



1. ELECTRICAL SPECIFICATIONS

Accuracy is indicated as $\pm [\%rdg + (\text{numbers of digits} \times \text{resolution})]$ at $23^{\circ}\text{C} \pm 5^{\circ}\text{C}$, $<80\%HR$

DC VOLTAGE

| Range | Resolution | Accuracy | Overload protection |
|----------|------------|-----------------------|---------------------|
| 100.00mV | 0.01mV | $\pm(0.08\%rdg+3dgt)$ | 1000VDC/ACrms |
| 1000.0mV | 0.1mV | $\pm(0.08\%rdg+2dgt)$ | |
| 10.000V | 0.001V | | |
| 100.00V | 0.01V | | |
| 1000.0V | 0.1V | | |

Input impedance: $10M\Omega // <100pF$

AC TRMS VOLTAGE

| Range | Resolution | Accuracy (50Hz ÷ 60Hz) | Accuracy (60Hz ÷ 5kHz) | Overload protection |
|----------|------------|------------------------|--------------------------|---------------------|
| 100.00mV | 0.01mV | $\pm(0.9\%rdg+3dgt)$ | $\pm(0.9\%rdg+3dgt)$ | 1000VDC/ACrms |
| 1000.0mV | 0.1mV | | $\pm(1.9\%rdg+3dgt)$ | |
| 10.000V | 0.001V | | | |
| 100.00V | 0.01V | | | |
| 1000.0V | 0.1V | | $\pm(0.9\%rdg+3dgt) (*)$ | |

(*) In the range: 60Hz ÷ 1kHz

Input impedance: $10M\Omega // <100pF$

For non-sinusoidal voltages add the herewith correction on accuracies:

Crest factor: 1.4 ÷ 2.0 → add 1.0%rdg to the accuracy

Crest factor: 2.0 ÷ 2.5 → add 2.5%rdg to the accuracy

Crest factor: 2.5 ÷ 3.0 → add 4.0%rdg to the accuracy

AC TRMS VOLTAGE – Mode HFR

| Range | Resolution | Accuracy (50Hz ÷ 60Hz) | Accuracy (60Hz ÷ 5kHz) | Overload protection |
|---------|------------|------------------------|--------------------------|---------------------|
| 10.000V | 0.001V | $\pm(0.9\%rdg+3dgt)$ | $\pm(2.9\%rdg+3dgt) (*)$ | 1000VDC/ACrms |
| 100.00V | 0.01V | | | |
| 1000.0V | 0.1V | | | |

(*) In the range: 60Hz ÷ 500Hz

Input impedance: $10M\Omega // <100pF$

Cutoff frequency mode HFR: 1kHz

For non-sinusoidal voltages consider the indication of AC TRMS voltage

DC CURRENT

| Range | Resolution | Accuracy | Overload protection |
|----------|------------|----------------------|---------------------|
| 100.00mA | 0.01mA | $\pm(0.2\%rdg+2dgt)$ | max 440mA |
| 400.0mA | 0.1mA | | |

AC TRMS CURRENT

| Range | Resolution | Accuracy (50Hz ÷ 5kHz) | Overload protection |
|----------|------------|------------------------|---------------------|
| 100.00mA | 0.01mA | $\pm(1.5\%rdg+2dgt)$ | max 440mA |
| 400.0mA | 0.1mA | | |

For non-sinusoidal currents consider the indication of AC TRMS voltage



RESISTANCE

| Range | Resolution | Accuracy | Open voltage | Overload protection |
|----------|------------|-----------------|--------------|---------------------|
| 1000.0Ω | 0.1Ω | ±(0.5%rdg+2dgt) | approx 0.25V | 1000VDC/ACrms |
| 10.000kΩ | 0.001kΩ | | | |
| 100.00kΩ | 0.01kΩ | | | |
| 1000.0kΩ | 0.1kΩ | | | |
| 10.000MΩ | 0.001MΩ | | | |
| 40.00MΩ | 0.01MΩ | | | |

CONTINUITY TEST

| Range | Buzzer | Accuracy | Overload protection |
|--------|--------|-----------------|---------------------|
| 400.0Ω | <30Ω | ±(0.5%rdg+2dgt) | 1000VDC/ACrms |

Max open voltage: 1.2V

DIODE TEST

| Range | Accuracy | Open voltage | Overload protection |
|--------|-----------------|--------------|---------------------|
| 2.000V | ±(0.5%rdg+2dgt) | <2.5V | 1000VDC/ACrms |

Max test current: 0.6mA

FREQUENCY AC VOLTAGE/CURRENT

| Range | Resolution | Accuracy | Minumum pulse duration | Overload protection |
|-----------|------------|-----------------|------------------------|---------------------|
| 100.00Hz | 0.01Hz | ±(0.1%rdg+2dgt) | 10μs | 1000VDC/ACrms |
| 1000.0Hz | 0.1Hz | | | |
| 10.000kHz | 0.001kHz | | | |
| 100.00kHz | 0.01kHz | | | |

| Function | Range | Sensitivity (sinusoidal waveform) | |
|----------|----------|-----------------------------------|----------------|
| | | 10Hz ÷ 10kHz | 10kHz ÷ 100kHz |
| AC mV | 100.00mV | 15.00mV | |
| | 1000.0mV | 150.0mV | |
| AC V | 10.000V | 1.500V | |
| | 100.00V | 3V | - |
| | 1000.0V | 30V | - |
| AC mA | 100.00mA | 15.00mA | - |
| | 400.0mA | 30mA | - |

CAPACITANCE

| Range | Resolution | Accuracy | Meas. Time | Overload protection |
|----------|------------|------------------|------------|---------------------|
| 10.000nF | 0.001nF | ±(1.2%rdg+80dgt) | 0.7s | 1000VDC/ACrms |
| 100.00nF | 0.01nF | ±(1.2%rdg+20dgt) | | |
| 1000.0nF | 0.1nF | ±(1.2%rdg+2dgt) | | |
| 10.000μF | 0.001μF | | 3.75s | |
| 100.00μF | 0.01μF | | | |
| 1000.0μF | 0.1μF | ±(1.2%rdg+20dgt) | 7.5s | |
| 10.000mF | 0.001mF | ±(1.2%rdg+80dgt) | | |
| 40.00mF | 0.01mF | ±(1.2%rdg+80dgt) | | |



TEMPERATURE WITH TYPE K PROBE

| Range | Resolution | Accuracy | Overload protection |
|-------------------|------------|-----------------|---------------------|
| -200.0°C ÷ 0.0°C | 0.1°C | ±(1.0%rdg+2°C) | 1000VDC/ACrms |
| 0.0°C ÷ 1200.0°C | | ±(1.0%rdg+1°C) | |
| -328.0°F ÷ 32.0°F | 0.1°F | ±(1.0%rdg+36°F) | |
| 32.0°F ÷ 2192.0°F | | ±(1.0%rdg+18°F) | |

INSULATION RESISTANCE

| Test voltage | Measurement range | Accuracy | Overload protection |
|--------------|-------------------|-----------------|---------------------|
| 50V DC | 2.000MΩ | ±(1.5%rdg+5dgt) | 600VDC/ACrms |
| | 20.00MΩ | | |
| | 55.0MΩ | | |
| 100V DC | 2.000MΩ | | |
| | 20.00MΩ | | |
| | 110.0MΩ | | |
| 250V DC | 2.000MΩ | | |
| | 20.00MΩ | | |
| | 200.0MΩ | | |
| | 275MΩ | | |
| 500V DC | 2.000MΩ | | |
| | 20.00MΩ | | |
| | 200.0MΩ | | |
| | 550MΩ | | |
| 1000V DC | 2.000MΩ | | |
| | 20.00MΩ | | |
| | 200.0MΩ | | |
| | 2000MΩ | | |
| | 22.0GΩ | ±(10%rdg+3dgt) | |

Test voltage accuracy: +20%rdg, -0%rdg

Short-circuit current: 1mA

Minimum resistance (@ nominal current 1mA): 50kΩ (50V), 100kΩ (100V), 250kΩ (250V), 500kΩ (500V), 1MΩ (1000V)

Discharge time of measured object: <1s (C≤ 1μF)

Maximum capacitive load: 1μF

Voltage detection on circuit: test inhibited for voltages ≥30V AC/DC on inputs



2. GENERAL SPECIFICATIONS

Display:

- LCD display, 5 digit with maximum reading 10000 counts with sign, decimal point and bargraph
- Automatic polarity indication
- "OL" over range indication


Features:

- Data HOLD
- MAX/MIN/AVG for maximum, minimum and average values
- Auto Backlight for automatic activation of backlight
- LOCK for insulation measurement in continuous mode
- AUTOTEST for automatic detection of AC or DC measurements
- HFR for AC voltage measurement with 500Hz cut-off frequency
- SMOOTH for stability of insulation measurements
- Internal memory for saving/recall data
- RANGE for manual range selection
- REL for relative measurement (Resistance and Capacitance)
- Internal test on protection fuses
- Auto Power OFF after 20 minutes of idleness

Internal memory:

- Max 100 locations for each function

Low battery indication:

- The symbol  appears when the battery voltage is low

Environmental conditions:

- Working temperature/humidity: 0°C ÷ 50°C, <80%HR
- Storage temperature/humidity: -20°C ÷ 60°C, <80%HR

General information:

- Max height of use: 2000m
- Pollution degree: 2
- Insulation: double insulation

Power supply:

- 4 x 1.5V alkaline batteries type AA IEC LR6

Sizes:

- 207(L)x95(W)x52(H) mm

Weight (included batteries):

- 630g

Applied standards:

- Safety: IEC/EN61010-1, UL61010-1, IEC/EN61557-1, IEC/EN61557-2
- Measurement category: CAT IV 600V – CAT III 1000V

This product conforms to the prescriptions of the European directive on low voltage 2006/95/EEC and to EMC directive 2004/108/EEC