Overview

- The compact, user-friendly, and low-cost solution for simple control tasks
- Compact, user-friendly, can be used universally without accessories.
- "All in one": the display and operator panel are integrated
- 34 different functions can be linked at a press of a button or with PC software; up to 130 times in total
- Functions can be changed simply using buttons; no complicated rewiring

Catalog ST 70:

Information on LOGO! can also be found in the catalog ST 70:

http://www.siemens.com/automation/simatic/ftp/st70/html_00/st70k1ad.pdf

Application

The LOGO! logic module is the user-friendly, low-cost solution for simple control tasks.

LOGO! is universally applicable, e.g.:

- Building installation and wiring (lighting, shutters, awnings, doors, access control, barriers, ventilation systems ...)
- Control cabinet installation
- Machine and device construction (pumps, small presses, compressors, hydraulic lifts, conveyors ...)
- Special controls for conservatories and greenhouses
- Signal preprocessing for other controllers

The LOGO! Modular logic modules can be expanded easily for each application.

Marine approvals

American Bureau of Shipping, Bureau Veritas, Det Norske Veritas, Germanischer Lloyd, Lloyds Register of Shipping; Polski Rejestr Statków

LOGO! Modular basic variants

Overview

- The space-saving basic variants
- With interface for connection of expansion modules

Selection and ordering data

Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
LOGO! Logic modules 24 Supply voltage 24 V DC, 8 digital inputs 24 V DC, of which 2 can be used as analog inputs (0 to 10 V), 4 digital outputs 24 V DC, 0.3 A; 130 function blocks can be combined, modular expandability	A	**6ED1 052-1CC00-0BA5**		1	1 unit	200	0.191
LOGO! 12/24RC logic modules Supply voltage 12/24 V DC, 8 digital inputs 12/ 24 V DC, of which 2 can be used as analog inputs (0 to 10 V), 4 relay outputs 10 A, Integrated time switch; 130 function blocks can be combined, modular expandability	A	**6ED1 052-1MD00-0BA5**		1	1 unit	200	0.228
LOGO! 24RC logic modules Supply voltage 24 V AC/DC, 8 digital inputs 24 V AC/DC, 4 relay outputs 10 A, Integrated time switch; 130 function blocks can be combined, modular expandability	A	**6ED1 052-1HB00-0BA5**		1	1 unit	200	0.231
LOGO! 230RC logic modules Supply voltage 115/230 V AC/DC, 8 digital inputs 115/230 V AC/DC, 4 relay outputs 10 A, Integrated time switch; 130 function blocks can be combined, modular expandability	A	**6ED1 052-1FB00-0BA5**		1	1 unit	200	0.232

*** You can order this quantity or a multiple thereof.**

Accessories

Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
LOGO! manuals							
• German	A	**6ED1 050-1AA00-0AE6**		1	1 unit	200	0.450
• English	A	**6ED1 050-1AA00-0BE6**		1	1 unit	200	0.401
• French	B	**6ED1 050-1AA00-0CE6**		1	1 unit	200	0.400
• Spanish	B	**6ED1 050-1AA00-0DE6**		1	1 unit	200	0.406
• Italian	B	**6ED1 050-1AA00-0EE6**		1	1 unit	200	0.402
LOGO! Memory Cards for copying, with know-how protection	A	**6ED1 056-5CA00-0BA0**		1	1 unit	200	0.004
LOGO! Soft Comfort V5.0 for programming on the PC in LAD/FBD; executes under Windows 98 SE and higher, Linux, MAC OSX; on CD-ROM	A	**6ED1 058-0BA01-0YA0**		1	1 unit	200	0.101
LOGO! Soft Comfort Upgrade from V1.0 to V5.0	A	**6ED1 058-0CA01-0YE0**		1	1 unit	200	0.098
LOGO! PC cables for transferring programs between LOGO! and PC	A	**6ED1 057-1AA00-0BA0**		1	1 unit	200	0.159
LOGO! News Box, 12/24 V contains LOGO! 12/24RC, LOGO! PC cable, LOGO! Soft Comfort, Tips&Tricks manual, screw driver, information material							
• German	A	**6ED1 057-3BA00-0AA4**		1	1 unit	2Z0	2.200
• English	A	**6ED1 057-3BA00-0BA4**		1	1 unit	2Z0	2.200
LOGO! News Box, 230 V contains LOGO! 230RC, LOGO! PC cable, LOGO! Soft Comfort, Tips&Tricks manual, screw driver, information material							
• German	A	**6ED1 057-3AA01-0AA0**		1	1 unit	2Z0	2.200
• English	A	**6ED1 057-3AA01-0BA0**		1	1 unit	2Z0	2.340

*** You can order this quantity or a multiple thereof.**

LOGO! Modular Pure variants

Overview

- The cost-optimized basic variants
- With integrated interface for connection of expansion modules

Selection and ordering data

Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
LOGO! Logic modules 24o Supply voltage 24 V DC, 8 digital inputs 24 V DC, of which 2 can be used as analog inputs (0 to 10 V), 4 digital outputs 24 V DC, 0.3 A; without display and keyboard; 130 function blocks can be combined, modular expandability	A	**6ED1 052-2CC00-0BA5**		1	1 unit	200	0.175
LOGO! 12/24RCo logic modules Supply voltage 12/24 V DC, 8 digital inputs 12/ 24 V DC, of which 2 can be used as analog inputs (0 to 10 V), 4 relay outputs 10 A, Integrated time switch; without display and keyboard; 130 function blocks can be combined, modular expandability	A	**6ED1 052-2MD00-0BA5**		1	1 unit	200	0.213
LOGO! 24RCo logic modules Supply voltage 24 V AC/DC, 8 digital inputs 24 V AC/DC, 4 relay outputs 10 A, Integrated time switch; without display and keyboard; 130 function blocks can be combined, modular expandability	A	**6ED1 052-2HB00-0BA5**		1	1 unit	200	0.220
LOGO! 230RCo logic modules Supply voltage 115/230 V AC/DC, 8 digital inputs 115/230 V AC/DC, 4 relay outputs 10 A, Integrated time switch; without display and keyboard; 130 function blocks can be combined, modular expandability	A	**6ED1 052-2FB00-0BA5**		1	1 unit	200	0.217

*** You can order this quantity or a multiple thereof.**

Accessories

Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
LOGO! manuals							
• German	A	**6ED1 050-1AA00-0AE6**		1	1 unit	200	0.450
• English	A	**6ED1 050-1AA00-0BE6**		1	1 unit	200	0.401
• French	B	**6ED1 050-1AA00-0CE6**		1	1 unit	200	0.400
• Spanish	B	**6ED1 050-1AA00-0DE6**		1	1 unit	200	0.406
• Italian	B	**6ED1 050-1AA00-0EE6**		1	1 unit	200	0.402
LOGO! Memory Cards for copying, with know-how protection	A	**6ED1 056-5CA00-0BA0**		1	1 unit	200	0.004
LOGO! Soft Comfort V5.0 for programming on the PC in LAD/FBD; executes under Windows 98 SE and higher, Linux, MAC OSX; on CD-ROM	A	**6ED1 058-0BA01-0YA0**		1	1 unit	200	0.101
LOGO! Soft Comfort Upgrade from V1.0 to V5.0	A	**6ED1 058-0CA01-0YE0**		1	1 unit	200	0.098
LOGO! PC cables for transferring programs between LOGO! and PC	A	**6ED1 057-1AA00-0BA0**		1	1 unit	200	0.159
LOGO! News Box, 12/24 V contains LOGO! 12/24RC, LOGO! PC cable, LOGO! Soft Comfort, Tips&Tricks manual, screw driver, information material							
• German	A	**6ED1 057-3BA00-0AA4**		1	1 unit	2Z0	2.200
• English	A	**6ED1 057-3BA00-0BA4**		1	1 unit	2Z0	2.200
LOGO! News Box, 230 V contains LOGO! 230RC, LOGO! PC cable, LOGO! Soft Comfort, Tips&Tricks manual, screw driver, information material							
• German	A	**6ED1 057-3AA01-0AA0**		1	1 unit	2Z0	2.200
• English	A	**6ED1 057-3AA01-0BA0**		1	1 unit	2Z0	2.340

*** You can order this quantity or a multiple thereof.**

LOGO! Modular extension modules

Overview

- Expansion modules for connection to LOGO! Modular
- With digital inputs and outputs, analog inputs or analog outputs

Selection and ordering data

Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
							kg
LOGO! DM8 24 Supply voltage 24 V DC, 4 digital inputs 24 V DC, 4 digital outputs 24 V DC, 0.3 A	A	**6ED1 055-1CB00-0BA0**		1	1 unit	200	0.122
LOGO! DM16 24 Supply voltage 24 V DC, 8 digital inputs 24 V DC, 8 digital outputs 24 V DC, 0.3 A	A	**6ED1 055-1CB10-0BA0**		1	1 unit	200	0.122
LOGO! DM8 12/24R Supply voltage 12/24 V DC, 4 digital inputs 12/24 V DC, 4 relay outputs 5 A	A	**6ED1 055-1MB00-0BA1**		1	1 unit	200	0.157
LOGO! DM8 24R Supply voltage 24 V AC/DC, 4 digital inputs 24 V AC/DC, 4 relay outputs 5 A	A	**6ED1 055-1HB00-0BA0**		1	1 unit	200	0.158
LOGO! DM16 24R Supply voltage 24 V DC, 8 digital inputs 24 V DC, 8 relay outputs 5 A	A	**6ED1 055-1NB10-0BA0**		1	1 unit	200	0.159
LOGO! DM8 230R Supply voltage 115/230 V AC/DC, 4 digital inputs 115/230 V AC/DC, 4 relay outputs 5 A	A	**6ED1 055-1FB00-0BA1**		1	1 unit	200	0.159
LOGO! DM16 230R Supply voltage 115/230 V AC/DC, 8 digital inputs 115/230 V AC/DC, 8 relay outputs 5 A	A	**6ED1 055-1FB10-0BA0**		1	1 unit	200	0.159
LOGO! AM2 Supply voltage 12/24 V DC, 2 analog inputs 0 to 10 V or 0 to 20 mA, 10 bit resolution	A	**6ED1 055-1MA00-0BA0**		1	1 unit	200	0.119
LOGO! AM2 PT 100 Supply voltage 12/24 V DC, 2 analog inputs for Pt100, temperature range -50 °C to 200 °C	A	**6ED1 055-1MD00-0BA0**		1	1 unit	200	0.120
LOGO! AM2 AQ Supply voltage 24 V DC, 2 analog outputs 0 to 10 V	A	**6ED1 055-1MM00-0BA0**		1	1 unit	200	0.120

* You can order this quantity or a multiple thereof.

Accessories

Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
LOGO! manuals							
• German	A	**6ED1 050-1AA00-0AE6**		1	1 unit	200	0.450
• English	A	**6ED1 050-1AA00-0BE6**		1	1 unit	200	0.401
• French	B	**6ED1 050-1AA00-0CE6**		1	1 unit	200	0.400
• Spanish	B	**6ED1 050-1AA00-0DE6**		1	1 unit	200	0.406
• Italian	B	**6ED1 050-1AA00-0EE6**		1	1 unit	200	0.402
LOGO! Memory Cards for copying, with know-how protection	A	**6ED1 056-5CA00-0BA0**		1	1 unit	200	0.004
LOGO! Soft Comfort V5.0 for programming on the PC in LAD/FBD; executes under Windows 98 SE and higher, Linux, MAC OSX; on CD-ROM	A	**6ED1 058-0BA01-0YA0**		1	1 unit	200	0.101
LOGO! Soft Comfort Upgrade from V1.0 to V5.0	A	**6ED1 058-0CA01-0YE0**		1	1 unit	200	0.098
LOGO! PC cables for transferring programs between LOGO! and PC	A	**6ED1 057-1AA00-0BA0**		1	1 unit	200	0.159
LOGO! News Box, 12/24 V contains LOGO! 12/24RC, LOGO! PC cable, LOGO! Soft Comfort, Tips&Tricks manual, screw driver, information material							
• German	A	**6ED1 057-3BA00-0AA4**		1	1 unit	2Z0	2.200
• English	A	**6ED1 057-3BA00-0BA4**		1	1 unit	2Z0	2.200
LOGO! News Box, 230 V contains LOGO! 230RC, LOGO! PC cable, LOGO! Soft Comfort, Tips&Tricks manual, screw driver, information material							
• German	A	**6ED1 057-3AA01-0AA0**		1	1 unit	2Z0	2.200
• English	A	**6ED1 057-3AA01-0BA0**		1	1 unit	2Z0	2.340

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*** You can order this quantity or a multiple thereof.**

LOGO! CM EIB/KNX communications modules

Overview

- Expansion module for the LOGO! basic variants
- For communication between the LOGO! master and external *EIB* components via *EIB*.

Application

The CM EIB/KNX communication module allows communication between the LOGO! master and external *EIB* components via *EIB*. The module can be used to integrate LOGO! into an *EIB* system.

Selection and ordering data

Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
							kg
LOGO! CM EIB KNX communications modules for connection to *EIB*, supply voltage 24 V DC	B	**6BK1 700-0BA00-0AA1**		1	1 unit	475	0.107

Accessories

Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
							kg
LOGO! manuals							
• German	A	**6ED1 050-1AA00-0AE6**		1	1 unit	200	0.450
• English	A	**6ED1 050-1AA00-0BE6**		1	1 unit	200	0.401
• French	B	**6ED1 050-1AA00-0CE6**		1	1 unit	200	0.400
• Spanish	B	**6ED1 050-1AA00-0DE6**		1	1 unit	200	0.406
• Italian	B	**6ED1 050-1AA00-0EE6**		1	1 unit	200	0.402

*** You can order this quantity or a multiple thereof.**

Overview

Every LOGO! can now be connected to the AS-Interface system

Using the AS-Interface connection for LOGO!, an intelligent slave can be integrated in the AS-Interface system. With the modular interface it becomes possible to integrate the different basic devices in the system according to their functionality. Similarly, functionalities can be quickly and easily adapted to new requirements by exchanging the basic device.

The interface module provides four inputs and four outputs on the system. These I/Os do not actually exist in hardware terms, however, but are only virtually present through the interface on the bus.

Selection and ordering data

Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
AS-Interface connections for LOGO!	A	**3RK1 400-0CE10-0AA2**		1	1 unit	121	0.107

*** You can order this quantity or a multiple thereof.**

LOGO! Contact

Overview

- Switching module for switching resistive loads and motors directly

Application

LOGO! Contact is a switching module for direct switching of resistive loads up (up to 20 A) and motors (up to 4 kW). LOGO! Contact operates hum-free without noise pollution.

LOGO! Contact is universally applicable:

- Buildings/electrical installations
- Industry and commerce

Selection and ordering data

Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
LOGO! Contact							
Switching module for direct switching of resistive loads up to 20 A and motors up to 4 kW							
• Operating voltage 24 V	A	**6ED1 057-4CA00-0AA0**		1	1 unit	200	0.160
• Operating voltage 230 V	A	**6ED1 057-4EA00-0AA0**		1	1 unit	200	0.160

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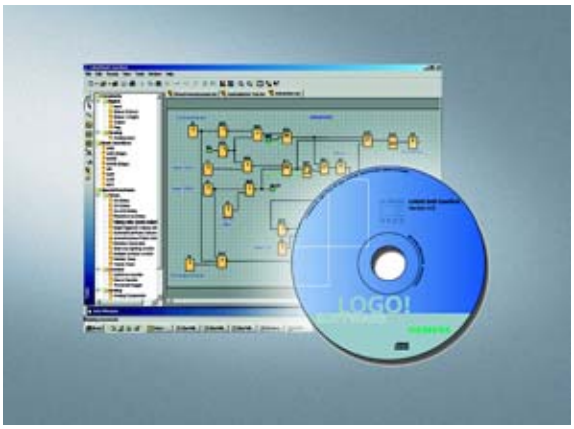
* You can order this quantity or a multiple thereof.

Overview



- The user-friendly software for switchgear program generation on the PC
- Switchgear program generation for function diagrams (FBD) or contact diagrams (LAD)
- Additional testing, simulation, online testing and archiving of the switchgear programs
- Professional documentation with the help of various comment and print functions

Application

LOGO! Soft Comfort is the multilingual software for switchgear program generation with LOGO! on the PC. LOGO! Soft Comfort can be used to program all components of the LOGO! family.

Selection and ordering data

Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	LG	Weight per PU approx.
							kg
LOGO! Soft Comfort V5.0 for programming on the PC in LAD/FBD; runs on Windows 98 SE and higher, Linux, MAC OSX; on CD-ROM	A	**6ED1 058-0BA01-0YA0**		1	1 unit	200	0.101
LOGO! Soft Comfort Upgrade from V1.0 to V5.0	A	**6ED1 058-0CA01-0YE0**		1	1 unit	200	0.098

*** You can order this quantity or a multiple thereof.**

3RP15 timing relays in industrial enclosure, 22.5 mm

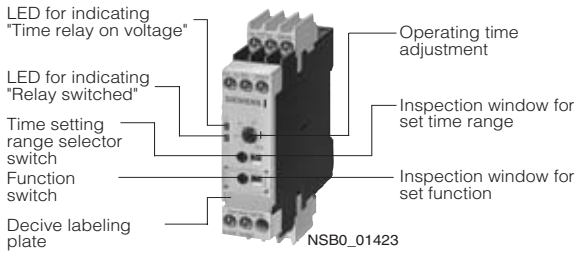
Overview

Standards

The timing relays comply with:

- EN 60721-3-3 "Environmental conditions"
- EN 61812-1/DIN VDE 0435 Part 2021 "Solid-state relays, timing relays"
- EN 61000-6-2 and EN 61000-6-4 "Electromagnetic compatibility"
- EN 60947-5-1; (VDE 0660 Part 200) "Low-voltage controlgear, switchgear and systems – Electromechanical controlgear"

3RP15 timing relays, width 22.5 mm

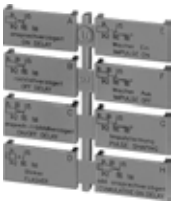


Accessories

Push-in lugs for screw mounting

Sealable cap

Label set for marking the multifunction relay



Application

Timing relays are used in control, starting, and protective circuits for all switching operations involving time delays. They guarantee a high level of functionality and a high repeat accuracy of timer settings.

Enclosure design

All timing relays are suitable for snap-on mounting onto 35 mm standard mounting rails according to EN 50022 or for screw fixing.

3RP15 timing relays in industrial enclosure, 22.5 mm

Selection and ordering data

Solid-state timing relays for general use in control systems and mechanical engineering with:

- 1 changeover contact or 2 changeover contacts
- Single or selectable time setting ranges
- Switching position indication by LED
- Voltage indication by LED

Version	Time setting range *t* adjustable by rotary switch to	Rated control supply voltage U_s AC 50/60 Hz V	Rated control supply voltage U_s DC V	DT	Screw-type connection Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
3RP15 05 timing relays, multifunction, 15 time setting ranges										
The functions can be adjusted by means of rotary switches. Indicator labels can be used to adjust different functions of the 3RP15 05 timing relay clearly and unmistakably. The corresponding labels can be ordered as an accessory. The same potential must be applied to terminals A. and B.[1]										
 3RP15 05-1B...										
with LED and										
1 CO contact, 8 functions	0.05 ... 1 s	--	12	A	**3RP15 05-1AA40**		1	1 unit	101	0.125
	0.15 ... 3 s	24/100 ... 127	24	▶	**3RP15 05-1AQ30**		1	1 unit	101	0.140
	0.5 ... 10 s	24/200 ... 240	24	▶	**3RP15 05-1AP30**		1	1 unit	101	0.141
	1.5 ... 30 s	24 ... 240[3]	24 ... 240[3]	▶	**3RP15 05-1AW30**		1	1 unit	101	0.136
2 CO contacts, 16 functions	0.05 ... 1 min 5 ... 100 s 0.15 ... 3 min 0.5 ... 10 min 1.5 ... 30 min	24/100 ... 127	24	▶	**3RP15 05-1BQ30**		1	1 unit	101	0.162
		24/200 ... 240	24	▶	**3RP15 05-1BP30**		1	1 unit	101	0.161
		24 ... 240[3]	24 ... 240[3]	▶	**3RP15 05-1BW30**		1	1 unit	101	0.168
		400 ... 440	--	A	**3RP15 05-1BT20**		1	1 unit	101	0.169
2 CO contacts, positively driven and hard gold-plated. 8 functions[4][5]	0.05 ... 1 h 5 ... 100 min 0.15 ... 3 h 0.5 ... 10 h 1.5 ... 30 h 5 ... 100 h ∞[2]	24 ... 240	24 ... 240	▶	**3RP15 05-1RW30**		1	1 unit	101	0.169
3RP15 1. timing relays, ON-delay, 1 time setting range										
 3RP15 1.-1A...										
with LED and 1 CO contact	0.5 ... 10 s	24/100 ... 127	24	▶	**3RP15 11-1AQ30**		1	1 unit	101	0.108
		24/200 ... 240	24	▶	**3RP15 11-1AP30**		1	1 unit	101	0.108
	1.5 ... 30 s	24/100 ... 127	24	▶	**3RP15 12-1AQ30**		1	1 unit	101	0.107
		24/200 ... 240	24	▶	**3RP15 12-1AP30**		1	1 unit	101	0.104
	5 ... 100 s	24/100 ... 127	24	▶	**3RP15 13-1AQ30**		1	1 unit	101	0.107
		24/200 ... 240	24	▶	**3RP15 13-1AP30**		1	1 unit	101	0.108
3RP15 25 timing relays, ON-delay, 15 time setting ranges										
 3RP15 25.1A...										
with LED and										
1 CO contact	0.05 ... 1 s	24/100 ... 127	24	▶	**3RP15 25-1AQ30**		1	1 unit	101	0.109
	0.15 ... 3 s	24/200 ... 240	24	▶	**3RP15 25-1AP30**		1	1 unit	101	0.104
2 CO contacts	0.5 ... 10 s 1.5 ... 30 s 0.05 ... 1 min 5 ... 100 s 0.15 ... 3 min 0.5 ... 10 min 1.5 ... 30 min 0.05 ... 1 h 5 ... 100 min 0.15 ... 3 h 0.5 ... 10 h 1.5 ... 30 h 5 ... 100 h ∞[2]	42 ... 48/60	42 ... 48/60[6]	A	**3RP15 25-1BR30**		1	1 unit	101	0.152
		24/100 ... 127	24	▶	**3RP15 25-1BQ30**		1	1 unit	101	0.152
		24/200 ... 240[6]	24	▶	**3RP15 25-1BP30**		1	1 unit	101	0.155
		24 ... 240	24 ... 240[3]	▶	**3RP15 25-1BW30**		1	1 unit	101	0.159
3RP15 27 timing relays, ON-delay, two-wire design, 4 time setting ranges										
 3RP15 27-1E...										
1 NO contact (semiconductor)	0.05 ... 1 s 0.2 ... 4 s 1.5 ... 30 s 12 ... 240 s	24 ... 66	24...66[6]	A	**3RP15 27-1EC30**		1	1 unit	101	0.099
		90 ... 240	90...240[3]	▶	**3RP15 27-1EM30**		1	1 unit	101	0.100

1) For functions, see 3RP19 01-0. label set.

2) With switch position ∞, no timing. For test purposes (ON/OFF function) on site. Relay is constantly on when activated, or relay remains constantly off when activated. Depending on which function is set.

3) Operating range 0.7 to 1.1 x U_s.

4) Positively driven: NO and NC are never closed simultaneously; contact gap >= 0.5 mm is ensured, minimum make-break capacity 12 V, 3 mA.

5) The changeover contacts are actuated simultaneously, as a result of which only 8 functions are selectable (no wye-delta, no instantaneous contact).

6) Operating range 0.8 to 1.1 x U_s.

*** You can order this quantity or a multiple thereof.**

3RP15 timing relays in industrial enclosure, 22.5 mm

Solid-state timing relays for general use in control systems and mechanical engineering with:

- 1 changeover contact or 2 changeover contacts
- Single or selectable time setting ranges
- Switching position indication by LED
- Voltage indication by LED

Version	Time setting range *t* adjustable by rotary switch to	Rated control supply voltage U_s AC 50/60 Hz V	Rated control supply voltage U_s DC V	DT	Spring-loaded terminal Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
3RP15 05 timing relays, multifunction, 15 time setting ranges										
The functions can be adjusted by means of rotary switches. Indicator labels can be used to adjust different functions of the 3RP15 05 timing relay clearly and unmistakably. The corresponding labels can be ordered as an accessory. The same potential must be applied to terminals A. and B.[1]										
with LED and										
1 CO contact, 8 functions	0.05 ... 1 s	24/100 ... 127	24	C	**3RP15 05-2AQ30**		1	1 unit	101	0.125
	0.15 ... 3 s	24/200 ... 240	24	A	**3RP15 05-2AP30**		1	1 unit	101	0.126
	0.5 ... 10 s	24 ... 240[3]	24 ... 240[3]	A	**3RP15 05-2AW30**		1	1 unit	101	0.132
2 CO contacts, 16 functions	1.5 ... 30 s 0.05 ... 1 min 5 ... 100 s 0.15 ... 3 min 0.5 ... 10 min 1.5 ... 30 min 0.05 ... 1 h 5 ... 100 min 0.15 ... 3 h 0.5 ... 10 h 1.5 ... 30 h 5 ... 100 h ∞[2]	24/100 ... 127	24	A	**3RP15 05-2BQ30**		1	1 unit	101	0.142
		24/200 ... 240	24	A	**3RP15 05-2BP30**		1	1 unit	101	0.137
		24 ... 240[3]	24 ... 240[3]	A	**3RP15 05-2BW30**		1	1 unit	101	0.143
2 CO contacts, positively driven and hard gold-plated. 8 functions[4][5]		24 ... 240	24 ... 240	A	**3RP15 05-2RW30**		1	1 unit	101	0.143
3RP15 1. timing relays, ON-delay, 1 time setting range										
with LED and 1 CO contact	0.5 ... 10 s	24/100 ... 127	24	C	**3RP15 11-2AQ30**		1	1 unit	101	0.092
		24/200 ... 240	24	A	**3RP15 11-2AP30**		1	1 unit	101	0.092
	1.5 ... 30 s	24/100 ... 127	24	C	**3RP15 12-2AQ30**		1	1 unit	101	0.092
		24/200 ... 240	24	A	**3RP15 12-2AP30**		1	1 unit	101	0.097
	5 ... 100 s	24/100 ... 127	24	C	**3RP15 13-2AQ30**		1	1 unit	101	0.094
		24/200 ... 240	24	C	**3RP15 13-2AP30**		1	1 unit	101	0.094
3RP15 25 timing relays, ON-delay, 15 time setting ranges										
with LED and										
1 CO contact	0.05 ... 1 s	24/100 ... 127	24	C	**3RP15 25-2AQ30**		1	1 unit	101	0.095
	0.15 ... 3 s	24/200 ... 240	24	A	**3RP15 25-2AP30**		1	1 unit	101	0.093
2 CO contacts	0.5 ... 10 s 1.5 ... 30 s 0.05 ... 1 min 5 ... 100 s 0.15 ... 3 min 0.5 ... 10 min 1.5 ... 30 min 0.05 ... 1 h 5 ... 100 min 0.15 ... 3 h 0.5 ... 10 h 1.5 ... 30 h 5 ... 100 h ∞[2]	24/100 ... 127	24	C	**3RP15 25-2BQ30**		1	1 unit	101	0.128
		24/200 ... 240	24	A	**3RP15 25-2BP30**		1	1 unit	101	0.127
		24 ... 240[6]	24 ... 240[3]	A	**3RP15 25-2BW30**		1	1 unit	101	0.134
3RP15 27 timing relays, ON-delay, two-wire design, 4 time setting ranges										
1 NO contact (semiconductor)	0.05 ... 1 s 0.2 ... 4 s 1.5 ... 30 s 12 ... 240 s	24 ... 66	24...66[6]	C	**3RP15 27-2EC30**		1	1 unit	101	0.090
		90 ... 240	90...240 [3]	C	**3RP15 27-2EM30**		1	1 unit	101	0.090

1) For functions, see 3RP19 01-0. label set.

2) With switch position ∞, no timing. For test purposes (ON/OFF function) on site. Relay is constantly on when activated, or relay remains constantly off when activated. Depending on which function is set.

3) Operating range 0.7 to 1.1 x U_s.

4) Positively driven: NO and NC are never closed simultaneously; contact gap >= 0.5 mm is ensured, minimum make-break capacity 12 V, 3 mA.

5) The changeover contacts are actuated simultaneously, as a result of which only 8 functions are selectable (no wye-delta, no instantaneous contact).

6) Operating range 0.8 to 1.1 x U_s.

*** You can order this quantity or a multiple thereof.**

3RP15 timing relays in industrial enclosure, 22.5 mm

Solid-state timing relays for general use in control systems and mechanical engineering with:

- 1 changeover contact or 2 changeover contacts
- Single or selectable time setting ranges
- Switching position indication by LED
- Voltage indication by LED

Version	Time setting range *t* adjustable by rotary switch to	Rated control supply voltage U_S AC 50/60 Hz V	Rated control supply voltage U_S DC V	DT	Screw-type connection Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
3RP15 3. timing relays, OFF-delay, with auxiliary voltage, 1 time setting range										
 3RP15 3.-1A...										
with LED and 1 CO contact The same potential must be applied to terminals A and B.	0.5 ... 10 s	24/100 ... 127	24	A	**3RP15 31-1AQ30**		1	1 unit	101	0.140
		24/200 ... 240	24	▶	**3RP15 31-1AP30**		1	1 unit	101	0.140
	1.5 ... 30 s	24/100 ... 127	24	A	**3RP15 32-1AQ30**		1	1 unit	101	0.138
		24/200 ... 240	24	▶	**3RP15 32-1AP30**		1	1 unit	101	0.139
	5 ... 100 s	24/100 ... 127	24	A	**3RP15 33-1AQ30**		1	1 unit	101	0.139
		24/200 ... 240	24	▶	**3RP15 33-1AP30**		1	1 unit	101	0.140
3RP15 40 timing relays, OFF-delay, without auxiliary voltage, 7 time setting ranges[1]										
 3RP15 40-1.A...										
with LED and 1 CO contact	0.05 ... 1 s 0.15 ... 3 s 0.3 ... 6 s 0.5 ... 10 s 1.5 ... 30 s 3 ... 60 s 5 ... 100 s	24	24[2]	▶	**3RP15 40-1AB30**		1	1 unit	101	0.116
		100 ... 127	100...127[3]	▶	**3RP15 40-1AJ30**		1	1 unit	101	0.119
		200 ... 240	200...240[3]	▶	**3RP15 40-1AN30**		1	1 unit	101	0.120
2 CO contacts		24	24[2]	▶	**3RP15 40-1BB30**		1	1 unit	101	0.159
		100 ... 127	100...127[3]	A	**3RP15 40-1BJ30**		1	1 unit	101	0.161
		200 ... 240	200...240[3]	▶	**3RP15 40-1BN30**		1	1 unit	101	0.161
3RP15 55 timing relays, clock-pulse relay, 15 time setting ranges										
 3RP15 55-1A...										
with LED and 1 CO contact	0.05 ... 1 s	42 ... 48/60	42...48/60[5]	A	**3RP15 55-1AR30**		1	1 unit	101	0.111
	0.15 ... 3 s 0.5 ... 10 s 1.5 ... 30 s 0.05 ... 1 min 5 ... 100 s 0.15 ... 3 min 0.5 ... 10 min 1.5 ... 30 min 0.05 ... 1 h 5 ... 100 min 0.15 ... 3 h 0.5 ... 10 h 1.5 ... 30 h 5 ... 100 h ∞[4]	24/100 ... 127	24	▶	**3RP15 55-1AQ30**		1	1 unit	101	0.111
		24/200 ... 240	24	▶	**3RP15 55-1AP30**		1	1 unit	101	0.111
3RP15 60 timing relays, wye-delta function, dead interval 50 ms and overtravel time, 1 time setting range										
 3RP15 60-1S...										
3 NO contacts[3] (common contact root terminal 17)	wye-delta 1 ... 20 s, overtravel time (idling) 30 ... 600 s	24/100 ... 127	24	A	**3RP15 60-1SQ30**		1	1 unit	101	0.172
		24/200 ... 240	24	▶	**3RP15 60-1SP30**		1	1 unit	101	0.175
3RP15 7. timing relays, wye-delta function[6], dead interval 50 ms, 1 time setting range										
 3RP15 7.-1N...										
1 NO contact instantaneous and 1 NO contact delayed (common contact root terminal 17)	1 ... 20 s	24/100 ... 127	24	▶	**3RP15 74-1NQ30**		1	1 unit	101	0.113
		24/200 ... 240	24	▶	**3RP15 74-1NP30**		1	1 unit	101	0.113
		200 ... 240/ 380 ...440	--	B	**3RP15 74-1NM20**		1	1 unit	101	0.113
	3 ... 60 s	24/100 ... 127	24	▶	**3RP15 76-1NQ30**		1	1 unit	101	0.112
		24/200 ... 240	24	▶	**3RP15 76-1NP30**		1	1 unit	101	0.113
		200 ... 240/ 380 ...440	--	B	**3RP15 76-1NM20**		1	1 unit	101	0.113

1) Setting of output contacts in as-supplied state not defined (bistable relay). Application of the control voltage once results in contact changeover to the correct setting.

2) Operating range 0.7 to 1.25 x U_S.

3) Operating range 0.85 to 1.1 x U_S.

4) With switch position ∞, no timing. For test purposes (ON/OFF function) on site. For dead time "infinite", the relay is always off. For pulse time "infinite", the relay is always on.

5) Operating range 0.8 to 1.1 x U_S.

6) For typical circuit see Schematics.

*** You can order this quantity or a multiple thereof.**

3RP15 timing relays in industrial enclosure, 22.5 mm

Solid-state timing relays for general use in control systems and mechanical engineering with

- 1 changeover contact or 2 changeover contacts
- Single or selectable time setting ranges
- Switching position indication by LED
- Voltage indication by LED

Version	Time setting range *t* adjustable by rotary switch to	Rated control supply voltage U_s AC 50/60 Hz V	Rated control supply voltage U_s DC V	DT	Spring-loaded terminal Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per unit/ set/ meter approx. kg
3RP15 3. timing relays, OFF-delay, with auxiliary voltage, 1 time setting range										
with LED and 1 CO contact The same potential must be applied to terminals A and B	0.5 ... 10 s	24/100 ... 127	24	C	**3RP15 31-2AQ30**		1	1 unit	101	0.124
		24/200 ... 240	24	A	**3RP15 31-2AP30**		1	1 unit	101	0.122
	1.5 ... 30 s	24/100 ... 127	24	C	**3RP15 32-2AQ30**		1	1 unit	101	0.125
		24/200 ... 240	24	C	**3RP15 32-2AP30**		1	1 unit	101	0.121
	5 ... 100 s	24/100 ... 127	24	C	**3RP15 33-2AQ30**		1	1 unit	101	0.123
		24/200 ... 240	24	C	**3RP15 33-2AP30**		1	1 unit	101	0.125
3RP15 40 timing relays, OFF-delay, without auxiliary voltage, 7 time setting ranges[1]										
with LED and										
1 CO contact	0.05 ... 1 s 0.15 ... 3 s 0.3 ... 6 s	24 100 ... 127 200 ... 240	24[2] 100...127[3] 200...240[3]	A A A	**3RP15 40-2AB30** **3RP15 40-2AJ30** **3RP15 40-2AN30**		1 1 1	1 unit 1 unit 1 unit	101 101 101	0.105 0.108 0.110
2 CO contacts	0.5 ... 10 s 1.5 ... 30 s 3 ... 60 s 5 ... 100 s	24 100 ... 127 200 ... 240	24[2] 100...127[3] 200...240[3]	A C C	**3RP15 40-2BB30** **3RP15 40-2BJ30** **3RP15 40-2BN30**		1 1 1	1 unit 1 unit 1 unit	101 101 101	0.136 0.136 0.136
3RP15 55 timing relays, clock-pulse relay, 15 time setting ranges										
with LED and 1 changeover contact	0.05 ... 1 s 0.15 ... 3 s 0.5 ... 10 s 1.5 ... 30 s 0.05 ... 1 min 5 ... 100 s 0.15 ... 3 min 0.5 ... 10 min 1.5 ... 30 min 0.05 ... 1 h 5 ... 100 min 0.15 ... 3 h 0.5 ... 10 h 1.5 ... 30 h 5 ... 100 h ∞[4]	42 ... 48/60 24/100 ... 127 24/200 ... 240	42...48/60[5] 24 24	C C A	**3RP15 55-2AR30** **3RP15 55-2AQ30** **3RP15 55-2AP30**		1 1 1	1 unit 1 unit 1 unit	101 101 101	0.102 0.100 0.104
3RP15 60 timing relays, wye-delta function, dead interval 50 ms and overtravel time, 1 time setting range										
3 NO contacts[3] (common contact root terminal 17)	wye-delta 1 ... 20 s, overtravel time (idling) 30 ... 600 s	24/200 ... 240	24	C	**3RP15 60-2SP30**		1	1 unit	101	0.152
3RP15 7. timing relays, wye-delta function[6], dead interval 50 ms, 1 time setting range										
1 NO contact instantaneous and 1 NO contact delayed (common contact root terminal 17)	1 ... 20 s	24/200 ... 240 200 ... 240/ 380 ...440	24	A B	**3RP15 74-2NP30** **3RP15 74-2NM20**		1 1	1 unit 1 unit	101 101	0.104 0.100
	3 ... 60 s	24/100 ... 127 24/200 ... 240 200 ... 240/ 380 ... 440	24 24	C A B	**3RP15 76-2NQ30** **3RP15 76-2NP30** **3RP15 76-2NM20**		1 1 1	1 unit 1 unit 1 unit	101 101 101	0.102 0.104 0.100

1) Setting of output contacts in as-supplied state not defined (bistable relay). Application of the control voltage once results in contact changeover to the correct setting.

2) Operating range 0.7 to 1.25 x U_s.

3) Operating range 0.85 to 1.1 x U_s.

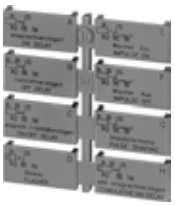
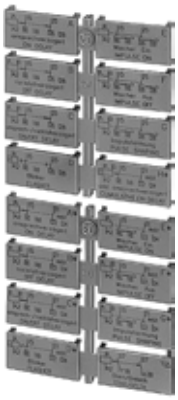
4) With switch position ∞, no timing. For test purposes (ON/OFF function) on site. For dead time "infinite", the relay is always off. For pulse time "infinite", the relay is always on.

5) Operating range 0.8 to 1.1 x U_s.

6) For typical circuit see Schematics.

*** You can order this quantity or a multiple thereof.**

Accessories

	Version	Function	Code letter	Appli-cation	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
Label sets											
	Accessory for 3RP 15 05 (not included in the scope of supply). The label set offers the possibility of labeling timing relays with the set function in English and German.										
	1 label set (1 unit) with 8 functions	With ON-delay	A	for devices with 1 CO contact and 3RP15 05-.RW30	▶	**3RP19 01-0A**		1	5 units	101	0.003
		OFF-delay with auxiliary voltage	B								
		ON-delay and OFF-delay with auxiliary voltage	C								
		Flashing, starting with interval	D								
		Passing make contact	E								
		Passing break contact with auxiliary voltage	F								
		Pulse-forming with auxiliary voltage	G								
		Additive ON-delay with auxiliary voltage	H								
	1 label set (1 unit) with 16 functions	With ON-delay	A	for devices with 2 CO contacts	▶	**3RP19 01-0B**		1	5 units	101	0.006
		OFF-delay with auxiliary voltage	B								
		ON-delay and OFF-delay with auxiliary voltage	C								
		Flashing, starting with interval	D								
		Passing make contact	E								
		Passing break contact with auxiliary voltage	F								
		Pulse-forming with auxiliary voltage	G								
		Additive ON-delay with auxiliary voltage and instantaneous contact	H•								
		ON-delay and instantaneous contact	A•								
		OFF-delay with auxiliary voltage and instantaneous contact	B•								
		ON-delay and OFF-delay with auxiliary voltage and instantaneous contact	C•								
		Flashing, starting with interval, and instantaneous contact	D•								
		Passing make contact and instantaneous contact	E•								
		Passing break contact with auxiliary voltage and instantaneous contact	F•								
		Pulse-forming with auxiliary voltage and instantaneous contact	G•								
		Wye-delta function	Y∆								
Blank labeling plates											
	Blank labeling plates, 20 mm x 7 mm, pastel turquoise[1)]				C	**3RT19 00-1SB20**		100	340 units	101	22.000
Covering caps and push-in lugs											
	**Push-in lugs** for screw mounting			for devices with 1 or 2 CO contacts	▶	**3RP19 03**		1	10 units	101	0.002
	**Sealable caps** for securing against unauthorized adjustment of setting knobs			for devices with 1 or 2 CO contacts	▶	**3RP19 02**		1	5 units	101	0.004

1) Computer labeling system for individual labeling of device labeling plates available from: murrplastik Systemtechnik GmbH.

*** You can order this quantity or a multiple thereof.**

3RP20 timing relays, 45 mm

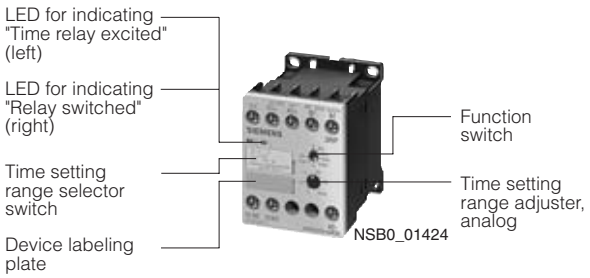
Overview

Standards

The timing relays comply with:

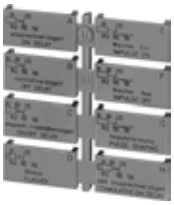
- EN 60721-3-3
  "Environmental conditions"
- EN 61812-1/DIN VDE 0435 Part 2021
  "Solid-state relays, timing relays"
- EN 61000-6-2 and EN 61000-6-4
  "Electromagnetic compatibility"
- EN 60947-5-1; (VDE 0660 Part 200)
  "Low-voltage controlgear, switchgear and systems – Electromechanical controlgear"
- EN 61140
  "Safe electrical isolation"

3RP20 timing relay, width 45 mm



Accessories

Label set for marking the multifunction relay



Application

Timing relays are used in control, starting, and protective circuits for all switching operations involving time delays. They guarantee a high level of functionality and a high repeat accuracy of timer settings.

Selection and ordering data

Multifunction

The functions can be adjusted by means of rotary switches[1]. Indicator labels can be used to adjust different functions of the 3RP20 05 timing relay clearly and unmistakably.

The corresponding labels can be ordered as an accessory. The same potential must be applied to terminals A. and B..

	Version	Time setting range	Rated control supply voltage U_s AC 50-60 Hz V	Rated control supply voltage U_s DC V	DT	Screw-type connection Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
3RP20 05 timing relays, multifunction, 15 time setting ranges											
 3RP20 05-1BW30	with LED and 1 CO contact, 8 functions [1)2)]	0.05 ... 1 s 0.15 ... 3 s 0.5 ... 10 s 1.5 ... 30 s	24/100 ... 127 24/200 ... 240	24 24	▶ ▶	**3RP20 05-1AQ30** **3RP20 05-1AP30**		1 1	1 unit 1 unit	101 101	0.118 0.119
	with LED and 2 CO contacts, 16 functions[1)]	0.05 ... 1 min 5 ... 100 s 0.15 ... 3 min 0.5 ... 10 min 1.5 ... 30 min 0.05 ... 1 h 5 ... 100 min 0.15 ... 3 h 0.5 ... 10 h 1.5 ... 30 h 5 ... 100 h ∞[3)]	24 ... 240[4)]	24 ... 240[5)]	D	**3RP20 05-1BW30**		1	1 unit	101	0.128
3RP20 25 timing relays, ON-delay, 15 time setting ranges											
 3RP20 25-1AP30	with LED and 1 CO contact[2)]	0.05 ... 1 s 0.15 ... 3 s 0.5 ... 10 s 1.5 ... 30 s 0.05 ... 1 min 5 ... 100 s 0.15 ... 3 min 0.5 ... 10 min 1.5 ... 30 min 0.05 ... 1 h 5 ... 100 min 0.15 ... 3 h 0.5 ... 10 h 1.5 ... 30 h 5 ... 100 h ∞[3)]	24/100 ... 127 24/200 ... 240	24 24	▶ ▶	**3RP20 25-1AQ30** **3RP20 25-1AP30**		1 1	1 unit 1 unit	101 101	0.106 0.106

1) For functions, see 3PR19 01-0. label set.

2) Units with safe electrical isolation.

3) With switch position ∞, no timing. For test purposes (ON/OFF function) on site. Relay is constantly on when activated, or relay remains constantly off when activated. Depending on which function is set.

4) Operating range 0.8 ... 1.1 x U_s.

5) Operating range 0.7 ... 1.1 x U_s.

*** You can order this quantity or a multiple thereof.**

3RP20 timing relays, 45 mm

Selection and ordering data

Multifunction

The functions can be adjusted by means of rotary switches[1]. Indicator labels can be used to adjust different functions of the 3RP20 05 timing relay clearly and unmistakably.

The corresponding labels can be ordered as an accessory. The same potential must be applied to terminals A. and B..

Version	Time setting range *t*	Rated control supply voltage U_s AC 50-60 Hz V	Rated control supply voltage U_s DC V	DT	Spring-loaded terminal Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
3RP20 05 timing relays, multifunction, 15 time setting ranges										
with LED and 1 CO contact, 8 functions[1)2)]	0.05 ... 1 s 0.15 ... 3 s 0.5 ... 10 s 1.5 ... 30 s 0.05 ... 1 min 5 ... 100 s 0.15 ... 3 min 0.5 ... 10 min 1.5 ... 30 min 0.05 ... 1 h 5 ... 100 min 0.15 ... 3 h 0.5 ... 10 h 1.5 ... 30 h 5 ... 100 h ∞[3)]	24/ 100 ... 127 24/ 200 ... 240	24 24	D ▶	**3RP20 05-2AQ30** **3RP20 05-2AP30**		1 1	1 unit 1 unit	101 101	0.120 0.121
with LED and 2 CO contacts, 16 functions[1)]		24 ... 240[4)]	24 ... 240[5)]	A	**3RP20 05-2BW30**		1	1 unit	101	0.131
3RP20 25 timing relays, ON-delay, 15 time setting ranges										
with LED and 1 CO contact[2)]	0.05 ... 1 s 0.15 ... 3 s 0.5 ... 10 s 1.5 ... 30 s 0.05 ... 1 min 5 ... 100 s 0.15 ... 3 min 0.5 ... 10 min 1.5 ... 30 min 0.05 ... 1 h 5 ... 100 min 0.15 ... 3 h 0.5 ... 10 h 1.5 ... 30 h 5 ... 100 h ∞[3)]	24/ 100 ... 127 24/ 200 ... 240	24 24	D A	**3RP20 25-2AQ30** **3RP20 25-2AP30**		1 1	1 unit 1 unit	101 101	0.110 0.108

1) For functions, see 3PR19 01-0. label set.

2) Units with safe electrical isolation.

3) With switch position ∞, no timing. For test purposes (ON/OFF function) on site. Relay is constantly on when activated, or relay remains constantly off when activated. Depending on which function is set.

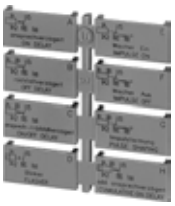
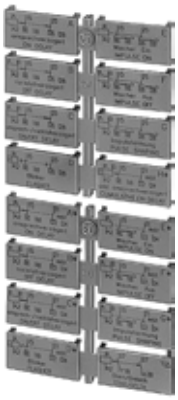
4) Operating range 0.8 to 1.1 x U_s.

5) Operating range 0.7 to 1.1 x U_s.

7

*** You can order this quantity or a multiple thereof.**

Accessories

	Version	Function	Code letter	Appli-cation	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
Label sets											
	Accessory for 3RP 15 05 (not included in the scope of supply). The label set offers the possibility of labeling timing relays with the set function in English and German.										
	1 label set (1 unit) with 8 functions	With ON-delay	A	for devices with 1 CO contact and 3RP15 05-.RW30	▶	**3RP19 01-0A**		1	5 units	101	0.003
		OFF-delay with auxiliary voltage	B								
		ON-delay and OFF-delay with auxiliary voltage	C								
		Flashing, starting with interval	D								
		Passing make contact	E								
		Passing break contact with auxiliary voltage	F								
		Pulse-forming with auxiliary voltage	G								
		Additive ON-delay with auxiliary voltage	H								
	1 label set (1 unit) with 16 functions	With ON-delay	A	for devices with 2 CO contacts	▶	**3RP19 01-0B**		1	5 units	101	0.006
		OFF-delay with auxiliary voltage	B								
		ON-delay and OFF-delay with auxiliary voltage	C								
		Flashing, starting with interval	D								
		Passing make contact	E								
		Passing break contact with auxiliary voltage	F								
		Pulse-forming with auxiliary voltage	G								
		Additive ON-delay with auxiliary voltage and instantaneous contact	H•								
		ON-delay and instantaneous contact	A•								
		OFF-delay with auxiliary voltage and instantaneous contact	B•								
		ON-delay and OFF-delay with auxiliary voltage and instantaneous contact	C•								
		Flashing, starting with interval, and instantaneous contact	D•								
		Passing make contact and instantaneous contact	E•								
		Passing break contact with auxiliary voltage and instantaneous contact	F•								
		Pulse-forming with auxiliary voltage and instantaneous contact	G•								
		Wye-delta function	Y∆								
Blank labeling plates											
	Blank labeling plates, 20 mm x 7 mm, pastel turquoise[1)]				C	**3RT19 00-1SB20**		100	340 units	101	22.000

1) Computer labeling system for individual labeling of device labeling plates available from: murrplastik Systemtechnik GmbH.

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*** You can order this quantity or a multiple thereof.**

7PV timing relays for panel mounting

Selection and ordering data

Version	Time setting range t	Rated control supply voltage U_s AC 50 ... 60 Hz V	Rated control supply voltage U_s DC V	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
7PV33 48 timing relays, multifunction, digitally adjustable, 11 time setting ranges										
 7PV33 48-2AX34 with LCD display, 1 CO contact • ON-delay • OFF-delay with auxiliary voltage[1)] • Flashing, starting with pulse • Flashing, starting with interval • Passing make contact • Pulse-forming Non-volatile setting parameters; the elapsed time is not saved[2)]	0.01 s ... 9999 h	24/110 ... 240	24	▶	**7PV33 48-2AX34**		1	1 unit	101	0.133

1) Function is retriggerable, i.e. a new start signal at terminal B after the operating time has started resets the operating time to zero.

2) Possibility of connecting parallel load to terminal B1!

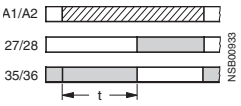
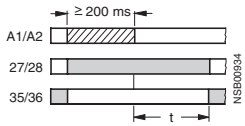
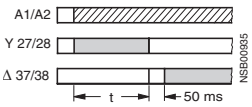
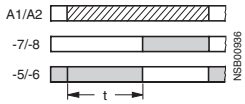
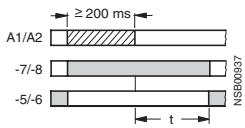
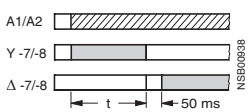
Accessories

Version	Function	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
Sockets								
 7PX9 921 **Sockets**	11-pole socket with rear connection	▶	**7PX9 921**		1	1 unit	101	0.049
 LZX:MT78750	11-pole socket for DIN rail and mounting	▶	**LZX:MT78750**		1	1 unit	101	0.063

7

* You can order this quantity or a multiple thereof.

Selection and ordering data

For contactors Type	Auxiliary contacts Function ▨ Timing relay energized ▩ Timing relay closed □ Contact open	Rated control supply voltage U_s V	Time setting range t s	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
for size S00[1], with screw connection										
	Terminal designations acc. to EN 46199 Part 5									
 3RT19 16-2...	• ON-delay (varistor integrated)									
3RT10 1, 3RH11	1 NO + 1 NC 	AC/DC 24	0.05 ... 1	▶	**3RT19 16-2EJ11**		1	1 unit	101	0.085
			0.5 ... 10	▶	**3RT19 16-2EJ21**		1	1 unit	101	0.084
			5 ... 100	B	**3RT19 16-2EJ31**		1	1 unit	101	0.086
		AC 100 ... 127	0.05 ... 1	C	**3RT19 16-2EC11**		1	1 unit	101	0.087
			0.5 ... 10	▶	**3RT19 16-2EC21**		1	1 unit	101	0.087
			5 ... 100	▶	**3RT19 16-2EC31**		1	1 unit	101	0.086
		AC 200 ... 240	0.05 ... 1	D	**3RT19 16-2ED11**		1	1 unit	101	0.088
			0.5 ... 10	▶	**3RT19 16-2ED21**		1	1 unit	101	0.089
			5 ... 100	▶	**3RT19 16-2ED31**		1	1 unit	101	0.090
	• OFF-delay without auxiliary voltage (varistor integrated)[2]									
	1 NO + 1 NC 	AC/DC 24	0.05 ... 1	▶	**3RT19 16-2FJ11**		1	1 unit	101	0.087
			0.5 ... 10	▶	**3RT19 16-2FJ21**		1	1 unit	101	0.088
			5 ... 100	▶	**3RT19 16-2FJ31**		1	1 unit	101	0.089
		AC 100 ... 127	0.05 ... 1	D	**3RT19 16-2FK11**		1	1 unit	101	0.086
			0.5 ... 10	▶	**3RT19 16-2FK21**		1	1 unit	101	0.087
			5 ... 100	B	**3RT19 16-2FK31**		1	1 unit	101	0.088
		AC 200 ... 240	0.05 ... 1	D	**3RT19 16-2FL11**		1	1 unit	101	0.089
			0.5 ... 10	▶	**3RT19 16-2FL21**		1	1 unit	101	0.089
			5 ... 100	▶	**3RT19 16-2FL31**		1	1 unit	101	0.089
	• OFF-delay with auxiliary voltage									
	1 CO contact	AC/DC 24	0.5 ... 10	B	**3RT19 16-2LJ21**		1	1 unit	101	0.083
		AC 100 ... 127		B	**3RT19 16-2LC21**		1	1 unit	101	0.085
		AC 200 ... 240		B	**3RT19 16-2LD21**		1	1 unit	101	0.085
	• Wye-delta function (varistor integrated)									
	1 NO, delayed + 1 NO, instantaneous, dead time 50 ms 	AC/DC 24	1.5 ... 30	▶	**3RT19 16-2GJ51**		1	1 unit	101	0.086
		AC 100 ... 127		D	**3RT19 16-2GC51**		1	1 unit	101	0.087
		AC 200 ... 240		▶	**3RT19 16-2GD51**		1	1 unit	101	0.090
for sizes S0 to S12[3], with screw connection										
 3RT19 26-2...	• ON-delay									
3RT10 2, 3RT10 3, 3RT10 4	1 NO + 1 NC 	AC/DC 24	0.05 ... 1	D	**3RT19 26-2EJ11**		1	1 unit	101	0.081
			0.5 ... 10	▶	**3RT19 26-2EJ21**		1	1 unit	101	0.081
			5 ... 100	A	**3RT19 26-2EJ31**		1	1 unit	101	0.082
		AC 100 ... 127	0.05 ... 1	C	**3RT19 26-2EC11**		1	1 unit	101	0.083
			0.5 ... 10	▶	**3RT19 26-2EC21**		1	1 unit	101	0.083
			5 ... 100	D	**3RT19 26-2EC31**		1	1 unit	101	0.083
		AC 200 ... 240	0.05 ... 1	D	**3RT19 26-2ED11**		1	1 unit	101	0.085
			0.5 ... 10	▶	**3RT19 26-2ED21**		1	1 unit	101	0.085
			5 ... 100	B	**3RT19 26-2ED31**		1	1 unit	101	0.085
	• OFF-delay without auxiliary voltage[2]									
	1 NO + 1 NC 	AC/DC 24	0.05 ... 1	▶	**3RT19 26-2FJ11**		1	1 unit	101	0.085
			0.5 ... 10	▶	**3RT19 26-2FJ21**		1	1 unit	101	0.084
			5 ... 100	▶	**3RT19 26-2FJ31**		1	1 unit	101	0.085
		AC 100 ... 127	0.05 ... 1	D	**3RT19 26-2FK11**		1	1 unit	101	0.087
			0.5 ... 10	▶	**3RT19 26-2FK21**		1	1 unit	101	0.086
			5 ... 100	C	**3RT19 26-2FK31**		1	1 unit	101	0.087
		AC 200 ... 240	0.05 ... 1	D	**3RT19 26-2FL11**		1	1 unit	101	0.086
			0.5 ... 10	A	**3RT19 26-2FL21**		1	1 unit	101	0.084
			5 ... 100	A	**3RT19 26-2FL31**		1	1 unit	101	0.086
	• Wye-delta function									
	1 NO, delayed + 1 NO, instantaneous, dead time 50 ms 	AC/DC 24	1.5 ... 30	▶	**3RT19 26-2GJ51**		1	1 unit	101	0.084
		AC 100 ... 127		▶	**3RT19 26-2GC51**		1	1 unit	101	0.085
		AC 200 ... 240		▶	**3RT19 26-2GD51**		1	1 unit	101	0.088

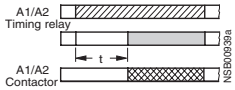
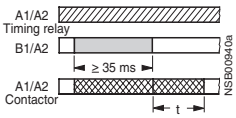
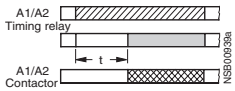
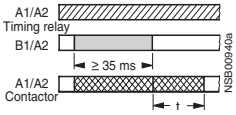
1) The terminals for the rated control supply voltage are connected to the contactor beneath by the integrated spring-type contacts of the solid-state time-delay auxiliary switch block when mounting.

2) Setting of output contacts in as-supplied state not defined (bistable relay). Application of the control voltage once results in contact changeover to the correct setting.

3) The terminals A1 and A2 for the rated control supply voltage of the solid-state time-delay auxiliary switch block must be connected to the corresponding contactor by connecting leads.

*** You can order this quantity or a multiple thereof.**

3RT19 timing relays for mounting to contactors

	For contactors	Function	Rated control supply voltage U_s	Time setting range t	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
		Timing relay energized Contact closed Contact open Contactor energized									
	Type		V	s							kg
for size S00, with semiconductor output and screw connection											
		for mounting onto the front of contactors The electrical connection between the time-relay block and the contactor beneath is established automatically when it is snapped on.									
 3RT19 16-2C...	3RT1. 1, 3RH11	• ON-delay, two-wire design (varistor integrated) 	AC/DC 24 ... 66	0.05 ... 1	B	**3RT19 16-2CG11**		1	1 unit	101	0.051
				0.5 ... 10	▶	**3RT19 16-2CG21**		1	1 unit	101	0.051
				5 ... 100	B	**3RT19 16-2CG31**		1	1 unit	101	0.054
			AC/DC 90 ... 240	0.05 ... 1	D	**3RT19 16-2CH11**		1	1 unit	101	0.052
				0.5 ... 10	▶	**3RT19 16-2CH21**		1	1 unit	101	0.052
				5 ... 100	▶	**3RT19 16-2CH31**		1	1 unit	101	0.051
 3RT19 16-2D...		• OFF-delay with auxiliary voltage (varistor integrated) 	AC/DC 24 ... 66	0.05 ... 1	C	**3RT19 16-2DG11**		1	1 unit	101	0.057
				0.5 ... 10	B	**3RT19 16-2DG21**		1	1 unit	101	0.057
				5 ... 100	B	**3RT19 16-2DG31**		1	1 unit	101	0.057
			AC/DC 90 ... 240	0.05 ... 1	D	**3RT19 16-2DH11**		1	1 unit	101	0.053
				0.5 ... 10	▶	**3RT19 16-2DH21**		1	1 unit	101	0.060
				5 ... 100	B	**3RT19 16-2DH31**		1	1 unit	101	0.058
for sizes S0 to S3, with semiconductor output and screw connection											
		for mounting onto coil terminals on top of the contactors The electrical connection between the relay block and the corresponding contactor is established by screwing the two connecting pins of the time-relay block to coil terminals A1/A2 on top of the contactor.									
 3RT19 26-2C...	3RT10 2, 3RT10 3, 3RT10 4[1]	• ON-delay, two-wire design (varistor integrated) 	AC/DC 24 ... 66	0.05 ... 1	D	**3RT19 26-2CG11**		1	1 unit	101	0.048
				0.5 ... 10	B	**3RT19 26-2CG21**		1	1 unit	101	0.049
				5 ... 100	D	**3RT19 26-2CG31**		1	1 unit	101	0.048
			AC/DC 90 ... 240	0.05 ... 1	▶	**3RT19 26-2CH11**		1	1 unit	101	0.048
				0.5 ... 10	▶	**3RT19 26-2CH21**		1	1 unit	101	0.047
				5 ... 100	▶	**3RT19 26-2CH31**		1	1 unit	101	0.048
 3RT19 26-2D...		• OFF-delay with auxiliary voltage (varistor integrated) 	AC/DC 24 ... 66	0.05 ... 1	D	**3RT19 26-2DG11**		1	1 unit	101	0.050
				0.5 ... 10	D	**3RT19 26-2DG21**		1	1 unit	101	0.051
				5 ... 100	D	**3RT19 26-2DG31**		1	1 unit	101	0.051
			AC/DC 90 ... 240	0.05 ... 1	C	**3RT19 26-2DH11**		1	1 unit	101	0.050
				0.5 ... 10	D	**3RT19 26-2DH21**		1	1 unit	101	0.050
				5 ... 100	C	**3RT19 26-2DH31**		1	1 unit	101	0.050

1) Not for 3RT10 4 contactor with 24 to 42 V rated control supply voltage.

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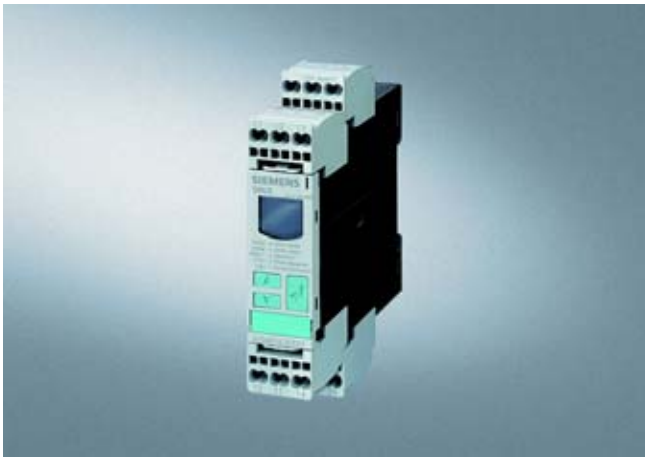
* You can order this quantity or a multiple thereof.

Overview



Solid-state line monitoring relays provide maximum protection for mobile machines and plants or for unstable networks. Network and voltage faults can be detected early and rectified before far greater damage ensues.

Depending on the version, the relays monitor phase sequence, phase failure with and without N conductor monitoring, phase unbalance, undervoltage or overvoltage. With the 3UG46 17 or 3UG46 18 relay, a wrong direction of rotation can also be corrected automatically.

Benefits

- Can be used without auxiliary voltage in any network from 160 to 690 V AC worldwide thanks to wide voltage range
- Variably adjustable to overvoltage, undervoltage or window monitoring
- Freely configurable delay times and reset response
- Width 22.5 mm
- Permanent display of ACTUAL value and network fault type on the digital variants
- Automatic correction of the direction of rotation by distinguishing between network faults and wrong phase sequence
- All versions with removable terminal
- All versions with screw-type connection or alternatively with innovative spring-loaded terminals

Application

The relays are used above all for mobile equipment, e.g. air conditioning compressors, refrigerating containers, building site compressors and cranes.

Function	Application
Phase sequence	• Direction of rotation of the drive
Phase failure	• A fuse has tripped • Failure of the control supply voltage • Broken cable
Phase unbalance	• Overheating of the motor due to asymmetrical voltage • Detection of asymmetrically loaded networks
Undervoltage	• Increased current on a motor with corresponding overheating • Unintentional resetting of a device • Network collapse, particularly with battery power
Overvoltage	• Protection of a plant against destruction due to overvoltage

3UG Monitoring Relays for Electrical and Additional Measurements

Line monitoring

Selection and ordering data



Hysteresis	Under-voltage detec-tion	Over-voltage detec-tion	ON-delay	Tripping delay	Auxiliary contacts Version	Rated control supply voltage U_s	DT	Screw-type connection	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
					CO contact	V		Order No. Price per PU				kg
Monitoring of phase sequence												
Auto-RESET												
--	No	No	--	--	1	AC 160 … 260	A	**3UG45 11-1AN20**	1	1 unit	101	0.147
					2		A	**3UG45 11-1BN20**	1	1 unit	101	0.147
					1	AC 320 … 500	A	**3UG45 11-1AP20**	1	1 unit	101	0.147
					2		A	**3UG45 11-1BP20**	1	1 unit	101	0.147
					1	AC 420 … 690	A	**3UG45 11-1AQ20**	1	1 unit	101	0.147
					2		A	**3UG45 11-1BQ20**	1	1 unit	101	0.147
Monitoring of phase sequence, phase failure and phase unbalance												
Auto-RESET, closed-circuit principle, unbalance threshold 10 %												
--	No	No	--	--	1	AC 160 … 690	A	**3UG45 12-1AR20**	1	1 unit	101	0.147
					2		A	**3UG45 12-1BR20**	1	1 unit	101	0.147
Monitoring of phase sequence, phase failure, phase unbalance and undervoltage												
Analog adjustable, Auto-RESET, closed-circuit principle, fixed unbalance threshold 20 %												
5 % of set value	Yes	No	--	0.1 … 20	2	AC 160 … 690	A	**3UG45 13-1BR20**	1	1 unit	101	0.147
Digitally adjustable, Auto-RESET or manual RESET, open-circuit or closed-circuit principle, unbalance threshold 5 ... 20 %												
Adjustable 1 ... 20 V	Yes	No	0.1 ... 20	0.1 … 20	2	AC 160 … 690	A	**3UG46 14-1BR20**	1	1 unit	101	0.147
Monitoring of phase sequence, phase failure, overvoltage and undervoltage												
Digitally adjustable, Auto-RESET or manual RESET, open-circuit or closed-circuit principle												
Adjustable 1 ... 20 V	Yes	Yes	--	0.1 … 20[1]	2[1]	AC 160 … 690	A	**3UG46 15-1CR20**	1	1 unit	101	0.147
Monitoring of phase sequence, phase and N conductor failure, overvoltage and undervoltage												
Digitally adjustable, Auto-RESET or manual RESET, open-circuit or closed-circuit principle												
Adjustable 1 ... 20 V	Yes	Yes	--	0.1 … 20[1]	2[1]	AC 160 … 690	A	**3UG46 16-1CR20**	1	1 unit	101	0.147
Automatic correction of the direction of rotation in case of wrong phase sequence, phase failure, phase unbalance, overvoltage and undervoltage												
Digitally adjustable, Auto-RESET or manual RESET, open-circuit or closed-circuit principle, unbalance threshold 5 ... 20 %												
Adjustable 1 ... 20 V	Yes	Yes	--	0.1 … 20	2[2]	AC 160 … 690	A	**3UG46 17-1CR20**	1	1 unit	101	0.147
Automatic correction of the direction of rotation in case of wrong phase sequence, phase and N conductor failure, phase unbalance, overvoltage and undervoltage												
Digitally adjustable, Auto-RESET or manual RESET, open-circuit or closed-circuit principle, unbalance threshold 5 ... 20 %												
Adjustable 1 ... 20 V	Yes	Yes	--	0.1 … 20	2[2]	AC 160 … 690	A	**3UG46 18-1CR20**	1	1 unit	101	0.147

1) 1 CO contact each and 1 tripping delay time each for U_{min} and U_{max}.

2) 1 CO contact each for phase sequence correction.

* You can order this quantity or a multiple thereof.



Hysteresis	Under-voltage detec-tion	Over-voltage detec-tion	ON-delay	Tripping delay	Auxiliary contacts Version	Rated control supply voltage U_s	DT	Spring-loaded terminal		PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
					CO contact	V		Order No.	Price per PU				kg
Monitoring of phase sequence													
Auto-RESET													
--	No	No	--	--	1	AC 160 … 260	A	**3UG45 11-2AN20**		1	1 unit	101	0.147
					2		A	**3UG45 11-2BN20**		1	1 unit	101	0.147
					1	AC 320 … 500	A	**3UG45 11-2AP20**		1	1 unit	101	0.147
					2		A	**3UG45 11-2BP20**		1	1 unit	101	0.147
					1	AC 420 … 690	A	**3UG45 11-2AQ20**		1	1 unit	101	0.147
					2		A	**3UG45 11-2BQ20**		1	1 unit	101	0.147
Monitoring of phase sequence, phase failure and phase unbalance													
Auto-RESET, closed-circuit principle, unbalance threshold 10 %													
--	No	No	--	--	1	AC 160 … 690	A	**3UG45 12-2AR20**		1	1 unit	101	0.147
					2		A	**3UG45 12-2BR20**		1	1 unit	101	0.147
Monitoring of phase sequence, phase failure, phase unbalance and undervoltage													
Analog adjustable, Auto-RESET, closed-circuit principle, unbalance threshold 20 %													
5 % of set value	Yes	No	--	0.1 ... 20	2	AC 160 … 690	A	**3UG45 13-2BR20**		1	1 unit	101	0.147
Digitally adjustable, Auto-RESET or manual RESET, open-circuit or closed-circuit principle, unbalance threshold 5 ... 20 %													
Adjustable 1 ... 20 V	Yes	No	0 ... 20	0.1 ... 20	2	AC 160 … 690	A	**3UG46 14-2BR20**		1	1 unit	101	0.147
Monitoring of phase sequence, phase failure, overvoltage and undervoltage													
Digitally adjustable, Auto-RESET or manual RESET, open-circuit or closed-circuit principle													
Adjustable 1 ... 20 V	Yes	Yes	--	0.1 ... 20[1]	2[1]	AC 160 … 690	A	**3UG46 15-2CR20**		1	1 unit	101	0.140
Monitoring of phase sequence, phase and N conductor failure, overvoltage and undervoltage													
Digitally adjustable, Auto-RESET or manual RESET, open-circuit or closed-circuit principle													
Adjustable 1 ... 20 V	Yes	Yes	--	0.1 ... 20[1]	2[1]	AC 160 … 690	A	**3UG46 16-2CR20**		1	1 unit	101	0.147
Automatic correction of the direction of rotation in case of wrong phase sequence, phase failure, phase unbalance, overvoltage and undervoltage													
Digitally adjustable, Auto-RESET or manual RESET, open-circuit or closed-circuit principle, unbalance threshold 5 ... 20 %													
Adjustable 1 ... 20 V	Yes	Yes	--	0.1 ... 20	2[2]	AC 160 … 690	A	**3UG46 17-2CR20**		1	1 unit	101	0.147
Automatic correction of the direction of rotation in case of wrong phase sequence, phase and N conductor failure, phase unbalance, overvoltage and undervoltage													
Digitally adjustable, Auto-RESET or manual RESET, open-circuit or closed-circuit principle, unbalance threshold 5 ... 20 %													
Adjustable 1 ... 20 V	Yes	Yes	--	0.1 ... 20	2[2]	AC 160 … 690	A	**3UG46 18-2CR20**		1	1 unit	101	0.147

1) 1 CO contact each and 1 tripping delay time each for U_{min} and U_{max}.

2) 1 CO contact each for phase sequence correction.

*** You can order this quantity or a multiple thereof.**

3UG Monitoring Relays for Electrical and Additional Measurements

Line monitoring

Accessories

	Application	Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
Blank labeling plates									
		Blank labeling plates, 20 mm x 7 mm, pastel turquoise[1]	C	**3RT19 00-1SB20**		100	340 units	101	22,000
Covering caps and push-in lugs									
	for devices with 1 or 2 CO contacts	**Push-in lugs** for screw mounting	►	**3RP19 03**		1	10 units	101	0,002
	for devices with 1 or 2 CO contacts	**Sealable caps** for securing against unauthorized adjustment of setting knobs	►	**3RP19 02**		1	5 units	101	0,004

1) Computer labeling system for individual labeling of device labeling plates available from:
murrplastik Systemtechnik GmbH.

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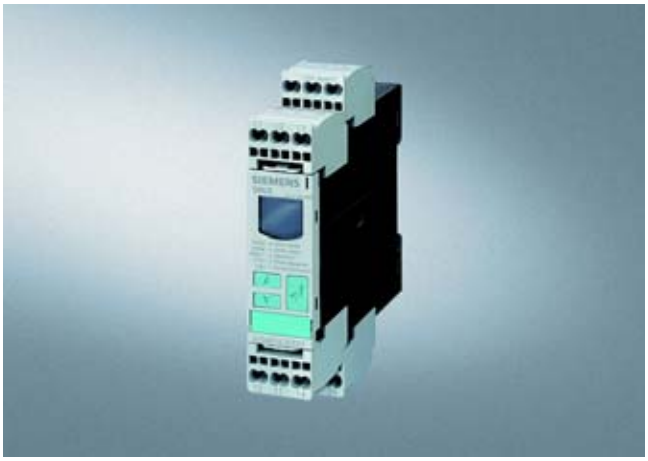
* You can order this quantity or a multiple thereof.

Overview



The relays monitor single-phase AC and DC voltages against the set threshold for overshoot and undershoot. The products differ with regard to their power supply (internal or external).

Benefits

- Variants with wide voltage supply range
- Variably adjustable to overvoltage, undervoltage or window monitoring
- Freely configurable delay times and RESET response
- Width 22.5 mm
- Display of ACTUAL value and status messages
- All versions with removable "terminals"
- All versions with screw-type connection or alternatively with innovative spring-loaded terminals

Application

- Protection of a plant against destruction due to overvoltage
- Switch-on of a plant at a defined voltage and higher
- Protection against overloaded supply voltages, particularly with battery power
- Threshold switch for 0.1 to 10 V analog signals

3UG Monitoring Relays for Electrical and Additional Measurements

Voltage monitoring

Selection and ordering data

Measuring range	Hysteresis	Rated control supply voltage U_s	DT	Screw-type connection		PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
				Order No.	Price per PU				
V	V	V							kg
Internal power supply without auxiliary supply, On delay and tripping delay can be adjusted separately 0.1 ... 20 s									
Digitally adjustable, LCD display, Auto-RESET or manual RESET, open-circuit or closed-circuit principle, 1 CO contact									
AC/DC 17 ... 275	0.1...150	AC/DC 17 ... 275	A	**3UG46 33-1AL30**		1	1 unit	101	0.147
Supplied from an external auxiliary supply, tripping delay adjustable 0.1 ... 20 s									
Digitally adjustable, LCD display, Auto-RESET or manual RESET, open-circuit or closed-circuit principle, 1 CO contact									
AC/DC 0.1 ... 60	0.1...30	AC/DC 24	A	**3UG46 31-1AA30**		1	1 unit	101	0.147
AC/DC 10 ... 600	0.1...300		A	**3UG46 32-1AA30**		1	1 unit	101	0.147
AC/DC 0.1 ... 60	0.1...30	AC/DC 24 ... 240	A	**3UG46 31-1AW30**		1	1 unit	101	0.147
AC/DC 10 ... 600	0.1...300		A	**3UG46 32-1AW30**		1	1 unit	101	0.147

Measuring range	Hysteresis	Rated control supply voltage U_s	DT	Spring-loaded terminal		PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
				Order No.	Price per PU				
V	V	V							kg
Internal power supply without auxiliary supply, On delay and tripping delay can be adjusted separately 0.1 ... 20 s									
Digitally adjustable, LCD display, Auto-RESET or manual RESET, open-circuit or closed-circuit principle, 1 CO contact									
AC/DC 17 ... 275	0.1 ... 150	AC/DC 17 ... 275	A	**3UG46 33-2AL30**		1	1 unit	101	0.147
Supplied from an external auxiliary supply, tripping delay adjustable 0.1 ... 20 s									
									
Digitally adjustable, LCD display, Auto-RESET or manual RESET, open-circuit or closed-circuit principle, 1 CO contact									
AC/DC 0.1 ... 60	0.1 ... 30	AC/DC 24	A	**3UG46 31-2AA30**		1	1 unit	101	0.147
AC/DC 10 ... 600	0.1 ... 300		A	**3UG46 32-2AA30**		1	1 unit	101	0.147
AC/DC 0.1 ... 60	0.1 ... 30	AC/DC 24 ... 240	A	**3UG46 31-2AW30**		1	1 unit	101	0.147
AC/DC 10 ... 600	0.1 ... 300		A	**3UG46 32-2AW30**		1	1 unit	101	0.147

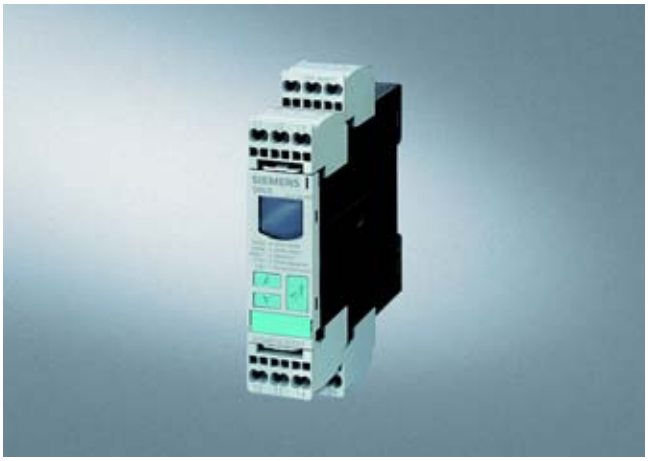
Accessories

Application	Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
								kg
Blank labeling plates								
	Blank labeling plates, 20 mm x 7 mm, pastel turquoise[1)]	C	**3RT19 00-1SB20**		100	340 units	101	22.000
Covering caps and push-in lugs								
 for devices with 1 or 2 CO contacts	**Push-in lugs** for screw mounting	▶	**3RP19 03**		1	10 units	101	0.002
 for devices with 1 or 2 CO contacts	**Sealable caps** for securing against unauthorized adjustment of setting knobs	▶	**3RP19 02**		1	5 units	101	0.004

1) Computer labeling system for individual labeling of device labeling plates available from:
murrplastik Systemtechnik GmbH.

* You can order this quantity or a multiple thereof.

Overview



The relays monitor single-phase AC and DC currents against the set threshold for overshoot and undershoot. They differ with regard to their measuring ranges and supply voltage types.

Benefits

- Variants with wide voltage supply range
- Variably adjustable to overvoltage, undervoltage or window monitoring
- Freely configurable delay times and RESET response
- Width 22.5 mm
- Display of ACTUAL value and status messages
- All versions with removable terminals
- All versions with screw-type connection or alternatively with innovative spring-loaded terminals

Application

- Overcurrent and undercurrent monitoring
- Monitoring the functionality of electrical loads
- Open-circuit monitoring
- Threshold switch for 4 signaling elements from 4 to 20 mA

3UG Monitoring Relays for Electrical and Additional Measurements

Current monitoring

Selection and ordering data

Measuring range	Hysteresis	Rated control supply voltage U_s	DT	Screw-type connection	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
				Order No. / Price per PU				
		V						kg
Monitoring of undercurrent and overcurrent, On delay and tripping delay can be adjusted separately 0.1 ... 20 s								
Digitally adjustable, LCD display, Auto-RESET or manual RESET, open-circuit or closed-circuit principle, 1 CO contact								
AC/DC 3 ... 500 mA	0.1 ... 250 mA	AC/DC 24	A	**3UG46 21-1AA30**	1	1 unit	101	0.147
AC/DC 0.05 ... 10 A	0.01 ... 5 A	AC/DC 24	A	**3UG46 22-1AA30**	1	1 unit	101	0.147
AC/DC 3 ... 500 mA	0.1 ... 250 mA	AC/DC 24 ... 240	A	**3UG46 21-1AW30**	1	1 unit	101	0.147
AC/DC 0.05 ... 10 A	0.01 ... 5 A	AC/DC 24 ... 240	A	**3UG46 22-1AW30**	1	1 unit	101	0.147

Measuring range	Hysteresis	Rated control supply voltage U_s	DT	Spring-loaded terminal	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
				Order No. / Price per PU				
		V						kg
Monitoring of undercurrent and overcurrent, On delay and tripping delay can be adjusted separately 0.1 ... 20 s								
 Digitally adjustable, LCD display, Auto-RESET or manual RESET, open-circuit or closed-circuit principle, 1 CO contact								
AC/DC 3 ... 500 mA	0.1 ... 250 mA	AC/DC 24	A	**3UG46 21-2AA30**	1	1 unit	101	0.147
AC/DC 0.05 ... 10 A	0.01 ... 5 A	AC/DC 24	A	**3UG46 22-2AA30**	1	1 unit	101	0.147
AC/DC 3 ... 500 mA	0.1 ... 250 mA	AC/DC 24 ... 240	A	**3UG46 21-2AW30**	1	1 unit	101	0.147
AC/DC 0.05 ... 10 A	0.01 ... 5 A	AC/DC 24 ... 240	A	**3UG46 22-2AW30**	1	1 unit	101	0.147

Accessories

	Application	Version	DT	Order No. / Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
								kg
Blank labeling plates								
		Blank labeling plates, 20 mm x 7 mm, pastel turquoise[1)]	C	**3RT19 00-1SB20**	100	340 units	101	22.000
Covering caps and push-in lugs								
	for devices with 1 or 2 CO contacts	**Push-in lugs** for screw mounting	►	**3RP19 03**	1	10 units	101	0.002
	for devices with 1 or 2 CO contacts	**Sealable caps** for securing against unauthorized adjustment of setting knobs	►	**3RP19 02**	1	5 units	101	0.004

1) Computer labeling system for individual labeling of device labeling plates available from:
murrplastik Systemtechnik GmbH.

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* You can order this quantity or a multiple thereof.

Overview

The 3UG30 14 power factor monitoring device enables the load monitoring of motors.

Application

- No-load monitoring
- Underload monitoring in the low rating range
- Simple power factor monitoring in networks for control of compensation equipment
- Broken cable between control cabinet and motor

Selection and ordering data

Mounting onto standard mounting rail and screw fixing
Width 45 mm
Relay for power factor monitoring, single and three-phase

- Monitoring of the power factor for undershoot/overshoot for motor underload and overload
- Upper and lower threshold value can be adjusted separately
- 1 changeover contact each for undershoot/overshoot
- 1 yellow LED each for indicating undervoltage or overvoltage
- 1 green LED each for indicating the applied control supply voltage
- Flashes with 1 Hz during the operating time T1 and T2
- Flashes with 2 Hz if $p.f._{min} \geq p.f._{max}$

	Version	Measuring range U_e AC 50/60 Hz	Rated control supply voltage U_s AC 50/60 Hz	DT	Screw-type connection		PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
					Order No.	Price per PU				
		p.f.	V							kg
			Phase conductor voltage							
	Measuring-circuit voltage = control supply voltage	0.1 ... 0.99	3x 230	B	**3UG30 14-1BL60**		1	1 unit	101	0.311
			3x 400	B	**3UG30 14-1BP60**		1	1 unit	101	0.308
			3x 480	B	**3UG30 14-1BR60**		1	1 unit	101	0.355
			3x 575	B	**3UG30 14-1BS60**		1	1 unit	101	0.350

*** You can order this quantity or a multiple thereof.**

3UG Monitoring Relays for Electrical and Additional Measurements

Insulation monitoring for ungrounded AC networks

Overview

Relay for monitoring the insulation resistance between the ungrounded single or three-phase AC supply and a protective ground conductor

- Measuring principle with superimposed DC voltage
- Two selectable measuring ranges of 1 ... 110 kΩ
- Stepless setting within the measuring range
- Selectable:
  - Auto reset function with fixed hysteresis or
  - Storage of the tripping operation
- Test function with test button and terminal connections on the front
- Switching output: 1 CO contact
- Insulation fault indication with a red LED
- Supply voltage indication with a green LED
- Electro-magnetically compatible according to EN 50081 and EN 61000-6-2.

Application

The 3UG30 81 monitoring relay is suitable for insulation monitoring of AC systems with one or three phases in ungrounded networks (IT networks).

Supply voltage

The 3UG30 81-1AK20 has alternative voltage terminals. Only one supply voltage is permitted to be connected to it! Terminals A1 and A2 are used to connect 230 V AC and terminals A1 and B2 are used to connect 115 V AC.

The 3UG30 81-1AW30 has a wide-range input of 24 V to 240 V AC/DC on terminals A1 and A2.

Selection and ordering data

	Measuring range U_e	Rated control supply voltage U_s	DT	Screw-type connection		PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
				Order No.	Price per PU				
	kΩ	V							kg
Insulation monitors for ungrounded AC networks									
	10 ... 110	AC 115 / 230	A	**3UG30 81-1AK20**		1	1 unit	101	0.327
	10 ... 110	AC/DC 24 ... 240	B	**3UG30 81-1AW30**		1	1 unit	101	0.242
Accessories									
	Sealable, transparent covers		D	**3UG32 08-1A**		1	1 unit	101	0.010

* You can order this quantity or a multiple thereof.

Overview

Relay for monitoring the insulation resistance between ungrounded purely DC networks and a protective-ground conductor

- Measuring principle for differential current measurement
- Response threshold can be set continuously from 10 to 110 kΩ
- Selectable
  - Auto reset function with hysteresis or
  - Storage of the tripping operation
- Front selector switch for open-circuit and closed-circuit principle for the output relay
- Test function with test buttons on the front for L+ and L- and over terminal connections
- Switching output: 1 CO contact
- Insulation fault indicator for L+ and L- through two red LEDs
- Supply voltage indication with a green LED
- Electro-magnetically compatible according to EN 50081 and EN 61000-6-2.

Application

The 3UG30 82 monitoring relay has been designed for insulation monitoring in ungrounded, purely DC networks with or without filtering.
It is mainly used to monitor ungrounded DC voltage networks as well as to monitor battery-powered systems.

Supply voltage

Due to the electrical insulation of the supply voltage and the measurement circuit, the relay can be used for DC networks in which the auxiliary voltage is either supplied externally or where the network to be monitored also serves as the power supply.

Note:

If the monitoring relay is supplied with an AC 230 V voltage, for example, the terminals A1 and L+ as well as A2 and L- must not be connected with each other!

Selection and ordering data

	Measuring range U_e	Rated control supply voltage U_s	DT	Screw-type connection		PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
	kΩ	V		Order No.	Price per PU				kg
Insulation monitors for ungrounded DC networks									
	10 ... 110	AC/DC 24 ... 240	B	**3UG30 82-1AW30**		1	1 unit	101	0.233
Accessories									
	Sealable, transparent covers		D	**3UG32 08-1A**		1	1 unit	101	0.010

*** You can order this quantity or a multiple thereof.**

3UG Monitoring Relays for Electrical and Additional Measurements

Level monitoring

Overview

The 3UG35 01 level monitoring relay is used together with the 2- or 3-pole sensors to monitor the levels of conductive liquids.

Application

- Single-point and two-point level monitoring
- Overflow protection
- Dry running protection
- Leak monitoring

Selection and ordering data

Standard mounting rail fixing
Width 22.5 mm
Level monitoring relay for conductive liquids

- Inlet or outlet monitoring adjustable
- Sensitivity adjustment by potentiometer
- 1 yellow LED for indicating the relay state
- 1 green LED for indicating the applied control supply voltage
- 1 CO contact

	Version	Sensitivity AC 50/60 Hz kΩ	Rated control supply voltage U_s AC 50/60 Hz V	DT	Screw-type connection Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
	Inlet or outlet monitoring (UNDER/OVER function) with switch, adjustable	5 ... 100	24	▶	**3UG35 01-1AC20**		1	1 unit	101	0.143
			120	▶	**3UG35 01-1AG20**		1	1 unit	101	0.142
			230	▶	**3UG35 01-1AL20**		1	1 unit	101	0.139

* You can order this quantity or a multiple thereof.

Sensors for level monitoring

	Version	Assignment Cable	Assignment Electrode	Application	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
	Three-pole wire electrode, 500 mm long, with PTFE insulation screw-in gland width A/F 22, 3/8 inch thread, PVC connecting lead, 3 x 0.5 mm², 2 m long, max. operating temperature 90 °C, max. operating pressure 10 bar	brown white green	center electrode not assignable	The electrodes can be cut or bent to the required length before or after installation. The PTFE insulation must be removed over a length of approx. 5 mm. Application: For 2-point liquid level control in an insulating tank. One electrode each for the min. and max. value and a common reference electrode.	▶	**3UG32 07-3A**		1	1 unit	101	0.254
	Two-pole wire electrode, 500 mm long, with PTFE insulation, screw-in gland width A/F 22, 3/8 inch thread, PVC connecting lead, 3 x 0.5 mm², 2 m long, max. operating temperature 90 °C, max. operating pressure 10 bar	brown white	not assignable	For installation see 3UG32 07-3A Application: For alarm indication in the event of overflow or low level and for 2-step liquid-level control, when the conductive tank is used as the reference electrode.	▶	**3UG32 07-2A**		1	1 unit	101	0.230
	Two-pole bow electrode, 500 mm long, with PTFE insulation, screw-in gland width A/F 22, 3/8 inch thread, PVC connecting lead, 3 x 0.5 mm², 2 m long, max. operating temperature 90 °C, max. operating pressure 10 bar	brown white green	gland not assignable	Thanks to the small space requirements due to lateral fitting, ideal for use in small containers and pipes, as a leak monitor and level monitor or for warning of water entering an enclosure.	▶	**3UG32 07-2B**		1	1 unit	101	0.128
	Single-pole bow electrode for lateral fitting, screw-in gland width A/F 22, 3/8 inch thread, PVC connecting lead, 3 x 0.5 mm², 2 m long, max. operating temperature 90 °C, max. operating pressure 10 bar	brown white	gland electrode	As a max. value electrode for lateral fitting or for alarm indication in conductive tanks or pipes.	▶	**3UG32 07-1B**		1	1 unit	101	0.122
	Single-pole bow electrode for lateral fitting, 500 mm long, with PTFE insulation (PTFE), screw-in gland width A/F 22, 3/8 inch thread, PVC connecting lead, 3 x 0.5 mm², 2 m long, max. operating temperature 90 °C, max. operating pressure 10 bar	brown white	gland electrode	For high flow velocities or for alarm indication in conductive tanks or pipes.	C	**3UG32 07-1C**		1	1 unit	101	0.144

*** You can order this quantity or a multiple thereof.**

3UG Monitoring Relays for Electrical and Additional Measurements

Speed monitoring

Overview

The 3UG30 51 monitoring relay is used together with a sensor to monitor drives for underspeeding.

Application

- Slip or tear of a belt drive
- Standstill monitoring (no protection of persons)
- Transport monitoring for completeness

Selection and ordering data

Mounting onto standard mounting rail and screw fixing
Width 45 mm
Underspeed monitoring relay

- 4 measuring ranges adjustable on front panel
- 1 green LED for indicating the applied control supply voltage
- 1 yellow LED for indicating the relay state, flashes during the operating time T
- 1 CO contact

	Version	Measuring range	Rated control supply voltage U_s AC 50/60 Hz	Rated control supply voltage U_s DC	DT	Screw-type connection Order No.	Screw-type connection Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
		Revolutions min^{-1}	V								kg
	Measuring range with or without memory, start-up override 0.3 ... 30 s, electrical isolation AC: Yes DC: No	0.1 ... 600 (4 ranges)	24	--	▶	**3UG30 51-1AC20**		1	1 unit	101	0.273
			120	--	▶	**3UG30 51-1AG20**		1	1 unit	101	0.274
			230	--	▶	**3UG30 51-1AL20**		1	1 unit	101	0.272
			--	24[1)]	▶	**3UG30 51-1AC40**		1	1 unit	101	0.161

1) The rated control supply voltage and the measuring circuit are not electrically isolated

* You can order this quantity or a multiple thereof.

Overview

The 3RS10/3RS11 analog temperature monitoring relays can be used for measuring temperatures in solid, liquid and gas media. The temperature is sensed by the sensors in the medium, evaluated by the device and monitored for overshoot or undershoot. When the threshold values are reached, the output relay switches on or off depending on the setting.

Benefits

- All devices are available alternatively with spring-loaded terminals
- All devices except for 24 V AC/DC feature electrical isolation
- Extremely easy operation using a rotary potentiometer
- Variable hysteresis
- Adjustable working principle for devices with 2 thresholds.

Application

The analog adjustable 3RS10 and 3RS11 SIMIREL temperature monitoring relays can be used in almost any application in which temperature overshoot or undershoot is not permitted, e.g. in the monitoring of set temperature limits and the output of alarm messages for:

- Motor and plant protection
- Switchgear cabinet temperature monitoring
- Freeze monitoring
- Temperature limits for process variables, e.g. in the packaging industry or electroplating
- Controlling equipment and machines such as heating, climate and ventilation systems, solar collectors, heat pumps or warm water supplies
- Bearing and gear oil monitoring
- Monitoring of coolants

Relays, analog adjustable

Selection and ordering data

Analog adjustable evaluation units with one and two threshold values

For analog adjustable units, the threshold values and the hysteresis of 2 to 20 % are set using a rotary potentiometer. For units with 2 threshold values, the adjustable hysteresis only applies to threshold value 1. For the second threshold value, a fixed hysteresis of 5 % applies. The product range has been developed for applications where a setting accuracy of ±5 % is sufficient.

Sensor	Function	Measuring range	Rated control supply voltage U_s AC 50-60 Hz	DT	Screw-type connection Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
		°C	V							kg
Analog adjustable, 1 threshold value, width 22.5 mm; closed-circuit principle; without memory; 1 NO + 1 NC										
 3RS10 00-1CD10	PT100 (resistance sensor)	Overshoot - 50 … + 50	AC/DC 24	B	**3RS10 00-1CD00**		1	1 unit	101	0.150
			AC 110 / 230	B	**3RS10 00-1CK00**		1	1 unit	101	0.190
		0 … + 100	AC/DC 24	B	**3RS10 00-1CD10**		1	1 unit	101	0.145
			AC 110 / 230	A	**3RS10 00-1CK10**		1	1 unit	101	0.189
		0 … + 200	AC/DC 24	B	**3RS10 00-1CD20**		1	1 unit	101	0.145
			AC 110 / 230	A	**3RS10 00-1CK20**		1	1 unit	101	0.186
	Undershoot	- 50 … + 50	AC/DC 24	B	**3RS10 10-1CD00**		1	1 unit	101	0.150
			AC 110 / 230	B	**3RS10 10-1CK00**		1	1 unit	101	0.186
		0 … + 100	AC/DC 24	B	**3RS10 10-1CD10**		1	1 unit	101	0.150
			AC 110 / 230	B	**3RS10 10-1CK10**		1	1 unit	101	0.190
		0 … + 200	AC/DC 24	B	**3RS10 10-1CD20**		1	1 unit	101	0.150
			AC 110 / 230	B	**3RS10 10-1CK20**		1	1 unit	101	0.191
	Type J (thermocouple)	Overshoot 0 … + 200	AC/DC 24	B	**3RS11 00-1CD20**		1	1 unit	101	0.150
			AC 110 / 230	B	**3RS11 00-1CK20**		1	1 unit	101	0.190
		0 … + 600	AC/DC 24	B	**3RS11 00-1CD30**		1	1 unit	101	0.149
			AC 110 / 230	B	**3RS11 00-1CK30**		1	1 unit	101	0.190
	Type K (thermocouple)	Overshoot 0 … + 200	AC/DC 24	B	**3RS11 01-1CD20**		1	1 unit	101	0.150
			AC 110 / 230	B	**3RS11 01-1CK20**		1	1 unit	101	0.190
		0 … + 600	AC/DC 24	B	**3RS11 01-1CD30**		1	1 unit	101	0.150
			AC 110 / 230	B	**3RS11 01-1CK30**		1	1 unit	101	0.190
		+ 500 … + 1.000	AC/DC 24	B	**3RS11 01-1CD40**		1	1 unit	101	0.150
			AC 110 / 230	B	**3RS11 01-1CK40**		1	1 unit	101	0.190
Analog adjustable for warning and tripping (2 threshold values), width 22.5 mm; open/closed-circuit principle switchable; without memory; 1 NO + 1 CO										
 3RS11 21-1DD40	PT100 (resistance sensor)	Overshoot - 50 … + 50	AC/DC 24	B	**3RS10 20-1DD00**		1	1 unit	101	0.166
			AC/DC 24 … 240	B	**3RS10 20-1DW00**		1	1 unit	101	0.175
		0 … + 100	AC/DC 24	B	**3RS10 20-1DD10**		1	1 unit	101	0.164
			AC/DC 24 … 240	B	**3RS10 20-1DW10**		1	1 unit	101	0.175
		0 … + 200	AC/DC 24	B	**3RS10 20-1DD20**		1	1 unit	101	0.166
			AC/DC 24 … 240	B	**3RS10 20-1DW20**		1	1 unit	101	0.175
	Undershoot	-50 … + 50	AC/DC 24	B	**3RS10 30-1DD00**		1	1 unit	101	0.165
			AC//DC 24 … 240	B	**3RS10 30-1DW00**		1	1 unit	101	0.174
		0 … + 100	AC/DC 24	B	**3RS10 30-1DD10**		1	1 unit	101	0.166
			AC/DC 24 … 240	B	**3RS10 30-1DW10**		1	1 unit	101	0.175
		0 … + 200	AC/DC 24	B	**3RS10 30-1DD20**		1	1 unit	101	0.163
			AC/DC 24 … 240	B	**3RS10 30-1DW20**		1	1 unit	101	0.173
	Type J (thermocouple)	Overshoot 0 … + 200	AC/DC 24	B	**3RS11 20-1DD20**		1	1 unit	101	0.165
			AC/DC 24 … 240	B	**3RS11 20-1DW20**		1	1 unit	101	0.175
		0 … + 600	AC/DC 24	B	**3RS11 20-1DD30**		1	1 unit	101	0.167
			AC/DC 24 … 240	B	**3RS11 20-1DW30**		1	1 unit	101	0.175
	Type K (thermocouple)	Overshoot 0 … + 200	AC/DC 24 … 240	B	**3RS11 21-1DW20**		1	1 unit	101	0.179
		0 … + 600	AC/DC 24 … 240	B	**3RS11 21-1DW30**		1	1 unit	101	0.176
		+ 500 … + 1.000	AC/DC 24	B	**3RS11 21-1DD40**		1	1 unit	101	0.167

*** You can order this quantity or a multiple thereof.**

Analog adjustable evaluation units with one and two threshold values

For analog adjustable units, the threshold values and the hysteresis of 2 to 20 % are set using a rotary potentiometer. For units with 2 threshold values, the adjustable hysteresis only applies to threshold value 1.

For the second threshold value, a fixed hysteresis of 5 % applies. The product range has been developed for applications where a setting accuracy of ±5 % is sufficient.

Sensor	Function	Measuring range	Rated control supply voltage U_s AC 50-60 Hz	DT	Spring-loaded terminal Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
		°C	V							kg
Analog adjustable, 1 threshold value, width 22.5 mm; closed-circuit principle; without memory; 1 NO + 1 NC										
PT100 (resistance sensor)	Over-shoot	- 50 … + 50	AC/DC 24	B	**3RS10 00-2CD00**		1	1 unit	101	0.125
			AC 110 / 230	B	**3RS10 00-2CK00**		1	1 unit	101	0.163
		0 … + 100	AC/DC 24	B	**3RS10 00-2CD10**		1	1 unit	101	0.125
			AC 110 / 230	B	**3RS10 00-2CK10**		1	1 unit	101	0.165
		0 … + 200	AC/DC 24	B	**3RS10 00-2CD20**		1	1 unit	101	0.121
			AC 110 / 230	B	**3RS10 00-2CK20**		1	1 unit	101	0.165
Type J (thermocouple)	Overshoot	0 ... + 200	AC/DC 24	B	**3RS11 00-2CD20**		1	1 unit	101	0.125
Analog adjustable for warning and tripping (2 threshold values), width 22.5 mm; open/closed-circuit principle switchable; without memory; 1 NO + 1 CO										
PT100 (resistance sensor)	Overshoot	0 ... + 200	AC/DC 24 … 240	B	**3RS10 20-2DW20**		1	1 unit	101	0.153
	Undershoot	0 ... + 200	AC/DC 24	B	**3RS10 30-2DD20**		1	1 unit	101	0.145
Type J (thermocouple)	Overshoot	0 ... + 200	AC/DC 24	B	**3RS11 20-2DD20**		1	1 unit	101	0.140

Accessories

Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
							kg
Blank labeling plates, 20 mm x 7 mm, pastel turquoise[1)]	C	**3RT19 00-1SB20**		100	340 units	101	22.000

Matching sensors can be found at
http://www.siemens.com/temperature

1) Computer labeling system for individual labeling of device labeling plates available from:
murrplastik Systemtechnik GmbH.

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*** You can order this quantity or a multiple thereof.**

3RS10, 3RS11 Temperature Monitoring Relays

Relays, digitally adjustable to DIN 3440

Overview

The 3RS10/3RS11 temperature monitoring relays can be used for measuring temperatures in solid, liquid and gas media. The temperature is sensed by the sensor in the medium, evaluated by the device and monitored for overshoot or undershoot or for staying within an operating range (window function). The 3RS10 40, 3RS20 40, 3RS11 40 and 3RS21 40 relays comply with the requirements of DIN 3440 as temperature monitors; the 3RS10 42 and 3RS11 42 relays comply with the requirements of DIN 3440 as temperature limiters. The relays are also an excellent alternative to temperature controls in the low-end performance range (2 or 3-point closed-loop control).

Benefits

- Very simple operation without complicated menu selections
- Certification to DIN 3440
- All devices are available alternatively with spring-loaded terminals
- 2 or 3-point closed-loop control can be configured quickly

Application

The 3RS10 40, 3RS10 42, 3RS11 40, 3RS11 42, 3RS20 40 and 3RS21 40 temperature monitoring relays can be used in almost any application in which temperature overshoot or undershoot is not permitted, e.g. in the monitoring of set temperature limits and the output of alarm messages for:

- Plant and environment protection
- Temperature limits for process variables e.g. in the packaging industry or electroplating
- Temperature limits for district heating plants
- Exhaust temperature monitoring
- Controlling equipment and machines such as heating, climate and ventilation systems, solar collectors, heat pumps or warm water supplies
- Motor, bearing and gear oil monitoring
- Monitoring of coolants

The short-circuit and open-circuit detection as well as the measuring range is limited, depending on the sensor type.

Measuring range in °C for thermocouples

Sensor type	Short-circuit	Wire break	3RS11 40 Measuring range in °C	3RS11 42 Measuring range in °C
J	--	x	-99 ... +999	-99 ... +1200
K	--	x	-99 ... +999	-99 ... +1350
T	--	x	-99 ... +400	-99 ... +400
E	--	x	-99 ... +999	-99 ... +999
N	--	x	-99 ... +999	-99 ... +999
S	--	x	--	0 ... 1750
R	--	x	--	0 ... 1750
B	--	x	--	400 ... 1800

Measuring range in °C for resistance sensors

Sensor type	Short-circuit	Wire break	3RS10 40/41 Measuring range in °C	3RS10 42 Measuring range in °C
PT100	x	x	–50 ... +500	–50 ... +750
PT1000	x	x	–50 ... +500	–50 ... +500
KTY 83-110	x	x	–50 ... +175	–50 ... +175
KTY 84	x	x	–40 ... +300	–40 ... +300
NTC[1])	x	--	80 ... 160	80 ... 160

1) Not for NTC B57227-K333-A1 (100 °C: 1.8 kΩ; 25 °C: 32.762 kΩ).

Selection and ordering data

Digitally adjustable evaluation units according to DIN 3440

Temperature monitoring relays are very easy to operate. The three-digit LED display always shows the current temperature. A separate relay with an NO contact is included for sensor monitoring. The relay is switched off in parameterization mode.

The following parameters can be adjusted:

- Sensor type
- 2 threshold values, $\vartheta 1$, $\vartheta 2$
- 1 hysteresis; applies to both thresholds (0 ... 99 K)
- 1 delay time; applies to both thresholds (0 ... 999 s)
- Open/closed-circuit principle switchable
- Manual/remote RESET
- Function: Overshoot or undershoot or window monitoring

Wide-range voltage versions are electrically isolated. The temperature ranges depend on the sensor type.

Sensor	Measuring range (measuring range limit depends on the sensor)	Rated control supply voltage U_s AC 50-60 Hz	DT	Screw-type connection		PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
				Order No.	Price per PU				
		V							kg
"Temperature monitors" according to DIN 3440, digitally adjustable, 2 threshold values, width 45 mm; 1 CO + 1 CO + 1 NO, memory function possible with external jumper. Device parameters are non-volatile									
 3RS10 40-1GD50									
PT100/1000; KTY83/84; NTC (resistance sensors)[1]	- 50 … + 500 °C	AC/DC 24	A	**3RS10 40-1GD50**		1	1 unit	101	0.317
		AC/DC 24 … 240	A	**3RS10 40-1GW50**		1	1 unit	101	0.329
	- 50 … + 932 °F	AC/DC 24	B	**3RS20 40-1GD50**		1	1 unit	101	0.189
		AC/DC 24 … 240	B	**3RS20 40-1GW50**		1	1 unit	101	0.186
TYPE J, K, T, E, N (thermocouple)	- 99 … + 999 °C	AC/DC 24	A	**3RS11 40-1GD60**		1	1 unit	101	0.318
		AC/DC 24 … 240	B	**3RS11 40-1GW60**		1	1 unit	101	0.329
	- 99 … + 1830 °F	AC/DC 24	B	**3RS21 40-1GD60**		1	1 unit	101	0.317
		AC/DC 24 … 240	B	**3RS21 40-1GW60**		1	1 unit	101	0.317
"Temperature limiters" and "Temperature monitors" according to DIN 3440, digitally adjustable, 2 threshold values, width 45 mm; 1 CO + 1 CO + 1 NO, tripping state and device parameters are non-volatile									
PT100/1000; KTY83/84; NTC (resistance sensors)[1]	- 50 … + 750 °C	AC/DC 24	B	**3RS10 42-1GD70**		1	1 unit	101	0.317
		AC/DC 24 … 240	B	**3RS10 42-1GW70**		1	1 unit	101	0.331
TYPE J, K, T, E, N, R, S, B (thermocouple)	- 99 … +1.800 °C	AC/DC 24	B	**3RS11 42-1GD80**		1	1 unit	101	0.318
		AC/DC 24 … 240	B	**3RS11 42-1GW80**		1	1 unit	101	0.329

1) NTC type: B57227-K333-A1 (100 °C: 1.8 kΩ; 25 °C: 32.762 kΩ).

*** You can order this quantity or a multiple thereof.**

Relays, digitally adjustable to DIN 3440

Digitally adjustable evaluation units according to DIN 3440

Temperature monitoring relays are very easy to operate. The three-digit LED display always shows the current temperature. A separate relay with an NO contact is included for sensor monitoring. The relay is switched off in parameterization mode.

The following parameters can be adjusted:

- Sensor type
- 2 threshold values, $\vartheta 1$, $\vartheta 2$
- 1 hysteresis; applies to both thresholds (0 ... 99 K)
- 1 delay time; applies to both thresholds (0 ... 99 s)
- Open/closed-circuit principle switchable
- Manual/remote RESET
- Function: Overshoot or undershoot or window monitoring

Wide-range voltage versions are electrically isolated. The temperature ranges depend on the sensor type.

Sensor	Measuring range (measuring range limit depends on the sensor)	Rated control supply voltage U_s AC 50-60 Hz	DT	Spring-loaded terminal		PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
				Order No.	Price per PU				
		V							kg
"Temperature monitors" acc. to DIN 3440, digitally adjustable, 2 threshold values, width 45 mm; 1 CO + 1 CO + 1 NO, memory function possible with external jumper. Device parameters are non-volatile									
PT100/1000; KTY83/84; NTC (resistance sensors)[1]	- 50 … + 500 °C	AC/DC 24	B	**3RS10 40-2GD50**		1	1 unit	101	0.267
		AC/DC 24 … 240	B	**3RS10 40-2GW50**		1	1 unit	101	0.281
	- 50 … + 932 °F	AC/DC 24	C	**3RS20 40-2GD50**		1	1 unit	101	0.100
		AC/DC 24 … 240	C	**3RS20 40-2GW50**		1	1 unit	101	0.100
TYPE J, K, T, E, N (thermocouple)	- 99 … + 999 °C	AC/DC 24	B	**3RS11 40-2GD60**		1	1 unit	101	0.269
		AC/DC 24 … 240	B	**3RS11 40-2GW60**		1	1 unit	101	0.300
	- 99 … + 1830 °F	AC/DC 24	C	**3RS21 40-2GD60**		1	1 unit	101	0.100
		AC/DC 24 … 240	C	**3RS21 40-2GW60**		1	1 unit	101	0.100
"Temperature limiters" and "Temperature monitors" acc. to DIN 3440, digitally adjustable, 2 threshold values, width 45 mm; 1 CO + 1 CO + 1 NO, tripping state and device parameters are non-volatile									
PT100/1000; KTY83/84; NTC (resistance sensors)[1]	-50 … +750 °C	AC/DC 24	C	**3RS10 42-2GD70**		1	1 unit	101	0.267
		AC/DC 24 … 240	C	**3RS10 42-2GW70**		1	1 unit	101	0.281
TYPE J, K, T, E, N, R, S, B (thermocouple)	-99 … +1.800 °C	AC/DC 24	C	**3RS11 42-2GD80**		1	1 unit	101	0.269
		AC/DC 24 … 240	C	**3RS11 42-2GW80**		1	1 unit	101	0.300

1) NTC type: B57227-K333-A1 (100 °C: 1.8 kΩ; 25 °C: 32.762 kΩ).

Accessories

	Design	Language used for labels	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
									kg
Push-in lugs for screw mounting									
	for each thermistor motor protection device, 2 units are required. 1 package contains 10 units for 5 devices	3RN1	►	**3RP19 03**		1	10 units	101	0.002
Replaceable cover labels for digital devices									
	Devices acc. to DIN 3440	German	B	**3RS19 01-1A**		1	5 units	101	0.005
	Matching sensors can be found on the Internet at www.siemens.com/temperature	English	B	**3RS19 01-1C**		1	5 units	101	0.005
Blank labeling plates									
	20 mm x 7 mm, pastel turquoise[1]		C	**3RT19 00-1SB20**		100	340 units	101	22.000

Matching sensors can be found at
http://www.siemens.com/temperature

1) Computer labeling system for individual labeling of device labeling plates available from:
murrplastik Systemtechnik GmbH.

*** You can order this quantity or a multiple thereof.**

Relays, digitally adjustable for up to 3 sensors

Overview

The 3RS10 41 temperature monitoring relays can be used for measuring temperatures in solid, liquid and gas media. The temperature is sensed by the sensor in the medium, evaluated by the device and monitored for overshoot or undershoot or for staying within an operating range (window function). The signal evaluator can evaluate up to 3 resistance sensors at the same time and is specially designed for monitoring motor windings and bearings.

Benefits

- Very simple operation without complicated menu selections
- Space-saving with 45 mm width
- All devices are available alternatively with spring-loaded terminals
- 2 or 3-point closed-loop control can be configured quickly

Application

The 3RS10 41 temperature monitoring relays can be used in almost any application in which several temperatures have to be monitored simultaneously for overshoot or undershoot or within a range.

Monitoring of set temperature limits and output of alarm messages for:

- Plant and environment protection
- Temperature limits for process variables e.g. in the packaging industry or electroplating
- Controlling equipment and machines such as heating, climate and ventilation systems, solar collectors, heat pumps or warm water supplies
- Motor, bearing and gear oil monitoring
- Monitoring of coolants

The short-circuit and open-circuit detection as well as the measuring range is limited, depending on the sensor type.

Measuring range in °C for resistance sensors

Sensor type	Open-circuit	Short-circuit	Measuring range in °C
PT100	x	x	–50 ... +500
PT1000	x	x	–50 ... +500
KTY 83-110	x	x	–50 ... +175
KTY 84	x	x	–40 ... +300
NTC	--	x	+80 ... +160

Relays, digitally adjustable for up to 3 sensors

Selection and ordering data

Digitally adjustable signal evaluators

The digitally adjustable temperature monitoring relays are very simple to operate. The three-digit LED display always shows the current temperature. A separate relay with an NO contact is included for sensor monitoring. The relay is switched off in parameterization mode.

The following parameters can be adjusted:

- Sensor type
- 2 threshold values, $\vartheta 1$, $\vartheta 2$
- 1 hysteresis; applies to both thresholds (0 ... 99 K)
- 1 delay time; applies to both thresholds (0 ... 999 s)
- Open/closed-circuit principle
- Function: Overshoot or undershoot or window monitoring

Wide-range voltage versions are electrically isolated. The temperature ranges depend on the sensor type.

Sensor	Number of sensors	Measuring range	Rated control supply voltage U_s	DT	**Screw-type connection** Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
		°C	V							kg
Motor monitoring relays, digitally adjustable for up to 3 sensors, width 45 mm; 1 CO + 1 CO + 1 NO										
PT100/1000; KTY83/84; NTC (resistance sensors)[1]	1 to 3 sensors	-50 ... +500	AC/DC 24 ...240 V	A	**3RS10 41-1GW50**		1	1 unit	101	0.333

3RS10 41-1GW50

1) NTC type: B57227-K333-A1 (100 °C: 1.8 kΩ; 25 °C: 32.762 kΩ).

Sensor	Number of sensors	Measuring range	Rated control supply voltage U_s	DT	**Spring-loaded terminal** Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
		°C	V							kg
Motor monitoring relays, digitally adjustable for up to 3 sensors, width 45 mm; 1 CO + 1 CO + 1 NO										
PT100/1000; KTY83/84; NTC (resistance sensors)[1]	1 to 3 sensors	-50 ... +500	AC/DC 24 ...240 V	B	**3RS10 41-2GW50**		1	1 unit	101	0.283

1) NTC type: B57227-K333-A1 (100 °C: 1.8 kΩ; 25 °C: 32.762 kΩ).

Accessories

Design	Language used for labels	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
								kg
Push-in lugs for screw mounting								
for each thermistor motor protection device, 2 units are required. 1 package contains 10 units for 5 devices	3RN1	►	**3RP19 03**		1	10 units	101	0.002
Replaceable cover labels for digital devices								
Devices acc. to DIN 3440	German	B	**3RS19 01-1B**		1	5 units	101	0.005
	English	B	**3RS19 01-1D**		1	5 units	101	0.001
Blank labeling plates								
20 mm x 7 mm, pastel turquoise[1]		C	**3RT19 00-1SB20**		100	340 units	101	22.000

1) Computer labeling system for individual labeling of device labeling plates available from: murrplastik Systemtechnik GmbH.

*** You can order this quantity or a multiple thereof.**

Overview

Thermistor motor protection devices are used for direct monitoring of the motor winding temperature. For this purpose, the motors are equipped with temperature-dependent resistors (PTC) that are directly installed in the motor winding and abruptly change their resistance at their limit temperature.

Benefits

- Thanks to direct motor protection, overdimensioning of the motors is not necessary.
- No additional overload protection equipment is necessary.
- No settings on the device are necessary.
- Electronically optimized output thanks to variants with gold-plated contacts.
- Rapid error diagnosis thanks to variants that indicate open- and short-circuit in the sensor circuit.
- Screw-type or spring-loaded terminals.

Application

Direct motor protection through temperature monitoring of the motor winding offers 100 % motor protection even under the most difficult ambient conditions, without the need to make adjustments on the device. Versions with gold-plated contacts ensure, in addition, a high switching reliability that is even higher than an electronic control:

- At increased ambient temperatures
- For high switching cycle frequency
- For long start-up and braking procedures
- Used together with frequency converters (low speeds)

For PTC sensors

Selection and ordering data

Thermistor motor protection relays for PTC thermistors (Type A PTCs)

- Monostable version with closed-circuit principle, triggers in the event of control supply voltage failure
- PTB01 ATEX approval, see Catalog LV 1 T.
- 3RN10 13-.BW01: bistable version, does not trigger in the event of control supply voltage failure
- All units except for 24 V AC/DC feature electrical isolation

RESET	Contacts	Rated control supply voltage U_s 50/60 Hz	DT	Screw-type connection		PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
				Order No.	Price per PU				
		V							kg
Compact signal evaluation units, width 22.5 mm, 1 LED									
Terminal A1 is jumpered with the root of the changeover contact									
Auto	1 CO	AC/DC 24	A	**3RN10 00-1AB00**		1	1 unit	101	0.114
		AC 110	A	**3RN10 00-1AG00**		1	1 unit	101	0.157
		AC 230	A	**3RN10 00-1AM00**		1	1 unit	101	0.156
Standard evaluation units, width 22.5 mm, 2 LEDs									
 3RN10 13-1BB00									
Auto	1 NO + 1 NC	AC/DC 24	A	**3RN10 10-1CB00**		1	1 unit	101	0.134
		AC 110	A	**3RN10 10-1CG00**		1	1 unit	101	0.174
		AC 230	A	**3RN10 10-1CM00**		1	1 unit	101	0.175
		AC/DC 24 … 240	A	**3RN10 10-1CW00**		1	1 unit	101	0.146
	2 CO	AC/DC 24	A	**3RN10 10-1BB00**		1	1 unit	101	0.162
		AC 110	A	**3RN10 10-1BG00**		1	1 unit	101	0.213
		DC 230	A	**3RN10 10-1BM00**		1	1 unit	101	0.213
	2 CO, gold-plated	AC/DC 24	B	**3RN10 10-1GB00**		1	1 unit	101	0.154
Manual/ remote[1]	1 NO + 1 NC	AC/DC 24	▶	**3RN10 11-1CB00**		1	1 unit	101	0.147
		AC 110 / 230	▶	**3RN10 11-1CK00**		1	1 unit	101	0.188
Short-circuit detection for sensor circuit									
Manual/ remote[1]	2 CO	AC/DC 24	A	**3RN10 11-1BB00**		1	1 unit	101	0.163
		AC 110	B	**3RN10 11-1BG00**		1	1 unit	101	0.214
		AC 230	A	**3RN10 11-1BM00**		1	1 unit	101	0.212
	2 CO, gold-plated	AC/DC 24	B	**3RN10 11-1GB00**		1	1 unit	101	0.165
 3RN10 13-1BW01									
Non-volatile[2]									
Manual/ Auto/ Remote	1 NO + 1 NC	AC/DC 24	▶	**3RN10 12-1CB00**		1	1 unit	101	0.148
		AC 110 / 230	▶	**3RN10 12-1CK00**		1	1 unit	101	0.188
Non-volatile[2], short-circuit detection in sensor circuit									
Manual/ Auto/ Remote	2 CO	AC/DC 24	B	**3RN10 12-1BB00**		1	1 unit	101	0.164
		AC 110	B	**3RN10 12-1BG00**		1	1 unit	101	0.214
		AC 230	A	**3RN10 12-1BM00**		1	1 unit	101	0.216
	2 CO, gold-plated	AC/DC 24	B	**3RN10 12-1GB00**		1	1 unit	101	0.155
Non-volatile[2]; short-circuit and open-circuit detection and indication in sensor circuit; wide-range voltage with screw connection with safe isolation									
Manual/ Auto/ Remote	2 CO	AC/DC 24	▶	**3RN10 13-1BB00**		1	1 unit	101	0.160
		AC/DC 24 … 240	▶	**3RN10 13-1BW10**		1	1 unit	101	0.172
	2 CO, gold-plated	AC/DC 24 … 240	B	**3RN10 13-1GW10**		1	1 unit	101	0.168
Evaluation units for 2 sensor circuits, warning and switching off, width 22.5 mm, 3 LEDs									
Test/RESET button, non-volatile[2]									
Manual/ Auto/ Remote	1 NO + 1 CO	AC/DC 24 … 240	▶	**3RN10 22-1DW00**		1	1 unit	101	0.173
Evaluation units for 6 sensor circuits, multiple motor protection, width 45 mm, 8 LEDs									
Test/RESET button, non-volatile[2]									
Manual/ Auto/ Remote	1 NO + 1 NC	AC/DC 24 … 240	▶	**3RN10 62-1CW00**		1	1 unit	101	0.296
Bistable evaluation units, width 22.5 mm									
Test/ RESET button, non-volatile[2] Short-circuit and open-circuit detection and indication in sensor circuit									
Manual/ Auto/ Remote	2 CO	AC/DC 24 … 240	A	**3RN10 13-1BW01**		1	1 unit	101	0.169

1) The unit can be reset with the RESET button or by disconnecting the control supply voltage.

2) For more information on protection against voltage failure, see Catalog LV 1 T.

*** You can order this quantity or a multiple thereof.**

For PTC sensors

Thermistor motor protection relays for PTC thermistors (Type A PTCs)

- Monostable version with closed-circuit principle, triggers in the event of control supply voltage failure
- PTB01 ATEX approval, see Catalog LV 1 T.
- 3RN10 13-.BW01: bistable version, does not trigger in the event of control supply voltage failure
- All units except for 24 V AC/DC feature electrical isolation

RESET	Contacts	Rated control supply voltage U_s 50/60 Hz	DT	Spring-loaded terminal Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
		V							kg
Compact signal evaluation units, width 22.5 mm, 1 LED									
Terminal A1 is jumpered with the root of the changeover contact									
Auto	1 CO	AC/DC 24	A	**3RN10 00-2AB00**		1	1 unit	101	0.104
		AC 110	B	**3RN10 00-2AG00**		1	1 unit	101	0.153
		AC 230	B	**3RN10 00-2AM00**		1	1 unit	101	0.153
Standard evaluation units, width 22.5 mm, 2 LEDs									
Auto	1 NO + 1 NC	AC/DC 24	A	**3RN10 10-2CB00**		1	1 unit	101	0.116
		AC 110	B	**3RN10 10-2CG00**		1	1 unit	101	0.153
		AC 230	A	**3RN10 10-2CM00**		1	1 unit	101	0.159
		AC/DC 24 … 240	A	**3RN10 10-2CW00**		1	1 unit	101	0.127
	2 CO	AC/DC 24	C	**3RN10 10-2BB00**		1	1 unit	101	0.137
		AC 110 …	C	**3RN10 10-2BG00**		1	1 unit	101	0.139
		AC 230	C	**3RN10 10-2BM00**		1	1 unit	101	0.190
	2 CO, gold-plated	AC/DC 24	C	**3RN10 10-2GB00**		1	1 unit	101	0.139
Manual/remote[1]	1 NO + 1 NC	AC/DC 24	▶	**3RN10 11-2CB00**		1	1 unit	101	0.125
		AC 110 / 230	A	**3RN10 11-2CK00**		1	1 unit	101	0.164
Short-circuit detection for sensor circuit									
Manual/remote[1]	2 CO	AC/DC 24	C	**3RN10 11-2BB00**		1	1 unit	101	0.138
		AC 110	C	**3RN10 11-2BG00**		1	1 unit	101	0.190
		AC 230	B	**3RN10 11-2BM00**		1	1 unit	101	0.192
	2 CO, gold-plated	AC/DC 24	C	**3RN10 11-2GB00**		1	1 unit	101	0.154
Non-volatile[2] Manual/Auto/ Remote	1 NO + 1 NC	AC/DC 24	A	**3RN10 12-2CB00**		1	1 unit	101	0.125
		AC 110 / 230	B	**3RN10 12-2CK00**		1	1 unit	101	0.161
Non-volatile[2], short-circuit detection in sensor circuit									
Manual/Auto/ Remote	2 CO	AC/DC 24	C	**3RN10 12-2BB00**		1	1 unit	101	0.130
		AC 110	C	**3RN10 12-2BG00**		1	1 unit	101	0.130
		AC 230	C	**3RN10 12-2BM00**		1	1 unit	101	0.181
	2 CO, gold-plated	AC/DC 24	C	**3RN10 12-2GB00**		1	1 unit	101	0.140
Non-volatile[2]; short-circuit and open-circuit detection and indication in sensor circuit; wide-range voltage with screw connection with safe isolation									
Manual/Auto/ Remote	2 CO	AC/DC 24	A	**3RN10 13-2BB00**		1	1 unit	101	0.140
		AC/DC 24 … 240	▶	**3RN10 13-2BW00**		1	1 unit	101	0.151
	2 CO, gold-plated	AC/DC 24 … 240	C	**3RN10 13-2GW00**		1	1 unit	101	0.143
Evaluation units for 2 sensor circuits, warning and switching off, width 22.5 mm, 3 LEDs									
Test/RESET button, non-volatile[2] Manual/Auto/ Remote	1 NO + 1 CO	AC/DC 24 … 240	B	**3RN10 22-2DW00**		1	1 unit	101	0.147
Evaluation units for 6 sensor circuits, multiple motor protection, width 45 mm, 8 LEDs									
Test/RESET button, non-volatile[2] Manual/Auto/ Remote	1 NO + 1 NC	AC/DC 24 … 240	B	**3RN10 62-2CW00**		1	1 unit	101	0.251
Bistable evaluation units, width 22.5 mm									
Test/ RESET button, non-volatile[2] Short-circuit and open-circuit detection and indication in sensor circuit Manual/Auto/ Remote	2 CO	AC/DC 24 … 240	B	**3RN10 13-2BW01**		1	1 unit	101	0.139


3RN10 12-2CK00

1) The unit can be reset with the RESET button or by disconnecting the control supply voltage.

2) For more information on protection against voltage failure, see Catalog LV 1 T.

*** You can order this quantity or a multiple thereof.**

For PTC sensors

Accessories

	Version	For type	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
Push-in lugs for screw mounting									
	For each thermistor motor protection device, 2 units are required. 1 pack contains 10 units for 5 devices	3RN1	►	**3RP19 03**		1	10 units	101	0.002
Blank labeling plates									
	Blank labeling plates, 20 mm x 7 mm, pastel turquoise[1)]		C	**3RT19 00-1SB20**		100	340 units	101	22.000

1) Computer labeling system for individual labeling of device labeling plates available from: murrplastik Systemtechnik GmbH.

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* You can order this quantity or a multiple thereof.

Application

Classification of a machine in categories acc. to EN 954-1

The 98/37/EG machinery directive stipulates that every machine must comply with the applicable guidelines and standards. Measures must be taken to keep the risk to persons as small as possible.

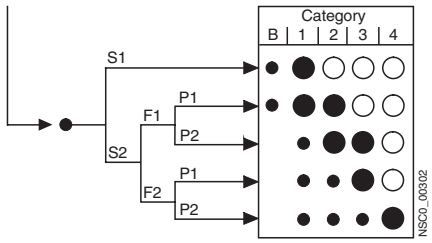
The first step is for the project engineer to perform a risk evaluation according to EN 1050 "Guidelines for risk assessment". The ambient conditions of the machine have to be considered, for example. Then any overall risk must be evaluated. Risk evaluation must be performed in such a manner that the procedure and conclusions can be retraced.

The dangers and possible technical measures for reducing risk must also be specified.

After risk assessment, the category according to which the safety circuits will be designed and implemented is specified with the aid of EN 954-1.

This category defines the technical requirements for the configuration of the safety equipment. There are five categories (B, 1, 2, 3 and 4), whereby B (for Basic category) is the category of the lowest risk and the one which defines the minimum demands made on the control system.

Possible selection of the categories acc. to EN 954-1

Starting point for risk assessment of the safety related part of the control	S Severity of the injury	F Frequency and/or duration of the exposure to danger	P Possibility to avoid the danger
	S1 Minor (usually reversible) injury S2 Serious (normally irreversible) injury including death	F1 From rarely to often and/or short duration of exposure F2 From frequently to constantly and/or long duration of exposure	P1 Possible under certain conditions P2 Hardly possible

Selection of the category

B, 1 to 4: Categories for parts of controllers with relevance for safety

● Preferred categories for reference points

● Possible categories which demand additional measures

❍ Measures that may be excessive with respect to the particular risk

Summary of the requirements for categories acc. to EN 954-1

Category (not to be applied in any specific hierarchy)	Summary of requirements	System response	Principles for achieving safety
B	The safety related parts of controllers and/or their protective devices as well as their components must be designed, constructed, selected, assembled and combined in accordance with the applicable standards in such a way that they can resist the expected external influences.	The occurrence of a fault can result in loss of the safety function.	Mainly characterized by the selection of components
1	The requirements of B must be met. Well-proven components and well-proven safety principles must be implemented.	The occurrence of a fault can result in loss of the safety function but the probability of it occurring is less than for Category B.	
2	The requirements of B must be met and well-proven safety principles must be implemented. The safety functions must be tested at regular intervals by the machine control.	The occurrence of a fault can result in loss of the safety function between tests. The loss of the safety function will be detected by the test.	Mainly characterized by the structure
3	The requirements of B must be met and well-proven safety principles must be implemented. Parts with relevance for safety must be implemented such that a single fault in any of these components does not result in loss of the safety function, and whenever reasonably possible, the individual fault is detected.	When the single fault occurs, the safety function is always maintained. Some but not all faults are detected. An accumulation of undetected faults may lead to loss of the safety function.	
4	The requirements of B must be met and well-proven safety principles must be implemented. Parts with relevance for safety must be implemented such that a single fault in any of these components does not result in loss of the safety function, and the individual fault is detected during or before the next activation of the safety function or, if this is not possible, an accumulation of faults will not result in loss of the safety function.	When faults occur, the safety function is always maintained. The faults are detected early to prevent loss of the safety function.	

General data

Standards for "Safety of machines"

- EN 60204-1 "Electrical equipment of industrial machines"
- EN 418 "EMERGENCY-STOP equipment, functional aspects, basic design principles"
- EN 574 "Two-hand switching"
- EN 954-1 "Safety-related parts of controls"
- EN 1050 "Guidelines for risk assessment"
- EN 1088 "Locking facilities in combination with isolating protective devices"
- IEC 61508 "Functional safety of electrical/programmable solid-state safety related systems"

Stop categories

Potential dangers posed by a machine must be eliminated as quickly as possible.

As a rule, the "danger-free status" is standstill with respect to hazardous motions. All SIRIUS safety relays are de-energized in the event of danger or a fault, i.e. the machine drives are switched to standstill. The EN 60204 standard requires that every machine must be equipped with the Stop function of Category 0. Stop functions of Categories 1 and/or 2 must be implemented when this is necessary for the safety and/or functional requirements of the machine.

There are 3 categories of Stop functions:

- Stop category 0:
  Shutdown by immediate switch-off of the energy infeed to the machine drives.
- Stop category 1:
  Controlled shutdown, whereby the energy infeed to the machine drives is maintained during shutdown and is only switched off when standstill has been achieved.
- Stop category 2:
  Controlled shutdown, whereby the energy infeed to the machine drives is maintained.

The devices support autostart or monitored start depending on their versions.

Autostart/Manual start

Autostart: The device switches on the enabling circuits automatically as soon as the switch-on conditions (sensor and feedback circuits closed) are satisfied.

Manual start: If an ON pushbutton is installed in the feedback circuit, a manual start can be provided with the autostart function.

Caution: Not permissible for EMERGENCY-STOP Category 4!

Monitored start

To switch on the enabling circuits the switch-on conditions (sensor and feedback circuits closed) must be satisfied. In addition the device must be started with an ON pushbutton. The device responds in this case to the negative edge of the ON signal.

Crossover protection

Crossover protection is the ability of the safety relay to detect faults (e.g. through cable compression or ground faults) in the safety chain to be monitored and to suppress the enabling of the enabling circuits until the external fault has been rectified.

EMERGENCY-STOP

EMERGENCY-STOP devices must have priority over all other functions.

The energy infeed to the machine drives that can cause dangerous situations must be switched off as quickly as possible without causing any further danger. Resetting of the drives must not result in restarting of the equipment. EMERGENCY-STOP must either function as a Stop of Category 0 or Category 1.

Resetting of the command device must only be possible as a result of a manual action on the command device. Resetting of the command device must not initiate a restart command. Restarting of the machine must not be possible until all actuated operator controls have been reset deliberately and individually by hand (EN 418).

The basic units of the SIRIUS safety relays can be used for EMERGENCY-STOP applications up to Category 4 of EN 954-1. Category 3 or 4 of EN 954-1 or SIL 2/3 (Safety Integrity Level) acc. to IEC 61508 must be achieved depending on the external circuit and routing of the sensor leads.

Protective door monitoring

EN 1088 distinguishes between interlocked, isolating protection devices and interlocked, isolating protective devices with tumbler.

SIRIUS safety relays are also used in this case for EMERGENCY-STOP applications. Control systems for up to Category 4 of EN 954-1 or SIL 2/3 of IEC 61508 are possible.

Presses and punches

The two-hand control unit is a device that requires both hands of the operator to be used simultaneously as a means of protecting the operator from danger.

The devices are suitable for installation in control systems for eccentric, hydraulic and screw presses. They can be used up to Category 4 of EN 954-1. Type III C according to EN 574 is possible specifically for presses.

Overview

The SIRIUS safety pilot guides you quickly to the right device

Type	Connection		Crossover protection	Category acc. to EN 954-1					EMERGENCY-STOP	Protective door	Solid-state sensors	Cascade input	Safety mats
	1-channel	2-channel		B	1	2	3	4				24 V DC	
3TK28 40 basic unit	✔	✔	✔	✔	✔	✔	✔	--	✔	✔	--	--	--
3TK28 41 standard unit	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	1	✔
3TK28 42 standard unit tv	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	1	✔
3TK28 45 multi-function unit	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	1	✔

Type	Enabling circuit, floating		Enabling circuit, solid-state		Signal-ing circuit	Autostart	Monitored start	Switching capacity		Rated operational voltage			Rated control supply voltage			Control inputs
	STOP cate-gory 0	Stop cate-gory 1	Stop cate-gory 0	Stop cate-gory 1				AC -15 at U = 230 V	DC -13 at U = 24 V	DC 24 V	AC 230 V	AC 600 V	DC 24 V	AC 115 V	AC 230 V	DC 24 V
3TK28 40 basic unit	--	--	2[1)]	--	--	✔	✔	--	0.5 A	✔	--	--	✔	--	--	--
3TK28 41 standard unit	--	--	2	--	--	✔	✔	--	1.5 A	✔	--	--	✔	--	--	--
3TK28 42 standard unit tv	--	--	1	1	--	✔	✔	--	1.5 A	✔	--	--	✔	--	--	--
3TK28 45 multi-function unit	1 2	1 --	1 2	1 --	1 HL 1 HL	✔	✔	2 A	1.5 A	✔	✔	--	✔	--	--	--

✔ = available
-- = not available

1) The outputs are only safe when an external contactor is used.

with electronic enabling circuits

Selection and ordering data

Rated control supply voltages U_s 24 V DC and AC 50/60 Hz, 115, 230 V

Enabling circuit, floating		Enabling circuit, solid-state		Signaling circuit	Achievable category acc. to EN 954-1	Rated control supply voltage U_s	DT	With screw terminals		PU (UNIT, SET, M)	PS*	PG	Weight per unit approx.
Stop category 0	Stop category 1	Stop category 0	Stop category 1			V		Order No.	Price per PU				kg
Safety relays, solid-state, for EMERGENCY-STOP and protective doors													
Basic units													
--	--	2[1]	--	--[4]	3	DC 24	A	**3TK28 40-1BB40**		1	1 unit	102	0.180
Standard devices													
--	--	2[2]	--	--[4]	4	DC 24	A	**3TK28 41-1BB40**		1	1 unit	102	0.166
Standard devices tv													
--	--	1	1, A[3]	--	4	DC 24	A	**3TK28 42-1BB41**		1	1 unit	102	0.168
			1, B[3]				A	**3TK28 42-1BB42**		1	1 unit	102	0.166
			1, C[3]				A	**3TK28 42-1BB44**		1	1 unit	102	0.166
Multi-function units													
1	1	1	1, A[3]	1HL	4	DC 24	A	**3TK28 45-1BB41**		1	1 unit	102	0.400
1	1	1	1, B[3]				A	**3TK28 45-1BB42**		1	1 unit	102	0.400
2	--	2	--				A	**3TK28 45-1BB40**		1	1 unit	102	0.415

1) The outputs are only safe in conjunction with external actuators with positively-driven contacts.
2) Suitable for solid-state sensor input.
3) t_v = Off-delay
A = 0.05 ... 3 s,
B = 0.5 ... 30 s,
C = 5 ... 300 s.
4) An enabling circuit can be used as a signaling circuit.

Rated control supply voltages U_s 24 V DC and AC 50/60 Hz, 115, 230 V

Enabling circuit, floating		Enabling circuit, solid-state		Signaling circuit	Achievable category acc. to EN 954-1	Rated control supply voltage U_s	DT	With spring-loaded terminals		PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
Stop category 0	Stop category 1	Stop category 0	Stop category 1			V		Order No.	Price per PU				kg
Safety relays, solid-state, for EMERGENCY-STOP and protective doors													
Basic units													
--	--	2[1]	--	--[2]	3	DC 24	B	**3TK28 40-2BB40**		1	1 unit	102	0.150
Standard devices													
--	--	2	--	--[2]	4	DC 24	A	**3TK28 41-2BB40**		1	1 unit	102	0.143
Standard devices tv													
--	--	1	1, A[3]	--	4	DC 24	B	**3TK28 42-2BB41**		1	1 unit	102	0.143
			1, B[3]				A	**3TK28 42-2BB42**		1	1 unit	102	0.146
			1, C[3]				B	**3TK28 42-2BB44**		1	1 unit	102	0.149
Multi-function units													
1	1	1	1, A[3]	1HL	4	DC 24	B	**3TK28 45-2BB41**		1	1 unit	102	0.360
1	1	1	1, B[3]				B	**3TK28 45-2BB42**		1	1 unit	102	0.360
2	--	2	--				B	**3TK28 45-2BB40**		1	1 unit	102	0.361

1) The outputs are only safe in conjunction with external actuators with positively-driven contacts.
2) An enabling circuit can be used as a signaling circuit.
3) t_v = Off-delay
A = 0.05 ... 3 s,
B = 0.5 ... 30 s,
C = 5 ... 300 s.

*** You can order this quantity or a multiple thereof.**

Overview

The SIRIUS safety pilot guides you quickly to the right device

Type	1-channel connection	2-channel connection	Crossover protection	Category acc. to EN 954-1					EMER-GENCY-STOP	Protective door	Enabling contacts	Signaling contacts	Autostart	Monitored start
				B	1	2	3	4						
Basic units														
3TK28 21	✔	✔	✔	✔	✔	✔	✔	--	✔	✔	3 NO	1 NC	✔	--
3TK28 22	--	✔	✔	✔	✔	✔	✔	✔	✔[2)]	✔	2 NO	--	✔	--
3TK28 23	--	✔	✔	✔	✔	✔	✔	✔	✔	--	2 NO	--	--	✔
3TK28 24	✔	✔	✔	✔	✔	✔	✔	--	✔	✔	2 NO	--	✔	--
3TK28 25	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	3 NO	2 NC	✔	✔
3TK28 27	✔	✔	✔	✔	✔	✔	✔	1)	✔	--	2 NO + 2 NC, delayed	1 NC	--	✔
3TK28 28	✔	✔	✔	✔	✔	✔	✔	1)	✔	✔	2 NO + 2 NC, delayed	1 NC	✔	--
Expansion devices (category as for basic unit)														
3TK28 30	--	--	●	●	●	●	●	●	--	--	4 NO	--	--	--
Press control devices according acc. to EN 574														
3TK28 34	--	✔	✔	✔	✔	✔	✔	✔	--	--	2 NO +2 NC	--	--	--
3TK28 35	--	--	--	✔	✔	✔	✔	✔	--	--	3 NO + 1 NC	--	--	--

✔ = available

-- = not available

● = corresponds to basic unit

1) Only possible for instantaneous enabling contacts.

2) The ON button is not monitored.

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with relay enabling circuits

Selection and ordering data

Rated control supply voltages U_S 24 V DC and AC 50/60 Hz, 24 115, 230 V

Enabling contacts	Signaling contacts	Achievable category acc. to EN 954-1	Rated control supply voltage U_S	DT	With screw terminals		PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
					Order No.	Price per PU				
			V							kg
Basic units for EMERGENCY-STOP and protective doors										
Autostart										
3 NO	1 NC	B, 1, 2, 3	AC/DC 24	▶	**3TK28 21-1CB30**		1	1 unit	102	0.276
2 NO	--	B, 1, 2, 3, 4	AC/DC 24	▶	**3TK28 22-1CB30**		1	1 unit	102	0.271
Monitored start										
2 NO	--	B, 1, 2, 3, 4	AC/DC 24	▶	**3TK28 23-1CB30**		1	1 unit	102	0.271
Autostart										
2 NO	--	B, 1, 2, 3	AC/DC 24	▶	**3TK28 24-1CB30**		1	1 unit	102	0.254
			DC 24	▶	**3TK28 24-1BB40**		1	1 unit	102	0.249
			AC 115	A	**3TK28 24-1AJ20**		1	1 unit	102	0.294
			AC 230	▶	**3TK28 24-1AL20**		1	1 unit	102	0.288
Autostart / monitored start										
3 NO	2 NC	B, 1, 2, 3, 4	DC 24	▶	**3TK28 25-1BB40**		1	1 unit	102	0.423
			AC 24	▶	**3TK28 25-1AB20**		1	1 unit	102	0.421
			AC 115	▶	**3TK28 25-1AJ20**		1	1 unit	102	0.519
			AC 230	▶	**3TK28 25-1AL20**		1	1 unit	102	0.516
Monitored start										
OFF-delay, t_v = 0.5 ... 30 s										
2 NO + 2 NO	1 NC	B, 1, 2, 3, 4 [1)]	DC 24	▶	**3TK28 27-1BB40**		1	1 unit	102	0.497
			AC 24	▶	**3TK28 27-1AB20**		1	1 unit	102	0.496
			AC 115	▶	**3TK28 27-1AJ20**		1	1 unit	102	0.650
			AC 230	▶	**3TK28 27-1AL20**		1	1 unit	102	0.650
Monitored start										
OFF-delay, t_v = 0.05 ... 3 s										
2 NO + 2 NO	1 NC	B, 1, 2, 3, 4 [1)]	DC 24	▶	**3TK28 27-1BB41**		1	1 unit	102	0.495
			AC 24	B	**3TK28 27-1AB21**		1	1 unit	102	0.499
			AC 115	B	**3TK28 27-1AJ21**		1	1 unit	102	0.650
			AC 230	A	**3TK28 27-1AL21**		1	1 unit	102	0.650
Autostart										
OFF-delay, t_v = 0.5 ... 30 s										
2 NO + 2 NO	1 NC	B, 1, 2, 3, 4 [1)]	DC 24	▶	**3TK28 28-1BB40**		1	1 unit	102	0.496
			AC 24	B	**3TK28 28-1AB20**		1	1 unit	102	0.500
			AC 115	A	**3TK28 28-1AJ20**		1	1 unit	102	0.650
			AC 230	A	**3TK28 28-1AL20**		1	1 unit	102	0.650
Autostart										
OFF-delay, t_v = 0.05 ... 3 s										
2 NO + 2 NO	1 NC	B, 1, 2, 3, 4 [1)]	DC 24	▶	**3TK28 28-1BB41**		1	1 unit	102	0.499
			AC 24	B	**3TK28 28-1AB21**		1	1 unit	102	0.501
			AC 115	B	**3TK28 28-1AJ21**		1	1 unit	102	0.657
			AC 230	A	**3TK28 28-1AL21**		1	1 unit	102	0.650

3TK28 21 to 3TK28 24 with screw-type connection

3TK28 25 with screw-type connection

3TK28 27 and 3TK28 28 with screw-type connection

For multi-unit/reusable packaging, see Appendix.

1) Only applicable to the instantaneous enabling contacts.

* You can order this quantity or a multiple thereof.

with relay enabling circuits

Rated control supply voltages U_s 24 V DC and AC 50/60 Hz, 24 ... 115, 230 V

Enabling contacts	Signal-ing contacts	Achievable category acc. to EN 954-1	Rated control supply voltage U_s	DT	With spring-loaded terminals		PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
					Order No.	Price per PU				
			V							kg
Basic units for EMERGENCY-STOP and protective doors										
Autostart										
3 NO	1 NC	B, 1, 2, 3	AC/DC 24	►	**3TK28 21-2CB30**		1	1 unit	102	0.246
2 NO	--	B, 1, 2, 3, 4	AC/DC 24	A	**3TK28 22-2CB30**		1	1 unit	102	0.250
Monitored start										
2 NO	--	B, 1, 2, 3, 4	AC/DC 24	A	**3TK28 23-2CB30**		1	1 unit	102	0.247
Autostart										
2 NO	--	B, 1, 2, 3	AC/DC 24	A	**3TK28 24-2CB30**		1	1 unit	102	0.230
			DC 24	►	**3TK28 24-2BB40**		1	1 unit	102	0.228
			AC 115	B	**3TK28 24-2AJ20**		1	1 unit	102	0.265
			AC 230	B	**3TK28 24-2AL20**		1	1 unit	102	0.270
Autostart / monitored start										
3 NO	2 NC	B, 1, 2, 3, 4	DC 24	►	**3TK28 25-2BB40**		1	1 unit	102	0.374
			AC 24	B	**3TK28 25-2AB20**		1	1 unit	102	0.375
			AC 115	B	**3TK28 25-2AJ20**		1	1 unit	102	0.472
			AC 230	B	**3TK28 25-2AL20**		1	1 unit	102	0.475
Monitored start										
OFF-delay, t_v = 0.5 ... 30 s										
2 NO+2 NO	1 NC	B, 1, 2, 3, 4[1)]	DC 24	►	**3TK28 27-2BB40**		1	1 unit	102	0.455
			AC 24	B	**3TK28 27-2AB20**		1	1 unit	102	0.454
			AC 115	B	**3TK28 27-2AJ20**		1	1 unit	102	0.606
			AC 230	B	**3TK28 27-2AL20**		1	1 unit	102	0.604
Monitored start										
OFF-delay, t_v = 0.05 ... 3 s										
2 NO+2 NO	1 NC	B, 1, 2, 3, 4[1)]	DC 24	A	**3TK28 27-2BB41**		1	1 unit	102	0.454
			AC 24	B	**3TK28 27-2AB21**		1	1 unit	102	0.454
			AC 115	B	**3TK28 27-2AJ21**		1	1 unit	102	0.240
			AC 230	B	**3TK28 27-2AL21**		1	1 unit	102	0.605
Autostart										
OFF-delay, t_v = 0.5 ... 30 s										
2 NO+2 NO	1 NC	B, 1, 2, 3, 4[1)]	DC 24	►	**3TK28 28-2BB40**		1	1 unit	102	0.457
			AC 24	B	**3TK28 28-2AB20**		1	1 unit	102	0.468
			AC 115	B	**3TK28 28-2AJ20**		1	1 unit	102	0.609
			AC 230	B	**3TK28 28-2AL20**		1	1 unit	102	0.612
Autostart										
OFF-delay, t_v = 0.05 ... 3 s										
2 NO+2 NO	1 NC	B, 1, 2, 3, 4[1)]	DC 24	A	**3TK28 28-2BB41**		1	1 unit	102	0.450
			AC 24	C	**3TK28 28-2AB21**		1	1 unit	102	0.454
			AC 115	B	**3TK28 28-2AJ21**		1	1 unit	102	0.240
			AC 230	B	**3TK28 28-2AL21**		1	1 unit	102	0.608

For multi-unit/reusable packaging, see Appendix.

1) Only applicable to the instantaneous enabling contacts.

*** You can order this quantity or a multiple thereof.**

with relay enabling circuits

Rated control supply voltages U_s 24 V DC and AC 50/60 Hz, 24, 115, 230 V

Enabling contacts	Signaling contacts	Achievable category acc. to EN 954-1	Rated control supply voltage U_s	DT	With screw terminals		PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
			V		Order No.	Price per PU				kg
Expansion units										
for expansion of the contacts for the safety relays (1 enabling contact of the basic unit is required for connecting to the basic unit)										
4 NO	--	corresponds to basic unit	AC/DC 24	▶	**3TK28 30-1CB30**		1	1 unit	102	0.267
			AC 115	A	**3TK28 30-1AJ20**		1	1 unit	102	0.306
			AC 230	A	**3TK28 30-1AL20**		1	1 unit	102	0.306
Press control devices										
for use in presses and punches **Two-hand control unit,** two-channel										
2 NO	2 NC	4	DC 24	▶	**3TK28 34-1BB40**		1	1 unit	102	0.432
			AC 24	▶	**3TK28 34-1AB20**		1	1 unit	102	0.424
			AC 115	▶	**3TK28 34-1AJ20**		1	1 unit	102	0.519
			AC 230	▶	**3TK28 34-1AL20**		1	1 unit	102	0.519
Slowing down test apparatus										
3 NO	1 NC		DC 24	B	**3TK28 35-1BB40**		1	1 unit	102	0.495

3TK28 30

3TK28 34 and 3TK28 35

For multi-unit/reusable packaging, see Appendix.

Rated control supply voltages U_s 24 V DC and AC 50/60 Hz, 24, 115, 230 V

Enabling contacts	Signaling contacts	Achievable category acc. to EN 954-1	Rated control supply voltage U_s	DT	With spring-loaded terminals		PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
			V		Order No.	Price per PU				kg
Expansion units										
for expansion of the contacts for the safety relays (1 enabling contact of the basic unit is required for connecting to the basic unit)										
4 NO	--	corresponds to basic unit	AC/DC 24	▶	**3TK28 30-2CB30**		1	1 unit	102	0.244
			AC 115	B	**3TK28 30-2AJ20**		1	1 unit	102	0.276
			AC 230	B	**3TK28 30-2AL20**		1	1 unit	102	0.276
Press control devices										
for use in presses and punches **Two-hand control unit,** two-channel										
2 NO	2 NC	4	DC 24	A	**3TK28 34-2BB40**		1	1 unit	102	0.383
			AC 24	B	**3TK28 34-2AB20**		1	1 unit	102	0.376
			AC 115	B	**3TK28 34-2AJ20**		1	1 unit	102	0.472
			AC 230	B	**3TK28 34-2AL20**		1	1 unit	102	0.472
Slowing down test apparatus										
3 NO	1 NC		AC 24	B	**3TK28 35-2AB20**		1	1 unit	102	0.454

For multi-unit/reusable packaging, see Appendix.

Accessories

Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
							kg
Sealable caps to secure against unauthorized adjustment, for 3TK28 27 and 3TK28 28 devices	▶	**3RP19 02**		1	5 units	101	0.004
Push-in lugs for screw mounting for 3TK28 21 to 3TK28 35 devices (1 set = 2 units)	▶	**3RP19 03**		1	10 units	101	0.002

* You can order this quantity or a multiple thereof.

Overview

The SIRIUS safety pilot guides you quickly to the right device

Type	Connection		Crossover protection	Category acc. to EN 954-1					EMERGENCY-STOP	Protective door	Solid-state sensors	Cascade input	Safety mats
	1-channel	2-channel		B	1	2	3	4				24 V DC	
with contactor relays mounted on the front													
3TK28 50 basic unit	✔	✔	✔	✔	✔	✔	✔	--	✔	✔	--	--	--
3TK28 51 basic unit	✔	✔	✔	✔	✔	✔	✔	--	✔	✔	--	--	--
3TK28 52 basic unit	✔	✔	✔	✔	✔	✔	✔	--	✔	✔	--	--	--
3TK28 53 basic unit	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	1	✔
3TK28 56 expansion unit	--	--	●	●	●	●	●	●	--	--	--	1	--
3TK28 57 expansion unit tv	--	--	●	●	●	●	●	●	--	--	--	1	--

Type	Enabling circuit, floating		Enabling circuit, solid-state		Signal-ing circuit	Autostart	Moni-tored start	Switching capacity		Rated operational voltage			Rated control supply voltage			Control inputs
	Stop cate-gory 0	Stop cate-gory 1	Stop cate-gory 0	Stop cate-gory 1				AC -15 at U = 230 V	DC -13 at U = 24 V	DC 24 V	AC 230 V	AC 600 V	DC 24 V	AC 115 V	AC 230 V	DC 24 V
with contactor relays mounted on the front																
3TK28 50 basic unit	3	--	--	--	--	✔	✔	6 A	10 A	✔	✔	✔	✔	✔	✔	--
3TK28 51 basic unit	2	--	--	--	1 NC	✔	✔	6 A	10 A	✔	✔	✔	✔	✔	✔	--
3TK28 52 basic unit	6	--	--	--	1 NC	✔	✔	6 A	10 A	✔	✔	✔	✔	✔	✔	--
3TK28 53 basic unit	3	--	1	--	--	✔	✔	6 A	10 A	✔	✔	✔	✔	--	--	1
3TK28 56 expansion unit	6	--	1	--	1 NC	--	--	6 A	10 A	✔	✔	✔	✔	--	--	1
3TK28 57 expansion unit tv	--	3	1	--	--	--	--	6 A	10 A	✔	✔	✔	✔	--	--	1

✔ = available
-- = not available
● = corresponds to basic unit

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with contactor relay enabling circuits

Selection and ordering data

Rated control supply voltages U_s 24 V DC and AC 50/60 Hz, 115, 230 V

Enabling circuit, floating		Enabling circuit, solid-state		Signaling circuit	Achievable category acc. to EN 954-1	Rated control supply voltage U_s	DT	With screw terminals		PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
Stop category 0	Stop category 1	Stop category 0	Stop category 1			V		Order No.	Price per PU				kg
Safety relays, solid-state, with contactor relays, for EMERGENCY-STOP and protective doors													
Basic units													
3	--	--	--	--	3	DC 24	A	**3TK28 50-1BB40**		1	1 unit	102	0.819
						AC 115	B	**3TK28 50-1AJ20**		1	1 unit	102	0.765
						AC 230	B	**3TK28 50-1AL20**		1	1 unit	102	0.770
Basic units													
2	--	--	--	1 NC	3	DC 24	B	**3TK28 51-1BB40**		1	1 unit	102	0.821
						AC 115	B	**3TK28 51-1AJ20**		1	1 unit	102	0.770
						AC 230	B	**3TK28 51-1AL20**		1	1 unit	102	0.767
Basic units													
6	--	--	--	1 NC	3	DC 24	A	**3TK28 52-1BB40**		1	1 unit	102	0.919
						AC 230	B	**3TK28 52-1AL20**		1	1 unit	102	0.870
Basic units													
3	--	1[1)]	--	--	4	DC 24	A	**3TK28 53-1BB40**		1	1 unit	102	0.714
Expansion units[2)]													
6	--	1	--	1 NC	corresponds to basic unit	DC 24	B	**3TK28 56-1BB40**		1	1 unit	102	0.785
Expansion units tv[2)]													
--	3, A	1	--	--	corresponds basic unit	DC 24	B	**3TK28 57-1BB41**		1	1 unit	102	0.682
	3, B						B	**3TK28 57-1BB42**		1	1 unit	102	0.679
	3, C						B	**3TK28 57-1BB44**		1	1 unit	102	0.650

1) Suitable for solid-state sensor input.

2) For expansion of the contacts for the 3TK28 41, 3TK28 42, 3TK28 45, 3TK28 50, 3TK28 51, 3TK28 52, 3TK28 53 standard and basic units.

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* You can order this quantity or a multiple thereof.

Rated control supply voltages U_s 24 V DC and AC 50/60 Hz, 115, 230 V

	Enabling circuit, floating		Enabling circuit, solid-state		Signal-ing circuit	Achievable category acc. to EN 954-1	Rated control supply voltage U_s	DT	With spring-loaded terminals		PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
	Stop cate-gory 0	Stop cate-gory 1	Stop cate-gory 0	Stop cate-gory 1			V		Order No.	Price per PU				kg
Safety relays, solid-state, with contactor relays, for EMERGENCY-STOP and protective doors														
	**Basic units**													
	3	--	--	--	--	3	DC 24	B	**3TK28 50-2BB40**		1	1 unit	102	0.820
							AC 115	B	**3TK28 50-2AJ20**		1	1 unit	102	0.650
							AC 230	B	**3TK28 50-2AL20**		1	1 unit	102	0.761
	**Basic units**													
	2	--	--	--	1 NC	3	DC 24	B	**3TK28 51-2BB40**		1	1 unit	102	0.650
							AC 115	B	**3TK28 51-2AJ20**		1	1 unit	102	0.650
							AC 230	B	**3TK28 51-2AL20**		1	1 unit	102	0.768
	**Basic units**													
	6	--	--	--	1 NC	3	DC 24	B	**3TK28 52-2BB40**		1	1 unit	102	0.935
							AC 230	B	**3TK28 52-2AL20**		1	1 unit	102	0.878
	Basic units													
	3	--	1[1]	--	--	4	DC 24	B	**3TK28 53-2BB40**		1	1 unit	102	0.705
	Expansion units[2]													
	6	--	1	--	1 NC	corresponds to basic unit	DC 24	B	**3TK28 56-2BB40**		1	1 unit	102	0.750
	Expansion units tv[2]													
	--	3, A	1	--	--	corresponds to basic unit	DC 24	B	**3TK28 57-2BB41**		1	1 unit	102	0.650
		3, B						B	**3TK28 57-2BB42**		1	1 unit	102	0.677
		3, C						C	**3TK28 57-2BB44**		1	1 unit	102	0.650

1) Suitable for solid-state sensor input.

2) For expansion of the contacts for the 3TK28 41, 3TK28 42, 3TK28 45, 3TK28 50, 3TK28 51, 3TK28 52, 3TK28 53 standard and basic units.

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*** You can order this quantity or a multiple thereof.**

3RS17 interface converters

Overview

Interface converters perform the coupling function for analog signals on both the input side and the output side. They are indispensable when processing analog values with electronic controls. Under harsh industrial conditions in particular, it is often necessary to transmit analog signals over long distances. This means that electrical isolation is essential due to the different supply systems. The resistance of the wiring causes potential differences and losses which must be prevented. Electromagnetic disturbance and overvoltages can affect the signals on the input side in particular or even destroy the analog modules. All terminals of the 3RS17 interface converters are safe up to a voltage of 30 V DC and protected against switching poles. Short-circuit protection is an especially important function for the outputs.

The devices are EMC-tested according to

- EN 50081 (basic technical standard for emitted interference),
- EN 61000-6-2 (basic technical standard for immunity to interference).

The analog signals comply with

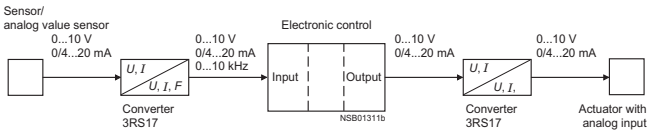
- IEC 60381-1/2.

Application

Converters are used in analog signal processing for

- Electrical isolation
- Conversion of normalized and non-normalized signals
- Matching of gain and impedances
- Conversion to a frequency for processing by a digital input
- Overvoltage and EMC protection
- Short-circuit protection of the outputs
- Potential duplication

Application example:
Interface converter in analog signal evaluation



3RS17 25 manual/automatic converter

For special applications in which analog signals have to be simulated, or during plant commissioning when the actual process value is not yet available, the 3RS17 25 devices feature an adjustable potentiometer for entering setpoints manually and a manual/automatic switch.

The adjustable potentiometer for the 3RS17 25 devices is used to simulate analog output signals when the changeover switch is set to "Manual" and the control supply voltage is applied, without the need for an analog input signal; the scale ranges from 0 % ... 100 %.

Example: When it is set for an output of 4 mA ... 20 mA, the 0 % scale value on the potentiometer represents an output current of 4 mA and the 100 % scale value represents an output current of 20 mA. In the "Auto" switch position, the output signal follows the input signal proportionally regardless of the potentiometer setting.

Selection and ordering data

All converters except the passive single interface converters have a yellow LED for indicating "Power on".

Input	Output	Width	Rated control supply voltage U_s	Electrical isolation	DT	Screw-type connection	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
						Order No. / Price per PU				
		mm	V							kg
Single interface converters, active										
0 ... 10 V	0 ... 10 V	6.2	AC/DC 24	2 paths	A	**3RS17 00-1AD00**	1	1 unit	101	0.053
	0 ... 20 mA	6.2	AC/DC 24	2 paths	A	**3RS17 00-1CD00**	1	1 unit	101	0.052
	4 ... 20 mA	6.2	AC/DC 24	2 paths	A	**3RS17 00-1DD00**	1	1 unit	101	0.052
0 ... 20 mA	0 ... 10 V	6.2	AC/DC 24	2 paths	A	**3RS17 02-1AD00**	1	1 unit	101	0.052
	0 ... 20 mA	6.2	AC/DC 24	2 paths	A	**3RS17 02-1CD00**	1	1 unit	101	0.052
	4 ... 20 mA	6.2	AC/DC 24	2 paths	A	**3RS17 02-1DD00**	1	1 unit	101	0.052
4 ... 20 mA	0 ... 10 V	6.2	AC/DC 24	2 paths	A	**3RS17 03-1AD00**	1	1 unit	101	0.052
	0 ... 20 mA	6.2	AC/DC 24	2 paths	A	**3RS17 03-1CD00**	1	1 unit	101	0.052
	4 ... 20 mA	6.2	AC/DC 24	2 paths	A	**3RS17 03-1DD00**	1	1 unit	101	0.053
Switchable multi-range converters, active										
0 ... 10 V, 0 ... 20 mA, 4 ... 20 mA, switchable	0 ... 10 V, 0 ... 20 mA, 4 ... 20 mA, switchable	6.2	AC/DC 24	2 paths	A	**3RS17 05-1FD00**	1	1 unit	101	0.053
		17.5	AC/DC 24 ... 240	3 paths	A	**3RS17 05-1FW00**	1	1 unit	101	0.090
0 ... 10 V, 0 ... 20 mA, 4 ... 20 mA, switchable	0 ... 50 Hz, 0 ... 100 Hz, 0 ... 1 kHz, 0 ... 10 kHz, switchable	6.2	AC/DC 24	2 paths	A	**3RS17 05-1KD00**	1	1 unit	101	0.053
		17.5	AC/DC 24 ... 240	3 paths	A	**3RS17 05-1KW00**	1	1 unit	101	0.099
Switchable universal converters, active, with 16 input ranges and 3 output ranges										
 0 ... 60 mV, 0 ... 100 mV, 0 ... 300 mV, 0 ... 500 mV, 0 ... 1 V, 0 ... 2 V, 0 ... 5 V, 0 ... 10 V, 0 ... 20 V, 2 ... 10 V, 0 ... 5 mA, 0 ... 10 mA, 0 ... 20 mA, 4 ... 20 mA, +/-5 mA, +/-20 mA, switchable	0 ... 10 V, 0 ... 20 mA, 4 ... 20 mA, switchable	17.5	AC/DC 24	2 paths	A	**3RS17 06-1FD00**	1	1 unit	101	0.082
				3 paths	A	**3RS17 06-1FE00**	1	1 unit	101	0.082
			AC/DC 24 ... 240	3 paths	A	**3RS17 06-1FW00**	1	1 unit	101	0.090
Switchable multi-range converters, active, with manual/automatic switch and single potentiometer as manual analog signal transmitter										
0 ... 10 V, 0 ... 20 mA, 4 ... 20 mA, switchable	0 ... 10 V, 0 ... 20 mA, 4 ... 20 mA, switchable	17.5	AC/DC 24	2 paths	A	**3RS17 25-1FD00**	1	1 unit	101	0.085
			AC/DC 24 ... 240	3 paths	A	**3RS17 25-1FW00**	1	1 unit	101	0.102

Input	Output	Width	Number Channels	Electrical isolation	DT	Screw-type connection	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
						Order No. / Price per PU				
		mm								kg
Single interface converters, passive										
 0/4 ... 20 mA	0/4 ... 20 mA	6.2	1	2 paths	A	**3RS17 20-1ET00**	1	1 unit	101	0.049
		12.5	1	2 paths	A	**3RS17 21-1ET00**	1	1 unit	101	0.059
			2	2 paths	A	**3RS17 22-1ET00**	1	1 unit	101	0.070

*** You can order this quantity or a multiple thereof.**

3RS17 interface converters

All converters except the passive single interface converters have a yellow LED for indicating "Power on".

Input	Output	Width	Rated control supply voltage U_s	Electrical isolation	DT	Spring-loaded terminal Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
		mm	V								kg
Single interface converters, active											
0 ... 10 V	0 ... 10 V	6.2	AC/DC 24	2 paths	A	**3RS17 00-2AD00**		1	1 unit	101	0.047
	0 ... 20 mA	6.2	AC/DC 24	2 paths	A	**3RS17 00-2CD00**		1	1 unit	101	0.047
	4 ... 20 mA	6.2	AC/DC 24	2 paths	A	**3RS17 00-2DD00**		1	1 unit	101	0.047
0 ... 20 mA	0 ... 10 V	6.2	AC/DC 24	2 paths	C	**3RS17 02-2AD00**		1	1 unit	101	0.047
	0 ... 20 mA	6.2	AC/DC 24	2 paths	A	**3RS17 02-2CD00**		1	1 unit	101	0.045
	4 ... 20 mA	6.2	AC/DC 24	2 paths	A	**3RS17 02-2DD00**		1	1 unit	101	0.048
4 ... 20 mA	0 ... 10 V	6.2	AC/DC 24	2 paths	A	**3RS17 03-2AD00**		1	1 unit	101	0.047
	0 ... 20 mA	6.2	AC/DC 24	2 paths	C	**3RS17 03-2CD00**		1	1 unit	101	0.049
	4 ... 20 mA	6.2	AC/DC 24	2 paths	A	**3RS17 03-2DD00**		1	1 unit	101	0.047
Switchable multi-range converters, active											
 0 ... 10 V, 0 ... 20 mA, 4 ... 20 mA, switchable	0 ... 10 V, 0 ... 20 mA, 4 ... 20 mA, switchable	6.2	AC/DC 24	2 paths	A	**3RS17 05-2FD00**		1	1 unit	101	0.048
		17.5	AC/DC 24 ... 240	3 paths	A	**3RS17 05-2FW00**		1	1 unit	101	0.092
0 ... 10 V, 0 ... 20 mA, 4 ... 20 mA, switchable	0 ... 50 Hz, 0 ... 100 Hz, 0 ... 1 kHz, 0 ... 10 kHz, switchable	6.2	AC/DC 24	2 paths	C	**3RS17 05-2KD00**		1	1 unit	101	0.047
		17.5	AC/DC 24 ... 240	3 paths	A	**3RS17 05-2KW00**		1	1 unit	101	0.092
Switchable universal converters, active, with 16 input ranges and 3 output ranges											
0 ... 60 mV, 0 ... 100 mV, 0 ... 300 mV, 0 ... 500 mV, 0 ... 1 V, 0 ... 2 V, 0 ... 5 V, 0 ... 10 V, 0 ... 20 V, 2 ... 10 V, 0 ... 5 mA, 0 ... 10 mA, 0 ... 20 mA, 4 ... 20 mA, +/-5 mA, +/-20 mA, switchable	0 ... 10 V, 0 ... 20 mA, 4 ... 20 mA, switchable	17.5	AC/DC 24	2 paths	A	**3RS17 06-2FD00**		1	1 unit	101	0.078
				3 paths	A	**3RS17 06-2FE00**		1	1 unit	101	0.077
			AC/DC 24 ... 240	3 paths	A	**3RS17 06-2FW00**		1	1 unit	101	0.094
Switchable multi-range converters, active, with manual/automatic switch and single potentiometer as manual analog signal transmitter											
 0 ... 10 V, 0 ... 20 mA, 4 ... 20 mA, switchable	0 ... 10 V, 0 ... 20 mA, 4 ... 20 mA, switchable	17.5	AC/DC 24	2 paths	A	**3RS17 25-2FD00**		1	1 unit	101	0.078
			AC/DC 24 ... 240	3 paths	A	**3RS17 25-2FW00**		1	1 unit	101	0.095

Input	Output	Width	Number Channels	Electrical isolation	DT	Spring-loaded terminal Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
		mm									kg
Single interface converters, passive											
0/4 ... 20 mA	0/4 ... 20 mA	6.2	1	2 paths	A	**3RS17 20-2ET00**		1	1 unit	101	0.044
		12.5	1	2 paths	A	**3RS17 21-2ET00**		1	1 unit	101	0.057
			2	2 paths	A	**3RS17 22-2ET00**		1	1 unit	101	0.066

* You can order this quantity or a multiple thereof.