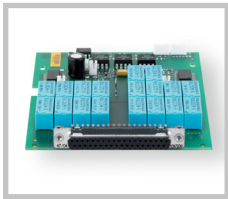


## 6½-Digit Precision Multimeter HM8112-3



HM8112-3

HM8112-3S: Multimeter with built-in Scanner Card (8+1 channels, 2 and 4 wire)



HZ42 19" Rackmount kit 2 RU



Precise temperature measurement with sensor



- ✓ 6½-digit display (1,200,000 counts)
- ✓ Resolution: 100nV, 100pA, 100μΩ, 0.01°C/F
- ✓ DC basic accuracy 0.003%
- ✓ 2-wire/4-wire measurements
- ✓ Measurement intervals adjustable from 0.1s...60 s
- ✓ Up to 100 measurements transmitted to PC per second
- ✓ True RMS measurement, AC and DC+AC
- ✓ Mathematic functions: limit testing, minimum/maximum, average and offset
- ✓ Temperature measurements with platinum (PT100/PT1000) and Ni (K and J types) sensors
- ✓ Internal data logger for up to 32,000 measurement results
- ✓ Offset correction
- ✓ Galvanically isolated USB/RS-232 Interface, optional IEEE-488
- ✓ optional: Scanner Card (8+1 Channels each 2 and 4 wire)

## 6½-Digit Precision Multimeter HM8112-3

All data valid at 23 °C after 30 minute warm-up

### 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 (rdg.) + % of full scale (f.s.)]		
<b>Range</b>	<b>1 year; 23°C ± 2°C</b>	<b>%rdg.</b>	<b>%f.s.</b>
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>Temp. coefficient</b>	<b>10°C...21°C + 25°C...40°C</b>		
0.1 V	0.0008		
1.0 V	0.0008		
10.0 V	0.0008		
100.0 V	0.0008		
600.0 V	0.0008		
<b>Integration time:</b>	0.1 s	1...60 s	
<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>Zero point</b>			
<b>Temperature drift:</b>	better than 0.3 µV/°C		
<b>Long-term stability:</b>	better than 3 µV for 90 days		

### AC specifications

<b>Measurement ranges:</b>	0.1 V; 1 V; 10 V; 100 V; 600 V		
<b>Measurement method:</b>	true rms DC or AC coupled (not in 0.1 V range)		
<b>Input impedance:</b>			
0.1 V, 1 V:	1 GΩ    < 60 pF		
10 V...600 V:	10 MΩ    < 60 pF		
<b>Response time:</b>	1.5 sec to within 0.1 % of reading		
<b>Accuracy:</b>	For sine wave signals > 5 % of full scale. Values given are in ± [% of reading + % of full scale]; 23°C ± 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			

<b>Temperature coefficient 10°C...21°C and 25°C...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 s	1...60 s
<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>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 s	1...60 s	
<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°C ± 2°C)	0.02 + 0.002	0.1 + 0.08	0.2 + 0.08
<b>Temperature coefficient /°C:</b>	10°C...21°C	25°C...40°C	
(%rdg. + %f.s.)	0.002+0.001	0.01+0.01	
<b>Voltage:</b>	< 600 mV...1.5 V		
<b>Response time:</b>	1.5 s to within 0.1 % of reading		
<b>Crest factor:</b>	7:1 (max 5 x range)		
<b>Input protection:</b>	fuse, FF 1 A 250 V		

### Resistance

<b>Ranges:</b>	100 Ω, 1 kΩ, 10 kΩ, 100 kΩ, 1 MΩ, 10 MΩ			
<b>Integration time:</b>	0.1 s	1...60 s		
<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]			
<b>Range</b>	<b>1 year; 23°C ± 2°C</b>	<b>%rdg.</b>	<b>%f.s.</b>	<b>Temp. coefficient /°C</b>
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
<b>max. measurement voltage:</b>	approx. 3 V	
<b>Overload protection:</b>	250 V <sub>p</sub>	

### Temperature measurement

<b>PT100 / PT1000 (EN60751):</b>	2- and 4-wire measurement
<b>Range:</b>	-200 °C...+ 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°C...21°C and 25°C...40°C:	< 0.0018 °C/°C
<b>NiCr-Ni (K-type)</b>	
<b>Range:</b>	-270 °C...+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...+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...100 kHz
<b>Resolution:</b>	0.00001 Hz...1 Hz
<b>Accuracy:</b>	0.05 % of reading
<b>Measurement time:</b>	1...2 s

### Interface

<b>Interface:</b>	USB/RS-232 (HO820), IEEE-488 (option)
<b>Data rate (RS-232):</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...60 s)

### Miscellaneous

<b>Time to change range or function</b>	approx. 125 ms with DC voltage, DC current, resistance approx. 1 s 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, CAT II
<b>Power consumption:</b>	approx. 8 W
<b>Operating temperature:</b>	+5°C...+40°C
<b>Storage temperature:</b>	-20°C...+70°C
<b>Rel. humidity:</b>	5%...80% (non condensing)
<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 HZ14  
**Optional accessories:** HZ887 Temperature sensor (PT100; -50 °C...+ 400 °C), HZ42 19" Rackmount kit 2RU, HZ10S/R Silicone test lead, HO880 IEEE-488 (GPIB) Interface (galvanically isolated), HO112 Scanner Card (Installation only ex factory) as HM8112-3S

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