SD241-B (Contrac)
Motor temperature monitoring unit

Introduction
Motor temperature monitoring unit SD241-B
- For Contrac control actuator in explosion-proof design
- Thermistor control unit for monitoring the motor temperature
- Integrated contactor for interrupting the power supply
- Test button on the front
- Signal contact to monitor the tripping function

Additional Information
Additional documentation on SD241-B (Contrac) is available for download free of charge at www.abb.com/actuators.
Alternatively simply scan this code:
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1 Safety

General information and instructions

These instructions are an important part of the product and must be retained for future reference.
Installation, commissioning, and maintenance of the product may only be performed by trained specialist personnel who have been authorized by the plant operator accordingly. The specialist personnel must have read and understood the manual and must comply with its instructions.
For additional information or if specific problems occur that are not discussed in these instructions, contact the manufacturer.
The content of these instructions is neither part of nor an amendment to any previous or existing agreement, promise or legal relationship.
Modifications and repairs to the product may only be performed if expressly permitted by these instructions.
Information and symbols on the product must be observed. These may not be removed and must be fully legible at all times. The operating company must strictly observe the applicable national regulations relating to the installation, function testing, repair and maintenance of electrical products.

Warnings

The warnings in these instructions are structured as follows:

⚠️ DANGER
The signal word ‘DANGER’ indicates an imminent danger. Failure to observe this information will result in death or severe injury.

⚠️ WARNING
The signal word ‘WARNING’ indicates an imminent danger. Failure to observe this information may result in death or severe injury.

⚠️ CAUTION
The signal word ‘CAUTION’ indicates an imminent danger. Failure to observe this information may result in minor or moderate injury.

NOTICE
The signal word ‘NOTICE’ indicates possible material damage.

Note
‘Note’ indicates useful or important information about the product.
... 1 Safety

Intended use
The motor temperature monitoring unit SD241-B (Contrac) is used to ensure proper operation of Contrac control actuators in potentially explosive atmospheres. When a motor temperature specified in accordance with an explosion protection level is reached due to a failure in the motor, the device interrupts the power supply to the Contrac electronic unit. The motor and electronic unit are thus disconnected from the power supply. The integrated brake locks the actuator in its current position.

Improper use
The following are considered to be instances of improper use of the device:

- Material application, for example by painting over the housing, name plate or welding/soldering on parts.
- Material removal, for example by spot drilling the housing.

Warranty provisions
Using the device in a manner that does not fall within the scope of its intended use, disregarding this manual, using underqualified personnel, or making unauthorized alterations releases the manufacturer from liability for any resulting damage. This renders the manufacturer's warranty null and void.

Manufacturer's address
ABB Automation Products GmbH
Measurement & Analytics
Schillerstr. 72
32425 Minden
Germany
Tel: +49 571 830-0
Fax: +49 571 830-1806

Customer service center
Tel: +49 180 5 222 580
Email: automation.service@de.abb.com

2 Design and function

Principle of operation
The PTCs integrated in the winding are calibrated to the max. permissible temperature limit of the motor. Once the rated operating temperature is reached, the PTCs suddenly increase their resistance. The trigger circuit in the tripping unit responds to the new resistance and switches off the contactor activated during operation. The electronic unit and the motor are disconnected from the power supply. The SD241-B (Contrac) monitoring unit works in accordance with the closed circuit principle. It monitors itself, the PTC and the connecting cable for wire breaks. The button (Open) in the housing cover can check the tripping unit for proper operation. In addition, a resistance equivalent to the response threshold of the tripping unit can be set in the measuring line in order to simulate the operating temperature. After tripping, the device is reset using the internal blue reset button.
Assemblies

Figure 2: Assemblies

1. Fuse
2. Test switch
3. Cable entry

3 Product identification

Name plate

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Überwachungseinheit SD241-B</td>
</tr>
<tr>
<td>2</td>
<td>Best-Nr.: ...</td>
</tr>
<tr>
<td>3</td>
<td>B.-Nr.: ... Jahr:</td>
</tr>
<tr>
<td>4</td>
<td>U ≥ 230 V, Schaltleistung max. ... kW</td>
</tr>
<tr>
<td>5</td>
<td>Mit Auslöserät Prüf-Nr. ...</td>
</tr>
<tr>
<td>6</td>
<td>Für Kaltleiter - Summenwiderstand &lt; ... KOhm</td>
</tr>
<tr>
<td></td>
<td>ABB Automation Products GmbH</td>
</tr>
<tr>
<td></td>
<td>Schillerstrasse 72</td>
</tr>
<tr>
<td></td>
<td>D-32425 Minden</td>
</tr>
<tr>
<td></td>
<td>Made In Germany</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Type</td>
</tr>
<tr>
<td>2</td>
<td>Ordering number</td>
</tr>
<tr>
<td>3</td>
<td>Serial number</td>
</tr>
<tr>
<td>4</td>
<td>Voltage / switching capacity</td>
</tr>
<tr>
<td>5</td>
<td>Inspection number</td>
</tr>
<tr>
<td>6</td>
<td>Cumulative resistance</td>
</tr>
</tbody>
</table>

Figure 3: Name plate

4 Transport and storage

Inspection

Check the devices immediately after unpacking for possible damage that may have occurred from improper transport. Details of any damage that has occurred in transit must be recorded on the transport documents. All claims for damages must be submitted to the shipper without delay and before installation.

Storing the device

Bear the following points in mind when storing devices:
- Store the device in its original packaging in a dry and dust-free location.
- Observe the permitted ambient conditions for transport and storage.
- Avoid storing the device in direct sunlight.
- In principle, the devices may be stored for an unlimited period. However, the warranty conditions stipulated in the order confirmation of the supplier apply.

Returning devices

For the return of devices, follow the instructions in Repair on page 9.
5 Installation

Mounting

Installation instructions

- The motor temperature monitoring unit is suited for installation on a vertical wall (±22° from vertical).
- Make sure that the maximum ambient temperature of 60 °C (140 °F) is not up-scaled. If required, provide a sunshield to protect against direct sunlight.
- Select the installation location such to avoid direct exposure to rain, snow and other environmental influences.
- When mounting the actuator close to heat sources use an insulating layer or shielding.

![Diagram showing the installation of the motor temperature monitoring unit.](Image)
**Electrical connections**

**Safety instructions**

**WARNING**

Risk of injury due to live parts.
Improper work on the electrical connections can result in electric shock.
- Connect the device only with the power supply switched off.
- Observe the applicable standards and regulations for the electrical connection.

The electrical connection may only be established by authorized specialist personnel.
Notices on electrical connection in this instruction must be observed; otherwise, electric safety and the IP-rating may be adversely affected.
Safe isolation of electric circuits which are dangerous if touched is only guaranteed when the connected devices fulfill the requirements of EN 61140 (basic requirements for secure separation).
To ensure safe isolation, install supply lines so that they are separate from electrical circuits which are dangerous if touched, or implement additional isolation measures for them.

![Circuit diagram](image)

Figure 5: Circuit diagram

1. For Contrac electronic unit
2. Power supply AC 230 V / AC 115 V
3. 'On' button
4. 'Off' button
5. Signal (optional)
6. PTC in motor
5 Installation

Electrical connections

Information
- The line for temperature monitoring must not be routed through the supply voltage line of the motor.
- If extreme inductive or capacitive interference is expected, use shielded signal lines.
- Prior to commissioning, test the sensor resistance using a suited measuring device.
- The cumulative cold resistance may not upscale 1.5 kΩ.
- For resistances < 50 Ω check for a short-circuit in the sensor circuit.
- Seal unused cable entries using suited sealing plugs.

Line lengths in sensor circuit

<table>
<thead>
<tr>
<th>Cross section</th>
<th>Line length</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.5 mm² (14 AWG)</td>
<td>2 × 2,800 m (9,185 ft)</td>
</tr>
<tr>
<td>1.5 mm² (16 AWG)</td>
<td>2 × 1,500 m (4,920 ft)</td>
</tr>
<tr>
<td>0.5 mm² (20 AWG)</td>
<td>2 × 500 m (1,640 ft)</td>
</tr>
</tbody>
</table>

6 Operation

Safety instructions
- Before power-up, make sure that the ambient conditions specified in the data sheet are complied with and that the power supply corresponds with the information specified on the name plate of the motor temperature monitoring unit.
- If it can be assumed that safe operation is no longer possible, take the unit out of operation and secure against unintended startup.
- When mounting the motor temperature monitoring unit in work and traffic areas which may be accessed by unauthorized persons, the user is required to take the required protective measures.

Displays and operating elements

Figure 6: Displays and controls

- After opening the housing cover, the internal displays and controls of the 3RN1011 tripping unit become visible.
- After supply voltage of 115 V or 230 V (see name plate) is applied, the green ‘Ready’ LED shows that the unit is ready for operation.
- The red ‘Tripped’ LED indicates the tripped condition.
- The blue ‘Test / Reset’ button is used for testing and/or resetting.
  For testing, press and hold the blue button for approximately 3 to 4 seconds. The unit trips and this is signaled by the red LED. Terminals 8 and 9 are permanently conductive.
  Pushing the blue ‘Test / Reset’ button briefly one more time resets the device.
  The red LED extinguishes and terminals 8 and 9 are permanently open.
7 Repair

Repair and maintenance activities may only be performed by authorized customer service personnel. When replacing or repairing individual components, use original spare parts.

Returning devices

Use the original packaging or a secure transport container of an appropriate type if you need to return the device for repair or recalibration purposes.

Fill out the return form (see Return form on page 10) and include this with the device.

In accordance with the EU Directive governing hazardous materials, the owner of hazardous waste is responsible for its disposal or must observe the following regulations for shipping purposes:

All devices delivered to ABB must be free from any hazardous materials (acids, alkalis, solvents, etc.).

Please contact Customer Center Service acc. to page 4 for nearest service location.

8 Recycling and disposal

Note

Products that are marked with the adjacent symbol may not be disposed of as unsorted municipal waste (domestic waste).

They should be disposed of through separate collection of electric and electronic devices.

This product and its packaging are manufactured from materials that can be recycled by specialist recycling companies.

Bear the following points in mind when disposing of them:

- As of 8/15/2018, this product will be under the open scope of the WEEE Directive 2012/19/EU and relevant national laws (for example, ElektroG - Electrical Equipment Act - in Germany).

- The product must be supplied to a specialist recycling company. Do not use municipal waste collection points. These may be used for privately used products only in accordance with WEEE Directive 2012/19/EU.

- If there is no possibility to dispose of the old equipment properly, our Service can take care of its pick-up and disposal for a fee.

Notice on RoHS II-Directive 2011/65/EU

As of 7/22/2019, the products provided by ABB Automation Products GmbH fall within the scope of regulations on hazardous substances with restricted uses or the directive on waste electrical and electronic equipment in accordance with ElektroG.

Note

Detailed information on the RoHS Directive is available in the ABB download area.

www.abb.com/actuators

9 Specification

<table>
<thead>
<tr>
<th>SD241-B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Line voltage / control voltage</td>
</tr>
<tr>
<td>depending on design; see order information / name plate</td>
</tr>
<tr>
<td>AC 115 V (94 to 121 V)</td>
</tr>
<tr>
<td>Frequency</td>
</tr>
<tr>
<td>Backup fuse</td>
</tr>
<tr>
<td>Fuse</td>
</tr>
<tr>
<td>Operating temperature</td>
</tr>
<tr>
<td>Transport and storage temperature</td>
</tr>
<tr>
<td>Relative humidity</td>
</tr>
<tr>
<td>95% of 30 days; condensation not permitted</td>
</tr>
<tr>
<td>IP rating</td>
</tr>
</tbody>
</table>

10 Additional documents

Note

All documentation, Declarations of conformity and certificates are available in ABB's download area.

www.abb.com/actuators
11 Appendix

Return form

Statement on the contamination of devices and components

Repair and/or maintenance work will only be performed on devices and components if a statement form has been completed and submitted. Otherwise, the device/component returned may be rejected. This statement form may only be completed and signed by authorized specialist personnel employed by the operator.

Customer details:
Company: 
Address: 
Contact person: 
Telephone: 
Fax: 
Email: 

Device details:
Type: 
Serial no.: 
Reason for the return/description of the defect: 

Was this device used in conjunction with substances which pose a threat or risk to health? 
☐ Yes ☐ No 

If yes, which type of contamination (please place an X next to the applicable items):
☐ biological ☐ corrosive / irritating ☐ combustible (highly / extremely combustible) 
☐ toxic ☐ explosive ☐ other toxic substances 
☐ radioactive 

Which substances have come into contact with the device?
1. 
2. 
3. 

We hereby state that the devices/components shipped have been cleaned and are free from any dangerous or poisonous substances.

Town/city, date 
Signature and company stamp
Notes
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