GETRIEBEBAU NORD
Member of the NORD DRIVESYSTEMS Group

Getriebebau NORD GmbH & Co. KG
Getriebebau-Nord-Straße 1 • 22941 Bargteheide, Germany • www.nord.com

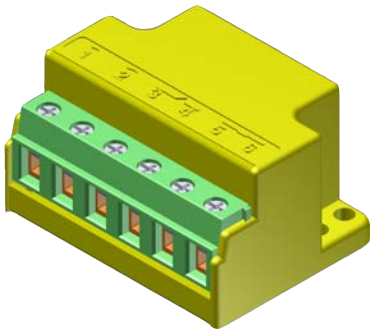
GHE40L

Part number: 19141010

Brake rectifier

Scope of delivery

1 x	Module	GHE40L



Intended use

The brake rectifier converts AC voltage into DC voltage. It is solely intended for control and operation of an electromechanical brake with DC operation.

Safety

The brake rectifier and the components associated with it must only be installed and commissioned by a qualified electrician. A qualified electrician is a person who, because of their technical training and experience, has sufficient knowledge with regard to

- Switching on, switching off, disconnection, earthing and labelling of electric circuits and devices,
- Correct maintenance and use of protective devices according to specified safety standards.

Please also note the following for safe installation and commissioning

- Catalogue M7000 from NORD DRIVESYSTEMS Group,
- The operating instructions for the motor which is used (e.g. B1091 from the NORD DRIVESYSTEMS Group),
- The operating instructions for the brake which is used.

Field of use

The brake rectifier is intended for installation in a terminal box or control cabinet. This module enables direct control of an electromechanical brake with a coil voltage of between 105 V DC and 205 V DC.

Function description

The brake rectifier converts the mains voltage into a DC voltage. An electromechanical brake is controlled and released with this DC voltage. The power supply to the brake is interrupted by switching off the mains voltage. The magnetic field of the brake reduces and the brake is applied (after a delay).

The application characteristics of the brake rectifier can be configured for normal switch-off (switching of the AC side) and for fast switch-off (DC switching).

For **normal switch-off** terminals 3 and 4 must be bridged (state as delivered). After the mains are switched off a DC current continues to flow through the brake rectifier until the magnetic field in the brake has reduced. The brake is only applied after the magnetic field has reduced to a minimum amount. The time which is required for reduction of the field depends on the inductance of the brake and the resistance of its windings.

For **fast switch-off** the bridge between contacts 3 and 4 must be removed and the terminals connected to a suitable switching contact. By switching off the DC circuit (contacts 3 and 4) the magnetic field of the brake reduces rapidly and the braking effect occurs correspondingly rapidly.

Technical Data

Permissible ambient temperature	-25 °C … 75 °C
Standards and approvals	CE (in combination with motors from the NORD DRIVESYSTEMS Group)

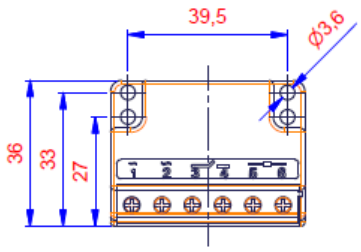
Weight	35 g
Protection class	IP20
Material	PCB in plastic housing

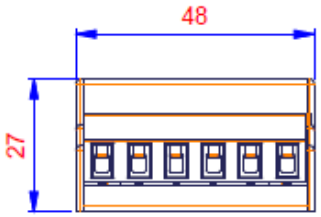
Rated voltage Permissible voltage range (U_{AC})	480 V AC 200 … 480 V AC ± 10 %
Output voltage (U_{DC})	216 V DC (U_{DC} = U_{AC} x 0.45)

Braking current	2.0 A (up to 40 °C) 1.0 A (up to 75 °C)
Permissible number of switching cycles	1800 switching cycles per hour

1) Take restrictions due to the brake into account!

Dimensions





Assembly

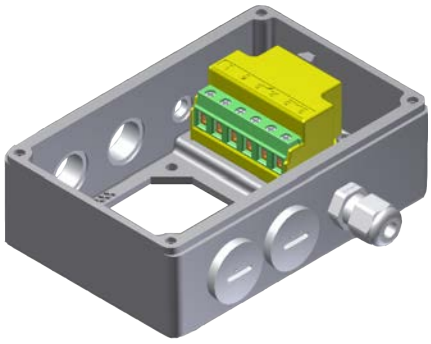
⚠ WARNING

Electric shock

Due to an existing magnetic field, there may be a hazardous voltage at the contacts, even if the mains connection is switched off.

- Do not work on live equipment.
- Check for absence of voltage with suitable measuring equipment before starting work.

Installation location	Within the motor terminal box, a separate terminal box or a control cabinet
Fastening	With screw fasteners 2 x M3x8 (fastening material is not included in the scope of delivery)



Installation example

Electrical connection

NOTICE!

Destruction of the brake rectifier through incorrect connection

Short circuits, earth faults and pulsed voltages, e.g. the output voltage of a frequency inverter result in undefined behaviour of the brake rectifier and can destroy a brake which is connected to it.

- Take care that the wiring is correct.
- Provide a mains supply to the brake rectifier via terminals 1 and 2.
- Do not connect the brake rectifier to the motor terminals of a frequency inverter or motor starter.

Terminals	Screw terminals	1 x terminal bar with 6 connections, spacing: 7.5 mm
Cable cross-section	0.14 … 2.5 mm	AWG 14-26

Control terminal details

Labelling, function			
1	L1	**2**	L2
3	Bridging contact (1) for fast switch-off	**4**	Bridging contact (2) for fast switch-off
5	Brake + connection	**6**	Brake - connection

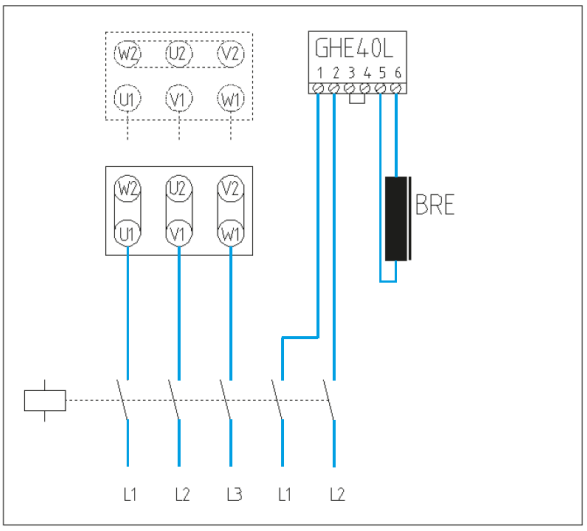
Connection examples

The following selection shows the most common circuit versions for single-speed brake motors. Selection of the correct combination of the rectifier and the brake coil voltage must be made according to the available supply voltage by reference to Catalogue M7000. Further connection examples can be found in this catalogue.

Normal switch-off

(AC switch-off)

Motor Δ circuit:	400 V AC
Alternative Y circuit:	400 V AC
Rectifier supply:	400 V AC, separate
Brake coil voltage:	180 V DC



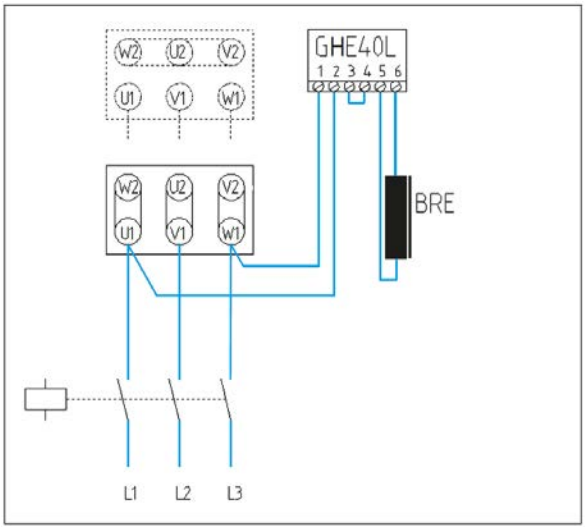
Normal switch-off

(AC switch-off)

Motor Δ circuit:	400 V AC
Alternative Y circuit:	400 V AC
Rectifier supply:	Via motor terminals
Brake coil voltage:	180 V DC

NOTICE: Connection to motor terminals is not suitable for operation with a frequency inverter!

Note: The brake is applied very slowly.



Fast switch-off

(DC switch-off)

Motor Δ circuit:	400 V AC
Alternative Y circuit:	400 V AC
Rectifier supply:	400 V AC, separate
Brake coil voltage:	180 V DC

Note: Note the switching power for the switch contacts in the DC circuit! (Depends on the brake)