

4³/₄ - Digit Multimeter HM8010



4³/₄-digit display with 50,000 counts, basic accuracy 0.05 %

Automatic and manual range selection

Max. resolution 10 μ V, 0.01 dBm, 10 nA, 10 m Ω , 0.1 $^{\circ}$ C/ $^{\circ}$ F

Offset function / relative value measurement in basic measurement functions

Input impedance >1 G Ω (0.5V and 5V DC range)

Mainframe HM8001-2 or HM8003 required for operation

Temperature Sensor HZ812



HZ15 (included)



Mainframe HM8001-2



4 1/2 -Digit Multimeter HM 8010

Technical description

DC voltage

Measurement ranges:	500 mV, 5 V, 50 V, 500 V, 600 V
Resolution:	10 μ V, 100 μ V, 1 mV, 10 mV, 100 mV
Accuracy:	
5 V, 500 V, 600 V:	$\pm(0,05\%$ of reading + 0.002 % of full scale)
500 mV, 50 V:	$\pm(0,05\%$ of reading + 0.004 % of full scale)
Overload protection:	
V/ Ω -HI to V/ Ω -LO and to chassis:	850 V _p at max. 60 Hz or 600 V _{DC}
Low against chassis:	250 V _{rms} at max. 60 Hz or 250 V _{DC}
Input resistance:	
50 V, 500 V, 600 V:	10 M Ω 90 pF
500 mV, 5 V:	> 1 G Ω 90 pF
Input current:	10 A
CMRR¹⁾:	≥ 100 dB (50/60 Hz $\pm 0.5\%$)
SMRR²⁾:	≥ 60 dB (50/60 Hz $\pm 0.5\%$)

dB Mode

Accuracy:	$\pm(0.02$ dB+2 digits) [display > -38.7 dBm]
Resolution:	0.01 dB above 18 % of rating

DC current

Measurement ranges:	500 μ A, 5 mA, 50 mA, 500 mA, 10 A
Resolution:	10 nA, 100 nA, 1 μ A, 10 μ A, 1 mA
Accuracy:	
0.5-500 mA:	$\pm(0.2\%$ of reading + 0.004 % of full scale)
10 A:	$\pm(0.3\%$ of reading + 0.004 % of full scale)
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:	500 mV, 5 V, 50 V, 500 V, 600 V
Resolution:	10 μ V, 100 mV, 1 mV, 10 mV, 100 mV
Accuracy 0.5-50 V:	
40 Hz-5 kHz:	$\pm(0.4\%$ of reading + 0.07 % of full scale)
20 Hz-20 kHz:	$\pm(1\%$ of reading + 0.07 % of full scale)
500 V and 600 V:	
40 Hz-1 kHz:	$\pm(0.4\%$ of reading + 0.07 % of full scale)
20 Hz-1 kHz:	$\pm(1\%$ of reading + 0.07 % of full scale)
Overload protection:	
V/ Ω -HI to V/ Ω -LO and to chassis:	850 V _s at max. 60 Hz or 600 V _{DC}
Low against chassis:	250 V _{eff} at max. 60 Hz or 250 V _{DC}

Input impedance

AC mode:	1 M Ω 90 pF
AC + DC mode:	10 M Ω 90 pF

Bandwidth at -3 dB: 80 kHz typical

dB mode: 20 Hz - 20 kHz

Accuracy

-23.8 dBm to 59.8 dBm:	± 0.2 dBm
Resolution:	0.01 dB above 9 mV
CMRR¹⁾:	≥ 60 dB (50/60 Hz $\pm 0.5\%$)
Crest factor:	7 max.

AC current

Measurement ranges:	500 μ A, 5 mA, 50 mA, 500 mA, 10 A
Resolution:	10 nA, 100 nA, 1 μ A, 10 μ A, 1 mA
Accuracy:	

0.5 - 500 mA:	$\pm(0.7\%$ of reading + 0.07 % v.E.)40 Hz - 5 kHz
10 A:	$\pm(1\%$ of reading + 0.07 % of full scale)

AC + DC measurements

As shown for AC + 25 digits

Resistance

Measurement ranges:	500 Ω , 5 k Ω , 50 k Ω , 500 k Ω , 5 M Ω , 50 M Ω
Resolution:	10 m Ω , 100 m Ω , 1 Ω , 10 Ω , 100 Ω , 1 k Ω
Accuracy:	
500 Ω to 500 k Ω :	$\pm(0.05\%$ of reading + 0.004 % of fs.+50 m Ω)
5 M Ω to 50 M Ω :	$\pm(0.3\%$ of reading + 0.004 % of full scale)
Input protection max. 300 V _{rms}	
Measurement current:	
500 Ω -5 k Ω -range:	1 mA
50 k Ω -range:	100 μ A
500 k Ω -range:	10 μ A
5-50 M Ω -range:	100 na

Measurement voltage: 10 V 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 PT 100 sensors as per standard EN60751

Range:	-200° C to +500° C
Resolution:	0.1° C
Measurement current:	approx. 1 mA
Display:	in °C, °F
Accuracy:	$\pm 0.1\%$ ° C from - 200° C to + 200° C $\pm 0.2\%$ ° C from 200° C to 500° C (exception: sensor tolerance)

Temperature coefficient: (reference 23°C)

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

Miscellaneous

Power supply (from mainframe):	
+ 5 V	300 mA
-26 V	140 mA
Operating conditions:	+ 10° C to + 40° C
Humidity:	80 % (without condensation)
Dimensions (W x H x D) (without 22-pole flat plug):	135 x 68 x 228 mm
Weight:	approx. 0.5 kg

¹⁾ Common mode rejection ratio

²⁾ Serial mode rejection ratio

Accessories supplied: Operator's Manual, HZ15 PVC test leads, HM8012: + Software CD

Optional accessories: HZ10 Silicone test leads, HZ812 PT100 Temperature Sensor, HM8012: + Software CD

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