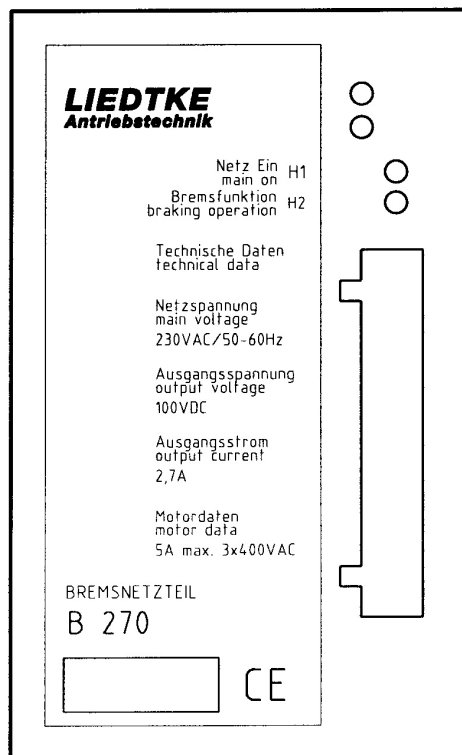




Technical device manual

brake power pack B270



Before the installation and before putting into operation please read this technical device manual.

It contains important safety information regarding the protection of the user as well as information for the proper use of this device !



Important safety information

The device may only be installed and connected by an electrically skilled person with the aid of this manual. National standards and safety regulations must be observed (see DIN V VDE V 0100534... or IEC 60364-5 534:...).

The device must be checked for external damage prior to installation. If any damage or other defects are detected in this check, the device must not be installed.

Its use is only permitted within the limits shown and stated in these manual. The device and the equipment connected to can be destroyed by loads exceeding the values stated. Opening or otherwise tampering with the device invalidates the warranty.

The manufacturer does not take over any responsibility for any consequences resulting from incorrect or negligent installation, change of existing parameters of the devices or the false combination with peripheral components.

A device-independent auto power ON/OFF must be guaranteed.

Fuses may only be replaced by fuses of the same type.

The operation of the device is only permitted with connected protective conductor.

In case of an error it might occur that for safety reasons the device shuts down by itself and causes the motor don't stop. The removal of the defect can lead to a short energizing of the drive.

If, for safety reasons, this is not permissible, then the operator of the system has to prevent an auto-restart by using appropriate measures.

For reference and actual lines you have to use shielded lines.

To this please also note the hints for an EMC-proper installation.

In the devices are used components which are sensitive to electrostatic discharges.

During the operation, installation and maintenance, measures have to be taken in order to avoid electrostatic discharges.

Lacquer-sealed potentiometers are basic settings of the device and may not be changed.

Lacquer-sealed screws serve for important safety functions and may not be opened.

Attention:

As a basic principle the device has to be made dead before any contact.

In case of non-observance there is the possibility of an electrical shock.



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Appendix:

Terminal diagrams for control stage and power supply



This manual was prepared according to the best of our knowledge and belief.
LIEDTKE is not liable for possible errors and reserves the right to make technical changes without prior notice.



1. Product description

1.1 General description

The brake power pack B270 is utilized in case a three-phase winder (asynchronous motor with special rotor) which is controlled by the LIEDTKE AC power controller W3405 or W3412.1 and which is operated from $n= 0$ up to the nominal speed in a permanent slip mode, shall be slowed down until the standstill.

The brake power pack B270 works independently and serves to control the AC power controller W3412.1 and W3405.

The device is provided for the installation in a switch-cabinet.
The device complies with the protection class IP20.

When activating the controller inhibit the brake power pack B270 blocks the AC power controller and switches a DC voltage of 100VDC on the motor.
The maximum braking current is 2.7A.
The device works potential bounded.

The brake power pack B270 is suited for the following LIEDTKE motor types:
F472, F481, F491, F8100,
S4112, S871, S880, S500, S8100. S1280, S1290, S12100, S1212

In case there are utilized motors whose motor windings fall below an ohmic resistance of 35 Ohm, then we recommend to consider the use of the brake power pack B270 .

In case of an overload of the power pack, the maximum current however will remain constant.



1.2 Ambient conditions

Housing: Switch-board installation, protection class IP20

Ambient operating temperature: 0...+40°C

Range of storage temperature: -25°C ... +85°C

Range of transport temperature: 25°C ... +85°C

Relative humidity: min. 15% rel. humidity
max. 80% rel. humidity, not condensing
A dew of the device is not permitted. ¹⁾

Mounting height:	Height	Operating temperatures
	1000 m	+40°C
	1500 m	+36°C
	2000 m	+32°C
	2500 m	+28°C
	3000 m	+24°C

Installation position: Vertical: distance to further components
Top and bottom at least 30 mm,
laterally at least 10 mm.

Air pollution degree : 1 acc. to IEC 664

¹⁾ In case of need the heating of a switch-cabinet may help to avoid a condensation and an aeration may help that the admissible operating environmental temperature from °C to +40°C is not exceeded. For this we recommend the installation of a frost/temperature controller.



1.3 Connecting data

Mains supply voltage 230VAC / +/-10%
Mains frequency 50-80Hz (automatic adjustment)

Electrical device data:

Motor voltage: approx. 0V up to 3 x 400VAC
Braking current: approx. 0 ... 2.7A maximum
Braking performance: 270 W
Controller inhibit: switchable with external signal +15 ...24VDC
 (terminal 11)

1.4 Device protection

In principal the brake power pack has to be protected externally.

Normally this is already done in the supply line of the AC power controller W3405/W3412.1.

Note: The protection type mentioned above has absolutely to be observed in order to avoid damages at the device or on external components.

External device protection via automatic fuse 10A, tripping characteristic B.



2. Notes on connecting and wiring

2.1 Control terminals

Terminal strip: X2 (potential free range)
Terminal type: plug-in screw terminal - 10 poles
cable cross-section max. 2.5 mm²

Terminal No:	Function:
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Cl. 11	Controller inhibit (RSP)
Cl. 12	Control line to the AC power controller W3405/W3412.1 Cl.12
Cl. 13	Control line to the AC power controller W3405/W3412.1 Cl.13
Cl. 14	Reference potential (GND)
Cl. 15	without function
Cl. 16	without function
Cl 17	without function
Cl. 18	Supply N
Cl. 19	Supply L
Cl 20	Protective conductor PE



terminals

Terminal strip: X1 (Mains potential)
Type of terminal: plug-in screw terminal – 7 poles
cable-cross section max. 2.5 mm²

Terminal description

Function:

Cl. 1	Motor connection U
Cl. 2	Connection Phase L1 from AC power controller
Cl. 3	Motor connection V
Cl. 4	Connection Phase L2 from AC power controller
Cl. 5	Motor connection W
Cl. 6	Connection Phase L3 from AC power controller
Cl. 7	Protective conductor

An operation without connected protective conductor is not permitted!

2.3 General hints for an EMV- suitable build-up

In order to observe the electromagnetic compatibility (EMV) please observe the relevant guidelines and instructions.

This especially applies to:

- build-up
- grounding
- filtration
- shielding

In case of deviating installation e.g.

- use of unshielded conductions,
 - use of collective main input filters instead of the recommended radio-interference filters ,
- it is necessary to check the machine or the plant if their values are lying within the EMV critical values in order to assess the conformity with the EMV-guidelines.

The next user is responsible for the observance of the EMV- guideline in the industrial use.

If all components / installation parts meet the CE- immunity requirement, then no electromagnetic impairments have to be expected.



2.4 Hints for an EMV- suitable installation

In case the following measures are observed, it can be assumed that when operating the machine no EMV problems caused by the drive system will occur and the EMV guideline will be complied with.

Build-up

- Contact the drive controller and the interference filter largely with the grounded mounting plate. Mounting plates with electrically conducting surface (zinc or cadmium plated) enable a permanent bonding. In case of lacquered plates you have to remove in any case the lacquer of the assembly areas.
- In case several mounting plates are used :
Connect the mounting plates largely together (e.g. with copper strips)
- When installing the lines, pay attention to separate the motor line from the signal and the mains lines.
- Provide separated terminal strips for power input and motor output
- Wiring should be performed as closely as possible to the reference potential in order to avoid an antenna effect.

Filtration

Interference filter reduce high-frequency disturbances to an admissible extent. For this device only use the recommended interference filter.

Shielding

- Connect the shield of the motor conduit near the drive controller largely with the mounting plate.
Recommendation: Use grounding clips for a connection on metallic bare mounting areas.
- If there are contactors, protective motor switches or terminals in the motor conduit: Connect the shields of the connected lines throughout and contact them largely with the mounting plate
- Connect the shield in the terminal box of the motor with PE.
Metal screw joints at the terminal box assure a large connection of the shield with the motor casing.
- In case the mains cable between net filter and drive controller is longer than 300mm :
Shield the mains cable, place the shield of the mains cable at the drive controller and the supply filter and connect it largely with the mounting plate
- Shield the control lines:
Ground the shields of analogue signal lines on one side
Connect the shields of the control lines largely with the mounting plate

Grounding

Ground all metallic conductible components by corresponding lines before a central point (PE-rail). Observe the minimum cross-sections defined in the safety instructions. However, please note that for the EMV not the cross section of a line, but the dimension of the flat bonding is decisive.



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3. Functional description

The brake power pack controls the connected AC power controller.
The LED H1 signals the general operating mode (net available).

In case the controller inhibit is activated, the AC power controller will be blocked and the electrical connection to the motor will be disconnected. After a delay time of approx. 1 sec. the DC voltage to the motor brake will be activated. The braking process is timely limited (max. 16 sec.) in order to avoid an overload of the motor and the control electronics. As long as the brake processing is active, there will light the LED H2.

After expiry of the braking time, the DC voltage is disconnected and the AC power controller is switched back in the current path of the motor. In case the controller inhibit is deactivated before the maximum braking time has expired, then the braking process will be shortened accordingly

4. Displays

4.1 Light-emitting diodes (LEDs)

Description	Function:
H1 (green) Net	lights if the mains voltage is available.
H2 (red) Brake	lights if the braking function is active.