



6 1/2 - Digit Precision Multimeter HM 8 1 1 2 - 3



6 1/2-digit display (1,200,000 counts)

Resolution 100 nV, 100 pA, 100 μΩ, 0.01 °C/F

DC basic accuracy 0.003 %

2-wire/4-wire measurements

Measurement intervals adjustable from 0.1 to 60 sec.

Up to 100 measurements transmitted to PC per second

True RMS measurement, AC+DC and AC

Offset correction

RS-232 interface, optional: USB, IEEE-488

Optional: Scanner Card (8 Channels)

H0870 USB Interface



HZ42 19" Rackmount kit 2RU



Precise temperature measurement with sensor



6½-Digit Precision Multimeter HM8112-3

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

DC specifications

Ranges:	0,1 V; 1 V; 10 V; 100 V; 600 V
Input impedance	
0.1 V, 1.0 V:	> 1 GΩ
10 V, 100 V, 600 V:	10 MΩ
Accuracy:	Values given are in ±(% of reading (rdg.) + % of full scale (f.s.))

Range	1 year; 23 ± 2° C		Temp. coefficient 10...21° C + 25...40° C
	%rdg.	%f.s.	
0.1 V	0.005	0.0006	0.0008
1.0 V	0.003	0.0006	0.0008
10.0 V	0.003	0.0006	0.0008
100.0 V	0.003	0.0006	0.0008
600.0 V	0.004	0.0006	0.0008

Integration time:	0.1 sec	1 to 60 sec
Display range:	120,000 digit	1,200,000 digit
600 V range:	60,000 digit	600,000 digit
Resolution:	1 μV	100 nV

Zero point	
Temperature drift:	better than 0.3V/°C
Long-term stability:	better than 3 μV for 90 days

AC specifications

Measurement ranges:	0.1 V; 1 V; 10 V; 100 V; 600 V
Measurement method:	true rms DC or AC coupled (not in 0.1 V range)

Input impedance:	
0.1 V, 1 V:	1 GΩ < 60 pF
10 V, 100 V, 600 V:	10 MΩ < 60 pF

Response time: 1.5 sec to within 0.1 % of reading

Accuracy: For sine wave signals > 5 % of full scale.
Values given are in ± (% of reading + % of full scale); 23 ± 2° C for 1 year

Range	20 Hz-1 kHz	1-10 kHz	10-50 kHz	50-100 kHz	100-300 kHz
0.1 V	0.1+0.08	5+0.5(5kHz)			
1.0 V	0.08+0.08	0.15+0.08	0.3+0.1	0.8+0.15	7+0.15
10.0 V	0.08+0.08	0.1+0.08	0.3+0.1	0.8+0.15	4+0.15
100.0 V	0.08+0.08	0.1+0.08	0.3+0.1	0.8+0.15	
600.0 V	0.08+0.08	0.1+0.08			

Temperature coefficient 10...21° C and 25...40° C; (% rdg. + % f.s.)	
at 20 Hz – 10 kHz:	0.01 + 0.008
at 10 kHz – 100 kHz:	0.08 + 0.010

Crest factor: 7:1 (max. 5 x range)

Integration time: 0.1 sec 1 to 60 sec

Display range: 120,000 digit 1,200,000 digit

600 V range: 600,00 digit 600,000 digit

Resolution: 1 μV 100 nV

Overload protection:

(V/Ω-HI to V/Ω-LO) and to chassis:

Measurement ranges: all
all the time 850 V_{peak} or 600 V_{DC}

Maximum input voltage LOW against

chassis/safety earth: 250 V_{rms} at max. 60 Hz or 250 V_{DC}

Current specifications

Ranges: 100 μA; 1 mA; 10 mA; 100 mA; 1 A

Integration time: 0.1 sec 1 to 60 sec

Display ranges: 120,000 digit 1,200,000 digit

1 A range: 100,000 digit 1,000,000 digit

Resolution: 1 nA 100 pA

Accuracy: DC 45 Hz – 1 kHz 1 kHz – 5 kHz
(1 year; 23 ± 2° C) 0.02 + 0.002 0.1 + 0.08 0.2 + 0.08

Temperature coefficient /°C: 10...21° C 25...40° C
(%rdg. + %f.s.) 0.002 + 0.001 0.01 + 0.01

Voltage: < 600 mV to 1.5 V

Response time: 1.5 sec to within 0.1 % of reading

Crest factor: 7:1 (max 5 x range)

Input protection: fuse, FF 1 A 250 V

Resistance

Ranges:	100 Ω, 1 kΩ, 10 kΩ, 100 kΩ, 1 MΩ, 10 MΩ
Integration time:	0.1 sec 1 to 60 sec
Display ranges:	120,000 digit 1,200,000 digit
Resolution:	1 mΩ 100 μΩ
Accuracy:	Values given are in ± (% of reading + % of full scale)

Range	1 year; 23 ± 2° C		Temp. coefficient /° C	
	%rdg.	%f.s.	10...21° C	25...40° C
100 Ω	0.005	0.0015	0.0008	0.0008
1 kΩ	0.005	0.001	0.0008	0.0008
10 kΩ	0.005	0.001	0.0008	0.0008
100 kΩ	0.005	0.001	0.0008	0.0008
1 MΩ	0.05	0.002	0.002	0.002
10 MΩ	0.5	0.02	0.01	0.01

Measurement current:	Range	Current
	100 Ω, 1 kΩ	1 mA
	10 kΩ	100 μA
	100 kΩ	10 μA
	1 MΩ	1 μA
	10 MΩ	100 nA

max. measurement voltage: approx. 3 V

Overload protection: 250 V_P

Temperature measurement

PT100 / PT1000 (EN60751): 2- and 4-wire measurement

Range: -200° C to + 800° C

Resolution: 0.01° C; measurement current 1 mA

Accuracy: ± [0.05° C + sensor tolerance + 0.08 K]

Temperature coefficient

10...21° C and 25...40° C: < 0.0018° C/° C

NiCr-Ni (K-type)

Range: -270° C to +1372° C

Resolution: 0.1° C

Accuracy: ± [0.7 % rdg. + 0.3 K]

NiCr-Ni (J-type)

Range: -210° C to +1200° C

Resolution: 0.1° C

Accuracy: ± [0.7 % rdg. + 0.3 K]

Frequency and period specifications

Range: 1 Hz to 100 kHz

Resolution: 0.00001 Hz to 1 Hz

Accuracy: 0.05 % of reading

Measurement time: 1 to 2 sec

Interface

RS-232 standard: 9600 or 19200 Baud

Functions: Control / Data fetch

Inputs: Function, range, integration time, start command

Outputs: Measurement results, function, range, integration time (10 ms to 60 sec.)

Miscellaneous

Time to change range or function

approx. 125 ms with DC voltage, DC current, resistance

approx. 1 sec with AC voltage, AC current

Memory: 30,000 readings/128 kB

Safety class: Safety class I (EN 61010)

Power supply: 105-254 V-; 50/60 Hz

Power consumption: approx. 8 W

Operating temperature: +10° to +40° C

Storage temperature: -40° to +70° C

Max. relative humidity: < 75% (without condensation)

Dimensions (W x H x D): 285 x 75 x 365 mm

Weight: approx. 3 kg

Accessories supplied: Operator's Manual, power cable, HZ15 PVC test lead, Interface cable

Optional accessories:

HZ887 (17-0887-0000) Temperature sensor (PT100; -50° C to + 400° C)

HZ42 (27-0042-0000) 19" Rackmount kit 2RU

HZ10S/R (17-0010-000S/R) Silicone test lead

HO870 (26-0870-0000) USB Interface

HO880 (26-0880-0000) IEEE-488 interface

HO890 (26-0890-0000) RS-232 Interface