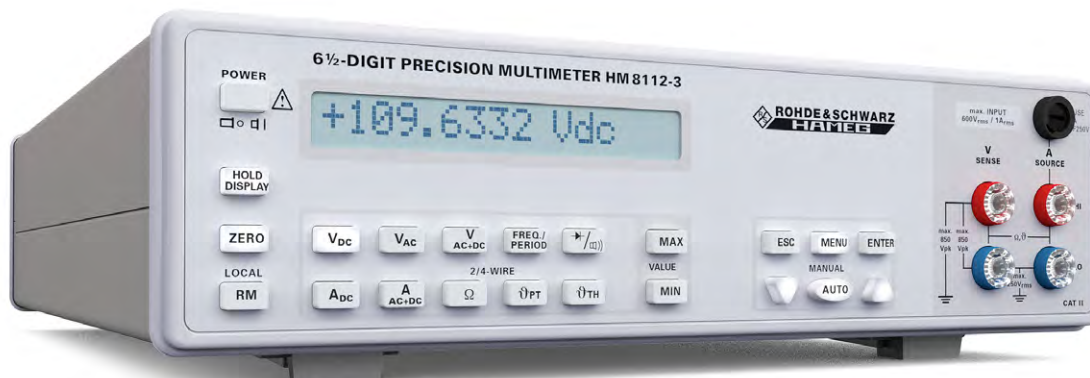


Цифровой мультиметр HM8112-3



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Technical Data

6½-Digit Multimeter

HM8112-3

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

DC specifications

Ranges HM8112-3:	0.1V; 1V; 10V; 100V; 600V
Ranges HM8112-3S:	0.1V; 1V; 10V; 100V
Input impedance:	
0.1V, 1,0V:	>1GΩ
10V, 100V, 600V:	10MΩ

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...60s
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

Ranges HM8112-3:	0.1V; 1V; 10V; 100V; 600V
Ranges HM8112-3S:	0.1V; 1V; 10V; 100V
Measurement method:	true rms, DC or AC coupled (not in 0.1V range)
Input impedance:	
0.1V and 1V	1GΩ <60pF
10...600V	10MΩ <60pF
Response time:	1.5sec 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 20Hz...10kHz	0.01 + 0.008	
at 10...100kHz	0.08 + 0.01	
Crest factor:	7:1 (max. 5x range)	
Integration time:	0.1 s	1...60s
Display range:	120.000 Digit	1.200.000 Digit
600V range:	60.000 Digit	600.000 Digit
Resolution:	1 μV	100 nV

Maximum input voltage LOW against chassis/safety earth:

Ranges:	alle
all the time:	850V _{peak} oder 600V _{DC}
Maximum input voltage LOW against chassis/safety earth:	250V _{rms} at max. 60Hz or 250V _{DC}

Current specifications

Ranges:	100 μA; 1 mA; 10 mA; 100 mA; 1 A	
Integration time:	0.1 s	1...60s
Display ranges:	120.000 Digit	1.200.000 Digit
1 A range	60.000 Digit	600.000 Digit
Resolution:	1 nA	100 pA

Accuracy: (1 year; 23 ±2°C)	DC	45Hz...1kHz	1...5kHz
Temperature coefficient/°C: (%rdg. + %f.s.)	0.02 + 0.002	0.1 + 0.08	0.2 + 0.08
Voltage:	<600mV...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 1 A 250V		

Resistance

Ranges:	100Ω, 1kΩ, 10kΩ, 100kΩ, 1MΩ, 10MΩ	
Integration time:	0.1 s	1...60s
Display ranges:	120.000 Digit	1.200.000 Digit
Resolution:	1 μΩ	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
100Ω	0.005	0.0015	0.0008	0.0008
1kΩ	0.005	0.001	0.0008	0.0008
10kΩ	0.005	0.001	0.0008	0.0008
100kΩ	0.005	0.001	0.0008	0.0008
1MΩ	0.05	0.002	0.002	0.002
10MΩ	0.5	0.02	0.01	0.01

Measurement current:	Range	Current
	100Ω, 1kΩ	1 mA
	10kΩ	100 μA
	100kΩ	10 μA
	1MΩ	1 μA
	10MΩ	100 nA

Max. measurement voltage:	approx. 3V
Overload protection:	250Vp

Temperature measurement

PT100/PT1000 (EN60751):	2- und 4-wire measurement
Range	-200...+800°C
Resolution	0.01°C; measurement current 1 mA
Accuracy	±(0.05°C + sensor tolerance + 0.08K)
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. + 0.3K)

NiCr-Ni (J-type):	
Range	-210...+1.200°C
Resolution	0.1°C
Accuracy	±(0.7% rdg. + 0.3K)

Frequenzmessung und Periodendauer

Range:	1 Hz...100kHz
Resolution:	0.00001...1 Hz
Accuracy:	0.05% (rdg.)
Measurement time:	1...2s

Interface

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

Miscellaneous

Time to change range or function:	approx. 125ms with DC voltage, DC current, resistance approx. 1s with AC voltage, AC current
Memory:	30.000 readings/128kB

Safety class:	Safety class I (EN 61010-1)
Power supply:	105...254V~; 50...60Hz, 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 365mm
Weight:	ca. 3kg

Technical Data Scanner Card HO112

Channels:	8 (4-wire)
Switching:	bistable, floating relais
Thermal voltage:	typ. 500 nV, max. 1µV*)
Max. voltage between 2 contacts:	125 Vpk
Max. measuring voltage:	125 Vpk - also V/Ω-input -
Volt-Hertz-Product:	≤ 1 x 10 ⁶ V · Hz
Max. switching current:	1 Aeff
Max. contact resistance:	approx. 1 Ω (each wire)
Life time:	2 x 10 ⁸ switches (0.1 A; 10 VDC)
Insulating resistance:	3 GΩ **)
Capacity:	>100 pF, between contacts
Switching delay:	20 ms
Measurement delay:	between 50 ms and 300 ms

*) max. 1 µV after a warm-up of 1.5 h

***) at rel. humidity <60%

Key facts

- 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
- Measurements Intervals adjustable from 0.1...60s
- Up to 100 Measurements per Second transmitted to a PC
- True RMS Measurements, 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 dual interface, optional IEEE-488 (GPIB)
- [HM8112-3S]: HM8112-3 incl. Scanner Card (8+1 Channels each 2- and 4-wire)

Accessories supplied:

Line cord, Operating manual, PVC test lead (HZ15), Interface cable (HZ14), CD

Recommended accessories:

HO112 Scanner Card (Installation only ex factory) as HM8112-3S
 HO880 Interface IEEE-488 (GPIB), galvanically isolated
 HZ10S 5 x silicone test lead (measurement connection in black)
 HZ10R 5 x silicone test lead (measurement connection in red)
 HZ10B 5 x silicone test lead (measurement connection in blue)
 HZ13 Interface cable (USB) 1.8m
 HZ33 Test cable 50Ω, BNC/BNC, 0.5m
 HZ34 Test cable 50Ω, BNC/BNC, 1.0m
 HZ42 19" Rackmount kit 2RU
 HZ72 GPIB-Cable 2m
 HZ887 Temperature probe

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