

Type		3RU21	3RB30	3RB31
SIRIUS overload relays up to 80 A				
Applications				
• System protection		✓[1]	✓[1]	✓[1]
• Motor protection		✓	✓	✓
• Alternating current, three-phase		✓	✓	✓
• Alternating current, single-phase		✓	--	--
• Direct current		✓	--	--
Size contactor		S00, S0, S2	S00, S0, S2	S00, S0, S2
Rated operational current I_e				
• Size S00	A	Up to 16	Up to 16	Up to 16
• Size S0	A	Up to 40	Up to 40	Up to 40
• Size S2	A	Up to 80	Up to 80	Up to 80
Rated operational voltage U_e	V	690 AC	690 AC	690 AC
Rated frequency	Hz	50/60	50/60	50/60
Trip class		CLASS 10, 10A	CLASS 10E, 20E	CLASS 5E, 10E, 20E, 30E (adjustable)
Thermal overload releases	A A	0.11 ... 0.16 up to 70 ... 80	--	--
Electronic overload releases	A A	--	0.1 ... 0.4 up to 20 ... 80	0.1 ... 0.4 up to 20 ... 80
Pages		7/100 ... 7/102	7/119, 7/120	7/121

Accessories									
For sizes	S00	S0	S2	S00	S0	S2	S00	S0	S2
Terminal supports for stand-alone installation	✓	✓	✓	✓	✓	✓	✓	✓	✓
Mechanical RESET	✓	✓	✓	✓	✓	✓	✓	✓	✓
Cable releases for RESET	✓	✓	✓	✓	✓	✓	✓	✓	✓
Electrical remote RESET	✓	✓	✓	--	--	--	Integrated in the unit		
Terminal covers									
• Ring terminal lug connections	✓[2]	✓[2]	--	--	--	--	--	--	--
• For box terminals	--	--	✓	--	--	✓	--	--	✓
Sealable covers for setting knobs	✓	✓	✓	✓	✓	✓	✓	✓	✓
Pages	7/103 ... 7/105			7/122, 7/123			7/122, 7/123		

✓ Has this function or can use this accessory

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

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

[2] Terminal covers for ensuring finger-safe touch protection are available for 3RU21 overload relays with ring terminal lug connections for mounting onto contactors.

Overview

Features	3RU21	3RU11	3RB30/3RB31	3RB20/3RB21	3RB22/3RB23	3RB24	Benefits
General data							
Sizes	S00 ... S2	S3	S00 ... S2	S3 ... 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 ... 80 A	18 ... 100 A	0.1 ... 80 A	12.5 ... 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 unbalance	✓	✓	✓	✓	✓	✓	• Provides optimum inverse-time delayed protection of loads against excessive temperature rises due to phase unbalance
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]	--[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 for 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.
3UF18 transformers, see Chapter 10, "Monitoring and Control Devices" → "SIMOCODE 3UF Motor Management and Control Devices".

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

General data

Features	3RU21	3RU11	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)	✓ (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 ×)	--	• Allows 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 wye-delta starting)
Reading out of diagnostics functions	--	--	--	--	--	✓	• Enables the reading out of diagnostics information such as overload, open circuit, ground fault, etc.
Reading out of current values	--	--	--	--	--	✓	• Enables the reading out of current values and their direct processing in the higher-level control system
Reading out all set parameters	--	--	--	--	--	✓	• Enables the reading out of all set parameters, e.g. for plant documentation

✓ Available

-- Not available

Features	3RU21	3RU11	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 corre-sponding fuses or the corre-sponding 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 trans-formers 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)	• Reduces the contact resistance (only one point of contact) • Saves wiring costs (easy, no need for tools, and fast) • Saves material costs • Reduces installation costs
Spring-type connection system for main circuit[2]	✓ (S00, S0)	--	✓ (S00, S0)	--	--	--	• Enables fast connections • Permits vibration-resistant connections • Enables maintenance-free connections
Spring-type connection system for auxiliary circuits[2]	✓	✓	✓	✓	✓	✓	• Enables fast connections • Permits vibration-resistant connections • Enables maintenance-free connections
Ring terminal lug connection system for main and auxiliary circuits[2]	✓ (S00, S0)	--	--	--	--	--	• Enables fast connections • Permits vibration-resistant connections • Enables 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 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] Alternatively available for screw terminals.

General data

Features	3RU21	3RU11	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 configuration outlay and costs • Minimize storage overheads, storage costs, tied-up capital
Fixed trip class	CLASS 10, CLASS 10A	CLASS 10	3RB30: CLASS 10E or CLASS 20E	3RB20: CLASS 10 or CLASS 20	--	--	• Optimum motor protection for standard starts
Trip classes adjustable on the device CLASS 5E, 10E, 20E, 30E	--	--	3RB31: ✓	3RB21: ✓	✓	✓	• Enables solutions for very fast starting motors requiring special protection (e.g. Ex motors) • Enables heavy starting solutions • Reduces the number of variants • Minimizes the configuring outlay and costs • Minimizes storage overhead, storage costs, and tied-up capital
Low power loss	--	--	✓	✓	✓	✓	• Reduces energy consumption and energy costs (up 98 % less energy 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-gear cabinet cooling • Direct mounting to contactor saves space, even for high motor currents (i.e. no heat decoupling is required)
Internal power supply	--[1]	--[1]	✓	✓	--	--	• Eliminates the need for configuration and connecting an additional control circuit
Supplied from an external voltage through 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	3RU11	3RB30/3RB31	3RB20/3RB21	3RB22/3RB23	3RB24	Benefits
Other characteristics (continued)							
Overload warning	--	--	--	--	✓	✓	• Indicates imminent tripping of the relay directly on the device due to overload, phase unbalance or phase failure through flickering of the LEDs or in the case of the 3RB24 as a signal through IO-Link • 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

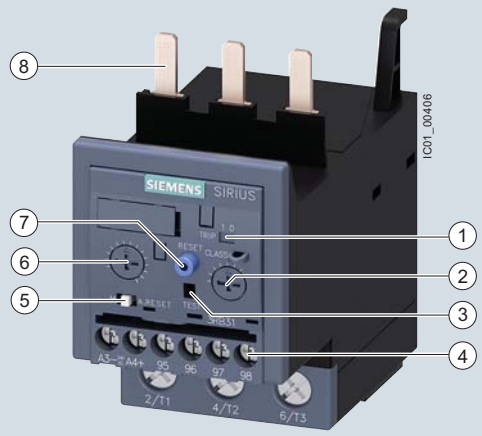
	Overload relays	Current measure-ment	Current range	**Contactors** (type, size, rating in kW)							
				3RT201.	**3RT202.**	**3RT203.**	**3RT104.**	**3RT105.**	**3RT106.**	**3RT107.**	**3TF68/3TF69**
				S00	S0	S2	S3	S6	S10	S12	S14
	Type		A	3/4/5.5/7.5	5.5/7.5/11/15/18.5	15/18.5/22/30/37	30/37/45	55/75/90	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	--	--	✓	--	--	--	--	--
SIRIUS 3RU11 thermal overload relays											
 3RU11	3RU114	Integrated	18 … 100	--	--	--	✓	--	--	--	--
SIRIUS 3RB30 electronic overload relays[1)]											
 3RB30	3RB301	Integrated	0.1 … 16	✓	--	--	--	--	--	--	--
	3RB302	Integrated	0.1 … 40	--	✓	--	--	--	--	--	--
	3RB303	Integrated	12.5 … 80	--	--	✓	--	--	--	--	--
SIRIUS 3RB31 electronic overload relays[1)]											
	3RB311	Integrated	0.1 … 16	✓	--	--	--	--	--	--	--
	3RB312	Integrated	0.1 … 40	--	✓	--	--	--	--	--	--
	3RB313	Integrated	12.5 … 80	--	--	✓	--	--	--	--	--
SIRIUS 3RB20 electronic overload relays[1)]											
 3RB20	3RB204	Integrated	12.5 … 100	--	--	--	✓	--	--	--	--
	3RB205	Integrated	50 … 200	--	--	--	--	✓	--	--	--
	3RB206	Integrated	55 … 630	--	--	--	--	--	✓	✓	✓
	3RB201 + 3UF18	Integrated	630 … 820	--	--	--	--	--	--	--	✓
SIRIUS 3RB21 electronic overload relays[1)]											
 3RB21	3RB214	Integrated	12.5 … 100	--	--	--	✓	--	--	--	--
	3RB215	Integrated	50 … 200	--	--	--	--	✓	--	--	--
	3RB216	Integrated	55 … 630	--	--	--	--	--	✓	✓	✓
	3RB211 + 3UF18	Integrated	630 … 820	--	--	--	--	--	--	--	✓

✓ Can be used

-- Cannot be used

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

Overview



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 start-up 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 terminals for screw and spring-type connection are configured for the main and auxiliary circuit.
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 remote 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 3RU3133-4.B0 electronic overload relay

The 3RB30/3RB31 electronic overload relays up to 80 A with internal power supply have been designed for inverse-time delayed protection of loads with normal and heavy starting (for "Function", see the manual "SIRIUS Innovations – SIRIUS 3RU2/3RB3 Overload Relays", http://support.automation.siemens.com/WW/view/en/60298164) against excessive temperature rises due to overload, phase unbalance or phase failure. An overload, phase unbalance 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 solid-state 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 current setting I_e and is stored in the form of a long-term stable tripping characteristic (see "Characteristic Curves" http://support.automation.siemens.com/WW/view/en/34290881/134300).

In addition to inverse-time delayed protection of loads against excessive temperature rises due to overload, phase unbalance and phase failure, the 3RB31 electronic overload relays also allow internal ground-fault detection (not possible in conjunction with contactor assemblies for 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. Resetting takes place either manually or automatically after the recovery time has elapsed ("Function", see manual "SIRIUS Innovations – SIRIUS 3RU2/3RB3 Overload Relays", http://support.automation.siemens.com/WW/view/en/60298164).

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

The devices are manufactured in accordance with environmental guidelines and contain environmentally friendly and reusable materials. They comply with all important worldwide standards and approvals.

3RB20 and 3RB21 overload relays in sizes S2 to S10/S12, see page 7/130 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:

- Ⓔx II (2) G [Ex e] [Ex d] [Ex px]
- Ⓔx 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.

Article No. scheme

Digit of the Article No.	1st - 3rd	4th	5th	6th	7th		8th	9th	10th	11th
	□□□	□	□	□	□	–	□	□	□	□
Electronic overload relays	**3 R B**									
SIRIUS 3rd generation		**3**								
Device series			□							
Size, rated operational current and power				□						
Version of the automatic RESET, electrical remote RESET					□					
Trip class (CLASS)							□			
Setting range of the overload release								□		
Connection methods									□	
Installation type										□
Example	**3 R B**	**3**	**0**	**1**	**6**	**–**	**1**	**R**	**B**	**0**

Note:

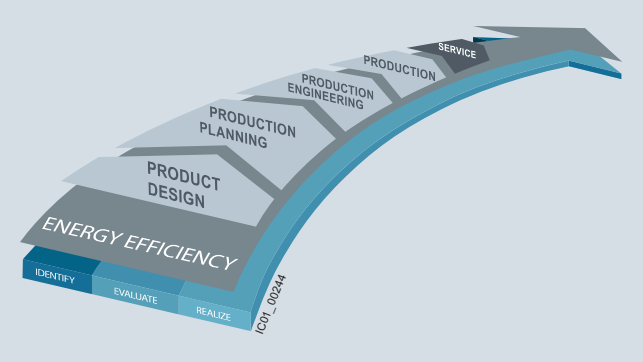
The Article No. scheme is presented here merely for information purposes and for better understanding of the logic behind the article numbers.

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

Benefits

The most important features and benefits of the 3RB30/3RB31 electronic overload relays are listed in the overview table (see "General Data" on page 7/87).

Advantages through energy efficiency



Overview of the energy management process

We offer you a unique portfolio for industrial energy management, using an energy management system that helps to optimally define your energy needs. We split up our industrial energy management into three phases – identify, evaluate and realize – and we support you with the appropriate hardware and software solutions in every process phase.

The innovative products of the SIRIUS industrial controls portfolio can also make a substantial contribution to a plant's energy efficiency (see www.siemens.com/sirius/energysaving).

3RB30/3RB31 electronic overload relays contribute to energy efficiency throughout the plant as follows:

- Reduced inherent power loss
- Less heating of the control cabinet
- Smaller control cabinet air conditioners can be used

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 solid-state overload relay can be used for single-phase AC loads. For DC loads we recommend the 3RU21 thermal overload relay.

Ambient conditions

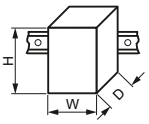
The devices are insensitive to external influences such as shocks, corrosive ambient conditions, ageing and temperature fluctuations.

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.

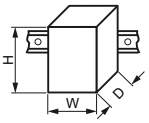
Technical specifications

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

Detailed information, see
- Manual "SIRIUS Innovations – SIRIUS 3RU2/3RB3 Overload Relays", http://support.automation.siemens.com/WW/view/en/60298164
- or specific information on a particular article number via the product data sheet, http://support.automation.siemens.com/WW/view/en/34290881/133200



Type		**3RB301., 3RB311.**	**3RB302., 3RB312.**	**3RB3036, 3RB3133**
Size		S00	S0	S2
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
• Spring-type terminals	mm	45 x 102 x 80	45 x 116 x 95	55 x 105 x 117
General data				
Trips in the event of		Overload, phase failure, and phase unbalance + 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				
EC type test certificate number according to directive 94/9/EC (ATEX)		PTB 09 ATEX 3001 Ex II (2) G [Ex e] [Ex d] [Ex px] Ex II (2) G [Ex t] [Ex p] See http://support.automation.siemens.com/WW/view/en/40591327		On request
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		IP20		
Touch protection acc. to IEC 61140		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 "Tripped" position: 9 *g*/11 ms)		15/11 (signaling contact 97/98 in "Tripped" position: 8 *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 ports)		
- Surge acc. to IEC 61000-4-5 (corresponds to degree of severity 3)	kV	2 (line to earth), 1 (line to line)		
• Electrostatic discharge according 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		



Type		**3RB301., 3RB311.**	**3RB302., 3RB312.**	**3RB3036, 3RB3133**
Size		S00	S0	S2
Dimensions (W x H x D) (overload relay with stand-alone installation support) • Screw terminals • Spring-type terminals	 mm mm	 45 x 89 x 80 45 x 102 x 80	 45 x 97 x 94 45 x 116 x 95	 55 x 105 x 117 55 x 105 x 117
General data (continued)				
Dimensions		"Dimensional drawings", see • Manual "SIRIUS Innovations – SIRIUS 3RU2/3RB3 Overload Relays", http://support.automation.siemens.com/WW/view/en/60298164 • Product data sheet, http://support.automation.siemens.com/WW/view/en/34290881/133200		
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		**3RB301., 3RB311.**	**3RB302., 3RB312.**	**3RB3036, 3RB3133**
Size		S00	S0	S2
Main circuit				
Rated insulation voltage U_i (pollution degree 3)	V	690		
Rated impulse withstand voltage U_{imp}	kV	6		
Rated operational voltage U_e	V	690		
Type of current • Direct current • Alternating current		 No Yes, 50/60 Hz ± 5 %		
Current setting	A A	0.1 ... 0.4 up to 4 ... 16	0.1 ... 0.4 up to 10 ... 40	12.5 ... 50 and 20 to 80
Heavy starting		See Manual "SIRIUS Innovations – SIRIUS 3RU2/3RB3 Overload Relays", http://support.automation.siemens.com/WW/view/en/60298164		
Power loss per unit (max.)	W	0.05 ... 0.2		
Short-circuit protection • With fuse without contactor • With fuse and contactor		See "Selection and ordering data" on pages 7/119 to 7/121 "Short-Circuit Protection with Fuses/Motor Starter Protectors for Motor Feeders", see Configuration Manual for "Configuring SIRIUS Innovations – Selection Data for Fuseless and Fused Load Feeders", http://support.automation.siemens.com/WW/view/en/39714188.		
Protective separation between main and auxiliary current paths acc. to IEC 60947-1 (pollution degree 2) • For systems with grounded neutral point • For systems with ungrounded neutral point	 V V	 690 600		
Conductor cross-sections of main circuit				
Connection type		**Screw terminals**		
Terminal screw		M3, Pozidriv size 2	M4, Pozidriv size 2	
Operating devices	mm	⌀ 5 ... 6	⌀ 5 ... 6	
Prescribed tightening torque	Nm	0.8 ... 1.2	2 ... 2.5	
Conductor cross-sections (min./max.), 1 or 2 conductors can be connected • Solid or stranded • Finely stranded with end sleeve (DIN 46228-1) • AWG cables, solid or stranded	 mm^2 mm^2 AWG	 2 x (0.5 ... 1.5)[1], 2 x (0.75 ... 2.5)[1], 2 x (0.5 ... 4)[1] 2 x (0.5 ... 1.5)[1], 2 x (0.75 ... 2.5)[1] 2 x (20 ... 16)[1], 2 x (18 ... 14)[1], 2 x 12	 2 x (1 ... 2.5)[1], 2 x (2.5 ... 10)[1] 2 x (1 ... 2.5)[1], 2 x (2.5 ... 6)[1], max. 1 x 10 2 x (16 ... 12)[1], 2 x (14 ... 8)[1]	 1 x (1 ... 50)[1], 2 x (1 ... 35)[1] 2 x (1 ... 25)[1], 1 x (1 ... 35)[1] 2 x (18 ... 2)[1], 1 x (18 ... 1)[1]
Connection type		**Spring-type terminals**		
Operating devices	mm	3.0 x 0.5 and 3.5 x 0.5		
Conductor cross-sections (min./max.), 1 conductor can be connected • Solid or stranded • Finely stranded without end sleeve • Finely stranded with end sleeve (DIN 46228-1) • AWG cables, solid or stranded	 mm^2 mm^2 mm^2 AWG	 1 x (0.5 ... 4) 1 x (0.5 ... 2.5) 1 x (0.5 ... 2.5) 1 x (20 ... 12)	 1 x (1 ... 10) 1 x (1 ... 6) 1 x (1 ... 6) 1 x (18 ... 8)	 -- -- -- --
Connection type		**Straight-through transformers**		
Diameter of opening	mm	--		15

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

3RB30, 3RB31 up to 80 A for standard applications

Type		**3RB301., 3RB311.**	**3RB302., 3RB312.**	**3RB3036, 3RB3133**
Size		S00	S0	S2
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 contact, NO contact 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 value < I_{motor} < 3.5 × upper current setting value		
• 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		
CSA, UL, UR rated data				
Auxiliary circuit – switching capacity		3RB30: B600, R300; 3RB31: B300, 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 46228-1)	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-type 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 46228-1)	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.

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-type terminals
  - Size S2:
    Main circuit: Screw terminals with box terminal or as straight-through transformer,
    auxiliary circuit: Either screw or spring-type terminals
- Overload protection, phase failure protection and unbalance 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 3RB3113-4TE0 3RB3123-4VE0 3RB3133-4.D0 3RB3133-4.X1

Size contactor[2]	Trip class	Current setting value of the inverse-time delayed overload release	Short-circuit protection with fuse, type of coordination "2", operational class gG[1]	DT	Screw terminals	DT	Spring-type terminals
					Article No. / Price per PU		Article No. / Price per PU
	CLASS	A	A				
Size S00							
S00	***Devices for mounting onto contactor[2]***						
	5E, 10E, 20E or 30E adjustable	0.1 … 0.4	4	►	**3RB3113-4RB0**	A	**3RB3113-4RE0**
		0.32 … 1.25	6	►	**3RB3113-4NB0**	A	**3RB3113-4NE0**
		1 … 4	20	►	**3RB3113-4PB0**	A	**3RB3113-4PE0**
		3 … 12	25	►	**3RB3113-4SB0**	A	**3RB3113-4SE0**
		4 ... 16	25	►	**3RB3113-4TB0**	A	**3RB3113-4TE0**
Size S0							
S0	***Devices for mounting onto contactor[2]***						
	5E, 10E, 20E or 30E adjustable	0.1 … 0.4	4	►	**3RB3123-4RB0**	A	**3RB3123-4RE0**
		0.32 … 1.25	6	►	**3RB3123-4NB0**	A	**3RB3123-4NE0**
		1 … 4	20	►	**3RB3123-4PB0**	A	**3RB3123-4PE0**
		3 … 12	25	►	**3RB3123-4SB0**	A	**3RB3123-4SE0**
		6 … 25	50	►	**3RB3123-4QB0**	A	**3RB3123-4QE0**
		10 ... 40	50	►	**3RB3123-4VB0**	A	**3RB3123-4VE0**
Size S2							
S2	***Devices with screw terminals (main current side) and for mounting onto contactor[2]***						
	5E, 10E, 20E or 30E adjustable	12 ... 50	250	NEW A	**3RB3133-4UB0**	A	**3RB3133-4UD0**
		20 ... 80	250	NEW A	**3RB3133-4WB0**	A	**3RB3133-4WD0**
	Devices with straight-through transformer for stand-alone installation						
	5E, 10E, 20E or 30E adjustable	12 ... 50	250	NEW A	**3RB3133-4UW1**	A	**3RB3133-4UX1**
		20 ... 80	250	NEW A	**3RB3133-4WW1**	A	**3RB3133-4WX1**

[1] Maximum protection by fuse only for overload relay, type of coordination "2". Fuse values in connection with contactors, see Configuration Manual "Configuring SIRIUS Innovations – Selection Data for Fuseless and Fused Load Feeders" http://support.automation.siemens.com/WW/view/en/39714188.

[2] With the appropriate terminal supports (see "Accessories", page 7/122), these overload relays can also be installed as stand-alone units.

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