

Accessories and Spare Parts

For 3RT2, 3RH2 Contactors and Contactor Relays

General data

Overview

Selection aid for mountable auxiliary switch blocks for motor contactors and contactor relays

The auxiliary switch blocks from the 3RH29 series for mounting on the front and side can be used for the motor contactors in sizes S00 and S0 as well as for the contactor relays. The exact application possibilities are listed in the following tables.

The auxiliary switch blocks and their use are described in the sections "Motor Contactors" and "Contactor Relays".

Note:

The auxiliary switches according to EN 50012 also meet the requirements according to EN 50005.

Motor contactors

Contactor Size	Integrated auxiliary switches	Examples Version	All auxiliary contacts with mirror contact function according to EN 60947-4-1				EN 50012	
			EN 50005			Laterally mountable	Mountable on front	Laterally mountable
			Mountable on front	2-pole	4-pole	2-pole	4-pole	2-pole
			1-pole					
			3RH29 11-1AA.. 3RH29 11-1BA..	3RH29 11-1LA.. 3RH29 11-1MA..	3RH29 11-.F... 3RH29 11-.H...	3RH29 11-.D... 3RH29 21-.D...	3RH29 11-.HA..	3RH29 11-.D... 3RH29 21-.D...
S00	1 NO or 1 NC	A	1	--	--	1	--	--
		B	--	1	1	--	1	--
		C	--	--	--	2 (1 x left and 1 x right)	--	1 (right)
S0	1 NO + 1 NC	A	1	--	--	1	--	--
		B	--	1	1	--	1	--
		C	--	--	--	2 (1 x left and 1 x right)	--	1 (right)

Examples according to EN 50005

Version A, S00: S00 basic unit + one single-pole front-side auxiliary switch block + one 2-pole lateral auxiliary switch block

--> 3RT20 16-1AK61 + 3RH29 11-1AA01 + 3RH29 11-1DA11

Version B, S0: S0 basic unit + one 4-pole front-side auxiliary switch block

--> 3RT20 27-2AK60 + 3RH29 11-2HA22

Example according to EN 50012

Version C, S0: S0 basic unit + one 2-pole lateral auxiliary switch block, mounted on the right

--> 3RT20 26-2AK60 + 3RH29 11-2DA11

Note:

The front solid-state compatible auxiliary switches have no mirror contact functionality.

Contactor relays

Contactor relay Size	Integrated auxiliary switches	Examples Version	All front auxiliary contacts with positively-driven operation according to EN 60947-5-1				EN 50011
			EN 50005			Lateral ¹⁾	Mountable on front
			Mountable on front	2-pole	4-pole	2-pole	4-pole
			1-pole				
			3RH29 11-1AA.. 3RH29 11-1BA..	3RH29 11-1LA.. 3RH29 11-1MA..	3RH29 11-.F... 3RH29 11-.H...	3RH29 11-.DA.. 3RH29 21-.DA..	3RH29 11-.GA..
S00	2 NO + 2 NC or 3 NO + 1 NC or 4 NO	A	1	--	--	1	1
		B	--	1	1	--	1
		C	--	--	--	2 (1 x left and 1 x right)	1

¹⁾ Lateral auxiliary contacts without positively-driven operation.

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Terminal designations and identification numbers for auxiliary contacts

Terminal designations

The terminal designations have 2 digits, e.g. 13, 14, 21, 22:

- Tens position: Identification number
 - Related terminals have the same identification number
- Units position: Function number
 - 1-2 for normally closed contact (NC)
 - 3-4 for normally open (NO)

Identification numbers

The identification number indicates the quantity and type of auxiliary contacts, e.g. 40, 31, 22, 13:

- 1st digit: Number of NO contacts
- 2nd digit: Number of NC contacts

Examples:

- 31 = 3 NO + 1 NC
- 40 = 4 NO

3RH2 contactor relays and 3RT2 motor contactors (basic units) – Overview of identification numbers

Contactor with integrated auxiliary contacts	3RH21 contactor relay, S00, with 4 normally open contacts (4 NO)	3RT20 motor contactor, S00, with 1 normally open contact (1 NO)	3RT20 motor contactor, S00, with 1 normally closed contact (1 NC)	3RT20 motor contactor, S0, with 1 NO + 1 NC
Identification numbers for front auxiliary switches	5th 6th 7th 8th	2nd 3rd 4th 5th	5th 6th 7th 8th	3rd 4th 5th 6th
	(only with auxiliary switches acc. to EN 50005 and EN 50011)		(only with auxiliary switches acc. to EN 50005)	

3RH29 auxiliary switch blocks – Overview of function numbers (examples)

Auxiliary switch block with auxiliary contacts	3RH29 auxiliary switch, 4 contacts 2 NO + 2 NC	3RH29 auxiliary switch, 4 contacts 4 NC	3RH29 auxiliary switch, 4 contacts 3 NO + 1 NC	3RH29 auxiliary switch, 4 contacts 4 NO
Function numbers for front auxiliary switches	.3 .1 .1 .3 .4 .2 .2 .4	.1 .1 .1 .1 .2 .2 .2 .2	.1 .3 .3 .3 .2 .4 .4 .4	.3 .3 .3 .3 .4 .4 .4 .4

3RH29 basic units with mounted 3RH29 auxiliary switch blocks – Overview of terminal designations (examples)

Contactor with mounted auxiliary switch block	3RH29 auxiliary switch, 4 contacts 2 NO + 2 NC	3RH29 auxiliary switch, 4 contacts 4 NC	3RH29 auxiliary switch, 4 contacts 3 NO + 1 NC	3RH29 auxiliary switch, 4 contacts 4 NO
Terminal designations of all auxiliary contacts	13 23 33 43 53 61 71 83 14 24 34 44 54 62 72 84	13 21 31 41 51 14 22 32 42 52	21 51 63 73 83 22 52 63 74 84	13 21 33 43 53 63 14 22 34 44 54 64

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Solid-state time-delay auxiliary switches

All 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 connections are made by simply 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:

It is not allowed to mount more auxiliary switches onto the contactor.

OFF-delay devices for contactors

AC and DC operation

IEC 60947, EN 60947.

For screw 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 3RA29 16 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 in accordance with 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.

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

Surge suppressors

- Without LED (also for spring-type terminals)
Sizes S00 and S0
- With LED (also for spring-type terminals)
Sizes S00 and S0

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 contactors.

Coupling relays 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 assemblies 2 to 6 times, varistor +2 to 5 ms).

Coupling links for control by PLC

DC operation

IEC 60947 and EN 60947.

The coupling link is suitable for use in any climate. It is 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 3RH29 24-1GP11 coupling link has an integrated surge suppressor (varistor) for the contactor coil being switched.

Mounting

The 3RH29 24-1GP11 coupling link is mounted on the contactor coil size S0 using a coil terminal module.

Sealable covers

When contactors and contactor relays are used in safety-oriented applications, it must be ensured that it is impossible to operate the contactors manually.

For SIRIUS contactors there are sealable covers available for this purpose as accessories; these prevent accidental manual operation. These are transparent molded-plastic caps with a bracket that enables the contactor to be sealed.

Solder pin adapters

The solder pin adapters for the contactors size S00, up to 7.5 HP or 12 A (AC-1/AC-3), are available in two versions:

- Solder pin adapter for contactors with one integrated auxiliary contact
- Solder pin adapter for contactors with mounted 4-pole auxiliary switch block