

HM8012

4³/₄-Digit–Multimeter

Technical Data



Key facts

- 4³/₄ digit display with 50,000 counts
- Basic accuracy 0.05%
- Automatic and manual range selection
- Max. resolution 10 μ V, 0.01dBm, 10nA, 10m Ω , 0.1 $^{\circ}$ C/ $^{\circ}$ F
- Offset function/relative value measurement in basic measurement functions
- Input impedance \geq 1G Ω (0.5V and 5V DC range)
- RS-232 interface
- PC software for control and data logging
- Mainframe HM8001-2 required for operation

Technical Data

4^{3/4}-Digit Multimeter

HM8012

Valid at 23 degrees C after a 30 minute warm-up period.

DC voltages

Measurement ranges:	500mV, 5V, 50V, 500V, 600V
Resolution:	10µV, 100µV, 1mV, 10mV, 100mV
Accuracy:	5V, 500V, 600V: ±(0,05% of rdg. ¹⁾ + 0,002% of fs. ²⁾ 500mV, 50V: ± (0,05% of rdg. ¹⁾ + 0,004% of fs. ²⁾
Overload protection:	
V/Ω/T°/dB/◀ against COM and to chassis:	850 Vp at max.60 Hz or 600 VDC
Low against chassis:	250 Vrms at max. 60 Hz or 250 VDC
Input resistance:	
50V-, 500V-, 600V:	10MΩ 90pF
500mV-, 5V:	>1GΩ 90pF
Input current:	10A
CMRR ³⁾ :	≥100dB (50/60Hz ± 0,5%)
SMRR ⁴⁾ :	≥60dB (50/60Hz ± 0,5%)

dB Mode

Accuracy:	±(0,02dB + 2 digits) (display > -38,7dBm)
Resolution:	0.01 dB above 18% of fs. ²⁾

DC current

Measurement ranges:	500µA, 5mA, 50mA, 500mA, 10A
Resolution:	10nA, 100nA, 1µA, 10µA, 1mA
Accuracy:	0,5 – 500mA: ±(0.2% of rdg. ¹⁾ + 0.004% of fs. ²⁾ , 10A: ±(0.3% of rdg. ¹⁾ + 0.004% of fs. ²⁾
Voltage drop:	
10 A range:	0,2 V max.
500 mA range:	2,5 V max.
other ranges:	0,7 V max.

AC voltage

Measurement ranges:	500mV, 5V, 50V, 500V, 600V
Resolution:	10µV, 100µV, 1mV, 10mV, 100mV
Accuracy 0,5 - 50V:	
40Hz - 5kHz:	± (0,4% v.M. + 0,07% v.E.)
20Hz - 20kHz:	± (1% v.M. + 0,07% v.E.)
500V and 600V:	
40Hz - 1kHz:	± (0,4% v.M.1) + 0,07% v.E.2)
20Hz - 1kHz:	± (1% v.M.1) + 0,07% v.E.2)

Overload protection:

V/Ω/T°/dB/◀ against COM and to chassis:	850 Vs at max.60 Hz or 600 VDC
Low against chassis:	250 Vs at max. 60 Hz or 250 VDC
Input impedance	
AC mode:	1MΩ 90pF
AC + DC mode:	10MΩ 90pF
Bandwidth at -3dB:	80kHz typical
dB Mode:	20Hz - 20kHz
Accuracy:	±0,2dBm (-23,8 – 59,8dBm)
Resolution:	0,01 dB oberhalb 9mV
CMRR ³⁾ :	60dB (50/60Hz ± 0,5%)
Crest factor:	7 max.

AC current

Measurement ranges:	500µA, 5mA, 50mA, 500mA, 10A
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Resolution:	10nA, 100nA, 1µA, 10µA, 1mA
Accuracy:	0,5 - 500mA: ±(0,7% of rdg. ¹⁾ + 0,07% of fs. ²⁾ for 40Hz-5kHz 10A: ± (1% of rdg. ¹⁾ + 0,07% of fs. ²⁾

AC + DC measurements

Same as AC + 25 Digits

Resistance

Measurement ranges:	500Ω, 5kΩ, 50kΩ, 500kΩ, 5MΩ, 50MΩ
Resolution:	10mΩ, 100mΩ, 1Ω, 10Ω, 100Ω, 1kΩ
Accuracy:	500Ω bis 500kΩ: ±(0,05% of rdg. ¹⁾ +0,004% of fs. ²⁾ +50mΩ) 5MΩ und 50MΩ: ±(0,3% of rdg. ¹⁾ +0,004% of fs. ²⁾
Input protected to max. 300 Veff	
Measurement current	
500Ω – 5kΩ-range:	1 mA
50kΩ-range:	100 µA
500kΩ-range:	10 µA
5 - 50MΩ-range:	100 nA
Measurement voltage:	10V typical for open inputs, depending on the value of resistance to be measured. Negative polarity of measurement voltage is across common terminal.

Temperature

2-wire resistance measurement with linearization for PT100 sensors as per standard EN60751

Range:	-200°C to +500°C
Resolution:	0,1°C
Measurement current:	ca. 1 mA
Display:	in °C, °F
Accuracy:	-200°C to +200°C ± 0,4°C + 0,0005 x T +200°C to +500°C ± 0,5°C + 0,0005 x T (T in °C, sensor tolerance not included)

Temperature coefficient

V =	500mV, 50V	30 ppm/°C
	600V range	80 ppm/°C
	other ranges	20 ppm/°C
V~	600V range	80 ppm/°C
	other ranges	50 ppm/°C
mA	all ranges	200 ppm/°C
mA-	all ranges	300 ppm/°C
Ω	5 MΩ, 50 MΩ-rang	200 ppm/°C
	other ranges	50 ppm/°C

Miscellaneous

Operating temperature:	+ 5°C to + 40°C
Storage temperature:	-20°C to + 70°C
Max. relative humidity:	5% ... 80% (without condensation)
Power supply (from HM8001-2):	
+ 5 V	300 mA
~26 V	140 mA
Size (W x H x D): (without flat 22-pole connector)	135 x 68 x 228 mm
Weight:	approx. 500g

¹⁾ rdg. = reading; ³⁾ = Common mode rejection ratio;
²⁾ fs. = full scale;

Included in delivery:

HM8012 Multimeter, Manual, HZ14 Interface cable, HZ15 PVC Test Leads, Software-CD.

Accessories:

HZ10S/R/B Silicone Test Leads, HZ812 PT100 Temperature Sensor