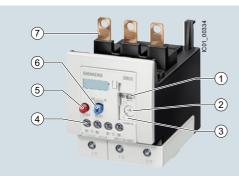
3RU11 for standard applications

### Overview

#### Note:

The 3RU11 devices (sizes S00/S0 to S3) can be found

- in the Catalog Add-On IC 10 AO · 2016 at the Information and Download Center
- in the interactive Catalog CA 01
- in the Industry Mall



- (1) Switch position indicator and TEST function of the wiring: Indicates a trip and enables the wiring test.
- 2 Motor current setting: Setting the device to the rated motor current is easy with the large rotary knob.
- Transparent, sealable cover: Secures the motor current setting and the TEST function against adjustment.
- Connecting terminals:
   The generously sized terminals permit connection of two conductors with different cross-sections for main and auxiliary circuits. The auxiliary circuit can be connected with screw terminals and alternatively with spring-type terminals.
- (5) STOP button: If the STOP button is pressed, the NC contact is opened. This switches off the contactor downstream. The NC contact is closed again when the button is released.
- Selector switch for manual/automatic RESET and RESET button: With this switch you can choose between manual and automatic RESET. A device set to manual RESET can be reset locally by pressing the RESET button. A remote RESET is possible using the RESET modules (accessories), which are independent of size.
- Connection for mounting onto contactors:
  Optimally adapted in electrical, mechanical and design terms to the contactors. These connecting pins can be used for direct mounting of the overload relay to the contactor. Stand-alone installation is possible as an alternative (partly in conjunction with a terminal support for stand-alone installation).

SIRIUS 3RU1146-1HB0 thermal overload relay

The 3RU11 thermal overload relays up to 100 A have been designed for inverse-time delayed protection of loads with normal starting (for "Function" see Reference Manual "Protection Equipment – 3RU1, 3RB2 Overload Relays", https://support.industry.siemens.com/cs/ww/en/view/35681830) against excessive temperature rises due to overload or phase failure

An overload or phase failure results in an increase of the motor current beyond the set rated motor current. Via heating elements, this current rise heats up the bimetal strips inside the device which then bend and as a result trigger the auxiliary contacts by means of a tripping mechanism. The auxiliary contacts then switch off the load by means of a contactor. The break time depends on the ratio between the tripping current and current setting  $I_{\rm e}$  and is stored in the form of a long-term stable tripping characteristic curve (see "Characteristic Curves",

https://support.industry.siemens.com/cs/ww/en/ps/16273/char).

The "tripped" status is signaled by means of a switch position indicator. Resetting takes place either manually or automatically after a recovery time has elapsed (for "Function", see Reference Manual "Protection Equipment – 3RU1, 3RB2 Overload Relays", https://support.industry.siemens.com/cs/ww/en/view/35681830).

The 3RU11 thermal overload relays are suitable for operation with frequency converters. Please follow the instructions in the Reference Manual "Protection Equipment – 3RU1 and 3RB2 Overload Relays", see

https://support.industry.siemens.com/cs/ww/en/view/35681830.

The devices are manufactured in accordance with environmental guidelines and contain environmentally friendly and reusable materials.

They comply with all important worldwide standards and approvals.

3RU21 overload relays in sizes S00 to S2, see page 7/101 onwards.

#### Use in hazardous areas

The 3RU11 thermal overload relays are suitable for the protection of motors with "Flameproof enclosure d" or "Increased safety e" types of protection.

EC type test certificate for Category (2) G/D exists. It has the number DMT 98 ATEX G001.

## Article No. scheme

| Digit of the Article No.                  | 1st - 3rd | 4th | 5th | 6th | 7th |   | 8th | 9th | 10th | 11th |  |
|---|-----------|-----|-----|-----|-----|---|-----|-----|------|------|--|
|   |           |     |     |     |     | _ |     |     |      |      |  |
| Thermal overload relays                   | 3 R U     |     |     |     |     |   |     |     |      |      |  |
| SIRIUS 1st generation                     |           | 1   |     |     |     |   |     |     |      |      |  |
| Device series                             |           |     |     |     |     |   |     |     |      |      |  |
| Size, rated operational current and power |           |     |     |     |     |   |     |     |      |      |  |
| Setting range of the overload release     |           |     |     |     |     |   |     |     |      |      |  |
| Connection methods                        |           |     |     |     |     |   |     |     |      |      |  |
| Installation type                         |           |     |     |     |     |   |     |     |      |      |  |
| Example                                   | 3 R U     | 1   | 1   | 4   | 6   | _ | 4   | D   | В    | 0    |  |

#### Note:

The Article No. scheme is presented here merely for information purposes and for better understanding of the logic behind the article numbers.

For your orders, please use the article numbers quoted in the catalog in the Selection and ordering data.

### 3RU11 for standard applications

### Benefits

The most important features and benefits of the 3RU11 thermal overload relays are listed in the overview table (see "General Data", page 7/88 onwards).

### Application

#### Industries

The 3RU11 thermal overload relays are suitable for customers from all industries who want to guarantee optimum inverse-time delayed protection of their electrical loads (e.g. motors) under normal starting conditions (CLASS 10).

### Application

The 3RU11 thermal overload relays have been designed for the protection of three-phase and single-phase AC and DC motors.

If single-phase AC or DC loads are to be protected by the 3RU11 thermal overload relays, all three bimetal strips must be heated. For this purpose, all main current paths of the relay must be connected in series.

#### Ambient conditions

3RU11 thermal overload relays compensate temperature in the temperature range from  $-20\,^{\circ}\text{C}$  to  $+60\,^{\circ}\text{C}$  according to IEC 60947-4-1. At temperatures from  $+60\,^{\circ}\text{C}$  to  $+70\,^{\circ}\text{C}$ , the upper set value of the setting range has to be reduced by a specific factor in accordance with the table below.

#### Use of SIRIUS protection devices in conjunction with IE3 motors

#### Note:

For the use of 3RU11 electronic overload relays in conjunction with highly energy-efficient IE3 motors, please observe the information on dimensioning and configuring, see "Configuration Manual for SIRIUS Controls with IE3 Motors", https://support.industry.siemens.com/cs/ww/en/view/94770820. For more information, see Preface on page 5.

## Technical specifications

The following technical information is intended to provide an initial overview of the various types of device and functions.

For detailed information, see Reference Manual "Protection Equipment – 3RU1, 3RB2 Overload Relays" https://support.industry.siemens.com/cs/ww/en/view/35681830.

| Туре   | 3RU1146   |
|--|---|
| Size   | S3  |
| Dimensions (W x H x D) (overload relay with stand-alone installation support)  | 70 x 120 x 140  |
| General data   |   |
| Tripping in the event of   | Overload and phase failure  |
| Trip class acc. to IEC 60947-4-1 CLA   | SS 10   |
| Phase failure sensitivity  | Yes   |
| Overload warning   | No  |
| Reset and recovery   |   |
| Reset options after tripping   | Manual, Automatic and Remote RESET (Remote RESET in conjunction with the appropriate accessory) |
| <ul> <li>Recovery time</li> <li>For automatic RESET</li> <li>For manual RESET</li> <li>For remote RESET</li> <li>min.</li> </ul>                         | Depends on the strength of the tripping current and characteristic                              |
| Features   |   |
| Display of operating state on device   | Yes, by means of TEST function/switch position indicator slide                                  |
| TEST function  | Yes   |
| RESET button   | Yes   |
| STOP button  | Yes   |
| Protection and operation of motors with types of protection<br>"Increased safety e" and "Flameproof enclosure d"   |   |
| EC type-examination certificate number according to directive 94/9/EC (ATEX)   | DMT 98 ATEX G 001  II (2) GD see https://support.industry.siemens.com/cs/ww/en/view/108877706   |
| Ambient temperature  |   |
| • Storage/transport °C   | -55 +80   |
| • Operation °C   | -20 +70   |
| • Temperature compensation °C  | Up to 60  |
| <ul> <li>Permissible rated current at</li> <li>Temperature inside control cabinet 60 °C %</li> <li>Temperature inside control cabinet 70 °C %</li> </ul> | 100 (over +60 °C current reduction is not required) 87  |
| Repeat terminals   |   |

Not required

Not required

· Coil repeat terminals

· Auxiliary contact repeat terminal

## 3RU11 for standard applications

| Type Size Dimensions (W x H x D) (overload relay with stand-alone installation support) | mm           | <b>3RU1146</b><br>S3<br>70 x 120 x 140   |
|---|--------------|--|
| General data (continued)  |              |  |
| Degree of protection acc. to IEC 60529  |              | <ul> <li>IP20 (front side)</li> <li>Terminal IP00 (use additional terminal covers<br/>for higher degree of protection)</li> </ul>  |
| Touch protection acc. to IEC 60529  |              | Finger-safe, for vertical contact from the front   |
| Shock resistance with sine acc. to IEC 60068-2-27                                       | <i>g</i> /ms | 8/10   |
| Electromagnetic compatibility (EMC)   |              |  |
| Interference immunity   |              | Not relevant   |
| Emitted interference  |              | Not relevant   |
| Resistance to extreme climates – air humidity   | %            | 100  |
| Dimensions  |              | "Dimensional drawings", see<br>Reference Manual "Protection Equipment – 3RU1, 3RB2 Overload Relays",<br>https://support.industry.siemens.com/cs/ww/en/view/35681830.   |
| Installation altitude above sea level   | m            | Up to 2 000; above this on request   |
| Mounting position   |              | The diagrams show the permissible mounting positions for mounting onto contactors and stand-alone installation. For mounting position in the hatched area, a setting correction of 10 % must be implemented. Stand-alone installation: |
| Type of mounting  |              | For mounting onto contactor or stand-alone installation with terminal support,   |

For mounting onto contactor or stand-alone installation with terminal support, screw and snap-on mounting onto standard mounting rail.

## **Overload Relays**

## SIRIUS 3RU1 Thermal Overload Relays

## 3RU11 for standard applications

| Туре  |                            | 3RU1146   |
|---|----------------------------|---|
| Size  |                            | \$3   |
| Main circuit  |                            |   |
| Rated insulation voltage <i>U</i> <sub>i</sub> (pollution degree 3)   | V                          | 1 000   |
| Rated impulse withstand voltage $U_{\rm imp}$   | kV                         | 8   |
| Rated operational voltage $U_{\rm e}$   | V                          | 1 000   |
| Type of current   |                            |   |
| Direct current  |                            | Yes   |
| Alternating current   |                            | Yes, frequency range up to 400 Hz   |
| Current setting   | А                          | 18 25<br>up to<br>80 100  |
| Power loss per unit (max.)  | W                          | 10 16.5   |
| Short-circuit protection  |                            |   |
| With fuse without contactor   |                            | See "Selection and ordering data" on page 7/112   |
| With fuse and contactor   |                            | See Reference Manual "Protection Equipment – 3RU1, 3RB2 Overload Relays", https://support.industry.siemens.com/cs/ww/en/view/35681830 → "Technical Specifications" → "Short-Circuit Protection with Fuses/Motor Starter Protectors for Motor Feeders"   |
| Protective separation between main and auxiliary current paths Acc. to IEC 60947-1  | V                          | 690   |
| Conductor areas and an of the main singuit  |                            |   |
| Conductor cross-section of the main circuit   |                            |   |
| Connection type   |                            | Screw terminals with box terminal   |
|   |                            | Screw terminals with box terminal  M8, 4 mm Allen screw   |
| Connection type   | mm                         |   |
| Connection type  Terminal screw   | mm<br>Nm                   | M8, 4 mm Allen screw  |
| Connection type  Terminal screw  Operating devices  |                            | M8, 4 mm Allen screw 4 mm Allen screw   |
| Connection type  Terminal screw  Operating devices  Prescribed tightening torque  Conductor cross-sections (min./max.),   | Nm<br>mm <sup>2</sup>      | M8, 4 mm Allen screw 4 mm Allen screw 4 6  2 x (2.5 16)   |
| Connection type  Terminal screw  Operating devices  Prescribed tightening torque  Conductor cross-sections (min./max.), 1 or 2 conductors can be connected  | Nm                         | M8, 4 mm Allen screw 4 mm Allen screw 4 6  2 x (2.5 16) 2 x (2.5 35) <sup>1)</sup> , 1 x (2.5 50) <sup>1)</sup>   |
| Connection type  Terminal screw  Operating devices  Prescribed tightening torque  Conductor cross-sections (min./max.), 1 or 2 conductors can be connected  • Solid   | Nm<br>mm <sup>2</sup>      | M8, 4 mm Allen screw 4 mm Allen screw 4 6  2 x (2.5 16) 2 x (2.5 35) <sup>1)</sup> , 1 x (2.5 50) <sup>1)</sup> 2 x (10 50) <sup>1)</sup> , 1 x (10 70) <sup>1)</sup>   |
| Connection type  Terminal screw  Operating devices  Prescribed tightening torque  Conductor cross-sections (min./max.), 1 or 2 conductors can be connected  • Solid  • Finely stranded with end sleeve (DIN 46228-1)  | Nm mm² mm²                 | M8, 4 mm Allen screw 4 mm Allen screw 4 6  2 x (2.5 16) 2 x (2.5 35) <sup>1)</sup> , 1 x (2.5 50) <sup>1)</sup>   |
| Connection type  Terminal screw  Operating devices  Prescribed tightening torque  Conductor cross-sections (min./max.), 1 or 2 conductors can be connected  • Solid  • Finely stranded with end sleeve (DIN 46228-1)  • Stranded  | Mm  mm² mm² mm² mm²        | M8, 4 mm Allen screw 4 mm Allen screw 4 6  2 x (2.5 16) 2 x (2.5 35) <sup>1)</sup> , 1 x (2.5 50) <sup>1)</sup> 2 x (10 50) <sup>1)</sup> , 1 x (10 70) <sup>1)</sup>   |
| Connection type  Terminal screw  Operating devices  Prescribed tightening torque  Conductor cross-sections (min./max.), 1 or 2 conductors can be connected  • Solid  • Finely stranded with end sleeve (DIN 46228-1)  • Stranded  • AWG cables, solid or stranded   | Nm  mm² mm² mm² AWG        | M8, 4 mm Allen screw 4 mm Allen screw 4 6  2 x (2.5 16) 2 x (2.5 35) <sup>1)</sup> , 1 x (2.5 50) <sup>1)</sup> 2 x (10 50) <sup>1)</sup> , 1 x (10 70) <sup>1)</sup> 2 x (10 1/0) <sup>1)</sup> , 1 x (10 2/0) <sup>1)</sup>   |
| Connection type  Terminal screw  Operating devices  Prescribed tightening torque  Conductor cross-sections (min./max.), 1 or 2 conductors can be connected  • Solid  • Finely stranded with end sleeve (DIN 46228-1)  • Stranded  • AWG cables, solid or stranded  • Ribbon cable conductors (Number x Width x Thickness)   | Nm  mm² mm² mm² AWG        | M8, 4 mm Allen screw  4 mm Allen screw  4 6  2 x (2.5 16) 2 x (2.5 35) <sup>1</sup> , 1 x (2.5 50) <sup>1</sup> ) 2 x (10 50) <sup>1</sup> , 1 x (10 70) <sup>1</sup> ) 2 x (10 1/0) <sup>1</sup> , 1 x (10 2/0) <sup>1</sup> ) 2 x (6 x 9 x 0.8)   |
| Connection type  Terminal screw  Operating devices  Prescribed tightening torque  Conductor cross-sections (min./max.), 1 or 2 conductors can be connected  • Solid  • Finely stranded with end sleeve (DIN 46228-1)  • Stranded  • AWG cables, solid or stranded  • Ribbon cable conductors (Number x Width x Thickness)  Connection type  | Nm  mm² mm² mm² AWG        | M8, 4 mm Allen screw  4 mm Allen screw  4 6  2 x (2.5 16) 2 x (2.5 35) <sup>1)</sup> , 1 x (2.5 50) <sup>1)</sup> 2 x (10 50) <sup>1)</sup> , 1 x (10 70) <sup>1)</sup> 2 x (10 1/0) <sup>1)</sup> , 1 x (10 2/0) <sup>1)</sup> 2 x (6 x 9 x 0.8)  Busbar connection <sup>2)</sup>              |
| Connection type  Terminal screw  Operating devices  Prescribed tightening torque  Conductor cross-sections (min./max.), 1 or 2 conductors can be connected  • Solid  • Finely stranded with end sleeve (DIN 46228-1)  • Stranded  • AWG cables, solid or stranded  • Ribbon cable conductors (Number x Width x Thickness)  Connection type  Terminal screw  | Nm  mm² mm² mm² AWG mm     | M8, 4 mm Allen screw  4 mm Allen screw  4 6  2 x (2.5 16) 2 x (2.5 35) <sup>1)</sup> , 1 x (2.5 50) <sup>1)</sup> 2 x (10 50) <sup>1)</sup> , 1 x (10 70) <sup>1)</sup> 2 x (10 1/0) <sup>1)</sup> , 1 x (10 2/0) <sup>1)</sup> 2 x (6 x 9 x 0.8)  Busbar connection <sup>2)</sup> M6 x 20      |
| Terminal screw  Operating devices  Prescribed tightening torque  Conductor cross-sections (min./max.), 1 or 2 conductors can be connected  • Solid  • Finely stranded with end sleeve (DIN 46228-1)  • Stranded  • AWG cables, solid or stranded  • Ribbon cable conductors (Number x Width x Thickness)  Connection type  Terminal screw  Prescribed tightening torque   | Nm  mm² mm² mm² AWG mm  Nm | M8, 4 mm Allen screw  4 mm Allen screw  4 6  2 x (2.5 16) 2 x (2.5 35) <sup>1)</sup> , 1 x (2.5 50) <sup>1)</sup> 2 x (10 50) <sup>1)</sup> , 1 x (10 70) <sup>1)</sup> 2 x (10 1/0) <sup>1)</sup> , 1 x (10 2/0) <sup>1)</sup> 2 x (6 x 9 x 0.8)  Busbar connection <sup>2)</sup> M6 x 20      |
| Connection type  Terminal screw  Operating devices  Prescribed tightening torque  Conductor cross-sections (min./max.), 1 or 2 conductors can be connected  • Solid  • Finely stranded with end sleeve (DIN 46228-1)  • Stranded  • AWG cables, solid or stranded  • Ribbon cable conductors (Number x Width x Thickness)  Connection type  Terminal screw  Prescribed tightening torque  Conductor cross-sections (min./max.)      | Nm  mm² mm² mm² AWG mm     | M8, 4 mm Allen screw  4 mm Allen screw  4 6  2 x (2.5 16) 2 x (2.5 35) <sup>1)</sup> , 1 x (2.5 50) <sup>1)</sup> 2 x (10 50) <sup>1)</sup> , 1 x (10 70) <sup>1)</sup> 2 x (10 1/0) <sup>1)</sup> , 1 x (10 2/0) <sup>1)</sup> 2 x (6 x 9 x 0.8)  Busbar connection <sup>2)</sup> M6 x 20  4 6 |
| Terminal screw Operating devices Prescribed tightening torque Conductor cross-sections (min./max.), 1 or 2 conductors can be connected • Solid • Finely stranded with end sleeve (DIN 46228-1) • Stranded • AWG cables, solid or stranded • Ribbon cable conductors (Number x Width x Thickness) Connection type  Terminal screw Prescribed tightening torque Conductor cross-sections (min./max.) • Finely stranded with cable lug | Nm  mm² mm² mm² AWG mm  Nm | M8, 4 mm Allen screw  4 mm Allen screw  4 6  2 x (2.5 16) 2 x (2.5 35) <sup>1)</sup> , 1 x (2.5 50) <sup>1)</sup> 2 x (10 50) <sup>1)</sup> , 1 x (10 70) <sup>1)</sup> 2 x (10 1/0) <sup>1)</sup> , 1 x (10 2/0) <sup>1)</sup> 2 x (6 x 9 x 0.8)  Busbar connection <sup>2)</sup> M6 x 20  4 6 |

<sup>1)</sup> If two different conductor cross-sections are connected to one clamping point, both cross-sections must be in the range specified.

<sup>2)</sup> The box terminal is removable. Rail and cable lug connections are possible if the box terminal is removed.

## 3RU11 for standard applications

| Туре   |                 | 3RU1146  |
|--|-----------------|--|
| Size   |                 | S3   |
| Auxiliary circuit  |                 |  |
| Number of NO contacts  |                 | 1  |
| Number of NC contacts  |                 | 1  |
| Auxiliary contacts – assignment  |                 | 1 NO for the signal "tripped";<br>1 NC for disconnecting the contactor |
| Rated insulation voltage $\textit{U}_{i}$ (pollution degree 3)   | V               | 690  |
| Rated impulse withstand voltage $U_{\rm imp}$  | kV              | 6  |
| Contact rating of the auxiliary contacts   |                 |  |
| <ul> <li>NC contact with alternating current AC-14/AC-15,<br/>rated operational current I<sub>e</sub> at U<sub>e</sub>:</li> <li>24 V</li> </ul> | А               | 4  |
| - 120 V  | A               | 4  |
| - 125 V  | Α               | 4  |
| - 230 V<br>- 400 V   | A<br>A          | 3 2  |
| - 400 V<br>- 600 V   | Ä               | 0.6  |
| - 690 V  | Α               | 0.5  |
| <ul> <li>NO contact with alternating current AC-14/AC-15,<br/>rated operational current I<sub>e</sub> at U<sub>e</sub>:</li> </ul>               | ^               |  |
| - 24 V<br>- 120 V  | A<br>A          | 3<br>3   |
| - 125 V  | Α               | 3  |
| - 230 V<br>- 400 V   | A               | 2  |
| - 400 V<br>- 600 V   | A<br>A          | 1<br>0.6   |
| - 690 V  | A               | 0.5  |
| <ul> <li>NC, NO contacts with direct current DC-13,<br/>rated operational current I<sub>e</sub> at U<sub>e</sub>:</li> </ul>                     |                 |  |
| - 24 V<br>- 60 V   | A<br>A          | On request   |
| - 110 V  | Α               | 0.22   |
| - 125 V<br>- 220 V   | A<br>A          | 0.22<br>0.11   |
| • Conventional thermal current $I_{th}$  | A               | 6  |
| Control reliability (suitability for PLC control; 17 V, 5 mA)  | ^               | Yes  |
| Short-circuit protection   |                 | 165  |
| With fuse  |                 |  |
| - Operational class gG<br>- Quick  | A<br>A          | 6<br>10  |
| With miniature circuit breaker (C characteristic)  | Α               | 6 <sup>1)</sup>  |
| Protective separation between auxiliary current paths acc. to IEC 60947-1  | V               | 440  |
| CSA, UL, UR rated data   |                 |  |
| Auxiliary circuit – switching capacity   |                 | B600, R300   |
| Conductor cross-sections of the auxiliary circuit  |                 |  |
| Connection type  |                 | Screw terminals  |
| Terminal screw   |                 | M3, Pozidriv size 2  |
| Operating devices  | mm              | Ø 5 6  |
| Prescribed tightening torque   | Nm              | 0.8 1.2  |
| Conductor cross-sections (min./max.), 1 or 2 conductors can be connected   | -               |  |
| • Solid  | $\text{mm}^2$   | 2 x (0.5 1.5) <sup>2)</sup> , 2 x (0.75 2.5) <sup>2)</sup>             |
| • Finely stranded without end sleeve   | $\rm mm^2$      |  |
| • Finely stranded with end sleeve (DIN 46228-1)  | $\rm mm^2$      | 2 x (0.5 1.5) <sup>2)</sup> , 2 x (0.75 2.5) <sup>2)</sup>             |
| • Stranded   | $\rm mm^2$      | 2 x (0.5 1.5) <sup>2)</sup> , 2 x (0.75 2.5) <sup>2)</sup>             |
| AWG cables, solid or stranded  | AWG             | 2 x (18 14)  |
| Connection type  |                 | Spring-type terminals  |
| Operating devices  | mm              | 3.0 x 0.5 and 3.5 x 0.5  |
| Conductor cross-sections (min./max.), 1 or 2 conductors can be connected   |                 |  |
| Solid or stranded  | $\text{mm}^2$   | 2 x (0.5 2.5)  |
| Finely stranded without end sleeve   | mm <sup>2</sup> | 2 x (0.5 2.5)  |
| Finely stranded with end sleeve (DIN 46228-1)  | mm <sup>2</sup> | 2 x (0.5 1.5)  |
| AWG cables, solid or stranded  | AWG             | 2 x (20 14)  |
| 1) Up to $I_k \le 0.5 \text{ kA}; \le 260 \text{ V}.$  |                 | -·· <u>·</u> ····  |
| 2) If two different conductor cross-sections are connected to one clamping   |                 |  |

2) If two different conductor cross-sections are connected to one clamping point, both cross-sections must be in the range specified.

## **Overload Relays**

## SIRIUS 3RU1 Thermal Overload Relays

## 3RU11 for standard applications IE3 ready

## Selection and ordering data

Features and technical specifications:

- · Connection methods
- Main circuit: Screw terminals
- Auxiliary circuit: Either screw or spring-type terminals
- Tripping class CLASS 10
- Overload and phase failure protection
- Auxiliary contacts 1 NO + 1 NC

- · Manual and automatic RESET
- · Switch position indicator
- TEST function
- STOP button
- Integrated sealable cover

#### 3RU11 thermal overload relays with screw terminals on the auxiliary current side, CLASS 10

|              | Size<br>contactor | Trip class           | Current setting value of the inverse-time delayed overload release | Short-circuit protection with fuse, type of coordination "2", operational class gG <sup>1)</sup> | DT             | Screw terminals<br>(on auxiliary current<br>side)            | <b>+</b>        | PU<br>(UNIT,<br>SET, M) | PS*                                  | PG                       |
|--------------|-------------------|----------------------|--|--|----------------|--|-----------------|-------------------------|--------------------------------------|--------------------------|
|              |                   | CLASS                | A  | A  |                | Article No.  | Price<br>per PU |                         |                                      |                          |
| Size S3      |                   |                      |  |  |                |  |                 |                         |                                      | ,                        |
| 900          | For mou           | nting onto d         | contactor <sup>2)</sup>  |  |                | -  |                 |                         |                                      |                          |
|              | S3                | 10<br>10             | 18 25<br>22 32   | 63<br>80   | <b>&gt;</b>    | 3RU1146-4DB0<br>3RU1146-4EB0                                 |                 | 1<br>1                  | 1 unit<br>1 unit                     | 41F<br>41F               |
| 2 2 6        |                   | 10<br>10<br>10<br>10 | 28 40<br>36 50<br>45 63<br>57 75                                   | 80<br>125<br>125<br>160  | <b>* * *</b>   | 3RU1146-4FB0<br>3RU1146-4HB0<br>3RU1146-4JB0<br>3RU1146-4KB0 |                 | 1<br>1<br>1<br>1        | 1 unit<br>1 unit<br>1 unit<br>1 unit | 41F<br>41F<br>41F<br>41F |
| 3RU1146B0    |                   | 10<br>10             | 70 90<br>80 100 <sup>3)</sup>                                      | 160<br>200   | <b>&gt;</b>    | 3RU1146-4LB0<br>3RU1146-4MB0                                 |                 | 1<br>1                  | 1 unit<br>1 unit                     | 41F<br>41F               |
|              | For stan          | d-alone inst         | allation   |  |                |  |                 |                         |                                      |                          |
|              | \$3               | 10<br>10<br>10<br>10 | 45 63<br>57 75<br>70 90<br>80 100 <sup>3)</sup>                    | 125<br>160<br>160<br>200   | <b>* * * *</b> | 3RU1146-4JB1<br>3RU1146-4KB1<br>3RU1146-4LB1<br>3RU1146-4MB1 |                 | 1<br>1<br>1<br>1        | 1 unit<br>1 unit<br>1 unit<br>1 unit | 41F<br>41F<br>41F<br>41F |
| 3RU1146-4JB1 |                   |                      |  |  |                |  |                 |                         |                                      |                          |

### 3RU11 thermal overload relays with spring-type terminals, CLASS 10

|                       | Size<br>contactor | Trip class           | Current setting value of the inverse-time delayed overload release | Short-circuit protection with fuse, type of coordination "2", operational class gG <sup>1)</sup> , | DT             | Spring-type<br>terminals<br>(on auxiliary current<br>side)   | <u></u>         | PU<br>(UNIT,<br>SET, M) | PS*                                  | PG                       |
|-----------------------|-------------------|----------------------|--|--|----------------|--|-----------------|-------------------------|--------------------------------------|--------------------------|
|                       |                   | CLASS                | A  | A  |                | Article No.  | Price<br>per PU |                         |                                      |                          |
| Size S3 <sup>2)</sup> |                   |                      |  |  |                |  |                 |                         |                                      |                          |
|                       | For mou           | nting onto d         | ontactor <sup>3)</sup>   |  |                | _  |                 |                         |                                      |                          |
| William J. Co.        | S3                | 10<br>10<br>10<br>10 | 18 25<br>22 32<br>28 40<br>36 50                                   | 63<br>80<br>80<br>125  | B<br>B<br>B    | 3RU1146-4DD0<br>3RU1146-4ED0<br>3RU1146-4FD0<br>3RU1146-4HD0 |                 | 1<br>1<br>1<br>1        | 1 unit<br>1 unit<br>1 unit<br>1 unit | 41F<br>41F<br>41F<br>41F |
| 3RU1146D0             |                   | 10<br>10<br>10<br>10 | 45 63<br>57 75<br>70 90<br>80 100                                  | 125<br>160<br>160<br>200   | <b>* * * *</b> | 3RU1146-4JD0<br>3RU1146-4KD0<br>3RU1146-4LD0<br>3RU1146-4MD0 |                 | 1<br>1<br>1<br>1        | 1 unit<br>1 unit<br>1 unit<br>1 unit | 41F<br>41F<br>41F<br>41F |

<sup>1)</sup> Maximum protection by fuse only for overload relay, type of coordination "2". For fuse values in connection with contactors, see Reference Manual "Protection Equipment – 3RU1, 3RB2 Overload Relays", https://support.industry.siemens.com/cs/ww/en/view/35681830 → "Technical Specifications" → "Short-Circuit Protection with Fuses/ Motor Starter Protectors for Motor Feeders".

<sup>1)</sup> Maximum protection by fuse only for overload relay, type of coordination "2". For fuse values in connection with contactors, see Reference Manual "Protection Equipment – 3RU1, 3RB2 Overload Relays", https://support.industry.siemens.com/cs/ww/en/view/35681830 → "Technical Specifications" → "Short-Circuit Protection with Fuses/ Motor Starter Protectors for Motor Feeders"

<sup>2)</sup> With the appropriate terminal supports (see "Accessories", page 7/113), the 3RU11 overload relays for mounting on contactors can also be installed as stand-alone units.

<sup>3)</sup> For overload relays > 100 A, see 3RB2 electronic overload relays page 7/133 onwards

<sup>2)</sup> Auxiliary conductor connections with spring-type terminals and main conductor connections with screw terminals.

<sup>3)</sup> With the appropriate terminal supports (see "Accessories", page 7/113), the 3RU11 overload relays for mounting on contactors can also be installed as stand-alone units...

**Accessories** 

## Overview

The following optional accessories are available for the 3RU11 thermal overload relays:

- Terminal supports for stand-alone installation for the overload relays
- Mechanical RESET (for all sizes)
- Cable release for resetting devices which are difficult to access (for all sizes)
- Electrical remote RESET module in three voltage variants (for all sizes)
- · Terminal covers

### Technical specifications

### Terminal supports for stand-alone installation

| Туре   |               | 3RU1946-3AA01   |
|--|---------------|---|
| For overload relays  |               | 3RU1146   |
| Type of mounting   |               | For screw and snap-on mounting onto TH 35 and TH 75 standard mounting rails |
| Connection for main circuit  |               |   |
| Connection type  |               | Screw terminals with box terminal   |
| Terminal screw   | mm            | 4 mm Allen screw  |
| Operating devices  | mm            | 4 mm Allen screw  |
| Prescribed tightening torque   | Nm            | 4 6   |
| Conductor cross-sections (min./max.), 1 or 2 conductors can be connected |               |   |
| Solid or stranded  | $\text{mm}^2$ | 2 x (2.5 16)  |
| Finely stranded without end sleeve                                       | $mm^2$        |   |
| • Finely stranded with end sleeve (DIN 46228-1)                          | $\text{mm}^2$ | 2 x (2.5 35) <sup>1)</sup> , 1 x (2.5 50) <sup>1)</sup>                     |
| Stranded   | $\text{mm}^2$ | 2 x (10 50) <sup>1)</sup> , 1 x (10 70) <sup>1)</sup>                       |
| AWG cables, solid or stranded  | AWG           | 2 x (10 1/0) <sup>1)</sup> , 1 x (10 2/0) <sup>1)</sup>                     |
| • Ribbon cable conductors (Number x Width x Thickness)                   | mm            | 2 x (6 x 9 x 0.8)   |
| If two different conductor cross-sections are connected to one clamping  |               |   |

## point, both cross-sections must be in the range specified.

## Selection and ordering data

|                  | Version  | Size | DT | Article No.                       | Price<br>per PU | PU<br>(UNIT,<br>SET, M) | PS*    | PG  |
|------------------|--|------|----|-----------------------------------|-----------------|-------------------------|--------|-----|
| Terminal support | s for stand-alone installation   |      |    |                                   |                 |                         |        |     |
|                  | Terminal supports for overload relays with screw terminals   |      |    | Screw terminals with box terminal | <b>+</b>        |                         |        |     |
| 0 0 0            | For separate mounting of the overload relays; screw and snap-on mounting onto standard mounting rail | S3   | •  | 3RU1946-3AA01                     |                 | 1                       | 1 unit | 41F |
| 3RU19.6-3AA01    |  |      |    |                                   |                 |                         |        |     |



extension plunger

| l  |    |             |               |   |        |     |
|--|----|-------------|---------------|---|--------|-----|
| Resetting plungers, holders and formers  | S3 | <b>&gt;</b> | 3RU1900-1A    | 1 | 1 unit | 41F |
| Pushbuttons with extended stroke (12 mm), IP65, Ø 22 mm  | S3 | В           | 3SB3000-0EA11 | 1 | 1 unit | 41J |
| <b>Extension plungers</b> For compensation of the distance between the pushbutton and the unlatching button of the relay | S3 | А           | 3SX1335       | 1 | 1 unit | 41J |

## **Accessories**

|  | Version   |                   |                        | Size               | DT       | Article No.                    | Price<br>per PU | PU<br>(UNIT,<br>SET, M) | PS*              | PG         |
|--|---|-------------------|------------------------|--------------------|----------|--------------------------------|-----------------|-------------------------|------------------|------------|
|  |   |                   |                        |                    |          |                                |                 |                         |                  |            |
| Cable releases wit                         | h holder for RESET  |                   |                        |                    |          |                                |                 |                         |                  |            |
| .aff                                       | For Ø 6.5 mm holes in   |                   |                        |                    |          |                                |                 |                         |                  |            |
| <b>/</b> ***                               | max. control panel thic  • Length 400 mm  | kness 8 mm        |                        | S3                 | <b>•</b> | 3RU1900-1B                     |                 | 1                       | 1 unit           | 41F        |
| /  | Length 600 mm   |                   |                        | S3                 |          | 3RU1900-1C                     |                 | 1                       | 1 unit           | 41F        |
| 3RU1900-1.                                 | _ong  |                   |                        |                    |          |                                |                 | ·                       |                  |            |
| Modules for remot                          | te RESET, electrical  |                   |                        |                    |          |                                |                 |                         |                  |            |
|  | Operating range 0.85 power consumption 80 ON period 0.2 4 s, switching frequency 60 | ) AC VA, 70 DC W, |                        | C2                 | ^        | 2D111000 2AD71                 |                 |                         | 1 unit           | 415        |
| 7 19                                       | • 24 30 V AC/DC<br>• 110 127 V AC/DC  |                   |                        | S3<br>S3           | A<br>A   | 3RU1900-2AB71<br>3RU1900-2AF71 |                 | 1                       | 1 unit<br>1 unit | 41F<br>41F |
| 6 6  | • 220 250 V AC/DC   |                   |                        | S3                 | Α        | 3RU1900-2AM71                  |                 | 1                       | 1 unit           | 41F        |
|  |   |                   |                        |                    |          |                                |                 |                         |                  |            |
| 3RU1900-2A.71                              |   |                   |                        |                    |          |                                |                 |                         |                  |            |
| Terminal covers                            |   |                   |                        |                    |          |                                |                 |                         |                  |            |
|  | Covers for cable lugs     Length 55 mm  |                   | ections                | S3                 | В        | 3RT1946-4EA1                   |                 | 1                       | 1 unit           | 41B        |
|  | Covers for box termin   | nals              |                        | 0.0                |          |                                |                 |                         |                  |            |
|  | • Length 20.8 mm  |                   |                        | S3                 | •        | 3RT1946-4EA2                   |                 | 1                       | 1 unit           | 41B        |
| General accessor                           | ies   |                   |                        |                    |          |                                |                 |                         |                  |            |
|  | Version   | Size              | Color                  | For overload       | DT       | Article No.                    | Price           | PU                      | PS*              | PG         |
|  | VELSIOLI  | Size              | Coloi                  | relays             | וטו      | Alticle No.                    | per PU          | (UNIT,                  | 13               | ru         |
|  |   |                   |                        |                    |          |                                |                 | SET, M)                 |                  |            |
| Tools for opening                          | spring-type termina   | ls                |                        |                    |          |                                |                 |                         |                  |            |
| Tools for opening                          | opining type termina  | 110               |                        |                    |          | Spring-type                    | $\infty$        |                         |                  |            |
|  |   |                   |                        |                    |          | terminals                      | 8               |                         |                  |            |
|  | Screwdrivers For all SIRIUS devices   | Length approx.    | Titanium<br>gray/      | Main and auxiliary | Α        | 3RA2908-1A                     |                 | 1                       | 1 unit           | 41B        |
| 3RA2908-1A                                 | with spring-type  | 3.0 mm x 0.5 mm   | black,                 | circuit            |          |                                |                 |                         |                  |            |
|  | terminals   |                   | partially<br>insulated | connection: 3RU1   |          |                                |                 |                         |                  |            |
| Blank labels                               |   |                   |                        |                    |          |                                |                 |                         |                  |            |
|  | <b>Unit labeling plates</b> <sup>1)</sup> For SIRIUS devices                        | 20 mm x 7 mm      | Pastel<br>turquoise    | 3RU1               | D        | 3RT1900-1SB20                  |                 | 100                     | 340 units        | 41B        |
|  |   | 20 mm x 7 mm      | Titanium<br>gray       | 3RU1               | D        | 3RT2900-1SB20                  |                 | 100                     | 340 units        | 41B        |
| 30_01429b                                  | Adhesive inscription labels <sup>1)</sup> (labels)                                  | 19 mm x 6 mm      | Pastel<br>turquoise    | 3RU1               | С        | 3RT1900-1SB60                  |                 | 100                     | 3 060 units      | 41B        |
| <b>□  □  □  </b> <u>₹</u><br>3RT1900-1SB20 | For SIRIUS devices  | 19 mm x 6 mm      | Zinc yellow            | 3RU1               | С        | 3RT1900-1SD60                  |                 | 100                     | 3 060 units      | 41B        |
| 3RT2900-1SB20                              |   |                   |                        |                    |          |                                |                 |                         |                  |            |

PC labeling systemfor individual inscription of unit labeling plates available from: murrplastik Systemtechnik GmbH see page 16/20.