



ABN 43 064 478 842

231 Osborne Avenue Clayton South, VIC 3169
PO Box 1548, Clayton South, VIC 3169
t 03 9265 7400 f 03 9558 0875
freecall 1800 680 680
www.tmgtestequipment.com.au

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Complimentary Reference Material

This PDF has been made available as a complimentary service for you to assist in evaluating this model for your testing requirements.

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TMG will assist if you are unsure whether this model will suit your requirements.

Call TMG if you need to organise repair and/or calibrate your unit.

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Product Lifecycle Management System

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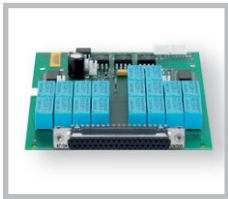


6½-Digit Precision Multimeter HM8112-3

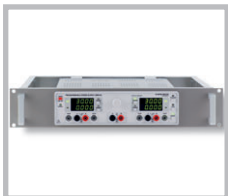
HM8112-3



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



HZ42 19" Rackmount kit 2 RU



Precise temperature
measurement with sensor



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

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

RS-232 Interface, optional: USB, IEEE-488

optional: Scanner Card (8+1 Channels each 2 and 4 wire)

6½-Digit Precision Multimeter HM8112-3

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

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; 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
Integration time:	0.1 sec	1 to 60 sec	
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 0.3V/°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			
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			

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
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 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: (%rdg. + %f.s.)	10...21 °C	25...40 °C	
	0.002+0.001	0.01+0.01	
Voltage:	< 600 mV to 1.5V		
Response time:	1.5 sec 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 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		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

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:	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

Interface:	RS-232 (standard), IEEE-488 or USB (opt.)
Data rate:	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 °C to +40 °C
Storage temperature:	-40 °C 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 HZ14
Optional accessories:	HZ887 Temperature sensor (PT100; -50 °C to + 400 °C), HZ42 19" Rackmount kit 2RU, HZ10S/R Silicone test lead, HO870 USB Interface, HO880 IEEE-488 (GPIB) Interface, HO890 RS-232 Interface, HO112 Scanner Card (Installation only ex factory)

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