One range for every application
Monitoring and controlling with SIRIUS Relays

sirius
MONITORING RELAYS

SIEMENS

The wide range of SIRIUS Relays:
A relay for every application

Every engineer knows that he must be completely up-to-date when it comes to controls, load feeders and drives. With the dawn of new trends in manufacturing, which involves heavy process automation, demand for low production downtimes and faster fault clearing is growing. This demand is completely fulfilled with the SIRIUS Monitoring relays with a guaranteed top price performance ratio.

In our assortment of Sirius Monitoring Relays , you can find everything you need for motor feeders. Simple and Easy , be it controlling or effective parameter monitoring. It would be difficult to find a more complete and extensive range of relays.

All Sirius Monitoring Relays are extremely easy to use,across the product range. Please take a closer look at our range and see for yourself. You'll be quite impressed.

SIRIUS Relays – a complete range to cover every application.

The highlights at a glance:

- An extensive range: A matching relay for every application
- User-friendly: Extremely simple to operate
- Multi-functional: Relays with a high degree of versatility
- In-line with requirements from practice:
  Actually graduated regarding the performance
- Excellent price/performance ratio

All systems go:

Everything funtions smoothly with our Sirius Monitoring Relays, be it automised production or transportation system.While monitoring motors or controlling complex plants and systems,our relays have control over everything from the word go.

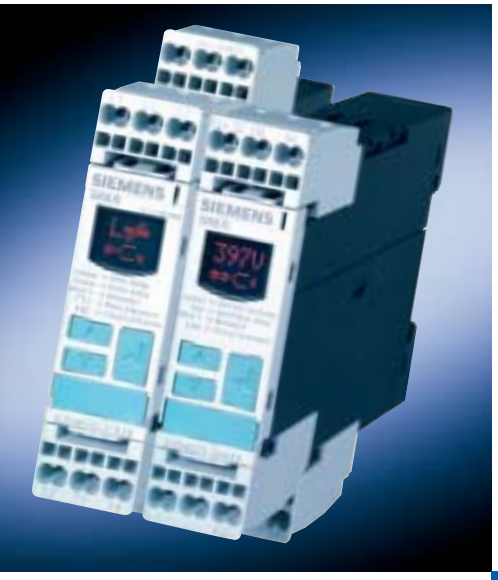
One range for every application

3UG Monitoring Relays
for line, single-phase voltage and insulation monitoring

The new 3UG4 monitoring relays provide a maximum degree of protection for machines, plants and systems. This means that line and voltage faults are detected early and the appropriate response is initiated before significant damage can occur.

Your advantages:

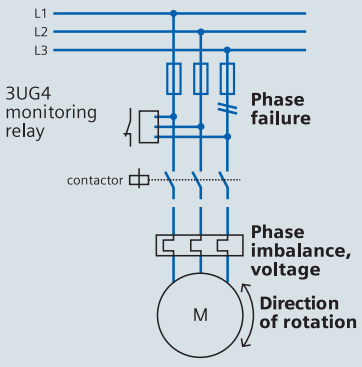
- Due to the wide voltage range it can be used on all line supplies around the world – from 160 V to 690 V – without an auxiliary voltage
- Can be set to overrange, underrange and window monitoring
- Freely parameterizable delay times and reset functions
- Reduced width for all versions for line and voltage monitoring
- For the digital versions, the actual value and fault type are displayed
- Automatic rotation direction correction by differentiating between line faults and incorrect phase sequence
- All versions have removable terminals
- All versions have either screw terminals or alternatively innovative spring-loaded terminals



Applications:

The applications are listed in the following table. These tables indicate the various equipment/system conditions that can be detected using the monitoring parameters.

Configuration of a 3-phase monitoring function



Measured quantity	Possible plant or system fault
Phase sequence	• Direction of rotation of the drive
Phase failure	• A fuse has blown • Control supply voltage has failed • Single-phase operation of a motor with corresponding overheating
Phase dissymmetry	• Motor overheating as a result of non-symmetrical voltages or phase failure • Line supplies with non-symmetrical load are detected • A phase failure is detected in spite or regenerative feedback
Undervoltage	• Motor draws an increased current and in turn overheats • A device is undesirably reset • Detection of line supply dips, especially when supplied from a battery • Threshold value switch for analog signals 0 to 10 V
Overvoltage	• A plant is protected against destruction due to supply overvoltages • A plant or system switches-in above a certain voltage • Threshold value switch for analog signals 0 to 10 V
Insulation monitoring	• The insulation resistance for non-grounded plants and systems is monitored

8UG4 monitoring relays for line supply and three-phase voltages

Phase sequence	Phase failure	Phase imbalance	Hysteresis	Under-voltage	Over-voltage	N-conductor monitoring	Delay times	Contacts	Line supply voltage	Order No.
22.5 mm wide 3UG4614 to 3UG4618 can be digitally set, with fault memory and with LCD display										
Yes	Conditional[1)]	–	–	–	–	–	–	1 CO	160–260 320–500 420–690	**3UG4511-□AN20** **3UG4511-□AP20** **3UG4511-□AQ20**
								2 CO	160–260 320–500 420–690	**3UG4511-□BN20** **3UG4511-□BP20** **3UG4511-□BQ20**
Yes	Yes	10%	–	–	–	–	–	1 CO	160–690	**3UG4512-□AR20**
								2 CO	160–690	**3UG4512-□BR20**
Yes	Yes	20%	5%	160–690 V	–	–	Off delay 0.1–20 s	2 CO	160–690	**3UG4513-□BR20**
Selectable	Yes	0 or 5–20%	1–20 V	160–690 V	–	–	On and off delay 0.1–20 s	2 CO	160–690	**3UG4614-□BR20**
Selectable	Yes	Using threshold values	1–20 V	160–690 V	160–690 V	–	0.1–20 s for V_{min} and V_{max}	1CO for V_{min} and V_{max}	160–690	**3UG4615-□CR20**
Selectable	Yes	Using threshold values	1–20 V	160–690 V	160–690 V (90–400 w.r.t. N)	Yes	0.1–20 s for V_{min} and V_{max}	1CO for V_{min} and V_{max}	160–690 (90–400 w.r.t. N)	**3UG4616-□CR20**
Autom. correction	Yes	0 or 5–20%	1–20 V	160–690 V	160–690 V	–	Off delay 0.1–20 s	1 CO for line faults and 1 CO for phase sequence	160–690	**3UG4617-□CR20**
Autom. correction	Yes	0 or 5–20%	1–20 V	160–690 V	160–690 V (90–400) w.r.t. N)	Yes	Off delay 0.1–20 s	1 CO for line faults and 1 CO for phase sequence	160–690 (90–400 w.r.t. N)	**3UG4618-□CR20**

Screw terminal 1
Spring-loaded terminal 2

[1)] **Return voltage due to coupling between the individual phases**
The 3UG4511 device can not dectect phase failures reliably.
Loads connected to the three-phase line supply – such as motor windings, lamps, transformers – result in a coupling between the individual phases.
As a result of this coupling, there is always a return voltage at the equipment terminal of the phase that has failed.

Single-phase voltage monitoring

Measuring range	Hysteresis	Contacts	Delay time	Auxiliary voltage	Order No.
22.5 mm wide, all of the devices can be digitally set and have on LCD display, a fault memory that can be switched-in, simultaneous monitoring for overvoltage and undervoltage over the complete measuring range					
17–275 V AC/DC	0.1–150 V	1CO	0–20 s	Self-supplied	**3UG4633-□AL30**
0.1–60 V AC/DC	0.1–30 V	1CO	0–20 s	24 V AC/DC	**3UG4631-□AA30**
				24–240 V AC/DC	**3UG4631-□AW30**
10–600 V AC/DC	0.1–300 V	1CO	0–20 s	24 V AC/DC	**3UG4632-□AA30**
				24–240 V AC/DC	**3UG4632-□AW30**

Insulation monitoring for IT line supplies

Line supply	Measuring range	Auto reset/ fault memory	Contacts	Width	Auxiliary voltage	Order No.
AC	1–110 kΩ	Selectable	1 CO	45 mm	115/230 V AC	**3UG3081-1AK20**
					24 – 240 V AC	**3UG3081-1AW30**
DC	10–110kΩ	Selectable	1 CO	45 mm	24–240 V AC	**3UG3082-1AW30**

Screw terminal 1
Spring-loaded terminal 2

3UG4 Monitoring Relays
for single-phase current, power factor and active current monitoring

3UG4 relays that monitor current, power factor and active current are ideal for monitoring the load of motors and the functionality of electronic loads. These devices detect the effect of wear and faults early on. This means that appropriate actions can be taken long before more significant damage occurs.

Your advantages:

- Wide-voltage versions reduce inventory stock levels
- Variable settings for overrange, under-range or window monitoring
- Freely parameterizable delay times and reset switch
- Actual value and fault type are permanently displayed
- All versions have removable terminals
- All versions have screw terminals or innovative spring-loaded terminals

Current monitoring:

- Only two versions from 2 mA to 10 A
- Real effective value measurement
- Applicable for frequencies with 40–500 Hz AC and DC

Power factor and active current monitoring:

- Global application thanks to wide-range voltage between 90 and 690 V AC
- Capable of monitoring even small single-phase motors with a no-load running current below 0.5 A
- Easy identification of threshold values thanks to direct relationship between the measurement and the motor load
- Window monitoring and active current measurement allow for easy identification of cable breakage between control cabinet and motor as well as phase failure
- Monitoring of the motor load independent of the main voltage
- Selectable power factor or I_{res} (active current) measuring principle

Applications:

The applications can be seen in the adjacent table. These tables show the various equipment/system states that can be detected using the monitoring parameters.

3UG4 monitoring relays – single-phase current monitoring

Measuring range	Hysteresis	Contacts	Starting-bypass time	Tripping delay	Control supply voltage	Order No.
22.5 mm wide, all of the devices can be digitally set and have on LCD display, a fault memory that can be switched-in, simultaneous monitoring for overcurrent and undercurrent over the complete measuring range						
3.0 mA AC/DC	0.1mA–250 mA	1 CO	0.1–20 s	0.1–20 s	24 V AC/DC	**3UG4621-□AA30**
up to 500 mA AC/DC					24 – 240 V AC/DC	**3UG4621-□AW30**
0.05 A AC/DC	0.01A–5 A	1 CO	0.1–20 s	0.1–20 s	24 V AC/DC	**3UG4622-□AA30**
up to 10 A AC/DC					24–240 V AC/DC	**3UG4622-□AW30**

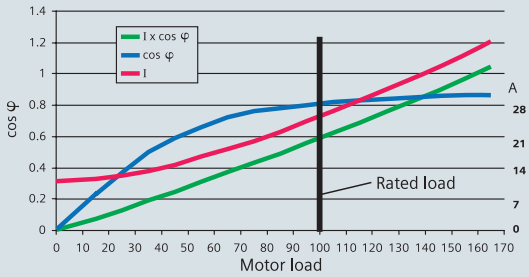
Screw terminal **1**

Spring-loaded terminal **2**

Power factor and active current monitoring

Measuring range for power factor	Measuring range for active current I_{res}	Power factor hysteresis	Active current hysteresis	On delay	Tripping delay	Rated control supply voltage	Order No.
22.5 mm wide, all of the devices can be digitally set and have on LCD display, a fault memory that can be switched-in, simultaneous power factor and active current monitoring over the entire measuring range							
0.1–0.99 (cos φ)	0.2–10.0 A	0.1 (cos φ)	0.1–20 A	0–99 s	0.1–20.0 s	90–690 V AC	**3UG4641-□CS20**

Current and cos φ as a function of the motor load



Cos φ changes significantly below the rated load;

the current increases overproportionally above the rated load.

The I_{res} active current shows a linear correlation between the motor load and the measured value over the entire measuring range.

Monitoring parameter	Plant/system states
Current monitoring	• Overload monitoring • Underload monitoring close to the rated torque • Monitoring the functionality of electric loads • Wire breakage monitoring • Energy management (phase current monitoring) • Threshold value switch for analog signals up to 20 mA
Power factor and active current monitoring	• No-load monitoring • Underload monitoring in the lower power range • Overload monitoring • Extremely simple power factor monitoring of line supplies to control compensation equipment • Energy management • Interrupted cable between the cabinet and the motor

3UG4 Monitoring Relays
for residual-current monitoring

Over a period of time, systems may experience insulation problems caused by humidity or severe contamination. These problems cause residual currents which may prove fatal to the system as well as the personnel.

Using the 3UG4624 residual-current monitoring relay in combination with a 3UL22 summation current transformer, such hazards can be eliminated. Due to adjustable limit or warning threshold values, the relay issues a warning before the limit value is reached and switches off when the limit value is exceeded after a certain delay time.

Your advantages:

- Global applicability due to wide voltage range from 90 V AC to 690 V AC
- Variably adjustable threshold values for warning and disconnection
- Freely parameterizable delay times and reset behavior
- Permanent display of the actual value and fault diagnostics via display
- Removable terminal and optional screw-terminal of innovative spring-loaded terminal
- High flexibility and space savings due to the converter's assembly outside the control cabinet

Application areas:

Protection and monitoring of systems prone to residual currents, e.g. caused by:

- Dust deposits or humidity
- Porous cables and lines
- Capacitive residual currents

3UG4 monitoring relays – for residual current monitoring

NEW!

Display range	Setting range for warning and disconnection	Contacts	Hysteresis with treshold value	Hysteresis with warning value	ON delay	Tripping delay time	Rated control supply voltage	Order No.
Width 22.5 mm, digitally adjustable featuring LCD display, connectable fault memory, monitoring of warning threshold and limit value exceedance, for 3UL22 summation current transformer with $I_{\Delta n}$ from 0.3 to 40 A								
10 to 120% of the nominal transformer value in A	10 to 100% of the nominal transformer value in A	1 CO + 1 CO	Display accuracy of up to 50% of the nominal transformer value in A	5% fixed of the nominal transformer value in A	0.1–20.0 s	0.1 –20.0 S	90–690 V AC	**3UG4624-□CS20**

Screw terminal 1

Spring-loaded terminal 2

3UL22 summation current transformer for external ground fault monitoring

Rated insulation voltage U_i	Rated residual current $I_{\Delta n}$	Through hole diameter	For Protodur cable (for through-connection)	Order No.
Detection of residual currents in machines and systems				
690 V AC	0.3 A	40 mm	max. 4 x 95 mm²	**3UL2201-1A**
	0.5 A			**3UL2201-2A**
	1 A			**3UL2201-3A**
690 V AC	0.3 A	65 mm	max. 4 x 240 mm²	**3UL2202-1A**
	0.5 A			**3UL2202-2A**
	1 A			**3UL2202-3A**
	10 A			**3UL2202-2B**
	16 A			**3UL2202-3B**
	25 A			**3UL2202-4B**
	40 A			**3UL2202-5B**
1000 V AC	0.3A	120 mm	max. 8 x 300 mm²	**3UL2203-1A**
	0.5A			**3UL2203-2A**
	1A			**3UL2203-3A**
	6A			**3UL2203-1B**
	10 A			**3UL2203-2B**

3UG4 Monitoring Relays
for level and speed

3UG4 monitoring relays also detect non-electrical parameters.

Our 3UG4501 level monitoring relays offer reliable 1- or 2-point regulations and alarm messages in case of overflow or dry running on the basis of a simple principle of conductivity of liquids. If probes are immerged in the liquid, the current flows – if the probes fall dry, no current flows.

The 3UG4651 speed monitoring relays monitor the setpoint speed of motors for any exceedance of the upper or lower limit. Implementing a periodic continuous measuring, they monitor the pulses per rotation delivered to the sensors attached to the motor. Furthermore, the relays are suitable for all functions requiring the monitoring of a continuous pulse signal, e.g. belt operation and clock time monitoring or bypass control.

Level monitoring

Your advantages:

- Global applicability due to wide voltage range from 24 to 240 V AC
- 2- and 3-pole wire electrodes for ease of mounting from the top/bottom which can be individually trimmed
- Bar-type electrodes for lateral mounting for higher filling levels and minimum space requirements
- Flexible adjustment to various conductive liquids due to analog sensitivity setting from 2 to 200 kOhm
- Compensation of wave movements due to tripping delay times from 0.1 to 10 seconds
- Selectable supply or discharge function
- All designs featuring removable terminals and optional screw-terminals or innovative spring-loaded terminals

Application areas:

- 1- and 2-point level monitoring
- Overflow protection
- Dry running protection
- Leakage monitoring

Speed monitoring

Your advantages:

- Global applicability due to wide voltage range from 24 to 240 V AC
- Variable adjustment to upper or lower limit exceedance or window monitoring
- Freely parameterizable delay times and reset behavior
- Permanent display of actual value or fault type
- Use of up to 10 sensors per rotation with extremely slowly rotating motors
- All designs featuring removable terminals and optional screw-terminals or innovative spring-loaded terminals
- Two- or three-conductor sensors and sensors with mechanical switching or electronic output connectable
- Integrated auxiliary voltage for sensor

Application areas:

- Slip/breakage of a belt drive
- Load shedding
- Standstill monitoring (no personal protection)
- Transport item monitoring for completeness

3UG4 monitoring relays for 1- and 2-point level monitoring of conductive liquids NEW!

Sensitivity	Contacts	Tripping delay time	Width	Control supply voltage	Order No.
2–200 kΩ	1CO	0.1–10 s	22.5 mm	24 V AV/DC	3UG4501-□AA30
				24 –240 V AC/DC	3UG4501-□AW30

Probes for level monitoring

Description	Cable connection	Number of poles		Order No.
Wire electrode, 500 mm long, with Teflon insulation, max. operating temperature 90 °C, max. operating pressure 10 bar	3 x 0.5 mm², 2 m	3-pole		3UG3207-3A
	2 x 0.5 mm², 2 m	2-pole		3UG3207-2A
Bar-type electrode for lateral mounting, max. operating temperature 90 °C, max. operating pressure 10 bar	3 x 0.5 mm², 2 m	2-pole		3UG3207-2B
	2 x 0.5 mm², 2 m	1-pole		3UG3207-1B
Rod-type electrode, rugged, max. operating temperature 90 °C, max. operating pressure 10 bar	2 x 0.5 mm², 2 m	1-pole		3UG3207-1C

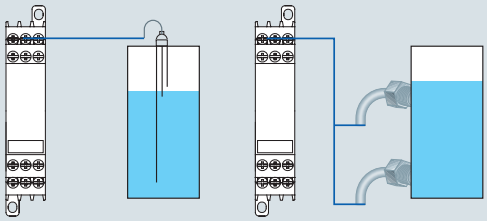
Screw terminal 1
Spring-loaded terminal 2


3UG 3207-3A


3UG 3207-2B


3UG 3207-1C

1-and 2-point level monitoring, overflow protection



This method is applicable to very many liquids and substances; prerequisite: specific resistance < 200 kΩ

Product	kΩ	Product	kΩ
Buttermilk	1	Natural water	5
Fruit juice	1	Waste water	5
Vegetable juice	1	Starch solution	5
Milk	1	Oil	10
Soup	2.2	Condensed water	18
Beer	2.2	Soap foam	18
Coffee	2.2	Jams	45
Ink	2.2	Jellies	45
Salt water	2.2	Sugar solution	90
Wine	2.2	Whiskey	220
		Distilled water	450

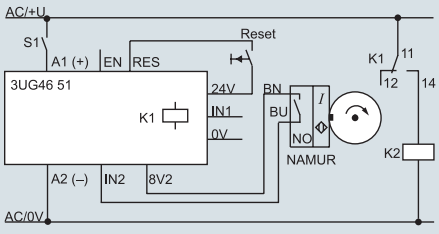
3UG4 monitoring relays for upper and lower speed exceedance monitoring NEW!

Measuring range	Contacts	Start-up bridging time	Tripping delay time	Width	Control supply voltage	Order No.
Pulse/min 0.1–2200 (10–36.67 Hz)	1 CO	1–900 s	0.1–99.9 s	22.5 mm	24 V AC/DC	3UG4651-□AA30
					24 – 240 V AC/DC	3UG4651-□AW30

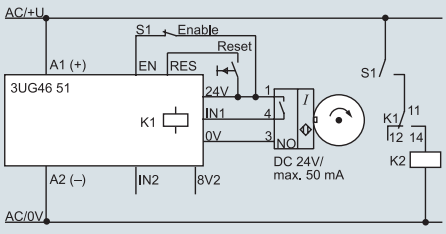
Speed monitoring

Screw terminal 1
Spring-loaded terminal 2

Without enable input



With enable input



3RN1 Thermistor Motor Protection
for overheating protection

Thermistor motor protection relays provide decisive advantages where current-dependent protection using either a circuit-breaker or an overload relay is not the ideal solution: In some cases, often as a result of external effects, overheating can occur without being detected by the thermal image in the circuit-breaker or an overload relay. Examples include heavy-duty starting (e.g. centrifuges), operation with AC drive converters or frequent switching, breaking operations or when cooling is restricted, e.g. due to accumulated dirt.

Your advantages:

- The motor winding temperature is directly measured
- Only one relay is required for all motor power ratings
- Device/terminal labeling acc. to DIN EN 50005 for "standard" switching relays and for overload protective devices
- Relays with hard-gold-plated contacts for use under difficult conditions
- LEDs indicate wire breakage and short circuit in the sensor circuit
- All relay versions are equipped with screw terminals or innovative spring-loaded terminals
- Version with protective separation up to 300 V according to DIN/VDE 0106 as well as versions with bistable relay for special applications
- ATEX certification for gases and dust
- All versions have removable terminals

Application areas:

- "Alarm and trip" function by using two sensor circuits with different response temperatures – this means that it is possible to respond before shutting-down (additional cooling can be switched-in, the load reduced, etc.)
- Multi-motor protection using only one device, e.g. for conveyor lines – for several motors that must be shutdown together

Thermistor motor protection relays for PTC thermistors (type A PTCs)
All of the devices with the exception of 24 V AC/DC have electrical isolation

Version	Reset	Contacts	Control supply voltage	Order No.
Compact evaluation units, 22.5 mm wide, monostable, closed-circuit current principle, 1 LED				
Terminal A1 is connected to the common of the changeover contact	Auto	1 CO	24 V AC/DC	3RN1000-□AB00
			110 V AC	3RN1000-□AG00
			230 V AC	3RN1000-□AM00
Standard evaluation units, 22.5 mm wide, monostable, closed-circuit current principle, 2 LEDs				
	Auto	1 NO + 1 NC	24 V AC/DC	3RN1010-□CB00
			110 V AC	3RN1010-□CG00
			230 V AC	3RN1010-□CM00
			24–240 V AC/DC	3RN1010-□CW00
		2 CO	24 V AC/DC	3RN1010-□BB00
			110 V AC	3RN1010-□BG00
			230 V AC 230 V	3RN1010-□BM00
		2 CO hard-gold-plated	24 V AC/DC	3RN1010-□GB00
	Manual/ remote[3]	1 NO + 1 NC	24 V AC/DC	3RN1011-□CB00
			110/230 V AC	3RN1011-□CK00
Short circuits are detected in the sensor circuit	Manaul/ remote[3]	2 CO	24 V AC/DC	3RN1011-□BB00
			110 V AC	3RN1011-□BG00
			230 V AC	3RN1011-□BM00
		2 CO hard-gold-plated	24 V AC/DC	3RN1011-□GB00
Holding on supply failure[2]	Manual/auto/ remote	1 NO + 1 NC	24 V AC/DC	3RN1012-□CB00
			110/230 V AC	3RN1012-□CK00
Holding on supply failure[2], short circuits are detected in the sensor circuit	Manual/auto/ remote	2 CO	24 V AC/DC	3RN1012-□BB00
			110 V AC	3RN1012-□BG00
			230 V AC	3RN1012-□BM00
		2 co hard-gold-plated	24 V AC/DC	3RN1012-□GB00
Holding on supply failure[2], short circuits and wire breakage in the sensor circuit are detected and displayed, wide-range voltage with screw terminals with protective separation[1]	Manual/auto/ remote	2 CO	24 V AC/DC	3RN1013-□BB00
			24–240 V AC/DC	3RN1013-1BW10 3RN1013-2BW00
		2 CO hard-gold-plated	24–240 V AC/DC	3RN1013-1GW10 3RN1013-2GW00
Evaluation units for 2 sensor circuits, alarm and trip, 22.5 mm wide, monostable, closed-circuit current principle, 3 LEDs				
Test/reset button, holding on supply failure[2]; the evaluation circuit for "alarm" uses an NO contact in the open-circuit principle	Manual/auto/ remote	1 NO + 1 NC	24–240 V AC/DC	3RN1022-□DW00
Evaluation units for 6 sensor circuits, multi-motor protection, 45 mm wide, monostable, closed-circuit current principle, 8 LEDs				
Test/reset button, holding on supply failure[2];	Manual/auto/ remote	1 NO + 1 NC	24–240 V AC/DC	3RN1062-□CW00
Bistable evaluation units, 22.5 mm wide				
Test/reset button, holding on supply failure[2], short circuits and wire breakage in the sensor circuit are detected and displayed, bistable version, not tripped when the control supply voltage fails	Manual/auto/ remote	2 CO	24–240 V AC/DC	3RN1013-□BW01

Screw terminal 1
Spring-loaded terminal 2

[1] Protective separation up to 300 V according to DIN/VDE 0106
[2] Information regarding the holding on supply failure, refer to Catalog LV 1, chapter 7
[3] Reset using the reset button or by interrupting the control supply voltage

3RS10/3RS11 Temperature Monitoring Relays
Analog adjustable relays

3RS10/11 relays are used to measure temperatures in solid, liquid and gaseous medium. The temperature is measured using a sensor that is in the medium, evaluated by the unit and monitored to determine whether the temperature is within the upper and lower temperature limits. Depending on the function that has been parameterized, the output relay either switches on or off at these threshold values.

Your advantages:

- All versions have removable terminals
- Many versions are available with innovative spring-loaded terminals
- All devices have electrical isolation
  Exception: 24 V AC/DC
- Simple handling using a rotary potentiometer
- Selectable hysteresis
- For devices with two threshold values, the operating principle can be selected

Applications:

- Protecting motors and equipment/systems
- Monitoring temperatures in electrical cabinets
- Frost monitoring
- Temperature limits for process quantities – e.g. in the packaging industry or galvanizing systems
- Controlling plants and machines such as HVAC systems, solar collectors, heat pumps or warm water supply systems
- Monitoring oil in bearings and gearboxes
- Monitoring cooling liquids

Screw terminal 1
Spring-loaded terminal 2

3RS10/3RS11 Temperature Monitoring Relays

Sensor	Function	Measuring range	Rated control supply voltage V_s 50–60 Hz AC	Order No.
Analog adjustable, 1 threshold value, 22.5 mm wide; analog closed-circuit principle, no holding on supply failure function; 1 NO + 1 NC				
PT100 (resistance sensor)	Overrange	–50...+50 °C	24 V AC/DC	3RS10 00-□CD00
			110/230 V AC	3RS10 00-□CK00
		0...+100 °C	24 V AC/DC	3RS10 00-□CD10
			110/230 V AC	3RS10 00-□CK10
		0...+200 °C	24 V AC/DC	3RS10 00-□CD20
			110/230 V AC	3RS10 00-□CK20
	Underrange	–50...+50 °C	24 V AC/DC	3RS10 10-1CD00
			110/230 V AC	3RS10 10-1CK00
		0...+100 °C	24 V AC/DC	3RS10 10-1CD10
			110/230 V AC	3RS10 10-1CK10
		0...+200 °C	24 V AC/DC	3RS10 10-1CD20
			110/230 V AC	3RS10 10-1CK20
Typ J (thermoelement)	Overrange	0...+200 °C	24 V AC/DC	3RS11 00-□CD20
			110/230 V AC	3RS11 00-1CK20
		0...+600 °C	24 V AC/DC	3RS11 00-1CD30
			110/230 V AC	3RS11 00-1CK30
TYP K (thermoelement)	Overrange	0...+200 °C	24 V AC/DC	3RS11 01-□CD20
			110/230 V AC	3RS11 01-1CK20
		0...+600 °C	24 V AC/DC	3RS11 01-1CD30
			110/230 V AC	3RS11 01-1CK30
		+500...+1000 °C	24 V AC/DC	3RS11 01-1CD40
			110/230 V AC	3RS11 01-1CK40
Analog adjustable for alarm and trip (2 threshold values), 22.5 mm wide; open-circuit – closed-circuit current principle can be toggled between; no holding on supply failure function; 1 NO + 1 CO				
PT100 (resistance sensor)	Overrange	–50...+50 °C	24 V AC/DC	3RS10 20-1DD00
			24–240 V AC/DC	3RS10 20-1DW00
		0...+100 °C	24 V AC/DC	3RS10 20-1DD10
			24–240V AC/DC	3RS10 20-1DW10
		0...+200 °C	24 V AC/DC	3RS10 20-1DD20
			24–240 V AC/DC	3RS10 20-□DW20
	Underrange	–50...+50 °C	24 V AC/DC	3RS10 30-1DD00
			24–240 V AC/DC	3RS10 30-1DW00
		0...+100 °C	24 V AC/DC	3RS10 30-1DD10
			24–240 V AC/DC	3RS10 30-1DW10
		0...+200 °C	24 V AC/DC	3RS10 30-□DD20
			24–240 V AC/DC	3RS10 30-1DW20
Typ J (thermoelement)	Overrange	0...+200 °C	24 V AC/DC	3RS11 20-□DD20
			24–240 V AC/DC	3RS11 20-1DW20
		0...+600 °C	24 V AC/DC	3RS11 20-1DD30
			24–240 V AC/DC	3RS11 20-1DW30
Typ K (thermoelement)	Overrange	0...+200 °C	24–240 V AC/DC	3RS11 21-1DW20
		0...+600 °C	24–240 V AC/DC	3RS11 21-1DW30
		+500...+1000 °C	24 V AC/DC	3RS11 21-1DD40
			24–240 V AC/DC	3RS11 21-1DW40

Analog adjustable evaluation devices with one and two threshold values. For analog adjustable devices, the threshold values and the hysteresis from 2 to 20% are set using a rotary potentiometer. For devices with 2 threshold values, the selectable hysteresis only acts on threshold value 1. For the second threshold value, the hysteresis is permanently set to 5%. This series of products was developed for applications where a setting accuracy of ± 5% is sufficient.

Under www.siemens.com/temperature, you will find the right sensor.

3RS10/3RS11 and 3RS20/3RS21 Temperature Monitoring Relays

Digitally adjustable relays

These relays are used to measure temperatures in solid, liquid and gaseous mediums. They monitor temperatures to evaluate whether they lie within a specific operating range (window function). Our 3RS10 40 and 3RS11 40 relays are in compliance with DIN 3440 as temperature monitor; the 3RS10 42 and 3RS11 42 relays can be used, in accordance with DIN 3440, as temperature limiting devices. These represent a good alternative to temperature controllers in the low-end sector.

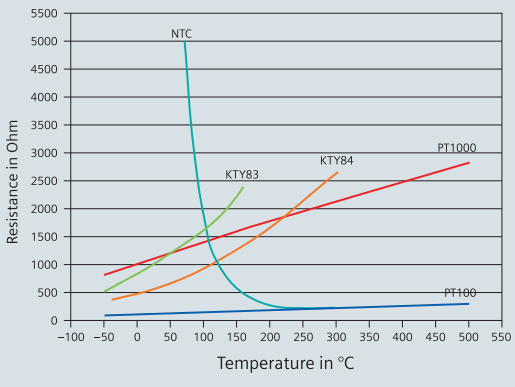
Your advantages:

- Simple to operate without complex menu prompting
- Certified according to DIN 3440
- 2- or 3-conductor resistance sensors can be connected
- Versions available in °Fahrenheit
- All versions have removable terminals
- All versions with either screw terminals or with spring-loaded terminals

Applications:

- Protecting equipment and the environment
- Temperature monitoring for process quantities – e.g. in the packaging industry or galvanizing systems
- Temperature monitoring for heating systems
- Monitoring exhaust gas temperatures
- HVAC systems, solar collectors, heat pumps or warm water supplies
- Monitoring motor, bearing and gearbox oil temperatures
- Cooling liquids temperature monitoring

Characteristics of the most important resistance temperature sensors



3RS10/3RS11 Temperature Monitoring Relays

Sensor	Measuring range (measuring range limit depends on the sensor)	Rated control supply voltage V_s 50–60 Hz AC	Order No.
"Temperature monitor acc. to DIN 3440, digitally adjustable, 2 threshold values, 45 mm wide; 1 CO + 1 CO + 1 NO, memory function can be enabled using an external jumper. Relay parameters have a holding on supply failure function			
PT100/1000; KTY83/84; NTC (resistance sensor)[1]	–50...+500 °C	24 V AC/DC	3RS10 40-□GD50
		24–240 V AC/DC	3RS10 40-□GW50
	–50...+932 °F	24 V AC/DC	3RS20 40-□GD50
		24–240 V AC/DC	3RS20 40-□GW50
TYPE J,K,T,E,N (thermoelement)	–99...+999 °C	24 V AC/DC	3RS11 40-□GD60
		24–240 V AC/DC	3RS11 40-□GW60
	–99...+1830 °F	24 V AC/DC	3RS21 40-□GD60
		24–240 V AC/DC	3RS21 40-□GW60
"Temperature limiter" and "temperature monitor" acc. to DIN 3440, digitally adjustable, 2 threshold values, 45 mm wide; 1 CO + 1 CO + 1 NO, tripped state and relay parameters are saved using a holding on supply failure function			
PT100/1000; KTY83/84; NTC (resistance sensor)[1]	–50...+750 °C	24 V AC/DC	3RS10 42-□GD70
		24–240 V AC/DC	3RS10 42-□GW70
TYPE J, K, T, E, N, R, S, B (thermoelement)	–99...+1800 °C	24 V AC/DC	3RS11 42-□GD80
		24–240 V AC/DC	3RS11 42-□GW80

Motor monitoring relays, digitally adjustable for up to 3 sensors, 45 mm wide; 1 CO +1 CO + 1 NO

Sensor	No of sensors	Measuring range	Rated control supply voltage V_s	Order No.
PT100/1000; KTY83/84; NTC (resistance sensor)[1]	1 to 3 sensors	–50...+500 °C	24–240 V AC/DC	3RS10 41-□GW50
		–50...+932 °F	24–240 V AC/DC	3RS20 41-□GW50

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

Screw terminal 1
Spring-loaded terminal 2

The short-circuit and wire breakage detection, as well as the measuring range are restricted, depending on the sensor type:

Measuring ranges in °C for thermoelements

Sensor type	Short circuit	Wire breakage	3RS11 40 measuring range	3RS11 42 measuring range
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 ranges in °C for resistance sensors

Sensor type	Short circuit	Wire breakage	3RS10 40 measuring range	3RS10 42 measuring range
PT100	x	x	–50...+500	–50...750
PT1000	x	x	–50...500	–50...500
KTY83-110	x	x	–50...175	–50...175
KTY84	x	x	–40...300	–40...300
NTC[1]	x	x	80...160	80...160

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

Digitally adjustable evaluation units
Temperature monitoring relays distinguish themselves due to the fact that they are extremely easy to operate. The actual temperature is always displayed on the threedigit LED display. A dedicated relay with one NO contact is integrated to monitor the sensor.
The relay is switched-off in the parameterizing mode.
The following parameters can be set:

- Sensor type
- 2 threshold values J_1, J_2
- 1 hysteresis; this acts on both thresholds (0–99 K)
- 1 delay time; this acts on both thresholds (0–990 s)
- Either the open-circuit/closed-circuit principle can be selected
- Function: Overtemperature/Undertemperature (overrange/underrange) or window monitoring within a defined range

Versions with a wide-range voltage have electrical isolation.
The temperature ranges are dependant on the sensor type (refer to the function).

Under www.siemens.com/temperature, you will find the right sensor.

Application Examples

Line Monitoring

Phase asymmetry

- Protection against motor overheating

Phase failure

- Protection against motor overheating due to single phasing

Phase sequence

- Protection against incorrect direction of rotation of motor

3-phase overvoltage and undervoltage protection

- Protection against destruction of plant equipments due to voltage fluctuations

Examples

- Construction site compressors and cranes
- Elevators and pumps
- Transportable cooling containers and air-conditioning units

Power Factor and Active Current Monitoring

Monitoring of load changes or controlling of loads

- **No load Monitoring:** Detection of V belt slippage or breakage & dry running of pumps
- **Underload Monitoring:** Controlling of conveyor belt loading
- **Overload Monitoring:** Protection against crusher blockage

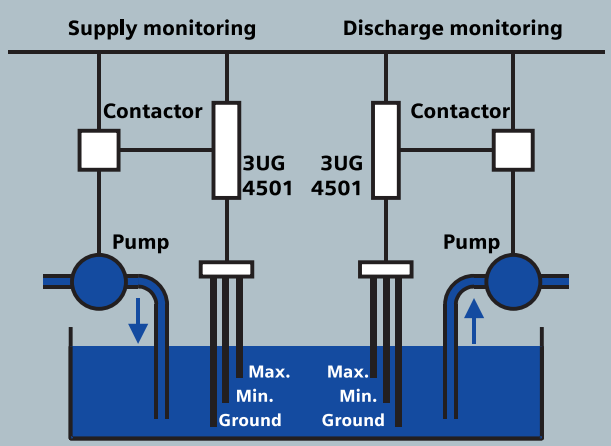
Application Examples

Speed Monitoring

- Monitoring for belt slippage or breakage
- Monitoring of belt conveyors

Level Monitoring and Control

Probes for level monitoring	Level monitoring of conductive liquids
e.g. 3UG3207	One- or two-point filling level control



For coolants and lubricants as well as in waste water applications or rainwater collection systems

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