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## Test & Measurement

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## Complimentary Reference Material

This PDF has been made available as a complimentary service for you to assist in evaluating this model for your testing requirements.

TMG offers a wide range of test equipment solutions, from renting short to long term, buying refurbished and purchasing new. Financing options, such as Financial Rental, and Leasing are also available on application.

TMG will assist if you are unsure whether this model will suit your requirements.

Call TMG if you need to organise repair and/or calibrate your unit.

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Product Lifecycle Management System

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## 4<sup>3</sup>/<sub>4</sub>-Digit Programmable Multimeter HM8012

HM8012



inclusive

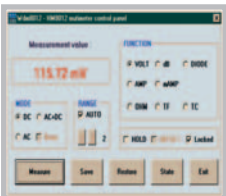


RS-232

HZ15 (included)



WDM8012 Software  
(included)



Mainframe HM8001-2  
required for operation

4<sup>3</sup>/<sub>4</sub>-digit display with 50,000 counts

Basic accuracy 0.05 %

Max. Resolution: 10  $\mu$ V, 0.01 dBm, 10 nA, 10 m $\Omega$ , 0.1  $^{\circ}$ C/ $^{\circ}$ F

Offset function / relative value measurement

RS-232 interface and software included

## 4½-Digit Programmable Multimeter HM8012

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

### DC voltage

**Measurement ranges:** 500 mV, 5V, 50V, 500V, 600V  
**Resolution:** 10 µV, 100 µV, 1 mV, 10 mV, 100 mV

**Accuracy:**  
5V, 500V, 600V: ±(0.05 % of reading + 0.002 % of full scale)  
500 mV, 50V: ±(0.05 % of reading + 0.004 % of full scale)

**Overload protection:**  
V/Ω/T°/dB/ ← to COM and to chassis:  
850 V<sub>p</sub> at max. 60 Hz or 600 V<sub>DC</sub>  
COM against chassis: 250 V<sub>rms</sub> at max. 60 Hz or 250 V<sub>DC</sub>

**Input resistance:**  
5V, 500V, 600V: 10 MΩ || 90 pF  
500 mV, 50V: > 1 GΩ || 90 pF

**Input current:** 10 A  
**Common mode rejection ratio:** ≥ 100 dB (50/60 Hz ± 0.5 %)  
**Serial mode rejection ratio:** ≥ 60 dB (50/60 Hz ± 0.5 %)

### dB Mode

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

### DC current

**Measurement ranges:** 500 µA, 5 mA, 50 mA, 500 mA, 10 A  
**Resolution:** 10 nA, 100 nA, 1 µA, 10 µA, 1 mA

**Accuracy:**  
0.5-500 mA: ±(0.2 % of reading + 0.004 % of full scale)  
10 A: ±(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, 5V, 50V, 500V, 600V  
**Resolution:** 10 µV, 100 mV, 1 mV, 10 mV, 100 mV

**Accuracy 0.5-50 V:**  
40 Hz-5 kHz: ± (0.4 % of reading + 0.07 % of full scale)  
20 Hz-20 kHz: ± (1 % of reading + 0.07 % of full scale)

**Accuracy 500 V and 600 V:**  
40 Hz-1 kHz: ± (0.4 % of reading + 0.07 % of full scale)  
20 Hz-1 kHz: ± (1 % of reading + 0.07 % of full scale)

**Overload protection:**  
V/Ω/T°/dB/ ← to COM and to chassis:  
850 V<sub>p</sub> at max. 60 Hz or 600 V<sub>DC</sub>  
COM against chassis: 250 V<sub>rms</sub> at max. 60 Hz or 250 V<sub>DC</sub>

**Input impedance**  
AC mode: 1 MΩ || 90 pF  
AC + DC mode: 10 MΩ || 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  
**CMRR<sup>1)</sup>:** ≥ 60 dB (50/60 Hz ± 0.5 %)  
**Crest factor:** 7 max.

### AC current

**Measurement ranges:** 500 µA, 5 mA, 50 mA, 500 mA, 10 A  
**Resolution:** 10 nA, 100 nA, 1 µA, 10 µA, 1 mA

**Accuracy:**  
0.5 - 500 mA: ±(0.7 % of reading + 0.07 % of f.s.) 40 Hz - 5 kHz  
10 A: ±(1 % of reading + 0.07 % of full scale)

### AC + DC measurements

As shown for AC + 25 digits

### Resistance

**Measurement ranges:** 500 Ω, 5 kΩ, 50 kΩ, 500 kΩ, 5 MΩ, 50 MΩ  
**Resolution:** 10 mΩ, 100 mΩ, 1 Ω, 10 Ω, 100 Ω, 1 kΩ

**Accuracy:**  
500 Ω to 500 kΩ: ±(0.05 % of reading + 0.004 % of f.s. + 50 mΩ)  
5 MΩ to 50 MΩ: ±(0.3 % of reading + 0.004 % of full scale)  
Input protection max. 300 V<sub>rms</sub>

**Measurement current:** 500 Ω-5 kΩ range: 1 mA  
50 kΩ range: 100 µA  
500 kΩ range: 10 µA  
5-50 MΩ 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 PT100 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:** ± (0.4 °C + 0.0005 x T) from -200 °C to +200 °C  
± (0.5 °C + 0.0005 x T) from +200 °C to +500 °C  
(T in °C, sensor tolerance not included)

### Temperature coefficient: [reference 23°C]

V = 500 mV, 50V 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 MΩ, 50 MΩ ranges 200 ppm/°C  
other ranges 50 ppm/°C

### Miscellaneous

**Power supply (from mainframe):**  
+5V 300 mA  
~26V 140 mA  
**Operating temperature:** +10 °C to +40 °C  
**Max. relative 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

**Accessories supplied:** Operator's Manual, HZ15 PVC test leads, Software CD and interface cable HZ14

**Optional accessories:**  
HZ10S/R Silicone test lead  
HZ812 PT100 Temperature probe

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