SIRIUS 3RU11 Bimetallic Class 10 Overload Relays

Description

3RU11 overload relays belong to the new generation of SIRIUS 3R control products. The 3RU11 overload relays replace the highly successful 3UA5 and 3UA7 devices. Outstanding features of the new overload relays include long term stability and long service life. The overload relays are optimally matched, both electrically and mechanically, to the 3RT10 contactors. They can also be mounted as a single unit with the use of a separate mounting bracket. 3RU11 overload relays cannot be mounted onto 3TF contactors.

The 3RU11 overload relays are available in four distinct frame sizes up to 100A. The selection charts in this catalog refer to the different frame sizes by their catalog numbers, i.e. 3RU111, 3RU112, 3RU113, and 3RU114. The sixth character in the part number designates the frame size. This "size number" is consistent with, and matches up to, the same four frame sizes of the other IEC products in this catalog. However, it is important to note that other SIRIUS 3R catalog versions in circulation throughout the world refer to these four sizes as S00, S0, S2, and S3 respectively. It is a possibility that these four frame size references (S00, S0, S2, and S3) may appear on product labels as well.

Application

3RU11 overload relays provide overload protection for three-phase inductive motors with rated currents of up to 100A (75HP, AC-3, 480V). They are used in conjunction with 3RT10 contactors to form motor starters.

Ambient conditions

Thanks to the newly integrated bimetal and continuous temperature compensation, these devices can be used without derating at an ambient temperature of up to 60°C (140°F). Use up to 70°C (158°F) is possible with derating. (See Siemens Industrial Control Products Catalog - CPPC-06000).

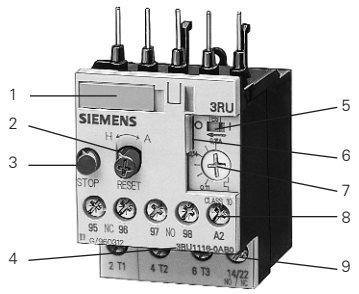
Auxiliary contacts

The overload relays are equipped with a NC contact for de-energizing the contactor and a NO contact for signalling an overload trip.

The breaking capacity of the switching contacts is very high so that the contactor coils can be switched directly.

Trip class

The 3RU11 overload relays are designed in accordance with trip class 10, i.e. trips in less than 10 seconds at 6 times the trip current setting (FLA).



1 Equipment identifying marker
2 Manual/automatic RESET selector switch
3 STOP button
4 Complete Catalog No on front of device
5 Switch position indicator and TEST function
6 Transparent cover, sealable (secures the current setting screw, TEST function and manual/automatic RESET position)
7 Current setting dial
8 Terminal for contactor coil (when mounted on contactor)
9 Terminal for contactor aux. contacts (when mounted on contactor)

3RU111 Overload Relay

Phase failure sensitivity

A phase failure sensitivity function is integrated in order to provide increased protection in the event of a phase failure, i.e. faster tripping in the event of a single-phase condition.

Setting the overload relay

The current setting dial can be accessed once the transparent, sealable cover has been opened. The overload relay must be set at the rated full-load amps (FLA) of the motor.

STOP function

Pressing the red STOP button on the overload relay momentarily opens the NC trip contact. No other contacts and/or functions are affected by this STOP button.

Manual/automatic reset

The RESET button/mechanism features trip-free operation. This means that the overload relay will trip on an overload condition regardless of whether the reset button is pushed in or not. Manual or automatic reset can be selected with the blue button. The appropriate setting is selected by pressing and turning the button. This setting can then be locked by the sliding transparent cover.

TEST function and switch position indicator

The switch position indicator also incorporates a test function which, when activated, simulates a tripped overload relay. Both auxiliary contacts are actuated and the switch position is indicated.

Terminal for contactor coil and auxiliary contact

When the 3RU111 overload relay is mounted directly on the contactor, the auxiliary contact terminal and the coil terminal A2 of the contactor are fed through to the bottom side of the overload relay. This helps considerably in expediting the wiring for both new and retrofit applications. The carry through of the A2 coil terminal to the bottom of the overload relay is not necessary with the 3RU112, 3RU113, and 3RU114 devices since the associated contactors are equipped with four point coil connections and the auxiliary contacts are either front or side mounted.

Cage Clamp connection

3RU11 overload relays are available with Cage Clamp terminals. 3RU111 overloads have Cage Clamps on the auxiliary and power terminals. 3RU112, 3RU113, and 3RU114 overloads, however, have Cage Clamps on the auxiliary terminals only. The power terminals on 3RU112, 3RU113, and 3RU114 overloads must remain screw type.

Accessories

The accessories available are suitable for use with all frame sizes.

- Electrically operated remote RESET available in different voltages
- Plunger type mechanical RESET for new and existing enclosure installations
- Flexible cable type RESET mechanism for applications where the devices are not easily accessible

Environment

The devices are manufactured using environmentally-friendly and recyclable materials only.

Specifications

IEC 947-1, IEC 947-5-1, and DIN VDE 0660.

3RU11 overload relays are suitable for use in any climate when used with the correct enclosure.

The devices are shock-hazard protected to DIN VDE 0106, Part 100.

Approvals

UL, CSA, CE marked.

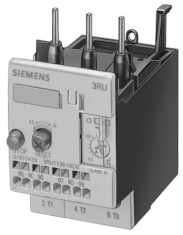
SIRIUS 3RU11 Bimetallic Class 10 Overload Relays with Screw Terminals

Description	Ordering Information
Class 10, ambient compensated bimetallic overload relays for direct mounting to 3RT10 contactors. For separate mounting, use in conjunction with 3RU19 separate mounting kits, see Siemens Industrial Control Products Catalog - CPPC-06000.	▸ 1 NO & 1 NC auxiliary contacts ▸ Manual/automatic RESET ▸ Trip indicator ▸ STOP button ▸ Test function ▸ Sealable cover ▸ For accessories, technical data, and dimensions see Siemens Industrial Control Products Catalog - CPPC-06000.

Illustration	For Contactor Type	Setting Range Amps	Screw Terminal Catalog No.	Price $
 3RU1116	**3RU111—for direct mounting to 3RT101 contactors**			
	3RT1015, 3RT1016, 3RT1017	0.11–0.16	**3RU1116-0AB0**	**58.**
		0.14–0.2	**3RU1116-0BB0**	**58.**
		0.18–0.25	**3RU1116-0CB0**	**58.**
		0.22–0.32	**3RU1116-0DB0**	**58.**
		0.28–0.4	**3RU1116-0EB0**	**58.**
		0.35–0.5	**3RU1116-0FB0**	**58.**
		0.45–0.63	**3RU1116-0GB0**	**58.**
		0.55–0.8	**3RU1116-0HB0**	**58.**
		0.7–1.0	**3RU1116-0JB0**	**58.**
		0.9–1.25	**3RU1116-0KB0**	**58.**
		1.1–1.6	**3RU1116-1AB0**	**58.**
		1.4–2	**3RU1116-1BB0**	**58.**
		1.8–2.5	**3RU1116-1CB0**	**58.**
		2.2–3.2	**3RU1116-1DB0**	**58.**
		2.8–4	**3RU1116-1EB0**	**58.**
		3.5–5	**3RU1116-1FB0**	**58.**
		4.5–6.3	**3RU1116-1GB0**	**58.**
		5.5–8	**3RU1116-1HB0**	**58.**
		7–10	**3RU1116-1JB0**	**58.**
		9–12	**3RU1116-1KB0**	**58.**
 3RU1126	**3RU112—for direct mounting to 3RT102 contactors**			
	3RT1023, 3RT1024, 3RT1025, 3RT1026	1.8–2.5	**3RU1126-1CB0**	**60.**
		2.2–3.2	**3RU1126-1DB0**	**60.**
		2.8–4	**3RU1126-1EB0**	**60.**
		3.5–5	**3RU1126-1FB0**	**60.**
		4.5–6.3	**3RU1126-1GB0**	**60.**
		5.5–8	**3RU1126-1HB0**	**60.**
		7–10	**3RU1126-1JB0**	**60.**
		9–12.5	**3RU1126-1KB0**	**60.**
		11–16	**3RU1126-4AB0**	**60.**
		14–20	**3RU1126-4BB0**	**60.**
		17–22	**3RU1126-4CB0**	**60.**
		20–25	**3RU1126-4DB0**	**60.**
 3RU1136	**3RU113—for direct mounting to 3RT103 contactors**			
	3RT1033, 3RT1034, 3RT1035, 3RT1036	5.5–8	**3RU1136-1HB0**	**71.**
		7–10	**3RU1136-1JB0**	**71.**
		9–12.5	**3RU1136-1KB0**	**71.**
		11–16	**3RU1136-4AB0**	**71.**
		14–20	**3RU1136-4BB0**	**71.**
		18–25	**3RU1136-4DB0**	**71.**
		22–32	**3RU1136-4EB0**	**89.**
		28–40	**3RU1136-4FB0**	**89.**
		36–45	**3RU1136-4GB0**	**99.**
		40–50	**3RU1136-4HB0**	**99.**
 3RU1146	**3RU114—for direct mounting to 3RT104 contactors**			
	3RT1044, 3RT1045, 3RT1046	18–25	**3RU1146-4DB0**	**103.**
		22–32	**3RU1146-4EB0**	**103.**
		28–40	**3RU1146-4FB0**	**103.**
		36–50	**3RU1146-4HB0**	**113.**
		45–63	**3RU1146-4JB0**	**113.**
		57–75	**3RU1146-4KB0**	**123.**
		70–90	**3RU1146-4LB0**	**143.**
		80–100	**3RU1146-4MB0**	**181.**

SIRIUS 3RU11 Bimetallic Class 10 Overload Relays with Cage Clamp

Description	Ordering Information
Class 10, ambient compensated bimetallic overload relays with Cage Clamp terminals. These overload relays have Cage Clamps on the auxiliary contact terminals. Power terminals remain screw type (except for 3RU111 which has Cage Clamps on all terminals).	▸ Cage Clamp terminals ▸ 1 NO & 1 NC auxiliary contacts ▸ Manual/automatic RESET ▸ Trip indicator ▸ STOP button ▸ Test function ▸ Sealable cover ▸ For accessories, technical data, and dimensions see Siemens Industrial Control Products Catalog - CPPC-06000.

Illustration	For Contactor Type	Setting Range Amps	Cage Clamp Catalog No.	Price $
 3RU1116-1•C1	**3RU111—For separate mounting with 3RT101 contactors**			
	3RT1015, 3RT1016, 3RT1017	0.11–0.16	**3RU1116-0AC1**	**68.**
		0.14–0.2	**3RU1116-0BC1**	**68.**
		0.18–0.25	**3RU1116-0CC1**	**68.**
		0.22–0.32	**3RU1116-0DC1**	**68.**
		0.28–0.4	**3RU1116-0EC1**	**68.**
		0.35–0.5	**3RU1116-0FC1**	**68.**
	Note: 3RU111 overloads do not directly mount to contactors, since they have Cage Clamps on all terminals (no mounting pins). They must be separately mounted. A separate mounting kit is not required.	0.45–0.63	**3RU1116-0GC1**	**68.**
		0.55–0.8	**3RU1116-0HC1**	**68.**
		0.7–1.0	**3RU1116-0JC1**	**68.**
		0.9–1.25	**3RU1116-0KC1**	**68.**
		1.1–1.6	**3RU1116-1AC1**	**68.**
		1.4–2	**3RU1116-1BC1**	**68.**
		1.8–2.5	**3RU1116-1CC1**	**68.**
		2.2–3.2	**3RU1116-1DC1**	**68.**
		2.8–4	**3RU1116-1EC1**	**68.**
		3.5–5	**3RU1116-1FC1**	**68.**
		4.5–6.3	**3RU1116-1GC1**	**68.**
		5.5–8	**3RU1116-1HC1**	**68.**
		7–10	**3RU1116-1JC1**	**68.**
		9–12	**3RU1116-1KC1**	**68.**
 3RU1126-1•D0	**3RU112—For direct mounting with 3RT102 contactors①**			
	3RT1023, 3RT1024, 3RT1025, 3RT1026	1.8–2.5	**3RU1126-1CD0**	**63.**
		2.2–3.2	**3RU1126-1DD0**	**63.**
		2.8–4	**3RU1126-1ED0**	**63.**
		3.5–5	**3RU1126-1FD0**	**63.**
		4.5–6.3	**3RU1126-1GD0**	**63.**
		5.5–8	**3RU1126-1HD0**	**63.**
		7–10	**3RU1126-1JD0**	**63.**
		9–12.5	**3RU1126-1KD0**	**63.**
		11–16	**3RU1126-4AD0**	**63.**
		14–20	**3RU1126-4BD0**	**63.**
		17–22	**3RU1126-4CD0**	**63.**
		20–25	**3RU1126-4DD0**	**63.**
 3RU1136-4•D0	**3RU113—For direct mounting with 3RT103 contactors①**			
	3RT1033, 3RT1034, 3RT1035, 3RT1036	5.5–8	**3RU1136-1HD0**	**74.**
		7–10	**3RU1136-1JD0**	**74.**
		9–12.5	**3RU1136-1KD0**	**74.**
		11–16	**3RU1136-4AD0**	**74.**
		14–20	**3RU1136-4BD0**	**74.**
		18–25	**3RU1136-4DD0**	**74.**
		22–32	**3RU1136-4ED0**	**92.**
		28–40	**3RU1136-4FD0**	**92.**
		36–45	**3RU1136-4GD0**	**102.**
		40–50	**3RU1136-4HD0**	**102.**
 3RU1146-4•D0	**3RU114—For direct mounting with 3RT104 contactors①**			
	3RT1044, 3RT1045, 3RT1046	18–25	**3RU1146-4DD0**	**106.**
		22–32	**3RU1146-4ED0**	**106.**
		28–40	**3RU1146-4FD0**	**106.**
		36–50	**3RU1146-4HD0**	**116.**
		45–63	**3RU1146-4JD0**	**116.**
		57–75	**3RU1146-4KD0**	**126.**
		70–90	**3RU1146-4LD0**	**146.**
		80–100	**3RU1146-4MD0**	**184.**

① For separate mounting, use 3RV19 separate mounting kits.

SIRIUS 3RB10 Solid State Overload Relays

Specifications

- IEC 947-4-1, IEC 947-5-1 and DIN VDE 0660. UL Listed File #E22655.
- The devices are shock-hazard-protected according to DIN VDE 0106, Part 100.

General

The 3RB10 overload relays form part of the new SIRIUS 3R control generation. The solid-state version of the SIRIUS 3R overload relay is noted for its wide overload ranges (setting ratio 4:1), for its phase loss protection (see characteristic curves) and also for the minimal energy requirement. In terms of dimensions and termination, the solid-state (3RB10) and the thermally delayed types (3RU11) are 100% compatible. Conformal coating of the printed-circuit board and of the electronic components assures reliable operation even in aggressive and tropical atmospheres. Four sizes and two variants are available up to 100A. The overload relays are optimally matched, both electrically and mechanically, to the 3RT10 contactors. They can, however, also be mounted separately with an adapter for installation as a single unit. Devices up to and including size S0 can be fitted on standard mounting rails without using tools.

Application

3RB10 solid-state overload relays provide overload protection for three-phase induction motors with rated currents of up to 100A.

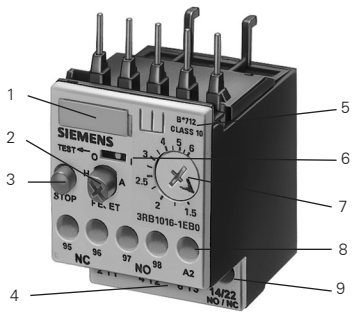
For short-circuit protection with fuses or circuit-breakers, the fusing values of the contactors must be taken into account.

Operation

The solid-state overload relays have been developed for use in sinusoidal 50/60Hz voltage networks. These units are self-powered and require no additional power supply for operation. Current transformers (for measurement) are already integrated. A microprocessor checks the current values of each phase and initiates release in the event of overload or phase failure.

The tripping current corresponds to 110% of the set current.

The overload relay must be set to the rated motor current.



3RB10 Solid-State Overload Relay

1 Marking Strip
2 Manual/automatic RESET selector switch
3 STOP button
4 1 NO r 1 NC
5 Trip class
6 Test function and switch position indicator
7 4:1 current adjustment dial e.g. 3 to 12A
8 Terminal for contactor coil (when mounted on contactor)
9 Terminal for contactor auxiliary contacts (when mounted on contactor)

Trip classes

The devices are available in Class 10 (motor starting times up to 10 s.) and in Class 20 (motor starting times up to 20 s.) trip curves.

Phase-loss protection

The 3RB10 solid-state overload relays are equipped with phase-loss protection. If a phase loss occurs, the device trips within three3 seconds.

STOP function

Activating this function only affects the NC contact, momentarily changing the state of the contact.

Manual/automatic reset

Manual or automatic reset can be selected with the blue button. The appropriate setting is selected by pressing and turning the button.

TEST function and switch position indicator

The switch position indicator also incorporates a test function which, when activated, simulates a tripped overload relay.

Both auxiliary contacts are actuated and the switch position is indicated.

Terminal for contactor coil and auxiliary contact

When the 3RB1016 overload relay (size S00) is mounted directly on the contactor, the auxiliary contact and coil terminal A2 of the contactor are fed through to the bottom of the overload which simplifies wiring.

This is not necessary with size S0 as the contactors are equipped with four coil terminals.

Auxiliary contacts

The overload relays are equipped with a NC contact for disconnecting the contactor and a NO contact for signalling tripping.

The breaking capacity of the switching contacts is very high so that the contactor coils can be switched directly.

Mounting

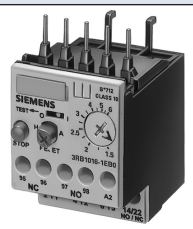
The overload relays are mounted directly on the 3RT10 contactors. If they are fitted individually on a connector base, they can be fastened by means of screws or placed on a mounting rail. The connector bases of the 3RU11 thermally delayed relays can be used.

Accessories

The accessories used with the 3RU11 thermal overload relays can be used for the 3RB10 solid-state overload relays.

- Reset plunger to extend the through-the-door reset button on deep panels
- Flexible cable reset mechanism for overloads which are not easily accessible

Description	Ordering Information
Class 10 or 20, solid state overload relays for direct mounting to 3RT10 contactors or for separate mounting the 3RB10, 3RB102, 3RB103, and 3RB104 use the 3RW19 separate mounting kit for separate mounting. For separate mounting the 3RB105, and 3RB106 use the terminal blocks from page 24. These overloads include: 1 NO & 1 NC Auxiliary Contacts, Manual/Automatic RESET, Trip Indicator, STOP Button, Test Function, Sealable Cover.	▸ For Accessories, Technical Data, and Dimensions see Siemens Industrial Control Products Catalog - CPPC-06000.

	For Contactor Type	Setting Range Amps	Manual / Automatic Reset				Manual Reset Only			
			Class 10 Catalog No.	Price $	Class 20 Catalog No.	Price $	Class 10 Catalog No.	Price $	Class 20 Catalog No.	Price $
 3RB101	**3RB101—for direct mounting to 3RT101 contactors**									
	3RT1015, 3RT1016, 3RT1017	0.1–0.4 0.4–1.6 1.5–6 3–12	**3RB1016-1RB0** **3RB1016-1NB0** **3RB1016-1PB0** **3RB1016-1SB0**	**72.** **72.** **72.** **72.**	**3RB1016-2RB0** **3RB1016-2NB0** **3RB1016-2PB0** **3RB1016-2SB0**	**72.** **72.** **72.** **72.**	**3RB1015-1RB0** **3RB1015-1NB0** **3RB1015-1PB0** **3RB1015-1SB0**	**67.** **67.** **67.** **67.**	**3RB1015-2RB0** **3RB1015-2NB0** **3RB1015-2PB0** **3RB1015-2SB0**	**67.** **67.** **67.** **67.**
 3RB102	**3RB102—for direct mounting to 3RT102 contactors**									
	3RT1023, 3RT1024, 3RT1025, 3RT1026	0.1–0.4 0.4–1.6 1.5–6 3–12 6–25	**3RB1026-1RB0** **3RB1026-1NB0** **3RB1026-1PB0** **3RB1026-1SB0** **3RB1026-1QB0**	**74.** **74.** **74.** **74.** **74.**	**3RB1026-2RB0** **3RB1026-2NB0** **3RB1026-2PB0** **3RB1026-2SB0** **3RB1026-2QB0**	**74.** **74.** **74.** **74.** **74.**	**3RB1025-1RB0** **3RB1025-1NB0** **3RB1025-1PB0** **3RB1025-1SB0** **3RB1025-1QB0**	**69.** **69.** **69.** **69.** **69.**	**3RB1025-2RB0** **3RB1025-2NB0** **3RB1025-2PB0** **3RB1025-2SB0** **3RB1025-2QB0**	**69.** **69.** **69.** **69.** **69.**
	3RB103—for direct mounting to 3RT103 contactors									
	3RT1033, 3RT1034, 3RT1035, 3RT1037	6–25 13–50	**3RB1036-1QB0** **3RB1036-1UB0**	**88.** **110.**	**3RB1036-2QB0** **3RB1036-2UB0**	**88.** **110.**	**3RB1035-1QB0** **3RB1035-1UB0**	**83.** **105.**	**3RB1035-2QB0** **3RB1035-2UB0**	**83.** **105.**
 3RB1056-1FW	**3RB104—for direct mounting to 3RT104 contactors**									
	3RT1044, 3RT1045, 3RT1046	13–50 25–100	**3RB1046-1UB0** **3RB1046-1EB0**	**140.** **224.**	**3RB1046-2UB0** **3RB1046-2EB0**	**140.** **224.**	**3RB1045-1UB0** **3RB1045-1EB0**	**130.** **215.**	**3RB1045-2UB0** **3RB1045-2EB0**	**130.** **215.**
	3RB105—for direct mounting to 3RT105 contactors									
	3RT1054 3RT1055 3RT1056	50 -200 50 -200	**3RB1056-1FW0**① **3RB1056-1FG0** ②	**275.** **275.**	**3RB1056-2FW0**① **3RB1056-2FG0** ②	**275.** **275.**	**3RB1055-1FW0**① **3RB1055-1FG0** ②	③ ③	**3RB10565-2FW0**① **3RB1055-2FG0** ②	③ ③
 3RB1056-1FW	**3RB106—for direct mounting to 3RT106 and 3RT107 contactors**②									
	3RB106 3RB107	50-250 200 -540 300 - 630	**3RB1066-1GG0** **3RB1066-1KG0** **3RB1066-1LG0**	**305.** **450.** **800.**	**3RB1066-2GG0** **3RB1066-2KG0** **3RB1066-2LG0**	**305.** **450.** **800.**	**3RB1065-1GG0** **3RB1065-1KG0** **3RB1065-1LG0**	③ ③ ③	**3RB1065-2GG0** **3RB1065-2KG0** **3RB1065-2LG0**	③ ③ ③

① Overload contains pass through windows.
② Overload has busbar connections.
③ Available March 2002