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1-phase current monitoring relay

EMR II11Q



EMR II11Q

- ac current monitoring in 1-phase mains
- Measuring range 10 A ac
- Multifunction
- Error Memory (Latch)
- 1 change-over contact

Functions

ac current monitoring in 1-phase mains with adjustable thresholds, tripping delay adjustable and the following functions selectable by means of rotary switch

- Overcurrent monitoring
- Overcurrent monitoring with error memory
- Undercurrent monitoring
- Undercurrent monitoring with error memory
- Monitoring the window between Min and Max
- Monitoring the window between Min and Max with error memory

Time ranges

Tripping delay: Adjustment range 0.1 ... 10 s

Indicators

Green LED ON:	indication of supply voltage
Yellow LED ON/OFF:	indication of relay output
Red LED ON/OFF:	indication of failure of the corresponding threshold
Red LED flashing:	indication of tripping delay of the corresponding threshold

Output relay

1 potential free change-over contact	
Rated voltage:	250 Vac
Switching capacity:	1250 VA (5 A / 250 Vac)
Fusing:	5 A fast acting

Connecting voltages

230 Vac, -15% ... +15% of U_N
100% duration of operation

Reference data

Selectron® EMR	Article no.
EMR II11Q 10 A	41230033
(Order data see chapter 1)	

1-phase current monitoring relay

EMR II11Q

Technical data		
Nominal consumption	5 VA / 0.8 W	
Nominal frequency	48 ... 63 Hz	
Wave form ac	sine	
Drop-out voltage	>20% of the supply voltage	
Base accuracy	±5% (of maximum nominal value)	
Adjustment accuracy ±5%	(of maximum nominal value)	
Repetition accuracy	≤2% (of maximum nominal value)	
Temperature influence	0.05% / °C	
Recovery time	500 ms	
Measuring circuit:	Input:	
	10 A ac	terminals Li and Lk
	Overload capacity:	13 A (from 10 A - distance > 5 mm)
	Input resistance:	3 mΩ
	Inrush current:	
	1s	100 A
	3s	50 A
	Switching threshold:	
	Max:	10% ... 100% of I _N
	Min:	5% ... 95% of I _N

Type key

EMR I I 1 1 Q ...		
Construction D Industrial design 22.5 mm S pluggable 11 poles I Mounting position 22.5/35 mm		Special functions 1 = Additional asymmetry monitoring
Function U Voltage I Current P CosPhi T Temperature S Star-Delta		Measuring circuit A No measuring circuit B 3(N)~115/66 Vac C 3(N)~230/132 Vac D 3(N)~400/230 Vac E 1 ≅ 30/60/300 Vac/dc F 1 ≅ 100mA/1A/10A ac/dc G PTC H CosPhi I 12 Vdc J 24 Vdc K 36 Vdc L 48 Vdc M 1~110 Vac N 1~230 Vac O 1 A P 5 A Q 10 A
Output 1 1 changer 2 2 changers 3 1 NC contact / 1 NO contact		Connecting voltage 1 Measuring circuit 2 24...240 Vac/dc 3 230 Vac

1-phase current monitoring relay

EMR II11Q

Function description

Overcurrent monitoring (OVER, OVER+LATCH)

When the supply voltage U is applied, the output relays R switches into on-position if the measured current is below the MAX-value.

When the measured current exceeds the MAX-value, the output relay R switches into off-position after the interval of the tripping delay (DELAY) has expired.

The output relay R switches into on-position again, if the current falls below the MIN-value (OVER).

The output relay R switches only into on-position again by interrupting and re-applying of the supply voltage, provided that the measured current is below the MAX-value (OVER+LATCH).

Undercurrent monitoring (UNDER, UNDER+LATCH)

When the supply voltage U is applied, the output relay R switches into on-position, if the measured current is beyond the MIN-value.

When the measured current falls below the MIN-value, the output relay R switches into off-position after the interval of the tripping delay (DELAY) has expired.

The output relay R switches into on-position again, if the current exceeds the MAX-value (UNDER).

The output relay R switches only into on-position again by interrupting and re-applying of the supply voltage, provided that the measured current is beyond the MIN-value (UNDER+LATCH).

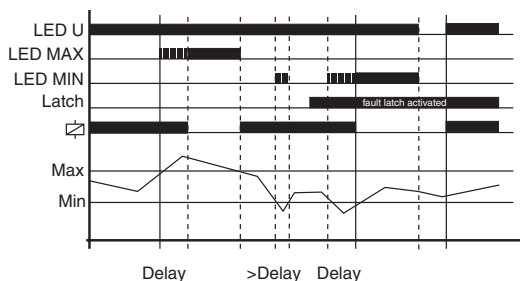
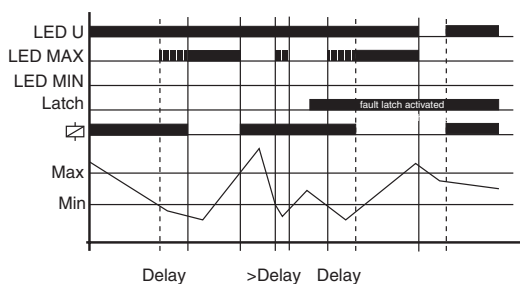
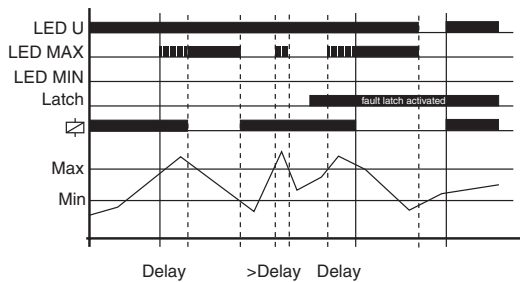
Window function (WIN, WIN+LATCH)

When the supply voltage U is applied, the output relay R switches into on-position, if the measured current is within the adjusted window.

When the measured current leaves the window between MIN and MAX, the output relay R switches into off-position after the interval of the tripping delay (DELAY) has expired.

The output relay R switches into on-position again, if the current re-enter the adjusted window (WIN).

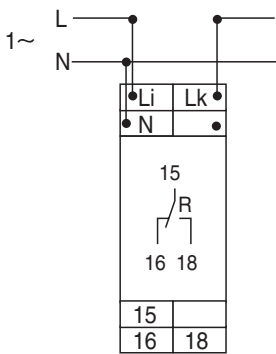
The output relay R switches only into on-position again by interrupting and re-applying of the supply voltage, provided that the measured current is within the threshold values (WIN+LATCH).



1-phase current monitoring relay

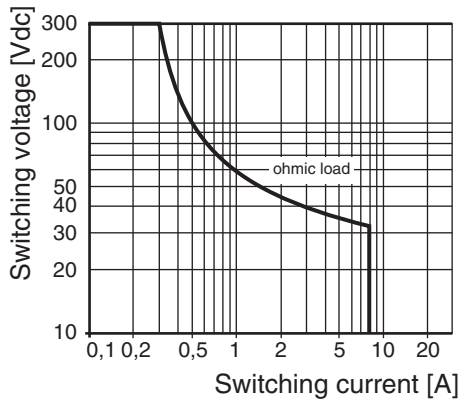
EMR II11Q

Connection

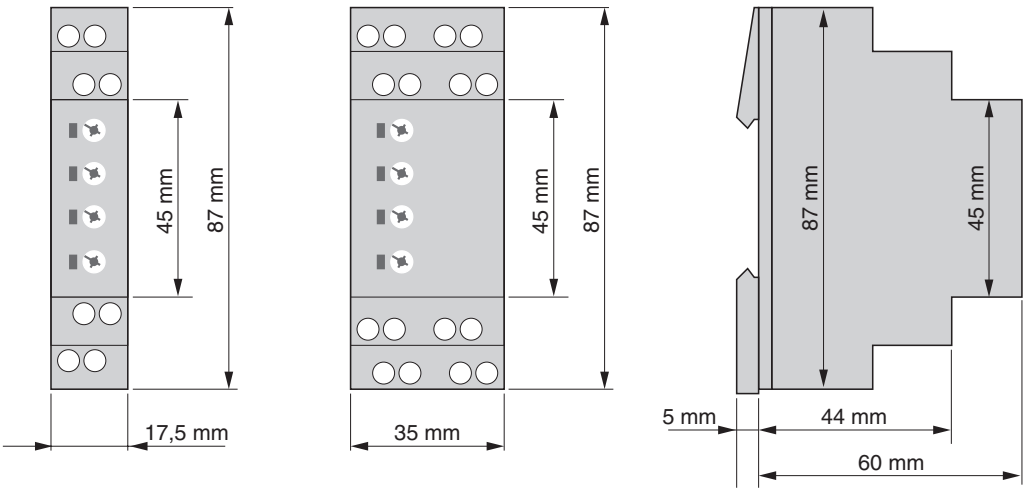


Load limit curves

EMR II11Q



Dimensions



1-phase ac/dc voltage monitoring relay

EMR IU11N



IU11N

- **ad/dc voltage monitoring in 1-phase mains**
- **Measuring range 24Vac/dc, 230 Vac**
- **Multifunction**
- **1 change-over contact**

Functions

ac/dc voltage monitoring in 1-phase mains with adjustable thresholds and the following functions which are selectable by means of rotary switch

- Undervoltage monitoring
- Monitoring the window between Min and Max

Indicators

Green LED ON:	indication of supply voltage
Yellow LED ON/OFF:	indication of relay output
Red LED ON/OFF:	indication of failure of the corresponding threshold

Output relay

1 potential free change-over contact	
Rated voltage:	250 Vac
Switching capacity:	1250 VA (5 A / 250 Vac)
Fusing:	5A fast acting

Connecting voltages

24 Vdc, 24 Vac, 230 Vac (= Measuring voltage)
-25% ... +20% of U_N
100% duration of operation

Reference data

Selectron® EMR	Article no.
IU11N	41230034
(Order data see chapter 1)	

1-phase ac/dc current monitoring relay

EMR IU11N

Technical data		
Nominal consumption	24 Vdc	0.6 W
	24 Vac	1.3 VA / 0.8 W
	230 Vac	10 VA / 0.6 W
Nominal frequency ac	48 ... 63 Hz	
Ripple at dc	10%	
Drop-out voltage	according to switching threshold	
Base accuracy	±5% (of maximum nominal value)	
Adjustment accuracy	±5% (of maximum nominal value)	
Repetition accuracy	≤2% (of maximum nominal value)	
Temperature influence	0.05% / °C	
Recovery time	500 ms	
Measuring circuit:	Input:	
	24 Vdc	E and F1 (+)
	24 Vac	E and F2 (distance > 5 mm)
	230 Vac	E and F3
	Overload capacity:	120% of U _N
	Input resistance:	according to nominal voltage 0.8 W
	Switching threshold:	
	Max:	80% ... 120% of U _N
	Min:	75% ... 115% of U _N

Type key

EMR I U 1 1 N ...		
Construction D Industrial design 22.5 mm S pluggable 11 poles I Mounting position 22.5/35 mm		Special functions 1 = Additional asymmetry monitoring
Function U Voltage I Current P CosPhi T Temperature S Star-Delta		Measuring circuit A No measuring circuit B 3(N)~115/66 Vac C 3(N)~230/132 Vac D 3(N)~400/230 Vac E 1 ≅ 30/60/300 Vac/dc F 1 ≅ 100mA/1A/10A ac/dc G PTC H CosPhi I 12 Vdc J 24 Vdc K 36 Vdc L 48 Vdc M 1~110 Vac N 1~230 Vac O 1 A P 5 A Q 10 A
Output 1 1 changer 2 2 changers 3 1 NC contact / 1 NO contact		Connecting voltage 1 Measuring circuit 2 24...240 Vac/dc 3 230 Vac

1-phase ac/dc voltage monitoring relay

EMR IU11N

Function description

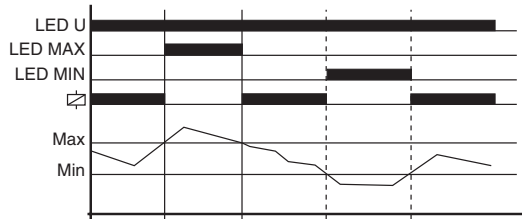
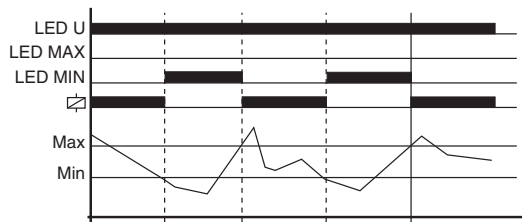
Under voltage monitoring (UNDER)

When the supply voltage U is applied, the output relay R switches into on-position, if the measured voltage is beyond the MIN-value.

When the measured voltage falls below the MIN-value, the output relay R switches into off-position. The output relay R switches into on-position again, if the voltage exceeds the MAX-value.

Window function (WIN)

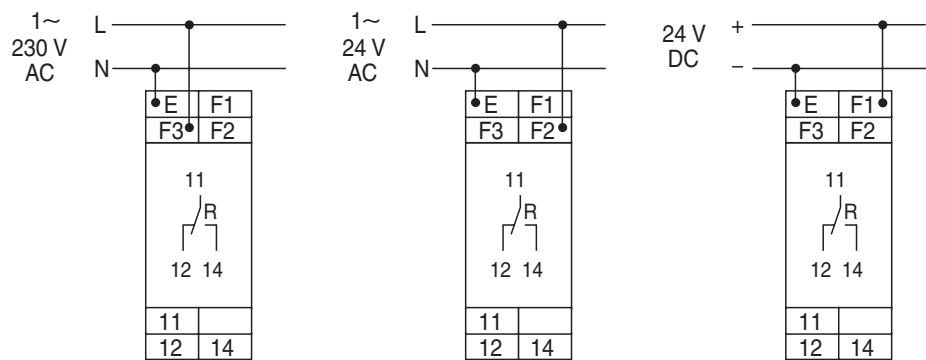
When the supply voltage U is applied, the output relay R switches into on-position, if the measured voltage is within the adjusted window. When the measured voltage left the window between MIN and MAX, the output relay R switches into off-position. The output relay R switches into on-position again, if the voltage re-enter the adjusted window.



1-phase ac/dc voltage monitoring relay

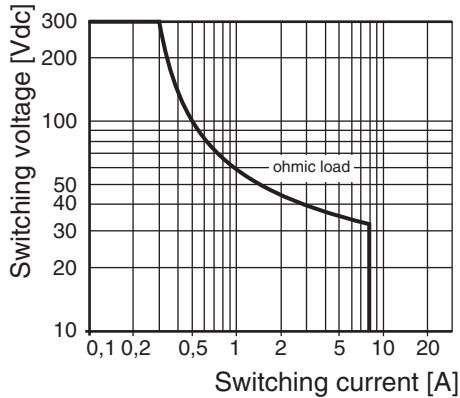
EMR IU11N

Connection

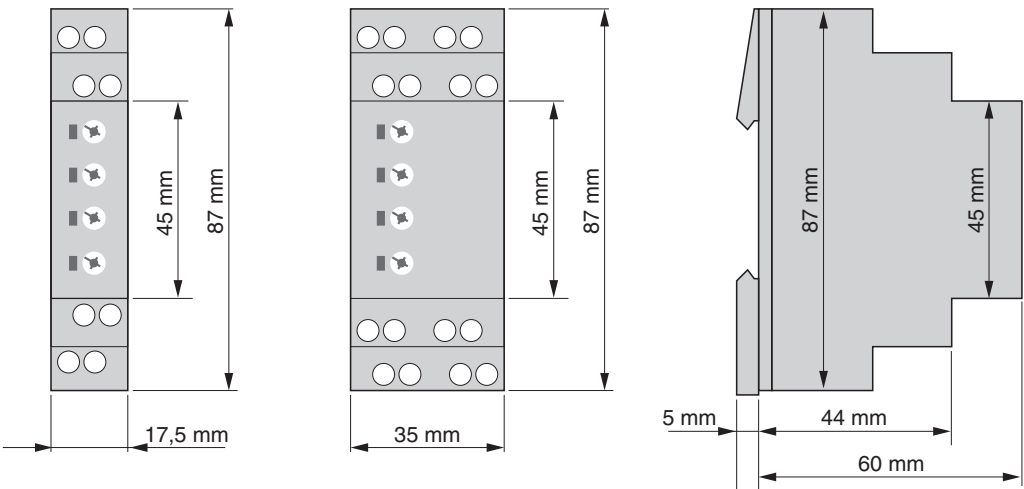


Load limit curves

EMR IU11N



Dimensions



3-phase voltage monitoring relay

EMR IU11D1, IU21D1



EMR IU11D1

- Voltage monitoring in 3-phase mains
- Measuring range 400/230 Vac 3Ph
- Monitoring of phase sequence and phase failure
- Monitoring of asymmetry
- Connection of neutral wire optional
- 1 or 2 change-over contacts

Functions

Monitoring of phase sequence, phase failure and monitoring of asymmetry with adjustable asymmetry.

Indicators

Green LED ON: indication of supply voltage
Yellow LED ON/OFF: indication of relay output

Output relay

1 or 2 potential free change-over contact(s)
Rated voltage: 250 Vac
Switching capacity: 1250 VA (5 A / 250 Vac)
Fusing: 5A fast acting



EMR IU21D1

Connecting voltages

3(N) ~400/230 V, Terminals (N)-L1-L2-L3 (= supply voltage)
-30% ... +30% of U_N
100% duration of operation

Reference data

Selectron® EMR	Article no.
IU11D1	41230030
IU21D1	41230031
(Order data see chapter 1)	

3-phase voltage monitoring relay

EMR IU11D1, IU21D1

Technical data		
Nominal consumption	EMR IU11D1	3(N) ~400/230 V, 8 VA / 0.8 W
	EMR IU21D1	3(N) ~400/230 V, 11 VA / 1.2 W
Nominal frequency		48 ... 63 Hz
Drop-out voltage		>20% of the supply voltage
Base accuracy		±5%
Adjustment accuracy		≤5%
Repetition accuracy		±2%
Temperature influence		≤0.05% / °C
Recovery time		fixed, approx. 100 ms
Recovery time		500 ms
Measuring circuit:	Input:	
	3(N) ~400/230 V	terminals (N)-L1-L2-L3 (= supply voltage)
	Overload capacity:	
	3(N) ~400/230 V	-30% ... +30%
	Input resistance:	
	3(N) ~400/230 V	according to nominal voltage 8 VA / 0.8 W for EMR IU11D1
		according to nominal voltage 11 VA / 1.2 W for EMR IU21D1
	Asymmetry:	5% ... 25%

Type key

EMR I U 1 1 D 1		
Construction		Special functions
D Industrial design 22.5 mm		1 = Additional asymmetry monitoring
S pluggable 11 poles		
I Mounting position 22.5/35 mm		
Function		Measuring circuit
U Voltage		A No measuring circuit
I Current		B 3(N)~115/66 Vac
P CosPhi		C 3(N)~230/132 Vac
T Temperature		D 3(N)~400/230 Vac
S Star-Delta		E 1 ≙ 30/60/300 Vac/dc
		F 1 ≙ 100mA/1A/10A ac/dc
		G PTC
		H CosPhi
		I 12 Vdc
		J 24 Vdc
		K 36 Vdc
		L 48 Vdc
		M 1~110 Vac
		N 1~230 Vac
		O 1 A
		P 5 A
		Q 10 A
Output		Connecting voltage
1 1 changer		1 Measuring circuit
2 2 changers		2 24...240 Vac/dc
3 1 NC contact / 1 NO contact		3 230 Vac

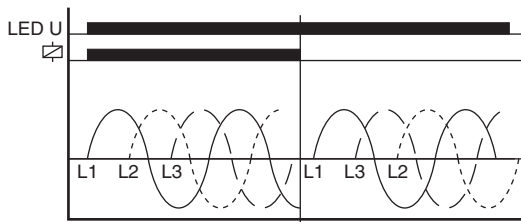
3-phase voltage monitoring relay

EMR IU11D1, IU21D1

Function description

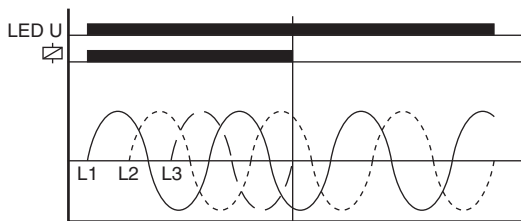
Phase sequence monitoring

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).



Phase failure monitoring

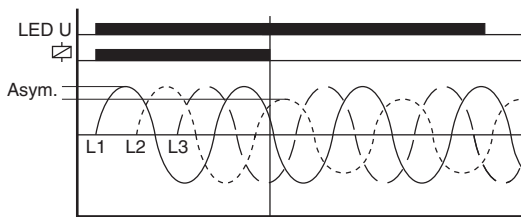
The output relay switches into off-position (yellow LED not illuminated), when one of the three phases fails.



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.

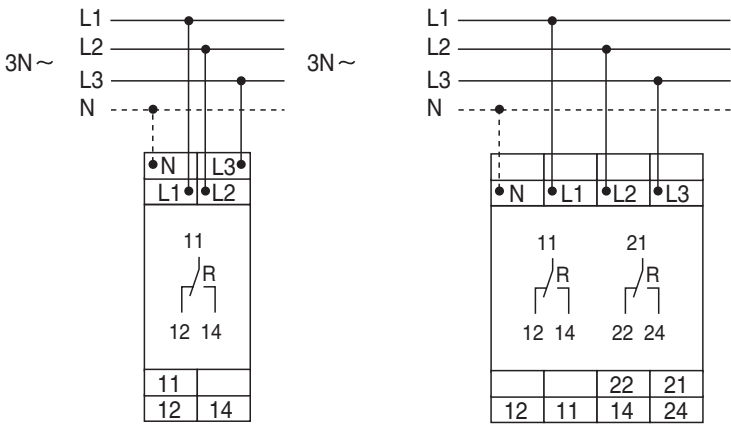
Reverse voltages of a consumer (e.g. a motor which continues to run on two phases only) do not effect the disconnection.



3-phase voltage monitoring relay

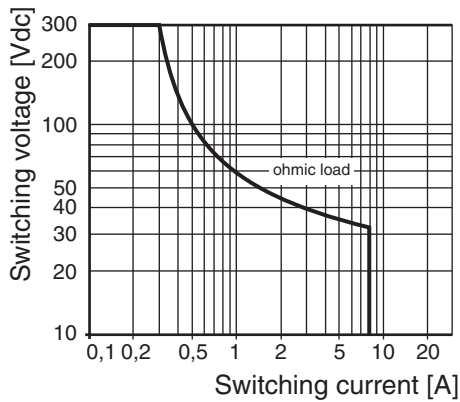
EMR IU11D1, IU21D1

Connection

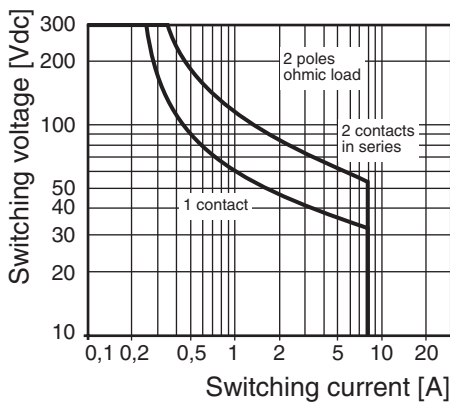


Load limit curves

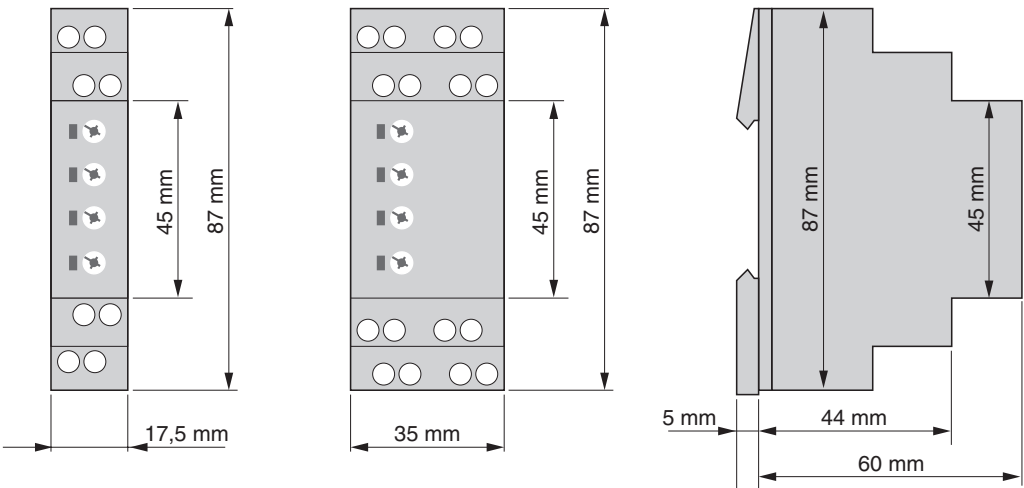
EMR IU11D1



EMR IU21D1



Dimensions



1-phase or 3-phase voltage monitoring relay (Multifunction)

EMR IU11D



EMR IU11D

- Voltage monitoring in 3-phase mains
- Measuring range 400/230 Vac 3Ph / 230 V 1Ph
- Multifunction
- Monitoring of phase sequence and phase failure
- Connection of neutral wire optional
- 1 change-over contact

Functions

Voltage monitoring in 1-phase and 3-phase mains with adjustable thresholds, adjustable tripping delay, monitoring of phase sequence and phase failure and the following functions which are selectable by means of rotary switch.

- Undervoltage monitoring
- Undervoltage monitoring and monitoring of phase sequence
- Monitoring of window between Min and Max
- Monitoring the window between Min and Max and monitoring of phase sequence.

Time ranges

Start-up suppression time:

-

Tripping delay:

Adjustment range 0.1 ... 10 s

Indicators

Red LED ON/OFF:

indication of failure of the corresponding threshold

Red LED flashes:

indication of tripping delay of the corresponding threshold

Yellow LED ON/OFF:

indication of relay output

Output relay

1 potential free change-over contact

Rated voltage: 250 Vac

Switching capacity: 1250 VA (5 A / 250 Vac)

Fusing: 5A fast acting

Connecting voltages

1(N) ~ 230 V, terminals (N)-L1-L2-L3 (= Measuring voltage)

3(N) ~ 400/230 V, terminals (N)-L1-L2-L3 (= Measuring voltage)

-30% ... +30% of U_N

100% duration of operation

Reference data

Selectron® EMR

Article no.

IU11D

41230032

(Order data see chapter 1)

1-phase or 3-phase voltage monitoring relay
(Multifunction)

EMR IU11D

Technical data		
Nominal consumption	3(N) ~400/230 V, 8 VA / 1 W	
Nominal frequency	48 ... 63 Hz	
Drop-out voltage	>20% of the supply voltage	
Base accuracy	±5% (of scale limit)	
Adjustment accuracy ±5%	(of scale limit)	
Repetition accuracy	≤2%	
Temperature influence	≤1% / °C	
Recovery time	500 ms	
Measuring circuit:	Input:	
	3(N) ~230/400 V	Terminals (N)-L1-L2-L3
	Overload capacity:	
	3(N) ~230/400 V	-30% ... +30%
	Input resistance:	
	3(N) ~230/400 V	according to nominal voltage 8 VA / 1 W
	Switching threshold:	
	Max:	80% ... 130% of U_N
	Min:	70% ... 120% of U_N

Type key

EMR I U 1 1 D ...		
Construction		Special functions
D Industrial design 22.5 mm		1 = Additional asymmetry monitoring
S pluggable 11 poles		
I Mounting position 22.5/35 mm		
Function		Measuring circuit
U Voltage		A No measuring circuit
I Current		B 3(N)~115/66 Vac
P CosPhi		C 3(N)~230/132 Vac
T Temperature		D 3(N)~400/230 Vac
S Star-Delta		E 1≅ 30/60/300 Vac/dc
		F 1≅ 100mA/1A/10A ac/dc
		G PTC
		H CosPhi
		I 12 Vdc
		J 24 Vdc
		K 36 Vdc
		L 48 Vdc
		M 1~110 Vac
		N 1~230 Vac
		O 1 A
		P 5 A
		Q 10 A
Output		Connecting voltage
1 1 changer		1 Measuring circuit
2 2 changers		2 24...240 Vac/dc
3 1 NC contact / 1 NO contact		3 230 Vac

1-phase or 3-phase voltage monitoring relay (Multifunction)

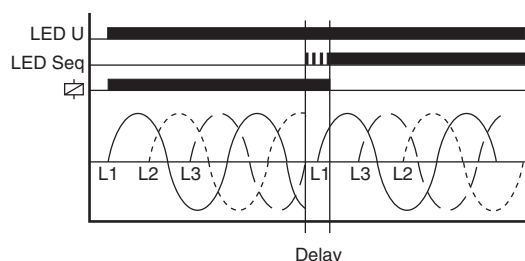
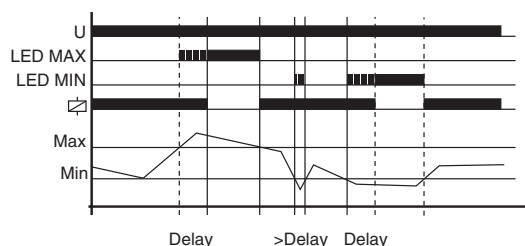
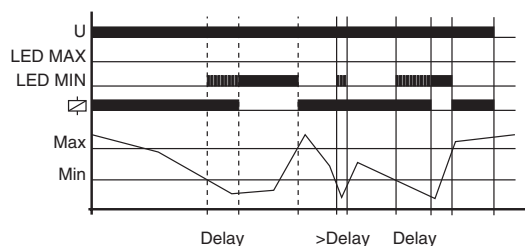
EMR IU11D

Function description

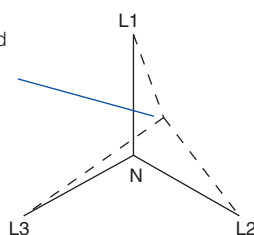
For all the functions the LEDs MIN and MAX are flashing alternating (the relay is fallen off), when the minimum value for the measured voltage was chosen to be greater than the maximum value.

If a failure already exists when the device is activated, the output relay remain in off-position and the LED for the corresponding threshold is illuminated.

The device includes separately every phase voltage (L-N) and monitors it according to the selected function (UNDER or WINDOW).



Shift of neutral point caused by asymmetrical phase load and missing neutral wire



Undervoltage monitoring (UNDER, UNDER+SEQ)

When the measured voltage (one of the phase voltages) falls below the value adjusted at the MIN-regulator, the set interval of the tripping delay (DELAY) begins (red LED MIN flashes). After the interval has expired (red LED MIN illuminated), the output relay R switches into off-position (yellow LED not illuminated). The output relay R switches into on-position (yellow LED illuminated), when the measured voltage (all phase voltages) exceeds the value adjusted at the MAX-regulator.

Window function (WIN, WIN+SEQ)

The output relay R switches into on-position (yellow LED illuminated) when the measured voltage (all phase voltages) exceeds the value adjusted at the MIN-regulator. When the measured voltage (one of the phase voltages) exceeds the value adjusted at the MAX-regulator, the set interval of the tripping delay (DELAY) begins (red LED MAX flashes). After the interval has expired (red LED MAX illuminated) the output relay R switches into off-position (yellow LED not illuminated). The output relay R switches into on-position again (yellow LED illuminated) when the measured voltage falls below the value adjusted at the MAX-regulator (red LED MAX not illuminated). When the measured voltage (one of the phase voltage) falls below the value adjusted at the MIN-regulator, the set interval of the tripping delay (DELAY) begins again (red LED MIN flashes). After the interval has expired (red LED MIN illuminated), the output relay R switches into off-position (yellow LED not illuminated).

Phase sequence monitoring (SEQ)

Phase sequence monitoring is selectable for all functions.

In single phase circuit, the phase sequence monitoring must be disconnected.

If a change in phase sequence is detected (red LED SEQ illuminated), the output relay R switches into off-position after the set interval of tripping delay (DELAY) has expired (yellow LED not illuminated).

Neutral wire break

The device monitors every phase (L1, L2 and L3) against the neutral wire N.

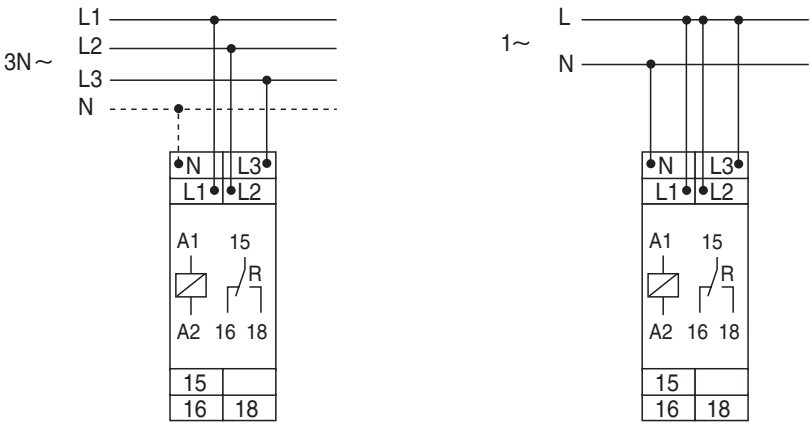
A shift of neutral point occurs by an asymmetrical phase load if the neutral wire breaks in the power line.

If one of the phase voltages exceeds the value adjusted at the trip point, the set interval of tripping delay (DELAY) begins (red LED MIN or MAX flashes). After the interval has expired (red LED MIN or MAX illuminated), the output relay switches into off-position (yellow LED not illuminated).

1-phase or 3-phase voltage monitoring relay (Multifunction)

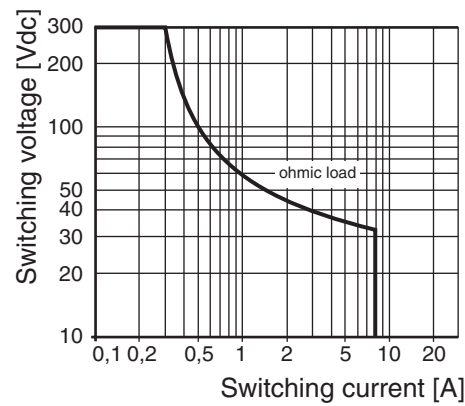
EMR IU11D

Connection

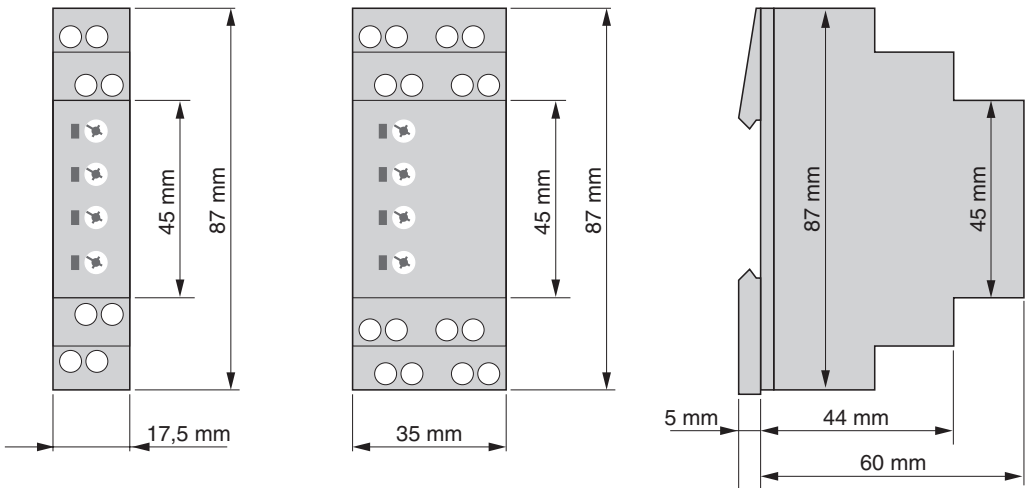


Load limit curves

EMR IU11D



Dimensions



Temperature monitoring relay

EMR IT13G



EMR IT13G

- Temperature monitoring of the motor winding
- 1 changer
- External reset key connectable

Functiones

Temperature monitoring of the motor winding (max. 6 PTC) with fault latch, for temperature probes in accordance with DIN 44081. Short circuit monitoring of the thermistor line (selectable by means of terminals). Test function with integrated test/reset key.

Indicators

Green LED ON: indication of supply voltage
Red LED ON/OFF: indication of failure

Output relay

1 potential free change-over contact
Rated voltage: 250 Vac
Switching capacity: 1250 VA (5 A / 250 Vac)
Fusing: 5A fast acting

Connecting voltages

230 Vac, Terminals A1-A2
-15% ... +10%
100% duration of operation

Reference data

Selectron® EMR		Article no.
IT13G	230 Vac	41230035
(Order data see chapter 1)		

Temperature monitoring relay

EMR IT13G

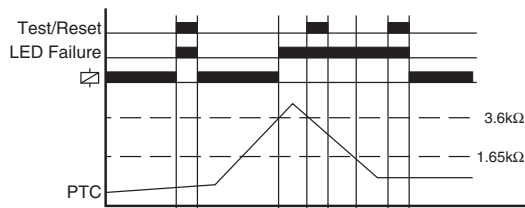
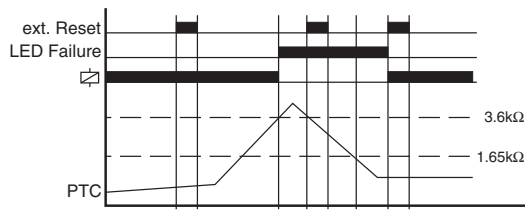
Techncal data	
Nominal consumption	1.3 VA / 1 W
Nominal frequency	48 ... 63 Hz
Drop-out voltage	>30% of the supply voltage
Base accuracy	±5% (of maximum scale value)
Repetition accuracy	≤1%
Temperature influence	≤0.15% / °C
Measuring circuit:	Terminals T1-T2 or T1-T3
Initial resistance	<1.5 kΩ
Response 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	≤7.5 Vdc at R ≤4.0 kΩ
	(according to EN 60947-8)
Line length R1-R2	max. 10 m (twisted pair)
Control pulse length	min. 50 ms

Type key

EMR I T 1 3 G ...	
<div>Construction</div> <div>D Industrial design 22.5 mm</div> <div>S pluggable 11 poles</div> <div>I Mounting position 22.5/35 mm</div> <div>Function</div> <div>U Voltage</div> <div>I Current</div> <div>P CosPhi</div> <div>T Temperature</div> <div>S Star-Delta</div> <div>Output</div> <div>1 1 changer</div> <div>2 2 changers</div> <div>3 1 NC contact / 1 NO contact</div>	<div>Special functions</div> <div>1 = Additional asymmetry monitoring</div> <div>Measuring circuit</div> <div>A No measuring circuit</div> <div>B 3(N)~115/66 Vac</div> <div>C 3(N)~230/132 Vac</div> <div>D 3(N)~400/230 Vac</div> <div>E 1 ≅ 30/60/300 Vac/dc</div> <div>F 1 ≅ 100mA/1A/10A ac/dc</div> <div>G PTC</div> <div>H CosPhi</div> <div>I 12 Vdc</div> <div>J 24 Vdc</div> <div>K 36 Vdc</div> <div>L 48 Vdc</div> <div>M 1~110 Vac</div> <div>N 1~230 Vac</div> <div>O 1 A</div> <div>P 5 A</div> <div>Q 10 A</div> <div>Connecting voltage</div> <div>1 Measuring circuit</div> <div>2 24...240 Vac/dc</div> <div>3 230 Vac</div>

Temperature monitoring relay

EMR IT13G



Function description

Temperature monitoring of the motor winding with fault latch

If the supply voltage is applied (green LED illuminated) and the cumulative resistance of the PTC-circuit is less than 3.6k Ω (standard temperature of the motor), the output relay R 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.

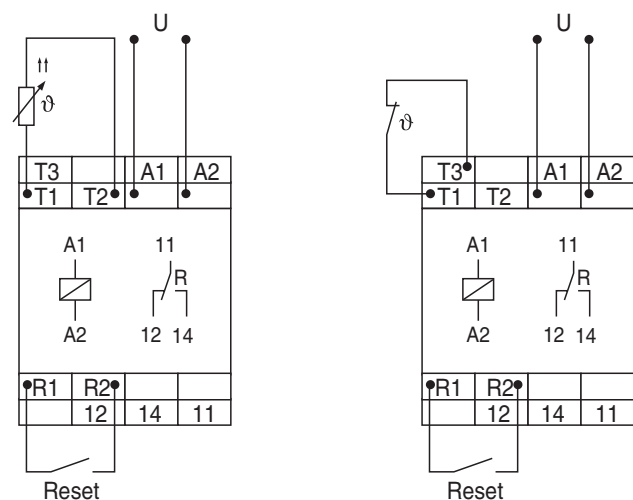
When the cumulative resistance of the PTC-circuit exceeds 3.6k Ω (at least one of the PTCs has reached the cut-off temperature), the output relay switches into off-position (red LED illuminated).

The output relay R switches into on-position again (red LED not illuminated), if the cumulative resistance drops below 1.65k Ω by cooling down of the PTC and either a reset key (internal or external) was pressed or the supply voltage was disconnected and reapplied.

Temperature monitoring relay

EMR IT13G

Connection

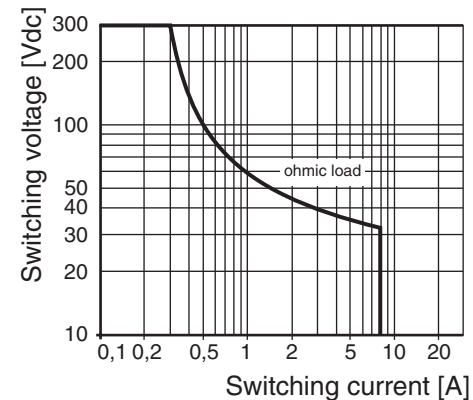


Monitoring Temperature sensor
with short circuit monitoring

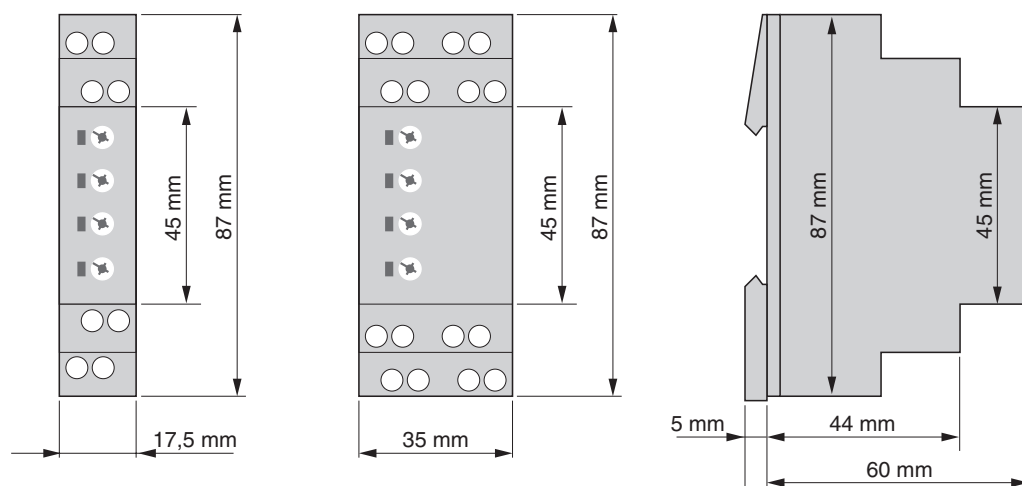
Monitoring Thermal contact
without short circuit monitoring

Load limit curves

EMR IT13G



Dimensions



Technical safety advice

This manual contains the information necessary for the correct utilisation of the products described therein. It is intended for technically qualified persons who are involved as either

- planning engineers familiar with the safety concepts of automation technology;
- or, operating personnel, who have been instructed in handling automation equipment and have a knowledge of the contents of this manual concerning operation;
- or, installation and servicing personnel possessing the necessary training to repair such an automation system or who have the authority to put such circuits and equipment/systems into operation, to earth or label them according to the relevant safety standards.

The products are constructed, manufactured and tested in compliance with the relevant VDE standards, VDE specifications and IEC recommendations.

Danger warning

These warnings serve both as a guide for those persons involved in a project and as safety advice to prevent damage to the products themselves or to associated equipment.

Due to advancements in technology, the wiring diagram on the actual device may be different than shown in this catalogue. In all instances where the actual device diagram is different, the wiring diagram on the device must be used when electrical connections are made.

Correct utilisation, configuration and assembly

The equipment is to be used only for the applications stated in the catalogue and technical literature, and only in conjunction with auxiliary equipment and devices that are recommended or approved by Selectron Systems Ltd.

Further, it should be noted that:

- the automation equipment must be disconnected from any power supply before it is assembled, disassembled or the configuration modified.
- Solid state electronic switches must not be tested with incandescent lamps or connected to a load that exceeds its rating.
- trouble-free and safe operation of the

products requires correct transportation as well as appropriate storage, assembly and wiring.

- the systems may only be installed by trained personnel. In doing so, the relevant requirements contained in VDE 0100, VDE 0113, IEC 364, etc. must be complied with.

Prevention of material damage or personal injury

Additional external safety devices or facilities must be provided wherever significant material damage or even personal injury could result from a fault occurring in an automation system. A defined operating status must be ensured or forced by such devices or facilities (e.g. by independent limit switches, mechanical interlocks, etc.).

Advice concerning planning and installation of the products

- The safety and accident prevention measures applicable to a specific application are to be observed.
- In the case of mains-operated equipment, a check is to be made before putting it into operation to ensure that the preset mains voltage range is suitable for the local supply.
- In the case of a 24 V supply, care must be taken to ensure sufficient electrical insulation of the secondary side. Use only mains power supply units that conform to IEC 364-4-41 or HD 384.04.41 (VDE 0100 Part 410).
- Automation systems and their operating elements are to be installed in such a way that they are sufficiently protected against accidental operation.

Warranty

Selectron Systems Ltd. warrants its products to be free from defects in material and workmanship for a period of one year from the date of shipment. All claims under this warranty must be made within thirty (30) days of the discovery of the defect, and all defective products must be returned at the buyer's expense. Buyer's sole and exclusive right will be limited to, at the option of Selectron Systems Ltd., the repair or replacement by Selectron Systems Ltd., of any defective products for which a claim is made.

In all other matters please refer to the "General terms of business" concerning Selectron Systems Ltd.

Note

The information given in this documentation corresponds to the state of development at the time of going to press and is therefore not binding. Selectron Systems Ltd. reserves the right to make alterations in the interests of technical advancement or product improvement at any time without giving reasons for doing so.

Prescriptions and standards

Mechanical data	
Housings in self-extinguishing plastic material. Protection mode IP 40	
Fixing on profile rail TS 35 according to EN 60715	
Connection mark according to IEC 60067-1-18a	
Environmental conditions	
Admissible environmental temperatures from -25 °C ... +55 °C (according to IEC 60068-1)	
Storage and transport temperature from -25 °C ... +70 °C	
Relative humidity 15% to 85% (according to IEC 60721-3-3 class 3K3)	
Pollution degree 2, if built-in 3 (according to IEC 60664-1)	
Vibration resistance 10 to 55 Hz 0,35 mm (according to IEC 60068-2-6)	
Shock resistance 15 g 11 ms (according to IEC 60068-2-27)	
Output relay	
Electrical lifetime:	2 x 10 ⁵ switching cycles at 1000 VA ohmic load
Mechanical lifetime:	20 x 10 ⁶ switching cycles
Contact material	AgNi 0,15
Supply voltage	
Frequency range	48 ... 63 Hz
Duty cycle	100%, according to IEC class 1c
Protection	
Protection of the unit	5 A fast
Terminals	
Contact protection according VDE 0106 and VBG 4	
Terminal arrangement and connecting mark according DIN 46 199	
Terminal type:	Terminal connection according to VBG 4 (PZ1 required) IP 20
Terminal variants:	1 wire 0,5 mm ² ... 2,5 mm ² with/without wire end covers
	1 wire 4 mm ² without wire end covers
	2 wires 0,5 mm ² ... 1,5 mm ² with/without wire end covers
	2 wires 2,5 mm ² flexible without wire end covers
max. screw in torque:	1,0 Nm
Insulation	
Overvoltage category	III (according to IEC 60664-1)
Rating surge voltage:	4 kV
Electromagnetic compatibility	
Electrostatic discharge:	6 kV contact, 8 kV air (according to IEC 61000-4-2)
High frequency electromagnetic fields: Level 3, 10 V/m (according to IEC 61000-4-3)	
Fast transients:	4 kV / 5 kHz, 5/50 ns (according to IEC 61000-4-4)
Lightning discharge:	2 kV com., 1 kV dif., (according to IEC 61000-4-5)
Cable running disturbances induced by HF fields: Level 3, 10 V RMS (according to IEC 71000-4-6)	
Spurious radiation net and aerial network: Class B (according to EN 55011)	
Prescriptions	
Air and leakage paces:	EN 61812-1 (see Insulation)
Test voltage:	EN 61812-1 (see Insulation)
Low voltage directions according to EN 61812-1 (see Insulation)	
EMC emissions:	IEC 61000-6-4
EMC interference stability:	IEC 61000-6-2
Burst:	4 kV / 5 kHz, 5/50 ns (according to IEC 61000-4-4)
ESD:	6 kV contact, 8 kV air (according to IEC 61000-4-2)
Production standard:	according to ISO 9001
Basic standards:	IEC 61000-6-4, IEC 61000-4-2