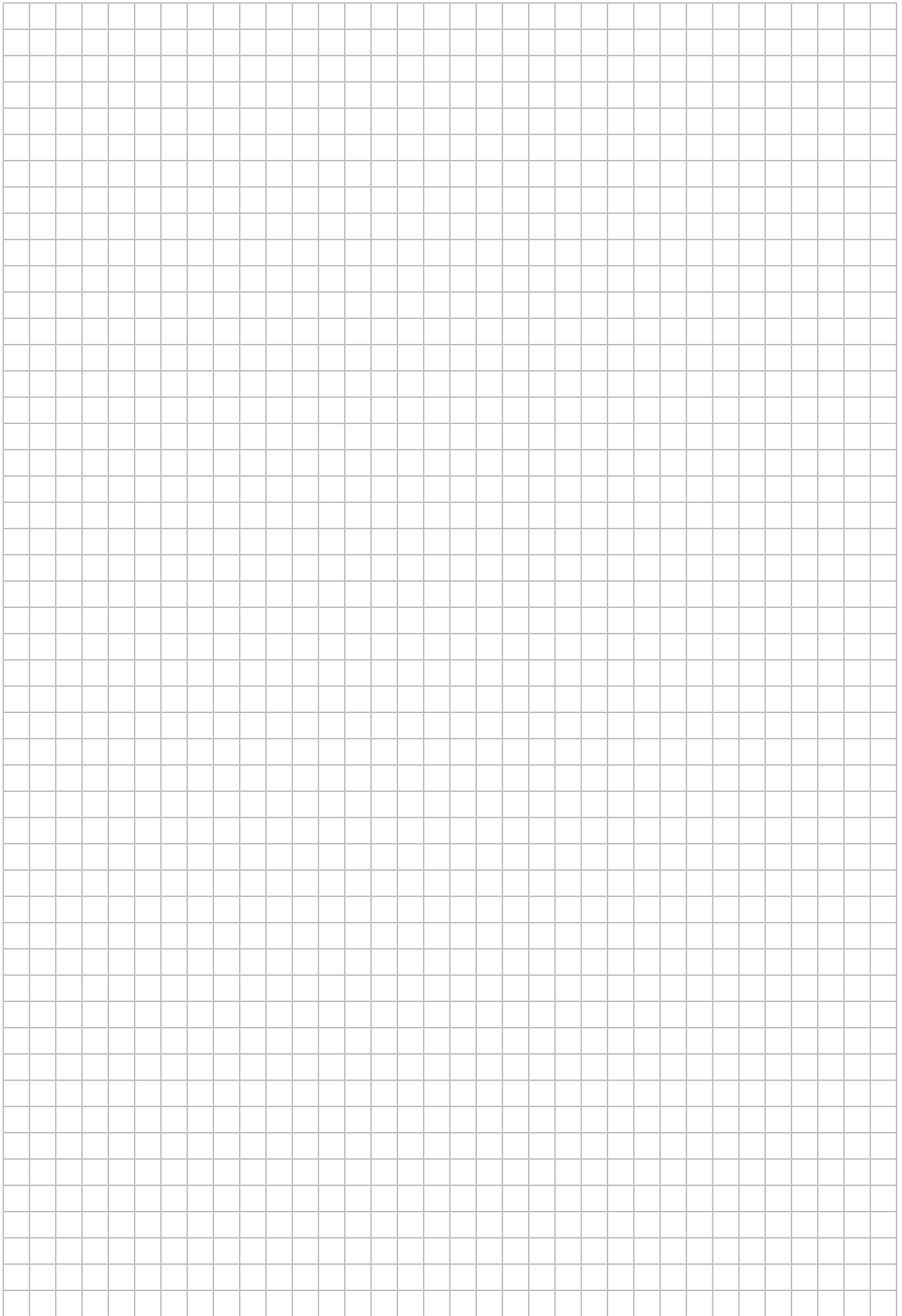
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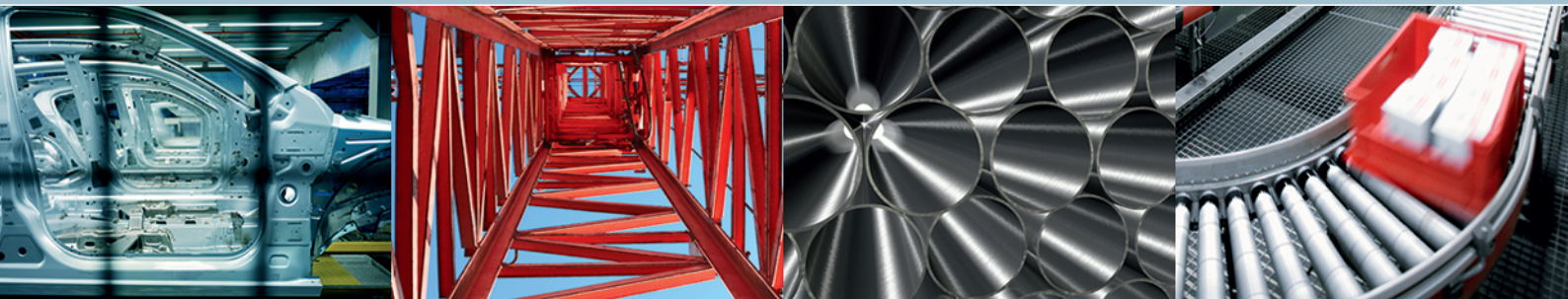
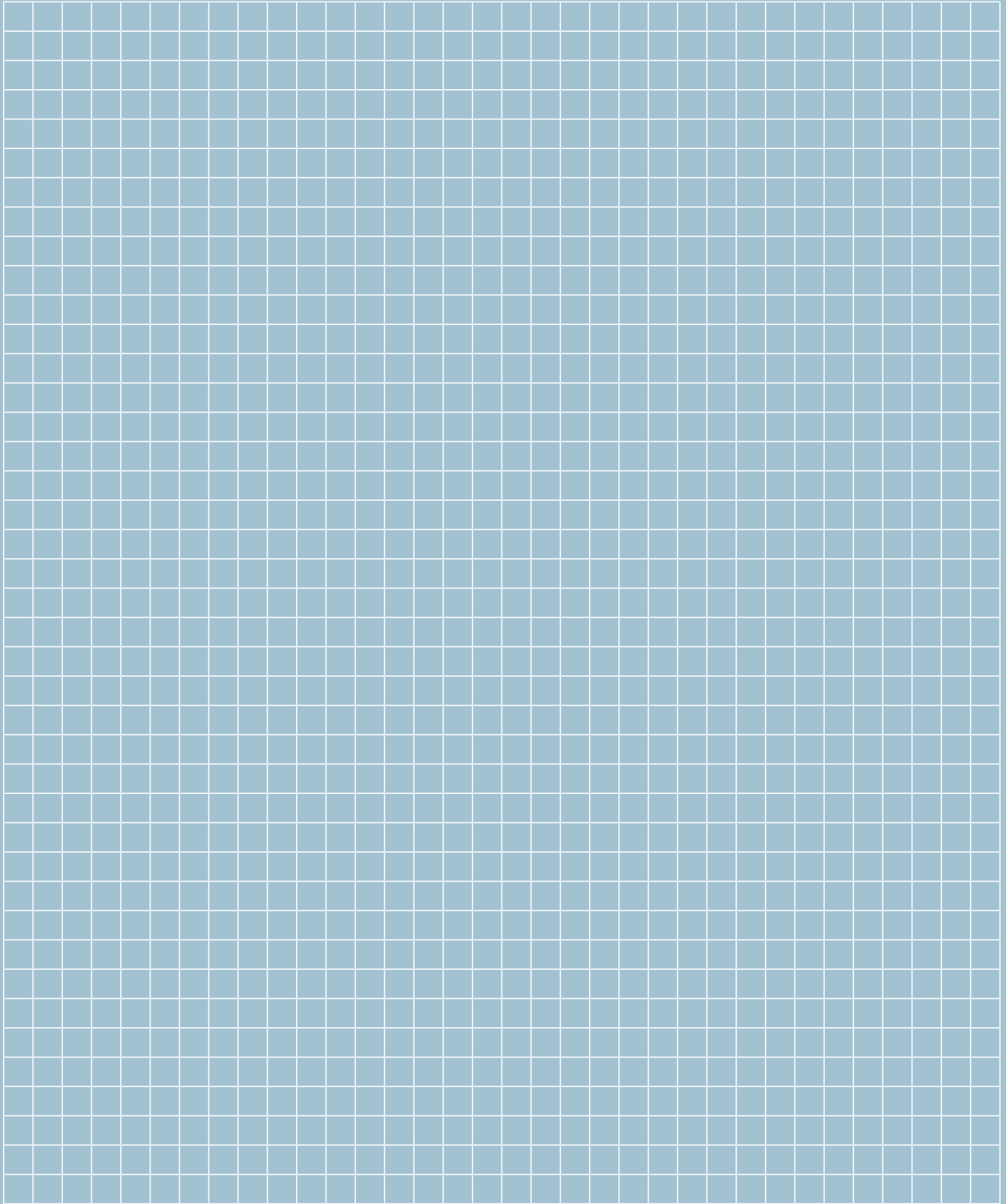
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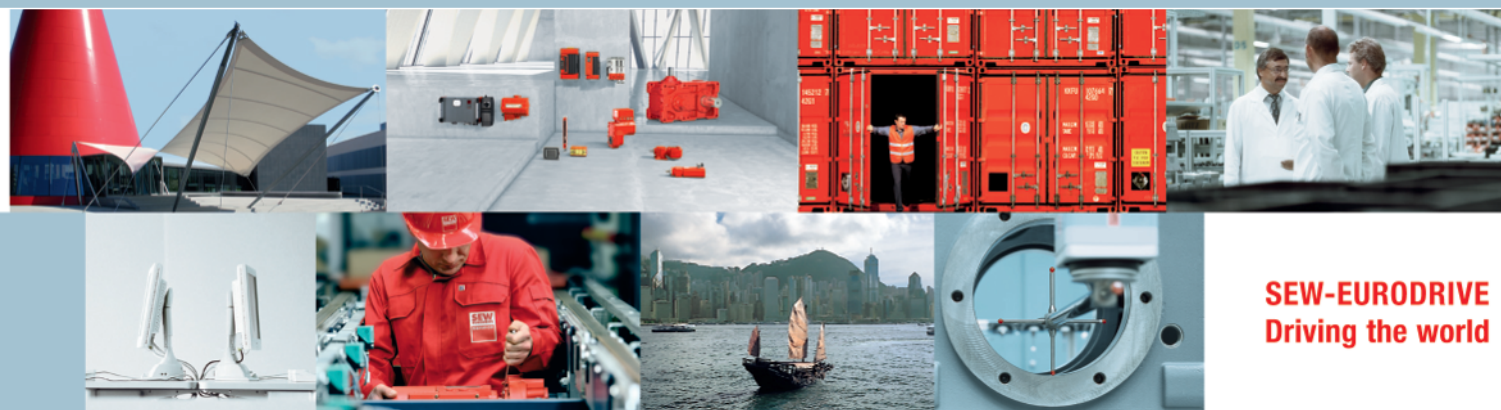
W

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