

VARIMETER

Current measuring transducer
MH 9353



Your Advantages

- Measuring relay and transducer in one unit
- Simple setting
- Cost saving
- Reduced wiring

Features

- According to IEC/EN 60255-1
- Galvanic separate analogue signals, optionally with
 - 0 ... 20 mA and 0 ... 10 V or
 - 4 ... 20 mA and 2 ... 10 V
- Adjustable response value
- Fixed hysteresis
- LED indication for auxiliary voltage and contact position
- With auxiliary voltage
 - With screw terminals
 - Or with cage clamp terminals
- Width: 45 mm

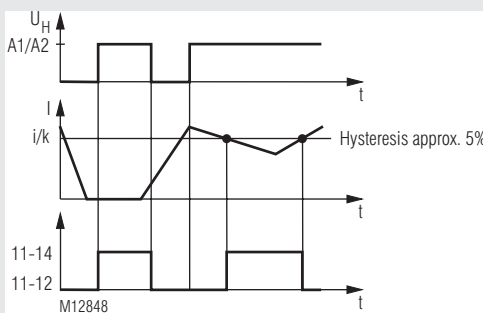
Product Description

The current measuring transducer MH 9353 is a combination of measuring relay and measuring transducer and monitors the current consumption of electrical consumers. The unit has an electrically isolated analogue output and a relay output. The response value is adjustable by means of rotary switch. The unit works on the closed-circuit current principle, i.e. the relay is de-energised when the response value is exceeded. An LED indicates the switching status of the output relay.

Approvals and Markings



Function Diagram



Applications

- Monitoring the current consumption of electrical consumers

Set Up Procedure

The connection has to be made according to the connection examples. If the current to be measured exceeds the maximum continuous current of the input an external current transformer has to be used.

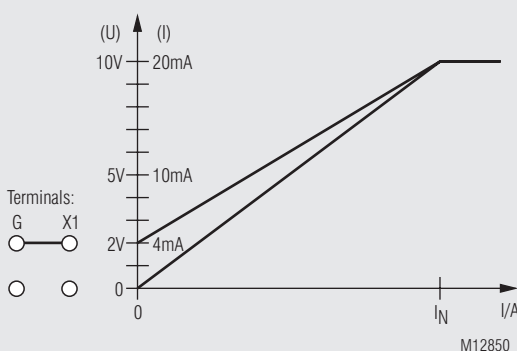
Indicators

Green LED "U_H": Permanent on: On, when auxiliary voltage present

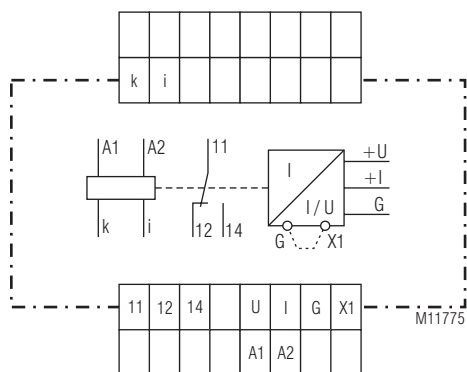
Green LED "P": Permanent on: Relay 1 active

Overload within the current range is indicated by fast flashing of the LED.

Function Diagram Analogue output



Circuit Diagram



Connection Terminals

Terminal designation	Signal designation
A1, A2	Auxiliary voltage AC
i, k	Current measuring path AC
11, 12, 14	Indicator relay (C/O contact)
U, I, G, X1	Analogue output current

Technical Data

Auxiliary voltage A1 / A2

Nom. auxiliary voltage U_H:	AC 230 V (0.8 ... 1.1 x U_H)
Nominal frequency:	50 / 60 Hz
Input current at AC 230 V:	15 mA
Nominal consumption:	2.5 W

Current Measuring Input i / k

Nominal current I_N:	AC 5 A
Measuring range:	AC 0,5 ... 5 A
Max. overload Continuously:	16 A
Short time:	< 10 s max. 25 A

Overload within the current range is indicated by fast flashing of the LED

Nominal frequency:	50 / 60 Hz
Frequency range:	45 ... 400 Hz

Setting range

Setting Response value:	Infinite 0.5 ... 5 A
Measuring accuracy (in % of nominal measured value):	± 2 %
Hysteresis (in % of setting value):	< 5 %
Reaction time:	< 350 ms

Output

Contact:	1 changeover contact
Thermal current I_{th}:	4 A
Switching capacity to AC 15:	
NO contacts:	3 A / AC 230 V IEC/EN 60947-5-1
NC contacts:	1 A / AC 230 V IEC/EN 60947-5-1
To DC 13:	1 A / DC 24 V IEC/EN 60947-5-1
Electrical life at 3 A, AC 230 V $\cos \varphi = 1$:	2 x 10 ⁵ switch. cycl.
Short circuit strength max. fuse rating:	4 A gG / gL IEC/EN 60947-5-1
Mechanical life:	30 x 10 ⁶ switching cycles

Technical Data

Analogue output U / I / G

The analogue outputs are galvanically separated and represent the actual measuring value (current) over the complete measuring range of 5 A.

The max value is fixed and cannot be changed.

Galvanic separation AC 3750 V to auxiliary, measuring and output circuit

Terminal U (+) / G(-):	0 ... 10 V, max. 10 mA
Terminal I (+) / G(-):	0 ... 20 mA, max. burden 500 Ω Selection to 2 ... 10 V / 4 ... 20 mA by bridging terminals X1 and G

General Data

Nominal operating mode:	Continuous operation	
Temperature range Operation:	- 20 ... + 60 °C	
Storage:	- 20 ... + 70 °C	
Altitude:	≤ 2000 m	
Clearance and creepage distance Rated insulation voltage:	300 V	
Rated impulse voltage / pollution degree:	6 kV / 2	IEC 60664-1
Overvoltage category:	III	
EMC Electrostatic discharge (ESD):	8 kV (air)	IEC/EN 61000-4-2
HF irradiation		
80 MHz ... 2.7 GHz:	10 V / m	IEC/EN 61000-4-3
Damped oscillatory wave immunity test		
Differential mode voltage:	1 kV	IEC/EN 61000-4-18
Common mode voltage:	2.5 kV	IEC/EN 61000-4-18
Fast transients:	2 kV	IEC/EN 61000-4-4
Surge voltage between wires for power supply:	1 kV	IEC/EN 61000-4-5
Between wire and ground:	2 kV	IEC/EN 61000-4-5
HF-wire guided:	10 V	IEC/EN 61000-4-6
Interference suppression:	Limit value class A*)	
*) The device is designed for the usage under industrial conditions (Class A, EN 55011). When connected to a low voltage public system (Class B, EN 55011) radio interference can be generated. To avoid this, appropriate measures have to be taken		
Degree of protection: Housing:	IP 40	IEC/EN 60529
Terminals:	IP 20	IEC/EN 60529
Housing:	Thermoplastic with VO behaviour according to UL Subject 94	
Vibration resistance:	Amplitude 0.35 mm frequency 10 ... 55 Hz IEC/EN 60068-2-6	
Climate resistance:	20 / 060 / 04 IEC/EN 60068-1	
Terminal designation:	DIN EN 50005	

Technical Data

Wire connection DIN 46228-1/-2/-3/-4

Screw terminals (integrated):

1 x 4 mm² solid or
1 x 2.5 mm² stranded wire with sleeve or
2 x 1.5 mm² stranded wire with sleeve or
2 x 2.5 mm² solid

Insulation of wires or sleeve length:

8 mm

Plug in with screw terminals

max. cross section:

1 x 2.5 mm² solid or
1 x 2.5 mm² stranded wire with sleeve

Insulation of wires or sleeve length:

8 mm

Plug in with cage clamp terminals

max. cross section:

1 x 4 mm² solid or
1 x 2.5 mm² stranded wire with sleeve
0.5 mm²

Min. cross section:

Insulation of wires or sleeve length:

12 ±0.5 mm

Wire fixing:

Plus-minus terminal screws M3.5 box terminals with wire protection or cage clamp terminals

Stripping length:

10 mm

Fixing torque:

0.8 Nm

Mounting:

DIN-rail

IEC/EN 60715

Weight:

360 g

Dimensions

Width x height x depth: 45 x 90 x 97 mm

Standard Type

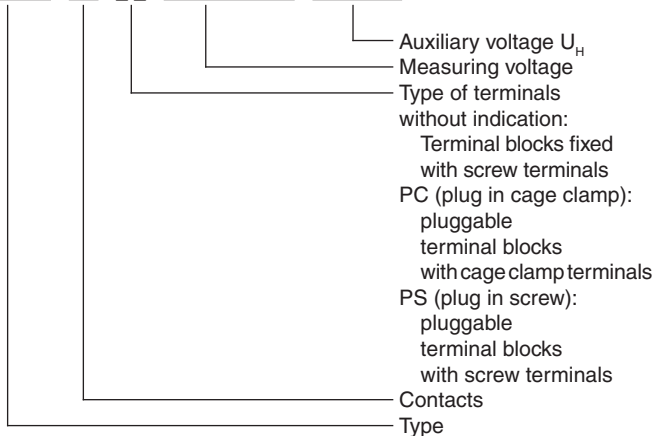
MH 9353.11 AC 0.5 ... 5 A AC 230 V

Article number: 0067701

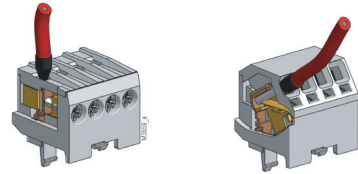
- Measuring range: AC 0.5 ... 5 A
- Auxiliary voltage U_H : AC 230 V
- Output: 1 C/O contact and 2 analogue outputs
- Width: 45 mm

Ordering Example

MH 9353 .11 AC 0.5 ... 5 A AC 230 V



Options with Pluggable Terminal Blocks



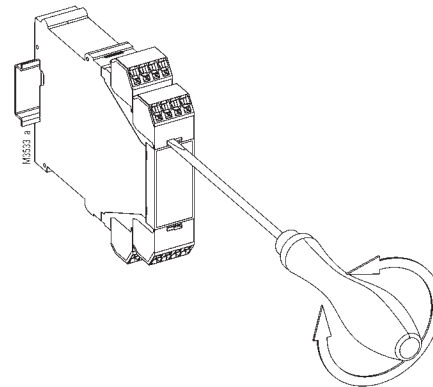
Screw terminal (PS/plugin screw)

Cage clamp terminal (PC/plugin cage clamp)

Notes

Removing the terminal blocks with cage clamp terminals

1. The unit has to be disconnected.
2. Insert a screwdriver in the side recess of the front plate.
3. Turn the screwdriver to the right and left.
4. Please note that the terminal blocks have to be mounted on the belonging plug in terminations.



Connection Example

