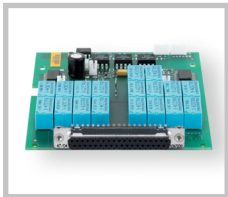


6½-Digit Precision Multimeter HM8112-3



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 0.1s...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

| | | | |
|-----------------------------|--|-----------------|--------------|
| 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°C ± 2°C | %rdg. | %f.s. |
| 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 |
| Temp. coefficient | 10°C...21°C + 25°C...40°C | | |
| 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 | | |
| Integration time: | 0.1 s | 1...60 s | |
| 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 µV/°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 < 60 pF | | |
| 10 V...600 V: | 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 |
|---------|---------------|--------------|-------------|--------------|---------------|
| 0.1 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°C...21°C and 25°C...40°C; (% rdg. + % f.s.) | | |
| at 20 Hz...10 kHz: | 0.01 + 0.008 | |
| at 10 kHz...100 kHz: | 0.08 + 0.01 | |
| Crest factor: | 7:1 (max. 5 x range) | |
| Integration time: | 0.1 s | 1...60 s |
| 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 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 kHz...5 kHz |
| (1 year; 23°C ± 2°C) | 0.02 + 0.002 | 0.1 + 0.08 | 0.2 + 0.08 |
| Temperature coefficient /°C: | 10°C...21°C | 25°C...40°C | |
| (%rdg. + %f.s.) | 0.002+0.001 | 0.01+0.01 | |
| Voltage: | < 600 mV...1.5 V | | |
| 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 250 V | | |

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; 23°C ± 2°C | %rdg. | %f.s. | Temp. coefficient /°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...+ 800 °C |
| Resolution: | 0.01 °C; measurement current 1 mA |
| Accuracy: | ± [0.05 °C + sensor tolerance + 0.08 K] |
| Temperature coefficient | |
| 10°C...21°C and 25°C...40°C: | < 0.0018 °C/°C |
| NiCr-Ni (K-type) | |
| Range: | -270 °C...+1372 °C |
| Resolution: | 0.1 °C |
| Accuracy: | ± [0.7 % rdg. + 0.3 K] |
| NiCr-Ni (J-type) | |
| Range: | -210 °C...+1200 °C |
| Resolution: | 0.1 °C |
| Accuracy: | ± [0.7 % rdg. + 0.3 K] |

Frequency and period specifications

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

Interface

| | |
|----------------------------|---|
| Interface: | USB/RS-232 (HO820), IEEE-488 (option) |
| Data rate (RS-232): | 9600 or 19200 Baud |
| 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...254 V~; 50/60 Hz, CAT II |
| Power consumption: | approx. 8 W |
| Operating temperature: | +5°C...+40°C |
| Storage temperature: | -20°C...+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: 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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