

Data Sheet

Features

- Selectable 120,000 / 40,000 / 4,000 Count
- Dual Display
- True RMS (AC, AC+DC), 40Hz to 30KHz Measurement Bandwidth
- 2 or 4 wire selectable for Resistance Measurements
- MIN/MAX
- Selectable measurement rates
- Data Hold
- RS 232 interface
- GPIB version available (model 5492GPIB)

Specifications

model

| | 5492 |
|---|-------------------|
| DC Voltage | |
| Maximum Range | 1000V |
| Best Accuracy | 0.012% + 5 dgts.* |
| Best Resolution | 10mV* |
| AC Voltage (True RMS) Freq. 50Hz to 5KHz | |
| Maximum Range | 750V |
| Best Accuracy | 1% + 40 dgts.* |
| Best Resolution | 10mV* |
| DBm (600W Ref.) | |
| Range | -31 to 59* |
| Resolution | 0.01dB |
| Best Accuracy | 0.8dB* |
| DC Current | |
| Maximum Range | 12A |
| Best Accuracy | 0.1 + 3 dgts.* |
| Best Resolution | 1mA* |
| AC Current (True RMS, AC Coupled) Freq. 50Hz to 2KHz | |
| Maximum Range | 12A |
| Best Accuracy | 0.5 + 12 dgts.* |
| Best Resolution | 1mA* |
| Resistance | |
| Maximum Range | 300MW |
| Best Accuracy | 0.06 + 3 dgts.* |
| Best Resolution | 10mV* |
| Frequency | |
| Maximum Range | 120KHz |
| Best Accuracy | 0.005 + 2 dgts. |
| Best Resolution | 10mHz |

* = Medium Measurement Rate



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Specifications subject to change without notice



Specifications assumptions:

- One-year calibration cycle.
- Operating temperature at 18°C to 28°C (64.4°F to 82.4°F).
- Accuracy is expressed as: \pm % of reading + digits) after 30 minutes warm-up.
- Temperature coefficient: Add \pm [0.15 x (the applicable accuracy)]/°C for 0°C to 18°C and 28°C to 50°C.
- Relative Humidity (RH) up to 80% for 0°C to 28°C (75% RH for 12M Ohm and above ranges of resistance measurement); up to 70% for 28°C to 35°C; up to 50% for 35°C to 50°C
- All specifications are specified under single display mode in operation only.

Display Counts and Reading Rates

Full Scale Display Counts

| Slow | Medium | Fast |
|---------|--------|-------|
| 119,999 | 39,999 | 3,999 |

Reading Rates on Single Display (Readings/Sec)

| Measurement Functions | Slow | Medium | Fast |
|---|------|--------|------|
| DCV | 2 | 5 | 20 |
| DCA | 2 | 5 | 20 |
| Diode | 2 | 5 | 20 |
| ACV | 2 | 4.2 | 20 |
| ACA | 2 | 4.2 | 20 |
| 2-wires Ohm | 2 | 4 | 17 |
| 4-wires Ohm 4M Ohm/1.2M Ohm range and below | 0.6 | 0.8 | 0.9 |
| 4-wires Ohm 12M Ohm range and above | 1.4 | 1.7 | 1.9 |
| Frequency | 1.2 | 1.7 | 2.4 |
| ACV+DCV | 0.4 | 0.5 | 0.7 |
| ACA+DCA | 0.4 | 0.5 | 0.7 |

Reading Rates on Dual Display (Readings/Sec)

| Measurement Functions | Slow | Medium | Fast |
|--------------------------|------|--------|------|
| DCV / ACV | 0.7 | 1.0 | 1.9 |
| DCA / ACA | 0.7 | 1.0 | 1.9 |
| DCV / DCA | 0.7 | 1.0 | 1.9 |
| DCV / ACA | 0.2 | 0.2 | 0.5 |
| ACV / ACA | 0.2 | 0.2 | 0.5 |
| ACV / DCA | 0.7 | 1.0 | 1.9 |
| ACV / Frequency | 0.5 | 0.7 | 1.1 |
| ACA / Frequency | 0.6 | 0.8 | 1.3 |
| ACV+DCV / DCV | 0.5 | 0.6 | 0.9 |
| ACA+DCA / DCV | 0.1 | 0.2 | 0.4 |
| ACA+DCA / ACV | 0.1 | 0.2 | 0.4 |
| ACA+DCA / DCA | 0.5 | 0.6 | 0.9 |
| dBm(ACV) / Reference Ohm | 2.1 | 4.2 | 11.9 |
| dBm(ACV) / ACV | 0.7 | 1.0 | 1.7 |
| dBm(ACV) / DCV | 0.6 | 1.0 | 1.7 |
| dBm(ACV) / Frequency | 0.7 | 1.0 | 1.7 |

Note 1: Above table shows some common combinations and applications of using dual display.

Note 2: Using RS-232 or GPIB remote interface, the reading rate approximates to normal mode.

DC Voltage

Resolution, Full Scale Reading and Accuracy

| Rate ⁽¹⁾ | Range | Resolution | Full Scale Reading | Accuracy (1 year) | Typical Input Impedance ⁽⁴⁾ |
|---------------------|-------|------------|--------------------|-------------------|--|
| S | 120mV | 1uV | 119.999 | 0.012% + 2 | 10.0M Ohm |
| | 1.2V | 10uV | 1.19999 | 0.012% + 2 | 10.0M Ohm |
| | 12V | 100uV | 11.9999 | 0.012% + 2 | 11.1M Ohm |

| | | | | | |
|----------|---------------|-------------|-----------------------------------|---------------------------|------------------------|
| | 120V 1000V | 1mV 10mV | 119.999 1000.00 ⁽³⁾ | 0.012% + 2 0.012% + 2 | 10.1M Ohm 10.0M Ohm |
| M | 400mV | 10uV | 399.99 | 0.012% + 5 | 10.0M Ohm |
| | 4V | 100uV | 3.9999 | 0.012% + 5 | 11.1M Ohm |
| | 40V | 1mV | 39.999 | 0.012% + 5 | 10.1M Ohm |
| | 400V | 10mV | 399.99 | 0.012% + 5 | 10.0M Ohm |
| | 1000V | 100mV | 1000.0 ⁽³⁾ | 0.012% + 5 | 10.0M Ohm |
| F | 400mV | 100uV | 399.9 | 0.012% + 8 ⁽²⁾ | 10.0M Ohm |
| | 4V | 1mV | 3.999 | 0.012% + 5 | 11.1M Ohm |
| | 40V | 10mV | 39.99 | 0.012% + 5 | 10.1M Ohm |
| | 400V | 100mV | 399.9 | 0.012% + 5 | 10.0M Ohm |
| | 1000V | 1V | 1000 ⁽³⁾ | 0.012% + 5 | 10.0M Ohm |

⁽¹⁾ Rate: S (Slow), M (Medium), and F (Fast).

⁽²⁾ Use relative (REL) modifier.

⁽³⁾ In Vdc 1000V range, 5% over-range (1050Vdc) is readable.

⁽⁴⁾ Input Impedance is in paralleled with capacitance <120pF.

- Maximum input voltage: 1000Vdc or peak ac on any range
- Response Time: Approximately 1.0 second when the displayed reading reaches 99.9% dc value of the tested input signal at the same range.

Note: When voltage (ac+dc) measurement function is selected, the Vdc input impedance is paralleled with an ac-coupled 1.1M Ohm ac divider.

Noise Rejection Ratio

| Rate | CMRR ⁽¹⁾ | NMRR ⁽²⁾ |
|-----------|--|-------------------------|
| S / M / F | >90dB at dc, 50/60Hz ± 0.1% (1k Ohm Unbalanced) | >50dB at 50/60Hz ± 0.1% |

⁽¹⁾ CMRR is the Common Mode Reject Ratio

⁽²⁾ NMRR is the Normal Mode Rejection Ratio

AC Voltage (True RMS, AC Coupling Mode)

Resolution and Full Scale Reading

| Range | | Resolution | | | Full Scale Reading | | |
|-------|-------|------------|-------|-------|-----------------------|----------------------|--------------------|
| S | M & F | S | M | F | S | M | F |
| 120mV | 400mV | 1uV | 10uV | 100uV | 119.999 | 399.99 | 399.9 |
| 1.2V | 4V | 10uV | 100uV | 1mV | 1.19999 | 3.9999 | 3.999 |
| 12V | 40V | 100uV | 1mV | 10mV | 11.9999 | 39.999 | 39.99 |
| 120V | 400V | 1mV | 10mV | 100mV | 119.999 | 399.99 | 399.9 |
| 750V | 750V | 10mV | 100mV | 1V | 750.00 ⁽¹⁾ | 750.0 ⁽¹⁾ | 750 ⁽¹⁾ |

⁽¹⁾ In Vac 750V range, 5% over-range (787.5V rms) is readable

Accuracy

| Rate | Range | Accuracy (1 year) ⁽¹⁾ | | | |
|--|-----------|----------------------------------|------------------------------------|--------------|-------------------------|
| | | 20 to 45 Hz | 45 to 10k Hz | 10 to 30 kHz | 30 to 100 kHz |
| S | 120.000mV | 1% + 5 | 0.2% + 5 | 1.5% + 10 | 5% + 15 |
| | 1.20000V | 1% + 5 | 0.2% + 5 | 1% + 5 | 3% + 10 |
| | 12.0000V | 1% + 5 | 0.2% + 5 | 1% + 5 | 3% + 10 |
| | 120.000V | 1% + 5 ⁽²⁾ | 0.2% + 5 | 1% + 5 | 3% + 10 |
| | 750.00V | 1% + 5 ⁽²⁾ | 0.2% + 5 | 1% + 5 | 3% + 10 ⁽³⁾ |
| M | 400.00mV | 1% + 40 | 0.2% + 40 | 1.5% + 80 | 5% + 120 |
| | 4.0000V | 1% + 40 | 0.2% + 40 | 1% + 40 | 3% + 80 |
| | 40.000V | 1% + 40 | 0.2% + 40 | 1% + 40 | 3% + 80 |
| | 400.00V | 1% + 40 ⁽²⁾ | 0.2% + 40 | 1% + 40 | 3% + 80 |
| | 750.0V | 1% + 40 ⁽²⁾ | 0.2% + 40 | 1% + 40 | 3% + 80 ⁽³⁾ |
| F | 400.0mV | 1% + 100 | 0.2% + 100 | 1.5% + 300 | 5% + 300 |
| | 4.000V | 1% + 100 | 0.2% + 100 | 1% + 100 | 3% + 200 |
| | 40.00V | 1% + 100 | 0.2% + 100 | 1% + 100 | 3% + 200 |
| | 400.0V | 1% + 100 | 0.2% + 100 | 1% + 100 | 3% + 200 |
| | 750V | 1% + 100 ⁽²⁾ | 0.2% + 100 | 1% + 100 | 3% + 200 ⁽³⁾ |
| ⁽¹⁾ Specified accuracy at input >5% of full scale | | | | | |
| ⁽²⁾ For input <200V rms | | | ⁽³⁾ For input <500V rms | | |

- Measurement method: True RMS
- Maximum Crest Factor: 3.0 at full scale
- Maximum input voltage: 750V rms, 1100V peak ac
2x10⁷ V-Hz product on any range, normal mode input
1x10⁶ V-Hz product on any range, common mode input
- Input Impedance: 1M Ohm in parallel with capacitance <120pF
- Response Time: Approximately 1.5 seconds when the displayed reading reaches 99.9% ac rms value of the tested input signal at the same range.

AC Voltage (True RMS, AC+DC Coupling Mode)

Resolution and Full Scale Reading

| Range ⁽¹⁾ | | Resolution | | | Full Scale Reading | | |
|----------------------|-------|------------|-------|-------|-----------------------|----------------------|--------------------|
| S | M & F | S | M | F | S | M | F |
| 120mV | 400mV | 1uV | 10uV | 100uV | 119.999 | 399.99 | 399.9 |
| 1.2V | 4V | 10uV | 100uV | 1mV | 1.19999 | 3.9999 | 3.999 |
| 12V | 40V | 100uV | 1mV | 10mV | 11.9999 | 39.999 | 39.99 |
| 120V | 400V | 1mV | 10mV | 100mV | 119.999 | 399.99 | 399.9 |
| 750V | 750V | 10mV | 100mV | 1V | 750.00 ⁽²⁾ | 750.0 ⁽²⁾ | 750 ⁽²⁾ |

(1) Vdc and Vac are automatically set at the same range
 (2) In Vac 750V range, 5% over-range (787.5V rms) is readable

Accuracy

| Rate | Range | Accuracy (1 year) ⁽¹⁾ | | |
|--|-----------|----------------------------------|------------------------------------|-------------------------|
| | | 45 to 10k Hz | 10 to 30 kHz | 30 to 100 kHz |
| S | 120.000mV | 0.2% + 7 | 1.5% + 12 | 5% + 18 |
| | 1.20000V | 0.2% + 7 | 1% + 7 | 3% + 12 |
| | 12.0000V | 0.2% + 7 | 1% + 7 | 3% + 12 |
| | 120.000V | 0.2% + 7 | 1% + 7 | 3% + 12 |
| | 750.00V | 0.2% + 7 | 1% + 7 | 3% + 12 ⁽²⁾ |
| M | 400.00mV | 0.2% + 45 | 1.5% + 83 | 5% + 125 |
| | 4.0000V | 0.2% + 43 | 1% + 43 | 3% + 83 |
| | 40.000V | 0.2% + 43 | 1% + 43 | 3% + 83 |
| | 400.00V | 0.2% + 43 | 1% + 43 | 3% + 83 |
| | 750.0V | 0.2% + 43 | 1% + 43 | 3% + 83 ⁽²⁾ |
| F | 400.0mV | 0.2% + 100 | 1.5% + 300 | 5% + 300 |
| | 4.000V | 0.2% + 100 | 1% + 100 | 3% + 200 |
| | 40.00V | 0.2% + 100 | 1% + 100 | 3% + 200 |
| | 400.0V | 0.2% + 100 | 1% + 100 | 3% + 200 |
| | 750V | 0.2% + 100 | 1% + 100 | 3% + 200 ⁽²⁾ |
| ⁽¹⁾ Specified accuracy at input >5% of full scale | | | ⁽²⁾ For input <500V rms | |

- Measurement method: True RMS AC+DC
- Maximum Crest Factor: 3.0 at full scale
- Maximum input voltage: 750V rms, 1100V peak ac
 2x10⁷ V-Hz product on any range, normal mode input
 1x10⁶ V-Hz product on any range, common mode input
- Input Impedance: 1M Ohm in parallel with capacitance <120pF
- Response Time: Approximately 2.5 seconds when the displayed reading reaches 99.9% (ac+dc) rms value of the tested input signal at the same range.

DC Current

| Rate | Range | Resolution | Full Scale Reading | Accuracy (1 year) | Burden Voltage ⁽¹⁾ & Shunt Resistor |
|------|--------|------------|--------------------|-------------------|--|
| S | 12mA | 0.1uA | 11.9999 | 0.1% + 2 | <0.15V / 10 Ohm |
| | 120mA | 1mA | 119.999 | 0.1% + 2 | <1.5V / 10 Ohm |
| | 1200mA | 10mA | 1199.99 | 0.15% + 2 | <0.3V / 0.1 Ohm |
| | 12A | 100mA | 11.9999 | 0.2% + 2 | <0.6V / 0.01 Ohm |

| | | | | | |
|---|--------|-------|--------|---------------------------|------------------|
| M | 40mA | 1uA | 39.999 | 0.1% + 6 | <0.5V / 10 Ohm |
| | 120mA | 10uA | 119.99 | 0.1% + 3 | <1.5V / 10 Ohm |
| | 1200mA | 100uA | 1199.9 | 0.15% + 3 | <0.3V / 0.1 Ohm |
| | 12A | 1mA | 11.999 | 0.2% + 3 | <0.6V / 0.01 Ohm |
| F | 40mA | 10uA | 39.99 | 0.05% + 15 ⁽²⁾ | <0.5V / 10 Ohm |
| | 120mA | 100uA | 119.9 | 0.05% + 5 | <1.5V / 10 Ohm |
| | 1200mA | 1mA | 1199 | 0.15% + 5 | <0.3V / 0.1 Ohm |
| | 12A | 10mA | 11.99 | 0.2% + 5 | <0.6V / 0.01 Ohm |
| ⁽¹⁾ Typical at full scale reading and voltage across the input terminals | | | | | |
| ⁽²⁾ Use relative (REL) modifier | | | | | |

- **Maximum Input and Overload Current Protection (for dc and ac current):**
mA Input Terminal: 1200mA dc or ac rms and protected with 2A/250V, IEC-127 sheet 1 fast blow fuse;
12A input terminal: 10A dc or ac rms continuous, or 12A dc or ac rms for 30 seconds maximum and protected with 15A/500V, breaking capacity 10,000A fast blow fuse.
- **Response Time:** Approximately 1.0 second when the displayed reading reaches 99.9% dc value of the tested input signal at the same range.

AC Current (True RMS, AC Coupling Mode)

Resolution, Full Scale Reading and Burden Voltage

| Rate | Range | Resolution | Full Scale Reading | Burden Voltage ⁽¹⁾ & Shunt Resistor |
|---|--------|------------|--------------------|--|
| S | 12mA | 0.1uA | 11.9999 | <0.15V / 10 Ohm |
| | 120mA | 1uA | 119.999 | <1.5V / 10 Ohm |
| | 1200mA | 10uA | 1199.99 | <0.3V / 0.1 Ohm |
| | 12A | 100uA | 11.9999 | <0.6V / 0.01 Ohm |
| M | 40mA | 1uA | 39.999 | <0.5V / 10 Ohm |
| | 120mA | 10uA | 119.99 | <1.5V / 10 Ohm |
| | 1200mA | 100uA | 1199.9 | <0.3V / 0.1 Ohm |
| | 12A | 1mA | 11.999 | <0.6V / 0.01 Ohm |
| F | 40mA | 10uA | 39.99 | <0.5V / 10 Ohm |
| | 120mA | 100uA | 119.9 | <1.5V / 10 Ohm |
| | 1200mA | 1mA | 1199 | <0.3V / 0.1 Ohm |
| | 12A | 10mA | 11.99 | <0.6V / 0.01 Ohm |
| ⁽¹⁾ Typical at full scale reading and rms voltage across the input terminals | | | | |

Accuracy

| Rate | Range | Accuracy (1 year) ⁽¹⁾ | | |
|----------|--------|----------------------------------|-------------|-------------|
| | | 20 to 45 Hz | 45 to 2k Hz | 2 to 10 kHz |
| S | 12mA | 1.5% + 5 | 0.5% + 5 | 2% + 10 |
| | 120mA | 1.5% + 2 | 0.5% + 2 | 2% + 5 |
| | 1200mA | 1.5% + 2 | 0.5% + 2 | 2% + 5 |

| | | | | |
|---|--------|------------------|------------|----------|
| | 12A | 2% + 2 (<1.2A) | 1% + 2 | - |
| M | 40mA | 1.5% + 40 | 0.5% + 40 | 2% + 80 |
| | 120mA | 1.5% + 12 | 0.5% + 12 | 2% + 30 |
| | 1200mA | 1.5% + 12 | 0.5% + 12 | 2% + 30 |
| | 12A | 2% + 12 (<1.2A) | 1% + 12 | - |
| F | 40mA | 1.5% + 100 | 0.5% + 100 | 2% + 200 |
| | 120mA | 1.5% + 100 | 0.5% + 100 | 2% + 200 |
| | 1200mA | 1.5% + 100 | 0.5% + 100 | 2% + 200 |
| | 12A | 2% + 100 (<1.2A) | 1% + 100 | - |
| (1) Specified accuracy at input >5% of full scale | | | | |

- Measurement method: True RMS
- Maximum Crest Factor: 3.0 at full scale
- Response Time: Approximately 1.5 seconds when the displayed reading reaches 99.9% ac rms value of the tested input signal at the same range.

AC Current (True RMS, AC+DC Coupling Mode)

Resolution, Full Scale Reading and Burden Voltage

| Rate | Range | Resolution | Full Scale Reading | Burden Voltage ⁽¹⁾ & Shunt Resistor |
|---|--------|------------|--------------------|--|
| S | 12mA | 0.1uA | 11.9999 | <0.15V / 10 Ohm |
| | 120mA | 1uA | 119.999 | <1.5V / 10 Ohm |
| | 1200mA | 10uA | 1199.99 | <0.3V / 0.1 Ohm |
| | 12A | 100uA | 11.9999 | <0.6V / 0.01 Ohm |
| M | 40mA | 1uA | 39.999 | <0.5V / 10 Ohm |
| | 120mA | 10uA | 119.99 | <1.5V / 10 Ohm |
| | 1200mA | 100uA | 1199.9 | <0.3V / 0.1 Ohm |
| | 12A | 1mA | 11.999 | <0.6V / 0.01 Ohm |
| F | 40mA | 10uA | 39.99 | <0.5V / 10 Ohm |
| | 120mA | 100uA | 119.9 | <1.5V / 10 Ohm |
| | 1200mA | 1mA | 1199 | <0.3V / 0.1 Ohm |
| | 12A | 10mA | 11.99 | <0.6V / 0.01 Ohm |
| (1) Typical at full scale reading and rms voltage across the input terminals | | | | |

Accuracy

| Rate | Range | Accuracy (1 year) ⁽¹⁾ | |
|----------|--------|----------------------------------|-------------|
| | | 45 to 2k Hz | 2 to 10 kHz |
| S | 12mA | 0.5% + 7 | 2% + 12 |
| | 120mA | 0.5% + 4 | 2% + 7 |
| | 1200mA | 0.5% + 4 | 2% + 7 |

| | | | |
|---|--------|------------|----------|
| | 12A | 1% + 4 | - |
| M | 40mA | 0.5% + 42 | 2% + 80 |
| | 120mA | 0.5% + 15 | 2% + 30 |
| | 1200mA | 0.5% + 15 | 2% + 30 |
| | 12A | 1% + 15 | - |
| F | 40mA | 0.5% + 100 | 2% + 200 |
| | 120mA | 0.5% + 100 | 2% + 200 |
| | 1200mA | 0.5% + 100 | 2% + 200 |
| | 12A | 1% + 100 | - |
| (1) Specified accuracy at input >5% of full scale | | | |

- Measurement range: Vdc and Vac are automatically set at the same range
- Measurement method: True RMS AC+DC
- Maximum Crest Factor: 3.0 at full scale
- Response Time: Approximately 2.5 seconds when the displayed reading reaches 99.9% (ac+dc) rms value of the tested input signal at the same range.

Resistance (2-wire Ohm and 4-wire Ohm)

| Rate | Range ⁽¹⁾ | Resolution | Full Scale Reading | Test Current | Accuracy (1 year) | |
|----------|----------------------|------------|--------------------|--------------|--------------------------|--------------------------|
| | | | | | 2-wire | 4-wire |
| S | 120 Ohm | 1m Ohm | 119.999 | 0.5mA | 0.1% + 2 ⁽²⁾ | 0.05% + 2 |
| | 1.2k Ohm | 10m Ohm | 1.19999 | 0.5mA | 0.08% + 2 | 0.05% + 2 |
| | 12k Ohm | 100m Ohm | 11.9999 | 100mA | 0.06% + 2 | 0.05% + 2 |
| | 120k Ohm | 1 Ohm | 119.999 | 10mA | 0.06% + 2 | 0.05% + 2 |
| | 1.2M Ohm | 10 Ohm | 1.19999 | 1mA | 0.15% + 2 | 0.15% + 2 |
| | 12M Ohm | 100 Ohm | 11.9999 | 100nA | 1.5% + 2 | 1.5% + 2 |
| | 120M Ohm | 1k Ohm | 119.999 | 10nA | 5.0% + 2 | 5.0% + 2 |
| | | | | | | |
| | | | | | | |
| M | 400 Ohm | 10m Ohm | 399.99 | 0.5mA | 0.1% + 5 ⁽²⁾ | 0.05% + 5 ⁽²⁾ |
| | 4k Ohm | 100m Ohm | 3.9999 | 100mA | 0.08% + 3 ⁽²⁾ | 0.05% + 3 |
| | 40k Ohm | 1 Ohm | 39.999 | 50mA | 0.06% + 3 | 0.05% + 3 |
| | 400k Ohm | 10 Ohm | 399.99 | 5mA | 0.06% + 3 | 0.05% + 3 |
| | 4M Ohm | 100 Ohm | 3.9999 | 500nA | 0.15% + 3 | 0.15% + 3 |
| | 40M Ohm | 1K Ohm | 39.999 | 50nA | 1.5% + 3 | 1.5% + 3 |
| | 300M Ohm | 10k Ohm | 299.99 | 10nA | 5.0% + 5 | 5.0% + 5 |
| | | | | | | |
| F | 400 Ohm | 100m Ohm | 399.9 | 0.5mA | 0.1% + 8 ⁽²⁾ | 0.05% + 8 ⁽²⁾ |
| | 4k Ohm | 1 Ohm | 3.999 | 100mA | 0.08% + 5 ⁽²⁾ | 0.05% + 5 ⁽²⁾ |
| | 40k Ohm | 10 Ohm | 39.99 | 50mA | 0.06% + 5 ⁽²⁾ | 0.05% + 5 |
| | 400k Ohm | 100 Ohm | 399.9 | 5mA | 0.06% + 5 | 0.05% + 5 |
| | 4M Ohm | 1k Ohm | 3.999 | 500nA | 0.06% + 5 | 0.05% + 5 |

| | | | | | | |
|--|----------------------------------|---------------------|----------------|--------------|----------------------|----------------------|
| | 4M Ohm 40M Ohm 300M Ohm | 10k Ohm 100k Ohm | 39.99 299.9 | 50nA 10nA | 0.3% + 5 3.0% + 8 | 0.3% + 5 3.0% + 8 |
|--|----------------------------------|---------------------|----------------|--------------|----------------------|----------------------|

⁽¹⁾ In order to eliminate the noise interference, which might be induced to the test leads, it is recommended to use a shielded test cable for measuring resistance above 120K Ohm.

⁽²⁾ Use relative (REL) modifier.

- Open Circuit Voltage: < +5.0V dc
- Zeroing error: 0.05 Ohm or less (excluding test lead resistances) in each range when REL modifier is used
- Response time: Approximately 1.5 seconds for 12M Ohm and ranges below 12M Ohm; approximately 5 seconds for 40M Ohm range; approximately 10 seconds for 120M Ohm ; approximately 25 seconds for 300M Ohm range.
- Maximum Input Protection: 500V dc or ac rms

Diode Test/Continuity

| Rate | Maximum Reading | Resolution |
|------|-----------------|------------|
| S | 1.19999V | 10mV |
| M | 2.4999V | 100mV |
| F | 2.499V | 1mV |

- Open Circuit Voltage: < +5.0V dc
- Test Current: Approximately 0.5mA dc
- Audible Tone: Continuous beep for continuity and single tone for normal forward-biased diode or semiconductor junction
- Continuity level: Approximately below +50mVdc
- Maximum Input Protection: 500V dc or ac rms

Resistance/Continuity (2-wire)

| Rate | Range | Resolution | Maximum Reading | Accuracy |
|------|---------|------------|-----------------|-------------------------|
| S | 120 Ohm | 1m Ohm | 119.999 | 0.1% + 2 ⁽¹⁾ |
| M | 400 Ohm | 10m Ohm | 399.99 | 0.1% + 5 ⁽¹⁾ |
| F | 400 Ohm | 100m Ohm | 399.9 | 0.1% + 8 ⁽¹⁾ |

⁽¹⁾ Use relative (REL) modifier

- Open Circuit Voltage: < +5.0V dc
- Test Current: Approximately 0.5mA dc
- Audible Tone: Continuous beep for reading is less than 10 Ohm
- Zeroing error: 0.05 Ohm or less (excluding test lead resistances) in each range when REL modifier is used

- Maximum Input Protection: 500V dc or ac rms

Frequency

Resolution, Full Scale Reading and Accuracy

| Range (Hz) | Measurement Range (Hz) | Resolution (Hz) | Full Scale Reading | Accuracy (1 year) ⁽¹⁾ | Input Sensitivity (Sine wave) |
|-------------------|------------------------|-----------------|--------------------|----------------------------------|-------------------------------|
| 1200 | 5 to 1200 | 10m | 1199.99 | 0.005 + 3 | 40mV rms |
| 12k | 10 to 12k | 100m | 11.9999 | 0.005 + 2 | |
| 120k | 100 to 120k | 1 | 119.999 | 0.005 + 2 | |
| 1M ⁽²⁾ | 1k to 1M | 10 | 1.19999 | 0.005 + 2 | 0.5V rms |

⁽¹⁾ Specified accuracy at input >5% of full scale

⁽²⁾ If tested frequency is greater than 1MHz, it will be displayed but no specified accuracy is guaranteed.

- Measurement method: True RMS
- Maximum Crest Factor: 3.0 at full scale
- Maximum input voltage: 750V rms, 1100V peak ac
 2×10^7 V-Hz product on any range, normal mode input
 1×10^6 V-Hz product on any range, common mode input
- Input Impedance: 1M Ohm in parallel with capacitance <120pF
- Response Time: Approximately 1.2 seconds when the displayed reading reaches 99.9% frequency value of the tested input signal at the same range.

dBm (decibel calculation)

Reference Impedance⁽¹⁾

| | | | |
|-----------------------|---------|------------------------|----------|
| 2 Ohm ⁽²⁾ | 50 Ohm | 135 Ohm | 800 Ohm |
| 4 Ohm ⁽²⁾ | 75 Ohm | 150 Ohm | 900 Ohm |
| 8 Ohm ⁽²⁾ | 93 Ohm | 250 Ohm | 1000 Ohm |
| 16 Ohm ⁽²⁾ | 110 Ohm | 300 Ohm | 1200 Ohm |
| | 124 Ohm | 500 Ohm | 8000 Ohm |
| | 125 Ohm | 600 Ohm ⁽³⁾ | |

⁽¹⁾ Reference impedance is displayed on the secondary display

⁽²⁾ Reading displayed in watts (Audio Power)

⁽³⁾ Default reference impedance

Range and Accuracy

| Rate | Voltage Range (1,2) | Input Voltage | dBm ⁽³⁾ Range @ 600 Ohm Ref | Accuracy (dB) | | |
|---|------------------------------|---|---|--------------------------|--------------------------|--------------------------|
| | | | | 20 to 45 Hz | 45 to 10 kHz | 0 to 100 kHz |
| S | 120mV 1.2V 12V 120V | 6mV ~ 120mV 120mV ~ 1.2V 1.2V ~ 12V 12V ~ 120V | -42.20 ~ - 16.20 -16.20 ~ 3.80 3.80 ~ 23.80 23.80 ~ 43.80 | 1.0 0.8 0.8 0.8 | 0.2 0.1 0.1 0.1 | 1.0 0.8 0.8 0.8 |
| | 1000V (dc) 750V (ac) | 120V ~ 1000V 120V ~ 750V | 43.80 ~ 62.22 43.80 ~ 59.72 | - | 1.0 ⁽⁴⁾ | - |
| M & F | 400mV 4V 40V 400V | 20mV ~ 400mV 400mV ~ 4V 4V ~ 40V 40V ~ 400V | -31.76 ~ -5.74 -5.74 ~ 14.26 14.26 ~ 34.26 34.26 ~ 54.26 | 1.0 0.8 0.8 0.8 | 0.2 0.1 0.1 0.1 | 1.0 0.8 0.8 0.8 |
| | 1000V (dc) 750V (ac) | 400V ~ 1000V 400V ~ 750V | 54.26 ~ 62.22 54.26 ~ 59.72 | - | 1.0 ⁽⁴⁾ | - |
| <p>⁽¹⁾ Auto-ranging is used when dBm function is selected</p> <p>⁽²⁾ In Vac 750V range, 5% over-range is readable</p> <p>⁽³⁾ Reading displayed in dB when REL modifier is used</p> <p>⁽⁴⁾ For input voltage at frequency between 45Hz to 1kHz</p> | | | | | | |

- 0dBm: 1 m Ohm @ 600 Ohm Reference Impedance
- Resolution: 0.01dB at slow and medium rate; 0.1dB at fast rate for all ranges.
- CMRR: > 90dB for dc signal
- Response Time: Same as ac voltage and ac current measurements.

A-3 General Specifications

| General Items | Specifications |
|-------------------------|---|
| Ohmarm up time | At least 30 minutes |
| Temperature Coefficient | Add 0.15 x (the applicable accuracy)/°C at 0°C to 18°C and 28°C to 50°C |
| Operating Temperature | 0°C to 50°C (32°F to 122°F) |
| Storage Temperature | -20°C to 60°C |
| Altitude | Up to 2000 M |
| Pollution Degree | II |

| | |
|-----------------------|---|
| Over-voltage Category | CAT II-600V and CAT I-1000V |
| Relative Humidity | <ul style="list-style-type: none"> — Up to 80% for 0°C to 28°C (75% RH for 12M Ohm and above ranges of resistance measurement) — Up to 70%for 28°C to 35°C — Up to 50%for 35°C to 50°C |
| Common Mode Voltage | 1000V dc or peak ac rms maximum between any input and earth ground |
| Dimension | Approx. 255(w) x 105(h) x 305(d) mm (with holsters) |
| Ohmeight | <3.0kgs |
| Line Voltage | 100V / 120V / 220V / 240V ac \pm 10%, 50/60Hz, 16VA maximum |
| Interface | <ul style="list-style-type: none"> — RS-232 (DB-9, male connector) — Baud rates: 9600, 4800, 2400, 1200, 600, 300 — Data length: 7 or 8 bits — Parity: even / odd / none — Stop bit: 1 or 2 bits — Echo: on / off — Print mode: on / off |
| Safety Requirement | Designed in compliance with EN61010-1 (IEC1010-1) |
| Installation Category | CAT-I 750VAC/1000VDC or CAT-II 600V, Pollution Degree 2 Environment |
| EMC Requirement | Designed in compliance with EN61326-1. |