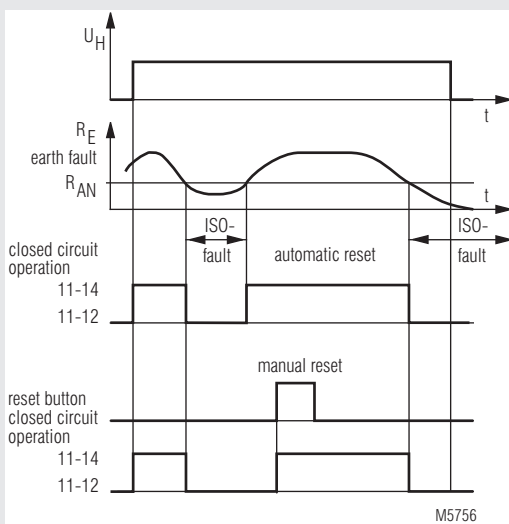




- According to IEC/EN 61557-8
- For single- and 3-phase AC-voltage systems
- Adjustable response value  $R_{AN}$  from 10 ... 80 k $\Omega$
- Without auxiliary supply
- Closed circuit operation
- Programmable for:
  - Manual reset (bridge LT1-LT2)
  - Automatic reset (without bridge)
- External reset 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



### Applications

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

### Notes

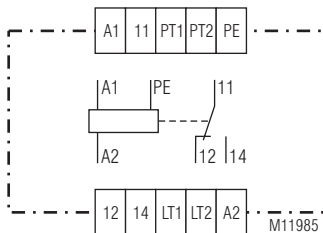
When monitoring 3-phase IT systems it is sufficient to connect the insulation monitor only to one phase. The 3-phases have a low resistive connection (approx. 3 - 5  $\Omega$ ) via the feeding transformer. So failures that occur in the non-connected phases will also be detected. In one voltage system 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 k $\Omega$
- Setting  $R_{AN}$ :** Infinite variable with screwdriver
- Internal test resistor:** Equivalent to earth resistance of < 10 k $\Omega$
- Internal AC resistance:** > 200 k $\Omega$
- Internal DC resistance:** > 200 k $\Omega$
- Measuring voltage:** DC 18 V
- Max. measuring current (RE = 0):** < 0.1 mA
- Max. permissible noise DC voltage:** DC 242 V
- Operate delay**  
At  $R_{AN} = 50$  k $\Omega$ , CE = 1  $\mu$ F  
 $R_E$  from  $\infty$  to 0.9  $R_{AN}$ : < 4.2 s  
 $R_E$  from  $\infty$  to 0 k $\Omega$ : Approx. 2 s
- Hysteresis**  
At  $R_{AN} = 50$  k $\Omega$ : Approx. 50 %
- Response inaccuracy**  
At  $R_{AN} = 50$  k $\Omega$ :  $\pm 15$  %
- Nominal consumption:** IEC 61557-8  
ambient temperature - 5 ... 50  $^{\circ}$ C,  
within the permitted voltage range  
Approx. 2.5 VA
- Phase failure bridging:** > 25 ms

### Circuit Diagram



### Connection Terminals

Terminal designation	Signal description
A1, A2	AC auxiliary voltage and connection measuring circuit
PE	Connection for protective conductor
PT1, PT2	Connection for protective conductor
LT1, LT2	Connections for external reset or manual and auto reset: LT1/LT2 bridged: Manual reset LT1/LT2 not bridged: Hysteresis function
11, 12, 14	Alarm signal relay (1 changeover contact)

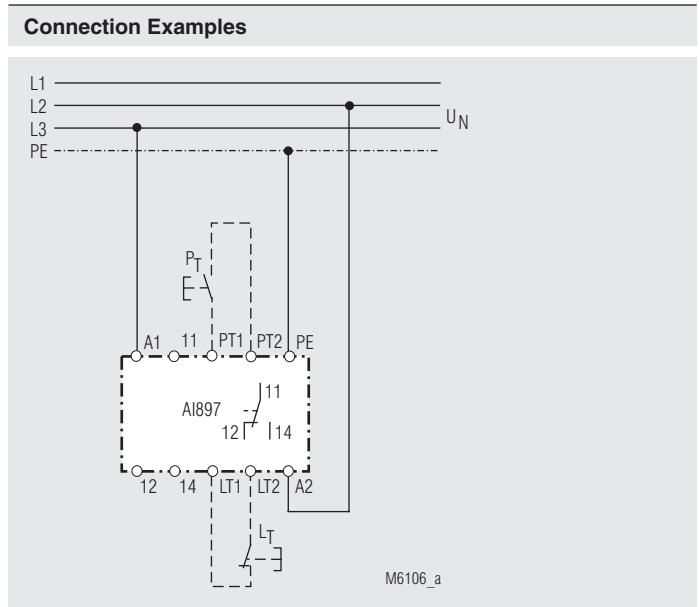
Technical Data		
<b>Output</b>		
<b>Contacts:</b>	1 changeover contact	
<b>Max. switching voltage:</b>	AC 400 V	
<b>Thermal current <math>I_{th}</math>:</b>	6 A	
<b>Switching capacity</b>		
To AC 15		
NO contact:	10 A / AC 230 V	IEC/EN 60947-5-1
NC contact:	5 A / AC 230 V	IEC/EN 60947-5-1
To DC 13:	1 A / DC 24 V	IEC/EN 60947-5-1
<b>Electrical life</b>		
At 10 A, AC 250 V:	≥ 3 x 10 <sup>5</sup> switch. cycl. IEC/EN 60947-5-1	
<b>Short circuit strength</b>		
<b>Max. fuse rating:</b>	5 A gG / gL IEC/EN 60947-5-1	
<b>Mechanical life:</b>	≥ 30 x 10 <sup>6</sup> switching cycles	

General Data		
<b>Operating mode:</b>	Continuous operation	
<b>Temperature range</b>		
Operation:	- 20 ... + 60 °C	
Storage:	- 25 ... + 70 °C	
<b>Altitude:</b>	< 2000 m	
<b>Clearance and creepage distances</b>		
Rated impulse voltage / pollution degree:	4 kV / 2	IEC 60664-1
Insulation test voltage		
Routine test:	AC 2.5 kV; 1 s	
<b>EMC</b>		
Electrostatic discharge:	8 kV (air)	IEC/EN 61000-4-2
HF irradiation		
80 MHz ... 1 GHz:	10 V / m	IEC/EN 61000-4-3
1 GHz ... 2.5 GHz:	10 V / m	IEC/EN 61000-4-3
2.5 GHz ... 2.7 GHz:	10 V / m	IEC/EN 61000-4-3
Fast transients:	2 kV	IEC/EN 61000-4-4
<b>Surge voltages</b>		
Between		
Wires for power supply:	2 kV	IEC/EN 61000-4-5
Between wire and ground:	4 kV	IEC/EN 61000-4-5
HF wire guided:	10 V	IEC/EN 61000-4-6
Interference suppression:	Limit value class B	EN 55011
<b>Degree of protection</b>		
Housing:	IP 40	IEC/EN 60529
Terminals:	IP 20	IEC/EN 60529
<b>Housing:</b>	Thermoplastic with V0 behaviour according to UL subject 94	
<b>Vibration resistance:</b>	Amplitude 0.35 mm frequency 10...55Hz IEC/EN 60068-2-6	
<b>Climate resistance:</b>	20 / 060 / 04 IEC/EN 60068-1	
<b>Terminal designation:</b>	EN 50005	
<b>Wire connection:</b>	DIN 46228-1/-2/-3/-4	
Cross section:	2 x 2.5 mm <sup>2</sup> solid or 2 x 1.5 mm <sup>2</sup> stranded wire	
Stripping length:	10 mm	
<b>Wire fixing:</b>	Flat terminals with self-lifting clamping piece IEC/EN 60999-1	
<b>Fixing torque:</b>	0.8 Nm	
<b>Mounting:</b>	DIN rail IEC/EN 60715	
<b>Weight:</b>	220 g	

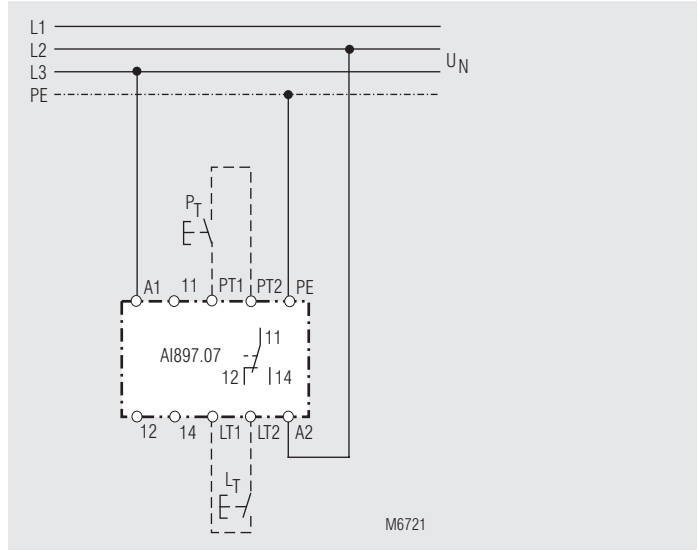
Dimensions	
<b>Width x height x depth:</b>	45 x 77 x 115 mm

Standard Type	
AI 897 AC 230 V	
Article number:	0001037
• 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
<b>Ordering example for variant</b>	
AI 897 .07 AC 500 V 50 kΩ	
	Response value
	Nominal voltage
	Variant, if required
	Type



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:  $U_N = U_H$   
Bridge LT1/LT2: Automatic reset  
Without Bridge LT1/LT2: Manual reset