Overview

More information

Homepage, see www.siemens.com/sirius-overloadrelays
Industry Mall, see
- www.siemens.com/product?3RU2
- www.siemens.com/product?3RB3
- www.siemens.com/product?3RB2

TIA Selection Tool Cloud (TST Cloud), see https://www.siemens.com/tstcloud/?node=ElectronicOverloadRelay
Configuration Manual "Load Feeders – SIRIUS Modular System", see https://support.industry.siemens.com/cs/ww/en/view/39714188
Conversion tool for article numbers, see www.siemens.com/sirius/conversion-tool





Features	3RU21	3RB30/3RB31	3RB20/3RB21	3RB22/3RB23	3RB24	Benefits
General data						
Sizes	S00 ... S3	S00 ... S3	S6 ... S12	S00 ... S12	S00 ... S12	• Are coordinated with the dimensions, connections and technical characteristics of the other devices in the SIRIUS modular system (contactors, etc.) • Permit the mounting of slim and compact load feeders in widths of 45 mm (S00, 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 • Simplify configuration
Seamless current range	0.11 ... 100 A	0.1 ... 115 A	50 ... 630 A	0.3 ... 630 A (up to 820 A)[1]	0.3 ... 630 A (up to 820 A)[1]	• Allows easy and consistent configuration with one series of overload relays (for small to large loads)
Protection functions						
Tripping due to overload	✓	✓	✓	✓	✓	• Provides optimum inverse-time delayed protection of loads against excessive temperature rises due to overload
Tripping due to phase asymmetry	✓	✓	✓	✓	✓	• Provides optimum inverse-time delayed protection of loads against excessive temperature rises due to phase asymmetry
Tripping due to phase failure	✓	✓	✓	✓	✓	• Minimizes heating of three-phase motors during phase failure
Protection of single-phase loads	✓	--	--	✓	✓	• Enables the protection of single-phase loads
Tripping in the event of overheating by **Integrated thermistor motor protection function**	--[2]	--[2]	--[2]	✓	✓	• 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 long starting or braking operations • Eliminates the need for additional special equipment • Saves space in the control cabinet • Reduces wiring outlay and costs
Tripping in the event of a ground fault by **Internal ground-fault detection (activatable)**	--	✓ (only 3RB31)	✓ (only 3RB21)	✓	✓	• Provides optimum protection of loads against high-resistance short circuits or ground faults due to moisture, condensed water, damage to the insulation material, etc. • Eliminates the need for additional special equipment • Saves space in the control cabinet • Reduces wiring outlay and costs

✓ Available
-- Not available

[1] 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.
For 3UF18 transformers, see page 10/25.

[2] The SIRIUS 3RN thermistor motor protection devices can be used to provide additional temperature-dependent protection.

General data





Specifications	3RU21	3RB30/3RB31	3RB20/3RB21	3RB22/3RB23	3RB24	Benefits
Features						
RESET function	✓	✓	✓	✓	✓	• Allows manual or automatic resetting of the device
Remote RESET function	✓ (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)	• Allows the remote resetting of the device
TEST function for auxiliary contacts	✓	✓	✓	✓	✓	• Allows easy checking of the function and wiring
TEST function for electronics	--	✓	✓	✓	✓	• Allows checking of the electronics
Status display	✓	✓	✓	✓	✓	• Displays the current operating state
Large current adjustment button	✓	✓	✓	✓	✓	• Makes it easier to set the relay exactly to the correct current value
Integrated auxiliary contacts (1 NO + 1 NC)	✓	✓	✓	✓ (2 ×)	--	• Allow the load to be switched off if necessary • Can be used to output signals
Integrated auxiliary contacts (1 CO and 1 NO in series)	--	--	--	--	✓	• Enables the controlling of contactors directly from the higher-level control system through IO-Link
IO-Link connection	--	--	--	--	✓	• Reduction of wiring in the control cabinet • Enables communication
Connection of optional hand-held device	--	--	--	--	✓	• Enables local operation
Communication capability through IO-Link						
Full starter functionality through IO-Link	--	--	--	--	✓	• Enables in combination with the SIRIUS 3RT contactors the assembly of communication-capable motor starters (direct-on-line, reversing and star-delta (wye-delta) starting)
Readout of diagnostics functions	--	--	--	--	✓	• Enables the readout of diagnostics information such as overload, open circuit, ground fault, etc.
Readout of current values	--	--	--	--	✓	• Enables the readout of current values and their direct processing in the higher-level control system
Readout of all set parameters	--	--	--	--	✓	• Enables the readout of all set parameters, e.g. for plant documentation

✓ Available
-- Not available





Features	3RU21	3RB30/3RB31	3RB20/3RB21	3RB22/3RB23	3RB24	Benefits
Design of load feeders						
Short-circuit strength up to 100 kA at 690 V (in conjunction with the corresponding fuses or the corresponding motor starter protector)	✓	✓	✓	✓	✓	• Provides optimum protection of the loads and operating personnel in the event of short circuits due to insulation faults or faulty switching operations
Electrical and mechanical matching to 3RT contactors	✓	✓	✓	✓[1]	✓[1]	• Simplifies configuration • Reduces wiring outlay and costs • Enables stand-alone installation as well as space-saving direct mounting
Straight-through transformers for main circuit[2] (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, S3)	✓ (S6)	✓ (S00 ... S6)	✓ (S00 ... S6)	• Reduce the contact resistance (only one point of contact) • Save wiring costs (easy, no need for tools, and fast) • Save material costs • Reduce installation costs
Spring-loaded terminals for main circuit[2]	✓ (S00, S0)	✓ (S00, S0)	--	--	--	• Enable fast connections • Permit vibration-resistant connections • Enable maintenance-free connections
Spring-loaded terminals for auxiliary circuits[2]	✓	✓	✓	✓	✓	• Enable fast connections • Permit vibration-resistant connections • Enable maintenance-free connections
Full starter functionality through IO-Link	--	--	--	--	✓	• Enables in combination with the SIRIUS 3RT contactors the assembly of communication-capable motor starters (direct-on-line, reversing and star-delta (wye-delta) starting)
Starter function	--	--	--	--	✓	• Integration of feeders via IO-Link in the control system up to 630 A or 820 A

✓ Available
-- Not available

[1] Exception: Up to size S3, only stand-alone installation is possible.
[2] Available as an alternative to screw terminals.

7

General data





Features	3RU21	3RB30/3RB31	3RB20/3RB21	3RB22/3RB23	3RB24	Benefits
Other features						
Temperature compensation	✓	✓	✓	✓	✓	• Allows the use of the relays at high temperatures without derating • Prevents premature tripping • Allows compact installation of the control cabinet without distance between the devices/load feeders • Simplifies configuration • Enables space to be saved in the control cabinet
Very high long-term stability	✓	✓	✓	✓	✓	• Provides safe protection for the loads even after years of use in severe operating conditions
Wide setting ranges	--	✓ (1:4)	✓ (1:4)	✓ (1:10)	✓ (1:10)	• Minimize the configuring outlay and costs • Minimize storage overhead, storage costs, and tied-up capital
Fixed trip class	CLASS 10, CLASS 10A	3RB30: CLASS 10E or CLASS 20E	3RB20: CLASS 10E or CLASS 20E	--	--	• Optimum motor protection for standard starts
Trip classes adjustable on the device CLASS 5E, 10E, 20E, 30E	--	3RB31: ✓	3RB21: ✓	✓	✓	• Enable solutions for very fast starting motors requiring special protection (e.g. Ex motors) • Enable heavy starting solutions • Reduce the number of variants • Minimize the configuring outlay and costs • Minimize storage overhead, storage costs, and tied-up capital
Low power loss	--	✓	✓	✓	✓	• Reduces power consumption and energy costs (up to 98% less power is used than for thermal overload relays) • Minimizes temperature rises of the contactor and control cabinet – in some cases this may eliminate the need for control cabinet cooling • Direct mounting to contactor saves space, even for high motor currents (i.e. no heat decoupling is required)
Internal power supply	--[1)]	✓	✓	--	--	• Eliminates the need for configuration and connecting an additional control circuit
Supplied from an external source via IO-Link	--	--	--	--	✓	• Eliminates the need for configuration and connecting an additional control circuit

✓ Available
-- Not available

[1)] SIRIUS 3RU11 and 3RU21 thermal overload relays use a bimetal contactor and therefore do not require a control supply voltage.

Features	 **3RU21**	 **3RB30/3RB31**	 **3RB20/3RB21**	 **3RB22/3RB23**	 **3RB24**	Benefits
Other features (continued)						
Overload warning	--	--	--	✓	✓	• Indicates imminent tripping of the relay directly on the device due to overload, phase asymmetry or phase failure through flickering of the LEDs or in the case of the 3RB24 as a signal through IO-Link • Allows the imminent tripping of the relay to be signaled • 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 • Eliminates the need for an additional device • Saves space in the control cabinet • Reduces wiring outlay and costs
Analog output	--	--	--	✓	✓	• Allows the output of an analog output signal for actuating moving-coil instruments, feeding programmable logic controllers or transfer to bus systems • Eliminates the need for an additional measuring transducer and signal converter • Saves space in the control cabinet • Reduces wiring outlay and costs

✓ Available
-- Not available

General data

Overview of overload relays – matching contactors

	Overload relays	Current measure-ment	Current range	**Contactors** (type, size, rating in kW)							
				3RT201.	**3RT202.**	**3RT203.**	**3RT204.**	**3RT105.**	**3RT106.**	**3RT107.**	**3TF68/3TF69**
				S00	S0	S2	S3	S6	S10	S12	14
	Type		A	3/4/5.5/7.5	5.5/7.5/11/15/18.5	15/18.5/22/30/37	37/45/55	55/75/90	110/132/160	200/250	375/450
SIRIUS 3RU21 thermal overload relays											
 3RU21	3RU211	Integrated	0.11 … 16	✓	--	--	--	--	--	--	--
	3RU212	Integrated	1.8 … 40	--	✓	--	--	--	--	--	--
	3RU213	Integrated	11 … 80	--	--	✓	--	--	--	--	--
	3RU214	Integrated	28 ... 100	--	--	--	✓	--	--	--	--
SIRIUS 3RB30 electronic overload relays[1]											
 3RB30	3RB301	Integrated	0.1 … 16	✓	--	--	--	--	--	--	--
	3RB302	Integrated	0.1 … 40	--	✓	--	--	--	--	--	--
	3RB303	Integrated	12.5 … 80	--	--	✓	--	--	--	--	--
	3RB304	Integrated	32 ... 115	--	--	--	✓	--	--	--	--
SIRIUS 3RB31 electronic overload relays[1]											
 3RB31	3RB311	Integrated	0.1 … 16	✓	--	--	--	--	--	--	--
	3RB312	Integrated	0.1 … 40	--	✓	--	--	--	--	--	--
	3RB313	Integrated	12.5 … 80	--	--	✓	--	--	--	--	--
	3RB314	Integrated	32 ... 115	--	--	--	✓	--	--	--	--
SIRIUS 3RB20 electronic overload relays[1]											
 3RB20	3RB205	Integrated	50 … 200	--	--	--	--	✓	--	--	--
	3RB206	Integrated	55 … 630	--	--	--	--	--	✓	✓	✓
	3RB201 + 3UF18	Integrated	630 … 820	--	--	--	--	--	--	--	✓
SIRIUS 3RB21 electronic overload relays[1]											
 3RB21	3RB215	Integrated	50 … 200	--	--	--	--	✓	--	--	--
	3RB216	Integrated	55 … 630	--	--	--	--	--	✓	✓	✓
	3RB211 + 3UF18	Integrated	630 … 820	--	--	--	--	--	--	--	✓
SIRIUS 3RB22 to 3RB24 electronic overload relays[1]											
 3RB22, 3RB23, 3RB24	3RB2283/ 3RB2383/ 3RB2483+	3RB2906	0.3 … 25	✓	✓	--	--	--	--	--	--
		3RB2906	10 … 100	✓	✓	✓	✓	--	--	--	--
		3RB2956	20 … 200	--	✓	✓	✓	✓	--	--	--
		3RB2966	63 … 630	--	--	--	--	--	✓	✓	✓
		3RB2906 + 3UF18	630 … 820	--	--	--	--	--	--	--	✓

✓ Can be used
-- Cannot be used

[1] "Technical specifications" for the use of overload relays with trip class ≥ CLASS 20E, see "Short-circuit protection with fuses for motor feeders" in the Configuration Manual.

Connection methods

3RU2 thermal overload relays

- Sizes S00 and S0:
  - Main and auxiliary circuit: Either screw or spring-loaded terminals
- Sizes S2 and S3:
  - Main circuit: Screw terminals with box terminal
  - Auxiliary circuit: Either screw or spring-loaded terminals

3RB3 electronic overload relays

- Sizes S00 and S0:
  - Main and auxiliary circuit: Either screw or spring-loaded terminals
- Sizes S2 and S3:
  - Main circuit: Screw terminals with box terminal or as straight-through transformer
  - Auxiliary circuit: Either screw or spring-loaded terminals

3RB2 electronic overload relays

3RB20 and 3RB21 overload relays:

- Size S6:
  - Main circuit: With busbar connection or as straight-through transformer
  - Auxiliary circuit: Either screw or spring-loaded terminals
- Sizes S10/S12:
  - Main circuit: With busbar connection
  - Auxiliary circuit: Either screw or spring-loaded terminals

3RB22 to 3RB24 evaluation modules:

- Screw or spring-loaded terminals

3RB29 current measuring modules:

- Up to size S3: Straight-through transformers
- As from size S6:
  - Main circuit: With busbar connection
  - Auxiliary circuit: Either screw or spring-loaded terminals


Screw terminals


Spring-loaded terminals


Busbar connections

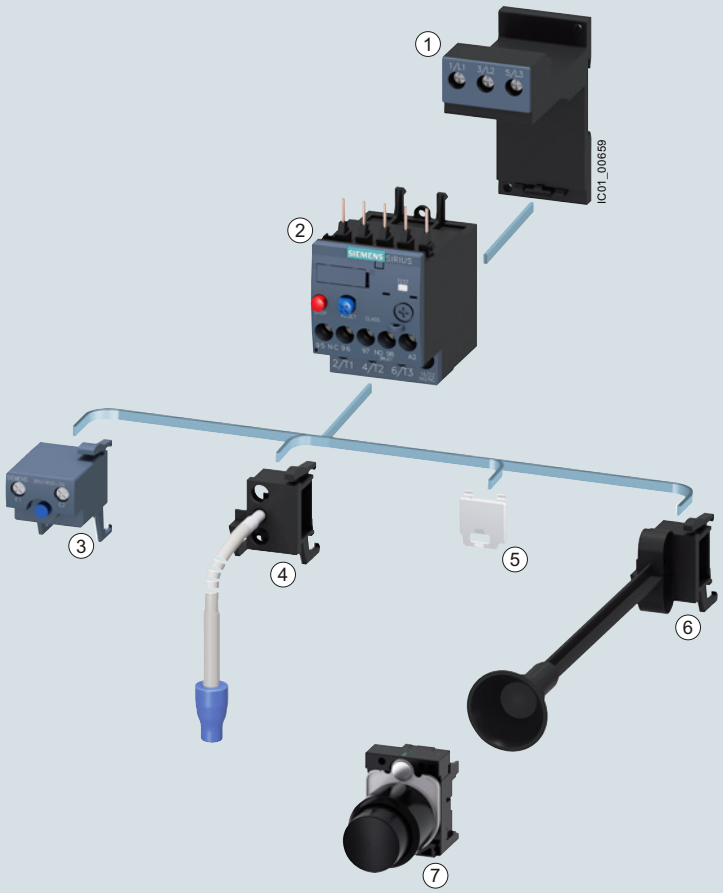

Straight-through transformers

The various terminals and straight-through transformers are indicated in the corresponding tables by the symbols shown on orange backgrounds.

3RU2 for standard applications

Overview

More information	
Homepage, see www.siemens.com/sirius-overloadrelays	Application Manual "SIRIUS Controls with IE3/IE4 motors", see https://support.industry.siemens.com/cs/ww/en/view/94770820
Industry Mall, see www.siemens.com/product?3RU2	Equipment Manual, see https://support.industry.siemens.com/cs/ww/en/view/60298164
TIA Selection Tool Cloud (TST Cloud), see https://www.siemens.com/tstcloud/?node=ElectronicOverloadRelay	Characteristics and certificates, see https://support.industry.siemens.com/cs/ww/en/ps/16271
Conversion tool for article numbers, see www.siemens.com/sirius/conversion-tool	

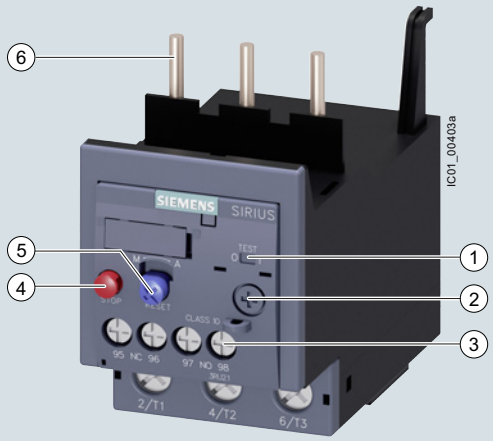


1. Stand-alone assembly support for 3RU2 and 3RB3
2. 3RU21 thermal overload relay Sizes S00 to S3

Mountable accessories

3. Module for Automatic RESET
4. Cable release with holder for RESET
5. Sealable cover
6. Mechanical RESET
7. Pushbutton

Mountable accessories for 3RU thermal overload relay



(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.

(3) Connecting terminals:
Depending on the device version, the connecting terminals are screw terminals or spring-loaded terminals for the main and auxiliary circuits.

(4) 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.

(5) 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 Automatic RESET is possible using the RESET modules (accessories), which are independent of size.

(6) 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).

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

SIRIUS 3RU2136-4.B0 thermal overload relay

3RU21 thermal overload relays up to 100 A have been designed to provide current-dependent protection for loads with normal starting against impermissibly high 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 the current setting I_e and is stored in the form of a long-term stable tripping characteristic curve, see Characteristic curves.

The "tripped" status is signaled by means of a switch position indicator. The relay is reset manually or automatically after a recovery time has elapsed.

The 3RU2 thermal overload relays are suitable for operation with frequency converters.

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.

Use in hazardous areas

The 3RU2 overload relays are certified in accordance with both the European explosion protection directive (ATEX) and the international explosion protection standard (IECEx), see Certificates.

Article No. scheme

Product versions		Article number
Thermal overload relays		**3RU2** □ □ □ – □ □ □ □
Device type	e.g. 1 = CLASS 10, 1 NO + 1 NC	□
Size, rated operational current and power	e.g. 16 = 16 A (7.5 kW) for size S00	□ □
Setting range for overload release	e.g. 0A = 0.11 ... 0.16 A	□ □
Connection methods	e.g. B = screw terminals	□
Installation type	e.g. 0 = mounting on contactor	□
Example		**3RU2 1 1 6 – 0 A B 0**

Note:

The Article No. scheme shows an overview of product versions for better understanding of the logic behind the article numbers.

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

3RU2 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 7/79 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, 10A).

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

3RU21 thermal overload relays compensate temperature in the temperature range from -40 °C to +60 °C according to IEC 60947-4-1. At temperatures from +60 °C to +70 °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/IE4 motors

Note:

For the use of 3RU21 thermal overload relays in conjunction with highly energy-efficient IE3/IE4 motors, please observe the information on dimensioning and configuring, see Application Manual.

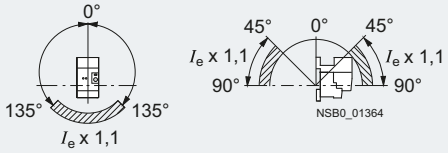
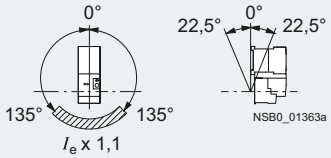
For more information, see page 1/7.

Technical specifications

More information	
System Manual "SIRIUS – System Overview", see https://support.industry.siemens.com/cs/ww/en/view/60311318	Equipment Manual, see https://support.industry.siemens.com/cs/ww/en/view/60298164
Configuration Manual "Load Feeders – SIRIUS Modular System", see https://support.industry.siemens.com/cs/ww/en/view/39714188	Technical specifications, see https://support.industry.siemens.com/cs/ww/en/ps/16270/td

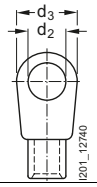
The following technical information is intended to provide an initial overview of the various types of devices and functions.

Type		**3RU2116**	**3RU2126**	**3RU2136**	**3RU2146**
Size		S00	S0	S2	S3
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	55 x 105 x 117	70 x 106 x 124
• Spring-loaded terminals	mm	45 x 102 x 79	45 x 114 x 95	55 x 105 x 117	70 x 106 x 124
General data					
Tripping in the event of		Overload and phase failure			
Trip class acc. to IEC 60947-4-1	CLASS	10		10, 10A	
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 accessories)			
• 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			
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 of motors in hazardous environments					
• Certificate of suitability/explosion protection type according to ATEX directive 2014/34/EU		DMT 98 ATEX G 001 Ex II (2) GD			
• according to international standard IECEx		IECEx BVS 15.0046 see https://support.industry.siemens.com/cs/ww/en/ps/16270/cert			

Type		**3RU2116**	**3RU2126**	**3RU2136**	**3RU2146**
Size		S00	S0	S2	S3
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	55 x 105 x 117	70 x 106 x 124
• Spring-loaded terminals	mm	45 x 102 x 79	45 x 114 x 95	55 x 105 x 117	70 x 106 x 124
General data (continued)					
Ambient temperature					
• 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 (current reduction is required above +60 °C)			
- Temperature inside control cabinet 70 °C	%	87			
Repeat terminals					
• Coil repeat terminals		Yes	Not required		
• Auxiliary contact repeat terminals		Yes	Not required		
Degree of protection acc. to IEC 60529		IP20		- IP20 (front side) - Terminal IP00 (use additional terminal covers for higher degree of protection)	
Touch protection acc. to IEC 60529		Finger-safe		Finger-safe, for vertical contact from the front	
Shock resistance with sine acc. to IEC 60068-2-27	*g*/ms	15/11 (auxiliary contacts 95/96 and 97/98: 8 *g*/11 ms)			
Electromagnetic compatibility (EMC)					
• Interference immunity		Not relevant			
• Emitted interference		Not relevant			
Resistance to extreme climates – Air humidity	%	90			
Installation altitude above sea level	m	Up to 2 000			
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:  Contactor + overload relay:  			
Type of mounting		For mounting onto contactor or stand-alone installation with terminal support, screw and snap-on mounting onto standard mounting rail.			

3RU2 for standard applications

Type		3RU2116	3RU2126	3RU2136	3RU2146
Size		S00	S0	S2	S3
Main circuit					
Rated insulation voltage U_i (pollution degree 3)	V	690			1000
Rated impulse withstand voltage U_{imp}	kV	6			8
Rated operational voltage U_e	V	690			
Type of current					
• Direct current		Yes			
• Alternating current		Yes, frequency range up to 400 Hz			
Current setting	A	0.11 ... 0.16 to 11 ... 16	1.8 ... 2.5 to 34 ... 40	11 ... 16 to 70 ... 80	28 ... 40 to 80 ... 100
	A				
Power loss per unit (max.)	W	4.8 ... 7.5	5.7 ... 9.6	10.5 ... 18.9	13.5 ... 21
Short-circuit protection					
• With fuse without contactor		See "Selection and ordering data", pages 7/92 ... 7/95			
• With fuse and contactor		"Short-Circuit Protection with Fuses/Motor Starter Protectors for Motor Feeders", see Configuration Manual.			
Protective separation between main and auxiliary current paths Acc. to IEC 60947-1					
• Screw terminals or ring terminal lug connections	V	440	690: Setting range ≤ 25 A	690	
• Spring-loaded terminals	V	440	440: Setting range > 25 A	690	
Conductor cross-sections of main circuit					
Connection type		**Screw terminals**			**Screw terminals with box terminal**
Terminal screw		M3, Pozidriv size 2	M4, Pozidriv size 2	M6, Pozidriv size 2	4 mm Allen screw
Operating devices	mm	⌀ 5 ... 6	⌀ 5 ... 6	⌀ 5 ... 6	4 mm Allen screw
Prescribed tightening torque	Nm	0.8 ... 1.2	2 ... 2.5	3 ... 4.5	4.5 ... 6
Conductor cross-sections (min./max.), 1 or 2 conductors can be connected					
• Solid or stranded	mm^2	2 x (0.5 ... 1.5)[1], 2 x (0.75 ... 2.5)[1], max. 2 x 4	2 x (1 ... 2.5)[1] 2 x (2.5 ... 10)[1]	2 x (2.5 ... 35)[1], 1 x (2.5 ... 50)[1]	2 x (2.5 ... 16)[1], 2 x (10 ... 50)[1], 1 x (10 ... 70)[1]
• Finely stranded with end sleeve (DIN 46228)	mm^2	2 x (0.5 ... 1.5)[1], 2 x (0.75 ... 2.5)[1]	2 x (1 ... 2.5)[1]; 2 x (2.5 ... 6)[1], max. 1 x 10	2 x (1 ... 25)[1], 1 x (1 ... 35)[1]	2 x (2.5 ... 35)[1], 1 x (2.5 ... 50)[1]
• AWG cables, solid or stranded	AWG	2 x (20 ... 16)[1], 2 x (18 ... 14)[1], 2 x 12	2 x (16 ... 12)[1], 2 x (14 ... 8)[1]	2 x (18 ... 2)[1], 1 x (18 ... 1)[1]	2 x (10 ... 1/0)[1], 1 x (10 ... 2/0)[1]
Removable box terminals[2]					
• With copper bars[3]	mm	--	--	--	2 x 12 x 4
• With cable lugs[4]					
- Terminal screw		--	--	--	M6
- Prescribed tightening torque	Nm	--	--	--	4.5 ... 6
- Usable ring terminal lugs	mm	--	--	--	d_2 = min. 6.3 d_3 = max. 19
Connection type		**Spring-loaded terminals**			
Operating devices	mm	3.0 x 0.5 and 3.5 x 0.5			
Conductor cross-sections (min./max.), 1 conductor can be connected					
• Solid or stranded	mm^2	1 x (0.5 ... 4)	1 x (1 ... 10)	--	
• Finely stranded without end sleeve	mm^2	1 x (0.5 ... 2.5)	1 x (1 ... 6)	--	
• Finely stranded with end sleeve (DIN 46228)	mm^2	1 x (0.5 ... 2.5)	1 x (1 ... 6)	--	
• AWG cables, solid or stranded	AWG	1 x (20 ... 12)	1 x (18 ... 8)	--	
• Max. external diameter of the conductor insulation	mm	3.6	6.4	--	



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

2) Cable lug and busbar connection possible after removing the box terminals.

3) If bars larger than 12 mm x 10 mm are connected, a 3RT2946-4EA2 cover is needed to maintain the required phase clearance, see page 7/97.

4) If conductors larger than 25 mm^2 are connected, the 3RT2946-4EA2 cover is needed to maintain the required phase clearance, see page 7/97.

Type		**3RU2116**	**3RU2126**	**3RU2136**	**3RU2146**
Size		S00	S0	S2	S3
Auxiliary circuit					
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			
Contact rating of the auxiliary contacts					
• NC, NO contacts with alternating current 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, NO contacts with direct current DC-13, rated operational current I_e at U_e					
- 24 V	A	1			
- 110 V	A	0.22			
- 125 V	A	0.22			
- 220 V	A	0.11			
• Contact reliability (suitability for PLC control; 17 V, 5 mA)		Yes			
Short-circuit protection					
• With fuse					
- Operational class gG	A	6			
- Quick	A	10			
• With miniature circuit breaker (C characteristic)	A	6 (up to $I_k \leq 0.5$ kA; $U \leq 260$ V)			
Reliable operational voltage for 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 for auxiliary circuit					
Connection type		**Screw terminals**			
Terminal screw		M3, Pozidriv size 2			
Operating devices	mm	⌀ 5 ... 6			
Prescribed tightening torque	Nm	0.8 ... 1.2			
Conductor cross-sections (min./max.), 1 or 2 conductors can be connected					
• Solid or stranded	mm^2	2 x (0.5 ... 1.5)[1], 2 x (0.75 ... 2.5)[1]			
• Finely stranded with end sleeve (DIN 46228)	mm^2	2 x (0.5 ... 1.5)[1], 2 x (0.75 ... 2.5)[1]			
• AWG cables, solid or stranded	AWG	2 x (20 ... 16)[1], 2 x (18 ... 14)[1]			
Connection type		**Spring-loaded 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	mm^2	2 x (0.5 ... 2.5)			
• Finely stranded without end sleeve	mm^2	2 x (0.5 ... 2.5)			
• Finely stranded with end sleeve (DIN 46228)	mm^2	2 x (0.5 ... 1.5)			
• AWG cables, solid or stranded	AWG	2 x (20 ... 14)			
• Max. external diameter of the conductor insulation	mm	3.6			

[1] 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

3RU21 thermal overload relays for mounting onto contactor[1], sizes S00 and S0, CLASS 10

Features and technical specifications:

- Connection methods
  Main and auxiliary circuit: Either screw or spring-loaded terminals
- 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)

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


3RU2116-4AB0


3RU2116-4AC0


3RU2126-4FB0


3RU2126-4AC0

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

[1] With the appropriate terminal supports (see "Accessories", page 7/96), the 3RU2 overload relays for mounting on contactors can also be installed as stand-alone units.

[2] 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.

[3] Maximum protection by fuse only for overload relays, type of coordination "2". For fuse values in connection with contactors, see Configuration Manual.

* You can order this quantity or a multiple thereof.
Illustrations are approximate

3RU21 thermal overload relays for mounting onto contactor[1], sizes S2 and S3, CLASS 10 or 10A

Features and technical specifications:

- Connection methods
  - Main circuit: Screw terminals with box terminal
  - Auxiliary circuit: Either screw or spring-loaded terminals
- 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)

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


3RU2136-4.B0


3RU2136-4.D0


3RU2146-4.B0


3RU2146-4.D0

Size contactor	Trip class	Rated power for three-phase motors, rated value[2]	Current setting value of the inverse-time delayed overload release	Short-circuit protection with fuse, type of coordination "2", operational class gG[3]	SD	Screw terminals		SD	Spring-loaded terminals (on auxiliary current side)	
						Article No.	Price per PU		Article No.	Price per PU
	CLASS	kW	A	A	d			d		
Size S2										
S2	10	3	5.5 ... 8	25	5	**3RU2136-1HB0**		5	**3RU2136-1HD0**	
	10	4	7 ... 10	35	5	**3RU2136-1JB0**		5	**3RU2136-1JD0**	
	10	5.5	9 ... 12.5	35	5	**3RU2136-1KB0**		5	**3RU2136-1KD0**	
	10	7.5	11 ... 16	40	5	**3RU2136-4AB0**		5	**3RU2136-4AD0**	
	10	7.5	14 ... 20	50	5	**3RU2136-4BB0**		5	**3RU2136-4BD0**	
	10	11	18 ... 25	63	▶	**3RU2136-4DB0**		5	**3RU2136-4DD0**	
	10	15	22 ... 32	80	▶	**3RU2136-4EB0**		5	**3RU2136-4ED0**	
	10	18.5	28 ... 40	80	▶	**3RU2136-4FB0**		5	**3RU2136-4FD0**	
	10	22	36 ... 45	100	▶	**3RU2136-4GB0**		2	**3RU2136-4GD0**	
	10	22	40 ... 50	100	▶	**3RU2136-4HB0**		2	**3RU2136-4HD0**	
	10	30	47 ... 57	100	▶	**3RU2136-4QB0**		2	**3RU2136-4QD0**	
	10	30	54 ... 65	125	▶	**3RU2136-4JB0**		2	**3RU2136-4JD0**	
	10A	37	62 ... 73	160	▶	**3RU2136-4KB0**		2	**3RU2136-4KD0**	
	10A	37	70 ... 80	160	▶	**3RU2136-4RB0**		2	**3RU2136-4RD0**	
Size S3										
S3	10	18.5	28 ... 40	80	2	**3RU2146-4FB0**		5	**3RU2146-4FD0**	
	10	22	36 ... 50	125	2	**3RU2146-4HB0**		5	**3RU2146-4HD0**	
	10	30	45 ... 63	125	2	**3RU2146-4JB0**		2	**3RU2146-4JD0**	
	10	37	57 ... 75	160	2	**3RU2146-4KB0**		2	**3RU2146-4KD0**	
	10	45	70 ... 90	160	2	**3RU2146-4LB0**		2	**3RU2146-4LD0**	
	10	45	80 ... 100[4]	200	2	**3RU2146-4MB0**		2	**3RU2146-4MD0**	

[1] With the appropriate terminal supports (see "Accessories", page 7/96), the 3RU2 overload relays for mounting on contactors can also be installed as stand-alone units.

[2] 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.

[3] Maximum protection by fuse only for overload relays, type of coordination "2". For fuse values in connection with contactors, see Configuration Manual.

[4] For overload relays > 100 A, see 3RB2 electronic overload relays, page 7/110 onwards.

3RU2 for standard applications *IE3/IE4* ready

3RU21 thermal overload relays for stand-alone installation, sizes S00 and S0, CLASS 10

Features and technical specifications:

- Connection methods
  Main and auxiliary circuit: Either screw or spring-loaded terminals
- 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)

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


3RU2116-..B1


3RU2116-..C1


3RU2126-..B1


3RU2126-..C1

Size contactor	Trip class	Rated power for three-phase motors, rated value[1]	Current setting value of the inverse-time delayed overload release	Short-circuit protection with fuse, type of coordination "2", operational class gG[2]	SD	**Screw terminals**		SD	**Spring-loaded terminals**	
						Article No.	Price per PU		Article No.	Price per PU
	CLASS	kW	A	A	d			d		
Size S00										
S00	10	0.04	0.11 ... 0.16	0.5	5	**3RU2116-0AB1**		5	**3RU2116-0AC1**	
	10	0.06	0.14 ... 0.2	1	5	**3RU2116-0BB1**		5	**3RU2116-0BC1**	
	10	0.06	0.18 ... 0.25	1	5	**3RU2116-0CB1**		5	**3RU2116-0CC1**	
	10	0.09	0.22 ... 0.32	1.6	5	**3RU2116-0DB1**		5	**3RU2116-0DC1**	
	10	0.09	0.28 ... 0.4	2	5	**3RU2116-0EB1**		5	**3RU2116-0EC1**	
	10	0.12	0.35 ... 0.5	2	5	**3RU2116-0FB1**		5	**3RU2116-0FC1**	
	10	0.18	0.45 ... 0.63	2	5	**3RU2116-0GB1**		5	**3RU2116-0GC1**	
	10	0.18	0.55 ... 0.8	4	▶	**3RU2116-0HB1**		5	**3RU2116-0HC1**	
	10	0.25	0.7 ... 1	4	▶	**3RU2116-0JB1**		▶	**3RU2116-0JC1**	
	10	0.37	0.9 ... 1.25	4	▶	**3RU2116-0KB1**		5	**3RU2116-0KC1**	
	10	0.55	1.1 ... 1.6	6	▶	**3RU2116-1AB1**		5	**3RU2116-1AC1**	
	10	0.75	1.4 ... 2	6	▶	**3RU2116-1BB1**		5	**3RU2116-1BC1**	
	10	0.75	1.8 ... 2.5	10	▶	**3RU2116-1CB1**		5	**3RU2116-1CC1**	
	10	1.1	2.2 ... 3.2	10	▶	**3RU2116-1DB1**		▶	**3RU2116-1DC1**	
	10	1.5	2.8 ... 4	16	▶	**3RU2116-1EB1**		5	**3RU2116-1EC1**	
	10	1.5	3.5 ... 5	20	▶	**3RU2116-1FB1**		5	**3RU2116-1FC1**	
	10	2.2	4.5 ... 6.3	20	▶	**3RU2116-1GB1**		▶	**3RU2116-1GC1**	
	10	3	5.5 ... 8	25	▶	**3RU2116-1HB1**		▶	**3RU2116-1HC1**	
	10	4	7 ... 10	35	▶	**3RU2116-1JB1**		▶	**3RU2116-1JC1**	
	10	5.5	9 ... 12.5	35	▶	**3RU2116-1KB1**		5	**3RU2116-1KC1**	
	10	7.5	11 ... 16	40	▶	**3RU2116-4AB1**		▶	**3RU2116-4AC1**	
Size S0										
S0	10	7.5	14 ... 20	50	▶	**3RU2126-4BB1**		5	**3RU2126-4BC1**	
	10	11	17 ... 22	63	5	**3RU2126-4CB1**		5	**3RU2126-4CC1**	
	10	11	20 ... 25	63	▶	**3RU2126-4DB1**		5	**3RU2126-4DC1**	
	10	15	23 ... 28	63	5	**3RU2126-4NB1**		5	**3RU2126-4NC1**	
	10	15	27 ... 32	80	5	**3RU2126-4EB1**		5	**3RU2126-4EC1**	
	10	18.5	30 ... 36	80	5	**3RU2126-4PB1**		5	**3RU2126-4PC1**	
	10	18.5	34 ... 40	80	5	**3RU2126-4FB1**		5	**3RU2126-4FC1**	

[1] 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.

[2] Maximum protection by fuse only for overload relays, type of coordination "2". For fuse values in connection with contactors, see Configuration Manual.

*** You can order this quantity or a multiple thereof.**
Illustrations are approximate

3RU21 thermal overload relays for stand-alone installation, sizes S2 and S3, CLASS 10 or 10A

Features and technical specifications:

- Connection methods
  - Main circuit: Screw terminals with box terminal
  - Auxiliary circuit: Either screw or spring-loaded terminals
- Auxiliary contacts 1 NO + 1 NC
- Manual and Automatic RESET
- Switch position indicator
- TEST function
- STOP button
- Sealable covers (optional accessory)

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

3RU2136-..B1

3RU2136-..D1

3RU2146-..B1

3RU2146-..D1

Size contactor	Trip class	Rated power for three-phase motors, rated value[1]	Current setting value of the inverse-time delayed overload release	Short-circuit protection with fuse, type of coordination "2", operational class gG[2]	SD	**Screw terminals**	SD	**Spring-loaded terminals**
						Article No. Price per PU		Article No. Price per PU
	CLASS	kW	A	A	d		d	
Size S2								
S2	10	15	22 ... 32	80	5	**3RU2136-4EB1**	5	**3RU2136-4ED1**
	10	18.5	28 ... 40	80	5	**3RU2136-4FB1**	5	**3RU2136-4FD1**
	10	22	36 ... 45	100	2	**3RU2136-4GB1**	5	**3RU2136-4GD1**
	10	22	40 ... 50	100	2	**3RU2136-4HB1**	5	**3RU2136-4HD1**
	10	30	47 ... 57	100	2	**3RU2136-4QB1**	5	**3RU2136-4QD1**
	10	30	54 ... 65	125	2	**3RU2136-4JB1**	5	**3RU2136-4JD1**
	10A	37	62 ... 73	160	2	**3RU2136-4KB1**	5	**3RU2136-4KD1**
	10A	37	70 ... 80	160	2	**3RU2136-4RB1**	5	**3RU2136-4RD1**
Size S3								
S3	10	30	45 ... 63	125	2	**3RU2146-4JB1**	5	**3RU2146-4JD1**
	10	37	57 ... 75	160	2	**3RU2146-4KB1**	5	**3RU2146-4KD1**
	10	45	70 ... 90	160	2	**3RU2146-4LB1**	5	**3RU2146-4LD1**
	10	45	80 ... 100[3]	200	2	**3RU2146-4MB1**	5	**3RU2146-4MD1**

[1] 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.

[2] Maximum protection by fuse only for overload relays, type of coordination "2". For fuse values in connection with contactors, see Configuration Manual.

[3] For overload relays > 100 A, see 3RB2 electronic overload relays, page 7/110 onwards.

*** You can order this quantity or a multiple thereof.**
Illustrations are approximate

Accessories

Overview

The following optional accessories are available for the 3RU21 thermal overload relays:

- Size-specific terminal support for stand-alone installation, in sizes S00 and S0 also with spring-loaded terminals
- 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)
- Sealable cover (for all sizes)
- Terminal covers for devices with screw terminals (box terminals) and ring terminal lug connections

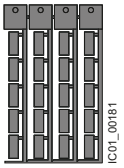
Selection and ordering data

	Version	Size	SD	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
			d					
Terminal supports for stand-alone installation								
 3RU2916-3AA01	**Terminal supports for overload relays with screw terminals**			**Screw terminals**				
	For separate mounting of the overload relays; screw and snap-on mounting onto standard mounting rail	S00	►	**3RU2916-3AA01**		1	1 unit	41F
		S0	►	**3RU2926-3AA01**		1	1 unit	41F
		S2	►	**3RU2936-3AA01**		1	1 unit	41F
		S3	2	**3RU2946-3AA01**		1	1 unit	41F
 3RU2926-3AA01	**Terminal supports for overload relays with spring-loaded terminals**			**Spring-loaded terminals**				
	For separate mounting of the overload relays; screw and snap-on mounting onto standard mounting rail	S00	►	**3RU2916-3AC01**		1	1 unit	41F
		S0	►	**3RU2926-3AC01**		1	1 unit	41F
 3RU2936-3AA01								
 3RU2946-3AA01								
 3RU2916-3AC01								
 3RU2926-3AC01								
Mechanical RESET								
 3RU2900-1A with pushbutton and extension plunger	**Resetting plungers, holders and formers**	S00 ... S3	2	**3RU2900-1A**		1	1 unit	41F
	Pushbuttons with extended stroke (12 mm), IP65, ⌀ 22 mm	S00 ... S3	►	**3SU1200-0FB10-0AA0**		1	1 unit	41J
	Extension plungers For compensation of the distance between the pushbutton and the unlatching button of the relay	S00 ... S3	►	**3SU1900-0KG10-0AA0**		1	1 unit	41J

* You can order this quantity or a multiple thereof.
Illustrations are approximate

	Version	Size	SD d	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Cable releases with holder for RESET								
 3RU2900-1.	For ⌀ 6.5 mm holes in the control panel; max. control panel thickness 8 mm							
	• Length 400 mm	S00 ... S3	2	**3RU2900-1B**		1	1 unit	41F
	• Length 600 mm	S00 ... S3	2	**3RU2900-1C**		1	1 unit	41F
Modules for Remote RESET, electrical								
 3RU1900-2A.71	Operating range 0.85 ... 1.1 x U_s, Power consumption 80 VA AC, 70 W DC, ON time 0.2 ... 4 s, Switching frequency 60/h							
	• 24 ... 30 V AC/DC	S00 ... S3	▶	**3RU1900-2AB71**		1	1 unit	41F
	• 110 ... 127 V AC/DC	S00 ... S3	2	**3RU1900-2AF71**		1	1 unit	41F
	• 220 ... 250 V AC/DC	S00 ... S3	▶	**3RU1900-2AM71**		1	1 unit	41F
Sealable covers								
 3RV2908-0P	For covering the setting knobs	S00 ... S3	▶	**3RV2908-0P**		100	10 units	41E
Terminal covers								
 3RT2936-4EA2	**Covers for devices with screw terminals (box terminals)** Additional touch protection for fastening to the box terminals			**Screw terminals**				
	• Main current level	S2	▶	**3RT2936-4EA2**		1	1 unit	41B
		S3	▶	**3RT2946-4EA2**		1	1 unit	41B

General accessories

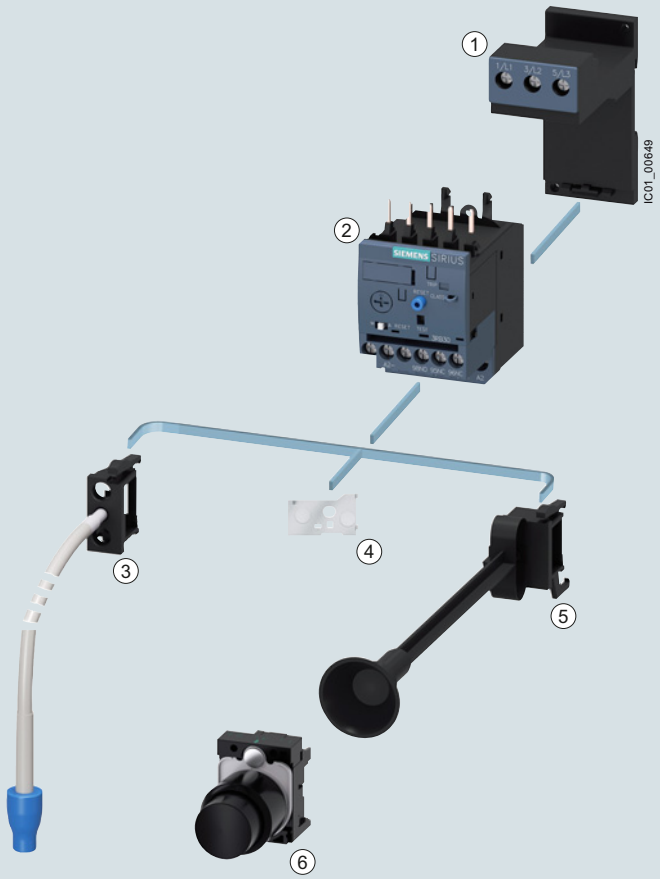
	Version	Size	Color	For overload relays	SD d	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Tools for opening spring-loaded terminals										
 3RA2908-1A	**Screwdrivers** For all SIRIUS devices with spring-loaded terminals	Length approx. 200 mm, 3.0 mm x 0.5 mm	Titanium gray/ black, partially insulated	Main and auxiliary circuit connection: 3RU2	2	**Spring-loaded terminals** **3RA2908-1A**		1	1 unit	41B
Blank labels										
 3RT2900-1SB20	**Unit labeling plates**[1] For SIRIUS devices	20 mm x 7 mm	Titanium gray	3RU2	20	**3RT2900-1SB20**		100	340 units	41B

1) PC labeling system for individual inscription of unit labeling plates available from: murrplastik Systemtechnik GmbH (see page 16/15).

3RB30, 3RB31 for standard applications

Overview

More information	
Homepage, see www.siemens.com/sirius-overloadrelays	Application Manual "SIRIUS Controls with IE3/IE4 motors", see https://support.industry.siemens.com/cs/ww/en/view/94770820
Industry Mall, see www.siemens.com/product?3RB3	Equipment Manual, see https://support.industry.siemens.com/cs/ww/en/view/60298164
TIA Selection Tool Cloud (TST Cloud), see https://www.siemens.com/tstcloud/?node=ElectronicOverloadRelay	Characteristics and certificates, see https://support.industry.siemens.com/cs/ww/en/ps/16276
Conversion tool for article numbers, see www.siemens.com/sirius/conversion-tool	

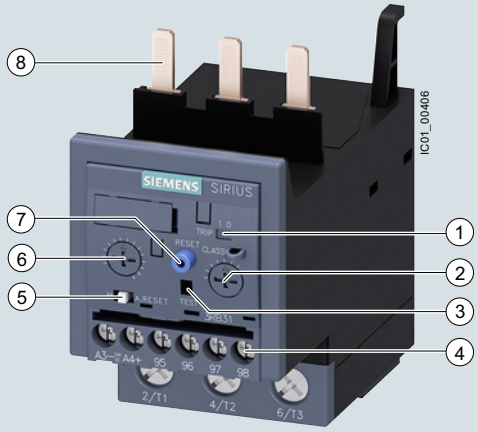


1. Stand-alone assembly support for 3RU2 and 3RB3
2. 3RB30, 3RB31 electronic overload relay, sizes S00 to S3

Mountable accessories

3. Cable release with holder for RESET
4. Sealable cover
5. Mechanical RESET
6. Pushbutton

Mountable accessories for 3RB30 and 3RB31 electronic overload relays



(1) Switch position indicator and TEST function of the wiring:
Indicates a trip and enables the wiring test.

(2) Trip class setting/internal ground-fault detection (only 3RB31):
Using the rotary switch you can set the required trip class and activate the internal ground-fault detection dependent on the starting conditions.

(3) Solid-state test (device test):
Enables a test of all important device components and functions.

(4) Connecting terminals (removable joint block for auxiliary circuits):
Depending on the device version, the connecting terminals are screw terminals or spring-loaded terminals for the main and auxiliary circuits.

(5) Selector switch for Manual/Automatic RESET:
With the slide switch you can choose between Manual and Automatic RESET.

(6) Motor current setting:
Setting the device to the rated motor current is easy with the large rotary knob.

(7) A device set to Manual RESET can be reset locally by pressing the RESET button. On 3RB31 overload relays an electrical Automatic RESET is integrated.

(8) Connection for mounting onto contactors:
Optimally adapted in electrical, mechanical and design terms to the contactors 3RT2. The overload relay can be connected directly using these connection pins. Stand-alone installation is possible as an alternative (in conjunction with a terminal support for stand-alone installation).

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

SIRIUS 3RB3133-4.B0 electronic overload relay

The 3RB30/3RB31 electronic overload relays up to 115 A with internal power supply have been designed for current-dependent protection of loads with normal and heavy starting, and to protect against excessive temperature rises due to overload, phase asymmetry or phase failure. An overload, phase asymmetry or phase failure result in an increase of the motor current beyond the set rated motor current. This current rise is detected by the current transformers integrated into the devices and evaluated by corresponding electronic circuits which then output a pulse to the auxiliary contacts. 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 the current setting I_e and is stored in the form of a long-term stable tripping characteristic curve (see Characteristics).

In addition to inverse-time delayed protection of loads against excessive temperature rises due to overload, phase asymmetry and phase failure, the 3RB31 electronic overload relays also allow internal ground-fault detection (not possible in conjunction with contactor assemblies for star-delta (wye-delta) starting). This provides protection of loads against high-resistance short circuits due to damage to the insulation material, moisture, condensed water, etc.

The "tripped" status is signaled by means of a switch position indicator. The relay is reset manually or automatically after the recovery time has elapsed.

The 3RB3 electronic overload relays are suitable for operation with frequency converters.

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.

For 3RB20 and 3RB21 overload relays in sizes S6 to S10/S12, see page 7/117 onwards.

Use in hazardous areas

The 3RB30/3RB31 electronic overload relays are suitable for the overload protection of motors with the following types of protection:

- Ex II (2) G [Ex e] [Ex d] [Ex px]
- Ex II (2) D [Ex t] [Ex p]

EC type test certificate for Group II, Category (2) G/D exists. It has the number PTB 09 ATEX 3001.

3RB30, 3RB31 for standard applications

Article No. scheme

Product versions		Article number
Electronic overload relays		**3RB3** □ □ □ – □ □ □ □
Device type	e.g. 0 = standard device, with internal supply, for three-phase loads	□
Size, rated operational current and power	e.g. 1 = 16 A (7.5 kW) for size S00	□
Version of the Automatic RESET, electrical Remote RESET	e.g. 6 = switchable between Manual/Auto RESET	□
Trip class (CLASS)	e.g. 1 = CLASS 10E	□
Setting range of the overload release	e.g. R = 0.1 ... 0.4 A	□
Connection methods	e.g. B = screw terminals for main and auxiliary circuits	□
Installation type	e.g. 0 = mounting on contactor	□
Example		**3RB3 0 1 6 – 1 R B 0**

Note:

The Article No. scheme shows an overview of product versions for better understanding of the logic behind the article numbers.

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

Benefits

The most important features and benefits of the 3RB30/3RB31 electronic overload relays are listed in the overview table (see "General data" page 7/79 onwards).

Application

Industries

The 3RB30/3RB31 electronic 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 and heavy starting conditions (CLASS 5E to 30E), minimize project completion times, inventories and energy consumption, and optimize plant availability and maintenance management.

Application

The 3RB30/3RB31 electronic overload relays have been designed for the protection of three-phase motors in sinusoidal 50/60 Hz voltage networks. The relays are not suitable for the protection of single-phase AC or DC loads.

The 3RU21 thermal overload relay or the 3RB22/3RB23/3RB24 electronic overload relay can be used for single-phase AC loads. For DC loads we recommend the 3RU21 thermal overload relay.

Ambient conditions

The devices are insensitive to external influences such as shocks, corrosive ambient conditions, ageing and temperature fluctuations.

For the temperature range from -25 °C to +60 °C, the 3RB30/3RB31 electronic overload relays compensate the temperature in accordance with IEC 60947-4-1.

Use of SIRIUS protection devices in conjunction with IE3/IE4 motors

Note:

For the use of 3RB30/3RB31 electronic overload relays in conjunction with highly energy-efficient IE3/IE4 motors, please observe the information on dimensioning and configuring, see Application Manual.

For more information, see page 1/7.

Technical specifications

More information	
System Manual "SIRIUS – System Overview", see https://support.industry.siemens.com/cs/ww/en/view/60311318	Equipment Manual, see https://support.industry.siemens.com/cs/ww/en/view/60298164
Configuration Manual "Load Feeders – SIRIUS Modular System", see https://support.industry.siemens.com/cs/ww/en/view/39714188	Technical specifications, see https://support.industry.siemens.com/cs/ww/en/ps/16276/td

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

Type		**3RB3016, 3RB3113**	**3RB3026, 3RB3123**	**3RB3036, 3RB3133**	**3RB3046, 3RB3143**
Size		S00	S0	S2	S3
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 94	55 x 105 x 117	70 x 106 x 124
• Spring-loaded terminals	mm	45 x 102 x 80	45 x 116 x 95	55 x 105 x 117	70 x 106 x 124
General data					
Tripping in the event of		Overload, phase failure, and phase asymmetry + ground fault (for 3RB31 only)			
Trip class acc. to IEC 60947-4-1	Class	3RB30: 10E, 20E; 3RB31: 5E, 10E, 20E or 30E adjustable			
Phase failure sensitivity		Yes			
Reset and recovery					
• Reset options after tripping		Manual and Automatic RESET, 3RB31 has an integrated connection for electrical Remote RESET (24 V DC)			
• Recovery time					
- For Automatic RESET		Approx. 3 min			
- For Manual RESET		Immediately			
- For Remote RESET		Immediately			
Features					
• Display of operating state on device		Yes, by means of switch position indicator slide			
• TEST function		Yes, test of electronics by pressing the TEST button/ test of auxiliary contacts and wiring of control circuit by actuating the switch position indicator slide/ self-monitoring			
• RESET button		Yes			
• STOP button		No			
Protection and operation of explosion-proof motors					
Certificate of suitability/explosion protection type according to ATEX directive 2014/34/EU		PTB 09 ATEX 3001 Ex II (2) G [Ex e] [Ex d] [Ex px] Ex II (2) G [Ex t] [Ex p] See https://support.industry.siemens.com/cs/ww/en/view/40591327			
Ambient temperatures					
• Storage/transport	°C	-40 ... +80			
• Operation	°C	-25 ... +60			
• Temperature compensation	°C	+60			
• Permissible rated current at					
- Temperature inside control cabinet 60 °C	%	100			
- Temperature inside control cabinet 70 °C	%	On request			
Repeat terminals					
• Coil repeat terminals		Yes	Not required		
• Auxiliary contact repeat terminal		Yes	Not required		
Degree of protection acc. to IEC 60529					
• Screw terminals/spring-loaded terminals		IP20		- IP20 (front side) - Terminal IP00 (use additional terminal covers for higher degree of protection)	
• Straight-through transformers		--		IP20	
Touch protection acc. to IEC 60529		Finger-safe		Finger-safe, for vertical contact from the front	
Shock resistance with sine acc. to IEC 60068-2-27	*g*/ms	15/11 (signaling contact 97/98 in position "tripped": 9 *g*/11 ms)		15/11 (signaling contact 97/98 in position "tripped": 8 *g*/11 ms)	

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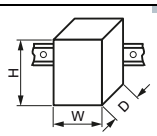
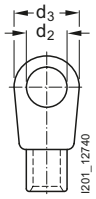
3RB30, 3RB31 for standard applications

Type		**3RB3016, 3RB3113**	**3RB3026, 3RB3123**	**3RB3036, 3RB3133**	**3RB3046, 3RB3143**
Size		S00	S0	S2	S3
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 94	55 x 105 x 117	70 x 106 x 124
• Spring-loaded terminals	mm	45 x 102 x 80	45 x 116 x 95	55 x 105 x 117	70 x 106 x 124
General data (continued)					
Electromagnetic compatibility (EMC) – Interference immunity					
• Conductor-related interference					
- Burst acc. to IEC 61000-4-4 (corresponds to degree of severity 3)	kV	2 (power ports), 1 (signal port)			
- Surge acc. to IEC 61000-4-5 (corresponds to degree of severity 3)	kV	2 (line to earth), 1 (line to line)			
• Electrostatic discharge acc. to IEC 61000-4-2 (corresponds to degree of severity 3)	kV	8 (air discharge), 6 (contact discharge)			
• Field-related interference acc. to IEC 61000-4-3 (corresponds to degree of severity 3)	V/m	10			
Electromagnetic compatibility (EMC) – Emitted interference		Degree of severity B acc. to EN 55011 (CISPR 11) and EN 55022 (CISPR 22)			
Resistance to extreme climates – Air humidity	%	95			
Installation altitude above sea level	m	Up to 2 000			
Mounting position		Any			
Type of mounting		Direct mounting/stand-alone installation with terminal support			

Type		**3RB3016, 3RB3113**	**3RB3026, 3RB3123**	**3RB3036, 3RB3133**	**3RB3046, 3RB3143**
Size		S00	S0	S2	S3
Main circuit					
Rated insulation voltage U_i (pollution degree 3)	V	690		690 1 000 with straight-through transformer	1000
Rated impulse withstand voltage U_{imp}	kV	6		6 8 with straight-through transformer	8
Rated operational voltage U_e	V	690		690 1 000 with straight-through transformer	1000
Type of current					
• Direct current		No			
• Alternating current		Yes, 50/60 Hz ± 5%			
Current setting	A A	0.1 ... 0.4 to 4 ... 16	0.1 ... 0.4 to 10 ... 40	12.5 ... 50 and 20 ... 80	12.5 ... 50 and 32 ... 115
Heavy starting		See Equipment Manual			
Power loss per unit (max.)	W	0.1 ... 1.1	0.1 ... 4.5	0.5 ... 4.6	0.9 ... 4.6
Short-circuit protection					
• With fuse without contactor		See "Selection and ordering data", pages 7/105 ... 7/107			
• With fuse and contactor		"Short-Circuit Protection with Fuses/Motor Starter Protectors for Motor Feeders", see Configuration Manual.			
Protective separation between main and auxiliary current paths Acc. to IEC 60947-1 (pollution degree 2)					
• For systems with grounded neutral point	V	690			
• For systems with ungrounded neutral point	V	600			

Type		**3RB3016, 3RB3113**	**3RB3026, 3RB3123**	**3RB3036, 3RB3133**	**3RB3046, 3RB3143**
Size		S00	S0	S2	S3
Conductor cross-sections of main circuit					
Connection type		**Screw terminals**			**Screw terminals with box terminal**
Terminal screw		M3, Pozidriv size 2	M4, Pozidriv size 2		4 mm Allen screw
Operating devices	mm	⌀ 5 ... 6	⌀ 5 ... 6		4 mm Allen screw
Prescribed tightening torque	Nm	0.8 ... 1.2	2 ... 2.5		4.5 ... 6
Conductor cross-sections (min./max.), 1 or 2 conductors can be connected					
• Solid or stranded	mm^2	2 x (0.5 ... 1.5)[1], 2 x (0.75 ... 2.5)[1], 2 x (0.5 ... 4)[1]	2 x (1 ... 2.5)[1], 2 x (2.5 ... 10)[1]	1 x (1 ... 50)[1], 2 x (1 ... 35)[1]	2 x (2.5 ... 16)[1], 2 x (10 ... 50)[1], 1 x (10 ... 70)[1]
• Finely stranded with end sleeve (DIN 46228)	mm^2	2 x (0.5 ... 1.5)[1], 2 x (0.75 ... 2.5)[1]	2 x (1 ... 2.5)[1], 2 x (2.5 ... 6)[1], max. 1 x 10	2 x (1 ... 25)[1], 1 x (1 ... 35)[1]	2 x (2.5 ... 35)[1], 1 x (2.5 ... 50)[1]
• AWG cables, solid or stranded	AWG	2 x (20 ... 16)[1], 2 x (18 ... 14)[1], 2 x 12	2 x (16 ... 12)[1], 2 x (14 ... 8)[1]	2 x (18 ... 2)[1], 1 x (18 ... 1)[1]	2 x (10 ... 1/0)[1], 1 x (10 ... 2/0)[1]
Removable box terminals[2]					
• With copper bars[3]	mm	--	--	--	2 x 12 x 4
• With cable lugs[4]					
- Terminal screw		--	--	--	M6
- Prescribed tightening torque	Nm	--	--	--	4.5 ... 6
- Usable ring terminal lugs	mm	--	--	--	d_2 = min. 6.3 d_3 = max. 19
Connection type		**Spring-loaded terminals**			
Operating devices	mm	3.0 x 0.5 and 3.5 x 0.5			
Conductor cross-sections (min./max.), 1 conductor can be connected					
• Solid or stranded	mm^2	1 x (0.5 ... 4)	1 x (1 ... 10)	--	
• Finely stranded without end sleeve	mm^2	1 x (0.5 ... 2.5)	1 x (1 ... 6)	--	
• Finely stranded with end sleeve (DIN 46228)	mm^2	1 x (0.5 ... 2.5)	1 x (1 ... 6)	--	
• AWG cables, solid or stranded	AWG	1 x (20 ... 12)	1 x (18 ... 8)	--	
• Max. external diameter of the conductor insulation	mm	3.6	6.4	--	
Connection type		**Straight-through transformers**			
Diameter of opening	mm	--		15	18



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

2) Cable lug and busbar connection possible after removing the box terminals.

3) If bars larger than 12 mm x 10 mm are connected, a 3RT2946-4EA2 cover is needed to maintain the required phase clearance, see page 7/109.

4) If conductors larger than 25 mm^2 are connected, the 3RT2946-4EA2 cover is needed to maintain the required phase clearance, see page 7/109.

3RB30, 3RB31 for standard applications

Type		3RB3016, 3RB3113	3RB3026, 3RB3123	3RB3036, 3RB3133	3RB3046, 3RB3143
Size		S00	S0	S2	S3
Auxiliary circuit					
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	300			
Rated impulse withstand voltage U_{imp}	kV	4			
Auxiliary contacts – Contact rating					
• NC, NO 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			
- 250 V	A	3			
• NC, NO contacts with direct current DC-13, rated operational current I_e at U_e					
- 24 V	A	2			
- 60 V	A	0.55			
- 110 V	A	0.3			
- 125 V	A	0.3			
- 250 V	A	0.11			
• Conventional thermal current I_{th}	A	5			
• Contact reliability (suitability for PLC control; 17 V, 5 mA)		Yes			
Short-circuit protection					
• With fuse, operational class gG	A	6			
Ground-fault protection (only 3RB31)		The information refers to sinusoidal residual currents at 50/60 Hz.			
• Tripping value I_Δ		> 0.75 × I_{motor}			
• Operating range I		Lower current setting < I_{motor} < 3.5 × upper current setting			
• Response time t_{trip} (in steady-state condition)	s	< 1			
Integrated electrical Remote RESET (only 3RB31)					
Connecting terminals A3, A4		24 V DC, max. 200 mA for approx. 20 ms, then < 10 mA			
Protective separation between auxiliary current paths acc. to IEC 60947-1	V	300			

Type		3RB3016, 3RB3113	3RB3026, 3RB3123	3RB3036, 3RB3133	3RB3046, 3RB3143
Size		S00	S0	S2	S3
CSA, UL, UR rated data					
Auxiliary circuit – Switching capacity		B600, R300			
Conductor cross-sections for auxiliary circuit					
Connection type		**Screw terminals**			
Terminal screw		M3, Pozidriv size 2			
Operating devices	mm	⌀ 5 ... 6			
Prescribed tightening torque	Nm	0.8 ... 1.2			
Conductor cross-sections (min./max.), 1 or 2 conductors can be connected					
• Solid or stranded	mm^2	1 × (0.5 ... 4)[1], 2 × (0.5 ... 2.5)[1]			
• Finely stranded with end sleeve (DIN 46228)	mm^2	1 × (0.5 ... 2.5)[1], 2 × (0.5 ... 1.5)[1]			
• AWG cables, solid or stranded	AWG	2 × (20 ... 14)			
Connection type		**Spring-loaded terminals**			
Operating devices	mm	3.0 x 0.5			
Conductor cross-sections (min./max.), 1 or 2 conductors can be connected					
• Solid or stranded	mm^2	2 × (0.25 ... 1.5)			
• Finely stranded without end sleeve	mm^2	2 × (0.25 ... 1.5)			
• Finely stranded with end sleeve (DIN 46228)	mm^2	2 × (0.25 ... 1.5)			
• AWG cables, solid or stranded	AWG	2 × (24 ... 16)			

[1] 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

3RB30 electronic overload relays, CLASS 10E

Features and technical specifications:

- Connection methods
  - Sizes S00 and S0:
    Main and auxiliary circuit: Either screw or spring-loaded terminals
  - Sizes S2 and S3:
    Main circuit: Screw terminals with box terminal or as straight-through transformer
    Auxiliary circuit: Either screw or spring-loaded terminals
- Overload protection, phase failure protection and asymmetry protection
- Internal power supply
- Auxiliary contacts 1 NO + 1 NC
- Manual and Automatic RESET
- Switch position indicator
- TEST function and self-monitoring
- Sealable covers (optional accessory)

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


3RB3016-1.B0


3RB3026-1.B0


3RB3036-1.B0


3RB3036-1.W1


3RB3046-1.B0


3RB3046-1.W1

Size contactor	Rated power for three-phase motors, rated value[1]	Current setting value of the inverse-time delayed overload release	Short-circuit protection with fuse, type of coordination "2", operational class gG[2]	SD	Screw terminals		SD	Spring-loaded terminals	
					Article No.	Price per PU		Article No.	Price per PU
	kW	A	A	d			d		
Size S00									
S00	***Devices for mounting onto contactor[3]***								
	0.04 ... 0.09	0.1 ... 0.4	4	▶	**3RB3016-1RB0**		2	**3RB3016-1RE0**	
	0.12 ... 0.37	0.32 ... 1.25	6	▶	**3RB3016-1NB0**		2	**3RB3016-1NE0**	
	0.37 ... 1.5	1 ... 4	20	▶	**3RB3016-1PB0**		2	**3RB3016-1PE0**	
	1.5 ... 5.5	3 ... 12	25	▶	**3RB3016-1SB0**		2	**3RB3016-1SE0**	
	2.2 ... 7.5	4 ... 16	25	▶	**3RB3016-1TB0**		2	**3RB3016-1TE0**	
Size S0									
S0	***Devices for mounting onto contactor[3]***								
	0.04 ... 0.09	0.1 ... 0.4	4	▶	**3RB3026-1RB0**		2	**3RB3026-1RE0**	
	0.12 ... 0.37	0.32 ... 1.25	6	▶	**3RB3026-1NB0**		2	**3RB3026-1NE0**	
	0.37 ... 1.5	1 ... 4	20	▶	**3RB3026-1PB0**		2	**3RB3026-1PE0**	
	1.5 ... 5.5	3 ... 12	25	▶	**3RB3026-1SB0**		2	**3RB3026-1SE0**	
	3 ... 11	6 ... 25	50	▶	**3RB3026-1QB0**		2	**3RB3026-1QE0**	
	5.5 ... 18.5	10 ... 40	50	▶	**3RB3026-1VB0**		2	**3RB3026-1VE0**	
Size S2									
S2	***Devices with screw terminals (main current side) and for mounting onto contactor[3]***								
	7.5 ... 22	12.5 ... 50	250	▶	**3RB3036-1UB0**		▶	**3RB3036-1UD0**	
	11 ... 37	20 ... 80	250	▶	**3RB3036-1WB0**		▶	**3RB3036-1WD0**	
	Devices with straight-through transformer for stand-alone installation								
	7.5 ... 22	12.5 ... 50	250	▶	**3RB3036-1UW1**		▶	**3RB3036-1UX1**	
	11 ... 37	20 ... 80	250	▶	**3RB3036-1WW1**		▶	**3RB3036-1WX1**	
Size S3									
S3	***Devices with screw terminals (main current side) and for mounting onto contactor[3]***								
	7.5 ... 22	12.5 ... 50	200	▶	**3RB3046-1UB0**		2	**3RB3046-1UD0**	
	18.5 ... 55	32 ... 115	315	▶	**3RB3046-1XB0**		2	**3RB3046-1XD0**	
	Devices with straight-through transformer for stand-alone installation								
	7.5 ... 22	12.5 ... 50	200	▶	**3RB3046-1UW1**		2	**3RB3046-1UX1**	
	18.5 ... 55	32 ... 115	315	▶	**3RB3046-1XW1**		2	**3RB3046-1XX1**	

[1] 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.

[2] Maximum protection by fuse only for overload relays, type of coordination "2". For fuse values in connection with contactors, see Configuration Manual.

[3] With the appropriate terminal supports (see "Accessories", page 7/108), these overload relays can also be installed as stand-alone units.

Note:

For reliable operational current, note derating information, see Equipment Manual.

*** You can order this quantity or a multiple thereof.**
Illustrations are approximate

3RB30, 3RB31 for standard applications *IE3/IE4* ready

3RB30 electronic overload relays, CLASS 20E

Features and technical specifications:

- Connection methods
  - Sizes S00 and S0:
    Main and auxiliary circuit: Either screw or spring-loaded terminals
  - Sizes S2 and S3:
    Main circuit: Screw terminals with box terminal or as straight-through transformer
    Auxiliary circuit: Either screw or spring-loaded terminals
- Overload protection, phase failure protection and asymmetry protection
- Internal power supply
- Auxiliary contacts 1 NO + 1 NC
- Manual and Automatic RESET
- Switch position indicator
- TEST function and self-monitoring
- Sealable covers (optional accessory)

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


3RB3016-2.B0


3RB3026-2.B0


3RB3036-2.B0


3RB3036-2.W1


3RB3046-2.B0


3RB3046-2.W1

Size contactor	Rated power for three-phase motors, rated value[1]	Current setting value of the inverse-time delayed overload release	Short-circuit protection with fuse, type of coordination "2", operational class gG[2]	SD	Screw terminals		SD	Spring-loaded terminals	
					Article No.	Price per PU		Article No.	Price per PU
	kW	A	A	d			d		
Size S00									
S00	***Devices for mounting onto contactor[3]***								
	0.04 ... 0.09	0.1 ... 0.4	4	▶	**3RB3016-2RB0**		2	**3RB3016-2RE0**	
	0.12 ... 0.37	0.32 ... 1.25	6	▶	**3RB3016-2NB0**		2	**3RB3016-2NE0**	
	0.37 ... 1.5	1 ... 4	20	▶	**3RB3016-2PB0**		2	**3RB3016-2PE0**	
	1.5 ... 5.5	3 ... 12	25	▶	**3RB3016-2SB0**		2	**3RB3016-2SE0**	
	2.2 ... 7.5	4 ... 16	25	▶	**3RB3016-2TB0**		2	**3RB3016-2TE0**	
Size S0									
S0	***Devices for mounting onto contactor[3]***								
	0.04 ... 0.09	0.1 ... 0.4	4	▶	**3RB3026-2RB0**		2	**3RB3026-2RE0**	
	0.12 ... 0.37	0.32 ... 1.25	6	▶	**3RB3026-2NB0**		2	**3RB3026-2NE0**	
	0.37 ... 1.5	1 ... 4	20	▶	**3RB3026-2PB0**		2	**3RB3026-2PE0**	
	1.5 ... 5.5	3 ... 12	25	▶	**3RB3026-2SB0**		2	**3RB3026-2SE0**	
	3 ... 11	6 ... 25	50	▶	**3RB3026-2QB0**		2	**3RB3026-2QE0**	
	5.5 ... 18.5	10 ... 40	50	▶	**3RB3026-2VB0**		2	**3RB3026-2VE0**	
Size S2									
S2	***Devices with screw terminals (main current side) and for mounting onto contactor[3]***								
	7.5 ... 22	12.5 ... 50	250	▶	**3RB3036-2UB0**		▶	**3RB3036-2UD0**	
	11 ... 37	20 ... 80	250	▶	**3RB3036-2WB0**		▶	**3RB3036-2WD0**	
	Devices with straight-through transformer for stand-alone installation								
	7.5 ... 22	12.5 ... 50	250	▶	**3RB3036-2UW1**		▶	**3RB3036-2UX1**	
	11 ... 37	20 ... 80	250	▶	**3RB3036-2WW1**		▶	**3RB3036-2WX1**	
Size S3									
S3	***Devices with screw terminals (main current side) and for mounting onto contactor[3]***								
	7.5 ... 22	12.5 ... 50	200	▶	**3RB3046-2UB0**		2	**3RB3046-2UD0**	
	18.5 ... 55	32 ... 115	315	▶	**3RB3046-2XB0**		2	**3RB3046-2XD0**	
	Devices with straight-through transformer for stand-alone installation								
	7.5 ... 22	12.5 ... 50	200	▶	**3RB3046-2UW1**		2	**3RB3046-2UX1**	
	18.5 ... 55	32 ... 115	315	▶	**3RB3046-2XW1**		2	**3RB3046-2XX1**	

[1] 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.

[2] Maximum protection by fuse only for overload relays, type of coordination "2". For fuse values in connection with contactors, see Configuration Manual.

[3] With the appropriate terminal supports (see "Accessories", page 7/108), these overload relays can also be installed as stand-alone units.

*** You can order this quantity or a multiple thereof.**
Illustrations are approximate

3RB31 electronic overload relays, CLASS 5E, 10E, 20E or 30E (adjustable)

Features and technical specifications:

- Connection methods
  - Sizes S00 and S0:
    Main and auxiliary circuit: Either screw or spring-loaded terminals
  - Sizes S2 and S3:
    Main circuit: Screw terminals with box terminal or as straight-through transformer
    Auxiliary circuit: Either screw or spring-loaded terminals
- Overload protection, phase failure protection and asymmetry protection
- Internal ground-fault detection (activatable)
- Internal power supply
- Auxiliary contacts 1 NO + 1 NC
- Manual and Automatic RESET
- Electrical Remote RESET integrated
- Switch position indicator
- TEST function and self-monitoring
- Sealable covers (optional accessory)

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


3RB3113-4TB0


3RB3123-4VB0


3RB3133-4.B0


3RB3133-4.W1


3RB3143-4.B0


3RB3143-4.W1

Size contactor	Rated power for three-phase motors, rated value[1]	Current setting value of the inverse-time delayed overload release	Short-circuit protection with fuse, type of coordination "2", operational class gG[2]	SD	Screw terminals		SD	Spring-loaded terminals	
					Article No.	Price per PU		Article No.	Price per PU
	kW	A	A	d			d		
Size S00									
S00	***Devices for mounting onto contactor[3]***								
	0.04 ... 0.09	0.1 ... 0.4	4	▶	**3RB3113-4RB0**		2	**3RB3113-4RE0**	
	0.12 ... 0.37	0.32 ... 1.25	6	▶	**3RB3113-4NB0**		2	**3RB3113-4NE0**	
	0.37 ... 1.5	1 ... 4	20	▶	**3RB3113-4PB0**		2	**3RB3113-4PE0**	
	1.5 ... 5.5	3 ... 12	25	▶	**3RB3113-4SB0**		2	**3RB3113-4SE0**	
	2.2 ... 7.5	4 ... 16	25	▶	**3RB3113-4TB0**		2	**3RB3113-4TE0**	
Size S0									
S0	***Devices for mounting onto contactor[3]***								
	0.04 ... 0.09	0.1 ... 0.4	4	▶	**3RB3123-4RB0**		2	**3RB3123-4RE0**	
	0.12 ... 0.37	0.32 ... 1.25	6	▶	**3RB3123-4NB0**		2	**3RB3123-4NE0**	
	0.37 ... 1.5	1 ... 4	20	▶	**3RB3123-4PB0**		2	**3RB3123-4PE0**	
	1.5 ... 5.5	3 ... 12	25	▶	**3RB3123-4SB0**		2	**3RB3123-4SE0**	
	3 ... 11	6 ... 25	50	▶	**3RB3123-4QB0**		2	**3RB3123-4QE0**	
	5.5 ... 18.5	10 ... 40	50	▶	**3RB3123-4VB0**		2	**3RB3123-4VE0**	
Size S2									
S2	***Devices with screw terminals (main current side) and for mounting onto contactor[3]***								
	7.5 ... 22	12.5 ... 50	250	▶	**3RB3133-4UB0**		▶	**3RB3133-4UD0**	
	11 ... 37	20 ... 80	250	▶	**3RB3133-4WB0**		▶	**3RB3133-4WD0**	
	Devices with straight-through transformer for stand-alone installation								
	7.5 ... 22	12.5 ... 50	250	▶	**3RB3133-4UW1**		▶	**3RB3133-4UX1**	
	11 ... 37	20 ... 80	250	▶	**3RB3133-4WW1**		▶	**3RB3133-4WX1**	
Size S3									
S3	***Devices with screw terminals (main current side) and for mounting onto contactor[3]***								
	7.5 ... 22	12.5 ... 50	200	▶	**3RB3143-4UB0**		▶	**3RB3143-4UD0**	
	18.5 ... 55	32 ... 115	315	▶	**3RB3143-4XB0**		▶	**3RB3143-4XD0**	
	Devices with straight-through transformer for stand-alone installation								
	7.5 ... 22	12.5 ... 50	200	▶	**3RB3143-4UW1**		▶	**3RB3143-4UX1**	
	18.5 ... 55	32 ... 115	315	▶	**3RB3143-4XW1**		▶	**3RB3143-4XX1**	

[1] 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.

[2] Maximum protection by fuse only for overload relays, type of coordination "2". For fuse values in connection with contactors, see Configuration Manual.

[3] With the appropriate terminal supports (see "Accessories", page 7/108), these overload relays can also be installed as stand-alone units.

*** You can order this quantity or a multiple thereof.**
Illustrations are approximate

Accessories

Overview

The following optional accessories are available for the 3RB30/3RB31 electronic overload relays:

- Size-specific terminal support for stand-alone installation, in sizes S00 and S0 also with spring-loaded terminals
- Mechanical RESET (for all sizes)
- Cable release for resetting devices which are difficult to access (for all sizes)
- Sealable cover (for all sizes)

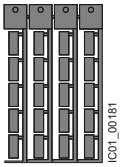
Selection and ordering data

Version	Size	SD	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
		d					
Terminal supports for stand-alone installation							
 3RU2916-3AA01	**Terminal supports for overload relays with screw terminals**		**Screw terminals**				
	For separate mounting of the overload relays; screw and snap-on mounting onto standard mounting rail	S00 ▶	**3RU2916-3AA01**		1	1 unit	41F
		S0 ▶	**3RU2926-3AA01**		1	1 unit	41F
		S2 ▶	**3RU2936-3AA01**		1	1 unit	41F
		S3 2	**3RU2946-3AA01**		1	1 unit	41F
 3RU2926-3AA01	**Terminal supports for overload relays with spring-loaded terminals**		**Spring-loaded terminals**				
	For separate mounting of the overload relays; screw and snap-on mounting onto standard mounting rail	S00 ▶	**3RU2916-3AC01**		1	1 unit	41F
		S0 ▶	**3RU2926-3AC01**		1	1 unit	41F
 3RU2936-3AA01							
 3RU2946-3AA01							
 3RU2916-3AC01							
 3RU2926-3AC01							
Mechanical RESET							
 3RB3980-0A with pushbutton and extension plunger	**Resetting plungers, holders and formers**	S00 ... S3	2	**3RB3980-0A**		1	1 unit	41F
	Pushbuttons with extended stroke (12 mm), IP65, ⌀ 22 mm	S00 ... S3	▶	**3SU1200-0FB10-0AA0**		1	1 unit	41J
	Extension plungers For compensation of the distance between a pushbutton and the unlatching button of the relay	S00 ... S3	▶	**3SU1900-0KG10-0AA0**		1	1 unit	41J

* You can order this quantity or a multiple thereof.
Illustrations are approximate

	Version	Size	SD d	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Cable releases with holder for RESET								
 3RB3980-0.	For ⌀ 6.5 mm holes in the control panel; max. control panel thickness 8 mm							
	• Length 400 mm	S00 ... S3	2	**3RB3980-0B**		1	1 unit	41F
	• Length 600 mm	S00 ... S3	2	**3RB3980-0C**		1	1 unit	41F
Sealable covers								
 3RB3984-0	For covering the setting knobs	S00 ... S3	2	**3RB3984-0**		1	1 unit	41F
Terminal covers								
 3RT2936-4EA2	**Covers for devices with screw terminals (box terminals)** Additional touch protection for fastening to the box terminals			**Screw terminals**				
	• Main current level	S2	▶	**3RT2936-4EA2**		1	1 unit	41B
		S3	▶	**3RT2946-4EA2**		1	1 unit	41B

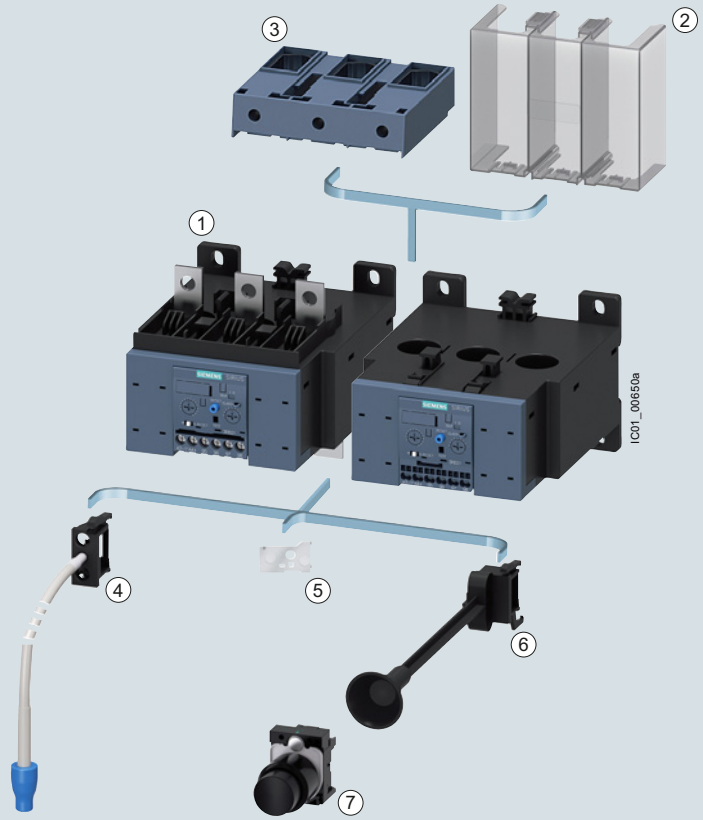
General accessories

	Version	Size	Color	For overload relays	SD d	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Tools for opening spring-loaded terminals										
 3RA2908-1A	**Screwdrivers** For all SIRIUS devices with spring-loaded terminals	Length approx. 200 mm, 3.0 mm x 0.5 mm	Titanium gray/ black, partially insulated	Main and auxiliary circuit connec-tion: 3RB3	2	**Spring-loaded terminals** **3RA2908-1A**		1	1 unit	41B
Blank labels										
 3RT2900-1SB20	**Unit labeling plates**[1] For SIRIUS devices	20 mm x 7 mm	Titanium gray	3RB3	20	**3RT2900-1SB20**		100	340 units	41B

[1] PC labeling system for individual inscription of unit labeling plates available from: murrplastik Systemtechnik GmbH (see page 16/15).

Overview

More information	
Homepage, see www.siemens.com/sirius-overloadrelays	Application Manual "SIRIUS Controls with IE3/IE4 motors", see https://support.industry.siemens.com/cs/ww/en/view/94770820
Industry Mall, see www.siemens.com/product?3RB2	Equipment Manual, see https://support.industry.siemens.com/cs/ww/en/view/60298164
Conversion tool for article numbers, see www.siemens.com/sirius/conversion-tool	Characteristics and certificates, see https://support.industry.siemens.com/cs/ww/en/ps/16278

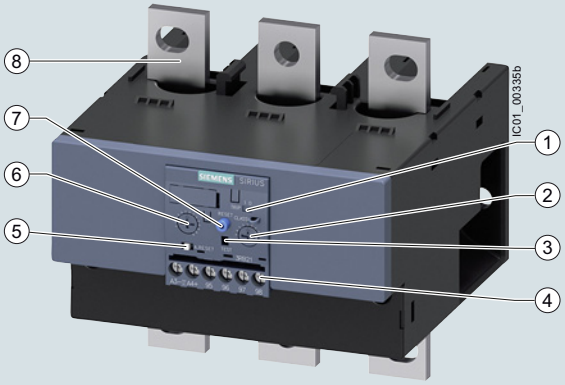


1 3RB2 overload relay
Sizes S6 to S10/S12

Mountable accessories

2 Terminal cover
3 Box terminals
4 Cable release with holder for RESET
5 Sealable cover
6 Mechanical RESET
7 Pushbutton

Mountable accessories for 3RB2 electronic overload relays (sizes S6 to S10/S12)



1. Switch position indicator and TEST function of the wiring:
   Indicates a trip and enables the wiring test.
2. Trip class setting/internal ground-fault detection (only 3RB21):
   Using the rotary switch you can set the required trip class and activate the internal ground-fault detection dependent on the starting conditions.
3. Solid-state test (device test):
   Enables a test of all important device components and functions.
4. Connecting terminals (removable terminal block for auxiliary circuits):
   The generously sized terminals permit connection of two conductors with different cross-sections for the main and auxiliary circuits. The auxiliary circuit can be connected with screw terminals and alternatively with spring-loaded terminals.
5. Selector switch for Manual/Automatic RESET:
   With the slide switch you can choose between Manual and Automatic RESET.
6. Motor current setting:
   Setting the device to the rated motor current is easy with the large rotary knob.
7. A device set to Manual RESET can be reset locally by pressing the RESET button. On the 3RB21 overload relay a solid-state Automatic RESET is integrated.
8. Connection for mounting onto contactors:
   Optimally adapted in electrical, mechanical and design terms to the contactors 3RT1. 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 bracket for stand-alone installation).

SIRIUS 3RB2153-4FW2 electronic overload relay

The 3RB20 and 3RB21 electronic overload relays up to 630 A with internal power supply have been designed for current-dependent protection of loads with normal and heavy starting (see Equipment Manual) against excessive temperature rises due to overload, phase asymmetry or phase failure.

An overload, phase asymmetry or phase failure result in an increase of the motor current beyond the set rated motor current. This current rise is detected by the current transformers integrated into the devices and evaluated by corresponding electronic circuits which then output a pulse to the auxiliary contacts. 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 the current setting I_e and is stored in the form of a long-term stable tripping characteristic curve, see Characteristics.

In addition to inverse-time delayed protection of loads against excessive temperature rises due to overload, phase asymmetry and phase failure, the 3RB21 electronic overload relays also allow internal ground-fault detection (not possible in conjunction with contactor assemblies for star-delta (wye-delta) starting). This provides protection of loads against high-resistance short circuits due to damage to the insulation material, moisture, condensed water, etc.

The "tripped" status is signaled by means of a switch position indicator. The relay is reset manually or automatically after the recovery time has elapsed.

The 3RB2 electronic overload relays are suitable for operation with frequency converters, see Equipment Manual.

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.

For 3RB30 and 3RB31 overload relay sizes S00 to S3, see page 7/105 onwards.

Use in hazardous areas

The 3RB20/3RB21 electronic overload relays are suitable for the overload protection of motors with the following types of protection:

- Ex II (2) G [Ex e] [Ex d] [Ex px]
- Ex II (2) D [Ex t] [Ex p]

EC type test certificate for Group II, Category (2) G/D exists. It has the number PTB 06 ATEX 3001.

3RB20, 3RB21 for standard applications

Article No. scheme

Product versions		Article number								
Electronic overload relays		**3RB2**	□	□	□	–	□	□	□	□
Device type	e.g. 0 = standard device, with internal supply, for three-phase loads		□							
Size, rated operational current and power	e.g. 5 = 200 A (90 kW) for size S6			□						
Version of the Automatic RESET, electrical Remote RESET	e.g. 6 = switchable between Manual/Auto RESET				□					
Trip class (CLASS)	e.g. 1 = CLASS 10E						□			
Setting range of the overload release	e.g. F = 5 ... 200 A							□		
Connection methods	e.g. C = busbar connections main circuit; screw terminals auxiliary circuit								□	
Installation type	e.g. 2 = mounting on contactor and stand-alone installation									□
Example		**3RB2**	**0**	**5**	**6**	**–**	**1**	**F**	**C**	**2**

Note:

The Article No. scheme shows an overview of product versions for better understanding of the logic behind the article numbers.

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

Benefits

The most important features and benefits of the 3RB20/3RB21 electronic overload relays are listed in the overview table (see "General data", page 7/79 onwards).

Application

Industries

The 3RB20 and 3RB21 electronic 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 and heavy starting conditions (CLASS 5E to 30E), minimize project completion times, inventories and energy consumption, and optimize plant availability and maintenance management.

Application

The 3RB20 and 3RB21 electronic overload relays have been designed for the protection of three-phase motors in sinusoidal 50/60 Hz voltage networks. The relays are not suitable for the protection of single-phase AC or DC loads.

The 3RU21 thermal overload relays or the 3RB22 to 3RB24 electronic overload relays can be used for single-phase AC loads. For DC loads we recommend the 3RU21 thermal overload relay.

Ambient conditions

The devices are insensitive to external influences such as shocks, corrosive ambient conditions, ageing and temperature fluctuations.

For the temperature range from -25 °C to +60 °C, the 3RB20 and 3RB21 electronic overload relays compensate the temperature in accordance with IEC 60947-4-1.

For the 3RB20 and 3RB21 electronic overload relays with the sizes S6, S10 and S12, the upper set value of the setting range must be reduced for ambient temperatures > 50 °C by a certain factor.

Use of SIRIUS protection devices in conjunction with IE3/IE4 motors

Note:

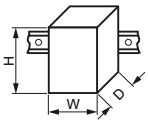
For the use of 3RB20 and 3RB21 electronic overload relays in conjunction with highly energy-efficient IE3/IE4 motors, please observe the information on dimensioning and configuring, see Application Manual.

For more information, see page 1/7.

Technical specifications

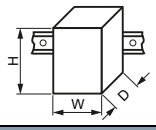
More information	
Configuration Manual "Load Feeders – SIRIUS Modular System", see https://support.industry.siemens.com/cs/ww/en/view/39714188 Equipment Manual, see https://support.industry.siemens.com/cs/ww/en/view/60298164	Technical specifications, see https://support.industry.siemens.com/cs/ww/en/ps/16278/td

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

Type			**3RB2056, 3RB2153**	**3RB2066, 3RB2163**
Size			S6	S10/S12
Dimensions (W x H x D) (overload relay with stand-alone installation support)		mm	120 x 119 x 155	145 x 147 x 156
General data				
Tripping in the event of			Overload, phase failure, and phase asymmetry + ground fault (for 3RB21 only)	
Trip class acc. to IEC 60947-4-1		CLASS	3RB20: 10E or 20E; 3RB21: 5E, 10E, 20E and 30E adjustable	
Phase failure sensitivity			Yes	
Overload warning			No	
Reset and recovery				
• Reset options after tripping			3RB20: Manual and Automatic RESET; 3RB21: Manual, Automatic and Remote RESET	
• Recovery time				
- For Automatic RESET			Approx. 3 min	
- For Manual RESET			Immediately	
- For Remote RESET			Immediately	
Features				
• Display of operating state on device			Yes, by means of switch position indicator slide	
• TEST function			Yes, test of electronics by pressing the TEST button/ test of auxiliary contacts and wiring of control circuit by actuating the switch position indicator slide/ self-monitoring	
• RESET button			Yes	
• STOP button			No	
Protection and operation of explosion-proof motors				
Certificate of suitability/explosion protection type according to ATEX directive 2014/34/EU			PTB 06 ATEX 3001 Ex II (2) G [Ex e] [Ex d] [Ex px] Ex II (2) G [Ex t] [Ex p] See https://support.industry.siemens.com/cs/ww/en/view/23814648	
Ambient temperatures				
• Storage/transport		°C	-40 ... +80	
• Operation		°C	-25 ... +60	
• Temperature compensation		°C	+60	
• Permissible rated current at				
- Temperature inside control cabinet 60 °C, stand-alone installation		%	100	100 or 90[1)]
- Temperature inside control cabinet 60 °C, mounted on contactor		%	70	70
- Temperature inside control cabinet 70 °C		%	On request	
Degree of protection acc. to IEC 60529				
• Screw terminals/busbar connections			- IP20 (front side) - Terminal IP00 (use additional terminal covers for higher degree of protection)	
• Straight-through transformers			IP20	--

1) 90% for relay with current setting range 160 A to 630 A.

3RB20, 3RB21 for standard applications

Type			**3RB2056, 3RB2153**	**3RB2066, 3RB2163**
Size			S6	S10/S12
Dimensions (W x H x D) (overload relay with stand-alone installation support)		mm	120 x 119 x 155	145 x 147 x 156
General data (continued)				
Touch protection acc. to IEC 60529				
• Screw terminals/busbar connections			Finger-safe with terminal covers for vertical contact from the front	
• Straight-through transformers			Finger-safe	--
Shock resistance with sine acc. to IEC 60068-2-27		*g*/ms	15/11 (signaling contact 97/98 in position "tripped": 4 g/11 ms	
Electromagnetic compatibility (EMC) – Interference immunity				
• Conductor-related interference				
- Burst acc. to IEC 61000-4-4 (corresponds to degree of severity 3)		kV	2 (power ports), 1 (signal port)	
- Surge acc. to IEC 61000-4-5 (corresponds to degree of severity 3)		kV	2 (line to earth), 1 (line to line)	
• Electrostatic discharge acc. to IEC 61000-4-2 (corresponds to degree of severity 3)		kV	8 (air discharge), 6 (contact discharge)	
• Field-related interference acc. to IEC 61000-4-3 (corresponds to degree of severity 3)		V/m	10	
Electromagnetic compatibility (EMC) – Emitted interference			Degree of severity B acc. to EN 55011 (CISPR 11) and EN 55022 (CISPR 22)	
Resistance to extreme climates – Air humidity		%	100	
Installation altitude above sea level		m	Up to 2 000	
Mounting position			Any	
Type of mounting			Direct mounting/stand-alone installation	

Type		**3RB2056, 3RB2153**	**3RB2066, 3RB2163**
Size		S6	S10/S12
Main circuit			
Rated insulation voltage U_i (pollution degree 3)	V	1 000	
Rated impulse withstand voltage U_{imp}	kV	8	
Rated operational voltage U_e	V	1 000	
Type of current			
• Direct current		No	
• Alternating current		Yes, 50/60 Hz ± 5%	
Current setting	A	50 ... 200	55 ... 250, 160 ... 630
Power loss per unit (max.)	W	0.05	
Short-circuit protection			
• With fuse without contactor		See "Selection and ordering data", pages 7/117 ... 7/119	
• With fuse and contactor		"Short-Circuit Protection with Fuses/Motor Starter Protectors for Motor Feeders", see Configuration Manual.	
Protective separation between main and auxiliary current paths Acc. to IEC 60947-1 (pollution degree 2)			
• For systems with grounded neutral point	V	690	
• For systems with ungrounded neutral point	V	600	
Conductor cross-sections of the main circuit			
Connection type		**Screw terminals with box terminal**	
Terminal screw	mm	4 mm Allen screw	5 mm Allen screw
Operating devices	mm	4 mm Allen screw	5 mm Allen screw
Prescribed tightening torque	Nm	10 ... 12	20 ... 22
Conductor cross-sections (min./max.), 1 or 2 conductors can be connected			
• Solid	mm^2	--	--
• Finely stranded without end sleeve	mm^2	With 3RT1955-4G box terminal: 2 × (1 × max. 50, 1 × max. 70), 1 × (10 ... 70); With 3RT1956-4G box terminal: 2 × (1 × max. 95, 1 × max. 120), 1 × (10 ... 120)	2 × (50 ... 185), Front clamping point only: 1 × (70 ... 240); Rear clamping point only: 1 × (120 ... 185)
• Finely stranded with end sleeve (DIN 46228)	mm^2	With 3RT1955-4G box terminal: 2 × (1 × max. 50, 1 × max. 70), 1 × (10 ... 70); With 3RT1956-4G box terminal: 2 × (1 × max. 95, 1 × max. 120), 1 × (10 ... 120)	2 × (50 ... 185), Front clamping point only: 1 × (70 ... 240); Rear clamping point only: 1 × (120 ... 185)
• Stranded	mm^2	With 3RT1955-4G box terminal: 2 × (max. 70), 1 × (16 ... 70); With 3RT1956-4G box terminal: 2 × (max. 120), 1 × (16 ... 120)	2 × (70 ... 240), Front clamping point only: 1 × (95 ... 300); Rear clamping point only: 1 × (120 ... 240)
• AWG cables, solid or stranded	AWG	With 3RT1955-4G box terminal: 2 × (max. 1/0), 1 × (6 ... 2/0); With 3RT1956-4G box terminal: 2 × (max. 3/0), 1 × (6 ... 250 kcmil)	2 × (2/0 ... 500 kcmil), Front clamping point only: 1 × (3/0 ... 600 kcmil); Rear clamping point only: 1 × (250 kcmil ... 500 kcmil)
• Ribbon cables (number x width x thickness)	mm	With 3RT1955-4G box terminal: 2 × (6 × 15.5 × 0.8), 1 × (3 × 9 × 0.8 ... 6 × 15.5 × 0.8); With 3RT1956-4G box terminal: 2 × (10 × 15.5 × 0.8), 1 × (3 × 9 × 0.8 ... 10 × 15.5 × 0.8)	2 × (20 × 24 × 0.5), 1 × (6 × 9 × 0.8 ... 20 × 24 × 0.5)
Connection type		**Busbar connections**	
Terminal screw		M8 × 25	M10 × 30
Prescribed tightening torque	Nm	10 ... 14	14 ... 24
Conductor cross-sections (min./max.)			
• Finely stranded with cable lug	mm^2	16 ... 95[1)]	50 ... 240[2)]
• Stranded with cable lug	mm^2	25 ... 120[1)]	70 ... 240[2)]
• AWG cables, solid or stranded, with cable lug	AWG	4 ... 250 kcmil	2/0 ... 500 kcmil
• With connecting bars (max. width)	mm	15	25
Connection type		**Straight-through transformers**	
Diameter of opening	mm	24.5	--

1) When connecting cable lugs according to DIN 46235 with conductor cross-sections of 95 mm^2 and more, the 3RT1956-4EA1 terminal cover must be used to ensure phase clearance, see page 7/120.

2) When connecting cable lugs according to DIN 46234 for conductor cross-sections from 240 mm^2, as well as DIN 46235 for cable cross-sections from 185 mm^2, the 3RT1956-4EA1 terminal cover must be used to ensure phase clearance, see page 7/120.

3RB20, 3RB21 for standard applications

Type		3RB2056, 3RB2153	3RB2066, 3RB2163
Size		S6	S10/S12
Auxiliary circuit			
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	300	
Rated impulse withstand voltage U_{imp}	kV	4	
Auxiliary contacts – Contact rating			
• 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	
- 250 V	A	3	
• NO 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	
- 250 V	A	3	
• NC, NO contacts with direct current DC-13, rated operational current I_e at U_e:			
- 24 V	A	2	
- 60 V	A	0.55	
- 110 V	A	0.3	
- 125 V	A	0.3	
- 250 V	A	0.11	
• Conventional thermal current I_{th}	A	5	
• Contact reliability (suitability for PLC control; 17 V, 5 mA)		Yes	
Short-circuit protection			
• With fuse, operational class gG	A	6	
Ground-fault protection (only 3RB21)		The information refers to sinusoidal residual currents at 50/60 Hz.	
• Tripping value I_Δ		> 0.75 × I_{motor}	
• Operating range I		Lower current setting < I_{motor} < 3.5 × upper current setting	
• Response time t_{trip} (in steady-state condition)	s	< 1	
Integrated electrical Remote RESET (only 3RB21)			
Connecting terminals A3, A4		24 V DC, 100 mA, 2.4 W short-term	
Protective separation between auxiliary current paths acc. to IEC 60947-1	V	300	
CSA, UL, UR rated data			
Auxiliary circuit – Switching capacity		B300, R300	
Conductor cross-sections of the auxiliary circuit			
Connection type		**Screw terminals**	
Terminal screw		M3, Pozidriv size 2	
Operating devices	mm	⌀ 5 ... 6	
Prescribed tightening torque	Nm	0.8 ... 1.2	
Conductor cross-sections (min./max.), 1 or 2 conductors can be connected			
• Solid and stranded	mm^2	1 × (0.5 ... 4)[1], 2 × (0.5 ... 2.5)[1]	
• Finely stranded without end sleeve	mm^2	--	
• Finely stranded with end sleeve (DIN 46228)	mm^2	1 × (0.5 ... 2.5)[1], 2 × (0.5 ... 1.5)[1]	
• AWG cables, solid or stranded	AWG	2 × (20 ... 14)	
Connection type		**Spring-loaded terminals**	
Operating devices	mm	3.0 x 0.5	
Conductor cross-sections (min./max.), 1 or 2 conductors can be connected			
• Solid and stranded	mm^2	2 × (0.25 ... 1.5)	
• Finely stranded without end sleeve	mm^2	--	
• Finely stranded with end sleeve (DIN 46228)	mm^2	2 × (0.25 ... 1.5)	
• AWG cables, solid or stranded	AWG	2 × (24 ... 16)	

[1] 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

3RB20 electronic overload relays for mounting onto contactors and stand-alone installation, CLASS 10E

Features and technical specifications:

- Connection methods
  - Size S6
    Main circuit: With busbar connection or as straight-through transformer (an appropriate connection kit with screws, spring washers and nuts is enclosed with the devices with busbar connection)
    Auxiliary circuit: Either screw or spring-loaded terminals
  - Sizes S10/S12:
    Main circuit: With busbar connection (an appropriate connection kit with screws, spring washers and nuts is enclosed)
    Auxiliary circuit: Either screw or spring-loaded terminals
- Overload protection, phase failure protection and asymmetry protection
- Internal power supply
- Auxiliary contacts 1 NO + 1 NC
- Manual and Automatic RESET
- Switch position indicator
- TEST function and self-monitoring

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

3RB2056-1FW2

3RB2066-1MF2

Size contactor	Rated power for three-phase motors, rated value[1]	Current setting value of the inverse-time delayed overload release	Short-circuit protection with fuse, type of coordination "2", operational class gG[2]	SD	**Screw terminals** (on auxiliary current side)	SD	**Spring-loaded terminals** (on auxiliary current side)
					Article No. Price per PU		Article No. Price per PU
	kW	A	A	d		d	
Size S6							
Devices with busbar connection, for mounting onto contactor and stand-alone installation							
S6	30 ... 90	50 … 200	315	▶	**3RB2056-1FC2**	2	**3RB2056-1FF2**
Devices with straight-through transformer, for mounting onto contactor and stand-alone installation							
For mounting onto S6 contactors with box terminals	30 ... 90	50 … 200	315	▶	**3RB2056-1FW2**	▶	**3RB2056-1FX2**
Size S10/S12							
Devices with busbar connection, for mounting onto contactor and stand-alone installation							
S10/S12 and size 14 (3TF68/ 3TF69)[3]	30 ... 132	55 … 250	400	▶	**3RB2066-1GC2**	▶	**3RB2066-1GF2**
	90 ... 355	160 … 630	800	▶	**3RB2066-1MC2**	▶	**3RB2066-1MF2**

1) 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.

2) Maximum protection by fuse only for overload relays, type of coordination "2". For fuse values in connection with contactors, see Configuration Manual.

3) For 3TF68/3TF69 contactors, direct mounting is not possible.

*** You can order this quantity or a multiple thereof.**
Illustrations are approximate

3RB20, 3RB21 for standard applications *IE3/IE4* ready

3RB20 electronic overload relays for mounting onto contactors and stand-alone installation, CLASS 20E

Features and technical specifications:

- Connection methods
  - Size S6
    Main circuit: With busbar connection or as straight-through transformer (an appropriate connection kit with screws, spring washers and nuts is enclosed with the devices with busbar connection)
    Auxiliary circuit: Either screw or spring-loaded terminals
  - Sizes S10/S12:
    Main circuit: With busbar connection (an appropriate connection kit with screws, spring washers and nuts is enclosed)
    Auxiliary circuit: Either screw or spring-loaded terminals
- Overload protection, phase failure protection and asymmetry protection
- Internal power supply
- Auxiliary contacts 1 NO + 1 NC
- Manual and Automatic RESET
- Switch position indicator
- TEST function and self-monitoring

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

3RB2056-2FW2

3RB2066-2MF2

Size contactor	Rated power for three-phase motors, rated value[1]	Current setting value of the inverse-time delayed overload release	Short-circuit protection with fuse, type of coordination "2", operational class gG[2]	SD	**Screw terminals** (on auxiliary current side)		SD	**Spring-loaded terminals** (on auxiliary current side)	
					Article No.	Price per PU		Article No.	Price per PU
	kW	A	A	d			d		
Size S6									
Devices with busbar connection, for mounting onto contactor and stand-alone installation									
S6	30 ... 90	50 … 200	315	▶	**3RB2056-2FC2**		2	**3RB2056-2FF2**	
Devices with straight-through transformer, for mounting onto contactor and stand-alone installation									
For mounting onto S6 contactors with box terminals	30 ... 90	50 … 200	315	▶	**3RB2056-2FW2**		▶	**3RB2056-2FX2**	
Size S10/S12[2]									
Devices with busbar connection, for mounting onto contactor and stand-alone installation									
S10/S12 and size 14 (3TF68/ 3TF69)[3]	30 ... 132	55 … 250	400	▶	**3RB2066-2GC2**		▶	**3RB2066-2GF2**	
	90 ... 355	160 … 630	800	▶	**3RB2066-2MC2**		▶	**3RB2066-2MF2**	

1) 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.
2) Maximum protection by fuse only for overload relays, type of coordination "2". For fuse values in connection with contactors, see Configuration Manual.
3) For 3TF68/3TF69 contactors, direct mounting is not possible.

*** You can order this quantity or a multiple thereof.**
Illustrations are approximate

3RB21 electronic overload relays for mounting onto contactors and stand-alone installation, CLASS 5E, 10E, 20E and 30E adjustable

Features and technical specifications:

- Connection methods
  - Size S6
    Main circuit: With busbar connection or as straight-through transformer (an appropriate connection kit with screws, spring washers and nuts is enclosed with the devices with busbar connection)
    Auxiliary circuit: Either screw or spring-loaded terminals
  - Sizes S10/S12:
    Main circuit: With busbar connection (an appropriate connection kit with screws, spring washers and nuts is enclosed)
    Auxiliary circuit: Either screw or spring-loaded terminals
- Overload protection, phase failure protection and asymmetry protection
- Internal ground-fault detection (activatable)
- Internal power supply
- Auxiliary contacts 1 NO + 1 NC
- Manual and Automatic RESET
- Electrical Remote RESET integrated
- Switch position indicator
- TEST function and self-monitoring

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

3RB2153-4FW2

3RB2163-4MF2

Size contactor	Rated power for three-phase motors, rated value[1]	Current setting value of the inverse-time delayed overload release	Short-circuit protection with fuse, type of coordination "2", operational class gG[2]	SD	**Screw terminals** (on auxiliary current side)	SD	**Spring-loaded terminals** (on auxiliary current side)
					Article No. Price per PU		Article No. Price per PU
	kW	A	A	d		d	
Size S6							
Devices with busbar connection, for mounting onto contactor and stand-alone installation							
S6	30 ... 90	50 … 200	315	▶	**3RB2153-4FC2**	▶	**3RB2153-4FF2**
Devices with straight-through transformer, for mounting onto contactor and stand-alone installation							
For mounting onto S6 contactors with box terminals	30 ... 90			▶	**3RB2153-4FW2**	▶	**3RB2153-4FX2**
Size S10/S12[2]							
Devices with busbar connection, for mounting onto contactor and stand-alone installation							
S10/S12 and size 14 (3TF68/ 3TF69)[3]	30 ... 132	55 … 250	400	▶	**3RB2163-4GC2**	▶	**3RB2163-4GF2**
	90 ... 355	160 … 630	800	▶	**3RB2163-4MC2**	▶	**3RB2163-4MF2**

1) 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.

2) Maximum protection by fuse only for overload relays, type of coordination "2". For fuse values in connection with contactors, see Configuration Manual.

3) For 3TF68/3TF69 contactors, direct mounting is not possible.

Accessories for 3RB20, 3RB21

Overview

Overload relays for standard applications

The following optional accessories are available for the 3RB20 and 3RB21 electronic overload relays:

- Mechanical RESET (for all sizes)
- Cable release for resetting devices which are difficult to access (for all sizes)
- Sealable cover (for all sizes)
- Terminal covers for sizes S6 to S10/S12
- Box terminal blocks for sizes S6 and S10/S12

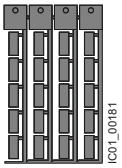
Selection and ordering data

	Version	Size	SD	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
			d					
Mechanical RESET								
 3RU3980-0A with pushbutton and extension plunger	**Resetting plungers, holders and formers**	S6 ... S12	2	**3RB3980-0A**		1	1 unit	41F
	Pushbuttons with extended stroke (12 mm), IP65, ⌀ 22 mm	S6 ... S12	▶	**3SU1200-0FB10-0AA0**		1	1 unit	41J
	Extension plungers For compensation of the distance between a pushbutton and the unlatching button of the relay	S6 ... S12	▶	**3SU1900-0KG10-0AA0**		1	1 unit	41J
Cable releases with holder for RESET								
 3RU3980-0.	For ⌀ 6.5 mm holes in the control panel; max. control panel thickness 8 mm							
	• Length 400 mm	S6 ... S12	2	**3RB3980-0B**		1	1 unit	41F
	• Length 600 mm	S6 ... S12	2	**3RB3980-0C**		1	1 unit	41F
Sealable covers								
 3RB3984-0	For covering the setting knobs	S6 ... S12	2	**3RB3984-0**		1	1 unit	41F
Terminal covers								
 3RT1956-4EA1	**Covers for cable lugs and busbar connections**							
	• Length 100 mm	S6	▶	**3RT1956-4EA1**		1	1 unit	41B
	• Length 120 mm	S10/S12	2	**3RT1966-4EA1**		1	1 unit	41B
	Covers for box terminals							
	• Length 25 mm	S6	▶	**3RT1956-4EA2**		1	1 unit	41B
	• Length 30 mm	S10/S12	2	**3RT1966-4EA2**		1	1 unit	41B
 3RT1956-4EA2	**Covers for screw terminals** Between contactor and overload relay, without box terminals (1 unit required per combination)	S6	▶	**3RT1956-4EA3**		1	1 unit	41B
		S10/S12	2	**3RT1966-4EA3**		1	1 unit	41B
Box terminal blocks								
 3RT195.-4G	For round and ribbon cables							
	• Up to 70 mm^2	S6[1)]	▶	**3RT1955-4G**		1	1 unit	41B
	• Up to 120 mm^2	S6	▶	**3RT1956-4G**		1	1 unit	41B
	• Up to 240 mm^2	S10/S12	▶	**3RT1966-4G**		1	1 unit	41B

[1)] In the scope of supply for 3RT1054-1 contactors (55 kW).

* You can order this quantity or a multiple thereof.
Illustrations are approximate

General accessories

	Version	Size	Color	For overload relays	SD d	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
Tools for opening spring-loaded terminals										
 3RA2908-1A	**Screwdrivers** For all SIRIUS devices with spring-loaded terminals	Length approx. 200 mm, 3.0 mm x 0.5 mm	Titanium gray/ black, partially insulated	Main and auxiliary circuit connection: 3RB2	2	**Spring-loaded terminals** **3RA2908-1A**		1	1 unit	41B
Blank labels										
 3RT2900-1SB20	**Unit labeling plates**[1] For SIRIUS devices	20 mm x 7 mm	Titanium gray	3RB2	20	**3RT2900-1SB20**		100	340 units	41B

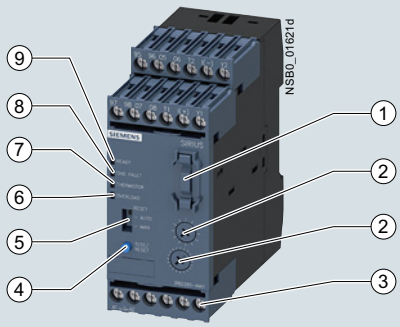
[1] PC labeling system for individual inscription of unit labeling plates available from: murrplastik Systemtechnik GmbH (see page 16/15).

Overview

More information

Homepage, see www.siemens.com/sirius-overloadrelays
Industry Mall, see www.siemens.com/product?3RB2

Application Manual "SIRIUS Controls with IE3/IE4 motors", see https://support.industry.siemens.com/cs/ww/en/view/94770820
Operating Instructions "3RB22, 3RB23 Electronic Overload Relays", see https://support.industry.siemens.com/cs/ww/en/view/21833251
Characteristics and certificates see https://support.industry.siemens.com/cs/ww/en/ps/16280



1. 3RB2985 function expansion module:
   Enables more functions to be added, e.g. internal ground-fault detection and/or an analog output with corresponding signals.
2. Motor current and trip class setting:
   Setting the device to the motor current and to the required trip class dependent on the starting conditions is easy with the two rotary switches.
3. Connecting terminals (removable joint block):
   The generously sized terminals permit connection of two conductors with different cross-sections for the auxiliary, control and sensor circuits. Connection is possible with screw terminals and alternatively with spring-loaded terminals.
4. Test/RESET button:
   Enables testing of all important device components and functions, plus resetting of the device after a trip when Manual RESET is selected.
5. Selector switch for Manual/Automatic RESET:
   With this switch you can choose between Manual and Automatic RESET.
6. Red LED "OVERLOAD":
   A continuous red light signals an active overload trip; a flickering red light signals an imminent trip (overload warning).
7. Red LED "THERMISTOR":
   A continuous red light signals an active thermistor trip.
8. Red LED "GND FAULT":
   A continuous red light signals a ground-fault tripping.
9. Green LED "READY":
   A continuous green light signals that the device is working correctly.

SIRIUS 3RB22 and 3RB23 evaluation modules

The 3RB22 and 3RB23 electronic overload relays up to 630 A (up to 820 A possible in combination with a series transformer) are from a modular system and comprise an evaluation unit, a current measuring module and a connecting cable. The 3RB22 overload relays (with monostable auxiliary contacts) and the 3RB23 overload relays (with bistable auxiliary contacts) are supplied from an external voltage.

They have been designed for inverse-time delayed protection of loads with normal and heavy starting against excessive temperature rises due to overload, phase asymmetry or phase failure. An overload, phase asymmetry or phase failure result in an increase of the motor current beyond the set rated motor current.

This current rise is detected by means of a current measuring module (see page 7/140) and electronically evaluated by the evaluation module which is connected to it. The evaluation electronics sends a signal to the auxiliary contacts. 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 curve (see Characteristics). The "tripped" status is signaled by means of a continuous red "OVERLOAD" LED.

The LED indicates imminent tripping of the relay due to overload, phase asymmetry or phase failure by flickering when the limit current has been violated. In the case of the 3RB22 and 3RB23 overload relays this warning can also be issued through auxiliary contacts.

In addition to the described inverse-time delayed protection of loads against excessive temperature rises, the 3RB22 and 3RB23 electronic overload relays also allow direct temperature monitoring of the motor windings (full motor protection!) by connection with broken-wire interlock of a PTC sensor circuit. With this temperature-dependent protection, the loads can be protected against overheating caused, for example, indirectly by reduced coolant flow and which cannot be detected by means of the current alone. In the event of overheating, the devices switch off the contactor, and thus the load, by means of the auxiliary contacts. The "tripped" status is signaled by means of a continuously illuminated "THERMISTOR" LED.

To protect the loads against high-resistance short circuits due to damage to the insulation, humidity, condensed water, etc., the 3RB22 and 3RB23 electronic overload relays offer the possibility of internal ground fault monitoring in conjunction with a function expansion module (for details, see Operating Instructions, not possible in conjunction with contactor assemblies for star-delta (wye-delta) starting). In the event of a ground fault, the 3RB22 and 3RB23 relays trip instantaneously.

The "tripped" status is signaled by means of a continuous red "Ground Fault" LED. Signaling through auxiliary contacts is also possible.

After tripping due to overload, phase asymmetry, phase failure, thermistor or ground-fault tripping, the relay is reset manually or automatically after the recovery time has elapsed.

In conjunction with a function expansion module, the motor current measured by the microprocessor can be output in the form of a DC 4 mA to 20 mA analog signal for operating rotary coil instruments or for feeding into analog inputs of programmable logic controllers.

With an additional AS-Interface analog module the current values can also be transferred over the AS-i bus system.

The 3RB2 electronic overload relays are suitable for operation with frequency converters.

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.

Use in hazardous areas

The 3RB22 electronic overload relays (monostable) with the 3RB29 current measuring module are suitable for the overload protection of explosion-proof motors.

EC type test certificate for category (2) G/D exists. It has the number PTB 05 ATEX 3022.

Article No. scheme

Product versions		Article number								
Electronic overload relays		**3RB2**	□	□	□	–	□	□	□	□
Device type	e.g. 2 = monostable device for high-feature applications, supplied from external source, for three-phase loads		□							
Size, rated operational current and power	e.g. 8 = irrespective of size and current			□						
Version of the Automatic RESET, electrical Remote RESET	e.g. 3 = switchable between Manual/Auto RESET, with integral electrical Remote RESET				□					
Trip class (CLASS)	e.g. 4 = CLASS 5E, 10E, 20E, 30E (adjustable)						□			
Setting range of the overload release	e.g. A = none specified							□		
Connection methods	e.g. A = screw terminals for auxiliary, control and main circuits								□	
Installation type	e.g. 1 = stand-alone installation									□
Example		**3RB2**	**2**	**8**	**3**	**–**	**4**	**A**	**A**	**1**

Note:

The Article No. scheme shows an overview of product versions for better understanding of the logic behind the article numbers.

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

Benefits

The most important features and benefits of the 3RB22 and 3RB23 electronic overload relays are listed in the overview table, see "General data", page 7/79 onwards.

Application

Industries

The 3RB22 and 3RB23 electronic overload relays are suitable for customers from all industries who want to guarantee optimum inverse-time delayed and temperature-dependent protection of their electrical loads (e.g. motors) under normal and heavy starting conditions (CLASS 5 to CLASS 30), minimize project completion times, inventories and power consumption, and optimize plant availability and maintenance management.

Application

The 3RB22 and 3RB23 devices have been designed for the protection of three-phase asynchronous and single-phase AC motors.

If single-phase AC motors are to be protected by the 3RB22 and 3RB23 electronic overload relays, the main current paths of the current measuring modules must be series-connected.
For circuit diagrams, see Operating Instructions.

Ambient conditions

The devices are insensitive to external influences such as shocks, corrosive ambient conditions, ageing and temperature fluctuations.

For the temperature range from -25 °C to +60 °C, the 3RB22 and 3RB23 electronic overload relays compensate the temperature in accordance with IEC 60947-4-1.

Configuration notes for use of the devices below -25 °C or above +60 °C on request.

Use of SIRIUS protection devices in conjunction with IE3/IE4 motors

Note:

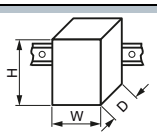
For the use of 3RB22 and 3RB23 electronic overload relays in conjunction with highly energy-efficient IE3/IE4 motors, please observe the information on dimensioning and configuring, see Application Manual.

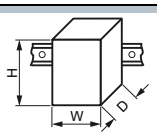
For more information, see page 1/7.

Technical specifications

More information	
Application Manual "SIRIUS Controls with IE3/IE4 motors", see https://support.industry.siemens.com/cs/ww/en/view/94770820	Operating Instructions "3RB22, 3RB23 Electronic Overload Relays", see https://support.industry.siemens.com/cs/ww/en/view/21833251
Configuration Manual "Load Feeders – SIRIUS Modular System", see https://support.industry.siemens.com/cs/ww/en/view/39714188	Technical specifications, see https://support.industry.siemens.com/cs/ww/en/ps/16280/td

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

Type – Overload relay: Evaluation modules			**3RB2283-4A.1**	**3RB2383-4A.1**
Size contactor			S00 ... S10/S12	
Dimensions of evaluation modules (W x H x D)		mm	45 x 111 x 95	
General data				
Tripping in the event of			Overload, phase failure and phase asymmetry (> 40% according to NEMA), + ground fault (with corresponding function expansion module) and activation of the thermistor motor protection (with closed PTC sensor circuit)	
Trip class acc. to IEC 60947-4-1		CLASS	5E, 10E, 20E and 30E adjustable	
Phase failure sensitivity			Yes	
Overload warning			Yes, from 1.125 × I_e for symmetrical loads and from 0.85 × I_e for unsymmetrical loads	
Reset and recovery				
• Reset options after tripping			Manual, Automatic and Remote RESET	
• Recovery time				
- For Automatic RESET		min.	- For tripping due to overcurrent: 3 (stored permanently) - For tripping by thermistor: Time until the motor temperature has fallen 5 K below the response temperature - For tripping due to a ground fault: no Automatic RESET	
- For Manual RESET		min.	- For tripping due to overcurrent: 3 (stored permanently) - For tripping by thermistor: Time until the motor temperature has fallen 5 K below the response temperature - For tripping due to a ground fault: Immediately	
- For Remote RESET		min.	- For tripping due to overcurrent: 3 (stored permanently) - For tripping by thermistor: Time until the motor temperature has fallen 5 K below the response temperature - For tripping due to a ground fault: Immediately	
Features				
• Display of operating state on device			Yes, with four LEDs: - Green LED "Ready" - Red LED "Ground Fault" - Red LED "Thermistor" - Red LED "Overload"	
• TEST function			Yes, test of LEDs, electronics, auxiliary contacts and wiring of control circuit by pressing the button TEST/RESET/self-monitoring	
• RESET button			Yes, with the TEST/RESET button	
• STOP button			No	
Protection and operation of explosion-proof motors				
Certificate of suitability/explosion protection type according to ATEX directive 2014/34/EU			PTB 05 ATEX 3022 Ex II (2) GD see https://support.automation.siemens.com/WW/view/en/23115758	--
Ambient temperatures				
• Storage/transport		°C	-40 ... +80	
• Operation		°C	-25 ... +60	
• Temperature compensation		°C	+60	
• Permissible rated current				
- Temperature inside control cabinet 60 °C		%	100	
- Temperature inside control cabinet 70 °C		%	On request	
Degree of protection acc. to IEC 60529			IP20	
Touch protection acc. to IEC 60529			Finger-safe	
Shock resistance with sine acc. to IEC 60068-2-27		*g*/ms	15/11	

Type – Overload relay: Evaluation modules			**3RB2283-4A.1** **3RB2383-4A.1**
Size contactor			S00 ... S10/S12
Dimensions of evaluation modules (W x H x D)		mm	45 x 111 x 95

General data (continued)

Electromagnetic compatibility (EMC) – Interference immunity		
• Conductor-related interference		
- Burst acc. to IEC 61000-4-4 (corresponds to degree of severity 3)	kV	2 (power ports), 1 (signal port)
- Surge acc. to IEC 61000-4-5 (corresponds to degree of severity 3)	kV	2 (line to earth), 1 (line to line)
• Electrostatic discharge acc. to IEC 61000-4-2 (corresponds to degree of severity 3)	kV	8 (air discharge), 6 (contact discharge)
• Field-related interference acc. to IEC 61000-4-3 (corresponds to degree of severity 3)	V/m	10
Electromagnetic compatibility (EMC) – Emitted interference		Degree of severity A according to EN 55011 (CISPR 11) and EN 55022 (CISPR 22)
Resistance to extreme climates – Air humidity	%	100
Installation altitude above sea level	m	Up to 2 000
Mounting position		Any
Type of mounting		
• Evaluation modules		Stand-alone installation
• Current measuring modules	Size	S00 to S3: Stand-alone installation, S6 and S10/S12: Stand-alone installation or mounting onto contactors

Type – Overload relay: Evaluation modules		**3RB2283-4A.1, 3RB2383-4A.1**
Size contactor		S00 ... S10/S12
Auxiliary circuit		
Number of NO contacts		2
Number of NC contacts		2
Number of CO contacts		--
Auxiliary contacts – Assignment		• Alternative 1 - 1 NO for the signal "tripped by overload and/or thermistor", - 1 NC for disconnecting the contactor, - 1 NO for the signal "tripped by ground fault", - 1 NC for disconnecting the contactor or[1)] • Alternative 2 - 1 NO for the signal "tripped by overload and/or thermistor and/or ground fault", - 1 NC for disconnecting the contactor, - 1 NO for overload warning - 1 NC for disconnecting the contactor
Rated insulation voltage U_i (pollution degree 3)	V	300
Rated impulse withstand voltage U_{imp}	kV	4
Auxiliary contacts – Contact rating		
• NC, NO contact with alternating current AC-14/AC-15, rated operational current I_e at U_e		
- 24 V	A	6
- 120 V	A	6
- 125 V	A	6
- 250 V	A	3
• NC, NO contacts with direct current DC-13, rated operational current I_e at U_e		
- 24 V	A	2
- 60 V	A	0.55
- 110 V	A	0.3
- 125 V	A	0.3
- 250 V	A	0.2
• Conventional thermal current I_{th}	A	5
• Contact reliability (suitability for PLC control; 17 V, 5 mA)		Yes
Short-circuit protection		
• With fuse, operational class gG	A	6
• With miniature circuit breaker, C characteristic	A	1.6
Protective separation between auxiliary current paths acc. to IEC 60947-1	V	300
CSA, UL, UR rated data		
Auxiliary circuit – Switching capacity		B300, R300

[1)] The assignment of auxiliary contacts may be influenced by function expansion modules.

3RB22, 3RB23 for high-feature applications

Type – Overload relay: Evaluation modules		3RB2283-4A.1, 3RB2383-4A.1
Size contactor		S00 ... S10/S12
Control circuit		
Rated insulation voltage U_i (pollution degree 3)	V	300
Rated impulse withstand voltage U_{imp}	kV	4
Rated control supply voltage U_s		
• 50/60 Hz AC	V	24 ... 240
• DC	V	24 ... 240
Operating range		
• 50/60 Hz AC		$0.85 \times U_{s\,min} \leq U_s \leq 1.1 \times U_{s\,max}$
• DC		$0.85 \times U_{s\,min} \leq U_s \leq 1.1 \times U_{s\,max}$
Rated power		
• 50/60 Hz AC	W	0.5
• DC	W	0.5
Mains buffering time	ms	200
Sensor circuit		
Thermistor motor protection (PTC thermistor sensor)		
• Summation cold resistance	kΩ	≤ 1.5
• Response value	kΩ	3.4 ... 3.8
• Return value	kΩ	1.5 ... 1.65
Ground-fault detection		The information refers to sinusoidal residual currents at 50/60 Hz.
• Tripping value I_Δ [1]		
- For $0.3 \times I_e < I_{motor} < 2.0 \times I_e$		$> 0.3 \times I_e$
- For $2.0 \times I_e < I_{motor} < 8.0 \times I_e$		$> 0.15 \times I_{motor}$
• Response time t_{trip}	ms	500 ... 1 000
Analog output [1][2]		
Rated values		
• Output signal	mA	4 ... 20
• Measuring range		0 ... $1.25 \times I_e$ 4 mA corresponds to $0 \times I_e$ 16.8 mA corresponds to $1.0 \times I_e$ 20 mA corresponds to $1.25 \times I_e$
• Load, max.	Ω	100
Conductor cross-sections for the auxiliary, control and sensor circuits as well as the analog output		
Connection type		**Screw terminals**
Terminal screw		M3, Pozidriv size 2
Operating devices	mm	3.0 x 0.5
Prescribed tightening torque	Nm	0.8 ... 1.2
Conductor cross-sections (min./max.), 1 or 2 conductors can be connected		
• Solid or stranded	mm^2	1 × (0.5 ... 4)[3], 2 × (0.5 ... 2.5)[3]
• Finely stranded without end sleeve	mm^2	--
• Finely stranded with end sleeve (DIN 46228)	mm^2	1 × (0.5 ... 2.5)[3], 2 × (0.5 ... 1.5)[3]
• AWG cables, solid or stranded	AWG	2 × (20 ... 14)
Connection type		**Spring-loaded terminals**
Operating devices	mm	3.0 x 0.5
Conductor cross-sections (min./max.), 1 or 2 conductors can be connected		
• Solid or stranded	mm^2	2 × (0.25 ... 1.5)
• Finely stranded without end sleeve	mm^2	--
• Finely stranded with end sleeve (DIN 46228)	mm^2	2 × (0.25 ... 1.5)
• AWG cables, solid or stranded	AWG	2 × (24 ... 16)

1) For the 3RB22 and 3RB23 overload relays in combination with a corresponding function expansion module.

2) Analog input modules, e.g. SM 331, must be configured for 4-wire measuring transducers. In this case the analog input module must not supply current to the analog output of the 3RB22 and 3RB23 relay.

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

Functions of the 3RB22 and 3RB23 evaluation modules in combination with the 3RB2985 function expansion modules

Evaluation modules	With function expansion module	Basic functions	Inputs		
			A1/A2	T1/T2	Y1/Y2
3RB2283-4AA1 3RB2283-4AC1 3RB2383-4AA1 3RB2383-4AC1	--	Inverse-time delayed protection, temperature-dependent protection, electrical Remote RESET, overload warning	Power supply 24 ... 240 V AC/DC	Connection for PTC sensor	Electrical Remote RESET
	3RB2985-2CA1	Inverse-time delayed protection, temperature-dependent protection, internal ground-fault detection, electrical Remote RESET, overload warning	Power supply 24 ... 240 V AC/DC	Connection for PTC sensor	Electrical Remote RESET
	3RB2985-2CB1	Inverse-time delayed protection, temperature-dependent protection, internal ground-fault detection, electrical Remote RESET, ground-fault signal	Power supply 24 ... 240 V AC/DC	Connection for PTC sensor	Electrical Remote RESET
	3RB2985-2AA0	Inverse-time delayed protection, temperature-dependent protection, electrical Remote RESET, overload warning, analog output	Power supply 24 ... 240 V AC/DC	Connection for PTC sensor	Electrical Remote RESET
	3RB2985-2AA1	Inverse-time delayed protection, temperature-dependent protection, internal ground-fault detection, electrical Remote RESET, overload warning, analog output	Power supply 24 ... 240 V AC/DC	Connection for PTC sensor	Electrical Remote RESET
	3RB2985-2AB1	Inverse-time delayed protection, temperature-dependent protection, internal ground-fault detection, electrical Remote RESET, ground-fault signal, analog output	Power supply 24 ... 240 V AC/DC	Connection for PTC sensor	Electrical Remote RESET

Evaluation modules	With function expansion module	Outputs				
		I (–) / I (+)	95/96 NC	97/98 NO	05/06 NC	07/08 NO
3RB2283-4AA1 3RB2283-4AC1 3RB2383-4AA1 3RB2383-4AC1	--	No	Disconnection of the contactor (inverse-time delayed/temperature-dependent protection)	Signal "tripped"	Overload warning	Overload warning
	3RB2985-2CA1	No	Disconnection of the contactor (inverse-time delayed/temperature-dependent protection + ground fault)	Signal "tripped"	Overload warning	Overload warning
	3RB2985-2CB1	No	Disconnection of the contactor (inverse-time delayed/temperature-dependent protection)	Signal "tripped"	Disconnection of the contactor (ground fault)	Signal "ground-fault tripping"
	3RB2985-2AA0	Analog signal	Disconnection of the contactor (inverse-time delayed/temperature-dependent protection)	Signal "tripped"	Overload warning	Overload warning
	3RB2985-2AA1	Analog signal	Disconnection of the contactor (inverse-time delayed/temperature-dependent protection + ground fault)	Signal "tripped"	Overload warning	Overload warning
	3RB2985-2AB1	Analog signal	Disconnection of the contactor (inverse-time delayed/temperature-dependent protection)	Signal "tripped"	Disconnection of the contactor (ground fault)	Signal "ground-fault tripping"

3RB22, 3RB23 for high-feature applications *IE3/IE4 ready*

3RB22 and 3RB23 electronic overload relays (evaluation modules) for full motor protection for stand-alone installation, CLASS 5E, 10E, 20E and 30E (adjustable)

Type	3RB2283-4A.1, 3RB2383-4A.1
Features and technical specifications	
Overload protection, phase failure protection and asymmetry protection	✓
Supplied from an external source	✓ 24 ... 240 V AC/DC
Auxiliary contacts	✓ 2 NO + 2 NC
Electrical Remote RESET integrated	✓
Four LEDs for operating and status displays	✓
TEST function and self-monitoring	✓
Internal ground-fault detection	✓ (with function expansion module)
Screw or spring-loaded terminals for auxiliary, control and sensor circuits	✓
Input for PTC sensor circuit	✓
Analog output	✓ (with function expansion module)

✓ Available

Selection and ordering data

PU (UNIT, SET, M) = 1
PS* = 1 UNIT
PG = 41G

3RB2283-4AA1,
3RB2383-4AA1

3RB2283-4AC1,
3RB2383-4AC1

Size contactor	Version	SD	Screw terminals		SD	Spring-loaded terminals	
		d	Article No.	Price per PU	d	Article No.	Price per PU
Evaluation modules							
S00 ... S12	Monostable	►	**3RB2283-4AA1**		►	**3RB2283-4AC1**	
	Bistable	►	**3RB2383-4AA1**		►	**3RB2383-4AC1**	

Note:

Overview of overload relays – matching contactors, see page 7/84.

Current measuring modules and related connecting cables, see page 7/140, general accessories, see page 7/141 onwards.

* You can order this quantity or a multiple thereof.
Illustrations are approximate

Function expansion modules for 3RB22 and 3RB23 overload relays (evaluation modules)

	Size contactor	Version	For overload relays	SD	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
				d					
Sizes S00 to S12									
		For plugging into evaluation module (1 unit)							
 3RB2985-2..1	S00 ... S12	**Analog Basic 1 modules**[1] Analog output DC 4 ... 20 mA, with overload warning	3RB22, 3RB23	►	**3RB2985-2AA0**		1	1 unit	41F
		Analog Basic 1 GF modules[1)2)] Analog output DC 4 ... 20 mA, with internal ground-fault detection and overload warning	3RB22, 3RB23	►	**3RB2985-2AA1**		1	1 unit	41F
		Analog Basic 2 GF modules[1)2)] Analog output DC 4 ... 20 mA, with internal ground-fault detection and ground-fault signaling	3RB22, 3RB23	►	**3RB2985-2AB1**		1	1 unit	41F
		Basic 1 GF modules[2)] with internal ground-fault detection and overload warning	3RB22, 3RB23	►	**3RB2985-2CA1**		1	1 unit	41F
		Basic 2 GF modules[2)] with internal ground-fault detection and ground-fault signaling	3RB22, 3RB23	►	**3RB2985-2CB1**		1	1 unit	41F

1) The analog signal 4 mA up to 20 mA DC can be used for operating rotary coil instruments or for feeding into analog inputs of programmable logic controllers.

2) The following information on ground-fault protection refers to sinusoidal residual currents at 50/60 Hz:
- With a motor current of between 0.3 and 2 times the current setting I_e, the unit will trip at a ground-fault current equal to 30% of the current setting.
- With a motor current of between 2 and 8 times the current setting I_e, the unit will trip at a ground-fault current equal to 15% of the motor current.
- The response delay amounts to between 0.5 s and 1 s.

Note:

Analog input modules, e.g. SM 331, must be configured for 4-wire measuring transducers. In this case the analog input module must not supply current to the analog output of the 3RB22/3RB23 relay.

7

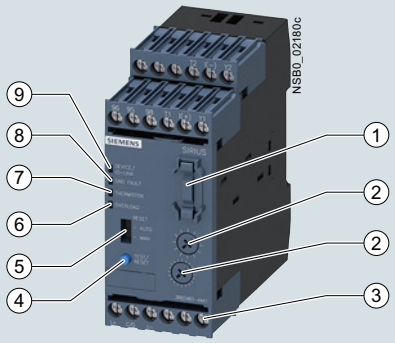
3RB24 for IO-Link for high-feature applications

Overview

More information

Homepage, see www.siemens.com/sirius-overloadrelays
Industry Mall, see www.siemens.com/product?3RB2

Application Manual "SIRIUS Controls with IE3/IE4 motors", see https://support.industry.siemens.com/cs/ww/en/view/94770820
Equipment Manual "SIRIUS 3RB24 Electronic Overload Relay for IO-Link", see https://support.industry.siemens.com/cs/ww/en/view/46165627
Certificates, see https://support.industry.siemens.com/cs/ww/en/ps/16281/cert



1. Plug-in point for operator panel:
enables connection of the 3RA6935-0A operator panel.
2. Motor current and trip class setting:
Setting the device to the motor current and to the required trip class dependent on the starting conditions is easy with the two rotary switches.
3. Connecting terminals (removable terminal block):
The generously sized terminals permit connection of two conductors with different cross-sections for the auxiliary, control and sensor circuits. Connection is possible with screw terminals and alternatively with spring-loaded terminals.
4. Test/RESET button:
Enables testing of all important device components and functions, plus resetting of the device after a trip when Manual RESET is selected.
5. Selector switch for Manual/Automatic RESET:
With this switch you can choose between Manual and Automatic RESET.
6. Red LED "OVERLOAD":
A continuous red light signals an active overload trip; a flickering led light signals an imminent trip (overload warning).
7. Red LED "THERMISTOR":
A continuous red light signals an active thermistor trip.
8. Red LED "GND FAULT":
A continuous red light signals an active ground-fault trip.
9. Green LED "DEVICE/IO-Link:
A continuous green light signals that the device is working correctly, a green flickering light signals the communication through IO-Link.

SIRIUS 3RB24 evaluation module

The modular, IO-Link powered 3RB24 electronic overload relays (with monostable auxiliary contacts) up to 630 A (up to 820 A possible with a series transformer) have been designed for current-dependent protection of loads with normal and heavy starting against excessive temperature rises due to overload, phase asymmetry or phase failure. It comprises an evaluation unit, a current measuring module and a connecting cable.

The evaluation module 3RB24 also offers an engine starter function: The contactors, which are connected via the auxiliary contacts, can also be actuated for operation via IO-Link. In this way, direct-on-line, reversing and wye-delta starters up to 630 A (or 830 A) can be connected to the controller wirelessly via the IO-Link controller.

An overload, phase asymmetry or phase failure result in an increase of the motor current beyond the set rated motor current.

This current rise is detected by means of the current measuring module (see page 7/140) and electronically evaluated by the evaluation module which is connected to it. The evaluation electronics sends a signal to the auxiliary contacts. 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 curve (see Equipment Manual). The "tripped" status is signaled by means of a continuously illuminated red "OVERLOAD" LED and also reported as a group fault via IO-Link.

The LED indicates imminent tripping of the relay due to overload, phase asymmetry or phase failure by flickering when the limit current has been violated. This warning can also be reported to the higher-level PLC via IO-Link at the 3RB24 overload relays.

In addition to the described inverse-time delayed protection of loads against excessive temperature rises, the 3RB24 electronic overload relays also allow direct temperature monitoring of the motor windings (full motor protection!) by connection with broken-wire interlock of a PTC sensor circuit. With this temperature-dependent protection, the loads can be protected against overheating caused, for example, indirectly by reduced coolant flow and which cannot be detected by means of the current alone. In the event of overheating, the devices switch off the contactor, and thus the load, by means of the auxiliary contacts. The "tripped" status is signaled by means of a continuously illuminated "THERMISTOR" LED and also reported as a group fault via IO-Link.

To protect the loads against incomplete ground faults due to damage to the insulation, humidity, condensation, etc., the 3RB24 electronic overload relays offer the possibility of internal ground-fault detection (for details, see Equipment Manual, not possible in conjunction with contactor assemblies for star-delta (wye-delta) starting). In the event of a ground fault, the 3RB24 relays trip instantaneously.

The "tripped" status is signaled by means of a flashing red LED "Ground Fault" and reported at the overload relay 3RB24 as a group fault via IO-Link.

The reset after overload, phase asymmetry, phase failure, thermistor or ground-fault tripping is performed manually by key on site, via IO-Link or by electrical Remote RESET or automatically after the cooling time (motor model) or for thermistor protection after sufficient cooling. Trips in devices initiated by function monitoring systems (broken wire or short-circuit on the thermistor) can only be reset locally.

A motor current measured by the microprocessor can be output in the form of an analog signal DC 4 mA to 20 mA for operating rotary coil instruments or for feeding into analog inputs of programmable logic controllers.

The current values can be transmitted to the higher-level controller via IO-Link.

The 3RB24 electronic overload relay for IO-Link is suitable for operation with frequency converters.

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.

Use in hazardous areas

The 3RB24 electronic overload relays for IO-Link with the 3RB29 current measuring module are suitable for the overload protection of motors with the following types of protection:

- Ex II (2) G [Ex e] [Ex d] [Ex px]
- Ex II (2) D [Ex t] [Ex p]

EC type test certificate for Group II, Category (2) G/D exists. It has the number PTB 11 ATEX 3014.

Article No. scheme

Product versions		**Article number**								
Electronic overload relays		**3RB2**	□	□	□	–	□	□	□	□
Device type	e.g. 4 = monostable device for high-feature applications, supplied from external source (24 V DC), for three-phase loads		□							
Size, rated operational current and power	e.g. 8 = irrespective of size and current			□						
Version of the Automatic RESET, electrical Remote RESET	e.g. 3 = switchable between Manual/Auto RESET, with integral electrical Remote RESET				□					
Trip class (CLASS)	e.g. 4 = CLASS 5E, 10E, 20E, 30E (adjustable)						□			
Setting range of the overload release	e.g. A = none specified							□		
Connection methods	e.g. A = screw terminals for auxiliary, control and main circuits								□	
Installation type	e.g. 1 = stand-alone installation									□
Example		**3RB2**	**4**	**8**	**3**	**–**	**4**	**A**	**A**	**1**

Note:

The Article No. scheme shows an overview of product versions for better understanding of the logic behind the article numbers.

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

3RB24 for IO-Link for high-feature applications

Application

Industries

The 3RB24 electronic overload relays are suitable for customers from all industries who want to guarantee optimum current and temperature-dependent protection of their electrical loads (e.g. motors) under normal and heavy starting conditions (CLASS 5E to 30E), minimize project completion times, inventories and energy consumption, and optimize plant availability and maintenance management.

Application

The 3RB24 electronic overload relays have been designed for the protection of three-phase asynchronous and single-phase AC motors.

In addition to protection function, these devices can be used together with contactors as direct-on-line or reversing starters (star-delta (wye-delta) start also possible), which are controlled via IO-Link. This makes it possible to directly control drives via IO-Link from a higher-level controller or on site via the optional hand-held device and also, for example, to return current values directly via IO-Link.

If single-phase AC motors are to be protected by the 3RB24 electronic overload relays, the main current paths of the current measuring modules must be series-connected (circuit diagrams, see Equipment Manual).

Ambient conditions

The devices are insensitive to external influences such as shocks, corrosive ambient conditions, ageing and temperature fluctuations.

In the temperature range from -25 °C to +60 °C, the 3RB24 electronic overload relays compensate the temperature in accordance with IEC 60947-4-1.

Configuration notes for use of the devices below -25 °C or above +60 °C on request.

Use of SIRIUS protection devices in conjunction with IE3/IE4 motors

Note:

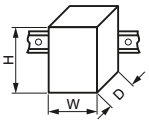
For the use of 3RB24 electronic overload relays in conjunction with highly energy-efficient IE3/IE4 motors, please observe the information on dimensioning and configuring, see Application Manual.

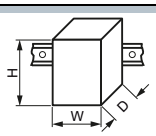
For more information, see page 1/7.

Technical specifications

More information	
Application Manual "SIRIUS Controls with IE3/IE4 motors", see https://support.industry.siemens.com/cs/ww/en/view/94770820	Equipment Manual "SIRIUS 3RB24 Electronic Overload Relay for IO-Link", see https://support.industry.siemens.com/cs/ww/en/view/46165627
Configuration Manual "Load Feeders – SIRIUS Modular System", see https://support.industry.siemens.com/cs/ww/en/view/39714188	Technical specifications, see https://support.industry.siemens.com/cs/ww/en/ps/16281/td

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

Type – Overload relay:			**3RB2483-4A.1**
Evaluation modules			
Size contactor			S00 ... S10/S12
Dimensions of evaluation modules (W x H x D)		mm	45 x 111 x 95
General data			
Tripping in the event of			Overload, phase failure and phase asymmetry (> 40% according to NEMA), + ground fault (connectable and disconnectable) and activation of the thermistor motor protection (with closed PTC sensor circuit)
Trip class acc. to IEC 60947-4-1		CLASS	5E, 10E, 20E and 30E adjustable
Phase failure sensitivity			Yes
Overload warning			Yes, from 1.125 × I_e for symmetrical loads and from 0.85 × I_e for unsymmetrical loads
Reset and recovery			
• Reset options after tripping			Manual and Automatic RESET, electrical Remote RESET or through IO-Link
• Recovery time			
- For Automatic RESET		min.	- For tripping due to overcurrent: 3 (stored permanently) - For tripping by thermistor: Time until the motor temperature has fallen 5 K below the response temperature - For tripping due to a ground fault: no Automatic RESET
- For Manual RESET		min.	- For tripping due to overcurrent: 3 (stored permanently) - For tripping by thermistor: Time until the motor temperature has fallen 5 K below the response temperature - For tripping due to a ground fault: Immediately
- For Remote RESET		min.	- For tripping due to overcurrent: 3 (stored permanently) - For tripping by thermistor: Time until the motor temperature has fallen 5 K below the response temperature - For tripping due to a ground fault: Immediately

Type – Overload relay: Evaluation modules		**3RB2483-4A.1**
Size contactor		S00 ... S10/S12
Dimensions of evaluation modules (W x H x D)	mm	45 x 111 x 95

General data (continued)

Features		
• Display of operating state on device		Yes, with four LEDs: - Green "DEVICE/IO-Link" LED - Red LED "Ground Fault" - Red LED "Thermistor" - Red LED "Overload"
• TEST function		Yes, test of LEDs, electronics, auxiliary contacts and wiring of control circuit by pressing the button TEST/RESET/self-monitoring
• RESET button		Yes, with the TEST/RESET button
• STOP button		No
Protection and operation of explosion-proof motors		
Certificate of suitability/explosion protection type according to ATEX directive 2014/34/EU		PTB 11 ATEX 3014 Ex II (2) G [Ex e] [Ex d] [Ex px] Ex II (2) D [Ex t] [Ex p] See https://support.industry.siemens.com/cs/ww/en/view/60524083
Ambient temperatures		
• Storage/transport	°C	-40 ... +80
• Operation	°C	-25 ... +60
• Temperature compensation	°C	+60
• Permissible rated current		
- Temperature inside control cabinet 60 °C	%	100
- Temperature inside control cabinet 70 °C	%	On request
Degree of protection acc. to IEC 60529		IP20
Touch protection acc. to IEC 60529		Finger-safe
Shock resistance with sine acc. to IEC 60068-2-27	g/ms	15/11
Electromagnetic compatibility (EMC) – Interference immunity		
• Conductor-related interference		
- Burst acc. to IEC 61000-4-4 (corresponds to degree of severity 3)	kV	2 (power ports), 1 (signal port)
- Surge acc. to IEC 61000-4-5 (corresponds to degree of severity 3)	kV	2 (line to earth), 1 (line to line)
• Electrostatic discharge acc. to IEC 61000-4-2 (corresponds to degree of severity 3)	kV	8 (air discharge), 6 (contact discharge)
• Field-related interference acc. to IEC 61000-4-3 (corresponds to degree of severity 3)	V/m	10
Electromagnetic compatibility (EMC) – Emitted interference		Degree of severity A according to EN 55011 (CISPR 11) and EN 55022 (CISPR 22)
Resistance to extreme climates – Air humidity	%	100
Installation altitude above sea level	m	Up to 2 000
Mounting position		Any
Type of mounting		
• Evaluation modules		Stand-alone installation
• Current measuring module	Size	S00 to S3: Stand-alone installation, S6 and S10/S12: Stand-alone installation or mounting onto contactors

3RB24 for IO-Link for high-feature applications

Type – Overload relay: Evaluation modules		**3RB2483-4A.1**
Size contactor		S00 ... S10/S12
Auxiliary circuit		
Number of auxiliary switches		1 CO contact, 1 NO contact connected in series internally
Auxiliary contacts – Assignment		• 1 CO contact for selecting the contactor (for reversing starter function), actuated by the control system • 1 NO contact for normal switching duty, actuated by the control system (opens automatically when tripping occurs)
Rated insulation voltage U_i (pollution degree 3)	V	300
Rated impulse withstand voltage U_{imp}	kV	4
Auxiliary contacts – Contact rating		
• NC, NO contact with alternating current AC-14/AC-15, rated operational current I_e at U_e		
- 24 V	A	6
- 120 V	A	6
- 125 V	A	6
- 250 V	A	3
• NC, NO contacts with direct current DC-13, rated operational current I_e at U_e		
- 24 V	A	2
- 60 V	A	0.55
- 110 V	A	0.3
- 125 V	A	0.3
- 250 V	A	0.2
• Conventional thermal current I_{th}	A	5
• Contact reliability (suitability for PLC control; 17 V, 5 mA)		Yes
Short-circuit protection		
• With fuse, operational class gG	A	6
• With miniature circuit breaker, C characteristic	A	1.6
Protective separation between auxiliary current paths acc. to IEC 60947-1	V	300
CSA, UL, UR rated data		
Auxiliary circuit – Switching capacity		B300, R300
Conductor cross-sections of the auxiliary circuit		
Connection type		**Screw terminals**
Terminal screw		M3, Pozidriv size 2
Operating devices	mm	3.0 x 0.5
Prescribed tightening torque	Nm	0.8 ... 1.2
Conductor cross-sections (min./max.), 1 or 2 conductors can be connected		
• Solid or stranded	mm^2	1 × (0.5 ... 4)[1], 2 × (0.5 ... 2.5)[1]
• Finely stranded without end sleeve	mm^2	--
• Finely stranded with end sleeve (DIN 46228)	mm^2	1 × (0.5 ... 2.5)[1], 2 × (0.5 ... 1.5)[1]
• AWG cables, solid or stranded	AWG	2 × (20 ... 14)
Connection type		**Spring-loaded terminals**
Operating devices	mm	3.0 x 0.5
Conductor cross-sections (min./max.), 1 or 2 conductors can be connected		
• Solid or stranded	mm^2	2 × (0.25 ... 1.5)
• Finely stranded without end sleeve	mm^2	–
• Finely stranded with end sleeve (DIN 46228)	mm^2	2 × (0.25 ... 1.5)
• AWG cables, solid or stranded	AWG	2 × (24 ... 16)

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

Type – Overload relay: Evaluation modules		**3RB2483-4A.1**
Size contactor		S00 ... S10/S12
Control circuit		
Rated insulation voltage U_i (pollution degree 3)	V	300
Rated impulse withstand voltage U_{imp}	kV	4
Rated control supply voltage U_s [1]		
• DC	V	24 through IO-Link
Operating range		
• DC		$0.85 \times U_{s\,min} \leq U_s \leq 1.1 \times U_{s\,max}$
Rated power		
• DC	W	0.5
Mains buffering time	ms	200
Sensor circuit		
Thermistor motor protection (PTC thermistor sensor)		
• Summation cold resistance	kΩ	≤ 1.5
• Response value	kΩ	3.4 ... 3.8
• Return value	kΩ	1.5 ... 1.65
Ground-fault detection		The information refers to sinusoidal residual currents at 50/60 Hz.
• Tripping value I_Δ		
- For $0.3 \times I_e < I_{motor} < 2.0 \times I_e$		$> 0.3 \times I_e$
- For $2.0 \times I_e < I_{motor} < 8.0 \times I_e$		$> 0.15 \times I_{motor}$
• Response time t_{trip}	ms	500 ... 1 000
Analog output [1]		
Rated values		
• Output signal	mA	4 ... 20
• Measuring range		0 ... $1.25 \times I_e$ 4 mA corresponds to $0 \times I_e$ 16.8 mA corresponds to $1.0 \times I_e$ 20 mA corresponds to $1.25 \times I_e$
• Load, max.	Ω	100
Conductor cross-sections for the control and sensor circuit as well as the analog output		
Connection type		**Screw terminals**
Terminal screw		M3, Pozidriv size 2
Operating devices	mm	3.0 x 0.5
Prescribed tightening torque	Nm	0.8 ... 1.2
Conductor cross-sections (min./max.), 1 or 2 conductors can be connected		
• Solid	mm^2	1 × (0.5 ... 4) [2], 2 × (0.5 ... 2.5) [2]
• Finely stranded without end sleeve	mm^2	--
• Finely stranded with end sleeve (DIN 46228)	mm^2	1 × (0.5 ... 2.5) [2], 2 × (0.5 ... 1.5) [2]
• Stranded	mm^2	--
• AWG cables, solid or stranded	AWG	2 × (20 ... 14)
Connection type		**Spring-loaded terminals**
Operating devices	mm	3.0 x 0.5
Conductor cross-sections (min./max.), 1 or 2 conductors can be connected		
• Solid	mm^2	2 × (0.25 ... 1.5)
• Finely stranded without end sleeve	mm^2	--
• Finely stranded with end sleeve (DIN 46228)	mm^2	2 × (0.25 ... 1.5)
• Stranded	mm^2	2 × (0.25 ... 1.5)
• AWG cables, solid or stranded	AWG	2 × (24 ... 16)

[1] Analog input modules, e.g. SM 331, must be configured for 4-wire measuring transducers. The analog input module may not supply current to the analog output of the 3RB24 overload relay.

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

3RB24 for IO-Link for high-feature applications *IE3/IE4 ready*

3RB24 electronic overload relays (evaluation modules) for full motor protection for stand-alone installation, CLASS 5E, 10E, 20E and 30E (adjustable)

Type	3RB2483-4A.1
Features and technical specifications	
Overload protection, phase failure protection and asymmetry protection	✓
Supplied from an external source	✓ 24 V DC through IO-Link
Direct-on-line or reversing starters (wye-delta starting also possible) controllable through IO-Link	✓
Auxiliary contacts	✓ 1 CO and 1 NO in series
Manual and Automatic RESET	✓
Remote RESET	✓ (electrically or via IO-Link)
Four LEDs for operating and status displays	✓
TEST function and self-monitoring	✓
Internal ground-fault detection	✓
Screw or spring-loaded terminals for auxiliary, control and sensor circuits	✓
Input for thermistor (PTC) sensor circuit	✓
Analog output	✓
IO-Link-specific functions	
• Connection of direct-on-line, reversing and star-delta starters to the controller via IO-Link	✓
• On-site controlling of the starter using the hand-held device	✓
• Accessing process data (e.g. current values in all three phases) via IO-Link	✓
• Accessing parameterization and diagnostics data (e.g. tripped signals) via IO-Link	✓

✓ Available

Selection and ordering data

PU (UNIT, SET, M) = 1
PS* = 1 UNIT
PG = 41G

3RB2483-4AA1

3RB2483-4AC1

Size contactor	Version	SD d	Screw terminals Article No.	Price per PU	SD d	Spring-loaded terminals Article No.	Price per PU
Evaluation modules							
S00 ... S12	Monostable	►	**3RB2483-4AA1**		2	**3RB2483-4AC1**	

Notes:

- Overview of overload relays – matching contactors, see page 7/84.
- Analog input modules, e.g. SM 331, must be configured for 4-wire measuring transducers. The analog input module may not supply current to the analog output of the 3RB24 relay.

Current measuring modules and related connecting cables, see page 7/140, "Accessories", see page 7/141 onwards.

*** You can order this quantity or a multiple thereof.**
Illustrations are approximate

Overview

More information	
Homepage, see www.siemens.com/sirius-overloadrelays Industry Mall, see www.siemens.com/product?3RB2	Application Manual "SIRIUS Controls with IE3/IE4 motors", see https://support.industry.siemens.com/cs/ww/en/view/94770820 Other Manuals, see https://support.industry.siemens.com/cs/ww/en/ps/16282/man

SIRIUS 3RB2906 current measuring module

The current measuring modules are designed as system components for connecting to evaluation units 3RB22 to 3RB24. Using these evaluation units the motor current is measured and the measured value sent to the evaluation unit for evaluation.

The current measuring modules in sizes up to S3 are equipped with straight-through transformers and can be snap-fitted under the evaluation units. The larger evaluation units are installed directly on the contactor or as stand-alone units.

Application

Use of SIRIUS protection devices in conjunction with IE3/IE4 motors

Note:

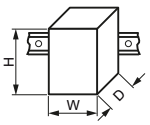
For the use of current measuring modules for 3RB22, 3RB23, 3RB24 in conjunction with highly energy-efficient IE3/IE4 motors, please read the information on dimensioning and configuration, see Application Manual.

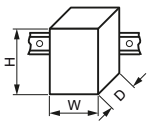
For more information, see page 1/7.

Technical specifications

More information	
Manuals, see https://support.industry.siemens.com/cs/ww/en/ps/16282/man	Technical specifications, see https://support.industry.siemens.com/cs/ww/en/ps/16282/td

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

Type – Overload relays: Current measuring modules			**3RB2906**		**3RB2956**	**3RB2966**
Size contactor			S00/S0	S2/S3	S6	S10/S12
Dimensions of current measuring modules (W x H x D)		mm	45 x 84 x 45	55 x 94 x 72	120 x 119 x 145	145 x 147 x 148
Main circuit						
Rated insulation voltage U_i (pollution degree 3)		V	690		1 000	
Rated impulse withstand voltage U_{imp}		kV	6		8	
Rated operational voltage U_e		V	690		1 000	
Type of current						
• Direct current			No			
• Alternating current			Yes, 50/60 Hz ± 5%			
Current setting		A	0.3 ... 3; 2.4 ... 25	10 ... 100	20 ... 200	63 ... 630
Power loss per unit (max.)		W	0.5			
Short-circuit protection						
• With fuse without contactor			See "Selection and ordering data", page 7/140			
• With fuse and contactor			See Configuration Manual			
Degree of protection acc. to IEC 60529						
• Screw terminals/busbar connections			IP20		- IP20 (front side) - Terminal IP00 (use additional terminal covers for higher degree of protection)	
• Straight-through transformers			IP20		IP20	--
Touch protection acc. to IEC 60529						
• Screw terminals/busbar connections			Finger-safe		Finger-safe with terminal covers for vertical contact from the front	
• Straight-through transformers			Finger-safe		Finger-safe	--
Protective separation between main and auxiliary current paths Acc. to IEC 60947-1 (pollution degree 2)						
• For systems with grounded neutral point		V	690			
• For systems with ungrounded neutral point		V	600			

Type – Overload relays: Current measuring modules			**3RB2906**		**3RB2956**	**3RB2966**
Size contactor			S00/S0	S2/S3	S6	S10/S12
Dimensions of current measuring modules (W x H x D)	mm		45 x 84 x 45	55 x 94 x 72	120 x 119 x 145	145 x 147 x 148
Conductor cross-sections of main circuit						
Connection type			**Screw terminals with box terminal**			
Terminal screw	mm		--		4 mm Allen screw	5 mm Allen screw
Operating devices	mm		--		4 mm Allen screw	5 mm Allen screw
Prescribed tightening torque	Nm		--		10 ... 12	20 ... 22
Conductor cross-sections (min./max.), 1 or 2 conductors can be connected						
• Solid or stranded	mm^2		--		With 3RT1955-4G box terminal: 2 × (max. 70), 1 × (16 ... 70) With 3RT1956-4G box terminal: 2 × (max. 120), 1 × (16 ... 120)	2 × (70 ... 240), Front clamping point only: 1 × (95 ... 300) Rear clamping point only: 1 × (120 ... 240)
• Finely stranded without end sleeve	mm^2		--		With 3RT1955-4G box terminal: 2 × (1 × max. 50, 1 × max. 70), 1 × (10 ... 70) With 3RT1956-4G box terminal: 2 × (1 × max. 95, 1 × max. 120), 1 × (10 ... 120)	2 × (50 ... 185), Front clamping point only: 1 × (70 ... 240) Rear clamping point only: 1 × (120 ... 185)
• Finely stranded with end sleeve (DIN 46228)	mm^2		--		With 3RT1955-4G box terminal: 2 × (1 × max. 50, 1 × max. 70), 1 × (10 ... 70) With 3RT1956-4G box terminal: 2 × (1 × max. 95, 1 × max. 120), 1 × (10 ... 120)	2 × (50 ... 185), Front clamping point only: 1 × (70 ... 240) Rear clamping point only: 1 × (120 ... 185)
• AWG cables	AWG		--		With 3RT1955-4G box terminal: 2 × (max. 1/0), 1 × (6 ... 2/0) With 3RT1956-4G box terminal: 2 × (max. 3/0), 1 × (6 ... 250 kcmil)	2 × (2/0 ... 500 kcmil), Front clamping point only: 1 × (3/0 ... 600 kcmil) Rear clamping point only: 1 × (250 kcmil ... 500 kcmil)
• Ribbon cables (number x width x thickness)	mm		--		With 3RT1955-4G box terminal: 2 × (6 × 15.5 × 0.8), 1 × (3 × 9 × 0.8 ... 6 × 15.5 × 0.8) With 3RT1956-4G box terminal: 2 × (10 × 15.5 × 0.8), 1 × (3 × 9 × 0.8 ... 10 × 15.5 × 0.8)	2 × (20 × 24 × 0.5), 1 × (6 × 9 × 0.8 ... 20 × 24 × 0.5)
Connection type			**Busbar connections**			
Terminal screw			--		M8 × 25	M10 x 30
Prescribed tightening torque	Nm		--		10 ... 14	14 ... 24
Conductor cross-sections (min./max.), 1 or 2 conductors can be connected						
• Solid with cable lug	mm^2		--		16 ... 95[1]	50 ... 240[2]
• Stranded with cable lug	mm^2		--		25 ... 120[1]	70 ... 240[2]
• AWG cables, solid or stranded, with cable lug	AWG		--		4 ... 250 kcmil	2/0 ... 500 kcmil
• With connecting bars (max. width)	mm		--		17	25
Connection type			**Straight-through transformers**			
Diameter of opening	mm		7.5	14	25	--

[1] When connecting cable lugs according to DIN 46235 with conductor cross-sections of 95 mm^2 and more, the 3RT1956-4EA1 terminal cover must be used to ensure phase clearance, see page 7/141.

[2] When connecting cable lugs according to DIN 46234 for conductor cross-sections from 240 mm^2, as well as DIN 46235 for cable cross-sections from 185 mm^2, the 3RT1956-4EA1 terminal cover must be used to ensure phase clearance, see page 7/141.

Current measuring modules for 3RB22, 3RB23, 3RB24 *IE3/IE4* ready

Selection and ordering data

Current measuring modules (essential accessories)

3RB2906-2BG1,
3RB2906-2DG1

3RB2906-2JG1

3RB2956-2TG2

3RB2966-2WH2

Size contactor	Current setting value of the inverse-time delayed overload release	Short-circuit protection with fuse, type of coordination "2", operational class gG[1]	For overload relays	SD	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
	A	A		d					
Sizes S00/S0									
Devices with straight-through transformer for stand-alone installation									
S00/S0	0.3 … 3	20	3RB22 to 3RB24	▶	**3RB2906-2BG1**		1	1 unit	41G
	2.4 … 25	63		▶	**3RB2906-2DG1**		1	1 unit	41G
Sizes S2/S3									
Devices with straight-through transformer for stand-alone installation									
S2/S3	10 … 100	315	3RB22 to 3RB24	▶	**3RB2906-2JG1**		1	1 unit	41G
Size S6									
Devices with busbar connection, for mounting onto contactor and stand-alone installation (an appropriate connection kit with screws, spring washers and nuts is enclosed)									
S6	20 … 200	315	3RB22 to 3RB24	▶	**3RB2956-2TH2**		1	1 unit	41G
Devices with straight-through transformer, for mounting onto contactor and stand-alone installation									
For mounting onto S6 contactors with box terminals	20 … 200	315	3RB22 to 3RB24	▶	**3RB2956-2TG2**		1	1 unit	41G
Sizes S10/S12[2]									
Devices with busbar connection, for mounting onto contactor and stand-alone installation (an appropriate connection kit with screws, spring washers and nuts is enclosed)									
S10/S12 and size 14 (3TF68/3TF69)[2]	63 … 630	800	3RB22 to 3RB24	▶	**3RB2966-2WH2**		1	1 unit	41G

1) Maximum protection by fuse only for overload relays, type of coordination "2". For fuse values in connection with contactors, see Configuration Manual.

2) For 3TF68/3TF69 contactors, direct mounting is not possible.

Note:

The connecting cable between the current measuring module and the evaluation module is not included in the scope of supply; please order separately (see "Accessories").

Accessories

	Size contactor	Version	For overload relays	SD	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
				d					
Connecting cables (essential accessories)									
 3RB2987-2.	S00 ... S3	For connection between evaluation module and current measuring module • Length 0.1 m (only for mounting of the evaluation module directly onto the current measuring module)	3RB22 to 3RB24	▶	**3RB2987-2B**		1	1 unit	41F
	S00 ... S12	• Length 0.5 m	3RB22 to 3RB24	▶	**3RB2987-2D**		1	1 unit	41F

Additional general accessories, see page 7/141.

* You can order this quantity or a multiple thereof.
Illustrations are approximate

Overview

More information

Homepage, see www.siemens.com/sirius-overloadrelays
Industry Mall, see www.siemens.com/product?3RB2
Manuals, see https://support.industry.siemens.com/cs/ww/en/ps/16283/man

The following optional accessories are available for the 3RB22 to 3RB24 electronic overload relays:

- Operator panel for the evaluation modules 3RB24
- Sealable cover for the evaluation modules 3RB22 to 3RB24
- Terminal covers for the 3RB29 current measuring modules size S6 and S10/S12
- Box terminal blocks for the 3RB29 current measuring modules size S6 and S10/S12
- Push-in lugs for screw fixing for 3RB22 to 3RB24 evaluation modules and 3RB2906 current measuring modules

Selection and ordering data

Accessories for 3RB24 overload relays

Version	For overload relays	SD	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
		d					
Operator panels for evaluation modules							
 3RA6935-0A **Operator panels (set)** One set comprises: • 1 x operator panel • 1 x 3RA6936-0A enabling module • 1 x 3RA6936-0B interface cover • 1 x fixing terminal Note: The connecting cable between the evaluation module and the operator panel is not included in the scope of supply; please order separately.	3RB24	10	**3RA6935-0A**		1	1 unit	42F
Connecting cable Length 2.5 m (round), for connecting the evaluation module to the operator panel	3RB24	►	**3UF7933-0BA00-0**		1	1 unit	42J
Enabling modules (replacement)	3RB24	10	**3RA6936-0A**		1	1 unit	42F
Interface covers	3RB24	10	**3RA6936-0B**		1	5 units	42F

General accessories

Version	Size	For overload relays	SD	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
			d					
Sealable covers for evaluation modules								
 3RB2984-2 For covering the setting knobs	--	3RB22 to 3RB24	2	**3RB2984-2**		1	10 units	41F
Terminal covers for current measuring modules								
 3RT1956-4EA1 **Covers for cable lugs and busbar connections**								
• Length 100 mm	S6	3RB2956	►	**3RT1956-4EA1**		1	1 unit	41B
• Length 120 mm	S10/S12	3RB2966	2	**3RT1966-4EA1**		1	1 unit	41B
Covers for box terminals								
• Length 25 mm	S6	3RB2956	►	**3RT1956-4EA2**		1	1 unit	41B
• Length 30 mm	S10/S12	3RB2966	2	**3RT1966-4EA2**		1	1 unit	41B
 3RT1956-4EA2 **Covers for screw terminals** Between contactor and overload relay, without box terminals (1 unit required per combination)	S6	3RB2956	►	**3RT1956-4EA3**		1	1 unit	41B
	S10/S12	3RB2966	2	**3RT1966-4EA3**		1	1 unit	41B
Box terminal blocks for current measuring modules								
 3RT195.-4G For round and ribbon cables								
• Up to 70 mm²	S6[1)]	3RB2956	►	**3RT1955-4G**		1	1 unit	41B
• Up to 120 mm²	S6	3RB2956	►	**3RT1956-4G**		1	1 unit	41B
• Up to 240 mm²	S10/S12	3RB2966	►	**3RT1966-4G**		1	1 unit	41B

1) In the scope of supply for 3RT1054-1 contactors (55 kW).

Accessories for 3RB22, 3RB23, 3RB24

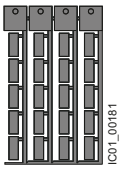
Push-in lugs for evaluation modules and current measuring modules

	Version	Size	For overload relays	SD d	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
 3RP1903	For screw fixing the evaluation modules	--	3RB22 to 3RB24	5	**3RP1903**		1	10 units	41H
 3RB1900-0B	For screw fixing the current measuring modules (2 units per module)	S00 .. S3	3RB2906	2	**3RB1900-0B**		100	10 units	41F

Tools for opening spring-loaded terminals

	Version	Size	Color	For overload relays	SD d	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
 3RA2908-1A	**Screwdrivers** For all SIRIUS devices with spring-loaded terminals	Length approx. 200 mm, 3.0 mm x 0.5 mm	Titanium gray/ black, partially insulated	Main and auxiliary circuit connec-tion: 3RB2	2	**Spring-loaded terminals**  **3RA2908-1A**		1	1 unit	41B

Blank labels

	Version	Size	Color	For overload relays	SD d	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG
 3RT2900-1SB20	**Unit labeling plates**[1] For SIRIUS devices	20 mm x 7 mm	Titanium gray	3RB2	20	**3RT2900-1SB20**		100	340 units	41B

[1] PC labeling system for individual inscription of unit labeling plates available from: murrplastik Systemtechnik GmbH (see page 16/15).

* You can order this quantity or a multiple thereof.
Illustrations are approximate