

## 6½ - Digit Precision Multimeter HM 8112 - 3



6½ -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

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

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

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

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

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

### AC specifications

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

<b>Input impedance:</b>	
0.1V, 1V:	1 GΩ    < 60 pF
10V, 100V, 600V:	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
0.1V	0.1+0.08	5+0.5(5kHz)			
1.0V	0.08+0.08	0.15+0.08	0.3+0.1	0.8+0.15	7+0.15
10.0V	0.08+0.08	0.1+0.08	0.3+0.1	0.8+0.15	4+0.15
100.0V	0.08+0.08	0.1+0.08	0.3+0.1	0.8+0.15	
600.0V	0.08+0.08	0.1+0.08			

<b>Temperature coefficient 10...21° C and 25...40° C; (% rdg. + % f.s.)</b>		
at 20 Hz – 10 kHz:	0.01 + 0.008	
at 10 kHz – 100 kHz:	0.08 + 0.010	
<b>Crest factor:</b>	7:1 (max. 5 x range)	
<b>Integration time:</b>	0.1 sec	1 to 60 sec
<b>Display range:</b>	120,000 digit	1,200,000 digit
<b>600V range:</b>	600,00 digit	600,000 digit
<b>Resolution:</b>	1 µV	100 nV

<b>Overload protection:</b>	
<b>(V/Ω-HI to V/Ω-LO) and to chassis:</b>	
<b>Measurement ranges:</b>	all
all the time	850 V <sub>peak</sub> or 600 V <sub>DC</sub>
<b>Maximum input voltage LOW against chassis/safety earth:</b>	250 V <sub>rms</sub> at max. 60 Hz or 250 V <sub>DC</sub>

### Current specifications

<b>Ranges:</b>	100 µA; 1 mA; 10 mA; 100 mA; 1 A		
<b>Integration time:</b>	0.1 sec	1 to 60 sec	
<b>Display ranges:</b>	120,000 digit	1,200,000 digit	
<b>1 A range:</b>	100,000 digit	1,000,000 digit	
<b>Resolution:</b>	1 nA	100 pA	
<b>Accuracy:</b>	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
<b>Temperature coefficient /°C:</b>	10...21° C	25...40° C	
(%rdg. + %f.s.)	0.002 + 0.001	0.01 + 0.01	
<b>Voltage:</b>	< 600 mV to 1.5V		
<b>Response time:</b>	1.5 sec to within 0.1 % of reading		
<b>Crest factor:</b>	7:1 (max 5 x range)		
<b>Input protection:</b>	fuse, FF 1A 250V		

### Resistance

<b>Ranges:</b>	100 Ω, 1 kΩ, 10 kΩ, 100 kΩ, 1 MΩ, 10 MΩ	
<b>Integration time:</b>	0.1 sec	1 to 60 sec
<b>Display ranges:</b>	120,000 digit	1,200,000 digit
<b>Resolution:</b>	1 mΩ	100 µΩ
<b>Accuracy:</b>	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

<b>Measurement current:</b>	<b>Range</b>	<b>Current</b>
	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. 3V

**Overload protection:** 250 V<sub>p</sub>

### Temperature measurement

<b>PT100 / PT1000 (EN60751):</b>	2- and 4-wire measurement
<b>Range:</b>	-200° C to + 800° C
<b>Resolution:</b>	0.01° C; measurement current 1 mA
<b>Accuracy:</b>	± (0.05° C + sensor tolerance + 0.08 K)
<b>Temperature coefficient</b>	
10...21° C and 25...40° C:	< 0.0018° C/° C

<b>NiCr-Ni (K-type)</b>	
<b>Range:</b>	-270° C to +1372° C
<b>Resolution:</b>	0.1° C
<b>Accuracy:</b>	± (0.7 % rdg. + 0.3 K)

<b>NiCr-Ni (J-type)</b>	
<b>Range:</b>	-210° C to +1200° C
<b>Resolution:</b>	0.1° C
<b>Accuracy:</b>	± (0.7 % rdg. + 0.3 K)

### Frequency and period specifications

<b>Range:</b>	1 Hz to 100 kHz
<b>Resolution:</b>	0.00001 Hz to 1 Hz
<b>Accuracy:</b>	0.05 % of reading
<b>Measurement time:</b>	1 to 2 sec.

### Interface

<b>RS-232 standard:</b>	9600 or 19200 Baud
<b>Functions:</b>	Control / Data fetch
<b>Inputs:</b>	Function, range, integration time, start command
<b>Outputs:</b>	Measurement results, function, range, integration time (10 ms to 60 sec.)

### Miscellaneous

<b>Time to change range or function</b>	approx. 125 ms with DC voltage, DC current, resistance approx. 1 sec with AC voltage, AC current
<b>Memory:</b>	30,000 readings/128 kB
<b>Safety class:</b>	Safety class I (EN 61010)
<b>Power supply:</b>	105-254 V~; 50/60 Hz
<b>Power consumption:</b>	approx. 8W
<b>Operating temperature:</b>	+10° to +40° C
<b>Storage temperature:</b>	-40° to +70° C
<b>Max. relative humidity:</b>	< 75% (without condensation)
<b>Dimensions (W x H x D):</b>	285 x 75 x 365 mm
<b>Weight:</b>	approx. 3 kg

**Accessories supplied:** Operator's Manual, power cable, HZ15 PVC test lead, Interface cable  
**Optional accessories:** HZ887 Temperature sensor (PT100; -50° C to + 400° C), HZ42 19" Rackmount kit 2RU, HZ10 Silicone test leads