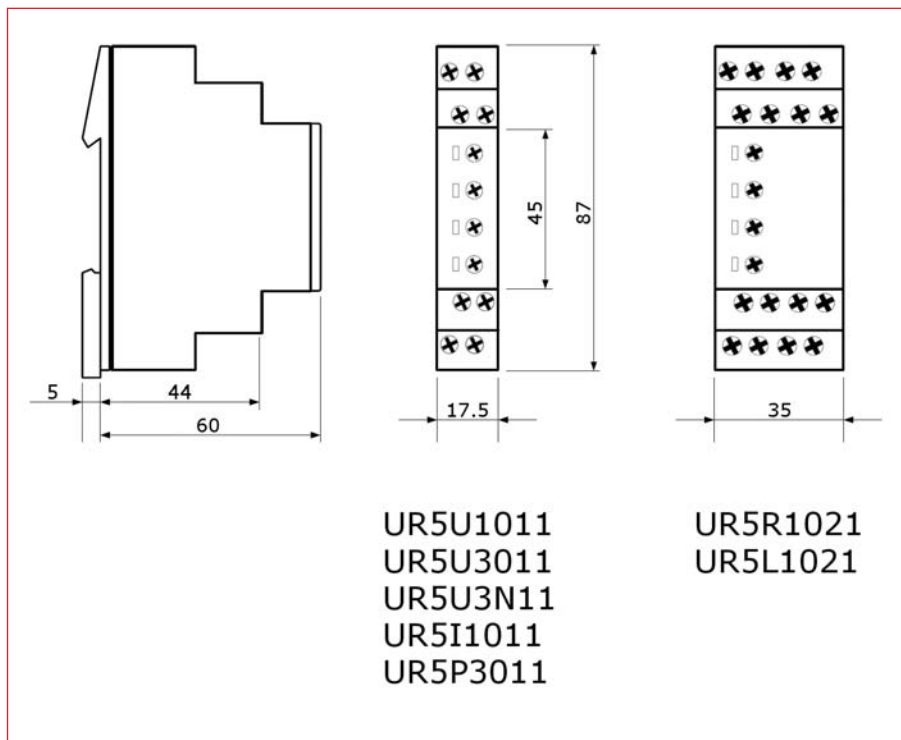


Measuring and Monitoring Relays Series UR5

Overview Modes

Article number	Functions
UR5U1011	AC/DC under voltage monitoring in 1-phase mains with adjustable threshold and hysteresis. UNDER = Under voltage monitoring
UR5U3011	Undervoltage monitoring in 3-phase mains (each phase against the neutral wire) with fixed or adjustable threshold voltage US and fixed hysteresis.
UR5U3N11	Undervoltage monitoring in 3-phase mains (each phase against the neutral wire) with fixed threshold voltage US and fixed hysteresis.
UR5I1011	AC current monitoring in 1-phase mains with adjustable threshold and fixed hysteresis.
UR5P3011	Monitoring of phase sequence, phase failure and asymmetry with adjustable asymmetry, connection of neutral wire optional.
UR5R1021	Temperature monitoring of the motor winding (max. 6 PTC) with fault latch for temperature sensors in accordance with DIN 44081, short circuit monitoring of the thermistor line (selectable by means of terminals), integrated test/reset key.
UR5L1021	Level monitoring of conductive liquid, timing for tripping delay and turn-off delay separately adjustable and the following functions (selectable by means of rotary switch): Pump up = Pump up or minimum monitoring Pump down = Pump down or maximum monitoring

Dimensions (mm)

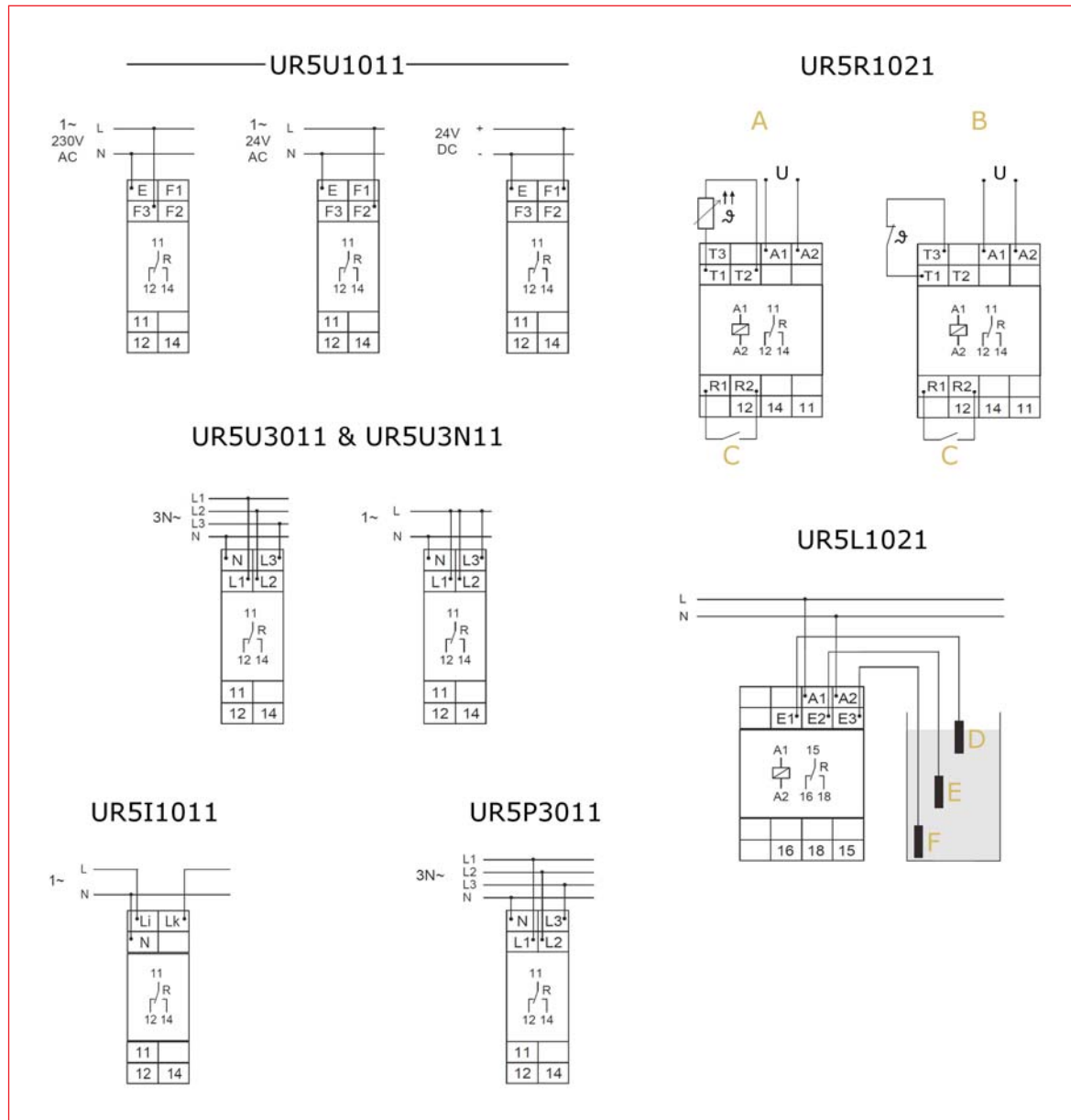


Measuring and Monitoring Relays Series UR5

Time Ranges

Article number	Adjustment range	
UR5U1011	Tripping delay (delay): -	
UR5U3011	Tripping delay:	fixed approx. 200 ms
UR5U3N11	Tripping delay:	fixed approx. 200 ms
	Threshold Us:	(L - N) fixed, 195.5 V (L - N)
UR5I1011	Tripping delay (delay): -	
UR5P3011	Tripping delay:	
	Start-up suppression time (start):	fixed approx. 100 ms
UR5R1021	Tripping delay (delay): -	
UR5L1021	Tripping delay (delay ON):	0.5 to 10 s
	Turn-off delay (delay OFF):	0.5 to 10 s

Circuit Diagrams



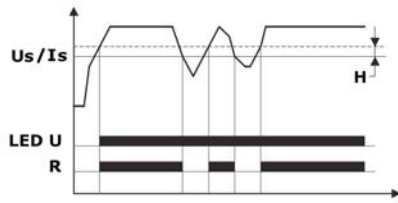
Circuit Diagrams

A	Monitoring temperature sensors
B	Monitoring thermal contact
C	Reset
D	Probe max.
E	Probe min.
F	Mass probe

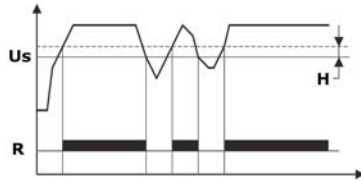
Measuring and Monitoring Relays Series UR5

Modes

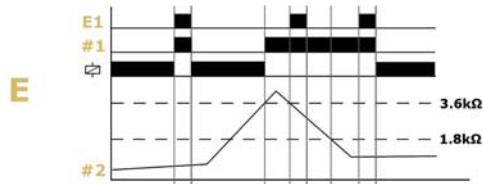
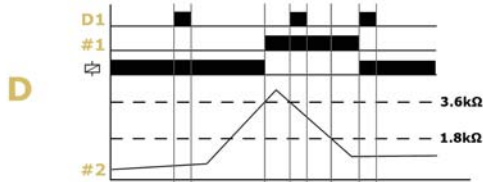
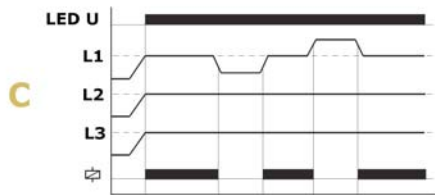
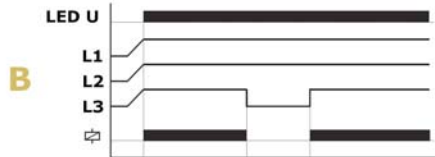
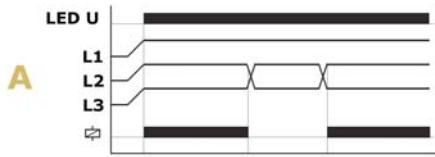
UR5U1011
&
UR5I1011



UR5U3011
&
UR5U3N11

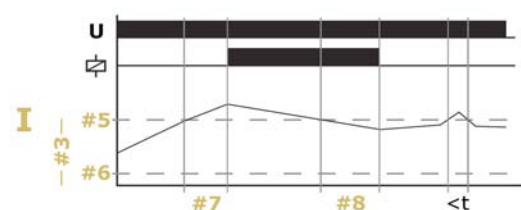
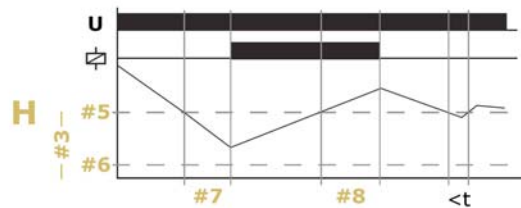
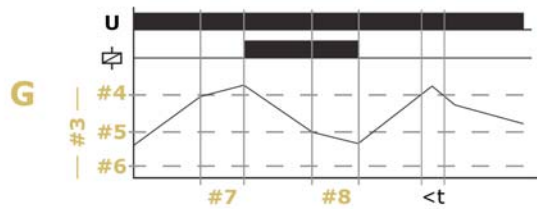
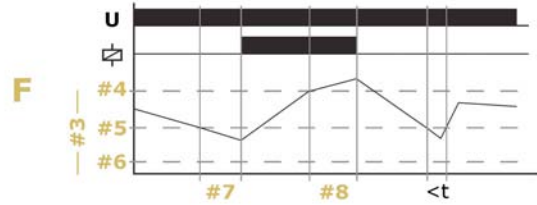


UR5P3011



UR5R1021

UR5L1021



Measuring and Monitoring Relays Series UR5

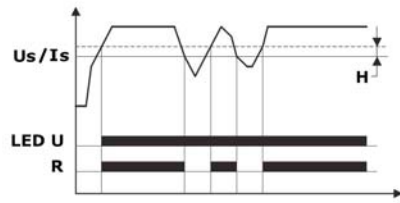
Detailed Description of Modes (Part 1)

UR5U1011	The supply voltage U must be constantly applied to the device (green LED illuminated). The output relay R switches into on-position (yellow LED illuminated) when the measured voltage U exceeds the value adjusted at the U_s regulator. The output relay R switches into off-position (yellow LED not illuminated) when the measured value for the voltage falls below the set value by more than the fixed hysteresis.	
UR5U3011	<p>Under voltage monitoring for 3-phase AC mains with variable threshold voltage U_s and fixed hysteresis. All measuring inputs (L1, L2 and L3) must be connected to phase voltage. If single or 2-phase monitoring is required, unused input terminals (L) must be connected to mains voltage to have proper L-N voltage on the terminals L1, L2 and L3. A phase failure can not be detected, if the reverse voltage coming from the load exceeds the threshold U_s relay.</p> <p>Test function (optional) The test function enables a manually disconnection of the output relay.</p> <p>Under voltage monitoring The output relay R switches into on-position (yellow LED illuminated), when the measuring voltage of all connected phases exceeds the fixed threshold U_s by more than the fixed hysteresis H. When the voltage of one of the connected phases (L1, L2 or L3) falls below the fixed threshold, the output relay R switches into off-position again (yellow LED not illuminated).</p>	
UR5U3N11	<p>Under voltage monitoring for 3-phase AC mains with fixed threshold voltage U_s and fixed hysteresis. All measuring inputs (L1, L2 and L3) must be connected to phase voltage. If single or 2-phase monitoring is required, unused input terminals (L) must be connected to mains voltage to have proper L-N voltage on the terminals L1, L2 and L3. A phase failure can not be detected, if the reverse voltage coming from the load exceeds the threshold U_s relay.</p> <p>Test function (optional) The test function enables a manually disconnection of the output relay.</p> <p>Under voltage monitoring The output relay R switches into on-position (yellow LED illuminated), when the measuring voltage of all connected phases exceeds the fixed threshold U_s by more than the fixed hysteresis H. When the voltage of one of the connected phases (L1, L2 or L3) falls below the fixed threshold, the output relay R switches into off-position again (yellow LED not illuminated).</p>	
UR5I1011	The supply voltage U must be constantly applied to the device (green LED illuminated). The output relay R switches into on-position (yellow LED illuminated) when the measured current exceeds the value adjusted at the I_s regulator. The output relay R switches into off-position (yellow LED not illuminated) when the measured value for the current falls below the set value by more than the fixed hysteresis.	
UR5P3011	A	Phase sequence monitoring When all the phases are connected in the correct sequence and the measured asymmetry is less than the fixed value, the output relay switches into on-position (yellow LED illuminated). When the phase sequence changes, the output relay switches into off-position (yellow LED not illuminated).
	B	Phase failure monitoring The output relay R switches into off-position (yellow LED not illuminated), when one of the three phases fails.
	C	Asymmetry monitoring The output relay R switches into off-position (yellow LED not illuminated), when the asymmetry exceeds the value set at the ASYM -regulator. Reverse voltages of a consumer (e.g. a motor which continues to run on two phases only) do not effect the disconnection.
UR5R1021	Temperature monitoring of the motor winding with fault latch	
	If the supply voltage U is applied (green LED illuminated) and the cumulative resistance of the PTC-circuit is less than 3.6kΩ (standard temperature of the motor), the output relay switches into on-position.	
	Pressing the test/reset key under this conditions, forces the output relay to switch into off-position. It remains in state as long as the test/reset key is pressed and thus the switching function can be checked in case of fault. The test function is not effective by using an external reset key.	
	When the cumulative resistance of the PTC-circuit exceeds 3.6kΩ (at least one of the PTCs has reached the cut-off temperature), the output relay switches into off-position (red LED illuminated).	
	The output relay R switches into on-position again (red LED not illuminated), if the cumulative resistance drops below 1.65kΩ by cooling down of the PTC and either a reset key (internal or external) was pressed or the supply voltage was disconnected and reapplied.	
	D	Application of an external reset
	D1	External reset
	E	Application of internal test/reset key
	E1	Test/Reset
#1	LED Failure	
#2	PTC (Positive Temperature Coefficient)	

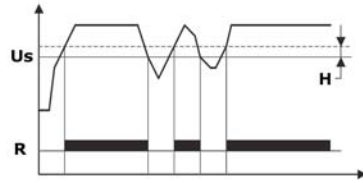
Measuring and Monitoring Relays Series UR5

Modes

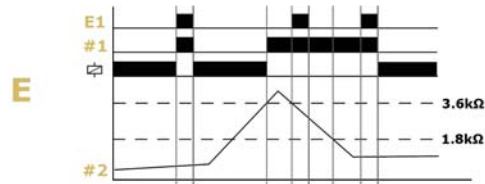
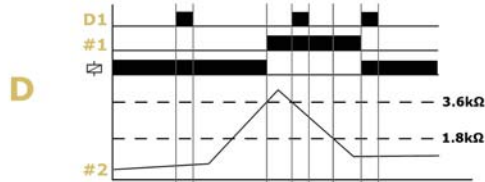
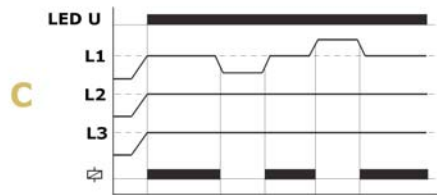
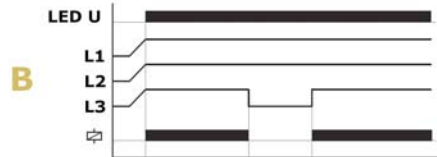
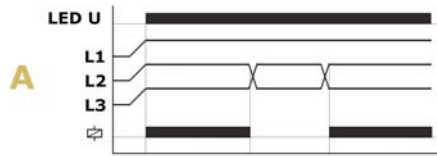
UR5U1011
&
UR5I1011



UR5U3011
&
UR5U3N11

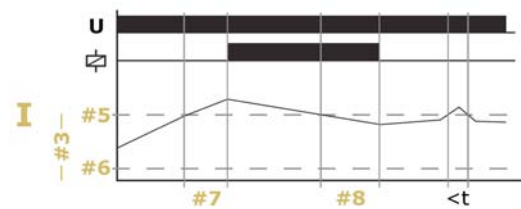
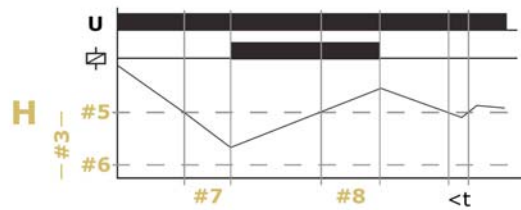
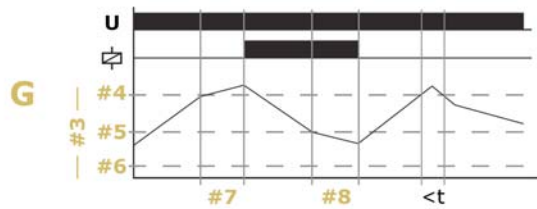
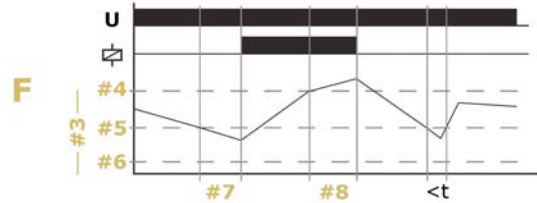


UR5P3011



UR5R1021

UR5L1021



Measuring and Monitoring Relays Series UR5

Detailed Description of Modes (Part 2)

UR5L1021	Note											
	Use cables with low capacity for wiring the probes especially with extended wiring length!											
	<p>Following processes are suggested for the adjustment:</p> <ul style="list-style-type: none"> • The existent time delay should be to minimum (0.5s). • The function selector switch must be in position pump down. • Turn the sensitivity controller slowly clockwise from "min." to "max." until the relays switches into on-position (probes must be in dipped state). • The moistened probes should be taken out of the liquid to control if the relays switches into off-position. If the relays doesn't switch into off-position, turn the sensitivity controller slightly back to "min." (counter clockwise). • Set the existent time delay to desired value to fade out a short term moisten the probes by waves in the liquid. • Set the function selector switch to desired position (either pump up or pump down). 											
	<p>Pump up</p> <p>F Connection of the probe rods E1, E2 and E3. Alternatively the electrically conducting container can be connected in lieu of the test probe E3. When the air-fluid level falls below the minimum probe E2 the set interval of tripping delay (Delay ON) begins. After the expiration of the interval, the output relays R switches into on-position (yellow LED illuminated). When the air-fluid level again rises above the maximum probe E1, the set interval of turn-off delay (Delay OFF) begins. After the expiration of the interval the output relays R switches into off-position (yellow LED not illuminated).</p>											
	<p>Pump down</p> <p>G Connection of the probe rods E1, E2 and E3. Alternatively the electrically conducting container can be connected in lieu of the test probe E3. When the maximum probe E1 gets moistened the set interval of tripping delay (Delay ON) begins. After the expiration of the interval the output relays R switches into on-position (yellow LED illuminated). When the air-fluid level falls below the minimum probe E2, the set interval of turn-off delay (Delay OFF) begins. After the expiration of the interval, the output relays R switches into off-position (yellow LED not illuminated).</p>											
	<p>Minimum monitoring (Pump up)</p> <p>H Connection of the probe rods E2 and E3 (bridge E1-E3). Alternatively the electrically conducting container can be connected in lieu of the test probe E3. When the air-fluid level falls below the probe E2 the set interval of tripping delay (Delay ON) begins. After the expiration of the interval, the output relays R switches into on-position (yellow LED illuminated). When the air-fluid level again rises above the probe E2, the set interval of turn-off delay (Delay OFF) begins. After the expiration of the interval the output relays R switches into off-position (yellow LED not illuminated).</p>											
	<p>Maximum monitoring (Pump down)</p> <p>I Connection of probe rods E2 and E3 (bridge E1-E3). Alternatively the electrically conducting container can be connected in lieu of the test probe E3. When the probe E2 gets moistened the set interval of tripping delay (Delay ON) begins. After the expiration of the interval the output relays R switches into on-position (yellow LED illuminated). When the air-fluid level sinks below the probe E2, the set interval of turn-off delay (Delay OFF) begins. After the expiration of the interval the output relays R switches into off-position (yellow LED not illuminated).</p>											
	<table border="1"> <tr><td>#3</td><td>Level</td></tr> <tr><td>#4</td><td>Probe E1</td></tr> <tr><td>#5</td><td>Probe E2</td></tr> <tr><td>#6</td><td>Probe E3</td></tr> <tr><td>#7</td><td>Delay ON</td></tr> <tr><td>#8</td><td>Delay OFF</td></tr> </table>	#3	Level	#4	Probe E1	#5	Probe E2	#6	Probe E3	#7	Delay ON	#8
#3	Level											
#4	Probe E1											
#5	Probe E2											
#6	Probe E3											
#7	Delay ON											
#8	Delay OFF											

Measuring and Monitoring Relays Series UR5

Technical Data (Part 1)

		UR5U1011	UR5U3011	UR5U3N11	UR5I1011	
INDICATORS	Green LED ON/OFF	Indication of supply voltage	-	-	Indication of supply voltage	
	Green LED L1 ON/OFF	-	Indication of supply voltage L1 - N	-	-	
	Green LED L2 ON/OFF	-	Indication of supply voltage L2 - N	-	-	
	Green LED L3 ON/OFF	-	Indication of supply voltage L3 - N	-	-	
	Yellow LED ON/OFF	Indication of relay output				
MECHANICAL DESIGN	Housing	Self-extinguishing plastic housing				
	Degree of protection housing	IP40				
	Mounting	(EN 60715)	DIN-rail TS 35			
	Terminal	(VBG 4, PZ1 required)	Shockproof terminal connection			
	Degree of protection terminal	IP20				
	Mounting position	Any				
	Tightening torque	Max. 1 Nm				
	Terminal capacity	1 x 0.5 to 2.5 mm ² with/without multicore cable end 1 x 4 mm ² without multicore cable end 2 x 0.5 to 1.5 mm ² with/without multicore cable end 2 x 2.5 mm ² flexible without multicore cable end				
INPUT CIRCUIT	Supply voltage	Measuring voltage			230 V~	
	Rated voltage U_N	24 V AC / DC, 230 V~	3(N) 230 / 400 V~		230 V~	
	Terminals	230 V~ E - F3 E - F2 24 V~ (distance > 5 mm) 24 V DC E - F1(+)	N - L1 - L2 - L3		Li - N	
	Tolerance	-25 % to +20 % of U_N	-30 % to +10 % of U_N	-30 % to +15 % of U_N	-15 % to +15 % of U_N	
	Rated consumption	230 V~ 10 VA (0.6 W) 24 V~ 1.3 VA (0.8 W) 24 V DC 0.6 W	5 VA (0.6 W) 8 VA (0.8 W)	5 VA (0.6 W)	5 VA (0.8 W)	
	Rated frequency	AC 48 to 63 Hz				
	Duration of operation	100 %				
	Reset time	500 ms				
	Wave form	AC / DC Sinus	-		Sinus	
	Hold-up time	-				
	Drop-out voltage	> 60 % of supply voltage	Determined by undervoltage detection (see measured circuit)		> 20 % of supply voltage	
	Overvoltage category	(IEC 60664-1)	III			
	Rated surge voltage	4 kV				
	OUTPUT CIRCUIT	Number of contacts and type	1 potential free CO			
		Rated voltage	250 V~			
Switching capacity		1250 VA (5 A / 250 V~)				
Fusing		5 A fast acting				
Mechanical service life		20 x 10 ⁶ operations				
Electrical service life		2 x 10 ⁵ operations at 1000VA resistive load				
Switching capacity		(IEC 60947-5-1)	Max. 6 / min at 1000 VA resistive load			
Overvoltage category		(IEC 60664-1)	III			
Rated surge voltage		4 kV				
MEASURING VOLTAGE		Measuring variable	AC or DC Sinus, 48 to 63 Hz	AC Sinus, 48 to 63Hz		
	Measuring input	Supply voltage	160 - 240 V~	Supply voltage	5A AC	
	Terminals	230 V~ E - F3 24 V~ E - F2* 24 V DC E - F1(+)	N - L1 - L2 - L3		Li, Lk	
	Overload capacity	120 % of U_N	Determined by tolerance specified for supply voltage		7 A (ex 5 A: distance > 5 mm!)	
	Starting current	-				
	Input resistance	-				
	Switching threshold U_s	80 - 120 %	160 - 240 V	fix, 195.5 V (L - N)	10 - 100 % of I_N	
	Hysteresis H	Fixed, 5 %	Approx. 5 %		Fixed, 10 %	
	Overvoltage category	(IEC 60664-1)	III			
	Rated surge voltage	4 kV				

Measuring and Monitoring Relays Series UR5

Technical Data (Part 2)

		UR5U1011	UR5U3011	UR5U3N11	UR5I1011
ACCURACY	Base accuracy	< 5 % of rated value			
	Adjustment accuracy	± 5 % of rated value	-		± 5 % of rated value
	Repetition accuracy	< 2 % of rated value			
	Voltage influence	-			
	Temperature influence	≤ 0.05 % / °C			
AMBIENT CONDITIONS	Ambient temperature (IEC 60068-1)	-25 °C to +55 °C			
	Storage temperature	-25 °C to +70 °C			
	Transport temperature	-25 °C to +70 °C			
	Relative humidity (IEC 60721-3-3 class 3K3)	15 % to 85 %			
	Pollution degree (IEC 60664-1)	2			2, if built in 3
	Vibration resistance (IEC 68-2-6)	10 to 55 Hz, 0.35 mm	-		10 to 55 Hz, 0.35 mm
	Shock resistance (IEC 68-2-27)	15 g, 11 ms	-		15 g, 11 ms
	*The distance between the devices must be greater than 5 mm!				

Technical Data (Part 3)








		UR5P3011	UR5R1021	UR5L1021		
INDICATORS	Green LED ON/OFF	Indication of supply voltage				
	Yellow LED ON/OFF	Indication of relay output	-	Indication of relay output		
	Red LED ON/OFF	-	Indication of failure			
MECHANICAL DESIGN	Housing	Self-extinguishing plastic housing				
	Degree of protection housing	IP40				
	Mounting (EN 60715)	DIN-rail TS 35				
	Terminal (VBG 4, PZ1 required)	Shockproof terminal connection				
	Degree of protection terminal	IP20				
	Mounting position	Any				
	Tightening torque	Max. 1 Nm				
	Terminal capacity	1 x 0.5 to 2.5 mm ² with/without multicore cable end 1 x 4 mm ² without multicore cable end 2 x 0.5 to 1.5 mm ² with/without multicore cable end 2 x 2.5 mm ² flexible without multicore cable end				
INPUT CIRCUIT	Supply voltage	Measured voltage	230 V~			
	Rated voltage U _N	3(N) 230 / 400 V~	230 V~			
	Terminals	N-L1-L2-L3	A1 - A2			
	Tolerance	-30 % to +30 % of U _N	-15 % to +10 % of U _N			
	Rated consumption	8 VA (0.8 W)	1.3 VA (1 W)	2 VA (1 W)		
	Rated frequency	AC 48 to 63 Hz				
	Duty cycle	100 %				
	Reset time	500 ms	250 ms	500 ms		
	Residual ripple for DC	-				
	Drop out voltage	> 20 % of the supply voltage	> 30 % of the supply voltage			
	Overvoltage category (IEC 60664-1)	III				
	Rated surge voltage	4 kV	6 kV			
	OUTPUT CIRCUIT	Number of contacts and type	1 potential free CO			
		Rated voltage	250 V~			
Terminals		-	11 - 12 - 14	-		
Switching capacity		1250 VA (5 A / 250 V~)	1250 VA AC1 B300/P300 (IEC 60947-5-1), therm. constant current 5 A			
Fusing		5 A fast acting				
Mechanical service life		15 x 10 ⁶ operations	20 x 10 ⁶ operations			
Electrical service life		100 x 10 ³ operations at 1000 VA resistive load	2 x 10 ⁵ operations at 1000 VA resistive load			
Switching frequency (IEC 60947-5-1)		Max. 6 / min at 1000 VA resistive load				
Overvoltage category (IEC 60664-1)		III				
Rated surge voltage		4 kV	6 kV			

Measuring and Monitoring Relays Series UR5

Technical Data (Part 4)

		UR5P3011	UR5R1021	UR5L1021
MEASURING CIRCUIT	Measuring variable	3 (N)~, sinus, 48 to 63 Hz		
	Measuring input	Supply voltage		Conductive probes
	Terminals	(N) - L1 - L2 - L3	T1 - T2 or T1 - T3	E1 - E2 - E3
	Overload capacity	Determined by tolerance specified for supply voltage		
	Internal resistance		< 1.5 kΩ	
	Response value (relay in off-position)		≥ 3.6 kΩ	
	Release value (relay in on-position)		≤ 1.65 kΩ	
	Disconnection (short circuit thermistor)	Yes	At T1 - T2	
		No	At T1 - T3	
	Measuring voltage T1-T2 (EN 60947-8)		≤ 7.5 V at R ≤ 4 kΩ	
	Asymmetry		5 % to 25 % adjustable or disengageable	
	Sensitivity			0.25 to 100 kΩ (4 mS to 10 S)
	Sensor voltage			12 V~
	Sensor current			Max. 7 mA
	Wiring distance (capacity of cable 100 nF / km)	Set value < 50 % Set value 100 %		Max. 1000 m Max. 100 m
	Overvoltage category (IEC 60664-1)		III	
Rated surge voltage		4 kV	6 kV	
ACCURACY	Base accuracy	±5 % of maximum scale value	±5 %	-
	Adjustment accuracy	< 5 %		-
	Repetition accuracy	< 2 %	< 1 %	-
	Voltage influence		-	
CONTROL CONTACT R*	Temperature influence	≤ 0.05 % / °C	≤ 0.15 % / °C	-
	Function		Connection of an external reset key	
	Loadable		No	
	Line length R1 - R2		Max. 10 m (twisted pair)	
	Control pulse length		Min. 50 ms	
AMBIENT CONDITIONS	Reset		Potential free NO contact, terminals R1 - R2	
	Ambient temperature (IEC 60068-1)		-25 °C to +55 °C	
	Storage temperature		-25 °C to +70 °C	
	Transport temperature		-25 °C to +70 °C	
	Relative humidity (IEC 60721-3-3 class 3K3)		15 % to 85 %	
Pollution degree (IEC 60664-1)		2	2, if built in 3	2

*Note: The terminals **R2 - T2** are internal affiliated with each other!

DESCRIPTION	AVAILABLE	ORDER NO.
Voltage Monitoring Relays		
Voltage monitoring relay, 1 phase, 1CO		UR5U1011
Voltage monitoring relay with adjustable voltage range 160-240V, 3-phase, 1CO		UR5U3011
Voltage monitoring relay, 3 phase against N, fixed Us=195.5V, 1CO		UR5U3N11
Current Monitoring Relays		
Current monitoring relay 1 phase, input 230V, 1CO		UR5I1011
Phase Monitoring Relays		
Phase monitoring relay, 3 phase, 1CO		UR5P3011
Thermistor Monitoring Relays		
Thermistor monitoring relay, 1 phase, 1CO		UR5R1021
Level Monitoring Relays		
Level monitoring relay, 1 phase, 1CO		UR5L1021



Order no. blue: on stock, usually ready for delivery on the day of order

Measuring and Monitoring Relays Series AMPARO



URAU, URAP



URAU3011



URAU3N11



URAP3011

Schrack-Info

URAU3011

- 1- and 3-phase undervoltage monitoring with settable switching threshold
- 1 CO, 5 A
- Supply voltage 230/400 V
- Supply circuit = measuring circuit
- Neutral conductor is required
- Component width 17.5 mm

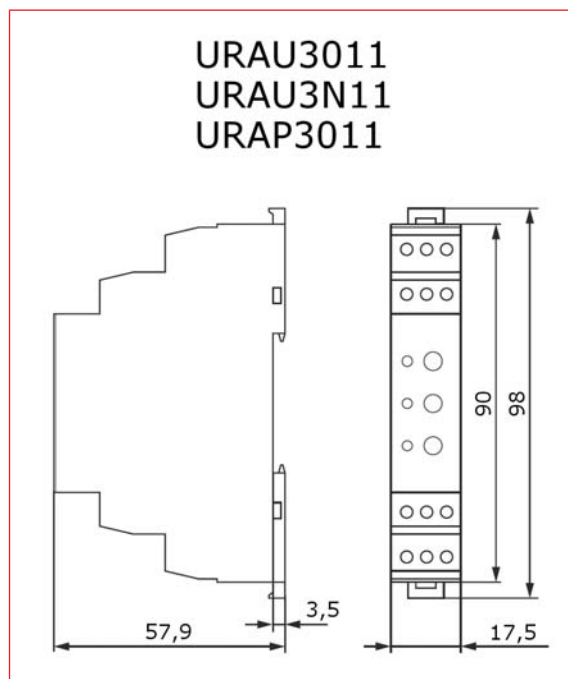
URAU3N11

- 1- and 3-phase undervoltage monitoring with fixed switching threshold
- 1 CO, 5 A
- Supply voltage 230/400 V
- Supply circuit = measuring circuit
- Neutral conductor is required
- Component width 17.5 mm

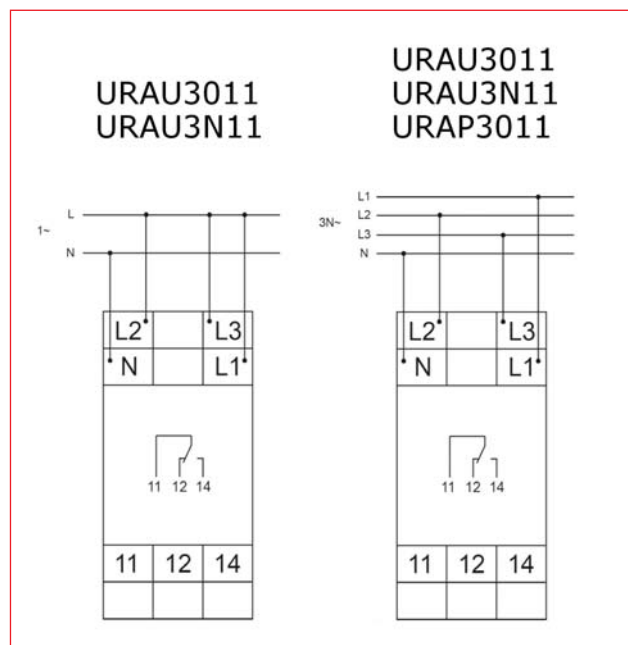
URAP3011

- Phase sequence and phase failure monitoring
- Fixed phase imbalance monitoring
- Supply voltage 230/400 V
- Neutral conductor is required
- Component width 17.5 mm

Dimensions (mm)

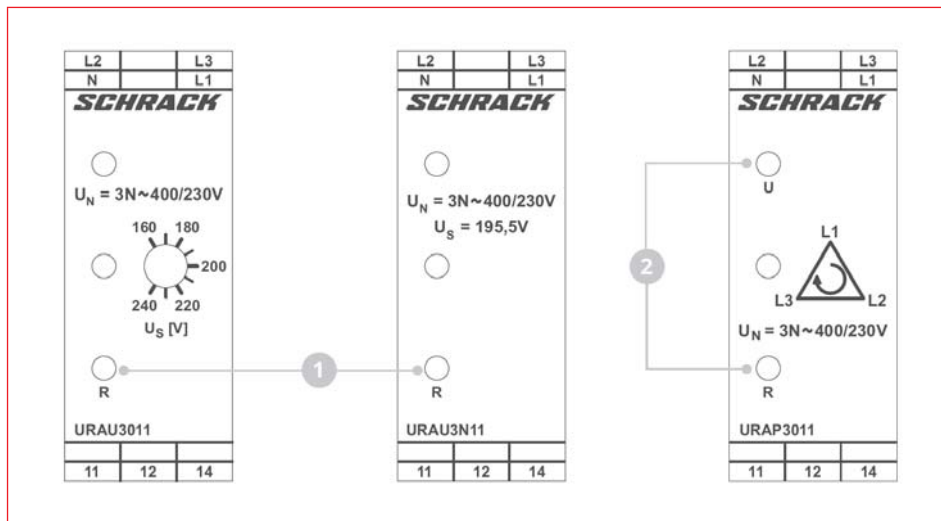


Circuit Diagrams



Measuring and Monitoring Relays Series AMPARO

Configuration & Functionalities



Configuration & Settings

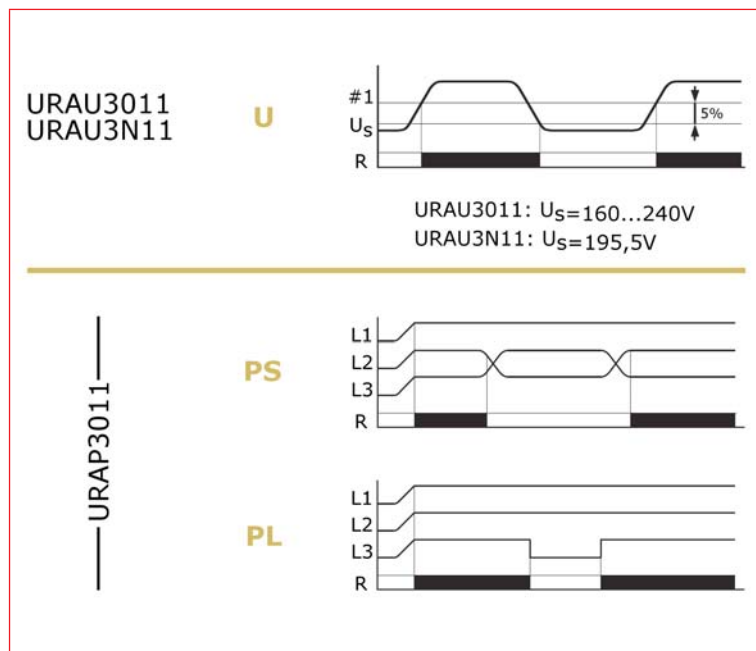
1	URAU3011 and URAU3N11	
	Status indication	
	R	LED yellow = Relay is active

2	URAP3011	
	Status indication	
	U	LED green = Supply voltage is applied
R	LED yellow = Relay is active	

Electrical connection	
L1-L2-L3-N	Supply and measuring voltage 3 N~ 230 / 400 V, 50 / 60 Hz
11-12-14	Output relay AC1 5 A / 250 V

Measuring and Monitoring Relays Series AMPARO

Modes



Modes

URAU3011	
U	Undervoltage monitoring for 3-phase AC mains with variable threshold voltage U_S and fixed hysteresis. All measuring inputs (L1, L2 and L3) must be connected to phase voltage. If single-phase monitoring is required, unused input terminals (L) must be connected to mains voltage to have proper L-N voltage on the terminals L1 , L2 and L3 . A phase failure can not be detected, if the reverse voltage coming from the load exceeds the threshold U_S relay.
	Undervoltage monitoring
	The output relay R switches into on-position (yellow LED illuminated), when the measuring voltage of all connected phases exceeds the fixed threshold U_S by more than the fixed hysteresis H . When the voltage of one of the connected phases (L1, L2 or L3) falls below the fixed threshold, the output relay R switches into off-position again (yellow LED not illuminated).
#1	Hysteresis

URAU3N11	
U	Undervoltage monitoring for 3-phase AC mains with fixed threshold voltage U_S (=195.5 V) and fixed hysteresis. All measuring inputs (L1, L2 and L3) must be connected to phase voltage. If single-phase monitoring is required, unused input terminals (L) must be connected to mains voltage to have proper L-N voltage on the terminals L1 , L2 and L3 . A phase failure can not be detected, if the reverse voltage coming from the load exceeds the threshold U_S relay.
	Undervoltage monitoring
	The output relay R switches into on-position (yellow LED illuminated), when the measuring voltage of all connected phases exceeds the fixed threshold U_S by more than the fixed hysteresis H . When the voltage of one of the connected phases (L1, L2 or L3) falls below the fixed threshold, the output relay R switches into off-position again (yellow LED not illuminated).
#1	Hysteresis

URAP3011	
PS	Monitoring of phase sequence
	When all the phases are connected in the correct sequence and the measured asymmetry is less than the fixed value, the output relay R switches into on-position. When the phase sequence changes, the output relay R switches into off-position.
PL	Phase failure monitoring
	The output relay R switches into off-position, when one of the three phases fails.

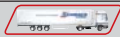


Measuring and Monitoring Relays Series AMPARO

Technical Data

		URAU3011	URAU3N11	URAP3011	
INPUT CIRCUIT	Terminals	L1 - L2 - L3 - N			
	Supply voltage	230 / 400 V~			
	Tolerance	-30 % to +15 % of U _N			
	Rated frequency	50 / 60 Hz			
	Duty cycle	100 %			
	Bridging time	10 ms			
	Reset time	500 ms			
	Drop-out voltage	< 30 %	According to switching threshold 0.85 of U _N	< 30 %	
	Power loss	0.8 W			
	MEASURING CIRCUIT	Terminals	L1 - L2 - L3 - N		
Measure		Voltage 3-phase			
Measurement methods		Rectified value			
Monitoring functions		Undervoltage	Undervoltage	Phase sequence, phase failure, asymmetry	
Measuring range		U _N =230 / 400 V~			
Overload		See tolerances of the supply voltage			
Thresholds		Max. Min. Adjustable Asymmetry	- 85 % of U _N Yes -	- 85 % of U _N No - No Fixed, 30 % -	
Hysteresis		5 %			
TIME CIRCLES		ON delay	Fixed	Approx. 400 ms	
		OFF delay		< 250 ms	
INDICATION	Supply voltage	Green LED U ON	-	Indication of supply voltage	
	Relay status	Yellow LED R ON	Relay is energized		
OUTPUT CIRCUIT	Number of contacts and type	1 CO			
	Terminals	11 - 12 - 14			
	Type	Relay			
	Contact material	AgNi			
	Rated voltage	250 V			
	Max. switching voltage	250 V			
	Max. switching current	5 A			
	Rated current	5 A / 250 V			
	Lifetime	Mechanical Electrical (AC - 1)	1 x 10 ⁶ operations 1 x 10 ⁵ operations		
	Switching frequency	With load Without load	6 / min 300 / min		
	Fusing	5 A fast acting			
	ACCURACY	Basic accuracy	< 5 %		
		Setting accuracy	-		
Repeatability		< 2 %			
Influence of temperature		< 0.05 % / °C			
STANDARDS	Product standards	EN 61010-2-201:2013			
	Immunity	EN 61326-1	Basic electromagnetic environment		
	Emission	EN 61326-1	Class B		
DATAS OF INSULATION accord. to IEC 61010-2-201	Pollution degree	2			
	Overvoltage category	II			
	Rated insulation voltage	Input circuit/ output circuit	300 V		
	Rated surge voltage	Input circuit/ output circuit	2500 V		
	Insulation test voltage	Input circuit/ output circuit	1500 V		
	Insulation	Input circuit/ output circuit	Basic insulation		
ELECTRICAL CONNECTION	Terminal	Screw-terminal			
	Rated terminal capacity	2.5 mm ²			
	Max. terminal capacity	Flexible with/without ferrule Flexible without sleeve Flexible with twin-sleeve Stranded without sleeve	1 x 0.25...2.5 mm ² (23 AWG...14AWG) 2 x 0.25...1.5 mm ² (23 AWG...14AWG) 2 x 0.25...1.5 mm ² (23 AWG...14AWG) 1 x 0.25...2.5 mm ² (23 AWG...14AWG)		
	Length without insulation	7 mm			
	Tightening torque	Max. 0.5 Nm			
	Ambient temperature	Operation	-25...+50 °C		
	Dimensions (DIN 43880)	LxHxD	17.5 x 97 x 57.9 mm		
GENERAL DATA	Mounting (EN 60715)	DIN-rail			
	Mounting position	Any			
	Degree of protection	Housing	IP40		
		Terminals	IP20		

Measuring and Monitoring Relays

Measuring and Monitoring Relays Series AMPARO

DESCRIPTION	AVAILABLE	ORDER NO.
Voltage Monitoring Relays		
Voltage monitoring relay AMPARO with adjustable voltage range 160-240V, 230V-AC, 3 phase, 1 CO, 5A/230V		URAU3011
Voltage monitoring relay AMPARO, 230V-AC, with fixed switching threshold $U_s=195.5V$, 3 phase against N, 1 CO, 5A/230V		URAU3N11
Phase Monitoring Relays		
Phase monitoring relay AMPARO, 230V-AC, 3 phase, 1 CO, 5A/230V		URAP3011