

Overview

Auxiliary switches

See also pages 3/15 and 3/58.

Positively driven contacts (for contactor relays)

Definition according to IEC 60947-5-1, Appendix L:



Positively-driven contact elements are a combination of "n" NO contact and "m" NC contact which are designed in such a way that they cannot be closed simultaneously.

Mirror contacts (for power contactors)

Definition according to IEC 60947-4-1, Appendix F:



A mirror contact is an NC contact that cannot be closed simultaneously with an NO main contact.

Solid-state time-delay auxiliary switches

The 3RA28 solid-state delayed auxiliary switches which can be mounted onto the contactor are designed for applications in the range from 24 to 240 V AC/DC (wide voltage range). Both the electrical and mechanical connection are made by simple snapping on and locking.

The time-delay auxiliary switch is supplied with power directly by two plug-in contacts through the coil terminals of the contactor, in parallel with A./A2.

A protection circuit (varistor) is integrated in each module.

A sealable cover is available to protect against careless adjustment of the set times.

Note:

Mounting more auxiliary switches to the contactor is not permitted.

OFF-delay devices for contactors

AC and DC operation

IEC 60947, EN 60947

For screw fixing and snap-on mounting onto TH 35 standard mounting rails. The OFF-delay devices have screw terminals.

The OFF-delay device prevents a contactor from dropping out unintentionally when there is a short-time voltage dip or voltage failure. It supplies a downstream, DC-operated contactor with the necessary energy during a voltage dip, ensuring that the contactor does not trip. The 3RA2916 OFF-delay devices are specifically designed for operation with the 3RT contactors and 3RH contactor relays in the SIRIUS series.

The OFF-delay device operates without external voltage on a capacitive basis, and can be energized with either AC or DC (24 V version only for DC operation). Voltage matching, which is only necessary with AC operation, is performed using a rectifier bridge.

A contactor opens after a delay when the capacitors of the solenoid coil, built into the OFF-delay device, are switched in parallel. In the event of voltage failures, the capacitors are discharged via the solenoid coil and thereby delay the opening of the contactor.

If the command devices are upstream of the OFF-delay device in the circuit, the OFF-delay takes effect with every opening operation. If the opening operation is downstream of the OFF-delay device, an OFF-delay only applies in the event of failure of the mains voltage.

Operation

In the case of the versions for rated control supply voltages of 110 and 230 V, either AC voltage or DC voltage can be applied on the line side, whereas the variant for 24 V is designed for DC operation only.

A DC-operated contactor is connected to the output according to the input voltage that is applied.

The mean value of the OFF-delay is approximately 1.5 times the specified minimum time.

Additional load module

Size S00 for plugging onto the front of the contactors with and without auxiliary switch block.

The module is used for increasing the permissible residual current and for limiting the residual voltage. It ensures the safe opening of contactors with direct control via 230 V AC semiconductor outputs of SIMATIC controllers. It acts simultaneously as a surge suppressor.

Surge suppressors

- Without LED (also for spring-type terminals)
Sizes S00 to S2
- With LED (also for spring-type terminals)
Sizes S00 to S2

All 3RT2 contactors and 3RH2 contactor relays can be retrofitted with RC elements or varistors for damping opening surges in the coil. Diodes or diode assemblies (comprising noise suppression diodes and Zener diodes for short break times) can be used.

The surge suppressors are plugged onto the front of size S00 contactors. Space is provided for them next to a snap-on auxiliary switch block.

Varistors, RC elements or diode assemblies can be plugged onto the front of size S0 and S2 contactors.

Coupling contactors are supplied either without overvoltage damping or with a suppressor diode, varistor or diode connected as standard, according to the version.

Note:

The OFF-delay of the NO contact and the ON-delay of the NC contact are increased if the contactor coils are attenuated against voltage peaks (noise suppression diode 6 to 10 times; diode assembly 2 to 6 times, varistor +2 to 5 ms).

Coupling links for control by PLC

IEC 60947 and EN 60947

The coupling links are suitable for use in any climate. They are finger-safe according to EN 50274. The terminal designations comply with EN 50005.

System-compatible operation with 24 V DC, operating range 17 to 30 V.

Low power consumption of 0.5 W in conformity with the technical specifications of the solid-state systems. An LED indicates the switching state.








Surge suppression

The 3RH2924-1GP11 coupling link has an integrated surge suppressor (varistor) for the contactor coil being switched.

Mounting

The 3RH2924-1GP11 coupling link is mounted on the contactor coil size S0 using a coil connection module.

Selection and ordering data

For contactors	Version	DT	Article No.	Price per PU	PU (UNIT, SET, M)	PS*	PG			
Type										
EMC suppression modules; 3-phase, up to 7.5 kW										
Size S00 (for contactors with AC or DC operation)¹⁾										
 3RT2916-1PA.	3RT201	RC elements (3 x 220 Ω/0.22 μF) Up to 400 V Up to 575 V Up to 690 V	Screw terminals 		1	1 unit	41B			
			▶	3RT2916-1PA1				1	1 unit	41B
			A	3RT2916-1PA2				1	1 unit	41B
	C	3RT2916-1PA3	1	1 unit	41B					
	3RT201	Varistors Up to 400 V Up to 575 V Up to 690 V	A	3RT2916-1PB1	1	1 unit	41B			
			A	3RT2916-1PB2	1	1 unit	41B			
C			3RT2916-1PB3	1	1 unit	41B				
Coupling links for control by PLC										
Size S0										
 3RH2924-1GP11	3RT2..2	For mounting onto the coil terminals of the contactors (only for contactors with screw terminals) With LED for indicating switching state. With integrated varistor for damping opening surges. 24 V DC control, 17 ... 30 V DC operating range	▶	3RH2924-1GP11	1	1 unit	41B			
	Sizes S00 to S2 NEW									
 3RH2914-1GP11	3RT2..1, 3RT2..2, 3RT2..3	For mounting on the front side of contactors with AC, DC or AC/DC operation 24 V DC control, 17 ... 30 V DC operating range	B	3RH2914-1GP11	1	1 unit	41B			
		24 V DC control, 17 ... 30 V DC operating range	B	Spring-type terminals  3RH2914-2GP11	1	1 unit	41B			
Additional load modules										
Size S00										
 3RT2916-1GA00	3RT2..1, 3RH2..	For plugging onto the front side of the contactors with or without auxiliary switch blocks²⁾ For increasing the permissible residual current and for limiting the residual voltage. It ensures the safe opening of contactors with direct control via 230 V AC semiconductor outputs of SIMATIC controllers. It acts simultaneously as a surge suppressor. Rated voltage: 50/60 Hz, 180 to 255 V AC	▶	3RT2916-1GA00	1	1 unit	41B			
	LED module for indicating contactor operation									
Sizes S00 to S2										
 3RT2926-1QT00	3RT2..	For snapping into the location hole of an inscription label on the front of a contactor either directly on the contactor or on the front auxiliary switch. The LED module is connected to coil terminals A1 and A2 of the contactor and indicates its energized state. Yellow LED. Rated voltage: 24 ... 240 V AC/DC, with reverse polarity protection.	B	3RT2926-1QT00	1	5 units	41B			
	Control kit									
Sizes S00 to S2										
 3RT2916-4MC00	3RT2..1, 3RH2..	For manual operation of the contactor contacts for start-up and service³⁾	A	3RT2916-4MC00	1	5 units	41B			
	3RT2..2		A	3RT2926-4MC00	1	5 units	41B			
	3RT2..3		A	3RT2936-4MC00	1	5 units	41B			

Technical specifications for coupling links, see page 3/57.

¹⁾ See also description on page 3/52.

²⁾ For packs of 10 units, the article number must be supplemented with "-Z" and order code "X90".

³⁾ See also Chapter 8, "ET 200S Motor Starters and Safety Motor Starters" → "Accessories", Article No. 3RK1903-0CA00.