1-phase current monitoring relay

EMR SI23O, SI23P

EMR SI23O

EMR SI23P

- **ac current monitoring in 1-phase mains**
- **Measuring range 1A / 5A ac**
- **Multifunction**
- **Error Memory (Latch)**
- **2 change-over contacts**

Functions

ac current monitoring in 1-phase mains with adjustable thresholds, timing for start-up suppression and tripping delay separately 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

Start-up suppression time:	Adjustment range 0 ... 10 s
Tripping delay:	Adjustment range 0.1 ... 10 s

Indicators

Green LED ON:	indication of supply voltage
Green LED flashing:	indication of start-up suppression time
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

2 potential free change-over contacts

Rated voltage:	250 Vac
Switching capacity:	1250 VA (5 A / 250 Vac)
Fusing:	5A fast acting

Connecting voltages

230 Vac, -15% ... +10% (galvanically separated)

100% duration of operation

Reference data

Selectron® EMR		Article no.
EMR SI23O	1A	41230015
EMR SI23 P	5A	41230016
(Order data see chapter 1)		

1-phase current monitoring relay

EMR SI23O, SI23P

Technical data		
Nominal voltage		8 VA / 1 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%
Temperature influence		≤0.1% / °C
Frequency response		-
Recovery time		500 ms
Measuring circuit:	Input:	
	1 A / 5 A ac	terminals 6 (21) and 7 (24)
	Overload capacity:	
	1 A ac	10 A
	5 A ac	10 A
	Input resistance:	
	1 A ac	< 10 mΩ
	5 A ac	< 10 mΩ
	Switching threshold:	
	Max:	10% ... 100% of I_N
	Min:	5% ... 95% of I_N

Type key

EMR S I 2 3 O ...

Construction

D Industrial design 22.5 mm
S pluggable 11 poles

Function

U Voltage
I Current
P CosPhi
T Temperature
S Star-Delta

Output

1 1 changer
2 2 changers
3 1 NC contact / 1 NO contact

Special functions

1 = Additional asymmetry monitoring

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

Connecting voltage

1 Measuring circuit
2 24...240 Vac/dc
3 230 Vac

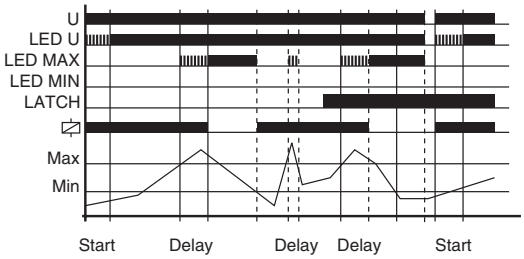
1-phase current monitoring relay

EMR SI23O, SI23P

Function description

When the supply voltage U is applied, the output relays switch into on-position (yellow LED illuminated) and the set interval of the start-up suppression (START) begins (green LED U flashes). Changes of the measured current during this period do not affect the state of the output relay. After the interval has expired the green LED is illuminated steadily.

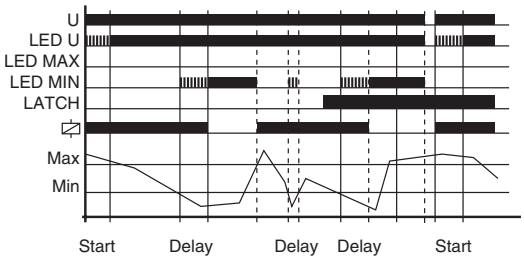
For all the functions the LEDs MIN and MAX are flashing alternating, when the minimum value for the measured current was chosen to be greater than the maximum value.



Overcurrent monitoring (OVER, OVER+LATCH)

When the measured current 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 relays switch into off-position (yellow LED not illuminated). The output relays again switch into on-position (yellow LED illuminated), when the measured current falls below the value adjusted at the MIN-regulator (red LED MAX not illuminated).

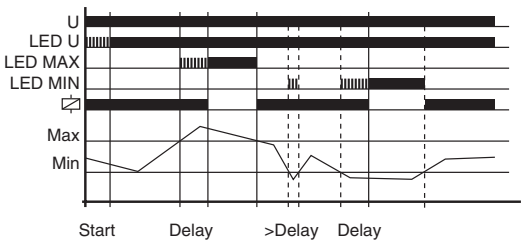
If the error memory is activated (OVER+LATCH) and the measured current remains above the MAX-value longer than the set interval of the tripping delay, the output relays remain in the off-position even if the measured current falls below the value adjusted at the MIN-regulator. After resetting the failure (interrupting and re-applying the supply voltage), the output relays switch into on-position and a new measuring cycle begins with the set interval of the start-up suppression (START).



Undercurrent monitoring (UNDER, UNDER+LATCH)

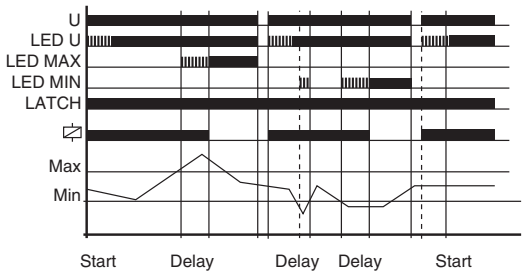
When the measured current falls below the value adjusted at the MIN-regulator, the set interval of the tripping delay (DELAY) begins (red LED MIN flashes). After the interval has expired (red LED MIN illuminated), the output relays switch into off-position (yellow LED not illuminated). The output relays again switch into on-position (yellow LED illuminated), when the measured current exceeds the value adjusted at the MAX-regulator.

If the error memory is activated (UNDER+LATCH) and the measured current remains below the MIN-value longer than the set interval of the tripping delay, the output relays remain in the off-position even if the measured current exceeds the value adjusted at the MAX-regulator. After resetting the failure (interrupting and re-applying the supply voltage), the output relays switch into on-position and a new measuring cycle begins with the set interval of the start-up suppression (START).



Window function (WIN, WIN+LATCH)

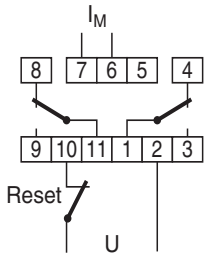
The output relays switch into on-position (yellow LED illuminated) when the measured current exceeds the value adjusted at the MIN-regulator. When the measured current exceeds the value adjusted at the MAX-regulator, the set interval of the tripping delay (DELAY) begins (red LED MAX flashes). After the interval has expired (red LED MAX illuminated), the output relays switch into off-position (yellow LED not illuminated). The output relays again switch into on-position (yellow LED illuminated) when the measured current falls below the value adjusted at the MAX-regulator (red LED MAX not



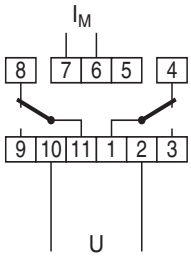
illuminated). When the measured current falls below the value adjusted at the MIN-regulator, the set interval of the tripping delay (DELAY) begins again (red LED MIN flashes). After the interval has expired (red LED MIN illuminated), the output relays switch into off-position (yellow LED not illuminated).

If the error memory is activated (WIN+LATCH) and the measured current remains below the MIN-value longer than the set interval of the tripping delay, the output relays remain in the off-position even if the measured current exceeds the value adjusted at the MIN-regulator. If the measured current remains above the MAX-value longer than the set interval of the tripping delay, the output relays remain in the off-position even if the measured current falls below the value adjusted at the MAX-regulator. After resetting the failure (interrupting and re-applying the supply voltage), the output relays switch into on-position and a new measuring cycle begins with the set interval of the start-up suppression (START).

Connection

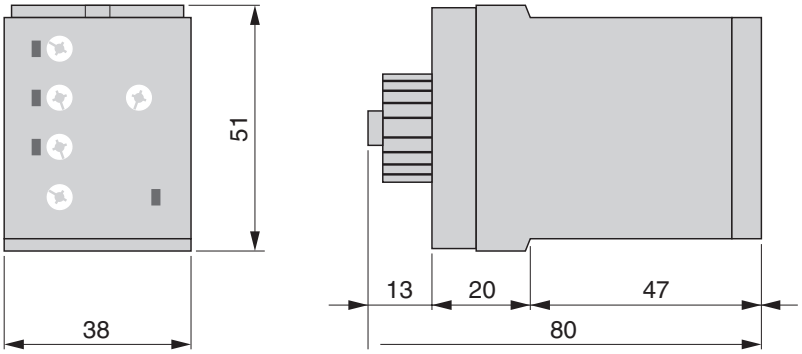


With error memory
Measuring range 11 A or 5 A
U = supply voltage 230 Vac



Without error memory
Measuring range 1 A or 5 A
U = supply voltage 230 Vac

Dimensions



1-phase direct-current voltage monitoring relay

EMR SU21I, SU21J, SU21K, SU21L

EMR SU21I

EMR SU21J

EMR SU21K

EMR SU21L

- **dc voltage monitoring in 1-phase mains**
- **Measuring range 12/24/36/48 Vdc**
- **Multifunction**
- **2 change-over contacts**

Functions

dc voltage monitoring in 1-phase mains with adjustable thresholds, and the following functions (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

2 potential free change-over contacts

Rated voltage:	250 Vac
Switching capacity:	1250 VA (5 A / 250 Vac)
Fusing:	5A fast acting

Connecting voltages

12/24/36/48 Vdc (= Measuring voltage)

100% duration of operation

Reference data

Selectron® EMR		Article no.
SU21I	12 Vdc	41230009
SU21J	24 Vdc	41230010
SU21K	36 Vdc	41230011
SU21L	48 Vdc	41230012
(Order data see chapter 1)		

1-phase direct-current voltage monitoring relay

EMR SU21I, SU21J, SU21K, SU21L

Technical data		
Nominal voltage		2 W
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		<0.1% / °C
Recovery time		500 ms
Measuring circuit:	Measured variable	dc or ac sine (16.6 ... 400 Hz)
	Input:	
	12/24/36/48 Vdc	terminals 2 (A1) and 10 (A2)
	Overload capacity:	
	12/24/36/48 Vdc	-25% ... +30%
	Input resistance:	
	12/24/36/48 Vdc	according to nominal voltage 2 W
	Switching threshold:	
	Max:	80% ... 130% von U_N
	Min:	75% ... 125% von U_N

Type key

EMR S U 2 1 I ...

Construction

D Industrial design 22.5 mm
S pluggable 11 poles

Function

U Voltage
I Current
P CosPhi
T Temperature
S Star-Delta

Output

1 1 changer
2 2 changers
3 1 NC contact / 1 NO contact

Special functions

1 = Additional asymmetry monitoring

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

Connecting voltage

1 Measuring circuit
2 24...240 Vac/dc
3 230 Vac

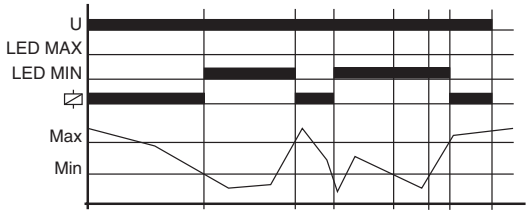
1-phase direct-current voltage monitoring relay

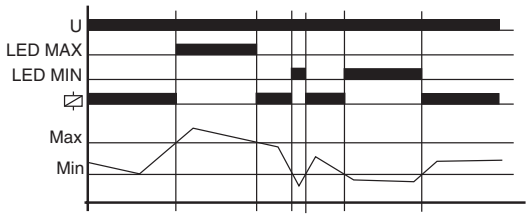
EMR SU21I, SU21J, SU21K, SU21L

Function description

For all the functions the LEDs MIN and MAX are flashing alternating, 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 relays remain in off-position and the LED for the corresponding threshold is illuminated.





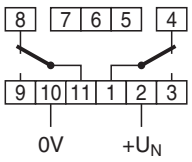
Under voltage monitoring (UNDER)

When the measured voltage falls below the value adjusted at the MIN-regulator, the output relays switch into off-position (yellow LED not illuminated). The output relays again switch into on-position (yellow LED illuminated), when the measured voltage exceeds the value adjusted at the MAX-regulator.

Window function (WIN)

The output relays switch into on-position (yellow LED illuminated) when the measured voltage exceeds the value adjusted at the MIN-regulator. When the measured voltage exceeds the value adjusted at the MAX-regulator, the output relays switch into off-position (yellow LED not illuminated). The output relays again switch into on-position (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 falls below the value adjusted at the MIN-regulator, the output relays switch into off-position (yellow LED not illuminated).

Connection



Measuring range 12, 24, 36 or 48 Vdc
Supply voltage = measuring range

Dimensions