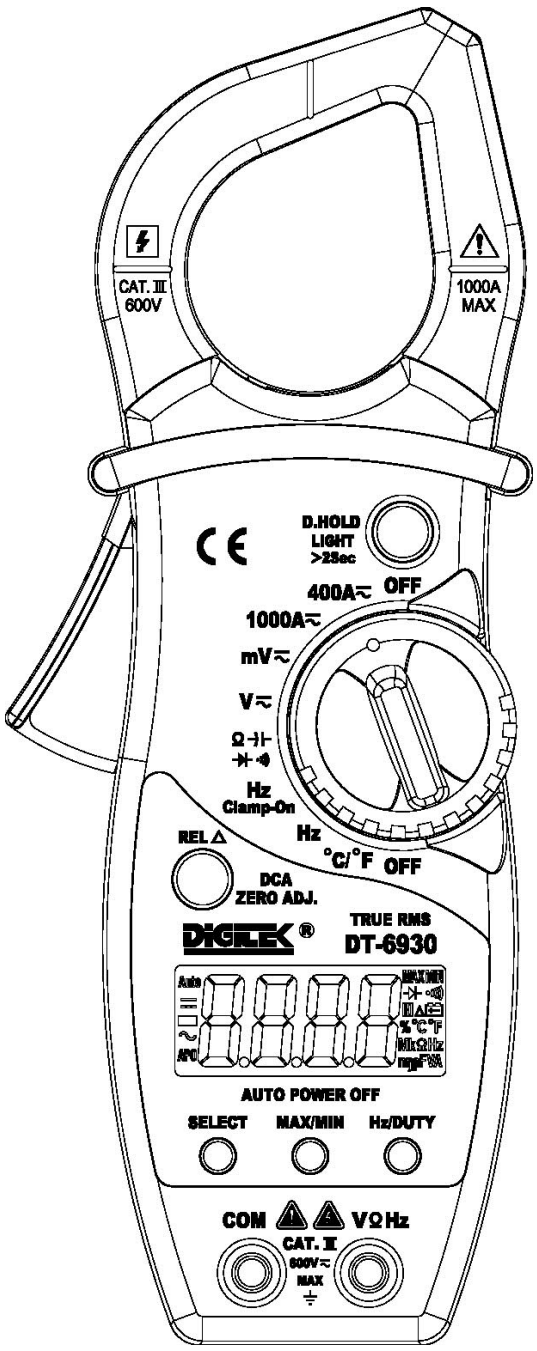
DT-6930

3 3/4 DIGITAL TRUE-RMS AC/DC CLAMP MULTIMETER OPERATION MANUAL



1. ATIONSAFETY INFORM

SAFETY SYMBOLS

⚠ **Warning!** Dangerous Voltage (Risk of electric shock).

⚠ **Caution!** Refer to the user's manual before using this Meter.

⧈ **Double Insulation** (Protection Class Ⅱ).

~ Alternating Current (**AC**).

⎓ Direct Current (**DC**).

⎓~ Either **DC** or **AC**.

⏚ **Ground** (maximum permitted voltage between terminal and ground).

The symbol indicating separate collection for electrical and electronic equipment.

⚠ **The RESPONSIBLE BODY shall be made aware that, if the instrument is used in a manner not specified by the manufacturer, the protection provided by the instrument may be impaired.**

⚠ **The finger or any part of your body shall not be beyond the barrier of the test probe when measuring.**

⚠ **Individual protective equipment must be used if HAZARDOUS LIVE parts in the installation where measurement is to be carried out could be ACCESSIBLE.**

⚠ **Not to use the CURRENT SENSOR if the wear indicator in the JAW OPENING is visible.**

The following safety information must be observed to insure maximum personal safety during the operation at this meter.

1.1 Do not operate the meter if the body of meter or the test lead look broken.

1.2 Check the main function dial and make sure it is at the correct position before each measurement.

1.3 Do not perform resistance, capacitance, temperature, diode and continuity test on a live power system.

1.4 Do not apply voltage between the test terminals and test terminal to ground that exceed the maximum limit record in this manual.

1.5 Exercise extreme caution when measuring live system with voltage greater than 60V DC or 30V AC.

1.6 Keep the fingers after the protection ring when measuring through the clamp.

1.7 Change the battery when the "🔋" symbol appears to avoid incorrect data.

1.8 Use the DMM indoor, altitude up to 2000m and temperature 5°C to 40°C. Maximum relative humidity 80% for temperatures up to 31°C, decreasing linearly to 50% relative humidity at 40°C.

1.9 In locations subject to radio frequency interference, the product may malfunction and it resets automatically when leaving this environment.

2. SPECIFICATIONS

2.1 GENERAL SPECIFICATIONS

Display: 3 3/4 digits LCD with a max. reading of 4000.

Range control: Auto range & Manual range control
Polarity: Automatic negative polarity indication.
Zero adjustment: Automatic.
Overrange indication: The “OL” or “-OL” display.
Low battery indication: Display "⊟" sign.
Data hold: Display “H” sign.
Relative measurement: Display “△” sign.
Clamp opening size: 32mm.
Auto Power Off: When measurement exceeds 10 minutes without switching mode and pressing key, the meter will switch to standby mode. Press any key to exit standby mode. When start the system, press and hold any key to disable auto power off.
Safety standards: CE **EMC/LVD**. **CAT Ⅲ 600V.**
The meter is up to the standards of IEC1010 Double Insulation，Pollution Degree 2, Overvoltage Category Ⅲ.
Operating environment: Temperature 32 to104°F (0°C to 40°C), Humidity ≤ 80% RH.
Storage environment: Temperature -4 to140°F (-20°C to 60°C), Humidity ≤ 90% RH.
Power supply: 9V battery.
Dimension: 215(H) x 84(W) x 45(D) mm
Weight: Approx. 335g (including battery).

2.2 ELECTRICAL SPECIFICATIONS

Accuracies are ± (% of reading + number in last digit)
at 23 ± 5°C , ≤75% RH.

2.2.1 DC Voltage

Range	Accuracy	Resolution
40mV	± (0.8%+3)	0.01mV
400mV	± (0.5%+2)	0.1mV
4V		1mV
40V		10mV
400V		100mV
600V	± (0.8%+3)	1V

Overload protection: 600V DC or AC rms
Impedance: 10MΩ，More than 100MΩ on 40/400mV range

2.2.2 AC Voltage

Range	Accuracy	Resolution
40mV		0.01mV

400mV	± (1.5%+3)	0.1mV
4V		1mV
40V	± (1.0%+2)	10mV
400V		100mV
600V	± (1.5%+3)	1V

AC True RMS
Frequency: 40～1kHz
Overload protection: 600V DC or AC rms
Impedance: 10MΩ，More than 100MΩ on 40/400mV range

2.2.3 DC Current

Range	Accuracy	Resolution
400A	± (1.5%+5)	0.1A
1000A	± (2.0%+10)	1A

Overload protection: 1000A DC or AC rms

2.2.4 AC Current

Range	Accuracy	Resolution
400A	± (2.0%+5)	0.1A
1000A	± (2.5%+10)	1A

AC True RMS
Frequency: 40～100Hz
Overload protection: 1000A DC or AC rms

2.2.5 Resistance

Range	Accuracy	Resolution
400Ω	± (1.0%+2)	0.1Ω
4kΩ		1Ω
40kΩ		10Ω
400kΩ		100Ω
4MΩ		1kΩ
40MΩ	± (2.0%+3)	10kΩ

Overload protection: 250V DC or AC rms

2.2.6 Capacitance

Range	Accuracy	Resolution
40nF	± (3.0%+10)	10pF
400nF	± (2.5%+5)	100pF
4μF		1nF
40μF	± (5.0%+10)	10nF
400μF	± (20.0%+20)	100nF
4000μF		1μF

Overload protection: 250V DC or AC rms

2.2.7 Diode and Audible continuity test

Range	Description	Test condition

	Display read approximately forward voltage of diode	Forward DC current approx. 0.4mA Reversed DC voltage approx. 2.8V
	Built-in buzzer sounds if resistance is less than 100Ω	Open circuit voltage approx. 0.5V

Overload protection: 250V DC or AC rms

2.2.8 Frequency

Range	Accuracy	Resolution
10Hz	± (0.1%+5)	0.01Hz
100Hz		0.1Hz
1000Hz		1Hz
10kHz		10Hz
100kHz		100Hz
1000kHz		1kHz
10MHz		10kHz

Sensitivity: sine wave 0.6V rms (10MHz: 1.5V rms)
Overload protection: 250V DC or AC rms

2.2.9 Duty cycle

0.1%～99.9%: ± (2.0%+2)　Frequency lower than 10kHz
Sensitivity: sine wave 0.6V rms
Overload protection: 250V DC or AC rms

2.2.10 Frequency (Clamp-On)

25Hz～400Hz: ± (0.1%+5)
Sensitivity: 3A rms
Overload protection: 1000A DC or AC rms

2.2.11 Temperature

Range	Accuracy		Resolution
℃/℉	-50~150℃ -58~302℉	± (3℃+1) ± (5℉+2)	1℃/1℉
	150~700℃ 302~1292℉	± (3%+1) ± (3%+2)	

NiCr-NiSi sensor
Overload protection: 250V DC or AC rms

3. OPERATION

3.1 DC and AC Voltage Measurement

1) Connect the black test lead to "**COM**" socket and red test lead to the "**VΩHz**" socket.
2) Set the selector switch to desired “**mV~**” or “**V~**” position.
3) Press “**SELECT**” key to choose “**DC**” or “**AC**” measurement.
4) Measure the voltage by touch the test lead tips to the test circuit where the value of voltage is needed.
5) Read the result from the LCD panel.
6) On **AC** range, press “**Hz/DUTY**” key to measurement **frequency** or **duty cycle.**

3.2 DC Current Measurement

1) Set the selector switch to desired “**400A~**” or “**1000A~**” position.
2) Press “**SELECT**” key to choose “**DC**” measurement.
3) Zero the reading by pressing “**REL**△(DCA ZERO ADJ.)” key for a reading of zero on the display.
4) Disconnect the test leads from the Meter.
5) Clamp the Jaws around the **one** conductor to be measured. Center the conductor within the Jaw using the Centering Marks as guides.
6) Read the result from the LCD panel. The arrow in the Jaw indicates the direction of positive current flow (positive to negative).

3.3 AC Current Measurement

1) Set the selector switch to desired “**400A~**” or “**1000A~**” position.
2) Press “**SELECT**” key to choose “**AC**” measurement.
3) Disconnect the test leads from the Meter.
4) Clamp the Jaws around the **one** conductor to be measured. Center the conductor within the Jaw using the Centering Marks as guides.
5) Read the result from the LCD panel.

3.4 Resistance Measurement

1) Connect the black test lead to "**COM**" socket and red test lead to the "**VΩHz**" socket.
2) Set the selector switch to desired “Ω⊣▸⊢•))⊣⊢” position.
3) Press “**SELECT**” key to choose **Resistance** measurement.
4) Connect tip of the test leads to the points where the value of the resistance is needed.
5) Read the result from the LCD panel.

Note: When take resistance value from a circuit system, make sure the power is cut off and all capacitors need to be discharged.

3.5 Capacitance Measurement

1) Connect the black test lead to "**COM**" socket and red test lead to the "**VΩHz**" socket.
2) Set the selector switch to desired “Ω⊣▸⊢•))⊣⊢” position.
3) Press “**SELECT**” key to choose **Capacitance** measurement.
4) Connect tip of the test leads to the points where the value of the capacitance is needed.
5) Read the result from the LCD panel.

Note:

a) Before testing, discharge the capacitor by shorting its leads together. Use caution in handing capacitors because they may have a charge on them of considerable power before discharging.
b) Before testing, press “**REL**△(DCA ZERO ADJ.)” key to eliminate the zero error.
c) When testing 4000μF capacitor, note that there will be approx. 30 seconds time lag.

3.6 Diode and Audible continuity Test

1) Connect the black test lead to "**COM**" socket and red test lead to the "**VΩHz**" socket.
2) Set the selector switch to desired “Ω⊣•))⊣⊢” position.
3) Press “**SELECT**” key to choose **Diode** or **Audible continuity** measurement.
4) Connect the test leads across the diode under measurement, display shows the approx. forward voltage of this diode.
5) Connect the test leads to two point of circuit, if the resistance is lower than approx. 100Ω, the buzzer sounds.

Note: Make sure the power is cut off and all capacitors need to be discharged under this measurement.

3.7 Frequency and Duty cycle measurement

1) Connect the black test lead to "**COM**" socket and red test lead to the "**VΩHz**" socket.
2) Set the selector switch to desired “**Hz**” position.
3) Press “**Hz/DUTY**” key to choose **Frequency** or **Duty cycle** measurement.
4) Connect the probe across the source or load under measurement.
5) Read the result from the LCD panel.

3.8 Frequency (Clamp-On) measurement

1) Set the selector switch to desired “**Hz(Clamp-On)**” position.
2) Disconnect the test leads from the Meter.
3) Clamp the Jaws around the **one** conductor to be measured. Center the conductor within the Jaw using the Centering Marks as guides.
4) Read the result from the LCD panel.

3.9 Temperature Measurement

1) Connect the black test lead of the sensor to "**COM**" socket and red test lead to the "**VΩHz**" socket.
2) Set the selector switch to desired “℃/℉” position.
3) Press “**SELECT**” key to choose “℃” or “℉” measurement.
4) Put the sensor probe into the temperature field under measurement.
5) Read the result from the LCD panel.

3.10 Data Hold

On any range, press the “**D.HOLD**” key to lock display value, and the “**H**” sign will appear on the display, press it again to exit.

3.11 MAX/MIN Hold

Press the “**MIN/MAX**” key to lock **MAX** or **MIN** value, and the “**MAX**” or “**MIN**” sign will appear on the display, press it over 2 seconds to exit.

3.12 Back Light

On any range, press the "**D.HOLD**" key over 2 seconds to light the back light, press it again for more than 2 seconds to wink the light. The light can wink automatically after 10 seconds too.

3.13 Relative measurement

Press the "**REL△**" key, you can measure the relative value and "△" sign will appears on the display, the auto range mode be changed to manual range mode. Press it again to exit relative measurement and "△" sign disappears, but you can not go back to auto range mode. This function can be used to zero the reading on **DCA** range. This function is non effective on **Hz/DUTY** measurement.

4. Battery replacement

1) When the battery voltage drop below proper operation range, the "" symbol will appear on the LCD display and the battery need to changed.
2) Before changing the battery, set the selector switch to "**OFF**" position. Open the cover of the battery cabinet by a screwdriver.
3) Replace the old battery with the same type battery.
4) Close the battery cabinet cover and fasten the screw.

Caution: Dispose the used batteries according to the rules, which are defined by each community.

5. MAINTENANCE

1) Before open the battery door, disconnect both test lead and never uses the meter before the battery door is closed.
2) To avoid contamination or static damage, do not touch the circuit board without proper static protection.
3) If the meter is not going to be used for a long time, take out the battery and do not store the meter in high temperature or high humidity environment.
4) When take current measurement, keep the cable at the center of the clamp will get more accurate test result.
5) Repairs or servicing not covered in this manual should only by qualified personal.
6) Periodically wipe the case with a dry cloth and detergent. Do not use abrasives or solvents on the meter.