

METRAmax[®] 3

Analog Multimeter

3-349-117-03
1/10.00

- Direct and alternating voltage to 600 V
- Direct and alternating current to 15 A
- Resistance from 1 Ω to 300 k Ω
- 3 measuring ranges per measuring function
- Interrupted conductors are recognized by means of internal resistance of approximately 1 k Ω /V
- Excellent overload protection thanks to protective relay and PTC thermistors



Applications

The METRAmax[®]3 analog multimeter is a cost-effective, handy multimeter without amplifier, and includes an integrated circuit breaker which protects the current measuring ranges. The instrument is also equipped with ample overload protection in the voltage ranges thanks to generously dimensioned, high performance PTC thermistors.

The instrument is equipped with 15 measuring ranges for direct and alternating voltage, direct and alternating current, and resistance measurement. The deliberately low input resistance of approximately 1 k Ω /V generates sufficient load during measurements taken at voltage circuits to allow for the recognition of faulty cable routing in the event of capacitive interference.

The meter has been especially developed for use in training and the electrical trades. The often annoying task of replacing fuses is eliminated, instrument availability is increased and operating costs are reduced in a lasting fashion with the METRAmax[®]3.

Applicable Regulations and Standards

IEC 61010-1/EN 61010-1/ VDE 0411-1	Safety requirements for electrical equipment for measurement, control and laboratory use
EN 60529 VDE 0470 Part 1	Test instruments and test procedures, protection provided by enclosures (IP code)
EN 61326-1	Electromagnetic compatibility (EMC), generic standard for interference emission and immunity
DIN EN 60051	Parts 1, 2 and 6

Characteristic Values

Alternating and Direct Voltage Measuring Ranges

Measured Quantity	Measuring Range	Internal Resistance		Accuracy Class
		~	=	
U~ / U=	600 V	780 k Ω	600 k Ω	2.5%
	300 V	380 k Ω	300 k Ω	
	30 V	32 k Ω	30 k Ω	

Alternating and Direct Current Measuring Ranges

Measured Quantity	Measuring Range	Voltage Drop		Accuracy Class
		~	=	
I~ / I=	15 A	915 mV	900 mV	2.5%
	3 A	320 mV	340 mV	
	300 mA	140 mV	200 mV	

Resistance Measuring Range

Measured Quantity	Measuring Range	Measuring Range and Middle of Scale	Max. Meas. Current ¹⁾	Accuracy Class
Ω	$\Omega \times 1$	1 Ω ... 30 Ω ... 3 k Ω	50 mA	2.5%
	$\Omega \times 10$	10 Ω ... 300 Ω ... 30 k Ω	6 mA	
	$\Omega \times 100$	100 Ω ... 3 k Ω ... 300 k Ω	0.6 mA	

¹⁾ At a battery voltage of 1.5 V

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Display

Scale Length	approx. 87 mm
Pointer Stop	0 ... 100°
Accuracy Class	2.5 for zero-frequency and periodic quantities, and resistance

Reference Conditions

Ambient Temperature	+23 °C ±3 °C
Relative Humidity	40% ... 50%
Measured Quantity Frequency	45 Hz ... 65 Hz
Measured Quantity Waveshape	sine, 1% max deviation
Battery Voltage	1.5 V
Position of Use	horizontal

Ambient Conditions

Accuracy	0 °C ... +40 °C
Storage Temperature	-25 °C ... +65 °C (without batteries)
Relative Humidity	max. 75%, no condensation allowed
Elevation	to 2000 m

Electrical Safety

- All **current measuring ranges** are protected with a 230 V circuit breaker. **Resistance measuring ranges** are protected with PTC thermistors. In order to comply with the latest safety regulations (IEC/EN 611010-1), a 16 A / 500 V slow-blow V1 fuse connected in series to the tripping contact is used for protection with voltages of up to 600 V.
- The **voltage measuring ranges** are protected with appropriately dimensioned power resistors.

Overvoltage Category	Voltage		Current
	II	III	II
Operating Voltage	600 V	300 V	240 V AC/50 V DC

Fouling Factor	2
Test Voltage	3700 V, 50/60 Hz, 1 min

Electromagnetic Compatibility (EMC)

Interference Emission /	
Interference Immunity	EN 61326-1

Power Supply

1.5 V mignon cell for resistance measurement
zinc-carbon battery per IEC R6 or
alkaline-manganese battery per IEC LR 6

Mechanical Design

Protection	housing: IP 40 per EN 60529
Dimensions	104 mm x 143 mm x 40 mm
Weight	approx. 0.3 kg with batteries

Standard Equipment

- 1 multimeter
- 1 battery
- 1 operating instructions

Guarantee

1 year for material and workmanship

Order Information

Description	Type	Article Number
Analog Multimeter with Circuit Breaker	METRAmax [®] 3	M103A
Carrying pouch	F841	Z104A
Protective rubber cover	GH19	Z104B
Cable set	KS17-2	GTY 3620 034 P01

Please refer to our *Measuring Instruments and Testers Catalog* for additional information concerning accessories.

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