

## Product Datasheet - Technical Specifications



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## Specifications

### General Specifications

**Maximum voltage applied to any terminal :**

600 V ac rms or dc.

**Display :** 4000 counts.

**Polarity Indication :**

Automatic, positive implied, negative indicated.

**Overrange Indication :** OL

**Batteries Life :**

Resistance Measurements : Tester can perform at least 2600 earth-bond resistance measurements with new alkaline batteries at room temperature. These are standard tests of  $1\Omega$  with a duty cycle of 5 seconds on and 25 seconds off.

Insulation test: Tester can perform at least 1100 insulation tests with new alkaline batteries at room temperature.

These are standard tests of  $1\text{M}\Omega$  at 1000 V with a duty cycle of 5 seconds on and 25 seconds off.

**Low Batteries Indication :** "⚡" is displayed when the batteries voltage drops below operating voltage.

**Low battery voltage :** Approx. 4.5V

**Auto Power Off :** Approx 20 minutes.

**Operating Ambient : Non-condensing**  $\leq 10^{\circ}\text{C}$ ,

$11^{\circ}\text{C} \sim 30^{\circ}\text{C}$  ( $\leq 80\%$  RH),

$30^{\circ}\text{C} \sim 40^{\circ}\text{C}$  ( $\leq 75\%$  RH),

$40^{\circ}\text{C} \sim 50^{\circ}\text{C}$  ( $\leq 45\%$  RH)

**Storage Temperature :**

$-20^{\circ}\text{C}$  to  $60^{\circ}\text{C}$ , 0 to 80% R.H. (batteries not fitted)

**Temperature Coefficient :**

$0.15 \times (\text{Spec. Accy})/^{\circ}\text{C}$ ,  $< 18^{\circ}\text{C}$  or  $> 28^{\circ}\text{C}$ .

**Measure :** Samples 2 times per second nominal.

**Altitude :** 6561.7 ft (2000m)

**Safety :** Complies with EN61010-1, UL61010-1, IEC 61010-1,

V/ $\Omega$  : CAT.IV. 600V.

I	The circuits not connected to mains.
II	The circuits directly connected to Low-voltage installation.
III	The building installation.
IV	The source of the Low-voltage installation.

**Compliance to EN 61557 :** IEC61557-1, IEC61557-2,  
IEC61557-4, IEC61557-10

**Weight :** (630g) including battery.

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**Dimensions (W x H x D) :**

95mm x207mm x 52mm with holster.

**Accessories :** Battery (installed), Test leads and user manual.

**Power Requirements :** 1.5V x 4 IEC LR6 or AA size.

**Pollution degree :** 2

**EMC :** EN 61326-1

**Shock vibration :** Sinusoidal vibration per MIL-T- 28800E (5 ~ 55 Hz, 3g maximum).

**Drop Protection :**

4 feet drop to hardwood on concrete floor.

**Indoor Use.**

## Electrical Specifications

Accuracy is  $\pm$ (% reading + number of digits) at 23°C  $\pm$  5°C < 80%RH.

### Voltage Measurement

Function	Range	Accuracy
DCV	600.0V	$\pm$ (1%+5dgt)
ACV	600.0V	$\pm$ (1.5%+5dgt)(50~60Hz) $\pm$ (2%+5dgt)(61~500Hz)
LPF ACV	600.0V	$\pm$ (1.5%+5dgt)(50~60Hz) $\pm$ (5%+5dgt)(61~400Hz)

**Start measuring voltage :**  $\geq$  AC 0.6V.

**Over voltage protection :** 600V rms or dc.

**The cut-off frequency of the low pass filter :** 1 kHz.

**Input Impedance :** 3M $\Omega$  // less than 100pF.

**CMRR / NMRR : (Common Mode Rejection Ratio)  
(Normal Mode Rejection Ratio)**

V<sub>AC</sub> : CMRR > 60dB at DC, 50Hz / 60Hz

V<sub>DC</sub> : CMRR > 100dB at DC, 50Hz / 60Hz

NMRR > 50dB at DC, 50Hz / 60Hz

### AC Conversion Type :

AC conversions are ac-coupled, true rms responding, calibrated to the sine wave input.

For non-sine wave add the following Crest Factor corrections:

For Crest Factor of 1.4 to 2.0, add 1.0% to accuracy.

For Crest Factor of 2.0 to 2.5, add 2.5% to accuracy.

For Crest Factor of 2.5 to 3.0, add 4.0% to accuracy.

CF 3 @ 330V

2 @ 500V

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## Earth-bond resistance Measurement

Function	Range	Accuracy
Earth-bond Resistance	40.00 $\Omega$	$\pm(1.5\%+5\text{dgt})^*$
	400.0 $\Omega$ 4000 $\Omega$	$\pm(1.5\%+3\text{dgt})$

\* $<1.00 \Omega$  add 3dgt

Open Circuit Test Voltage :  $>4.0\text{V}$ ,  $<8\text{V}$

Short Circuit Current :  $>200.0\text{mA}$

Live Circuit Detection: if  $\geq 2\text{V}$  ac/dc at inputs, test inhibited.

## Insulation resistance Measurement

Function	Range	Accuracy *
Insulation Resistance	4.000M $\Omega$	$\pm(1.5\%+5\text{dgt})$
	400.0M $\Omega$ 4000M $\Omega$	$\pm(3\%+5\text{dgt})$
	4.1G $\Omega$ ~ 20.0G $\Omega$	$\pm(10\%+3\text{dgt})$

\* Above specifications only apply when high quality silicone leads with test clips are being used with no hands touch.

### Test Voltage vs. Maximum resistance range :

50V/50.0M  $\Omega$ , 100V/100.0M  $\Omega$ , 250V/250.0M  $\Omega$ , 500V/500M  $\Omega$   
and 1000V/20.0G  $\Omega$ .

### Test Voltage vs. Minimum resistance (with test current=1mA) :

50V/50k  $\Omega$ , 100V/100k  $\Omega$ , 250V/250k  $\Omega$ , 500V/500k  $\Omega$  and  
1000V/1M  $\Omega$ .

### Test Voltage Accuracy : -0%, +20%

Short Circuit Test Current: 1mA(nominal)

**Auto discharge function** : discharge time  $<1$  sec for  $C \leq 1\mu\text{F}$

**Maximum Capacitive load** : Operable with up to  $1\mu\text{F}$  load

**Live Circuit Detection** : if  $\geq 30\text{V}$  ac/dc at inputs, test inhibited