



Type	3RU21	3RB30	3RB31
<b>SIRIUS overload relays up to 40 A</b>			
<b>Applications</b>			
• System protection	✓ <sup>1)</sup>	✓ <sup>1)</sup>	✓ <sup>1)</sup>
• Motor protection	✓	✓	✓
• Alternating current, three-phase	✓	✓	✓
• Alternating current, single-phase	✓	--	--
• Direct current	✓	--	--
<b>Size contactor</b>	S00, S0	S00, S0	S00, S0
<b>Rated operational current <math>I_e</math></b>			
• Size S00	A Up to 16	Up to 16	Up to 16
• Size S0	A Up to 40	Up to 40	Up to 40
<b>Rated operational voltage <math>U_e</math></b>	V 690 AC	690 AC	690 AC
<b>Rated frequency</b>	Hz 50/60	50/60	50/60
<b>Trip class</b>	CLASS 10	CLASS 10, 20	CLASS 5, 10, 20, 30 adjustable
<b>Thermal overload releases</b>	A 0.11 ... 0.16 up to A 34 ... 40	--	--
<b>Electronic overload releases</b>	A -- A	0.1 ... 0.4 up to 10 ... 40	0.1 ... 0.4 up to 10 ... 40
<b>Rating for three-phase motor at 400 V AC</b>	kW 0.04 ... 18.5	0.04 ... 18.5	0.04 ... 18.5
<b>Pages</b>	7/95, 7/96	7/115, 7/116	7/117
<b>Accessories</b>			
<b>For sizes</b>	S00 S0	S00 S0	S00 S0
Terminal supports for stand-alone installation	✓ ✓	✓ ✓	✓ ✓
Mechanical RESET	✓ ✓	✓ ✓	✓ ✓
Cable releases for RESET	✓ ✓	✓ ✓	✓ ✓
Electrical remote RESET	✓ ✓	-- --	Integrated in the unit
Terminal covers for ring terminal lug connections	✓ <sup>2)</sup> ✓ <sup>2)</sup>	-- --	-- --
Sealable covers for setting knobs	✓ ✓	✓ ✓	✓ ✓
<b>Pages</b>	7/97 ... 7/99	7/118, 7/119	7/118, 7/119

✓ Has this function or can use this accessory

-- Does not have this function or cannot use this accessory

<sup>1)</sup> The units are responsible in the main circuit for overload protection of the assigned electrical loads (e.g. motors), feeder cable, and other switching and protection devices in the respective load feeder.

<sup>2)</sup> Terminal covers for ensuring finger-safe touch protection are available for 3RU21 overload relays with ring terminal lug connections for mounting onto contactors.

# Overload Relays

## General data

### Overview



Features	3RU21	3RU11	3RB30/3RB31	3RB20/3RB21	3RB22/3RB23	3RB24	Benefits
<b>General data</b>							
<b>Sizes</b>	S00, S0	S2, S3	S00, S0	S2 ... S12	S00 ... S12	S00 ... S12	<ul style="list-style-type: none"> <li>Are coordinated with the dimensions, connections and technical characteristics of the other devices in the SIRIUS modular system (contactors, etc., ...)</li> <li>Permit the mounting of slim and compact load feeders in widths of 45 mm (S00), 45 mm (S0), 55 mm (S2), 70 mm (S3), 120 mm (S6) and 145 mm (S10/S12); this does not include the current measuring modules for the 3RB22 to 3RB24 evaluation modules sizes S00 to S3</li> <li>Simplify configuration</li> </ul>
<b>Seamless current range</b>	0.11 ... 40 A	5.5 ... 100 A	0.1 ... 40 A	6 ... 630 A	0.3 ... 630 A (up to 820 A) <sup>1)</sup>	0.3 ... 630 A (up to 820 A) <sup>1)</sup>	<ul style="list-style-type: none"> <li>Allows easy and consistent configuration with one series of overload relays (for small to large loads)</li> </ul>
<b>Protection functions</b>							
<b>Tripping due to overload</b>	✓	✓	✓	✓	✓	✓	<ul style="list-style-type: none"> <li>Provides optimum inverse-time delayed protection of loads against excessive temperature rises due to overload</li> </ul>
<b>Tripping due to phase unbalance</b>	✓	✓	✓	✓	✓	✓	<ul style="list-style-type: none"> <li>Provides optimum inverse-time delayed protection of loads against excessive temperature rises due to phase unbalance</li> </ul>
<b>Tripping due to phase failure</b>	✓	✓	✓	✓	✓	✓	<ul style="list-style-type: none"> <li>Minimizes heating of three-phase motors during phase failure</li> </ul>
<b>Protection of single-phase loads</b>	✓	✓	--	--	✓	✓	<ul style="list-style-type: none"> <li>Enables the protection of single-phase loads</li> </ul>
<b>Tripping in the event of overheating</b>	-- <sup>2)</sup>	-- <sup>2)</sup>	-- <sup>2)</sup>	-- <sup>2)</sup>	✓	✓	<ul style="list-style-type: none"> <li>Provides optimum temperature-dependent protection of loads against excessive temperature rises e.g. for stator-critical motors or in the event of insufficient coolant flow, contamination of the motor surface or for long starting or braking operations</li> <li>Eliminates the need for additional special equipment</li> <li>Saves space in the control cabinet</li> <li>Reduces wiring outlay and costs</li> </ul>
by <b>integrated thermistor motor protection function</b>							
<b>Tripping in the event of a ground fault</b>	--	--	✓ (only 3RB31)	✓ (only 3RB21)	✓	✓	<ul style="list-style-type: none"> <li>Provides optimum protection of loads against high-resistance short circuits or ground faults due to moisture, condensed water, damage to the insulation material, etc.</li> <li>Eliminates the need for additional special equipment</li> <li>Saves space in the control cabinet</li> <li>Reduces wiring outlay and costs</li> </ul>
by <b>internal ground-fault detection (activatable)</b>							

✓ Available  
-- Not available

<sup>1)</sup> Motor currents up to 820 A can be recorded and evaluated by a current measuring module, e.g. 3RB2906-2BG1 (0.3 to 3 A), in combination with a 3UF1868-3GA00 (820 A/1 A) series transformer.  
3UF18 transformers see Chapter 10, "Monitoring and Control Devices" → "SIMOCODE 3UF Motor Management and Control Devices".

<sup>2)</sup> The SIRIUS 3RN thermistor motor protection devices can be used to provide additional temperature-dependent protection.



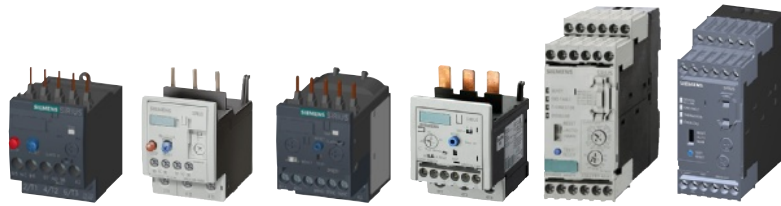
Features	3RU21	3RU11	3RB30/3RB31	3RB20/3RB21	3RB22/3RB23	3RB24	Benefits
<b>Features</b>							
<b>RESET function</b>	✓	✓	✓	✓	✓	✓	<ul style="list-style-type: none"> <li>Allows manual or automatic resetting of the device</li> </ul>
<b>Remote RESET function</b>	✓ (by means of separate module)	✓ (by means of separate module)	✓ (only with 3RB31 and external auxiliary voltage 24 V DC)	✓ (only with 3RB21 and external auxiliary voltage 24 V DC)	✓ (electrically via external button)	✓ (electrically with button or via IO-Link)	<ul style="list-style-type: none"> <li>Allows the remote resetting of the device</li> </ul>
<b>TEST function for auxiliary contacts</b>	✓	✓	✓	✓	✓	✓	<ul style="list-style-type: none"> <li>Allows easy checking of the function and wiring</li> </ul>
<b>TEST function for electronics</b>	--	--	✓	✓	✓	✓	<ul style="list-style-type: none"> <li>Allows checking of the electronics</li> </ul>
<b>Status display</b>	✓	✓	✓	✓	✓	✓	<ul style="list-style-type: none"> <li>Displays the current operating state</li> </ul>
<b>Large current adjustment button</b>	✓	✓	✓	✓	✓	✓	<ul style="list-style-type: none"> <li>Makes it easier to set the relay exactly to the correct current value</li> </ul>
<b>Integrated auxiliary contacts (1 NO + 1 NC)</b>	✓	✓	✓	✓	✓ (2 ×)	--	<ul style="list-style-type: none"> <li>Allows the load to be switched off if necessary</li> <li>Can be used to output signals</li> </ul>
<b>Integrated auxiliary contacts (1 CO and 1 NO in series)</b>	--	--	--	--	--	✓	<ul style="list-style-type: none"> <li>Enables the controlling of contactors directly from the higher-level control system through IO-Link</li> </ul>
<b>IO-Link connection</b>	--	--	--	--	--	✓	<ul style="list-style-type: none"> <li>Reduction of wiring in the control cabinet</li> <li>Enables communication</li> </ul>
<b>Connection of optional hand-held device</b>	--	--	--	--	--	✓	<ul style="list-style-type: none"> <li>Enables local operation</li> </ul>
<b>Communication capability through IO-Link</b>							
<b>Full starter functionality through IO-Link</b>	--	--	--	--	--	✓	<ul style="list-style-type: none"> <li>Enables in combination with the SIRIUS 3RT contactors the assembly of communication-capable motor starters (direct-on-line, reversing and wye-delta starting)</li> </ul>
<b>Reading out of diagnostics functions</b>	--	--	--	--	--	✓	<ul style="list-style-type: none"> <li>Enables the reading out of diagnostics information such as overload, open circuit, ground fault, etc.</li> </ul>
<b>Reading out of current values</b>	--	--	--	--	--	✓	<ul style="list-style-type: none"> <li>Enables the reading out of current values and their direct processing in the higher-level control system</li> </ul>
<b>Reading out all set parameters</b>	--	--	--	--	--	✓	<ul style="list-style-type: none"> <li>Enables the reading out of all set parameters, e.g. for plant documentation</li> </ul>

✓ Available

-- Not available

# Overload Relays

## General data



Features	3RU21	3RU11	3RB30/3RB31	3RB20/3RB21	3RB22/3RB23	3RB24	Benefits
<b>Design of load feeders</b>							
<b>Short-circuit strength up to 100 kA at 690 V</b> (in conjunction with the corresponding fuses or the corresponding motor starter protector)	✓	✓	✓	✓	✓	✓	<ul style="list-style-type: none"> <li>Provides optimum protection of the loads and operating personnel in the event of short circuits due to insulation faults or faulty switching operations</li> </ul>
<b>Electrical and mechanical matching to 3RT contactors</b>	✓	✓	✓	✓	✓ <sup>1)</sup>	✓ <sup>1)</sup>	<ul style="list-style-type: none"> <li>Simplifies configuration</li> <li>Reduces wiring outlay and costs</li> <li>Enables stand-alone installation as well as space-saving direct mounting</li> </ul>
<b>Straight-through transformers for main circuit<sup>2)</sup></b> (in this case the cables are routed through the feed-through openings of the overload relay and connected directly to the box terminals of the contactor)	--	--	--	✓ (S2 ... S6)	✓ (S00 ... S6)	✓ (S00 ... S6)	<ul style="list-style-type: none"> <li>Reduces the contact resistance (only one point of contact)</li> <li>Saves wiring costs (easy, no need for tools, and fast)</li> <li>Saves material costs</li> <li>Reduces installation costs</li> </ul>
<b>Spring-type connection system for main circuit<sup>2)</sup></b>	✓	--	✓	--	--	--	<ul style="list-style-type: none"> <li>Enables fast connections</li> <li>Permits vibration-resistant connections</li> <li>Enables maintenance-free connections</li> </ul>
<b>Spring-type connection system for auxiliary circuits<sup>2)</sup></b>	✓	✓	✓	✓	✓	✓	<ul style="list-style-type: none"> <li>Enables fast connections</li> <li>Permits vibration-resistant connections</li> <li>Enables maintenance-free connections</li> </ul>
<b>Ring terminal lug connection method for main and auxiliary circuits<sup>2)</sup></b>	✓	--	--	--	--	--	<ul style="list-style-type: none"> <li>Enables fast connections</li> <li>Permits vibration-resistant connections</li> <li>Enables maintenance-free connections</li> </ul>
<b>Full starter functionality through IO-Link</b>	--	--	--	--	--	✓	<ul style="list-style-type: none"> <li>Enables in combination with the SIRIUS 3RT contactors the assembly of communication-capable motor starters (direct-on-line, reversing and wye-delta starting)</li> </ul>
<b>Starter function</b>	--	--	--	--	--	✓	<ul style="list-style-type: none"> <li>Integration of feeders via IO-Link in the control system up to 630 A or 820 A</li> </ul>

✓ Available

-- Not available

<sup>1)</sup> Exception: up to size S3, only stand-alone installation is possible.<sup>2)</sup> Alternatively available for screw terminals.



Features	3RU21	3RU11	3RB30/3RB31	3RB20/3RB21	3RB22/3RB23	3RB24	Benefits
<b>Other features</b>							
<b>Temperature compensation</b>	✓	✓	✓	✓	✓	✓	<ul style="list-style-type: none"> <li>Allows the use of the relays at high temperatures without derating</li> <li>Prevents premature tripping</li> <li>Allows compact installation of the control cabinet without distance between the devices/load feeders</li> <li>Simplifies configuration</li> <li>Enables space to be saved in the control cabinet</li> </ul>
<b>Very high long-term stability</b>	✓	✓	✓	✓	✓	✓	<ul style="list-style-type: none"> <li>Provides safe protection for the loads even after years of use in severe operating conditions</li> </ul>
<b>Wide setting ranges</b>	--	--	✓ (1:4)	✓ (1:4)	✓ (1:10)	✓ (1:10)	<ul style="list-style-type: none"> <li>Minimize the configuration outlay and costs</li> <li>Minimize storage overheads, storage costs, tied-up capital</li> </ul>
<b>Fixed trip class</b>	CLASS 10	CLASS 10	3RB30: CLASS 10 or CLASS 20	3RB20: CLASS 10 or CLASS 20	--	--	<ul style="list-style-type: none"> <li>Optimum motor protection for standard starts</li> </ul>
<b>Trip classes adjustable on the device CLASS 5, 10, 20, 30</b>	--	--	3RB31: ✓	3RB21: ✓	✓	✓	<ul style="list-style-type: none"> <li>Enables solutions for very fast starting motors requiring special protection (e.g. Ex motors)</li> <li>Enables heavy starting solutions</li> <li>Reduces the number of variants</li> <li>Minimizes the configuring outlay and costs</li> <li>Minimizes storage overhead, storage costs, and tied-up capital</li> </ul>
<b>Low power loss</b>	--	--	✓	✓	✓	✓	<ul style="list-style-type: none"> <li>Reduces energy consumption and energy costs (up 98 % less energy is used than for thermal overload relays).</li> <li>Minimizes temperature rises of the contactor and control cabinet – in some cases this may eliminate the need for controlgear cabinet cooling.</li> <li>Direct mounting to contactor saves space, even for high motor currents (i.e. no heat decoupling is required).</li> </ul>
<b>Internal power supply</b>	-- <sup>1)</sup>	-- <sup>1)</sup>	✓	✓	--	--	<ul style="list-style-type: none"> <li>Eliminates the need for configuration and connecting an additional control circuit</li> </ul>
<b>Supplied from an external voltage through IO-Link</b>	--	--	--	--	--	✓	<ul style="list-style-type: none"> <li>Eliminates the need for configuration and connecting an additional control circuit</li> </ul>

✓ Available  
-- Not available

<sup>1)</sup> SIRIUS 3RU11 and 3RU21 thermal overload relays use a bimetal contactor and therefore do not require a control supply voltage.

# Overload Relays

## General data



Features	3RU21	3RU11	3RB30/3RB31	3RB20/3RB21	3RB22/3RB23	3RB24	Benefits
<b>Further characteristics (continued)</b>							
<b>Overload warning</b>	--	--	--	--	✓	✓	<ul style="list-style-type: none"> <li>Indicates imminent tripping of the relay directly on the device due to overload, phase unbalance or phase failure through flickering of the LEDs or in the case of the 3RB24 as a signal through IO-Link</li> <li>Allows the imminent tripping of the relay to be signaled</li> <li>Allows measures to be taken in time in the event of inverse-time delayed overloading of the load for an extended period over the current limit</li> <li>Eliminates the need for an additional device</li> <li>Saves space in the control cabinet</li> <li>Reduces wiring outlay and costs</li> </ul>
<b>Analog output</b>	--	--	--	--	✓	✓	<ul style="list-style-type: none"> <li>Allows the output of an analog output signal for actuating moving-coil instruments, feeding programmable logic controllers or transfer to bus systems</li> <li>Eliminates the need for an additional measuring transducer and signal converter</li> <li>Saves space in the control cabinet</li> <li>Reduces wiring outlay and costs</li> </ul>

✓ Available  
 -- Not available

7

## Overview of overload relays – matching contactors

Overload relays	Current measurement	Current range	Contactors (type, size, rating in kW)							
			3RT201.	3RT202.	3RT103.	3RT104.	3RT105.	3RT106.	3RT107.	3TF68/3TF69
Type	A		S00	S0	S2	S3	S6	S10	S12	Size 14
			3/4/5.5/7.5	5.5/7.5/11/15/18.5	15/18.5/22	30/37/45	55/75/90	110/132/160	200/250	375/450
<b>SIRIUS 3RU21 thermal overload relays</b>										
	3RU211	Integrated	0.11 ... 16	✓	--	--	--	--	--	--
	3RU212	Integrated	1.8 ... 40	--	✓	--	--	--	--	--
<b>SIRIUS 3RU11 thermal overload relays</b>										
	3RU113	Integrated	5.5 ... 50	--	--	✓	--	--	--	--
	3RU114	Integrated	18 ... 100	--	--	--	✓	--	--	--
<b>SIRIUS 3RB30 solid-state overload relays<sup>1)</sup></b>										
	3RB301	Integrated	0.1 ... 16	✓	--	--	--	--	--	--
	3RB302	Integrated	0.1 ... 40	--	✓	--	--	--	--	--
<b>SIRIUS 3RB31 solid-state overload relays<sup>1)</sup></b>										
	3RB311	Integrated	0.1 ... 16	✓	--	--	--	--	--	--
	3RB312	Integrated	0.1 ... 40	--	✓	--	--	--	--	--
<b>SIRIUS 3RB20 solid-state overload relays<sup>1)</sup></b>										
	3RB203	Integrated	6 ... 50	--	--	✓	--	--	--	--
	3RB204	Integrated	12.5 ... 100	--	--	--	✓	--	--	--
	3RB205	Integrated	50 ... 200	--	--	--	--	✓	--	--
	3RB206	Integrated	55 ... 630	--	--	--	--	--	✓	✓
	3RB201 + 3UF18	Integrated	630 ... 820	--	--	--	--	--	--	--
<b>SIRIUS 3RB21 solid-state overload relays<sup>1)</sup></b>										
	3RB213	Integrated	6 ... 50	--	--	✓	--	--	--	--
	3RB214	Integrated	12.5 ... 100	--	--	--	✓	--	--	--
	3RB215	Integrated	50 ... 200	--	--	--	--	✓	--	--
	3RB216	Integrated	55 ... 630	--	--	--	--	--	✓	✓
	3RB211 + 3UF18	Integrated	630 ... 820	--	--	--	--	--	--	--

✓ Can be used  
-- Cannot be used

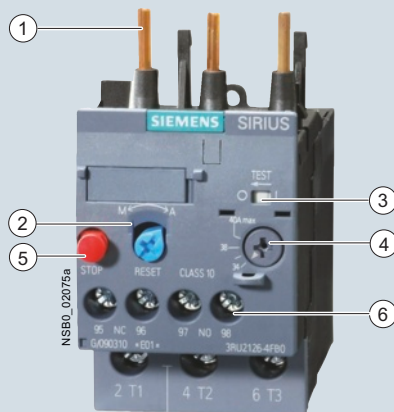
<sup>1)</sup> "Technical specifications" for the use of overload relays with trip class  $\geq$  CLASS 20 can be found in "Short-circuit protection with fuses for motor feeders", see Configuration Manuals  
- "SIRIUS Configuration – Selection data for Fuseless Load Feeders", <http://support.automation.siemens.com/WW/view/en/68115040>  
- "Configuring SIRIUS Innovations – Selection data for Fuseless and Fused Load Feeders", <http://support.automation.siemens.com/WW/view/en/50250599>.

# Overload Relays

## SIRIUS 3RU2 Thermal Overload Relays

3RU2 up to 40 A  
for standard applications

### Overview



- 1 Connection for mounting onto contactors:  
Optimally adapted in electrical, mechanical and design terms to the contactors. The overload relay can be connected directly to the contactor using these pins. Stand-alone installation is possible as an alternative (in conjunction with a terminal bracket for stand-alone installation).
- 2 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.
- 3 Switch position indicator and TEST function of the wiring:  
Indicates a trip and enables the wiring test.
- 4 Motor current setting:  
Setting the device to the rated motor current is easy with the large rotary knob.
- 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.
- 6 Connecting terminals:  
Depending on the device version, the connecting terminals for screw, spring-type or ring terminal lug connection are configured for the main and auxiliary circuit.

A sealable transparent cover can be optionally mounted (accessory). It secures the motor current setting against adjustment.

SIRIUS 3RU2126-4FB0 thermal overload relay

### 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 2nd generation			2									
Device series				□								
Size, rated operational current and power					□	□						
Setting range of the overload release							□	□				
Connection methods									□			
Installation type									□			
Example	3	R	U	2	1	1	6	-	0	A	B	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.

The 3RU21 thermal overload relays up to 40 A have been designed for inverse-time delayed protection of loads with normal starting (for "Function" see manual "SIRIUS Innovations – SIRIUS 3RU2/3RB3 Overload Relays", <http://support.automation.siemens.com/WW/view/en/60298164>) 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  $I_e$  and is stored in the form of a long-term stable tripping characteristic (see "Characteristic Curves" <http://support.automation.siemens.com/WW/view/en/34291410/134300>).

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 manual "SIRIUS Innovations – SIRIUS 3RU2/3RB3 Overload Relays", <http://support.automation.siemens.com/WW/view/en/60298164>).

The 3RU2 thermal overload relays are suitable for operation with frequency converters. Please follow the instructions in the manual "SIRIUS Innovations – SIRIUS 3RU2/3RB3 Overload Relays", see <http://support.automation.siemens.com/WW/view/en/60298164>.

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.

3RU11 overload relays in sizes S2 and S3 see page 7/105 onwards.

### "Increased safety" type of protection EEx e according to ATEX directive 94/9/EC

The 3RU21 thermal overload relays are suitable for the overload protection of explosion-proof motors with "increased safety" type of protection EEx e.

The relays meet the requirements of IEC 60079-7 (Electrical apparatus for areas subject to explosion hazards – Increased safety "e").

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



# Overload Relays

## SIRIUS 3RU2 Thermal Overload Relays

**3RU2 up to 40 A**  
for standard applications

### Benefits

The most important features and benefits of the 3RU21 thermal overload relays are listed in the overview table (see "General Data", page 7/82 onwards).

### Application

#### Industries

The 3RU21 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 3RU21 thermal overload relays have been designed for the protection of three-phase and single-phase AC and DC motors.

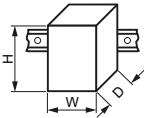

If single-phase AC or DC loads are to be protected by the 3RU21 thermal overload relays, all three bimetal strips must be heated. For this purpose, all main current paths of the relay must be connected in series.

#### Ambient conditions

The 3RU21 thermal overload relays have temperature compensation according to IEC 60947-4-1 for the temperature range of -40 to +60 °C. For temperatures from +60 to +70 °C, the upper set value of the setting range must be reduced by the factor listed in the table below.

Ambient temperature °C	Derating factor for the upper set value Current ranges	
	0.11 ... 20 A	17 ... 40 A
+60	1.0	1.0
+65	0.94	0.97
+70	0.87	0.94

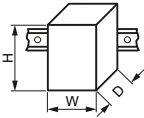
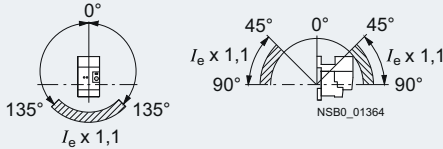
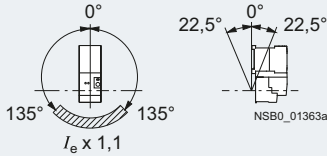
### Technical specifications

Type		3RU2116	3RU2126
Size		S00	S0
Dimensions (W x H x D) (overload relay with stand-alone installation support)			
• Screw terminals	mm	45 x 89 x 80	45 x 97 x 95
• Spring-type terminals	mm	45 x 102 x 79	45 x 114 x 95
<b>General data</b>			
<b>Trips in the event of</b>		Overload and phase failure	
<b>Trip class</b> acc. to IEC 60947-4-1	CLASS	10	
<b>Phase failure sensitivity</b>		Yes	
<b>Overload warning</b>		No	
<b>Reset and recovery</b>		Manual, Automatic and Remote RESET (Remote RESET in combination with the corresponding accessories)	
• Reset options after tripping			
• Recovery time			
- For automatic RESET	min	Depends on the strength of the tripping current and characteristic	
- For manual RESET	min	Depends on the strength of the tripping current and characteristic	
- For remote RESET	min	Depends on the strength of the tripping current and characteristic	
<b>Features</b>			
• 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	
<b>Safe operation of motors with "increased safety"</b>			
<b>type of protection</b>			
EC type test certificate number according to directive 94/9/EC (ATEX)		DMT 98 ATEX G 001  II (2) GD, DMT 98 ATEX G 001 N1	
<b>Ambient temperature</b>			
• Storage/transport	°C	-55 ... +80	
• Operation	°C	-40 ... +70	
• Temperature compensation	°C	Up to 60	
• Permissible rated current at			
- Temperature inside control cabinet 60 °C	%	100 (over +60 °C current reduction is not required)	
- Temperature inside control cabinet 70 °C	%	87	
<b>Repeat terminals</b>			
• Coil repeat terminals		Yes	Not required
• Auxiliary contact repeat terminal		Yes	Not required
<b>Degree of protection</b> acc. to IEC 61140		IP20	
<b>Touch protection</b> acc. to IEC 61140		Screw terminals and spring-type terminals: Finger-safe for vertical contact from the front; ring terminal lug connection: Finger-safe only with optional terminal covers	
<b>Shock resistance with sine</b> acc. to IEC 60068-2-27	g/ms	15/11 (auxiliary contacts 95/96 and 97/98: 8 g/11 ms)	

# Overload Relays

## SIRIUS 3RU2 Thermal Overload Relays




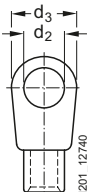
3RU2 up to 40 A  
for standard applications

Type		3RU2116	3RU2126
Size		S00	S0
Dimensions (W x H x D) (overload relay with stand-alone installation support)			
• Screw terminals	mm	45 x 89 x 80	45 x 97 x 95
• Spring-type terminals	mm	45 x 102 x 79	45 x 114 x 95
<b>General data (continued)</b>			
<b>Electromagnetic compatibility (EMC) – Interference immunity</b>			
• Conductor-related interference			
- Burst acc. to IEC 61000-4-4 (corresponds to degree of severity 3)	kV	EMC interference immunity is not relevant for thermal overload relays.	
- Surge acc. to IEC 61000-4-5 (corresponds to degree of severity 3)	kV	EMC interference immunity is not relevant for thermal overload relays.	
• Electrostatic discharge according to IEC 61000-4-2 (corresponds to degree of severity 3)	kV	EMC interference immunity is not relevant for thermal overload relays.	
• Field-related interference according to IEC 61000-4-3 (corresponds to degree of severity 3)	V/m	EMC interference immunity is not relevant for thermal overload relays.	
<b>Electromagnetic compatibility (EMC) – emitted interference</b>		EMC interference immunity is not relevant for thermal overload relays.	
<b>Resistance to extreme climates – air humidity</b>	%	90	
<b>Dimensions</b>		"Dimensional drawings" see manual "SIRIUS Innovations – SIRIUS 3RU2/3RB3 Overload Relays", <a href="http://support.automation.siemens.com/WW/view/en/60298164">http://support.automation.siemens.com/WW/view/en/60298164</a> .	
<b>Installation altitude above sea level</b>	m	Up to 2 000; above this on request	
<b>Mounting position</b>		<p>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.</p> <p>Stand-alone installation:</p> 	
		<p>Contactor + overload relay:</p> 	
<b>Type of mounting</b>		Mounting onto contactor/stand-alone installation with terminal support (For screw and snap-on mounting onto TH 35 standard mounting rail. Technical specifications of the terminal supports see manual "SIRIUS Innovations – SIRIUS 3RU2/3RB3 Overload Relays", <a href="http://support.automation.siemens.com/WW/view/en/60298164">http://support.automation.siemens.com/WW/view/en/60298164</a> .)	

# Overload Relays

## SIRIUS 3RU2 Thermal Overload Relays

**3RU2 up to 40 A**  
for standard applications

Type		3RU2116	3RU2126
Size		S00	S0
<b>Main circuit</b>			
Rated insulation voltage $U_i$ (pollution degree 3)	V	690	
Rated impulse withstand voltage $U_{imp}$	kV	6	
Rated operational voltage $U_e$	V	690	
<b>Type of current</b>			
• Direct current		Yes	
• Alternating current		Yes, frequency range up to 400 Hz	
<b>Current setting</b>			
	A	0.11 ... 0.16 up to 11 ... 16	1.8 ... 2.5 up to 34 ... 40
<b>Power loss per unit (max.)</b>			
	W	4.1 ... 6.3	6.2 ... 7.5
<b>Short-circuit protection</b>			
• With fuse without contactor		See "Selection and Ordering Data" on pages 7/95 and 7/96	
• With fuse and contactor		"Short-Circuit Protection with Fuses/Motor Starter Protectors for Motor Feeders" see Configuration Manual "Configuring SIRIUS Innovations – Selection Data for Fuseless and Fused Load Feeders" <a href="http://support.automation.siemens.com/WW/view/en/50250599">http://support.automation.siemens.com/WW/view/en/50250599</a> .	
<b>Protective separation between main and auxiliary current paths</b> acc. to IEC 60947-1			
• Screw terminals or ring terminal lug connections	V	440	690: Setting ranges $\leq 25$ A
• Spring-type terminals	V	440	440: Setting ranges $> 25$ A
<b>Conductor cross-sections of main circuit</b>			
<b>Connection type</b>  <b>Screw terminals</b>			
Terminal screw		M3, Pozidriv size 2	M4, Pozidriv size 2
Operating devices	mm	$\varnothing 5 \dots 6$	$\varnothing 5 \dots 6$
Prescribed tightening torque	Nm	0.8 ... 1.2	2 ... 2.5
<b>Conductor cross-sections (min./max.),</b> 1 or 2 conductors can be connected			
• Solid	mm <sup>2</sup>	2 x (0.5 ... 1.5) <sup>1)</sup> , 2 x (0.75 ... 2.5) <sup>1)</sup> , max. 2 x 4	2 x (1 ... 2.5) <sup>1)</sup> , 2 x (2.5 ... 10) <sup>1)</sup>
• Finely stranded with end sleeves (DIN 46228-1)	mm <sup>2</sup>	2 x (0.5 ... 1.5) <sup>1)</sup> , 2 x (0.75 ... 2.5) <sup>1)</sup>	2 x (1 ... 2.5) <sup>1)</sup> , 2 x (2.5 ... 6) <sup>1)</sup> , max. 1 x 10
• AWG cables, solid or stranded	AWG	2 x (20 ... 16) <sup>1)</sup> , 2 x (18 ... 14) <sup>1)</sup> , 2 x 12	2 x (16 ... 12) <sup>1)</sup> , 2 x (14 ... 8) <sup>1)</sup>
<b>Connection type</b>  <b>Spring-type terminals</b>			
Operating devices	mm	3.0 x 0.5 and 3.5 x 0.5	
<b>Conductor cross-sections (min./max.)</b>			
• Solid	mm <sup>2</sup>	1 x (0.5 ... 4)	1 x (1 ... 10)
• Finely stranded without end sleeve	mm <sup>2</sup>	1 x (0.5 ... 2.5)	1 x (1 ... 6)
• Finely stranded with end sleeves (DIN 46228-1)	mm <sup>2</sup>	1 x (0.5 ... 2.5)	1 x (1 ... 6)
• AWG cables, solid or stranded	AWG	1 x (20 ... 12)	1 x (18 ... 8)
<b>Connection type</b>  <b>Ring terminal lug connections</b>			
Terminal screw		M3, Pozidriv size 2	M4, Pozidriv size 2
Operating devices	mm	$\varnothing 5 \dots 6$	$\varnothing 5 \dots 6$
Prescribed tightening torque	Nm	0.8 ... 1.2	2 ... 2.5
<b>Usable ring terminal lugs</b>			
• DIN 46234 without insulation sleeve		$d_2 = \text{min. } 3.2,$ $d_3 = \text{max. } 7.5$	
• DIN 46225 without insulation sleeve			$d_2 = \text{min. } 4.3,$ $d_3 = \text{max. } 12.2$
• DIN 46237 with insulation sleeve			
• JIS C2805 Type R without insulation sleeve			
• JIS C2805 Type RAV with insulation sleeve			
• JIS C2805 Type RAP with insulation sleeve			

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

# Overload Relays

## SIRIUS 3RU2 Thermal Overload Relays

3RU2 up to 40 A  
for standard applications




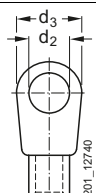
Type		3RU2116	3RU2126
Size		S00	S0
<b>Auxiliary circuit</b>			
Number of NO contacts		1	
Number of NC contacts		1	
Auxiliary contacts – assignment		1 NO for the signal "tripped"; 1 NC for disconnecting the contactor	
Rated insulation voltage $U_i$ (pollution degree 3)	V	690	
Rated impulse withstand voltage $U_{imp}$	kV	6	
<b>Contact rating of the auxiliary contacts</b>			
• NC contact with alternating current AC-14/AC-15, rated operational current $I_e$ at $U_e$ :			
- 24 V	A	4	
- 120 V	A	4	
- 125 V	A	4	
- 230 V	A	3	
- 400 V	A	2	
- 600 V	A	0.75	
- 690 V	A	0.75	
• NO contact with alternating current AC-14/AC-15, rated operational current $I_e$ at $U_e$ :			
- 24 V	A	3	
- 120 V	A	3	
- 125 V	A	3	
- 230 V	A	2	
- 400 V	A	1	
- 600 V	A	0.75	
- 690 V	A	0.75	
• NC contact, NO contact with direct current DC-13, rated operational current $I_e$ at $U_e$ :			
- 24 V	A	1	
- 60 V	A	On request	
- 110 V	A	0.22	
- 125 V	A	0.22	
- 220 V	A	0.11	
• Conventional thermal current $I_{th}$	A	6	
• Contact reliability (suitability for PLC control; 17 V, 5 mA)		Yes	
<b>Short-circuit protection</b>			
• With fuse			
- Operational class gG	A	6	
- Quick	A	10	
• With miniature circuit breaker (C characteristic)	A	6 <sup>1)</sup>	
Protective separation between auxiliary current paths acc. to IEC 60947-1	V	440	
<b>CSA, UL, UR rated data</b>			
Auxiliary circuit – switching capacity		B600, R300	

<sup>1)</sup> Up to  $I_k \leq 0.5$  kA;  $U \leq 260$  V.

# Overload Relays

## SIRIUS 3RU2 Thermal Overload Relays

**3RU2 up to 40 A**  
for standard applications

Type		3RU2116	3RU2126
Size		S00	S0
<b>Conductor cross-sections for auxiliary circuit</b>			
<b>Connection type</b>		 <b>Screw terminals</b>	
<b>Terminal screw</b>		M3, Pozidriv size 2	
<b>Operating devices</b>	mm	∅ 5 ... 6	
<b>Prescribed tightening torque</b>	Nm	0.8 ... 1.2	
<b>Conductor cross-sections (min./max.),</b> 1 or 2 conductors can be connected			
• Solid	mm <sup>2</sup>	2 x (0.5 ... 1.5) <sup>1)</sup> , 2 x (0.75 ... 2.5) <sup>1)</sup>	
• Finely stranded with end sleeves (DIN 46228-1)	mm <sup>2</sup>	2 x (0.5 ... 1.5) <sup>1)</sup> , 2 x (0.75 ... 2.5) <sup>1)</sup>	
• AWG cables, solid or stranded	AWG	2 x (20 ... 16) <sup>1)</sup> , 2 x (18 ... 14) <sup>1)</sup>	
<b>Connection type</b>		 <b>Spring-type terminals</b>	
<b>Operating devices</b>	mm	3.0 x 0.5 and 3.5 x 0.5	
<b>Conductor cross-sections (min./max.)</b>			
• Solid	mm <sup>2</sup>	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)	
<b>Connection type</b>		 <b>Ring terminal lug connections</b>	
<b>Terminal screw</b>		M3, Pozidriv size 2	
<b>Operating devices</b>	mm	∅ 5 ... 6	
<b>Prescribed tightening torque</b>	Nm	0.8 ... 1.2	
<b>Usable ring terminal lugs</b>	mm	d <sub>2</sub> = min. 3.2, d <sub>3</sub> = max. 7.5	
<ul style="list-style-type: none"> <li>• DIN 46234 without insulation sleeve</li> <li>• DIN 46225 without insulation sleeve</li> <li>• DIN 46237 with insulation sleeve</li> <li>• JIS C2805 Type R without insulation sleeve</li> <li>• JIS C2805 Type RAV with insulation sleeve</li> <li>• JIS C2805 Type RAP with insulation sleeve</li> </ul>			

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

# Overload Relays

## SIRIUS 3RU2 Thermal Overload Relays

3RU2 up to 40 A  
for standard applications

### Selection and ordering data

#### 3RU21 thermal overload relays for mounting onto contactor<sup>1)</sup>, CLASS 10

Features and technical specifications:

- Screw terminals, spring-type terminals or ring terminal lug connections<sup>2)</sup>
- Overload and phase failure protection
- Auxiliary contacts 1 NO + 1 NC
- Manual and automatic RESET
- Switch position indicator

- TEST function
- STOP button
- Sealable covers (optional accessory)
- Terminal covers for devices with ring terminal lug connection (optional accessory)

PU (UNIT, SET, M) = 1  
PS\* = 1 unit  
PG = 41F



3RU2116-4AB0



3RU2116-4ACO



3RU2126-4FBO



3RU2126-4ACO

Size contactor <sup>3)</sup>	Rating for three-phase motor, rated value <sup>4)</sup>	Current setting value of the inverse-time delayed overload release	Short-circuit protection with fuse, type of coordination "2", operational class gG <sup>5)</sup>	DT	Screw terminals		DT	Spring-type terminals	
					Article No.	Price per PU		Article No.	Price per PU
<b>Size S00</b>									
S00	0.04	0.11 ... 0.16	0.5	▶	3RU2116-0AB0	B	3RU2116-0AC0		
	0.06	0.14 ... 0.2	1	▶	3RU2116-0BB0	B	3RU2116-0BC0		
	0.06	0.18 ... 0.25	1	▶	3RU2116-0CB0	B	3RU2116-0CC0		
	0.09	0.22 ... 0.32	1.6	▶	3RU2116-0DB0	B	3RU2116-0DC0		
	0.09	0.28 ... 0.4	2	▶	3RU2116-0EB0	B	3RU2116-0EC0		
	0.12	0.35 ... 0.5	2	▶	3RU2116-0FB0	B	3RU2116-0FC0		
	0.18	0.45 ... 0.63	2	▶	3RU2116-0GB0	B	3RU2116-0GC0		
	0.18	0.55 ... 0.8	4	▶	3RU2116-0HB0	B	3RU2116-0HC0		
	0.25	0.7 ... 1	4	▶	3RU2116-0JB0	B	3RU2116-0JC0		
	0.37	0.9 ... 1.25	4	▶	3RU2116-0KB0	B	3RU2116-0KC0		
	0.55	1.1 ... 1.6	6	▶	3RU2116-1AB0	B	3RU2116-1AC0		
	0.75	1.4 ... 2	6	▶	3RU2116-1BB0	B	3RU2116-1BC0		
	0.75	1.8 ... 2.5	10	▶	3RU2116-1CB0	B	3RU2116-1CC0		
	1.1	2.2 ... 3.2	10	▶	3RU2116-1DB0	B	3RU2116-1DC0		
	1.5	2.8 ... 4	16	▶	3RU2116-1EB0	B	3RU2116-1EC0		
	1.5	3.5 ... 5	20	▶	3RU2116-1FB0	B	3RU2116-1FC0		
	2.2	4.5 ... 6.3	20	▶	3RU2116-1GB0	B	3RU2116-1GC0		
	3	5.5 ... 8	25	▶	3RU2116-1HB0	B	3RU2116-1HC0		
	4	7 ... 10	35	▶	3RU2116-1JB0	B	3RU2116-1JC0		
	5.5	9 ... 12.5	35	▶	3RU2116-1KB0	B	3RU2116-1KC0		
7.5	11 ... 16	40	▶	3RU2116-4AB0	B	3RU2116-4AC0			
<b>Size S0</b>									
S0	0.75	1.8 ... 2.5	10	▶	3RU2126-1CB0	B	3RU2126-1CC0		
	1.1	2.2 ... 3.2	10	▶	3RU2126-1DB0	B	3RU2126-1DC0		
	1.5	2.8 ... 4	16	▶	3RU2126-1EB0	B	3RU2126-1EC0		
	1.5	3.5 ... 5	20	▶	3RU2126-1FB0	B	3RU2126-1FC0		
	2.2	4.5 ... 6.3	20	▶	3RU2126-1GB0	B	3RU2126-1GC0		
	3	5.5 ... 8	25	▶	3RU2126-1HB0	B	3RU2126-1HC0		
	4	7 ... 10	35	▶	3RU2126-1JB0	B	3RU2126-1JC0		
	5.5	9 ... 12.5	35	▶	3RU2126-1KB0	B	3RU2126-1KC0		
	7.5	11 ... 16	40	▶	3RU2126-4AB0	▶	3RU2126-4AC0		
	7.5	14 ... 20	50	▶	3RU2126-4BB0	▶	3RU2126-4BC0		
	11	17 ... 22	63	▶	3RU2126-4CB0	▶	3RU2126-4CC0		
	11	20 ... 25	63	▶	3RU2126-4DB0	▶	3RU2126-4DC0		
	15	23 ... 28	63	▶	3RU2126-4NB0	▶	3RU2126-4NC0		
	15	27 ... 32	80	▶	3RU2126-4EB0	▶	3RU2126-4EC0		
	18.5	30 ... 36	80	▶	3RU2126-4PB0	▶	3RU2126-4PC0		
	18.5	34 ... 40	80	▶	3RU2126-4FB0	▶	3RU2126-4FC0		

<sup>1)</sup> With the suitable terminal supports (see "Accessories", page 7/97), the 3RU2 overload relays for mounting on contactors can also be installed as stand-alone units.

<sup>2)</sup> The 3RU21 overload relays are also available with ring terminal lug connection. The Article No. must be changed in the 10th digit to "J": e.g. 3RU2116-0AJ0.

<sup>3)</sup> Observe maximum rated operational current of the devices.

<sup>4)</sup> Guide value for 4-pole standard motors at 50 Hz 400 V AC. The actual starting and rated data of the motor to be protected must be considered when selecting the units.

<sup>5)</sup> Maximum protection by fuse only for overload relay, type of coordination "2". Fuse values in connection with contactors see Configuration Manual "Configuring SIRIUS Innovations – Selection Data for Fuseless and Fused Load Feeders", <http://support.automation.siemens.com/WW/view/en/50250599>.