# MR-GU3M2P

## monitoring relays





- Voltage monitoring in 3-phase mains
- Monitoring of phase sequence and phase failure
- Detection of reverse voltage 1
- Connection of neutral wire optional
- Supply voltage = measuring voltage
- 2 changeover contacts: 2 C/O
- Rated load: 5 A / 250 V AC at cat. AC1
- Installation design: width 22,5 mm
- Recognitions, certifications, directives: (6

Type of relay MR-GU3M2P

Number and type of contacts         2 C/O - changeover           Rated load         AC1         5 A / 250 V AC           Max. breaking capacity         AC1         1 250 VA           Max. operating frequency         3 600 cycles/hour           4 x1 10 0V Ar resistive load         3 600 cycles/hour           1 x1 100 VA resistive load         3 600 cycles/hour           1 x1 00 VA resistive load         3 600 cycles/hour           1 x1 100 VA resistive load         3 600 cycles/hour           1 x1 100 VA resistive load         3 600 cycles/hour           1 x1 100 VA resistive load         3 600 cycles/hour           1 x1 100 VA resistive load         3 600 cycles/hour           1 x1 100 VA resistive load         3 600 cycles/hour           1 x1 100 VA resistive load         3 600 cycles/hour           1 x1 100 VA resistive load         3 600 cycles/hour           2 x2 10 Vallage         3 (0) VA 1.5 W           Rated power consumption         2 0 VA 1.5 W           Rested power consumption         2 0 VA 1.5 W           Rated goncy         1 Cycles (0) Single Power loads and the load of single Power load	Output circuit			
Max. breaking capacity         AC1         1 250 VA           Max. operating frequency         3 600 cycles/hour           at 1 00 VA resistive load         3 600 cycles/hour           at 1 00 VA resistive load         360 cycles/hour           Supply voltage U         = measuring voltage; terminals (N)-L1-L2-L3 (galvanically separated)           Drop-out voltage         AC: ≥ 0,2 U,           Operating range of supply voltage         3(N)-342457 V           Rated power consumption         2,0 VA 1,1 SW           Rated power consumption         2,0 VA 1,5 W           Rated power consumption         4,0 VA 1,5 W           Resouring circuit         • terminals           • measuring pratial         4,0 VA 1,5 W           • measuring variable         4,0 VA 1,5 W           • measuring input         5,0 VA 1,5 W           • coverolad capacity         1,0 VA 1,5 VA           • input resistance         4,000 VA C           Overvoltage category         1,0 VA			2 C/O - changeover	
Max. operating frequency • at 100 VA resistive load         3 600 cycles/hour 360 cycles/hour 360 cycles/hour 360 cycles/hour 360 cycles/hour 360 cycles/hour 100 VA resistive load         PN-EN 60947-5-1           Input circuit         = measuring voltage; terminals (N)-L1-L2-L3 (galvanically separated)           Drop-out voltage U         = measuring voltage; terminals (N)-L1-L2-L3 (galvanically separated)           Operating range of supply voltage         3 (N) ~ 342457 V           Rated power consumption         2,0 VA / 1,5 W           Rated frequency         AC: 4863 Hz           Duty cycle         100%           Measuring circuit         • terminals • measuring variable • measuring input • overload capacity • input resistance • asymmetry         4 C sinus, 4863 Hz           • measuring voltage         AC sinus, 4863 Hz           Insulation         Rated surge voltage         4 000 V AC           Overvoltage category         III PN-EN 60664-1           Insulation pollution degree         3 PN-EN 60664-1           General data         • resistive AC1         ≥ 2 x 10°           Mechanical life (cycles)         ≥ 2 x 10°           Dimensions (L x W x H)         90 x 22,5 x 103 mm           Weight         90 x 22,5 x 103 mm           Housing protection category         15 g 11 ms PN-EN 60068-2-27           Housing protection category         90	Rated load AC1		5 A / 250 V AC	
• at 1 00 VA resistive load         3 600 cycles/hour 360 cy	Max. breaking capacity AC1		1 250 VA	
**at 1 000 VA resistive load   360 cycles/hour	Max. operating freque	ncy		
• at 1 000 VA resistive load         360 cycles/hour           Input circuit         = measuring voltage; terminals (N)-L1-L2-L3 (galvanically separated)           Supply voltage U         = measuring voltage; terminals (N)-L1-L2-L3 (galvanically separated)           Operating range of supply voltage         3(N)-342-457 V           Rated power consumption         2.0 VA / 1.5 W           Rated frequency         AC: 4863 Hz           Duty cycle         100%           Measuring circuit         • terminals           • measuring variable         AC sinus, 4863 Hz           • measuring variable         ac suns, 4863 Hz           • measuring variable         ac sinus, 4863 Hz           • measuring variable         ac sinus, 4863 Hz           • poverload capacity         input resistance           • po	at 100 VA resistive load		PIN-FIN 00947-0-1	
Supply voltage U	at 1 000 VA resistive load		360 cycles/hour	
Drop-out voltage	Input circuit			
Operating range of supply voltage         3(N)~342457 V           Rated power consumption         2,0 VA / 1,5 W           Rated frequency         100%           Duty cycle         100%           Measuring circuit         • terminals         (N)-L1-L2-L3           • measuring input         = supply voltage           • overload capacity         3(N)~457/264 V           • input resistance         3(N)~400/230 V· 15 kΩ           • asymmetry         fixed, typical value 30%           Insulation           Rated surge voltage         4 000 V AC           Overvoltage category         III PN-EN 60664-1           Insulation pollution degree         3 PN-EN 60664-1           Secoral data         Electrical life           Electrical life         • resistive AC1         ≥ 2 x 10⁵ 1 000 VA           Mechanical life (cycles)         ≥ 2 x 10⁻           Dimensions (L x W x H)         90 x 22,5 x 103 mm           Weight         100 g           Ambient temperature         • storage, transport         -25+70 °C           • operating         -25+55 °C PN-EN 60068-1 -25+40 °C UL 508           Housing protection category         IP40           Relative humidity         15 g. 11 ms PN-EN 600221-3 class 3K3			= measuring voltage; terminals (N)-L1-L2-L3 (galvanically separated)	
Rated power consumption         2,0 VA / 1,5 W           Rated frequency         Ac: 4863 Hz           Duty cycle         100%           Measuring circuit         * terminals * (N)-L1-L2-L3           * measuring variable * neasuring variable * overload capacity * overload capacity * input resistance * asymmetry         AC sinus, 4863 Hz           * neasuring voltage * overload capacity * input resistance * asymmetry         3(N)-400/230 V: 15 kΩ           * fixed, typical value 30%           Insulation           Rated surge voltage         4 000 V AC           Overvoltage category * IIII PN-EN 60664-1           Insulation pollution degree         3 PN-EN 60664-1           General data           Electrical life * resistive AC1         ≥ 2 x 10° 1000 VA           Mechanical life (cycles)         ≥ 2 x 10°           Dimensions (L x W x H)         90 x 22,5 x 103 mm           Weight         100 g           Ambient temperature * storage, transport * operating         -25+70 °C           * operating         -25+55 °C PN-EN 60068-1 *-25+40 °C UL 508           Housing protection category         IP40           Relative humidity         1585% PN-EN 60068-2-27           Vibration resistance         0,35 mm DA 1055 Hz PN-EN 60068-2-27           Vibration resistance         0,35 mm D			AC: ≥ 0,2 U <sub>n</sub>	
Rated frequency         AC: 4863 Hz           Duty cycle         100%           Measuring circuit         * terminals * measuring variable * measuring input * overload capacity * input resistance * asymmetry         AC sinus, 4863 Hz           Insulation         \$ supply voltage * 3(N)~457/264 V * 3(N)~400/230 V: 15 kΩ * 6 kzd, typical value 30%           Rated surge voltage         4 000 V AC           Overvoltage category         III PN-EN 60664-1           Insulation pollution degree         3 PN-EN 60664-1           General data         Electrical life * resistive AC1         ≥ 2 x 10⁵ 1 000 VA           Mechanical life (cycles)         ≥ 2 x 10°           Dimensions (L x W x H)         90 x 22,5 x 103 mm           Weight         100 g           Ambient temperature * storage, transport * operating * operating * -25+70 °C * -25	Operating range of supply voltage		3(N)~ 342457 V	
Duty cycle         100%           Measuring circuit         • terminals         (N)-1.1-1.2-1.3           • measuring variable         AC sinus, 4863 Hz           • measuring input         = supply voltage           • overload capacity         3(N)~400/230 V: 15 kΩ           • input resistance         3(N)-400/230 V: 15 kΩ           • asymmetry         fixed, typical value 30%           Insulation           Rated surge voltage         4 000 V AC           Overvoltage category         III PN-EN 60664-1           Insulation pollution degree         3 PN-EN 60664-1           General data           Electrical life (cycles)         ≥ 2 x 10⁵ 1 000 VA           Mechanical life (cycles)         ≥ 2 x 10⁻ 1 000 VA           Dimensions (L x W x H)         90 x 22,5 x 103 mm           Weight         100 g           Ambient temperature         • storage, transport         -25+70 °C           • operating         -25+55 °C PN-EN 60068-1 -25+40 °C UL 508           Housing protection category         IP 40           Relative humidity         1585% PN-EN 600721-3-3 class 3K3           Shock resistance         0,35 mm DA 1055 Hz PN-EN 60068-2-27           Vibration resistance         0,35 mm DA 1055 Hz PN-EN 60068-2-6	Rated power consumption		2,0 VA / 1,5 W	
Measuring circuit	Rated frequency			
• measuring variable • measuring input • overload capacity • input resistance • asymmetry • input resistance • asymmetry • fixed, typical value 30%  Insulation  Rated surge voltage • 4 000 V AC  Overvoltage category • Ill PN-EN 60664-1  Insulation pollution degree • 3 PN-EN 60664-1  Electrical life • resistive AC1  Mechanical life (cycles) • 2 x 10 <sup>5</sup> 1000 VA  Mechanical life (cycles) • 2 x 10 <sup>7</sup> Dimensions (L x W x H) • 90 x 22,5 x 103 mm  Weight • storage, transport • operating • operating • 25+55 °C PN-EN 60068-1 -25+40 °C UL 508  Housing protection category  Relative humidity • 1585% PN-EN 60721-3-3 class 3K3  Shock resistance • 0,35 mm DA 1055 Hz PN-EN 60068-2-6  Meassuring circuit data  Functions  monitoring of phase sequence and phase failure detection of reverse voltage •  Time intervals  Recovery time  LED indicator  Green LED ON - indication of supply voltage	Duty cycle		100%	
• measuring input       = supply voltage         • overload capacity       3(N)~ 457/264 V         • input resistance       3(N)~ 400/230 V: 15 kΩ         • asymmetry       fixed, typical value 30%         Insulation         Rated surge voltage       4 000 V AC         Overvoltage category       Ill PN-EN 60664-1         Insulation pollution degree       3 PN-EN 60664-1         General data         Electrical life       • resistive AC1       ≥ 2 x 10⁵ 1 000 VA         Mechanical life (cycles)       ≥ 2 x 10⁻         Dimensions (L x W x H)       90 x 22,5 x 103 mm         Weight       100 g         Ambient temperature       • storage, transport       -25+70 °C         • operating       -25+55 °C PN-EN 60068-1 -25+40 °C UL 508         Housing protection category       IP 40         Relative humidity       1585% PN-EN 60721-3-3 class 3K3         Shock resistance       15 g 11 ms PN-EN 60068-2-27         Vibration resistance       0,35 mm DA 1055 Hz PN-EN 60068-2-27         Vibration resistance       0,35 mm DA 1055 Hz PN-EN 60068-2-6         Meassuring circuit data         Functions       monitoring of phase sequence and phase failure detection of reverse voltage •         Time intervals	Measuring circuit	• terminals		
• overload capacity • input resistance • asymmetry • input resistance • asymmetry • fixed, typical value 30%  Insulation  Rated surge voltage  Overvoltage category III PN-EN 60664-1 Insulation pollution degree  3 PN-EN 60664-1  General data  Electrical life • resistive AC1  Mechanical life (cycles)  Dimensions (L x W x H)  Weight  Ambient temperature • storage, transport • operating  Poperating  Poperating  1585% PN-EN 60068-1 -25+40 °C UL 508  Housing protection category  Vibration resistance  Meassuring circuit data  Functions  Recovery time  LED indicator  100 ms		<ul> <li>measuring variable</li> </ul>	AC sinus, 4863 Hz	
• input resistance         3 (N)-400/230 V: 15 kΩ           • asymmetry         fixed, typical value 30%           Insulation         A 000 V AC           Overvoltage category         III PN-EN 60664-1           Insulation pollution degree         3 PN-EN 60664-1           General data         Electrical life           Electrical life (cycles)         ≥ 2 x 10⁵ 1 000 vA           Mechanical life (cycles)         ≥ 2 x 10⁻           Dimensions (L x W x H)         90 x 22,5 x 103 mm           Weight         100 g           Ambient temperature         • storage, transport         -25+70 °C           • operating         -25+55 °C PN-EN 60068-1 -25+40 °C UL 508           Housing protection category         IP 40           Relative humidity         1585% PN-EN 60721-3-3 class 3K3           Shock resistance         15 g 11 ms PN-EN 60068-2-27           Vibration resistance         0,35 mm DA 1055 Hz PN-EN 60068-2-6           Meassuring circuit data         monitoring of phase sequence and phase failure detection of reverse voltage •           Time intervals         start-up suppression time (stala, max. 0,5 s) tripping delay (stale, max. 0,35 s)           Recovery time         100 ms           LED indicator         green LED ON - indication of supply voltage		<ul> <li>measuring input</li> </ul>	= supply voltage	
Nation   Nation		<ul> <li>overload capacity</li> </ul>	3(N)~ 457/264 V	
Insulation  Rated surge voltage		<ul> <li>input resistance</li> </ul>	3(N)~400/230 V: 15 k $\Omega$	
Rated surge voltage         4 000 V AC           Overvoltage category         IIII PN-EN 60664-1           Insulation pollution degree         3 PN-EN 60664-1           General data         Electrical life         • resistive AC1         ≥ 2 x 10⁵ 1 000 VA           Mechanical life (cycles)         ≥ 2 x 10⁻         1 000 VA           Dimensions (L x W x H)         90 x 22,5 x 103 mm           Weight         100 g           Ambient temperature         • storage, transport         -25+70 °C           • operating         -25+55 °C PN-EN 60068-1 -25+40 °C UL 508           Housing protection category         IP 40           Relative humidity         1585% PN-EN 60721-3-3 class 3K3           Shock resistance         15 g 11 ms PN-EN 60068-2-27           Vibration resistance         0,35 mm DA 1055 Hz PN-EN 60068-2-6           Meassuring circuit data           Functions         monitoring of phase sequence and phase failure detection of reverse voltage •           Time intervals         start-up suppression time (stala, max. 0,5 s)           tripping delay (stale, max. 0,35 s)           Recovery time         100 ms           LED indicator         green LED ON - indication of supply voltage		<ul><li>asymmetry</li></ul>	fixed, typical value 30%	
Overvoltage category         III PN-EN 60664-1           Insulation pollution degree         3 PN-EN 60664-1           General data           Electrical life         • resistive AC1         ≥ 2 x 10⁵ 1 000 vA           Mechanical life (cycles)         ≥ 2 x 10⁻           Dimensions (L x W x H)         90 x 22,5 x 103 mm           Weight         100 g           Ambient temperature         • storage, transport         -25+70 °C           • operating         -25+55 °C PN-EN 60068-1 -25+40 °C UL 508           Housing protection category         IP 40           Relative humidity         1585% PN-EN 600721-3-3 class 3K3           Shock resistance         15 g 11 ms PN-EN 60068-2-27           Vibration resistance         0,35 mm DA 1055 Hz PN-EN 60068-2-27           Vibration resistance         0,35 mm DA 1055 Hz PN-EN 60068-2-6           Meassuring circuit data         monitoring of phase sequence and phase failure detection of reverse voltage	Insulation			
Insulation pollution degree   3   PN-EN 60664-1	Rated surge voltage		4 000 V AC	
General data         Electrical life         • resistive AC1         ≥ 2 x 10⁵ 1 000 VA           Mechanical life (cycles)         ≥ 2 x 10⁻         → 2 x 10⁻           Dimensions (L x W x H)         90 x 22,5 x 103 mm           Weight         100 g           Ambient temperature         • storage, transport         -25+70 °C           • operating         -25+55 °C PN-EN 60068-1 -25+40 °C UL 508           Housing protection category         IP 40           Relative humidity         1585% PN-EN 60721-3-3 class 3K3           Shock resistance         15 g 11 ms PN-EN 60068-2-27           Vibration resistance         0,35 mm DA 1055 Hz PN-EN 60068-2-6           Meassuring circuit data         monitoring of phase sequence and phase failure detection of reverse voltage €           Time intervals         start-up suppression time (stala, max. 0,5 s) tripping delay (stale, max. 0,35 s)           Recovery time         100 ms           LED indicator         green LED ON - indication of supply voltage	Overvoltage category		III PN-EN 60664-1	
Electrical life	Insulation pollution degree		3 PN-EN 60664-1	
Mechanical life (cycles)         ≥ 2 x 107           Dimensions (L x W x H)         90 x 22,5 x 103 mm           Weight         100 g           Ambient temperature         • storage, transport         -25+70 °C           • operating         -25+55 °C PN-EN 60068-1 -25+40 °C UL 508           Housing protection category         IP 40           Relative humidity         1585% PN-EN 60721-3-3 class 3K3           Shock resistance         15 g 11 ms PN-EN 60068-2-27           Vibration resistance         0,35 mm DA 1055 Hz PN-EN 60068-2-6           Meassuring circuit data           Functions         monitoring of phase sequence and phase failure detection of reverse voltage •           Time intervals         start-up suppression time (stała, max. 0,5 s) tripping delay (stałe, max. 0,35 s)           Recovery time         100 ms           LED indicator         green LED ON - indication of supply voltage	General data			
Dimensions (L x W x H)  Weight  Ambient temperature  Storage, transport  Operating  Housing protection category  Relative humidity  Relative humidity  Tis85% PN-EN 60068-1 -25+40 °C UL 508  Tig 11 ms PN-EN 60068-2-27  Vibration resistance  Tig 11 ms PN-EN 60068-2-27  Vibration resistance  Meassuring circuit data  Functions  monitoring of phase sequence and phase failure detection of reverse voltage  Time intervals  start-up suppression time (stala, max. 0,5 s) tripping delay (stale, max. 0,35 s)  Recovery time  LED indicator  green LED ON - indication of supply voltage	Electrical life	resistive AC1	$\geq 2 \times 10^5 + 1000 \text{ VA}$	
Weight       100 g         Ambient temperature       • storage, transport         • operating       -25+55 °C PN-EN 60068-1 -25+40 °C UL 508         Housing protection category       IP 40         Relative humidity       1585% PN-EN 60721-3-3 class 3K3         Shock resistance       15 g 11 ms PN-EN 60068-2-27         Vibration resistance       0,35 mm DA 1055 Hz PN-EN 60068-2-6         Meassuring circuit data       monitoring of phase sequence and phase failure detection of reverse voltage ●         Time intervals       start-up suppression time (stala, max. 0,5 s) tripping delay (stale, max. 0,35 s)         Recovery time       100 ms         LED indicator       green LED ON - indication of supply voltage	Mechanical life (cycles)		$\geq 2 \times 10^{7}$	
Ambient temperature • storage, transport • operating	Dimensions (L x W x H)		90 x 22,5 x 103 mm	
• operating -25+55 °C PN-EN 60068-1 -25+40 °C UL 508  Housing protection category IP 40  Relative humidity 1585% PN-EN 60721-3-3 class 3K3  Shock resistance 15 g 11 ms PN-EN 60068-2-27  Vibration resistance 0,35 mm DA 1055 Hz PN-EN 60068-2-6  Meassuring circuit data  Functions monitoring of phase sequence and phase failure detection of reverse voltage ●  Time intervals start-up suppression time (stala, max. 0,5 s) tripping delay (stale, max. 0,35 s)  Recovery time 100 ms  LED indicator green LED ON - indication of supply voltage	Weight		100 g	
Housing protection category  Relative humidity  1585% PN-EN 60721-3-3 class 3K3  Shock resistance  15 g 11 ms PN-EN 60068-2-27  Vibration resistance  0,35 mm DA 1055 Hz PN-EN 60068-2-6  Meassuring circuit data  Functions  monitoring of phase sequence and phase failure detection of reverse voltage ●  Time intervals  start-up suppression time (stala, max. 0,5 s) tripping delay (stale, max. 0,35 s)  Recovery time  100 ms  LED indicator  green LED ON - indication of supply voltage	Ambient temperature	<ul> <li>storage, transport</li> </ul>		
Relative humidity  1585% PN-EN 60721-3-3 class 3K3  Shock resistance  15 g 11 ms PN-EN 60068-2-27  Vibration resistance  0,35 mm DA 1055 Hz PN-EN 60068-2-6  Meassuring circuit data  Functions  monitoring of phase sequence and phase failure detection of reverse voltage ●  Time intervals  start-up suppression time (stała, max. 0,5 s) tripping delay (stałe, max. 0,35 s)  Recovery time  100 ms  LED indicator  green LED ON - indication of supply voltage		<ul><li>operating</li></ul>	-25+55 °C PN-EN 60068-1 -25+40 °C UL 508	
Shock resistance  15 g 11 ms PN-EN 60068-2-27  Vibration resistance  0,35 mm DA 1055 Hz PN-EN 60068-2-6  Meassuring circuit data  Functions  monitoring of phase sequence and phase failure detection of reverse voltage ●  Time intervals  start-up suppression time (stala, max. 0,5 s) tripping delay (stale, max. 0,35 s)  Recovery time  100 ms  LED indicator  green LED ON - indication of supply voltage				
Vibration resistance       0,35 mm DA 1055 Hz PN-EN 60068-2-6         Meassuring circuit data       Functions       monitoring of phase sequence and phase failure detection of reverse voltage ●         Time intervals       start-up suppression time (stala, max. 0,5 s) tripping delay (stale, max. 0,35 s)         Recovery time       100 ms         LED indicator       green LED ON - indication of supply voltage	*		1585% PN-EN 60721-3-3 class 3K3	
Meassuring circuit data         Functions       monitoring of phase sequence and phase failure detection of reverse voltage ●         Time intervals       start-up suppression time (stala, max. 0,5 s) tripping delay (stale, max. 0,35 s)         Recovery time       100 ms         LED indicator       green LED ON - indication of supply voltage	Shock resistance		15 g 11 ms PN-EN 60068-2-27	
Functions  monitoring of phase sequence and phase failure detection of reverse voltage ●  Time intervals  start-up suppression time (stala, max. 0,5 s) tripping delay (stale, max. 0,35 s)  Recovery time  100 ms  LED indicator  green LED ON - indication of supply voltage	Vibration resistance		0,35 mm DA 1055 Hz PN-EN 60068-2-6	
detection of reverse voltage ●       Time intervals     start-up suppression time (stala, max. 0,5 s)       tripping delay (stale, max. 0,35 s)       Recovery time     100 ms       LED indicator     green LED ON - indication of supply voltage	Meassuring circuit data			
Time intervals  start-up suppression time (stala, max. 0,5 s) tripping delay (stale, max. 0,35 s)  Recovery time  100 ms  LED indicator  green LED ON - indication of supply voltage	Functions		monitoring of phase sequence and phase failure	
tripping delay (state, max. 0,35 s)  Recovery time 100 ms  LED indicator green LED ON - indication of supply voltage			detection of reverse voltage •	
Recovery time 100 ms LED indicator green LED ON - indication of supply voltage	Time intervals		start-up suppression time (stała, max. 0,5 s)	
LED indicator green LED ON - indication of supply voltage			tripping delay (stałe, max. 0,35 s)	
yellow LED ON/OFF - indication of output relay	LED indicator			
			yellow LED ON/OFF - indication of output relay	

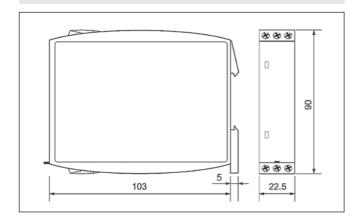
<sup>•</sup> By means of evaluating the asymmetry.



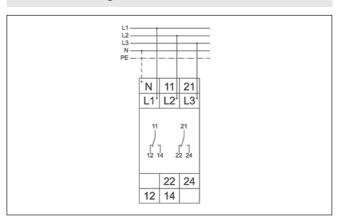
# MR-GU3M2P

## monitoring relays

#### **Dimensions**



## **Connections diagram**

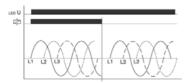


## Mounting, mechanical design

Relays **MR-GU3M2P** are designed for direct mounting on 35 mm DIN rail mount, EN 50022. Mounting position: any. Self-extinguishing plastic housing, IP 40. Shockproof terminal connection according to VBG 4 (PZ1 required), IP 20. Maximum screw torgue: 1,0 Nm. Terminal capacity: 1 x 0,5 do 2,5 mm<sup>2</sup> with/without multicore cable end, 1 x 4 mm<sup>2</sup> without multicore cable end, 2 x 0,5 do 1,5 mm<sup>2</sup> with/without multicore cable end.

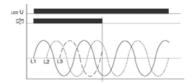
### **Functions**

#### Phase sequence monitoring



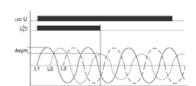
When all the phases are connected in the correct sequence and the measured asymmetry is less than the fixed value, the output relay R switches into on-position (yellow LED illuminated). When the phase sequence changes, the output relay R switches into off-position (yellow LED not illuminated).

#### Phase failure monitoring



The output relay R switches into off-position (yellow LED not illuminated), when one of the three phases fails.

# Detection of reverse voltage (by means of evaluation of asymmetry)



The output relay R switches into off-position (yellow LED not illuminated) when the asymmetry between the phase voltages exceeds the fixed value of the asymmetry in monitoring relay. An asymmetry caused by the reverse voltage of a consumer (e.g. a motor which continues to run on two phases only) does not effect the disconnection.

 $\boldsymbol{\mathsf{U}}$  - supply voltage;  $\boldsymbol{\mathsf{R}}$  - output relay

