

Digital Inductance/ Capacitance / Resistance Meter Instructions

I . Overview

This is inductance, capacitance and resistance measuring meter, it is a Special digital instrument which is easy to be operated, the reading accuracy degree is higher with liquid crystal display 3^{1/2}. It adopted double integral A/D converter core and a large-scale integrated circuits, these make the meter an excellent performance instrument for the users.

II . Safety Information

Please read the safety note before use:

1. Do not input either AC or DC voltage;
2. When measuring capacity, the capacitor should be fully discharged, so as to avoid electric shock or damaging the instrument;
3. When changing switching function, the Test lead should be removed from the test points;
4. Make sure you have selected the right function, to avoid misoperation, pay attention for safety when measuring.

III. Features

3.1 general

1. Display: LCD
2. Biggest display value: 1999 (3 1/2).
3. Measuring method: Double integral A/D conversion.
4. Sampling rate: 3 times per second
5. Overrange display: "1" at the highest digital place
6. Instruction for low voltage of battery: showing "⊖"
7. Auto power off and Data Hold function
8. Working temperature: 0°C to 40°C,
9. Storage temperature: -10°C to 50°C
10. Power: a 9V laminated battery (6F22).
11. Accessory: a instruction manual, a certificate, a pair of crocodile clip and one 9V battery

3.2. Technical specifications

Accuracy: ±(%reading+digits) Quality guarantee: one year
Environment temperature: 23°C±5°C, Relative humidity: <75%

3.2.1 Capacitance

Range	Accuracy	Resolution
200pF	± (2.5%+5)	0.1pF
2nF		1pF
20nF		10pF
200nF		100pF
2μF		1nF
20μF		10nF
200μF	± (5.0%+5)	100nF
2000μF		1μF

PF=10⁻¹²F nF=10⁻⁹F μF=10⁻⁶F mF=10⁻³F

3.2.2 Inductance

Range	Accuracy	Resolution
200uH	± (3.0%+5)	0.1uH
2mH	± (2%+5)	1 μH
20mH		10μH
200mH		100μH
2H	± (5%+5)	1mH
20H		10mH

μH=10⁻⁶H mH=10⁻³H

3.2.3 Resistance

Range	Accuracy	Resolution
200Ω	± (0.8%+2)	0.1Ω
2kΩ		1Ω
20kΩ		10Ω
200kΩ		100Ω
20MΩ	± (1.5%+5)	10kΩ

3.2.4 Forward voltage drop of diode

Range	Instruction	Testing condition
▶	Display forward voltage approximation of diode	Forward voltage of DC : Approx.1mA Reverse voltage of DC : Approx.3V

IV. Operation

4.1 Testing note:

1. Do not apply voltage to the input socket, so as to avoid damaging the instrument
2. Inductors, capacitors meter is used for measuring the inductance of inductors and capacitance of capacitor, it can not be used to measure quality factor of wattless part, when measuring the inductance or capacitance which containing a component of resistance, it may get the wrong readings.
3. When measuring the parameters of the component in the circuit, the power should be cut off, and remove incentives before connecting test lead.
4. Making every measurement, you should inserted black Test lead into "-" terminal. and red Test lead into the "+" terminal.
5. it is prohibited to short the circuit of input terminal when measuring inductance and capacitance, short-circuit for a long time may rapidly consume the battery power and may cause internal burning.

4.2 Capacitance measurement

1. The capacitor should be fully discharged;
2. Set the range switch to the proper capacitance range. Insert the black test lead of the alligator clip into "-" end and red test lead to "+" end, connect the capacitor pin to the relative input terminal;
3. If the display shows "1", it indicates that the measurement is overrange, you should choose the higher

range, if the display shows one or more zero before the displaying value, you should choose a lower range to increase resolution so as to get a higher accuracy.

Note:

1. When it is not showing zero, please transfer the zero-knob until it shows zero.
2. When using the test lead, a stray capacitance value is introduced, the measurement value should subtract the value;
3. When measuring small capacitance you should particularly use short wire to prevent the introduction of stray capacitance
4. If the measuring value shows zero for all range when measuring an open-circuit capacitor, or show a unstable value when at the large capacitance range when it is used to measure the serious leakage or breakdown capacitor, for all these phenomenon, a preliminary judgement can be made is that the measured capacitance is serious leakage, make measuring by another instrument to confirm.

4.3 Inductance measurement

1. Set the range switch to the proper inductance range. connect crocodile clip to both terminal of the inductor.
2. If the display shows "1", it indications that the measurement is surpass the measuring range, you should choose the higher range, if the display shows one or more zero before the displaying value, you should choose a lower range to increase resolution so as to get a higher accuracy.

Note:

1. If the value of inductance is not marked, increased range gradually from 200uH until the overload signal eliminated and display normal value.
2. When 2 mH range is under use, the test lead should be short-circuit firstly to get the inductance value of the leads, the measurement value should subtract this value. When measuring small inductors, you should particularly use short wire to prevent the introduction of stray inductance.
3. This instrument can not be used to measure the quality factor of inductors, the measuring inductance is varied when there is different impedance in the same inductor, you may get the wrong value if you are measuring the inductance of the resistance.

4.4 Resistance measurement

1. Set the range switch at the desired resistance range position. Connect crocodile clip across the resistance under measurement.
2. If the display show "1", it indications that the measurement is surpass the measuring range, you should choose the higher range, if the display shows one or more zero before the displaying value, you should choose a lower range to increase resolution so as to get a higher accuracy.

Note:

When measuring resistance below 200Ω, you should short the circuit of the crocodile clip and get the resistance value of the clip, the measurement should subtract this value.

4.5 diode measurement

- (1) Connect the black test lead of the crocodile clip to "-" terminal and the red to "+" terminal.
- (2) Set the range switch at the \rightarrow range position, Connect the test lead across the diode under testing.

NOTE:

- a. If the input is open circuit, the instrument will display overrange status.
- b. The displayed value is forward voltage drop value, when the diode is reverse connected it display overrange status.

V. Maintenance

1. The meter is of highly accurate electronic apparatus, do not change the internal circuit.
2. Don't use the meter when the back cover doesn't cover the meter well.
3. Pay attention to the situation of the 9V battery, if it is lack of power, "E" signal will be showed on the LCD. change the same type of battery quickly so as not to affect the measurement.