

## 6 1/2 - Digit Precision - Multimeter HM 8112 - 3



6 1/2-digit LCD-display (1.200.000 points)

True rms measurements of AC+DC or AC

2-wire- / 4-wire measurements

Resolutions 100nV, 100pA, 100μOhm, 0,01 °C / °F

Offset correction

Range selection automatically and manual

10 measurements per second

Measuring time 0,1sec to 60sec

Input impedance >1GOhm (0,1V and 1V DC ranges)

RS-232 Interface (Option: USB, IEEE-488)

HZ42 19"-rackmont-kit



Precise temperature measurement with sensor HZ887



## 6½-Digit Precision-Multimeter HM8112-3 SPECIFICATIONS

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

### DC Specifications

<b>Ranges:</b>	0.1 V; 1 V; 10 V; 100 V; 600 V		
<b>Input impedance:</b>	0.1 V; 1.0 V >1 GΩ 10 V; 100 V; 600 V 10 MΩ		
<b>Accuracy:</b>	Values given are in ±(% of reading + % of full scale)		
	1 year; 23 ±2 °C	Temperature coefficient	
Range	% rdg. + % f.s.	10...21 °C + 25...40 °C	
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	

<b>Integration time:</b>	0.1 sec	1 to 60 sec
<b>Display range:</b>	120,000 digit	1,200,000 digit
<b>600 V range:</b>	600,00 digit	600,000 digit
<b>Resolution:</b>	1 μV	100 nV
<b>Zero point</b>		
<b>Temperature coefficient:</b>	≤ 0,3 μV/°C	
<b>Long term stability:</b>	≤ 3 μV for 90 days	

### AC specifications

<b>Ranges:</b>	0.1 V; 1 V; 10 V; 100 V; 600 V				
<b>Measuring method:</b>	true rms DC or AC coupled (except 0.1 V range)				
<b>Input impedance:</b>	0.1 V: 1 GΩ    <60 pF 1 V to 600 V: 10 MΩ    <60 pF				
<b>Response time:</b>	1.5 sec to within 0,1% of rdg.				
<b>Accuracy:</b>	For sine wave signals > 5% of range. Values given are in ±(% rdg. + % f.s.); 23 ±2 °C for 1 year				
Range	20 Hz – 1 kHz	1 kHz – 10 kHz	10 kHz – 50 kHz	50 kHz – 100 kHz	100 kHz – 300 kHz
0.1 V	0.10 +0.08	5+0.5 (5 kHz)			
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	0.10+0.08	0.3+0.1	0.8+0.15	4+0.15
100.0 V	0.08 +0.08	0.10+0.08	0.3+0.1	0.8+0.15	
600.0 V	0.08 +0.08	0.10+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 + 0.01
<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>600 V range:</b>	60,000 digit 600,000 digit
<b>Resolution:</b>	1 μV 100 nV
<b>Overload protection:</b>	
<b>(V-HI to V- LO) and to chassis:</b>	
Measurement ranges:	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:</b>	10...21 °C	25...40 °C	
[% rdg. + % f.s.):	0,002+0,001	0,01+0,01	
<b>Voltage:</b>	<600 mV to 1,5 V		
<b>Response time:</b>	1.5 sec to within 0.1% of rdg.		
<b>Crest factor:</b>	7:1 (max. 5 x range)		
<b>Overload protection:</b>	Fuse FF 1 A 250 V		

### Resistance specifications

<b>Ranges:</b>	100Ω, 1kΩ, 10kΩ, 100kΩ, 1MΩ, 10MΩ		
<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>	At 25 ±2 °C in % rdg. + % f.s. for one year		
	1 Jahr; 23 ±2°C	Temperature coefficient	
Range	%rdg. + %f.s.	10...21 °C and 25...40 °C	
100 Ω	0.005 + 0.0015	0.0008	
1 kΩ	0.005 + 0.001	0.0008	
10 kΩ	0.005 + 0.001	0.0008	
100 kΩ	0.005 + 0.001	0.0008	
1 MΩ	0.05 + 0.002	0.002	
10 MΩ	0.5 + 0.02	0.01	

<b>Measuring current:</b>	<b>Range</b>	<b>Current</b>
	100 Ω, 1kΩ	1 mA
	10 kΩ	100 μA
	100 kΩ	10 μA
	1 MΩ	1 μA
	10 MΩ	100 nA

**max. measuring voltage:** approx. 3 V

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

### Temperature measurement specifications

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

### NiCr-Ni (K-Type)

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

### Fe-CuNi (J-Type)

<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% (rdg.)
<b>Measuring time:</b>	1 to 2 sec

### RS-232 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 s)

### 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>Protectiv class:</b>	I, EN 61010 (IEC 1010)
<b>Mains voltage:</b>	105-254 V; 50/60 Hz
<b>Power consumption:</b>	approx. 8 W
<b>Operating temperature:</b>	+10 °C...+40 °C
<b>Storage temperature:</b>	-40 °C...+70 °C
<b>Humidity:</b>	<75 %, no condensation
<b>Size (W x H x D):</b>	285 x 75 x 365 mm
<b>Weight:</b>	approx. 3 kg

Subject to change without notice

Included in delivery: Multimeter HM8112-3, Line cord, manual, HZ15 measuring cables

Accessories optional:

HZ887: Temperature sensor (PT100; -50°C...+400°C )

HZ42: 19" rackmount-kit 2RU for frame height 75mm