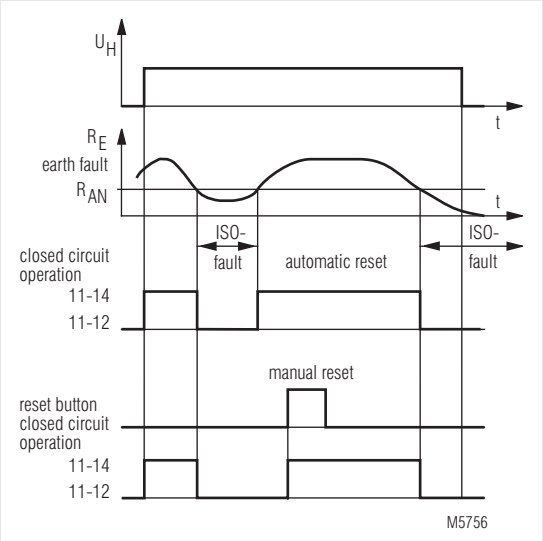
# VARIMETER
# Insulation Monitor
# AI 897

0225077

- According to IEC/EN 61 557-8
- For single- and 3-phase AC-voltage systems
- Adjustable response value $R_{AN}$ from 10 ... 80 kΩ
- Without auxiliary supply
- Closed circuit operation
- Programmable for:
  - manual reset (bridge LT1-LT2)
  - automatic reset (without bridge)
- External reset button on LT1-LT2
- Test button to check the function of the device
- External test button can be connected to PT1-PT2
- 1 changeover contact
- Width 45 mm

## Function Diagram




## Approvals and Markings

CE

## Applications

Monitoring of the resistance to earth in ungrounded single- and 3-phase-voltage systems.

## Notes

When monitoring 3-phase IT systems it is sufficient to connect the insulation monitor only to one phase. The 3-phases have a low resistive connection (approx. 3 - 5 Ω) via the feeding transformer. So failures that occure in the non-connected phases will also be detected.
In one voltage system only one Insulation monitor must be connected. This has to be observed when coupling voltage system.

## Technical Data

### Measuring Circuit

| | |
|---|---|
| **Nominal voltage $U_N$:** | AC 24, 42, 110, 127, 230, 400, 415, 500 V |
| **Voltage range:** | 0.8 ... 1.1 $U_N$ |
| **Frequency range:** | 45 ... 400 Hz |
| **Response value $R_{AN}$:** | 10 ... 80 kΩ |
| **Setting $R_{AN}$:** | infinite variable with screwdriver |
| **Internal test resistor:** | equivalent to earth resistance of < 10 kΩ |
| **Internal AC resistance:** | > 200 kΩ |
| **Internal DC resistance:** | > 200 kΩ |
| **Measuring voltage:** | DC 18 V |
| **Max. measuring current (RE = 0):** | < 0.1 mA |
| **Max. permissible noise DC voltage:** | DC 242 V |
| **Operate delay** | |
| at $R_{AN}$ = 50 kΩ, CE = 1 µF | |
| $R_E$ from ∞ to 0.9 $R_{AN}$: | < 4.2 s |
| $R_E$ from ∞ to 0 kΩ: | approx. 2 s |
| **Hysteresis** | |
| at $R_{AN}$ = 50 kΩ: | approx. 50 % |
| **Measuring error** | |
| at $R_{AN}$ = 50 kΩ: | < 15 %<br>ambient temperature -5 ... 50°C, within the permitted voltage range |
| **Nominal consumption:** | approx. 2.5 VA |
| **Phase failure bridging:** | > 25 ms |

## Technical Data

**Output**

| | | |
|---|---|---|
| **Contacts:** | 1 changeover contact | |
| **Max. switching voltage:** | AC 400 V | |
| **Thermal current $I_{th}$:** | 5 A | |
| **Switching capacity** | | |
| to AC 15: | 5 A / AC 230 V | IEC/EN 60 947-5-1 |
| **Short circuit strength** | | |
| **max. fuse rating:** | 5 A gL | IEC/EN 60 947-5-1 |

**General Data**

| | | |
|---|---|---|
| **Operating mode:** | Continuous operation | |
| **Permissible ambient and** | | |
| **stocking temperature:** | - 20 ... + 60°C / - 25 ... + 70°C | |
| **Clearance and creepage** | | |
| **distances** | | |
| rated impulse voltage / | | |
| pollution degree: | 4 kV / 2 | IEC 60 664-1 |
| **EMC** | | |
| Electrostatic discharge: | 8 kV (air) | IEC/EN 61 000-4-2 |
| Fast transients: | 2 kV | IEC/EN 61 000-4-4 |
| Surge voltages | | |
| between | | |
| wires for power supply: | 2 kV | IEC/EN 61 000-4-5 |
| between wire and ground: | 4 kV | IEC/EN 61 000-4-5 |
| Interference suppression: | Limit value class B | EN 55 011 |
| **Degree of protection** | | |
| Housing: | IP 40 | IEC/EN 60 529 |
| Terminals: | IP 20 | IEC/EN 60 529 |
| **Housing:** | Thermoplastic with V0 behaviour according to UL subject 94 | |
| **Vibration resistance:** | Amplitude 0.35 mm frequency 10...55Hz | IEC/EN 60 068-2-6 |
| **Climate resistance:** | 20 / 060 / 04 | IEC/EN 60 068-1 |
| **Terminal designation:** | EN 50 005 | |
| **Wire connection:** | 2 x 2.5 mm² solid or 2 x 1.5 mm² stranded wire DIN 46 228-1/-2/-3/-4 | |
| **Wire fixing:** | Flat terminals with self-lifting clamping piece | IEC/EN 60 999-1 |
| **Mounting:** | DIN rail | IEC/EN 60 715 |
| **Weight:** | 220 g | |

**Dimensions**

| | |
|---|---|
| **Width x height x depth:** | 45 x 77 x 115 mm |

## Standard Type

| | | |
|---|---|---|
| AI 897 AC 230 V | | |
| Article number: | 0001037 | stock item |
| • Nominal voltage $U_N$ : | AC 230 V | |
| • Settable response value $R_{AN}$: | 10 ... 80 kΩ | |
| • Width: | 45 mm | |

## Variant

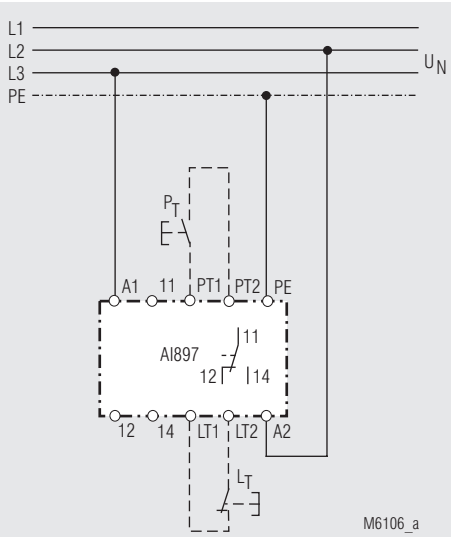
| | |
|---|---|
| AI 897.07: | fixed response value between 10 and 80 kΩ, with internal test and reset button, LED indicator for earth fault |

**Ordering example for variant**

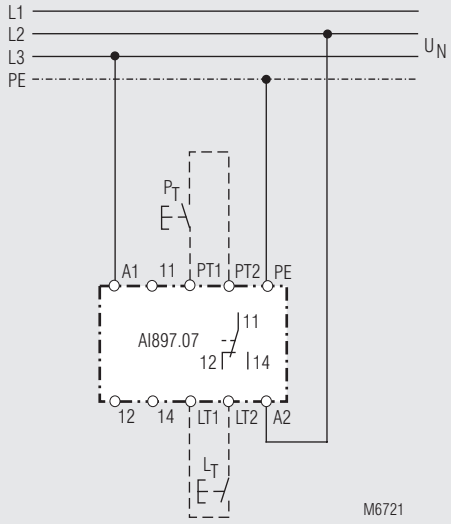
AI 897 .07 AC 500 V 50 kΩ

- 50 kΩ — Response value
- AC 500 V — Nominal voltage
- .07 — Variant, if required
- AI 897 — Type

## Connection Example




Connection Example AI 897
A1/A2: $U_N = U_H$
Bridge LT1/LT2: manual reset
without Bridge LT1/LT2: automatic reset




Connection Example AI 897.07
A1/A2: $U_N = U_H$
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