# AC current monitoring in 1-phase mains

**E1IM10AACL10**

Monitoring relays - ENYA series

Multifunction

1 change over contact

Width 17.5 mm

Installation design



## Technical data

**1. Functions**
AC current monitoring in 1-phase mains with adjustable thresholds, adjustable hysteresis, adjustable tripping delay and the following functions which are selected by means of rotary switch:

| | |
|---|---|
| OVER | Overcurrent monitoring |
| UNDER | Undercurrent monitoring |
| WIN | Monitoring the window between Min and Max |
| OVER+Latch | Overcurrent monitoring with fault latch |
| UNDER+Latch | Undercurrent monitoring with fault latch |
| WIN+Latch | Monitoring the window between Min and Max with fault latch |

**2. Time ranges**

| | Adjustment range |
|---|---|
| Start-up suppression time (Start): | - |
| Tripping delay (Delay): | 0,1 to 10s |

**3. Indicators**

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

**4. Mechanical design**
Self extinguishing plastic housing, IP rating IP40
Mounted on DIN rail TS 35 according to EN 60715
Mounting position: any
Shockproof terminal connection according to VBG 4 (PZ1 required), IP rating IP20
Tightening torque: max. 1Nm
Terminal capacity:
- 1 x 0.5 to 2.5mm² with/without multicore cable end
- 1 x 4mm² without multicore cable end
- 2 x 0.5 to 1.5mm² with/without multicore cable end
- 2 x 2.5mm² flexible without multicore cable end

**5. Input circuit**

| | |
|---|---|
| Supply voltage: | 230V AC |
| Terminals: | Li-N |
| Tolerance: | -15% to +15% of $U_N$ |
| Rated consumption: | 5VA (0.8W) |
| Rated frequency: | AC 48 to 63Hz |
| Duration of operation: | 100% |
| Reset time: | 500ms |
| Wave form: | Sinus |
| Hold-up time: | - |
| Drop-out voltage: | >20% of rated voltage |
| Overvoltage category: | III (in accordance with IEC 60664-1) |
| Rated surge voltage: | 4kV |

**6. Output circuit**
1 potential free change over contact

| | |
|---|---|
| Rated voltage: | 250V AC |
| Switching capacity: | 1250VA (5A / 250V AC) |
| Fusing: | 5A fast acting |
| Mechanical life: | 20 x $10^6$ operations |
| Electrical life: | 2 x $10^5$ operations at 1000VA resistive load |
| Switching frequency: | max. 6/min at 1000VA resistive load (in accordance with IEC 60947-5-1) |
| Overvoltage category: | III (in accordance with IEC 60664-1) |
| Rated surge voltage: | 4kV |

**7. Measuring circuit**

| | |
|---|---|
| Measuring variable: | AC sinus, 48 to 63Hz |
| Measuring input: | 10A AC |
| Terminals: | Li, Lk |
| Overload capacity: | 13A (ex 10A - distance > 5mm) |
| Starting current: | |
| 1s | 100A |
| 3s | 50A |
| Input resistance: | 3mW |
| Switching threshold $U_S$: | see table ordering information or printing on the unit |
| Hysteresis H: | see table ordering information or printing on the unit |
| Overvoltage category: | III (in accordance with IEC 60664-1) |
| Rated surge voltage: | 4kV |

**8. Accuracy**

| | |
|---|---|
| Base accuracy: | ≤5% of nominal value |
| Adjustment accuracy: | ±5% of nominal value |
| Repetition accuracy: | ≤2% of nominal value |
| Voltage influence: | - |
| Temperature influence: | ≤0.05% / °C |

**9. Ambient conditions**

| | |
|---|---|
| Ambient temperature: | -25 to +55°C (in accordance with IEC 60068-1) |
| Storage temperature: | -25 to +70°C |
| Transport temperature: | -25 to +70°C |
| Relative humidity: | 15% to 85% (in accordance with IEC 60721-3-3 class 3K3) |
| Pollution degree: | 2 (in accordance with IEC 60664-1) |

**10. Weight**

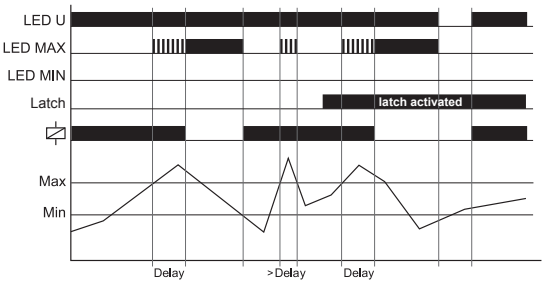
| | |
|---|---|
| Single packing: | 72g |
| Package of 10pcs: | 655g per package |

# Functions

**Overcurrent monitoring (OVER, OVER+Latch)**
When the supply voltage U is applied, the output relay 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.

**OVER:**
The output relay R switches into on-position again, if the current falls below the Min-value.

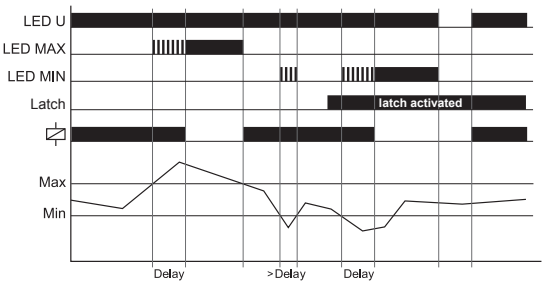
**OVER+Latch:**
The output relay R switches only into on-position again by interrupting and re-applying of the supply voltage, provided that the measured current is below the Max-value.




**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.

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

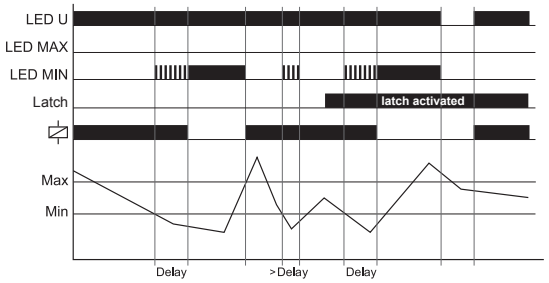
**WIN+Latch:**
The output relay R switches only into on-position again by interrupting and re-applying of the supply voltage, provided that the measured current is within the threshold values.



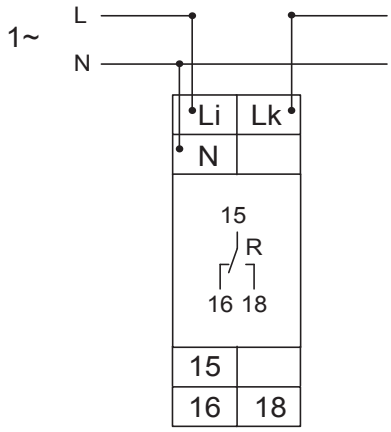

**Untercurrent monitoring (UNDER, UNDER+Latch)**
When the supply voltage U is applied, the output relay R switches into on-position, if the measured current is beyond the Min-value.
When the measured current falls below the Min-value, the output relay R switches into off-position after the interval of the tripping delay (Delay) has expired.

**UNDER:**
The output relay R switches into on-position again, if the current exceeds the Max-value.

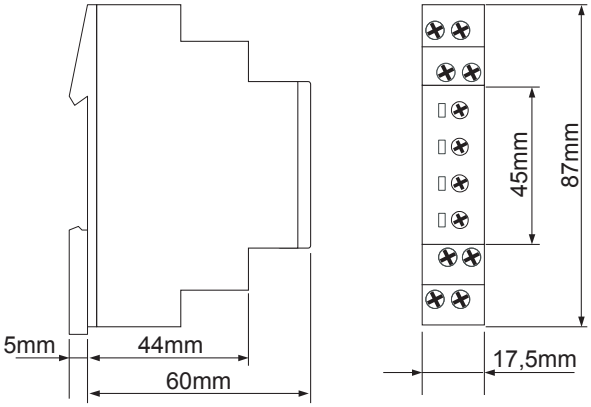
**UNDER+Latch:**
The output relay R switches only into on-position again by interrupting and re-applying of the supply voltage, provided that the measured current is beyond the Min-value.



## Connections




## Dimensions




## Ordering information

| Type | Rated voltage $U_N$ | Functions | Switching thresholds $I_S$ | Tripping delay (Delay) | Hysteresis | Art. No. |
|---|---|---|---|---|---|---|
| E1IM10AACL10 230V AC | 230V AC | O, U, W,<br>O+L, U+L, W+L | Max: 10% to 100% of $I_N$<br>Min: 5% to 95% of $I_N$ | 0.1 of 10s | adjustable | 1340200 |