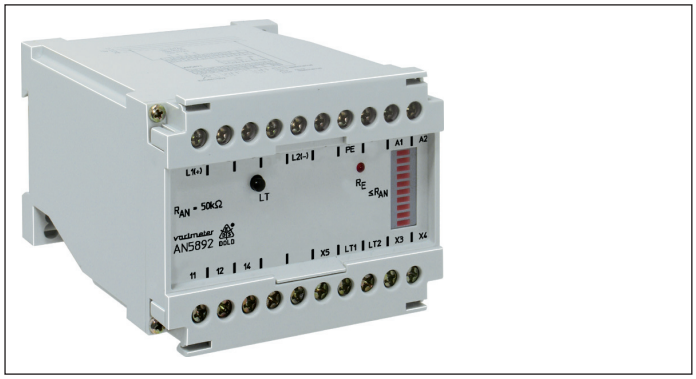
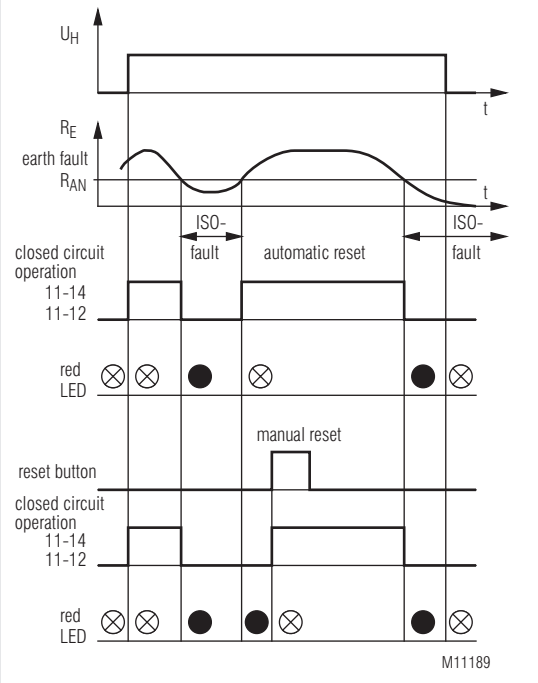
VARIMETER IMD
Insulation monitor
AN 5892/800

0258297



- According to IEC/EN 61 557-8
- For DC systems
- Fixed response value R_{AN}
- Internal reset button
- External reset and test button can be connected
- LED indicator
- 1 changeover contact
- Programmable for manual reset or hysteresis function
- Analogue output for insulating value
- External connection of indicating instrument possible
- De-energized on trip
- Width 100 mm

Function Diagram



Approvals and Markings

CE

Applications

Monitoring of the resistance to earth in ungrounded DC systems

Indicators

LED chain:	the approx. value of actual rsistance to ground (PE)
redLED:	On when resistance is below the response value R_{AN}

Notes

The unit is connected to the DC side of the voltage system and monitors the Insulation on AC and DC side with the same sensitivity. The response value is fixed. An external Indicator Instrument can be connected.

The unit works de-energized on trip, that means, the output relay relase in position of rest at a insulation failures ($R_E < R_{AN}$).

A bridge allows to select auto or manual reset. The unit has a built in reset button on the front and allows connection of an external button also. To provide a function test an external test button can be connected via a testing resistor.

The analogue output provides a voltage signal proportional to the actual insulation resistance of the mains. The following formula describes the input to output ratio.

$$U_A = \frac{U_{max}}{\frac{180\ k\Omega}{R_E} + 1} \quad ; \qquad U_{max} = 13{,}25\ V \pm 0{,}25\ V$$

(0V at R_E = 0 and 13,0 .... 13,5 V at $R_E = \infty$)

These values are valid for C_E = 0 (see diagram page 3). In practice it makes no sense to monitor values above 11 ... 12V as the tolerances increase, especially with mains capacity. On fluctuation of the mains voltage momentary false readings can occur. This is normal and caused by the cyclic measuring principle.

In one voltage system only one Insulation monitor must be connected. This has to be observed when coupling voltage system.

Technical Data

Auxiliary circuit

Auxiliary voltage U_H:	AC 230 V
Voltage range:	0.8 ... 1.2 U_N
Frequency range:	40 ... 400 Hz
Nominal consumption:	approx. 4 VA

Measuring Circuit

Nominal voltage U_N:	DC 100 ... 1000 V
Voltage range:	0 ... 1.5 U_N
Response value R_{AN}:	50 kΩ, 10 ... 440 kΩ on request
Setting R_{AN}:	fixed
Internal AC resistance:	> 350 kΩ
Internal DC resistance:	> 350 kΩ
Measuring voltage:	approx. +/- 13 V
Max. measuring current (RE = 0):	< 0.3 mA
Measuring cycle internally adjustable:	2 ... 16 s
Line capacitance CE to ground:	1 ... 20 µF
Factory setting:	16 s (for CE = 1 µF)
Operate delay	
at R_{AN} = 50 kΩ, CE = 20 µF	
R_E from ∞ to 0,9 R_{AN}:	< 100 s
R_E from ∞ to 0 kΩ:	< 60 s
Hysteresis	
at R_{AN} = 50 kΩ:	approx. 5 %
Nominal consumption:	approx. 4 VA
Phase failure bridging:	> 40 ms

Output

Contacts		
AN 5890.11:	1 changeover contact	
Max. switching voltage:	AC 250 V	
Thermal current I_{th}:	5 A	
Switching capacity		
to AC 15		
NO contact:	3 A / AC 230 V	IEC/EN 60 947-5-1
NC contact:	1 A / AC 230 V	IEC/EN 60 947-5-1
Short circuit strength		
max. fuse rating:	6 A gL	IEC/EN 60 947-5-1
Analogue output (X3-X4):	typ. 0 ... 13.25 V / R_i approx. 50 Ω (0 V at R_E = 0 and 13,0 ... 13,5 V at R_E = ∞) X4 is internal connected with PE	

General Data

Operating mode:	Continuous operation	
Permissible ambient and stocking temperature:	- 20 ... + 60°C / - 25 ... + 70°C	
Clearance and creepage distances		
overvoltage category / pollution degree:	4 kV / 2	IEC 60 664-1
EMC		
Fast transients:	2 kV	IEC/EN 61 000-4-4
Surge voltages between		
wires for power supply:	2kV	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 ... 55 Hz	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 with sleeve DIN 46 228-1/-2/-3/-4	

Technical Data

Wire fixing:	Flat terminals with self-lifting clamping piece	IEC/EN 60 999-1
Mounting:	DIN rail	IEC/EN 60 715
Weight:	approx. 580 g	

Dimensions

Width x height x depth:	100 x 78 x 115 mm

Standard Type

AN 5892.11/800 AC230 V 50 kΩ

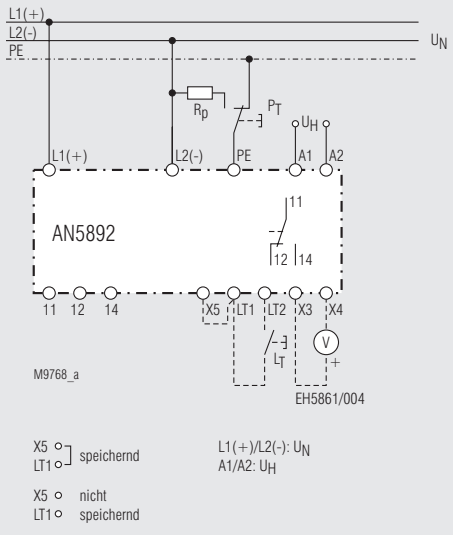
Article number:	0061228
• Output:	1 changeover contact
• Auxiliary voltage U_H:	AC 230 V
• Response value R_{AN}:	50 kΩ
• Line capacitance:	20 µF
• De-energiezed on trip	
• Width:	100 mm

Accessories

EH 5861/004: indicating instrument, degree of protection: IP 52
Article number: 0030618

The indicating device EH 5861 is externally connected to the insulation monitor and shows the actual insulation resistance of the voltage system to ground.
Dimensions:
Width x heigth x depth
96 x 96 x 52 mm

Connection Example



Analogue Output Voltage U_A (Terminals X3-X4)

against Insulation Resistance R_E with C_E = 0

Parameter: Max. Analogue Output Voltage **Umax** (at R_E = infinite)