SIRIUS 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
- Switch position indication and voltage indication by LED

PU (UNIT, SET, M) = 1, PS* = 1 unit, PG = 101


3RP15 05-1BP30


3RP15 11-1AP30


3RP15 25-1BW30


3RP15 27-1EM30


3RP15 05-2BP30


3RP15 11-2AP30


3RP15 25-2BW30

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 terminals Order No.	Screw terminals Price per PU	Weight per PU approx. kg	DT	Spring-type terminals Order No.	Spring-type terminals Price per PU	Weight per PU approx. kg
3RP15 05 timing relays, multifunction, 15 time setting ranges											
The functions can be adjusted by means of rotary switches. Insert 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. For functions see 3RP19 01 label set, page 7/44.											
With LED and											
1 CO contacts, 8 functions	0.05 ... 1 s	--	12	A	**3RP15 05-1AA40**	0.125			**--**		
	0.15 ... 3 s	24/100 ... 127	24	▶	**3RP15 05-1AQ30**	0.140	C		**3RP15 05-2AQ30**		0.125
	0.5 ... 10 s	24/200 ... 240	24	▶	**3RP15 05-1AP30**	0.141	A		**3RP15 05-2AP30**		0.126
	1.5 ... 30 s	24 ... 240[5]	24 ... 240[2]	▶	**3RP15 05-1AW30**	0.136	A		**3RP15 05-2AW30**		0.132
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**	0.162	A		**3RP15 05-2BQ30**		0.142
		24/200 ... 240	24	▶	**3RP15 05-1BP30**	0.161	A		**3RP15 05-2BP30**		0.137
		24 ... 240[5]	24 ... 240[2]	▶	**3RP15 05-1BW30**	0.168	A		**3RP15 05-2BW30**		0.143
		400 ... 440	-	A	**3RP15 05-1BT20**	0.169			**--**		
2 CO contacts, positively driven and hard gold-plated. 8 functions[3][4]	0.05 ... 1 h 5 ... 100 min 0.15 ... 3 h 0.5 ... 10 h 1.5 ... 30 h 5 ... 100 h ∞ [1]	24 ... 240	24 ... 240	▶	**3RP15 05-1RW30**	0.169	A		**3RP15 05-2RW30**		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	▶	**3RP15 11-1AQ30**	0.108	C		**3RP15 11-2AQ30**		0.092
		24/200 ... 240	24	▶	**3RP15 11-1AP30**	0.108	A		**3RP15 11-2AP30**		0.092
	1.5 ... 30 s	24/100 ... 127	24	▶	**3RP15 12-1AQ30**	0.107	C		**3RP15 12-2AQ30**		0.092
		24/200 ... 240	24	▶	**3RP15 12-1AP30**	0.104	A		**3RP15 12-2AP30**		0.097
	5 ... 100 s	24/100 ... 127	24	▶	**3RP15 13-1AQ30**	0.107	C		**3RP15 13-2AQ30**		0.094
		24/200 ... 240	24	▶	**3RP15 13-1AP30**	0.108	A		**3RP15 13-2AP30**		0.094
3RP15 25 timing relays, ON-delay, 15 time setting ranges											
With LED and											
1 CO	0.05 ... 1 s	24/100 ... 127	24	▶	**3RP15 25-1AQ30**	0.109	C		**3RP15 25-2AQ30**		0.095
	0.15 ... 3 s	24/200 ... 240	24	▶	**3RP15 25-1AP30**	0.104	A		**3RP15 25-2AP30**		0.093
2 CO	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 ∞ [1]	42 ... 48/60	42 ... 48/ 60[5]	A	**3RP15 25-1BR30**	0.152			**--**		
		24/100 ... 127	24	▶	**3RP15 25-1BQ30**	0.152	C		**3RP15 25-2BQ30**		0.128
		24/200 ... 240	24	▶	**3RP15 25-1BP30**	0.155	A		**3RP15 25-2BP30**		0.127
		24 ... 240[5]	24 ... 240[2]	▶	**3RP15 25-1BW30**	0.159	A		**3RP15 25-2BW30**		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[5]	A	**3RP15 27-1EC30**	0.099	C		**3RP15 27-2EC30**		0.090
		90 ... 240	90...240[5]	▶	**3RP15 27-1EM30**	0.100	C		**3RP15 27-2EM30**		0.090

1) 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.

2) Operating range 0.7 to 1.1 x U_s.

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

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

5) Operating range 0.8 to 1.1 x U_s.

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

SIRIUS 3RP15 timing relays in industrial enclosure, 22.5 mm

PU (UNIT, SET, M) = 1, PS* = 1 unit, PG = 101


3RP15 33-1AP30


3RP15 40-1BB31


3RP15 55-1AP30


3RP15 60-1SP30


3RP15 76-2NP30


3RP15 33-2AP30


3RP15 40-2BB31

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 terminals Order No.	Screw terminals Price per PU	Weight per PU approx. kg	DT	Spring-type terminals Order No.	Spring-type terminals Price per PU	Weight per PU 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	A	**3RP15 31-1AQ30**		0.140	C	**3RP15 31-2AQ30**		0.124
		24/200 ... 240	24	▶	**3RP15 31-1AP30**		0.140	C	**3RP15 31-2AP30**		0.122
	1.5 ... 30 s	24/100 ... 127	24	A	**3RP15 32-1AQ30**		0.138	C	**3RP15 32-2AQ30**		0.125
		24/200 ... 240	24	▶	**3RP15 32-1AP30**		0.139	A	**3RP15 32-2AP30**		0.121
	5 ... 100 s	24/100 ... 127	24	A	**3RP15 33-1AQ30**		0.139	C	**3RP15 33-2AQ30**		0.123
		24/200 ... 240	24	▶	**3RP15 33-1AP30**		0.140	C	**3RP15 33-2AP30**		0.125
3RP15 40 timing relays, OFF-delay, without auxiliary voltage, 9 time setting ranges[1]											
With LED and											
1 CO	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 15 ... 300 s 30 ... 600 s	24	24[2]	▶	**3RP15 40-1AB31**		0.116	A	**3RP15 40-2AB31**		0.105
		100 ... 127	100...127[3]	▶	**3RP15 40-1AJ31**		0.119	A	**3RP15 40-2AJ31**		0.108
		200 ... 240	200...240[3]	▶	**3RP15 40-1AN31**		0.120	A	**3RP15 40-2AN31**		0.110
		24 ... 240	24 ... 240[3]	▶	**3RP15 40-1AW31**		0.116	A	**3RP15 40-2AW31**		0.105
2 CO		24	24[2]	▶	**3RP15 40-1BB31**		0.159	A	**3RP15 40-2BB31**		0.136
		100 ... 127	100...127[3]	A	**3RP15 40-1BJ31**		0.161	A	**3RP15 40-2BJ31**		0.136
		200 ... 240	200...240[3]	▶	**3RP15 40-1BN31**		0.161	C	**3RP15 40-2BN31**		0.136
		24 ... 240	24 ... 240[3]	▶	**3RP15 40-1BW31**		0.159	A	**3RP15 40-2BW31**		0.136
3RP15 55 timing relays, clock-pulse relay, 15 time setting ranges											
With LED and 1 CO 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	42...48/ 60[5]	A	**3RP15 55-1AR30**		0.111	C	**3RP15 55-2AR30**		0.102
		24/100 ... 127	24	▶	**3RP15 55-1AQ30**		0.111	C	**3RP15 55-2AQ30**		0.100
		24/200 ... 240	24	▶	**3RP15 55-1AP30**		0.111	A	**3RP15 55-2AP30**		0.104
3RP15 60 timing relays, wye-delta function, dead interval 50 ms and coasting time, 1 time setting range											
3 NO contacts[3] (common contact root terminal 17)	Wye-delta 1 ... 20 s, coasting time (idling) 30 ... 600 s	24/100 ... 127	24	A	**3RP15 60-1SQ30**		0.172	C	**3RP15 60-2SP30**		0.152
		24/200 ... 240	24	▶	**3RP15 60-1SP30**		0.175		--		
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	24/100 ... 127	24	▶	**3RP15 74-1NQ30**		0.113	A	**3RP15 74-2NP30**		0.104
		24/200 ... 240	24	▶	**3RP15 74-1NP30**		0.113	B	**3RP15 74-2NM20**		0.100
		200 ... 240/ 380 ...440	--	B	**3RP15 74-1NM20**		0.113		--		
	3 ... 60 s	24/100 ... 127	24	▶	**3RP15 76-1NQ30**		0.112	A	**3RP15 76-2NQ30**		0.102
		24/200 ... 240	24	▶	**3RP15 76-1NP30**		0.113	A	**3RP15 76-2NP30**		0.104
		200 ... 240/ 380 ...440	--	B	**3RP15 76-1NM20**		0.113	B	**3RP15 76-2NM20**		0.100

For accessories, see page 7/44.

1) Setting of output contacts in as-supplied state not defined (bistable relay). Application of the control supply 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.

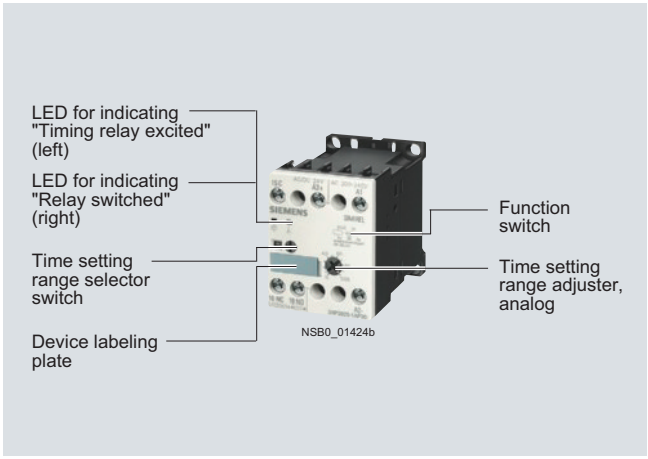
5) Operating range 0.8 to 1.1 x U_s.

6) For example circuit see note on Technical Information on page 7/1.

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

SIRIUS 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) "Specified time relays for industrial use"
- EN 61000-6-2 and EN 61000-6-4 "Electromagnetic compatibility"
- EN 60947-5-1 (VDE 0660 Part 200) "Low-voltage switchgear and controlgear – Electromechanical control circuit devices"
- EN 61140 "Electrical protective separation"

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. Insert 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.

For functions see 3RP19 01 label set, page 7/44.

PU (UNIT, SET, M) = 1, PS* = 1 units, PG = 101

3RP20 05-1BW30

3RP20 25-1AP30

3RP20 05-2BW30

3RP20 25-2AP30

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	Screw terminals Order No.	Screw terminals Price per PU	Weight per PU approx. kg	DT	Spring-type terminals Order No.	Spring-type terminals Price per PU	Weight per PU approx. kg
3RP20 05 timing relays, multifunction, 15 time setting ranges											
With LED and 1 CO contact, 8 functions	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 ∞ [2]	24/100 ... 127 24/200 ... 240	24 24	► ►	**3RP20 05-1AQ30** **3RP20 05-1AP30**		0.118 0.119	D ►	**3RP20 05-2AQ30** **3RP20 05-2AP30**		0.120 0.121
With LED and 2 CO contact, 16 functions [1]		24 ... 240 [3]	24 ... 240 [4]	►	**3RP20 05-1BW30**		0.128	D	**3RP20 05-2BW30**		0.131
3RP20 25. timing relays, ON-delay, 15 time setting ranges											
With LED and 1 CO contact [1]	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 ∞ [2]	24/100 ... 127 24/200 ... 240	24 24	► ►	**3RP20 25-1AQ30** **3RP20 25-1AP30**		0.106 0.106	► ►	**3RP20 25-2AQ30** **3RP20 25-2AP30**		0.110 0.108

For accessories, see page 7/44.

1) Units with electrical protective separation.

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 0.8 ... 1.1 x U_s.

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

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

7PV15 timing relays in enclosure, 17.5 mm

Overview

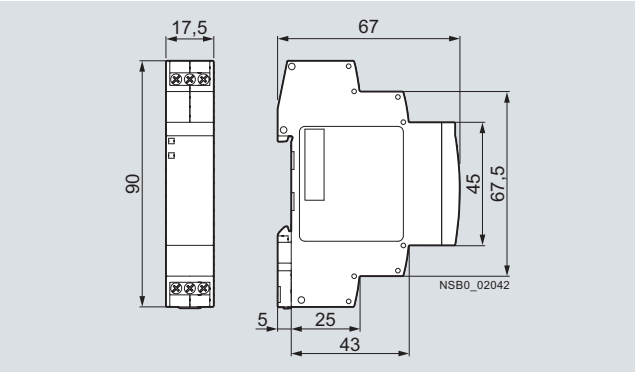
Standards

The timing relays comply with:

- EN 60721-3-3 "Environmental conditions"
- EN 61812-1 (DIN VDE 0435 Part 2021) "Specified time relays for industrial use"
- EN 61000-6-2 and EN 61000-6-4 "Electromagnetic compatibility"
- EN 60947-5-1 (VDE 0660 Part 200) "Low-voltage switchgear and controlgear – Electromechanical control circuit devices"
- DIN 43880 "Modular installation devices; enclosure dimensions and related mounting dimensions"

Enclosure version

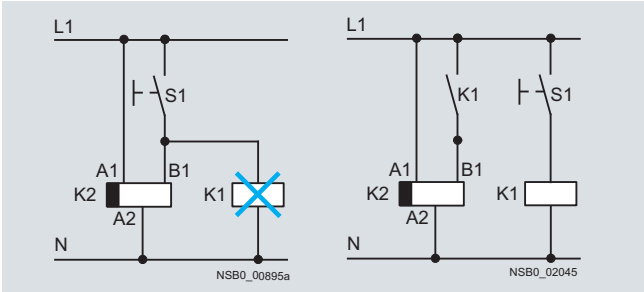
All timing relays are suitable for snap-on mounting onto TH 35 standard mounting rails according to EN 60715. The enclosure complies with DIN 43880, 1 MW.



Dimensions

Note:

The activation of loads parallel to the start input is not permissible when using AC control voltage (see diagrams).



Benefits

- Wide voltage range 12 ... 240 V AC/DC
- High switching capacity, e. g. AC15 at 230 V, 3 A
- Combination voltage, e. g. 24 V AC/DC and 200 ... 240 V AC
- Changes to the time setting range during operation
- Changes to the function in the de-energized state
- High level of functionality and a high repeat accuracy of timer settings
- Integrated surge suppressor
- Function charts printed on the side of the device for reliable device adjustment

Application

Timing relays are used in control, starting, and protective circuits for all switching operations involving time delays,
e. g. in functional buildings, airports, industrial buildings etc.

Selection and ordering data

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

- 1 changeover contact or 2 changeover contacts
- Multifunction or monofunction
- Wide voltage range or combination voltage
- Single or selectable time setting ranges
- Switch position indication and voltage indication by LED


7PV15 08-1AW30


7PV15 12-1AP30


7PV15 18-1AW30


7PV15 38-1AW30


7PV15 40-1AW30


7PV15 58-1AW30


7PV15 78-1BW30

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 terminals Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
7PV15 08 timing relays, multifunction, 7 time setting ranges										
The functions can be adjusted by means of rotary switches. The same potential must be applied to terminals A. and B.										
With LED and 1 CO contact, 7 functions	0.05 ... 1 s 0.5 ... 10 s 5 ... 100 s 30 s ... 10 min 3 min ... 1 h 30 min ... 10 h 5 ... 100 h	12 ... 240	12 ... 240	►	**7PV15 08-1AW30**		1	1 unit	101	0.136
7PV15 1. timing relays, ON-delay, 1 time setting range										
With LED and 1 CO contact	0.5 ... 10 s	24/100 ... 127	24	►	**7PV15 12-1AQ30**		1	1 unit	101	0.108
		24/200 ... 240	24	►	**7PV15 12-1AP30**		1	1 unit	101	0.108
	5 ... 100 s	24/100 ... 127	24	►	**7PV15 13-1AQ30**		1	1 unit	101	0.107
		24/200 ... 240	24	►	**7PV15 13-1AP30**		1	1 unit	101	0.108
7PV15 18 timing relays, ON-delay, 7 time setting ranges										
With LED and 1 CO contact	0.05 ... 1 s 0.5 ... 10 s 5 ... 100 s 30 s ... 10 min 3 min ... 1 h 30 min ... 10 h 5 ... 100 h	12 ... 240	12 ... 240	►	**7PV15 18-1AW30**		1	1 unit	101	0.159
7PV15 38 timing relays, OFF-delay, with auxiliary voltage, 7 time setting ranges										
With LED and 1 CO contact	0.05 ... 1 s 0.5 ... 10 s 5 ... 100 s 30 s ... 10 min 3 min ... 1 h 30 min ... 10 h 5 ... 100 h	12 ... 240	12 ... 240	►	**7PV15 38-1AW30**		1	1 unit	101	0.140
7PV15 40 timing relays, OFF-delay, without auxiliary voltage, 7 time setting ranges										
With LED and 1 CO contact	0.05 ... 1 s 0.15 ... 3s 0.3 ... 6 s 0.5 s ... 10 s 1.5 min ... 30 s 3 ... 60 s 5 ... 100 s	12 ... 240	12 ... 240	►	**7PV15 40-1AW30**		1	1 unit	101	0.116
7PV15 58 timing relays, clock-pulse relay, 7 time setting ranges										
With LED and 1 CO contact	0.05 ... 1 s 0.5 ... 10 s 5 ... 100 s 30 s ... 10 min 3 min ... 1 h 30 min ... 10 h 5 ... 100 h	12 ... 240	12 ... 240	►	**7PV15 58-1AW30**		1	1 unit	101	0.111
7PV15 78 timing relays, wye-delta function, 7 time setting ranges										
With LED and 2 CO contacts, dead interval 0.05 ... 1 s adjustable	0.05 ... 1 s 0.5 ... 10 s 5 ... 100 s 30 s ... 10 min 3 min ... 1 h 30 min ... 10 h 5 ... 100 h	12 ... 240	12 ... 240	►	**7PV15 78-1BW30**		1	1 unit	101	0.113

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

SIRIUS 3RT19 timing relays for mounting onto contactors

Selection and ordering data

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

[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 supply voltage once results in contact changeover to the correct setting.

[3] Terminals A1 and A2 for the control supply voltage of the solid-state time-delay auxiliary switch must be connected to the associated contactor by means of connecting cables.

* You can order this quantity or a multiple thereof.

SIRIUS 3RT19 timing relays for mounting onto contactors

For contactors Type	Version	Time setting range t s	Rated control supply voltage U_s V	DT	Screw terminals Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
For size S00, with semiconductor output										
3RT1. 1, 3RH11	**For mounting onto the front of contactors** The electrical connection between the timing relay block and the contactor beneath is established automatically when it is snapped on.									
 3RT19 16-2C...	• ON-delay, two-wire design (varistor integrated)									
		0.05 ... 1	24 ... 66	B	**3RT19 16-2CG11**		1	1 unit	101	0.050
		0.5 ... 10		▶	**3RT19 16-2CG21**		1	1 unit	101	0.050
		5 ... 100		B	**3RT19 16-2CG31**		1	1 unit	101	0.050
		0.05 ... 1	90 ... 240	D	**3RT19 16-2CH11**		1	1 unit	101	0.050
		0.5 ... 10		▶	**3RT19 16-2CH21**		1	1 unit	101	0.050
		5 ... 100		▶	**3RT19 16-2CH31**		1	1 unit	101	0.050
 3RT19 16-2D...	• OFF-delay with auxiliary voltage (varistor integrated)									
		0.05 ... 1	24 ... 66	C	**3RT19 16-2DG11**		1	1 unit	101	0.060
		0.5 ... 10		B	**3RT19 16-2DG21**		1	1 unit	101	0.060
		5 ... 100		B	**3RT19 16-2DG31**		1	1 unit	101	0.060
		0.05 ... 1	90 ... 240	D	**3RT19 16-2DH11**		1	1 unit	101	0.060
		0.5 ... 10		▶	**3RT19 16-2DH21**		1	1 unit	101	0.060
		5 ... 100		B	**3RT19 16-2DH31**		1	1 unit	101	0.060
For sizes S0 to S3, with semiconductor output										
3RT10 2, 3RT10 3, 3RT10 4[1]	**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 timing relay block to coil terminals A1/A2 on top of the contactor.									
 3RT19 26-2C...	• ON-delay, two-wire design (varistor integrated)									
		0.05 ... 1	24 ... 66	D	**3RT19 26-2CG11**		1	1 unit	101	0.050
		0.5 ... 10		B	**3RT19 26-2CG21**		1	1 unit	101	0.050
		5 ... 100		D	**3RT19 26-2CG31**		1	1 unit	101	0.050
		0.05 ... 1	90 ... 240	▶	**3RT19 26-2CH11**		1	1 unit	101	0.050
		0.5 ... 10		▶	**3RT19 26-2CH21**		1	1 unit	101	0.050
		5 ... 100		▶	**3RT19 26-2CH31**		1	1 unit	101	0.050
 3RT19 26-2D...	• OFF-delay with auxiliary voltage (varistor integrated)									
		0.05 ... 1	24 ... 66	D	**3RT19 26-2DG11**		1	1 unit	101	0.050
		0.5 ... 10		D	**3RT19 26-2DG21**		1	1 unit	101	0.050
		5 ... 100		D	**3RT19 26-2DG31**		1	1 unit	101	0.050
		0.05 ... 1	90 ... 240	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 ... 42 V rated control supply voltage.

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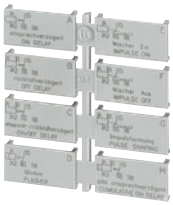
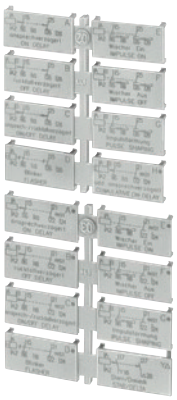
* You can order this quantity or a multiple thereof.

Accessories

Selection and ordering data

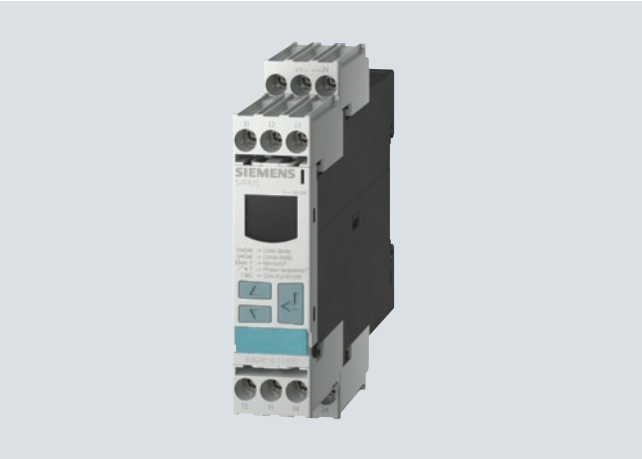
Accessories for 3RP15 and 3RP20

	Version	Function	Identification letter	Use	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
Label set for 3RP15 and 3RP20											
	Accessory for 3RP15 05 and 3RP20 (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.										
 3RP19 01-0A	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								
 3RP19 01-0B	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 Δ								
Blank labels for 3RP15 and 3RP20											
	Blank labels, 20 mm x 7 mm, pastel turquoise[1]			For 3RP15, 3RP20	C	**3RT19 00-1SB20**		100	340 units	101	0.200
Covering caps and push-in lugs for 3RP15											
 3RP19 03	**Push-in lugs** For screw fixing, 2 units are required for each device			For 3RP15 with 1 or 2 CO contacts	►	**3RP19 03**		1	10 units	101	0.002
 3RP19 02	**Sealable covers** For securing against unauthorized adjustment of setting knobs			For 3RP15 with 1 or 2 CO contacts	►	**3RP19 02**		1	5 units	101	0.004

[1] PC labeling system for individual inscription of unit labeling plates available from: murrplastik Systemtechnik GmbH www.murrplastik.de

* 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.

Phase unbalance is evaluated as the difference between the greatest and the smallest phase voltage relative to the greatest phase voltage. Undervoltage or overvoltage exists when at least one phase voltage deviates by 20 % from the set rated system voltage or the directly set limit values are overshot or undershot. The rms value of the voltage is measured.

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 ... 600 V AC worldwide thanks to wide voltage range
- Variably adjustable to overvoltage, undervoltage or range monitoring
- Freely configurable delay times and reset response
- Width 22.5 mm
- Permanent display of ACTUAL value and network fault type on the digital versions
- Automatic correction of the direction of rotation by distinguishing between power system faults and wrong phase sequence
- All versions with removable terminals
- All versions with screw terminals or alternatively with innovative spring-type 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 asymmetry	• 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

Line monitoring

Selection and ordering data


3UG45 11-1AP20


3UG46 15-1CR20


3UG46 16-1CR20


3UG46 17-1CR20


3UG46 18-1CR20


3UG45 11-2BP20


3UG45 12-2BR20

PU (UNIT, SET, M) =1
PS* = 1 unit
PG = 101

Hysteresis	Under-voltage detection	Over-voltage detection	ON-delay s	Tripping delay s	Auxiliary contacts Version CO contact	Rated control supply voltage U_s 1) V	DT	Screw terminals Order No.	Price per PU	DT	Spring-type terminals Order No.	Price per PU	Weight per PU approx. kg
Monitoring of phase sequence													
Auto-RESET													
--	--	--	--	--	1	160 … 260 AC	A	**3UG45 11-1AN20**		B	**3UG45 11-2AN20**		0.147
					2		A	**3UG45 11-1BN20**		B	**3UG45 11-2BN20**		0.147
					1	320 … 500 AC	A	**3UG45 11-1AP20**		A	**3UG45 11-2AP20**		0.147
					2		A	**3UG45 11-1BP20**		B	**3UG45 11-2BP20**		0.147
					1	420 … 690 AC	B	**3UG45 11-1AQ20**		B	**3UG45 11-2AQ20**		0.147
					2		B	**3UG45 11-1BQ20**		B	**3UG45 11-2BQ20**		0.147
Monitoring of phase sequence, phase failure and phase unbalance													
Auto-RESET, closed-circuit principle, unbalance threshold 10 %													
--	--	--	--	--	1	160 … 690 AC	A	**3UG45 12-1AR20**		A	**3UG45 12-2AR20**		0.147
					2		A	**3UG45 12-1BR20**		A	**3UG45 12-2BR20**		0.147
Monitoring of phase sequence, phase failure, unbalance and undervoltage													
Analog adjustable, Auto-RESET, closed-circuit principle, fixed unbalance threshold 20 %													
5 % of set value	✓	--	--	0.1 … 20	2	160 … 690 AC	A	**3UG45 13-1BR20**		A	**3UG45 13-2BR20**		0.147
Digitally adjustable, Auto or manual RESET, open-circuit or closed-circuit principle, unbalance threshold 0 or 5 ... 20 %													
Adjustable 1 ... 20 V	✓	--	0.1 ... 20	0.1 … 20	2	160 … 690 AC	A	**3UG46 14-1BR20**		A	**3UG46 14-2BR20**		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	✓	✓	--	0.1 … 20 2)	2 2)	160 … 690 AC	A	**3UG46 15-1CR20**		A	**3UG46 15-2CR20**		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	✓	✓	--	0.1 … 20 2)	2 2)	90… 400 AC against N	A	**3UG46 16-1CR20**		A	**3UG46 16-2CR20**		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 or manual RESET, open-circuit or closed-circuit principle, unbalance threshold 0 or 5...20 %													
Adjustable 1 ... 20 V	✓	✓	--	0.1 … 20	2 3)	160 … 690 AC	A	**3UG46 17-1CR20**		B	**3UG46 17-2CR20**		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 or manual RESET, open-circuit or closed-circuit principle, unbalance threshold 0 or 5...20 %													
Adjustable 1 ... 20 V	✓	✓	--	0.1 … 20	2 3)	90… 400 AC against N	A	**3UG46 18-1CR20**		B	**3UG46 18-2CR20**		0.147

✓ Function available -- Function not available

1) Absolute limit values.

2) 1 CO contact each and 1 tripping delay time each for U_{min} and U_{max}.

3) 1 CO contact each for power system fault and phase sequence correction.

For accessories, see page 7/57.

* You can order this quantity or a multiple thereof.

Overview

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

Benefits

- Versions with wide voltage supply range
- Variably adjustable to overvoltage, undervoltage or range 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 terminals or alternatively with innovative spring-type 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 control supply voltages, particularly with battery power
- Threshold switch for analog signals from 0.1 ... 10 V

Selection and ordering data

3UG46 31-1AA30

3UG46 33-2AL30

PU (UNIT, SET, M) =1
PS* = 1 unit
PG = 101

Measuring range	Hysteresis	Rated control supply voltage U_s	DT	Screw terminals	DT	Spring-type terminals	Weight per PU approx.
				Order No. Price per PU		Order No. Price per PU	
V	V	V					kg
Internal power supply without auxiliary voltage, ON-delay and tripping delay can be adjusted separately 0.1 ... 20 s							
Digitally adjustable, LC display, Auto-RESET or manual RESET, open-circuit or closed-circuit principle, 1 CO contact							
17 … 275 AC/DC	0.1 ... 150	17 … 275 AC/DC[1]	A	**3UG46 33-1AL30**	A	**3UG46 33-2AL30**	0.147
Supplied from an external auxiliary voltage, tripping delay adjustable 0.1 ... 20 s							
Digitally adjustable, LC display, Auto-RESET or manual RESET, open-circuit or closed-circuit principle, 1 CO contact							
0.1 … 60 AC/DC	0.1 ... 30	24 AC/DC	A	**3UG46 31-1AA30**	B	**3UG46 31-2AA30**	0.147
10 … 600 AC/DC	0.1 ... 300		A	**3UG46 32-1AA30**	B	**3UG46 32-2AA30**	0.147
0.1 … 60 AC/DC	0.1 ... 30	24 … 240 AC/DC	A	**3UG46 31-1AW30**	B	**3UG46 31-2AW30**	0.147
10 … 600 AC/DC	0.1 ... 300		A	**3UG46 32-1AW30**	B	**3UG46 32-2AW30**	0.147

For accessories, see page 7/57.

1) Absolute limit values.

* You can order this quantity or a multiple thereof.

SIRIUS 3UG Monitoring Relays for Stand-Alone Installation

Current monitoring

Overview

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

Benefits

- Versions with wide voltage supply range
- Variably adjustable to overvoltage, undervoltage or range 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 terminals or alternatively with innovative spring-type terminals

Application

- Overcurrent and undercurrent monitoring
- Monitoring the functionality of electrical loads
- Open-circuit monitoring
- Threshold switch for analog signals from 4 ... 20 mA

Selection and ordering data

3UG46 21-1AA30

3UG46 22-2AW30

PU (UNIT, SET, M) =1
PS* = 1 unit
PG = 101

Measuring range	Hysteresis	Rated control supply voltage U_s	DT	Screw terminals		DT	Spring-type terminals		Weight per PU approx.
				Order No.	Price per PU		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, Auto-RESET or manual RESET, open-circuit or closed-circuit principle, 1 CO contact									
AC/DC 3 ... 500 mA AC/DC 0.05 ... 10 A	0.1 ... 250 mA 0.01 ... 5 A	24 AC/DC[1]	A A	**3UG46 21-1AA30** **3UG46 22-1AA30**		B B	**3UG46 21-2AA30** **3UG46 22-2AA30**		0.147 0.147
AC/DC 3 ... 500 mA AC/DC 0.05 ... 10 A	0.1 ... 250 mA 0.01 ... 5 A	24 ... 240[2] AC/DC	A A	**3UG46 21-1AW30** **3UG46 22-1AW30**		B A	**3UG46 21-2AW30** **3UG46 22-2AW30**		0.147 0.147

For accessories, see page 7/57.

With currents I > 10 A it is possible to use 4NC current transformers as an accessory, see Chapter 16.

1) No electrical separation. Load supply voltage 24 V.

2) Electrical separation between control circuit and measuring circuit. Load supply voltage for safe isolation max. 300 V, for simple isolation max. 500 V.

* You can order this quantity or a multiple thereof.

Overview

The 3UG46 41 power factor and active current monitoring device enables the load monitoring of motors.

Whereas power factor monitoring is used above all for monitoring no-load operation, the active current monitoring option can be used to observe and evaluate the load factor over the entire torque range.

Benefits

- Can be used world-wide thanks to wide voltage range from 90 ... 690 V[1)]
- Monitoring of even small single-phase motors with a no-load supply current below 0.5 A
- Simple determination of threshold values through the direct collection of measured variables on motor loading
- Range monitoring and active current measurement enable detection of cable breaks between control cabinets and motors, as well as phase failures
- Power factor or active current can be selected as measurement principle

1) Absolute limit values.

Application

- No-load monitoring and load shedding, such as in the event of a V-belt tear
- Underload monitoring in the low performance range, e. g. in the event of pump no-load operation
- Monitoring of overload, e. g. due to a dirty filter system
- Simple power factor monitoring in networks for control of compensation equipment
- Broken cable between control cabinet and motor

Selection and ordering data

Relay for monitoring the power factor and the active current I_{res} (p.f. x I)

- Suitable for single- and three-phase currents
- Digital adjustable, with illuminated LC display
- Overshoot, undershoot or range monitoring
- Upper and lower threshold value can be adjusted separately
- Permanent display of actual value and tripping state
- 1 changeover contact each for undershoot/overshoot
- All terminals are removable
- Width 22.5 mm

Measuring range		Hysteresis		ON-delay	OFF-delay	Rated control supply voltage U_s[1)]	DT	**Screw terminals**		PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
For power factor	For active current	For power factor	For active current			AC 50/60 Hz		Order No.	Price per PU				
p.f.	A	p.f.	A	s	s	V							kg
0.10 ... 0.99	0.2 ... 10.0	0.1	0.1 ... 2.0	0 ... 99	0.1 ... 20.0	90 ... 690	A	**3UG46 41-1CS20**		1	1 unit	101	0.147

Measuring range		Hysteresis		ON-delay	OFF-delay	Rated control supply voltage U_s[1)]	DT	**Spring-type terminals**		PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
For power factor	For active current	For power factor	For active current			AC 50/60 Hz		Order No.	Price per PU				
p.f.	A	p.f.	A	s	s	V							kg
0.10 ... 0.99	0.2 ... 10.0	0.1	0.1 ... 2.0	0 ... 99	0.1 ... 20.0	90 ... 690	B	**3UG46 41-2CS20**		1	1 unit	101	0.147

For accessories, see page 7/57.

With active currents > 10 A it is possible to use 4NC current transformers as an accessory, see Chapter 16.

1) Absolute limit values.

* You can order this quantity or a multiple thereof.

SIRIUS 3UG Monitoring Relays for Stand-Alone Installation

Residual current monitoring: Residual-current monitoring relays

Overview

The 3UG46 24 residual current monitoring relay is used together with the 3UL22 summation current transformer for plant monitoring.

Application

- Plant monitoring

Selection and ordering data

Relay for monitoring residual currents $I_{\Delta n}$ 0.3 ... 40 A

- For 3UL22 summation current transformers with feed-through opening 40 ... 120 mm
- Digital adjustable, with illuminated LC display
- Separately adjustable limit value and warning threshold
- Permanent display of actual value and tripping state
- 1 CO contact each for limit violation and warning threshold
- All terminals are removable
- Width 22.5 mm

Display range	Setting range	Hysteresis		ON / tripping delay time	Rated control supply voltage U_s [2]	DT	**Screw terminals** Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
		Limit value	Warning value									
A	A	A	A	s	V							kg
10 ... 120 % of $I_{\Delta n}$	10 ... 100 % of $I_{\Delta n}$	LSB [1] up to 50 % of $I_{\Delta n}$	5 % of $I_{\Delta n}$	0.1 ... 20	90 ... 690	A	**3UG46 24-1CS20**		1	1 unit	101	0.147

Display range	Setting range	Hysteresis		ON / tripping delay time	Rated control supply voltage U_s [2]	DT	**Spring-type terminals** Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
		Limit value	Warning value									
A	A	A	A	s	V							kg
10 ... 120 % of $I_{\Delta n}$	10 ... 100 % of $I_{\Delta n}$	LSB [1] up to 50 % of $I_{\Delta n}$	5 % of $I_{\Delta n}$	0.1 ... 20	90 ... 690	B	**3UG46 24-2CS20**		1	1 unit	101	0.130

For accessories, see page 7/57.

For 3UL22 summation current transformers see page 7/51.

[1] LSB: Smallest adjustable value, transformer-dependent, ≤ 1 % of $I_{\Delta n}$.

[2] Absolute limit values.

* You can order this quantity or a multiple thereof.

Overview

The 3UL22 summation current transformers sense fault currents in machines and plants. Together with the 3UG46 24 residual current monitoring relay or the SIMOCODE 3UF motor management and control device they enable residual-current and ground-fault monitoring.

Application

- Plant monitoring

Selection and ordering data

	Feed-through opening diameter	Rated insulation voltage U_i	Rated fault current $I_{\Delta n}$	DT	Screw terminals Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
	mm	V	A							kg
Summation current transformer (essential accessory for 3UG46 24 or SIMOCODE 3UF)										
 3UL22	40	690	0.3	B	**3UL22 01-1A**		1	1 unit	101	0.571
			0.5	B	**3UL22 01-2A**		1	1 unit	101	0.408
			1	B	**3UL22 01-3A**		1	1 unit	101	0.324
	65	690	0.3	B	**3UL22 02-1A**		1	1 unit	101	0.900
			0.5	B	**3UL22 02-2A**		1	1 unit	101	0.713
			1	B	**3UL22 02-3A**		1	1 unit	101	0.568
			6	C	**3UL22 02-1B**		1	1 unit	101	0.561
			10	C	**3UL22 02-2B**		1	1 unit	101	0.563
			16	C	**3UL22 02-3B**		1	1 unit	101	0.573
			25	C	**3UL22 02-4B**		1	1 unit	101	0.575
			40	C	**3UL22 02-5B**		1	1 unit	101	0.564
	120	1000	0.3	B	**3UL22 03-1A**		1	1 unit	101	3.435
			0.5	B	**3UL22 03-2A**		1	1 unit	101	2.810
			1	B	**3UL22 03-3A**		1	1 unit	101	1.965
			6	C	**3UL22 03-1B**		1	1 unit	101	1.955
			10	C	**3UL22 03-2B**		1	1 unit	101	1.990
			16	C	**3UL22 03-3B**		1	1 unit	101	1.917
			25	C	**3UL22 03-4B**		1	1 unit	101	1.851
			40	C	**3UL22 03-5B**		1	1 unit	101	1.905

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* You can order this quantity or a multiple thereof.

SIRIUS 3UG Monitoring Relays for Stand-Alone Installation

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 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 on the front and over terminal connections
- Switching output: 1 CO
- Insulation fault indication with a red LED
- Control supply voltage indication with a green LED
- Electromagnetically compatible according to EN 61000-6-2 and EN 61000-6-4

Application

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

Control supply voltage

The 3UG30 81-1AK20 has alternative voltage terminals. Only one control 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 ... 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 terminals	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
				Order No. / Price per PU				
	kΩ	V						kg
Insulation monitors for ungrounded AC networks								
	1 ... 110	115 / 230 AC	A	**3UG30 81-1AK20**	1	1 unit	101	0.327
		24 ... 240 AC/DC	B	**3UG30 81-1AW30**	1	1 unit	101	0.242

3UG30 81-1AK20

For accessories, see page 7/57.

* You can order this quantity or a multiple thereof.

Overview

Relay for monitoring the insulation resistance between ungrounded pure DC networks and a protective conductor

- Measuring principle for residual current measurement
- Response value can be adjusted steplessly 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
- Insulation fault indicator for L+ and L- through two red LEDs
- Control supply voltage indication with a green LED
- Electromagnetically compatible according to EN 61000-6-2 and EN 61000-6-4

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.

Control supply voltage

Due to the electrical isolation of the supply voltage and the measuring 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 external voltage, then 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 terminals	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
			Order No. / Price per PU				
kΩ	V						kg
Insulation monitors for ungrounded DC networks							
10 ... 110	24 ... 240	B	**3UG30 82-1AW30**	1	1 unit	101	0.233

3UG30 82-1AW30

For accessories, see page 7/57.

* You can order this quantity or a multiple thereof.

SIRIUS 3UG Monitoring Relays for Stand-Alone Installation

Level monitoring: Level monitoring relays

Overview

The 3UG45 01 level monitoring relay is used together with 2- or 3-pole sensors to monitor the levels of conductive liquids.

Application

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

Selection and ordering data

Level monitoring relay for conductive liquids
- Control principle: inlet or outlet control per rotary switch
- Single-point and two-point control possible
- Analog adjustable sensitivity (specific resistance of the liquid)
- Analog adjustable tripping delay time
- 1 yellow LED for indicating the relay state
- 1 green LED for indicating the applied control supply voltage
- 1 CO
- All terminals are removable
- Width 22.5 mm

PU (UNIT, SET, M) =1, PS* =1 units, PG =101

Sensitivity	Tripping delay time	Rated control supply voltage U_s	DT	Screw terminals	DT	Spring-type terminals	Weight per PU approx.
				Order No. Price per PU		Order No. Price per PU	
kΩ	s	V AC/DC					kg
2 ... 200	0.5 ... 10	24[1]	A	**3UG45 01-1AA30**	A	**3UG45 01-2AA30**	0.110
		24 ... 240	A	**3UG45 01-1AW30**	A	**3UG45 01-2AW30**	0.120

For accessories, see page 7/57.

For level monitoring sensors see page 7/55.

[1] The rated control supply voltage and the measuring circuit are not electrically separated.

* You can order this quantity or a multiple thereof.

Selection and ordering data

Version	Assignment Cables	Assignment Electrode	Application	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
Level monitoring sensors (essential accessory)										
With Teflon insulation (PTFE), screw-in gland width A/F 22, 3/8 inch thread, PVC connecting cable, 3 x 0.5 mm², 2 m long, max. operating temperature 90 °C, max. operating pressure 10 bar The wire electrodes can be cut or bent to the required length before or after installation. The Teflon insulation must be removed over a length of approx. 5 mm.										
 3UG32 07-3A **Three-pole wire electrode** 500 mm long	Brown White Green	Center electrode Not assignable	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
 3UG32 07-2A **Two-pole wire electrode** 500 mm long	Brown White	Not assignable	For alarm indication in the event of overflow or low level and for 2-point liquid level control, when the conductive tank is used as the reference electrode.	►	**3UG32 07-2A**		1	1 unit	101	0.230
 3UG32 07-2B **Two-pole bow electrode**	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
 3UG32 07-1B **Single-pole bow electrode for lateral fitting**	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
 3UG32 07-1C **Single-pole rod electrode for lateral fitting**	Brown White	Gland Electrode	For high flow velocities or for intensively sparkling fluids.	C	**3UG32 07-1C**		1	1 unit	101	0.144

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* You can order this quantity or a multiple thereof.

SIRIUS 3UG Monitoring Relays for Stand-Alone Installation

Speed monitoring

Overview

The 3UG46 51 monitoring relay is used together with a sensor to monitor motor drives for overspeed and/or underspeed.

Furthermore, this relay is ideal for all functions where a continuous pulse signal needs to be monitored (e. g. belt travel monitoring, completeness monitoring, passing monitoring, clock-time monitoring).

Application

- Slip or tear of a belt drive
- Overload monitoring
- Transport monitoring for completeness

Selection and ordering data

Relay for speed monitoring in min $^{-1}$ (rpm)
- Two- or three-wire sensor with mechanical or electronic switching output can be connected
- Two-wire NAMUR sensor can be connected
- Integrated sensor supply 24 V DC/50 mA
- Input frequency 0.1 ... 2200 pulses min $^{-1}$ (0.0017 ... 36.7 Hz)
- With or without enable signal for the drive to be monitored
- Digital adjustable, with illuminated LC display
- Overshoot, undershoot or range monitoring
- Number of pulses per revolution can be adjusted
- Upper and lower threshold value can be adjusted separately
- Auto, manual or remote RESET options after tripping
- Permanent display of actual value and tripping state
- 1 CO
- All terminals are removable
- Width 22.5 mm

PU (UNIT, SET, M) =1, PS* =1 units, PG =101

Measuring range	Hysteresis	ON-delay time	Tripping delay time	Pulses per revolution	Rated control supply voltage U_S AC/DC	DT	Screw terminals Order No.	Price per PU	DT	Spring-type terminals Order No.	Price per PU	Weight per PU approx.
rpm	rpm	s	s		V							kg
0.1 ... 2200	OFF	0 ... 900	0.1 ... 99.9	1 ... 10	24[1]	A	**3UG46 51-1AA30**		A	**3UG46 51-2AA30**		0.120
	0.1 ... 99.9				24 ... 240	A	**3UG46 51-1AW30**		A	**3UG46 51-2AW30**		0.130

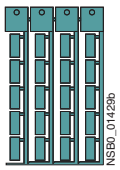
For accessories, see page 7/57.

For matching sensors see Catalog FS 10 "Sensors for Production Automation".

[1] The rated control supply voltage and the measuring circuit are not electrically separated.

* You can order this quantity or a multiple thereof.

Selection and ordering data

	Use	Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
Blank labels									
 3RT19 00-1SB10	For 3UG4	**Unit labeling plates** For SIRIUS devices							
		20 mm x 7 mm, pastel turquoise [1]	C	**3RT19 00-1SB20**		100	340 units	101	0.200
	For 3UG4	**Inscription labels for sticking** For SIRIUS devices							
		19 mm x 6 mm, pastel turquoise	D	**3RT19 00-1SB60**		100	3060 units	101	15.000
		19 mm x 6 mm, zinc yellow	C	**3RT19 00-1SD60**		100	3060 units	101	12.000
Push-in lugs and covers									
 3RP19 03	For 3UG4	**Push-in lugs** For screw fixing, 2 units are required for each device	►	**3RP19 03**		1	10 units	101	0.002
 3RP19 02	For 3UG4	**Sealable covers** For securing against unauthorized adjustment of setting knobs	►	**3RP19 02**		1	5 units	101	0.004
Covers for insulation monitoring relays									
	For 3UG30 81, 3UG30 82	**Sealable, transparent covers**	C	**3UG32 08-1A**		1	1 unit	101	0.010
Tools for opening spring-type terminals by hand									
 8WH9 200-0AA00	For auxiliary circuit connections	**Screwdrivers,** 2.5 mm x 0.4 mm, length approx. 160 mm; green, suitable for a max. conductor cross-section of 1.5 mm²	C	**8WH9 200-0AA00**		1	10 units	044	0.032
Tools for opening screw terminals									
 8WA2 803	For main and auxiliary circuit connections	**Screwdrivers,** 3.5 mm x 0.5 mm, suitable for a max. conductor cross-section of 2.5 mm²							
		Length approx. 175 mm; green, partially insulated	C	**8WA2 880**		1	1 unit	041	0.034
		Length approx. 175 mm; green	C	**8WA2 803**		1	1 unit	041	0.024

[1] PC labeling system for individual inscription of unit labeling plates available from:
murrplastik Systemtechnik GmbH
www.murrplastik.de

Note: SIPLUS CMS1000 condition monitoring for bearings

Condition monitoring has become an indispensable aspect of machine and plant monitoring systems. It puts the user in a better position to plan and verify his maintenance operations and to perform them when they are actually necessary.

With the SIPLUS CMS1000 bearing monitor and a sensor, rolling bearings (e. g. motor rolling bearings) are monitored for long-term damage.

The compact system offers:
- A cost-efficient solution for monitoring bearings
- Monitoring of bearings on motors with variable and non-variable speed
- Monitoring of motors with rolling bearings based on VDI3832
- Teach mode for easy start-up
- Digitally adjustable with LCD for configuration and indication of the diagnostics value
- Adjustable threshold values for warning and alarm
- Two relay outputs for switching in case of warning and alarm
- An acceleration sensor for mounting on the motor to be monitored

Technical information is available at
www.siemens.com/siplus-cms

* You can order this quantity or a multiple thereof.

Relays, analog adjustable, for 1 sensor

Overview

The 3RS10/3RS11 analog temperature monitoring relays can be used for measuring temperatures in solid, liquid and gas media. The temperature is detected 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 parameterization.

Benefits

- All devices except for 24 V AC/DC feature electrical separation
- Extremely easy operation using a rotary potentiometer
- Variable hysteresis
- Adjustable working principle for devices with 2 threshold values
- All versions with removable terminals
- All versions with screw terminals, many versions alternatively with spring-type connections

Application

The analogically adjustable SIRIUS 3RS10/3RS11 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 system protection
- Control 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
- Motor, bearing and gear oil monitoring
- Monitoring of coolants

Selection and ordering data

Temperature monitoring relays with resistance sensors or thermoelements

- Temperature range -55 °C ... +1000 °C, depending on sensor type
- Wide voltage range versions are electrically isolated.
- Analog adjustable, setting accuracy ±5 %
- Versions with 2 separately adjustable threshold values and adjustable open/closed-circuit principle
- Hysteresis for threshold value 1 is adjustable (2 ... 20 %), hysteresis for threshold 2 is non-adjustable (5 %)
- 1 NC + 1 NO for versions with one threshold value
- 1 CO for threshold value 1 and 1 NO for threshold value 2
- All terminals are removable
- Width 22.5 mm

Sensor	Function	Measuring range	Rated control supply voltage U_s AC 50/60 Hz	DT	Screw terminals Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
		°C	V							kg
Analogically adjustable, 1 threshold value, width 22.5 mm; closed-circuit principle; without memory; 1 NO + 1 NC										
PT100 (resistance sensor)	Overshoot	- 50 ... + 50	24 AC/DC	C	**3RS10 00-1CD00**		1	1 unit	101	0.150
			110 / 230 AC	A	**3RS10 00-1CK00**		1	1 unit	101	0.190
		0 ... + 100	24 AC/DC	C	**3RS10 00-1CD10**		1	1 unit	101	0.145
			110 / 230 AC	A	**3RS10 00-1CK10**		1	1 unit	101	0.189
		0 ... + 200	24 AC/DC	C	**3RS10 00-1CD20**		1	1 unit	101	0.145
			110 / 230 AC	A	**3RS10 00-1CK20**		1	1 unit	101	0.186
	Undershoot	- 50 ... + 50	24 AC/DC	C	**3RS10 10-1CD00**		1	1 unit	101	0.150
			110 / 230 AC	A	**3RS10 10-1CK00**		1	1 unit	101	0.186
		0 ... + 100	24 AC/DC	C	**3RS10 10-1CD10**		1	1 unit	101	0.150
			110 / 230 AC	C	**3RS10 10-1CK10**		1	1 unit	101	0.190
		0 ... + 200	24 AC/DC	C	**3RS10 10-1CD20**		1	1 unit	101	0.150
			110 / 230 AC	C	**3RS10 10-1CK20**		1	1 unit	101	0.191
Type J (thermoelement)	Overshoot	0 ... + 200	24 AC/DC	A	**3RS11 00-1CD20**		1	1 unit	101	0.150
			110 / 230 AC	C	**3RS11 00-1CK20**		1	1 unit	101	0.190
		0 ... + 600	24 AC/DC	C	**3RS11 00-1CD30**		1	1 unit	101	0.149
			110 / 230 AC	C	**3RS11 00-1CK30**		1	1 unit	101	0.190
Type K (thermoelement)	Overshoot	0 ... + 200	24 AC/DC	C	**3RS11 01-1CD20**		1	1 unit	101	0.150
			110 / 230 AC	C	**3RS11 01-1CK20**		1	1 unit	101	0.190
		0 ... + 600	24 AC/DC	C	**3RS11 01-1CD30**		1	1 unit	101	0.150
			110 / 230 AC	C	**3RS11 01-1CK30**		1	1 unit	101	0.190
		+ 500 ... + 1000	24 AC/DC	C	**3RS11 01-1CD40**		1	1 unit	101	0.150
			110 / 230 AC	C	**3RS11 01-1CK40**		1	1 unit	101	0.190

3RS10 00-1CD10

3RS11 00-1CK30

* You can order this quantity or a multiple thereof.

Relays, analog adjustable, for 1 sensor

	Sensor	Function	Measuring range	Rated control supply voltage U_s AC 50/60 Hz	DT	Screw terminals	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
			°C	V		Order No. / Price per PU				kg
Analogically adjustable for warning and disconnection (2 threshold values), 22.5 mm width, open/closed-circuit principle switchable; without memory; 1 NO + 1 CO										
 3RS10 20-1DD00	PT100 (resistance sensor)	Overshoot	- 50 … + 50	24 AC/DC	C	**3RS10 20-1DD00**	1	1 unit	101	0.166
				24 … 240 AC/DC	C	**3RS10 20-1DW00**	1	1 unit	101	0.175
			0 … + 100	24 AC/DC	C	**3RS10 20-1DD10**	1	1 unit	101	0.164
				24 … 240 AC/DC	C	**3RS10 20-1DW10**	1	1 unit	101	0.175
			0 … + 200	24 AC/DC	C	**3RS10 20-1DD20**	1	1 unit	101	0.166
				24 … 240 AC/DC	A	**3RS10 20-1DW20**	1	1 unit	101	0.175
		Undershoot	-50 … + 50	24 AC/DC	C	**3RS10 30-1DD00**	1	1 unit	101	0.165
				24 … 240 AC//DC	C	**3RS10 30-1DW00**	1	1 unit	101	0.174
			0 … + 100	24 AC/DC	C	**3RS10 30-1DD10**	1	1 unit	101	0.166
				24 … 240 AC/DC	C	**3RS10 30-1DW10**	1	1 unit	101	0.175
			0 … + 200	24 AC/DC	C	**3RS10 30-1DD20**	1	1 unit	101	0.163
				24 … 240 AC/DC	C	**3RS10 30-1DW20**	1	1 unit	101	0.173
 3RS11 21-1DD40	Type J (thermoelement)	Overshoot	0 … + 200	24 AC/DC	C	**3RS11 20-1DD20**	1	1 unit	101	0.165
				24 … 240 AC/DC	C	**3RS11 20-1DW20**	1	1 unit	101	0.175
			0 … + 600	24 AC/DC	C	**3RS11 20-1DD30**	1	1 unit	101	0.167
				24 … 240 AC/DC	C	**3RS11 20-1DW30**	1	1 unit	101	0.175
	Type K (thermoelement)	Overshoot	0 ... + 200	24 … 240 AC/DC	C	**3RS11 21-1DW20**	1	1 unit	101	0.179
			0 ... + 600	24 … 240 AC/DC	C	**3RS11 21-1DW30**	1	1 unit	101	0.176
			+ 500 … + 1000	24 AC/DC	C	**3RS11 21-1DD40**	1	1 unit	101	0.167

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

For accessories, see page 7/63.

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* You can order this quantity or a multiple thereof.

Relays, digitally adjustable, for 1 sensor

Overview

The 3RS10/3RS11 temperature monitoring relays can be used for measuring temperatures in solid, liquid and gas media. The temperature is detected 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 relays are also an excellent alternative to temperature controllers in the low-end performance range (2-or 3-point control).

Benefits

- Very simple operation without complicated menu selections
- Two- or three-point control can be configured quickly
- All versions with removable terminals
- All versions with screw terminals or alternatively with innovative spring-type terminals

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

Selection and ordering data

Temperature monitoring relays with resistance sensors or thermoelements

- Temperature range -99 ... +1800 °C, depending on sensor type
- Wide voltage range versions are electrically isolated.
- Non-volatile
- Short-circuit and open-circuit detection in sensor circuit
- Digital adjustable, with illuminated LC display
- Overshoot, undershoot or range monitoring
- Exact sensor type can be set
- 2 separately adjustable threshold values
- 1 hysteresis applies to both thresholds (0 ... 99 K)
- 1 delay time applies to both thresholds (0 ... 999 s)
- Adjustable open/closed-circuit principle
- Adjustable manual/remote reset
- Permanent display of actual value in °C or °F and tripping state
- 1 CO contact each per threshold value
- 1 NO for sensor monitoring
- All terminals are removable
- Width 45 mm

Sensor	Measuring range (measuring range limit depends on the sensor)	Rated control supply voltage U_s AC 50/60 Hz	DT	Screw terminals	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
		V		Order No. / Price per PU				kg
Temperature monitoring relay, 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	24 AC/DC	A	**3RS10 40-1GD50**	1	1 unit	101	0.317
		24 … 240 AC/DC	A	**3RS10 40-1GW50**	1	1 unit	101	0.329
	- 58 … + 932 °F	24 AC/DC	C	**3RS20 40-1GD50**	1	1 unit	101	0.189
		24 … 240 AC/DC	C	**3RS20 40-1GW50**	1	1 unit	101	0.186
TYPE J, K, T, E, N (thermoelement)	- 99 … + 999 °C	24 AC/DC	A	**3RS11 40-1GD60**	1	1 unit	101	0.318
		24 … 240 AC/DC	A	**3RS11 40-1GW60**	1	1 unit	101	0.329
	- 99 … + 1830 °F	24 AC/DC	C	**3RS21 40-1GD60**	1	1 unit	101	0.317
		24 … 240 AC/DC	C	**3RS21 40-1GW60**	1	1 unit	101	0.317
Temperature monitoring relay, 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	24 AC/DC	A	**3RS10 42-1GD70**	1	1 unit	101	0.317
		24 … 240 AC/DC	A	**3RS10 42-1GW70**	1	1 unit	101	0.331
TYPE J, K, T, E, N, R, S, B (thermoelement)	- 99 … +1800 °C	24 AC/DC	C	**3RS11 42-1GD80**	1	1 unit	101	0.318
		24 … 240 AC/DC	A	**3RS11 42-1GW80**	1	1 unit	101	0.329

3RS10 40-1GD50

[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, for 1 sensor

	Sensor	Measuring range (measuring range limit depends on the sensor)	Rated control supply voltage U_s AC 50/60 Hz	DT	Spring-type terminals	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
			V		Order No. / Price per PU				kg
Temperature monitoring relay, 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 40-2GW50	PT100/1000; KTY83/84; NTC (resistance sensors)[1]	- 50 … + 500 °C	24 AC/DC	A	**3RS10 40-2GD50**	1	1 unit	101	0.267
			24 … 240 AC/DC	A	**3RS10 40-2GW50**	1	1 unit	101	0.281
		- 58 … + 932 °F	24 AC/DC	C	**3RS20 40-2GD50**	1	1 unit	101	0.100
			24 … 240 AC/DC	C	**3RS20 40-2GW50**	1	1 unit	101	0.100
	TYPE J, K, T, E, N (thermoelement)	- 99 … + 999 °C	24 AC/DC	C	**3RS11 40-2GD60**	1	1 unit	101	0.269
			24 … 240 AC/DC	C	**3RS11 40-2GW60**	1	1 unit	101	0.300
		- 99 … + 1830 °F	24 AC/DC	C	**3RS21 40-2GD60**	1	1 unit	101	0.100
			24 … 240 AC/DC	C	**3RS21 40-2GW60**	1	1 unit	101	0.100
Temperature monitoring relay, 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	24 AC/DC	C	**3RS10 42-2GD70**	1	1 unit	101	0.267
			24 … 240 AC/DC	C	**3RS10 42-2GW70**	1	1 unit	101	0.281
	TYPE J, K, T, E, N, R, S, B (thermoelement)	-99 … +1800 °C	24 AC/DC	C	**3RS11 42-2GD80**	1	1 unit	101	0.269
			24 … 240 AC/DC	C	**3RS11 42-2GW80**	1	1 unit	101	0.300

For accessories, see page 7/63.

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

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* 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 detected 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 evaluation unit 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-type terminals
- Two- or three-point control can be configured quickly
- All versions with removable terminals
- All versions with screw terminals or alternatively with innovative spring-type terminals

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

Selection and ordering data

Relay for monitoring the temperatures of solids, liquids, and gases

- For two- and three-conductor resistance sensors or thermoelements
- Temperature range -99 ...+1800 °C, depending on sensor type
- Wide voltage range versions are electrically isolated.
- Non-volatile
- Short-circuit and open-circuit detection in sensor circuit
- Digital adjustable, with illuminated LC display
- Overshoot, undershoot or range monitoring
- Exact sensor type and number of sensors can be set
- 2 separately adjustable threshold values
- 1 hysteresis; applies to both thresholds (0 ... 99 K)
- 1 delay time; applies to both thresholds (0 ... 999 s)
- Adjustable open/closed-circuit principle
- With connectable and disconnectable error memory
- Permanent display of actual value in °C or °F and tripping state
- 1 CO contact each per threshold value
- 1 NO for sensor monitoring
- All terminals are removable
- Width 45 mm

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

3RS10 41-1GW50

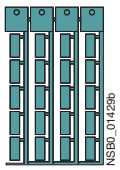
Sensor	Number of sensors	Measuring range	Rated control supply voltage U_s	DT	**Spring-type terminals**	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
		°C	V		Order No. / Price per PU				kg
Motor monitoring relay, digitally adjustable for 3 sensors, width 45 mm; 1 CO + 1 CO + 1 NO									
PT100/1000;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

For accessories, see page 7/63.

[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.

Selection and ordering data

	Use	Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
Blank labels									
 3RT19 00-1SB10	For 3RS1	**Unit labeling plates** For SIRIUS devices							
		20 mm x 7 mm, pastel turquoise[1]	C	**3RT19 00-1SB20**		100	340 units	101	0.200
	For 3RS1	**Inscription labels for sticking** For SIRIUS devices							
		19 mm x 6 mm, pastel turquoise	D	**3RT19 00-1SB60**		100	3060 units	101	15.000
		19 mm x 6 mm, zinc yellow	C	**3RT19 00-1SD60**		100	3060 units	101	12.000
Push-in lugs and covers									
 3RP19 03	For 3RS1	**Push-in lugs** For screw fixing, 2 units are required for each device	►	**3RP19 03**		1	10 units	101	0.002
 3RP19 02	For 3RS1	**Sealable covers** For securing against unauthorized adjustment of setting knobs	►	**3RP19 02**		1	5 units	101	0.004
Tools for opening spring-type terminals by hand									
 8WH9 200-0AA00	For auxiliary circuit connections	**Screwdrivers,** 2.5 mm x 0.4 mm, length approx. 160 mm; green, suitable for a max. conductor cross-section of 1.5 mm^2	C	**8WH9 200-0AA00**		1	10 units	044	0.032
Tools for opening screw terminals									
 8WA2 803	For main and auxiliary circuit connections	**Screwdrivers,** 3.5 mm x 0.5 mm, suitable for a max. conductor cross-section of 2.5 mm^2							
		Length approx. 175 mm; green, partially insulated	C	**8WA2 880**		1	1 unit	041	0.034
		Length approx. 175 mm; green	C	**8WA2 803**		1	1 unit	041	0.024

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

[1] PC labeling system for individual inscription of unit labeling plates available from:
murrplastik Systemtechnik GmbH
www.murrplastik.de

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* You can order this quantity or a multiple thereof.

For PTC sensors

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 settings on the device are necessary
- Solid-state compatible output thanks to versions with hard gold-plated contacts
- Rapid error diagnosis thanks to versions that indicate open- and short-circuit in the sensor circuit
- All versions with removable terminals
- All versions with screw terminals or alternatively with innovative spring-type 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 hard gold-plated contacts ensure, in addition, a high switching reliability that is even higher than an electronic control.

Motor protection:

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

ATEX approval for operation in areas subject to explosion hazard

The SIRIUS 3RN1 thermistor motor protection relay for PTC sensors is certified according to ATEX Ex II (2) G and GD for gases and dust. See "Appendix" --> "Standards and approvals" --> "Type overview of approved devices for explosion-protected areas (ATEX Explosion Protection)".

Motor protection using current- and temperature-dependent protective devices

EN 60204 and IEC 60204 stipulate that motors must be protected from overheating at a rating of 0.5 kW and higher. The protection can take the form of overload protection, overtemperature protection or current limiting.

For motors with frequent starting and braking and in environments where cooling may be impaired (e. g. by dust), it is recommended to use the overtemperature protection option in the form of a protective device coordinated with this mode of operation. A good choice in this case is the use of 3RN1 thermistor motor protection devices.

On rotor-critical motors, overtemperature detection in the stator windings can lead to delayed and hence inadequate protection. In this case the standards stipulate additional protection, e. g. by means of an overload relay.

This combination of thermistor motor protection and an overload relay is recommended for full motor protection in case of frequent starting and braking of motors, irregular intermittent duty or excessive switching frequency. To prevent premature tripping of the overload relay in such operating conditions, a higher setting than that normally required for the operational current is chosen. The overload relay then performs the stall protection, and the 3RN1 thermistor motor protection device monitors the temperature of the motor windings.

Application	Motor protection		
	Only current-dependent, e. g. with overload relay	Only temperature-dependent, e. g. with thermistor motor protection relay	Current- and temperature-dependent
Motor protection in case of			
Overloading in uninterrupted duty	✔	✔	✔
Long start-up and braking operations	❍	✔	✔
Irregular intermittent duty	❍	✔	✔
Excessively high switching frequency	❍	✔	✔
Single-phase operation and current unbalance	✔	✔	✔
Voltage and frequency fluctuations	✔	✔	✔
Stalling of the rotor	✔	✔	✔
Switching on a stalled rotor of a stator-critical motor	✔	✔	✔
Switching on a stalled rotor of a stator-critical motor	✔	❍	✔
Elevated ambient temperature	--	✔	✔
Impeded cooling	--	✔	✔

✔ Full protection
❍ Conditional protection
-- No protection

Selection and ordering data

Thermistor motor protection relays for monitoring the motor winding temperature using temperature-dependent resistors (PTCs, type A) that are directly installed in the motor winding by the manufacturer.

- Monostable versions with closed-circuit principle, i. e. relays respond in the event of control supply voltage failure
- 3RN10 13-.BW01: Bistable version, does not trigger in the event of control supply voltage failure
- All devices have PTB01 ATEX approval for dust or gas see "Appendix" --> "Standards and approvals" --> "Type overview of approved devices for potentially explosive areas (ATEX explosion protection)".
- All devices except for 24 V AC/DC feature electrical isolation
- Versions with safe isolation up to 300 V according to EN 61140
- Non-volatile versions
- Versions with short-circuit and open-circuit detection in sensor circuit
- Versions with solid-state compatible contacts with hard gold-plating
- Versions for up to 6 sensor circuits
- Versions with manual, remote, autoreset and test button
- Terminal labeling according to DIN 50005
- All terminals are removable
- Width 22.5 mm (45 mm on version for several sensor circuits)

RESET	Contacts	Rated control supply voltage U_s 50/60 Hz	DT	Screw terminals 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	24 AC/DC	►	**3RN10 00-1AB00**		1	1 unit	101	0.114
		110 AC	A	**3RN10 00-1AG00**		1	1 unit	101	0.157
		230 AC	►	**3RN10 00-1AM00**		1	1 unit	101	0.156
Standard evaluation units, width 22.5 mm, 2 LEDs									
 3RN10 11-1BB00									
Auto	1 NO + 1 NC	24 AC/DC	►	**3RN10 10-1CB00**		1	1 unit	101	0.134
		110 AC	►	**3RN10 10-1CG00**		1	1 unit	101	0.174
		230 AC	►	**3RN10 10-1CM00**		1	1 unit	101	0.175
		24 … 240 AC/DC	►	**3RN10 10-1CW00**		1	1 unit	101	0.146
	2 CO	24 AC/DC	A	**3RN10 10-1BB00**		1	1 unit	101	0.162
		110 AC	A	**3RN10 10-1BG00**		1	1 unit	101	0.213
		230 AC	A	**3RN10 10-1BM00**		1	1 unit	101	0.213
	2 CO, gold-plated	24 AC/DC	A	**3RN10 10-1GB00**		1	1 unit	101	0.154
Manual/ Remote[1]	1 NO + 1 NC	24 AC/DC	►	**3RN10 11-1CB00**		1	1 unit	101	0.147
		110 / 230 AC	►	**3RN10 11-1CK00**		1	1 unit	101	0.188
Short-circuit detection for sensor circuit									
Manual/ Remote[1]	2 CO	24 AC/DC	A	**3RN10 11-1BB00**		1	1 unit	101	0.163
		110 AC	A	**3RN10 11-1BG00**		1	1 unit	101	0.214
		230 AC	A	**3RN10 11-1BM00**		1	1 unit	101	0.212
	2 CO, gold-plated	24 AC/DC	A	**3RN10 11-1GB00**		1	1 unit	101	0.165
 3RN10 13-1BB00									
Non-volatile[2] Manual/ Auto/ Remote	1 NO + 1 NC	24 AC/DC	►	**3RN10 12-1CB00**		1	1 unit	101	0.148
		110 / 230 AC	►	**3RN10 12-1CK00**		1	1 unit	101	0.188
Non-volatile[2], short-circuit detection in sensor circuit									
Manual/ Auto/ Remote	2 CO	24 AC/DC	A	**3RN10 12-1BB00**		1	1 unit	101	0.164
		110 AC	A	**3RN10 12-1BG00**		1	1 unit	101	0.214
		230 AC	A	**3RN10 12-1BM00**		1	1 unit	101	0.216
	2 CO, gold-plated	24 AC/DC	A	**3RN10 12-1GB00**		1	1 unit	101	0.155
Non-volatile[2], short-circuit and open-circuit detection and indication in sensor circuit; wide voltage range versions with screw terminal with safe isolation									
Manual/ Auto/ Remote	2 CO	24 AC/DC	►	**3RN10 13-1BB00**		1	1 unit	101	0.160
		24 … 240 AC/DC	►	**3RN10 13-1BW10**		1	1 unit	101	0.172
	2 CO, gold-plated	24 … 240 AC/DC	A	**3RN10 13-1GW10**		1	1 unit	101	0.168
Evaluation units for 2 sensor circuits, warning and disconnection, width 22.5 mm, 3 LEDs									
Test/RESET button, non-volatile[2]									
Manual/ Auto/ Remote	1 NO + 1 CO	24 … 240 AC/DC	►	**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	24 … 240 AC/DC	►	**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	24 … 240 AC/DC	►	**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 protection against voltage failure see note on Technical Information on page 7/1.

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

For PTC sensors

	RESET	Contacts	Rated control supply voltage U_s 50/60 Hz	DT	Spring-type terminals	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
			V		Order No. / Price per PU				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	24 AC/DC	A	**3RN10 00-2AB00**	1	1 unit	101	0.104
			110 AC	B	**3RN10 00-2AG00**	1	1 unit	101	0.153
			230 AC	B	**3RN10 00-2AM00**	1	1 unit	101	0.153
Standard evaluation units, width 22.5 mm, 2 LEDs									
 3RN10 12-2CK00	Auto	1 NO + 1 NC	24 AC/DC	►	**3RN10 10-2CB00**	1	1 unit	101	0.116
			110 AC	A	**3RN10 10-2CG00**	1	1 unit	101	0.153
			230 AC	A	**3RN10 10-2CM00**	1	1 unit	101	0.159
			24 … 240 AC/DC	A	**3RN10 10-2CW00**	1	1 unit	101	0.127
		2 CO	24 AC/DC	A	**3RN10 10-2BB00**	1	1 unit	101	0.137
			110 AC	C	**3RN10 10-2BG00**	1	1 unit	101	0.139
			230 AC	A	**3RN10 10-2BM00**	1	1 unit	101	0.190
		2 CO, gold-plated	24 AC/DC	C	**3RN10 10-2GB00**	1	1 unit	101	0.139
	Manual/ Remote[1]	1 NO + 1 NC	24 AC/DC	A	**3RN10 11-2CB00**	1	1 unit	101	0.125
			110 / 230 AC	A	**3RN10 11-2CK00**	1	1 unit	101	0.164
	Short-circuit detection for sensor circuit								
	Manual/ Remote[1]	2 CO	24 AC/DC	A	**3RN10 11-2BB00**	1	1 unit	101	0.138
			110 AC	C	**3RN10 11-2BG00**	1	1 unit	101	0.190
			230 AC	A	**3RN10 11-2BM00**	1	1 unit	101	0.192
		2 CO, gold-plated	24 AC/DC	A	**3RN10 11-2GB00**	1	1 unit	101	0.154
	Non-volatile[2] Manual/ Auto/ Remote	1 NO + 1 NC	24 AC/DC	A	**3RN10 12-2CB00**	1	1 unit	101	0.125
			110 / 230 AC	A	**3RN10 12-2CK00**	1	1 unit	101	0.161
	Non-volatile[2], short-circuit detection in sensor circuit								
	Manual/ Auto/ Remote	2 CO	24 AC/DC	C	**3RN10 12-2BB00**	1	1 unit	101	0.130
			110 AC	C	**3RN10 12-2BG00**	1	1 unit	101	0.130
			230 AC	C	**3RN10 12-2BM00**	1	1 unit	101	0.181
		2 CO, gold-plated	24 AC/DC	C	**3RN10 12-2GB00**	1	1 unit	101	0.140
	Non-volatile[2], short-circuit and open-circuit detection and indication in sensor circuit								
	Manual/ Auto/ Remote	2 CO	24 AC/DC	A	**3RN10 13-2BB00**	1	1 unit	101	0.140
			24 … 240 AC/DC	A	**3RN10 13-2BW00**	1	1 unit	101	0.151
		2 CO, gold-plated	24 … 240 AC/DC	C	**3RN10 13-2GW00**	1	1 unit	101	0.143
Evaluation units for 2 sensor circuits, warning and disconnection, width 22.5 mm, 3 LEDs									
	Test/RESET button, non-volatile[2] Manual/ Auto/ Remote	1 NO + 1 CO	24 … 240 AC/DC	A	**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	24 … 240 AC/DC	A	**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	24 … 240 AC/DC	A	**3RN10 13-2BW01**	1	1 unit	101	0.139

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

[2] For protection against voltage failure see note on Technical Information on page 7/1.

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* You can order this quantity or a multiple thereof.