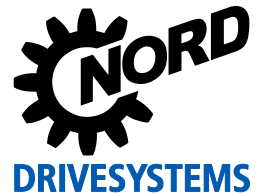


# GETRIEBEBAU NORD

Member of the NORD DRIVESYSTEMS Group



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## SK BRI4-2-100-200

Part number: 275 272 105

Internal braking resistor for connection to a  
**NORDAC FLEX SK 2xxE-FDS**



Only qualified electricians are allowed to install and commission the module. An electrician is a person who, because of their technical training and experience, has sufficient knowledge with regard to

- switching on, switching off, isolating, earthing and marking power circuits and devices,
- proper maintenance and use of protective devices in accordance with defined safety standards.

### **DANGER!**

#### **Danger of electric shock**

The frequency inverter continues to carry hazardous voltages for up to 5 minutes after it was switched off.

- Work must not be carried out unless the device has been disconnected from the voltage and at least 5 minutes have elapsed since the mains was switched off!

### **CAUTION**

#### **Danger of burns**

The module and all other metal components can heat up to temperatures above 70 °C.

Sufficient cooling time must be allowed for when working on the components in order to avoid injuries (local burns) to parts of the body coming into contact with the components.

In order to avoid damage to neighbouring objects, sufficient clearance must be maintained during installation.

### **NOTICE**

#### **Validity of this document**

This document is only valid in combination with the operating instructions for the relevant frequency inverter. Safe commissioning of this module and the frequency inverter depends on the availability of this information.

| Technical Information / Datasheet | SK BRI4-2-100-200 |     |      |    |
|-----------------------------------|-------------------|-----|------|----|
| Brake resistor                    | TI 2752272105     | 1.0 | 3018 | en |

## Scope of delivery

| Module |                      |                              |
|--------|----------------------|------------------------------|
| 1 x    | Braking resistor     | SK BRI4-2                    |
| 1 x    | Fastening screw      | M4 x 12 hexagon socket screw |
| 1 x    | Washer               | A 4.3                        |
| 1 x    | Adapter plate        | Aluminium, 5 mm              |
| 1 x    | Heat conducting film | Thermo-silicone, 0.3 mm      |



## Field of use

Dynamic braking (frequency lowering) of a three-phase motor using a frequency inverter results in generator braking energy that – depending on the particular application – is dissipated by a braking resistor. This superfluous energy is transformed into heat.

The internal braking resistor is designed for the NORDAC *FLEX* SK 200E series of units and depends on the mains voltage and the power. The internal brake resistor can be used for applications in which only slight, short braking phases are to be expected.



## Technical Data

### Electrical data

|                 |   |     |
|-----------------|---|-----|
| Number of leads |   | 2   |
| Resistance      | Ω | 100 |

|                                    |     |     |
|------------------------------------|-----|-----|
| Max. continuous power<br>$P_n$ 1)  | W   | 200 |
| Energy consumption<br>$P_{max}$ 2) | kWs | 2.0 |

<sup>1)</sup> Reduction of the continuous power of the braking resistor to 25 % of the rated power.

<sup>2)</sup> The stated value applies to a single use within 10 s.

### General

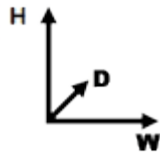
|                   |    |                |
|-------------------|----|----------------|
| Temperature range | °C | - 40 ... + 200 |
| Tightening torque |    |                |
| Screw             | Nm | 2.5 – 3.0      |
| Weight            | kg | 0.09           |

|                        |              |
|------------------------|--------------|
| Certifications         | CE, RoHS, UL |
| Protection class       | IP00         |
| Mounting <sup>1)</sup> |              |
| Hexagon socket screw   | M4 x 12      |

<sup>1)</sup> The screw and the washer are included in the scope of delivery

## Dimensions

| Housing dimensions               |           |                   |
|----------------------------------|-----------|-------------------|
| <b>Total [mm]</b>                | W x H x D | 69.5 x 55.0 x 6.8 |
| <b>Adapter plate [mm]</b>        | W x H x D | 69.0 x 51.0 x 5.5 |
| <b>Heat conducting film [mm]</b> | W x H x D | 65.0 x 55.0 x 0.3 |
| <b>Resistance [mm]</b>           | W x H x D | 69.5 x 51.5 x 1.0 |
| <b>Cable / line [mm]</b>         |           |                   |
| Lead blue / blue                 | L         | 60.0 / 60.0       |
| Wire end sleeve                  | L         | 8.0               |



## Connections

| Name                                | +B                | -B                |
|-------------------------------------|-------------------|-------------------|
| <b>Cross section / type</b>         | AWG 18            |                   |
| <b>Wire colour</b>                  | Blue              | Blue              |
| <b>Terminal label</b>               | Power terminal +B | Power terminal -B |
| <b>Tightening torque</b><br>SK 2xxE | 1.2 – 1.5 Nm      |                   |

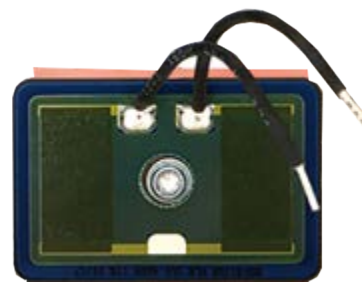
**i** Information

**Versions**

Due to the production process, various versions of braking resistor are available for installation and connection to *NORDAC FLEX* frequency inverters.



Older version



Current version



**Frequency inverter assignment**

**i Information**

**Overview in the manual**

The braking resistors provided by the NORD DRIVESYSTEMS Group are specially designed for the particular frequency inverters.

Otherwise, the internal braking resistor and the frequency inverter may be damaged during operation.

For detailed information, please refer to section  Assignment of Braking Resistors, in the relevant frequency inverter manual  "Further documentation and software: [www.nord.com](http://www.nord.com)".

**Installation**

|                                 |   |
|---------------------------------|---|
| <b>Installation location</b>    | Direct installation and connection to a decentralised <i>NORDAC FLEX</i> frequency inverter: <ul style="list-style-type: none"> <li>In the connection unit of the frequency inverter</li> </ul> |
| <b>Installation orientation</b> | Option slot 2   |
| <b>Fastening</b>                | With screws (fastening material is included)  |

**i Information**



**Assembly sequence**

To install or remove the internal braking resistor, a power terminal strip which must be removed from the connection unit.


For the use of Type SK CU4-... customer interfaces and depending on the type of device and the options used, further components may need to be removed.

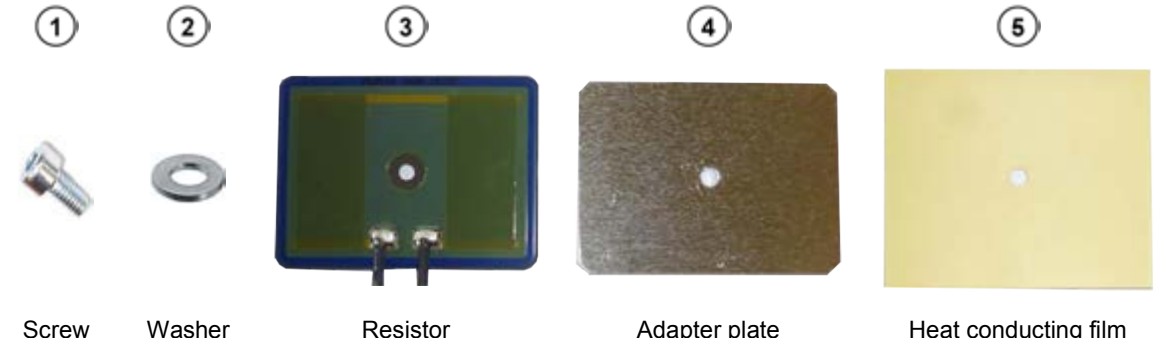
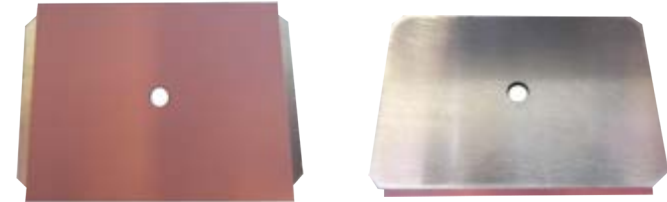

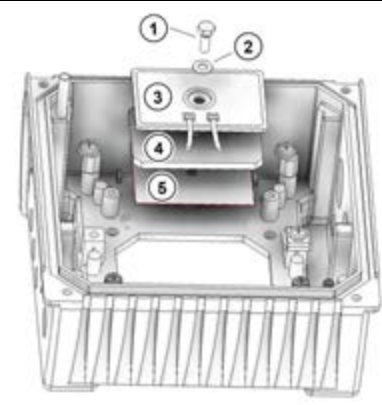
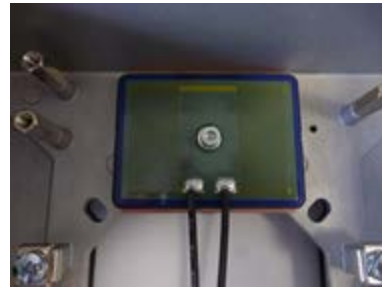


With the motor mounted version, the motor cover / insulating plate must be correctly removed. In contrast, for a wall mounted version, no motor cover / insulating plate is installed in the connection unit.



For detailed information regarding installation of the connection unit and the optional modules, please refer to section  Assembly and Installation, in the frequency inverter manual  "Further documentation and software: [www.nord.com](http://www.nord.com)".


*Installation steps*

|    |   |   |
|----|---|---|
| 1. | Installing the frequency inverter<br>The SK 2xxE frequency inverter is not yet installed on the SK T14 connection unit and the drive.   | <br>Motor mounted version |
| 2. | Installing the internal braking resistor<br>The braking resistor is fastened to option slot 2 in the SK T14 connection unit. <ul style="list-style-type: none"> <li>All components are installed in the connection unit using the enclosed M4 hexagon socket screw and the washer.</li> </ul> |   |


|    |   |   |
|----|---|---|
| 3. |  <p>Screw    Washer    Resistor    Adapter plate    Heat conducting film</p> <p>Attach the heat conducting film to the adapter plate with the self-adhesive film.</p> <ul style="list-style-type: none"> <li>• <b>Caution:</b> For this, the protective film must be removed from the heat conducting film.</li> <li>• Then place the adapter plate with the heat conducting film facing downwards into option slot 2</li> <li>• Place the braking resistor on the adapter plate in the connection unit with the connecting wires facing inwards</li> <li>• Insert the hexagon socket screw with the washer into the fastening hole of the braking resistor</li> <li>• Firmly screw the braking resistor and adapter plate / heat conducting film to the connection unit</li> </ul>  <p>The specified tightening torques (see  Technical Data – General) must be complied with for fastening.</p> |   |
| 4. | <p>Connect the two connection wires to the power terminal strip or to the terminals of the frequency inverter.</p> <p>Black lead ⇔ -B<br/>                 Black lead ⇔ +B</p> <p>Please heed the specified tightening torques; refer to  Technical Data – Connections.</p>  |   |

### Information


#### Peak load limitation - DIP switch (S1)

If a type SK BRI4-...internal braking resistor is used, the DIP switch (S1) DIP No., 8 see  "Further documentation and software: [www.nord.com](http://www.nord.com)", must be set to "On". This is important in order to activate a peak power limitation to protect the braking resistor.

### Parameters

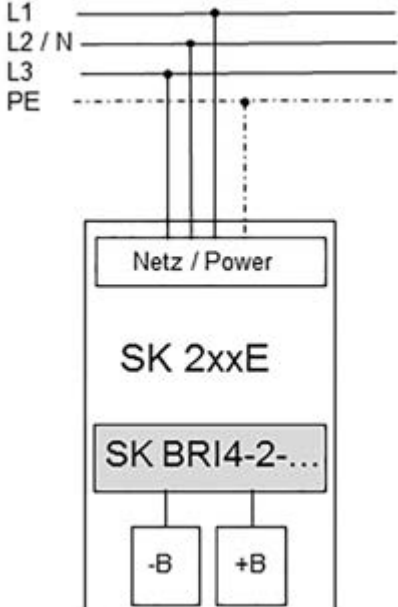



For optimum operation of the internal braking resistor, no parameters of the frequency inverter need to be changed. Limitation of the peak load is carried out solely via the hardware using DIP switch S1 with DIP No. 8 set to the position "On". Refer to the frequency inverter manual for details  "Further documentation and software: [www.nord.com](http://www.nord.com)".

### Error messages

Error messages of the internal braking resistor – the current or the archived message of the last fault – can be retrieved using the information parameters Actual fault P700 and Last fault P701 from the error memory of the frequency inverter. Refer to the frequency inverter manual for details  "Further documentation and software: [www.nord.com](http://www.nord.com)").

| Error (E030/E050) | Meaning                            | Remarks  |
|-------------------|------------------------------------|--|
| 3.1               | I <sup>2</sup> t overcurrent limit | Brake chopper: I <sup>2</sup> t limit has been triggered, 1.5x value for 60 s reached <ul style="list-style-type: none"> <li>Avoid overcurrent in brake resistance</li> </ul>  |
| 5.0               | Overvoltage UZW                    | Link circuit voltage too high <ul style="list-style-type: none"> <li>Check the function of the connected braking resistor (broken cable)</li> <li>Resistance value of connected braking resistor too high</li> </ul> |

### Wiring diagram

|   |   |
|---|---|
|    |  <p><b>Internal brake resistor</b><br/><b>SK BRI4-2-x00-x00</b></p> |
|  <p><b>Size 3</b><br/><b>SK 2xxE</b></p> |  <p><b>Connection unit</b><br/><b>SK TI4-3</b></p>                 |

Further documentation and software: [www.nord.com](http://www.nord.com)

| Document                | Designation                       |
|-------------------------|-----------------------------------|
| <a href="#">BU 0200</a> | SK 200E frequency inverter manual |