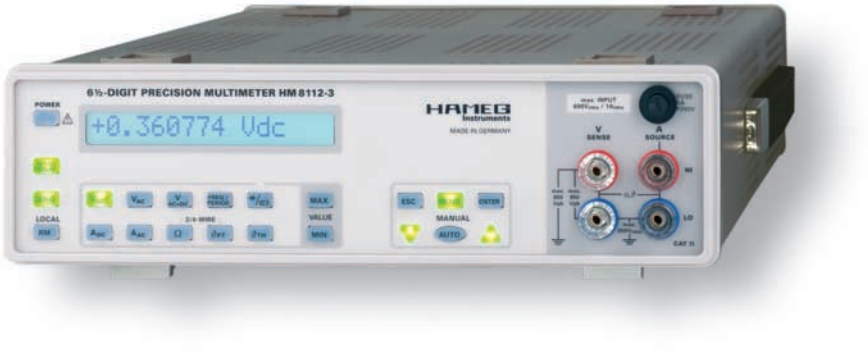
6½ - Digit Precision Multimeter
HM8112-3



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

RS-232 optional IEEE 488 optional USB

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 %rdg.	%f.s.	Temp. coefficient 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

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 0.3 V/° 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 II ‹ 60 pF
10 V, 100 V, 600 V:	10 MΩ II ‹ 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 %rdg.	%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. 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 Temperature sensor (PT100; -50° C to + 400° C), HZ42 19" Rackmount kit 2RU, HZ10 Silicone test leads

HAMEG Instruments GmbH · Industriestr. 6 · D-63533 Mainhausen · Tel +49 (0) 6182 800 0 · Fax +49 (0) 6182 800 100 · www.hameg.com · info@hameg.com
A Rohde & Schwarz Company