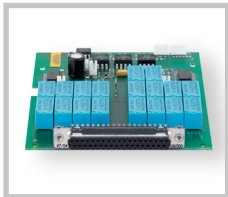


6½-Digit Precision Multimeter HM8112-3

**HM8112-3**

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



HZ42 19" Rackmount Kit
2RU



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 0.1...60s
- ✓ 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 (GPIB)
- ✓ 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 minutes warm-up.

DC specifications

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

Range	1 year; % rdg.	23 °C ±2 °C % f.s.	Temp. coefficient 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

Integration time:	0.1 s	1...60 s
Display range:	120.000 digit	1,200.000 digit
600V range:	60.000 digit	600.000 digit
Resolution:	1 μV	100 nV
Zero point		
Temperature drift:	better than 0.3 μV/°C	
Long-term stability:	better than 3 μV for 90 days	

AC specifications

Measurement ranges:	0.1V; 1V; 10V; 100V; 600V
Measurement method:	true rms DC or AC coupled (not in 0.1V range)
Input impedance:	
0.1V, 1V:	1 GΩ <60 pF
10...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 °C ±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 (5 kHz)			
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			

Temperature coefficient 10...21 °C and 25...40 °C; (% rdg. + % f.s.)		
at 20 Hz...10 kHz:	0.01 + 0.008	
at 10...100 kHz:	0.08 + 0.01	
Crest factor:	7:1 (max. 5x range)	
Integration time:	0.1 s	1...60 s
Display range:	120.000 digit	1,200.000 digit
600V 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 s	1...60 s	
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...5 kHz
(1 year; 23 °C ±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...1.5V		
Response time:	1.5 s to within 0.1% of reading		
Crest factor:	7:1 (max. 5 x range)		
Input protection:	fuse, FF 1A 250V		

Resistance

Ranges:	100 Ω, 1 kΩ, 10 kΩ, 100 kΩ, 1 MΩ, 10 MΩ	
Integration time:	0.1 s	1...60 s
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; %rdg	23 °C ±2 °C %f.s.	Temp. coefficient/°C 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. 3V	
Overload protection:	250V _p	

Temperature measurement

PT100/PT1000 [EN60751]:	2- and 4-wire measurement
Range:	-200...+800 °C
Resolution:	0.01 °C; measurement current 1 mA
Accuracy:	±(0.05 % rdg. + sensor tolerance + 0.08 K)
Temperature coefficient	
10...21 °C and 25...40 °C:	<0.0018 °C/°C
NiCr-Ni (K-type)	
Range:	-270...+1,372 °C
Resolution:	0.1 °C
Accuracy:	±(0.7 % rdg. + 0.3 K)
NiCr-Ni (J-type)	
Range:	-210...+1,200 °C
Resolution:	0.1 °C
Accuracy:	±(0.7 % rdg. + 0.3 K)

Frequency and period specifications

Range:	1 Hz...100 kHz
Resolution:	0.00001...1 Hz
Accuracy:	0.05 % of reading
Measurement time:	1...2 s

Interface

Interface:	USB/RS-232 (HO820), IEEE-488 (option)
Functions:	Control/Data fetch
Inputs:	Function, range, integration time, start command
Outputs:	Measurement results, function, range, integration time (10 ms...60 s)

Miscellaneous

Time to change range or function	approx. 125 ms with DC voltage, DC current, resistance approx. 1 s with AC voltage, AC current
Memory:	30,000 readings/128 kB
Safety class:	Safety class I [EN 61010]
Power supply:	105...254V~; 50/60 Hz, CAT II
Power consumption:	approx. 8W
Operating temperature:	+5...+40 °C
Storage temperature:	-20...+70 °C
Rel. humidity:	5...80 % (non condensing)
Dimensions (W x H x D):	285 x 75 x 365 mm
Weight:	approx. 3 kg

Accessories supplied: Line cord, Operating manual, PVC test lead (HZ15), Interface cable (HZ14)

Recommended accessories:

H0112	Scanner Card (Installation only ex factory) as HM8112-3S
H0880	IEEE-488 (GPIB) Interface (galvanically isolated)
HZ10S	5 x Silicone test lead black
HZ10R	5 x Silicone test lead red
HZ10B	5 x Silicone test lead blue
HZ13	Interface cable (USB) 1.8 m
HZ33	Test cable 50 Ω, BNC/BNC, 0.5 m
HZ34	Test cable 50 Ω, BNC/BNC, 1 m
HZ42	19" Rackmount kit 2RU
HZ72	GPIB-Cable 2 m
HZ887	Temperature probe