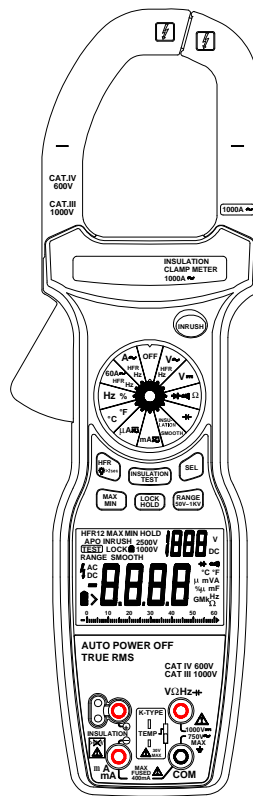


OPERATING INSTRUCTIONS DIGITAL INSULATION CLAMP METER



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INTRODUCTION

This manual contains information and warnings which must be followed to ensure safe operation and retain the meter in safe condition.

WARNING

READ "SAFETY INFORMATION" BEFORE USING THE METER.

This Digital Insulation Clamp Meter is a handheld 6000-count instrument that is designed for use in the laboratory, field servicing, at home, and any circumstance where high current measurement is required. The clamp meter is built with a design of finger guard which ensures users operating the instrument under a safety situation; a rugged case that is shock resistant and fire-retardant; and electronic overload protection for all functions and ranges. In addition, a carrying case (optional accessory) is available for easy portability of the meter and avoiding damage.

UNPACKING AND INSPECTION

Upon removing your new Digital Insulation Clamp Meter from its packing, you should have the following items:

1. Digital Insulation Clamp Meter
2. Test Lead Set (one black, one red)
3. 1.5V x 5, "AA" Batteries
4. Type-K thermocouple
5. Instruction Manual

If any of the above items are missing or are received in a damaged condition, please contact the distributor from whom you purchased the unit.

SAFETY PRECAUTIONS:

The following safety precautions must be observed to ensure maximum personal safety during the operation, service and repair of this meter:

1. Read these operating instructions thoroughly and completely before operating your meter. Pay particular attention to WARNINGS which will inform you of potentially dangerous procedures. The instructions in these warnings must be followed.
2. Always inspect your meter, test leads and accessories for any sign of damage or abnormality before every use. If any abnormal conditions exist (eg-broken test leads, cracked cases, display not reading, etc.), do not attempt to take any measurements.
3. Do not expose the instrument to direct sun light, extreme temperature or moisture.
4. Never ground yourself when taking electrical measurements. Do not touch exposed metal pipes, outlets, fixtures, etc., which might be at ground potential. Keep your body isolated from ground by using dry clothing, rubber shoes, rubber mats, or any approved insulating material.
5. To avoid electric shock use CAUTION when working with voltages above DC60V or AC30V rms. Such voltages pose a shock hazard.
6. Never exceed the maximum allowable input value of any function when taking a measurement. Refer to the specifications for maximum inputs.
7. Never touch exposed wiring, connections or any live circuit when attempting to take measurements.
8. Do not attempt to operate this instrument in an explosive atmosphere (i.e. in the presence of flammable gases or fumes, vapor or dust).
9. When testing for the presence of voltage, make sure the voltage function is operating properly by reading a known voltage in that function before assuming that a zero reading indicates a no-voltage condition. Always test your meter before and after taking measurements on a known live circuit.
10. Calibration and repair of any instrument should only be performed by qualified and trained service technicians.
11. Do not attempt calibration or service unless trained and another person capable of rendering first aid and resuscitation is present.
12. Remember: Think Safety, Act Safely.

SAFETY INFORMATION

Cleaning

Wipe the case with a damp cloth and mild detergent. Do not use abrasives or solvents. Dirt or moisture in the terminals can affect readings.



Safety: Conforms to IEC/EN 61010-1, IEC/EN 61010-2-030, IEC/EN 61010-2-032, CAT III 1000V, CAT IV 600V, Class II, Pollution degree 2 Indoor use.







CAT III: Is for measurements performed in the building installation.

CAT IV: Is for measurements performed at the source of the low-voltage installation.

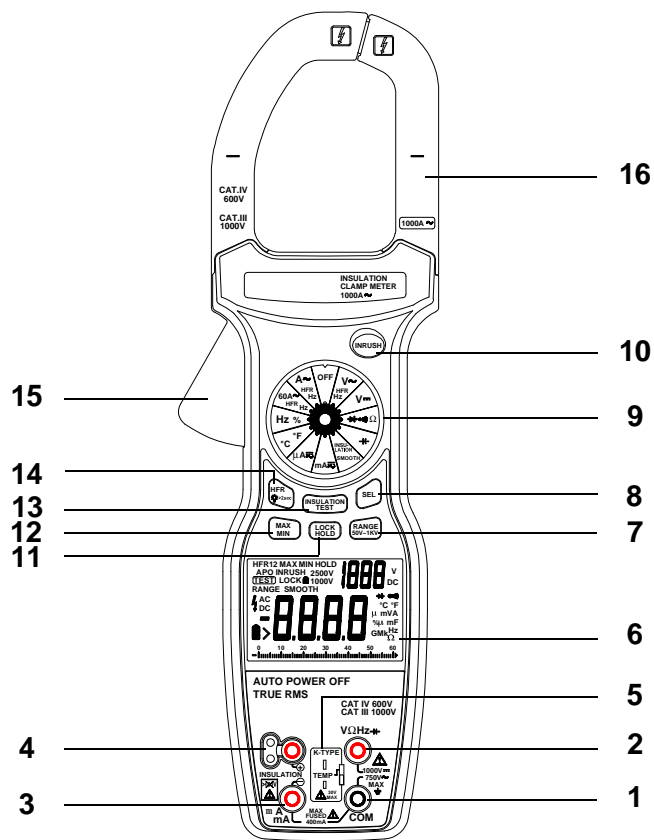
Compliance to EN 61557-1, EN 61557-2.

EMC: Conforms to EN 61326-1.

The symbols used on this instrument are:

-  Dangerous voltage.
-  Caution, refer to accompanying documents
-  Equipment protected throughout by Double insulation (Class II)
-  Alternating current
-  Direct current
-  Ground

INSTRUMENT LAYOUT



1. COM Common Terminal

This is the negative (ground) input terminal for all measurement modes. Connection is made to it using the black test lead.

2. VWHZ% \leftrightarrow \rightarrow , Voltage, Ohms, Frequency, Duty cycle, Capacitance, Diode Input Terminal

This is the positive input terminal for Voltage, Ohms, Frequency, Duty cycle, Capacitance, Diode measurements. Connection is made to it using the red test lead.

3. μ A/mA DC/AC Current, Insulation \ominus Terminal

This is the positive input terminal for μ A/mA DC/AC Current measurements. Connection is made to it using the red test lead. This is the Insulation \ominus input terminal for Insulation measurement. Connection is made to it using the black test lead.

4. Insulation \oplus Terminal

This is the Insulation \oplus terminal for Insulation measurement. Connection is made to it using the red test lead.

5. Temperature Input Jacks

Remove leads and slide the temp switch to the right to close lead jacks.

6. Display

The display indicates the measured value of a signal, function mode, and annunciator.

7. RANGE / 50V~1kV Button

1. Press (RANGE) button to select the Manual Range mode (The meter remains in the range it was in when manual ranging was selected).
In the Manual Range mode, each time you press (RANGE) button, the range (and the input range annunciator) increments, and a new value is displayed. To exit the Manual Range mode and return to autoranging, press and hold down (RANGE) button for 2 seconds.
2. Shift 50V, 100V, 250V, 500V, 1000V ranges (Insulation Test voltage.)

8. SEL(select) Button

1. Shift V \sim \leftrightarrow Hz ranges, A \sim \leftrightarrow Hz, 60A \sim \leftrightarrow Hz ranges.
2. Shift Ω \leftrightarrow \bullet \leftrightarrow \rightarrow , C \leftrightarrow °F, Hz \leftrightarrow % ranges.
3. Shift μ A \sim \leftrightarrow μ A \sim , mA \sim \leftrightarrow mA \sim ranges.
4. Shift INSULATION \leftrightarrow SMOOTH (On the " INSULATION/SMOOTH " range, depress this button to make the reading stably, the " SMOOTH " annunciator is displayed.)

9. Function/Range selector rotary switch

This rotary switch selects the function, and selects the desired range.


10. INRUSH Button

The INRUSH function captures the starting current precisely in the beginning of 100-millisecond period when current is just started.

The INRUSH function is used in the A \sim / AC 600A, 1000A ranges.

1. Press the "INRUSH" button to toggle in the INRUSH mode, and the "----" and "INRUSH" will be displayed.
2. Press the trigger to open transformer jaws and clamp onto single conductor only, and turn on the motor.
3. Read the INRUSH current directly from the display.
4. Depress the INRUSH button for more than 2 second to exit the INRUSH mode.
5. Minimum input range: >150 dgts
6. The readings of INRUSH measurements will show on the subdisplay.

11. LOCK / HOLD Button

1. Press [LOCK] button to Lock the Insulation test voltage, the "LOCK  " annunciator is displayed. Press the button again to exit.
2. Press [HOLD] button to toggle in and out of the Data Hold mode. In the data hold mode, the " HOLD" annunciator is displayed and the last reading is held on the display. Press [HOLD] button again to release the hold and current readings are once again displayed.



12. MAX / MIN Button

The "MAX" displays the maximum value of measurements. The "MIN" displays the minimum value of measurements. Press MAX/MIN button for more than 2 seconds to exit.

13. INSULATION TEST Button

1. Press and hold the [INSULATION TEST] button to start the test, the "TEST" annunciator is displayed.
2. Press [LOCK] button to lock the Insulation test voltage. Press [INSULATION TEST] button to start the test. Press the button again to exit.

14. HFR / Backlight Button

1. Shift "HFR1" (High Frequency reject $> 1\text{KHz}$) \leftrightarrow "HFR2" (High Frequency reject $> 10\text{KHz}$), on AC Volts, AC 60A, 600A, 1000A Current ranges.
2. Press > 2 sec the  button to activate the backlight for approximately 3.0 minutes. Press  button for more than 2 seconds to exit.

15. Trigger

Press the lever to open the transformer. When the lever is released, the jaws will close again.

16. Transformer jaws

Pick up the AC current flowing through the conductor.

Other Functions

Auto Power off

1. Auto power off: approx. 30 minutes.
2. After auto power off, change range position of the rotary knob to turn the meter back on again.

Cancellation Of Auto Power Off Feature:

Press and hold the (MAX/MIN) button while rotating function switch from off to any position to turn the meter on. The auto power off feature is disabled.

Note "APO" annunciator is missing from the LCD.

HOW TO MAKE MEASUREMENTS

Before making any measurements read safety precautions. Always examine the instrument and accessories used with the instrument for damage, contamination (excessive dirt, grease, etc.) and defects. Examine the test leads for cracked or frayed insulation and make sure the lead plugs fit snugly into the instrument terminals. If any abnormal conditions exist, do not attempt to make any measurements.

VOLTAGE MEASUREMENTS

1. Turn off power to the device under test and discharge all capacitors.
2. Plug the black test lead into the COM input jack on the meter and connect the test lead tip to a grounded point (the reference point for measurement of voltage).
3. Set the Function/Range switch to the "V \sim / V \equiv " position.

WARNING

To avoid possible electric shock, instrument damage and / or equipment damage, do not attempt to take any voltage measurements if the voltage is above 1000Vdc / 750Vac. 1000Vdc and 750Vac are the maximum voltages that this instrument is designed to measure. The "COM" terminal potential should not exceed 500V measured to ground.

4. Plug the red test lead into the V Ω input jack on the meter and connect the circuit where a voltage measurement is required. Voltage is always measured in parallel across a test point.
5. Turn on power the circuit /device to be measured and make the voltage measurement reduce the range setting if set too high until a satisfactory reading is obtained.
6. After completing the measurement, turn off power to the circuit / device under test , discharge all capacitors and disconnect the meter test leads.

CLAMP CURRENT MEASUREMENTS

WARNING

These Snap-Arounds are designed to take current measurements on circuits with a maximum voltage difference of 500VAC between any conductor and ground potential. Using the Snap-Around for current measurements on circuits above this voltage may cause electric shock, instrument damage and/or damage to the equipment under test. Before measuring current make certain that the test leads are removed from the instrument.

The Snap-Around is overload protected up to 500VAC for up to 1 min. Do not take current readings on circuits where the maximum current potential is not known. Do not exceed the maximum current that this instrument is designed to measure.

1. Set the Function / Range switch to the " 60A \sim / A \sim " position.
2. Press the trigger to open the transformer jaws and clamp them around a conductor. Jaws should be completely closed before taking a reading.
3. The most accurate reading will be obtained by keeping the conductor across center of the transformer jaws.
4. The reading will be indicated on the display.
5. Reduce the range setting if set too high until a satisfactory best resolution reading is obtained.

μ A / mA CURRENT MEASUREMENTS

1. Set the Function / Range switch to the " μ A / mA " position. Use the " SEL " button to select the DC or AC current test.
2. Connect the red test lead to the " μ A / mA " jack and the black test lead to the " COM " jack.
3. Connect the test leads to the point of measurement and read the current from the display.

RESISTANCE MEASUREMENTS

1. Set the Function/Range switch to the " Ω / \rightarrow / \rightarrow " position. Use the "SEL" button to select the " Ω " resistance test.
2. Turn off power to the circuit under test. External Voltage across the components causes invalid reading.
3. Connect the red test lead to the "V Ω " jack and the black test lead to the "COM" jack.
4. Connect the test leads to the points of measurements and read the value from the display.

CONTINUITY MEASUREMENTS

1. Set the Function switch to the " Ω / \rightarrow / \rightarrow " position. Use the "SEL" button to select the " \rightarrow " continuity test.
2. Turn off power to the circuit under test. External Voltage across the components causes invalid reading.
3. Connect the test leads to the two points at which continuity is to be tested. The buzzer will sound if the resistance is less than approximately 40 Ω .

DIODE TESTS

1. Set the Function/Range switch to the " Ω / \rightarrow / \rightarrow " position. Use the "SEL" button to select the " \rightarrow " diode test.
2. Turn off power to the circuit under test. External voltage across the components causes invalid readings.
3. Connect the red test lead to the "V Ω " jack and the black test lead to the "COM" jack.
4. Touch probes to the diode. A forward-voltage drop is about 0.6V (typical for a silicon diode).
5. Reverse probes. If the diode is good, "OL" is displayed. If the diode is shorted, "0.00" or another number is displayed.
6. If the diode is open, "OL" is displayed in both directions.
7. Audible Indication: Less than 0.05V.

CAPACITANCE MEASUREMENTS

1. Set the Function/Range switch to the " F " position.
2. Connect the red test lead to the " $\text{V}\Omega$ " jack and the black test lead to the "COM" jack.
3. Touch the probes to the capacitor. Observe polarity when measuring polarized capacitors.
4. Read the capacitance directly from the display.
5. Discharge the capacitor before taking capacitance measurements.
6. When the capacitor to be tested is connected, if "dIS.C" symbol indicate on LCD, it means there is voltage existing in the tested capacitor and to be discharged before testing.

TEMPERATURE MEASUREMENTS

1. Set the Function/Range switch to the " $^{\circ}\text{C}/^{\circ}\text{F}$ " position. Use the "SEL" button to select the $^{\circ}\text{C}$ or $^{\circ}\text{F}$ Temp test.
2. Remove leads and slide the Temp switch to the right to close lead jacks.
3. Plug any K-type thermocouple directly into the meter to measure temperature.
4. Take temperature measurement using the thermocouple probe and read the temperature from the display.

FREQUENCY MEASUREMENTS

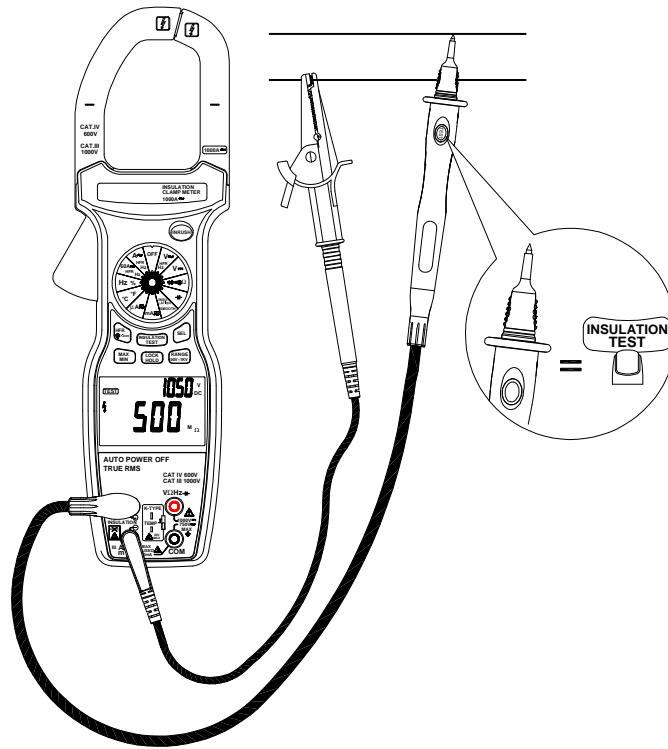
1. Set the Function/Range switch to the " $\text{Hz}/\%$ " position. Use the "SEL" button to select the Hz Frequency test.
2. Connect the red test lead to the " $\text{V}\Omega$ " jack and the black test lead to the "COM" jack.
3. Connect the test leads to the point of measurement and read the frequency from the display.

%DUTY CYCLE MEASUREMENTS

1. Set the Function/Range switch to the " $\text{Hz}/\%$ " position. Use the "SEL" button to select the % duty cycle test.
2. Connect the red test lead to the " $\text{V}\Omega$ " jack and the black test lead to the "COM" jack.
3. Connect the test leads to the point of measurement and read the duty cycle from the display.

MEASURING INSULATION RESISTANCE

1. Insert test probes in the \oplus and \ominus input terminals.
2. Set the Function/Range switch to the INSULATION position.
3. Press " RANGE / 50V~1KV " to select the test voltage.
4. Connect the probes to the circuit.
5. Push and hold the " INSULATION /TEST " button to start the test. The " TEST " and " ⚡ " annunciator is displayed. The sub-display shows the test voltage applied to the circuit under test. The main display shows the resistance.
6. Press the LOCK / HOLD button to lock the test voltage the " LOCK " annunciator is displayed. Press the button again to exit the lock mode.
7. After using LOCK / HOLD button to accomplish the testing, depress INSULATION / TEST or LOCK / HOLD button exactly again to clear up the test voltage at the sub-display. To prevent hazard of electrical shock, it is important to make sure that the test voltage at the sub-display is cleared up and the " --- " symbol is displayed before removing the test probes or changing the switch position.
8. When using the professional red test probe (an optional accessory), depress " TEST " button on the probe to start the measurements. This button works functionally the same as the " INSULATION / TEST " button on the meter.
9. In the stand-by status, overload protection on the INSULATION \oplus and \ominus terminals is 600VDC or AC rms. When a voltage higher than 30VDC or AC rms is applied, the meter will indicate " >30V " and " ⚡ " on the display to alert the misuse.
10. When the insulation resistance to measured exceeds the specified resistance of selected test voltage range, the meter will indicate " > " symbol with the maximum insulation resistance limit of the selected test voltage range on the display. For example, the meter will indicate " > 3.00G Ω " on the display when insulation resistance to be measured on the 500V test range is higher than 3.00G Ω .
11. Press the SEL button to make the reading stably, the " SMOOTH " annunciator is displayed.



Measuring Insulation Resistance

SPECIFICATIONS

- **Display:** 6000 counts, 60 segments analog bar-graph.
- **Polarity:** Automatic, (-) negative polarity indication.
- **Overrange Indication: (OL) or (-OL) is displayed.**
- **Low Battery Indication:** When change a new battery for the meter, the LCD will show the battery capacity with full sataus (▣). If the meter operation lasts for a few hours, the capacity indication may show half battery status (▣). After a long time operation, the battery may be exhausted and low battery status is shown (▣). Then "bAtt" displays accompanying with a continuous beep sound, and the meter shuts down in 5 seconds, and no further measurement is allowed.
- **Measurement Rate:** 2.0/sec, nominal. 20/sec, Analog bar-graph.
- **Operating Environment:** 0°C to 50°C at < 70% R.H.
- **Storage Environment:** -20°C to 60°C at < 80% R.H.
- **Temperature Coefficient:** 0.1 × (specified accuracy) Per °C. (0°C to 18°C, 28°C or 50°C).
- **Auto Power Off:** approx. 30 minutes.
- **Altitude:** 6561.7 Feet (2000m)
- **Power:** 1.5V x 5, "AA" batteries.
- **Battery Life:** 100 hours typical with alkaline.
- **Insulation test:** Tester can perform at least 500 insulation tests with new alkaline batteries at room temperature.
These are standard tests of 1MΩ at 1000V with a duty cycle of 5 seconds on and 25 seconds off.
- **Jaw Opening Capability:** 57mm conductor, 70 × 18mm bus bar.
- **Size (H × W × D):** 12.8 × 4.3 × 2.1 inches (326 × 108 × 53 mm).
- **Weight:** Approx. 25.5 OZ / 720g grams (including battery)

Accuracy is given as ±([% of reading]+[number of least significant digits]) at 18°C to 28°C, with relative humidity up to 70%.

DC Volts

Range	Resolution	Accuracy	Input Impedance
600mV	0.1mV	$\pm (0.5\% \text{ rdg} + 2\text{d})$	$> 100\text{M}\Omega$
6V	1mV	$\pm (0.5\% \text{ rdg} + 2\text{d})$	$10\text{M}\Omega$
60V	10mV	$\pm (0.5\% \text{ rdg} + 2\text{d})$	$9.1\text{M}\Omega$
600V	100mV	$\pm (0.5\% \text{ rdg} + 2\text{d})$	$9.1\text{M}\Omega$
1000V	1V	$\pm (0.5\% \text{ rdg} + 2\text{d})$	$9.1\text{M}\Omega$

Overload protection: 1000V DC or 750V AC rms

AC Volts (True RMS)

Range	Resolution	Accuracy (50~400Hz) / HFR2	Input Impedance
600mV	0.1mV	$\pm (1.5\% \text{ rdg} + 8\text{d})$ 50~100Hz	$> 100\text{M}\Omega$
6V	1mV	$\pm (1.5\% \text{ rdg} + 8\text{d})$ 50~100Hz $\pm (2.0\% \text{ rdg} + 8\text{d})$ 100~400Hz	$10\text{M}\Omega$
60V	10mV	$\pm (1.5\% \text{ rdg} + 8\text{d})$ 50~100Hz $\pm (2.0\% \text{ rdg} + 8\text{d})$ 100~400Hz	$9.1\text{M}\Omega$
600V	100mV	$\pm (1.5\% \text{ rdg} + 8\text{d})$ 50~100Hz $\pm (2.0\% \text{ rdg} + 8\text{d})$ 100~400Hz	$9.1\text{M}\Omega$
750V	1V	$\pm (1.5\% \text{ rdg} + 8\text{d})$ 50~100Hz $\pm (2.0\% \text{ rdg} + 8\text{d})$ 100~400Hz	$9.1\text{M}\Omega$

Range	Resolution	Accuracy (50~60Hz) / HFR1	Input Impedance
600mV	0.1mV	$\pm (2.0\% \text{ rdg} + 8\text{d})$ 50~60Hz	$> 100\text{M}\Omega$
6V	1mV	$\pm (2.0\% \text{ rdg} + 8\text{d})$ 50~60Hz	$10\text{M}\Omega$
60V	10mV	$\pm (2.0\% \text{ rdg} + 8\text{d})$ 50~60Hz	$9.1\text{M}\Omega$
600V	100mV	$\pm (2.0\% \text{ rdg} + 8\text{d})$ 50~60Hz	$9.1\text{M}\Omega$
750V	1V	$\pm (2.0\% \text{ rdg} + 8\text{d})$ 50~60Hz	$9.1\text{M}\Omega$

Crest Factor: ≤ 3

AC coupled true rms specified from 1% to 100% of range

HFR1: High Frequency reject: $>1\text{kHz}$.

HFR2: High Frequency reject: $>10\text{kHz}$.

FREQUENCY Ranges: 50Hz ~ 1kHz.

Accuracy: $\pm(0.1\% \text{ rdg} + 5 \text{ dgts})$

Minimum Input voltage Range: $>500\text{dgts}$, on 6V to 750V ranges.

Overload protection: 1000V DC or 750V AC rms

AC current (True RMS)

Range	Resolution	Accuracy (50 ~ 400Hz) / HFR2
60A	0.01A	0~600A±(2.0% rdg+10d)50~60Hz
600A	0.1A	0~600A±(3.0% rdg+10d)61~400Hz
1000A	1A	600~1000A±(2.5% rdg+10d)50~60Hz 600~1000A±(3.5% rdg+10d)61~400Hz

Range	Resolution	Accuracy (50 ~ 60Hz) / HFR1
60A	0.01A	0~600A±(2.5% rdg+10d)50~60Hz
600A	0.1A	
1000A	1A	600~1000A±(2.5% rdg+10d)50~60Hz

Crest Factor: ≤ 3

AC coupled true rms specified from 1% to 100% of range

HFR1: High Frequency reject: >1kHz.

HFR2: High Frequency reject: >10kHz.

FREQUENCY Ranges: 50Hz ~ 1kHz.

Accuracy: ±(0.1% rdg + 5 dgts)

Minimum Input current Range: >500dgts.

Overload protection: 1000A AC.

Current

DC Current

Range	Resolution	Accuracy
600μA	0.1μA	±(1.0% rdg+4d)
6000μA	1μA	±(1.0% rdg+4d)
60mA	10μA	±(1.0% rdg+4d)
400mA	100μA	±(1.5% rdg+4d)

AC Current (True RMS)

Range	Resolution	Accuracy (50 ~ 400Hz)
600μA	0.1μA	±(1.5% rdg+10d)
6000μA	1μA	±(1.5% rdg+10d)
60mA	10μA	±(1.5% rdg+10d)
400mA	100μA	±(2.0% rdg+10d)

Voltage burden: 500mV on 600μA, 60mA ranges, 2V on 6000μA, 400mA ranges.

Input protection: 0.5A/1000V fast blow ceramic fuse (6.3x32mm) on μA/mA input.

Resistance

Range	Resolution	Accuracy	Open Circuit Volts
600Ω	0.1Ω	± (1.0% rdg + 5d)	-3.0V dc
6kΩ	1Ω	± (1.0% rdg + 5d)	-1.2V dc
60kΩ	10Ω	± (1.0% rdg + 5d)	-1.2V dc
600kΩ	100Ω	± (1.0% rdg + 5d)	-1.2V dc
6MΩ	1kΩ	± (2.0% rdg + 5d)	-1.2V dc
60MΩ	10kΩ	± (3.5% rdg + 5d)	-1.2V dc

Overload protection: 600V DC or AC rms

Continuity Test

Range	Audible Threshold	Response Time	Open Circuit Volts
600Ω	Less than 40Ω	Approx. 100ms	-3.0V dc

Overload protection: 600V DC or AC rms

Diode Test

Range	Resolution	Accuracy	Test Current	Open Circuit Volts
2V	1mV	±(2.0% rdg +5d)	0.5mA	3.0V dc typical

Audible indication: Less than 0.05V

Overload protection: 600V DC or AC rms

Capacitance

Range	Resolution	Accuracy
6 μF	1nF	±(3.0% rdg + 10d)
60 μF	10nF	±(3.0% rdg + 10d)
600 μF	100nF	±(3.0% rdg + 10d)
6mF	1uF	±(5.0% rdg + 10d)

Overload Protection: 600V DC or AC rms

Temperature

Range	Resolution	Accuracy	Sensor type
0°C ~ 400°C	1°C	± (1.0% rdg +2°C)	K-type Thermocouple
-50°C ~ 0°C, 400°C ~ 1300°C	1°C	± (2.0% rdg +3°C)	
32°F ~ 750°F	1°F	± (1.0% rdg +4°F)	
-58°F ~ 32°F, 750°F ~ 2372°F	1°F	± (2.0% rdg +6°F)	

Overload protection: 30V DC or AC rms

%Duty Cycle

Range	Resolution	Pulse Width	Accuracy (5V logic)
5% to 95%	0.1%	>10us	±(2.0% rdg+10d)

Frequency range: 5% to 95% (40Hz to 1kHz), 10% to 90% (1kHz to 10kHz)
20% to 80% (10kHz to 20kHz) .

Overload protection: 600V DC or AC rms

Frequency

Range	Resolution	Accuracy	Trigger Level
60Hz	0.01Hz	±(0.1% rdg+5d)	>3.5V
600Hz	0.1Hz	±(0.1% rdg+5d)	>3.5V
6KHz	1Hz	±(0.1% rdg+5d)	>3.5V
60KHz	10Hz	±(0.1% rdg+5d)	>3.5V
600KHz	100Hz	±(0.1% rdg+5d)	>3.5V
6MHz	1KHz	±(0.1% rdg+5d)	>3.5V <5.0V
10MHz	10KHz	±(0.1% rdg+5d)	>3.5V <5.0V

Minimum Input Range: > 10Hz

Minimum pluse width: > 100ns

Duty cycle limits: > 30% and < 70%

Overload protection: 600VDC or AC rms

INSULATION RESISTANCE MEASUREMENT

Test Voltage	Range	Resolution	Accuracy
50V	50K Ω ~300K Ω	1K Ω	$\pm(3.0\%+5d)$
	0.30M Ω ~3M Ω	0.01M Ω	$\pm(3.0\%+5d)$
	3M Ω ~30M Ω	0.1M Ω	$\pm(3.0\%+5d)$
	30M Ω ~300M Ω	1M Ω	$\pm(3.0\%+5d)$
100V	100K Ω ~600K Ω	1K Ω	$\pm(3.0\%+5d)$
	0.6M Ω ~6M Ω	0.01M Ω	$\pm(3.0\%+5d)$
	6M Ω ~60M Ω	0.1M Ω	$\pm(3.0\%+5d)$
	60M Ω ~600M Ω	1M Ω	$\pm(3.0\%+5d)$
250V	0.25M Ω ~1.5M Ω	0.01M Ω	$\pm(1.5\%+5d)$
	1.5M Ω ~15M Ω	0.1M Ω	$\pm(1.5\%+5d)$
	15M Ω ~150M Ω	1M Ω	$\pm(1.5\%+5d)$
	0.15G Ω ~1.5G Ω	10M Ω	$\pm(1.5\%+5d)$
500V	0.5M Ω ~3M Ω	0.01M Ω	$\pm(1.5\%+5d)$
	3M Ω ~30M Ω	0.1M Ω	$\pm(1.5\%+5d)$
	30M Ω ~300M Ω	1M Ω	$\pm(1.5\%+5d)$
	0.3G Ω ~3G Ω	10M Ω	$\pm(1.5\%+5d)$
1000V	1M Ω ~6M Ω	0.01M Ω	$\pm(1.5\%+5d)$
	6M Ω ~60M Ω	0.1M Ω	$\pm(1.5\%+5d)$
	60M Ω ~600M Ω	1M Ω	$\pm(1.5\%+5d)$
	0.6G Ω ~6G Ω	10M Ω	$\pm(10\%+5d)$

Test Voltage versus Minimum Resistance Range (Test Current =1mA) :

50V/50K Ω , 100V/100K Ω , 250V/250K Ω , 500V/500K Ω , 1000V/1M Ω .

Short Circuit Test Current: 1mA

Test Voltage Accuracy : +20%, -0%

Auto Discharge: Discharge time <1 sec for C=1 μ F or less

Maximum Capacitive Load: Operable with up to 1 μ F load

Live Circuit Detection: if > 30V AC/DC at inputs, test inhibited

Overload protection: 600VDC or AC rms

MAINTENANCE

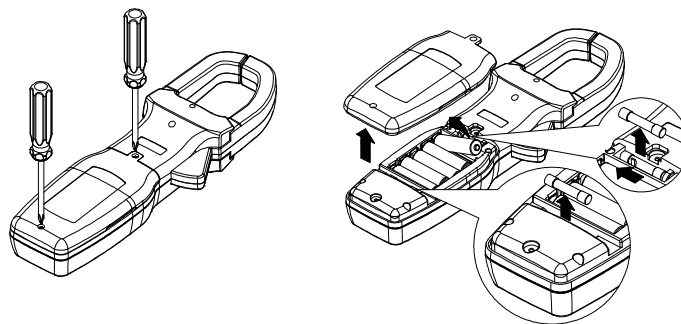
Maintenance consists of periodic cleaning and battery replacement. The exterior of the instrument can be cleaned with a dry clean cloth to remove any oil, grease or grime. Never use liquid solvents or detergents. Repairs or servicing not covered in this manual should only be performed by qualified personnel.

BATTERIES AND FUSE REPLACEMENT

WARNING

TO AVOID ELECTRICAL SHOCK, DISCONNECT THE TEST LEADS AND ANY INPUT SIGNALS BEFORE REPLACING THE BATTERY. REPLACE ONLY WITH SAME TYPE OF BATTERY.

1. Disconnect test leads from any live source, turn the rotary switch to OFF, and remove the test leads from the input terminals.
2. The battery cover is secured to the bottom case by a screw. Using a Phillips-head screwdriver, remove the screw from the battery cover and remove the battery cover.
3. Remove battery and replace with a new equivalent "AA" 1.5 volt x5 alkaline batteries.
4. Fuse: 0.5A/1000V fast blow ceramic fuse (6.3x32mm).
5. Replace the battery cover and reinstall the screw.





P/N: 7000-1920(3604C)

