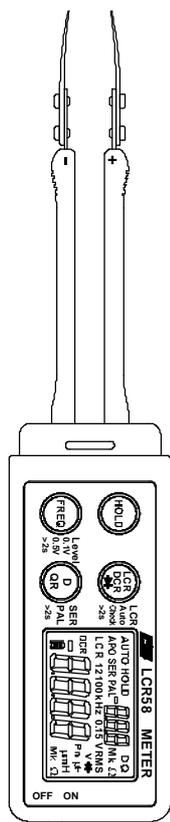


LCR METER

6000 Counts, Auto check

MODEL: LCR58

001-22-2012



SPECIFICATIONS

- **Display:** 6000 counts. Dual display.
- **Polarity:** Automatic, (-) negative polarity indication.
- **Overrange indication:** "OL" mark indication.
- **Low battery indication:** When change a new battery for the meter, the LCD will show the battery capacity with full status (100%). If the meter operation lasts for a few hours, the capacity indication may show half battery status (50%). After a long time operation, the battery may be exhausted and low battery status is shown (25%). Then "bAtt" displays accompanying with a continuous beep sound, and the meter shuts down in 5 seconds, and no further measurement is allowed.
- **Auto power off:** approx. 30 minutes.
- **Measurement rate:** 2 times per second, nominal.
- **Operating environment:** 0°C to 40°C at < 70% R.H.
- **Storage temperature:** -20°C to 60°C, 0 to 80% R.H. with battery removed from meter.
- **Accuracy:** Stated accuracy at 23°C ±5°C, < 75% relative humidity.
- **Temperature coefficient:** 0.1x(specified accuracy) per°C.(0°C to 18°C, 28°C to 40°C).
- **Power:** 3.0V button-type lithium Batteries x2, CR2032.
- **Battery life:** 50 hours typical.
- **Dimensions:** 205mm (H)×40mm (W)×24.5mm (D).
- **Weight:** Approx. 110g including battery.
- **Accessories:** Operating Instructions, 3.0V button-type lithium Batteries x2.
- **Safety:** EN61010-1, CE-EMC.

INDUCTANCE

Ranges: 600μH, 6000μH, 60mH, 600mH, 6H, 60H, 200H

Resolution: 0.1μH

Accuracy: (Q>5)

Level: Test signal amplitude 0.5V RMS

±(1.0% rdg + 5 dgts) on 60mH to 200H ranges

±(2.0% rdg + 5 dgts) on 600μH, 6000μH ranges

Test signal amplitude 0.1V RMS

±(1.5% rdg + 5 dgts) on 60mH to 200H ranges

±(3.0% rdg + 5 dgts) on 600μH, 6000μH ranges

Test Frequency: (100Hz/120Hz: 60mH to 200H ranges)

(1KHz: 6000μH to 60H ranges)

(10KHz: 600μH to 6H ranges)

Overload protection: 10VDC or AC rms

CAPACITANCE

Ranges: 600pF, 6nF, 60nF, 600nF, 6μF, 60μF, 600μF, 6mF

Resolution: 0.1PF

Accuracy: (D<0.2)

Level: Test signal amplitude 0.5V RMS

±(2.0% rdg + 8 dgts) on 600pF range

±(1.0% rdg + 5 dgts) on 60nF, 600nF, 6μF ranges

±(2.0% rdg + 5 dgts) on 6nF, 60μF, 600μF, 6mF ranges

Test signal amplitude 0.1V RMS

±(3.0% rdg + 8 dgts) on 600pF range

±(1.5% rdg + 3 dgts) on 60nF, 600nF, 6μF ranges

±(3.0% rdg + 5 dgts) on 6nF, 60μF, 600μF, 6mF ranges

Test Frequency: (100Hz/120Hz: 60nF to 6mF ranges)

(1KHz: 6nF to 600μF ranges)

(10KHz: 600pF to 60μF ranges)

Overload protection: 10VDC or AC rms

Discharged capacitor before connecting.

RESISTANCE

Ranges: 60Ω, 600Ω, 6kΩ, 60kΩ, 600kΩ, 6MΩ, 20MΩ

Resolution: 0.01Ω

Accuracy: (D<0.2)

Level: Test signal amplitude 0.5V RMS

±(2.0% rdg + 10 dgts) on 60Ω range

±(1.0% rdg + 5 dgts) on 600Ω to 600KΩ ranges

±(2.0% rdg + 5 dgts) on 6MΩ, 20MΩ ranges

Test signal amplitude 0.1V RMS

±(2.0% rdg + 10 dgts) on 60Ω range

±(1.5% rdg + 5 dgts) on 600Ω to 600KΩ ranges

±(3.0% rdg + 5 dgts) on 6MΩ, 20MΩ ranges

Test Frequency: (100Hz, 120Hz, 1KHz, 10KHz :on 60Ω to 6MΩ ranges)

(100Hz, 120Hz, 1KHz :on 20MΩ range)

Overload protection: 10VDC or AC rms

LCR AUTO CHECK MODE

For Q < 0.2 the R mode is selected.

For Q > +0.2 the L+R or L+Q mode is selected.

For Q < -0.2 the C+R or C+D mode is selected.

Level: Test signal amplitude 0.5V RMS

Test Frequency : 1KHz

Overload protection: 10VDC or AC rms

RESISTANCE (DCR)

Ranges: 60Ω, 600Ω, 6kΩ, 60kΩ, 600kΩ, 6MΩ, 20MΩ

Resolution: 0.01Ω

Accuracy: ±(2.0% rdg + 10 dgts) on 60Ω range

±(1.0% rdg + 5 dgts) on 600Ω to 600KΩ ranges

±(2.0% rdg + 5 dgts) on 6MΩ, 20MΩ ranges

Open circuit volts: 0.5Vdc typical

Overload protection: 10VDC or AC rms

DIODE TEST

Test current: 0.8 mA (approximate)

Accuracy: ±(2% rdg + 5dgts)

Open circuit volts: 2.0Vdc typical

Audible indication: Less than 0.05V

Overload protection: 10VDC or AC rms

AUXILIARY FEATURES

ON/OFF SWITCH: Power.

DATA HOLD

1. Freeze the latest reading on the display.

LCR / DCR / → (LCR AUTO CHECK > 2 sec) Button:

1. Shift "L (Inductance)" ↔ "C (Capacitance)" ↔ "R (Resistance)" ↔ "DCR

(DC Resistance)" ↔ "→ DIODE TEST" ranges.

2. Depress this button for more than 2 seconds to enter LCR AUTO TEST

mode.

3. Depress this button again for more than 2 seconds to exit.

DQR (SER / PAL > 2 sec) Button:

1. Shift "D (Dissipation factor)" ↔ "R" (Equivalent series or parallel

resistance), "Q" (Quality factor) ↔ "R" (Equivalent series or parallel

resistance) measurement parameters.

2. Depress this button for more than 2 seconds to enter "SER(Series test

mode)" ↔ "PAL(Parallel test mode)".

3. Depress this button again for more than 2 seconds to exit.

FREQ (LEVEL 0.1V/0.5V RMS > 2 sec) Button:

1. Shift "100Hz" ↔ "120Hz" ↔ "1KHz" ↔ "10KHz" test frequency.

2. Depress this button for more than 2 seconds to enter "0.1V"RMS ↔

"0.5V"RMS test signal amplitude (LCR mode).

3. Depress this button again for more than 2 seconds to exit.

Disable Auto Power Off

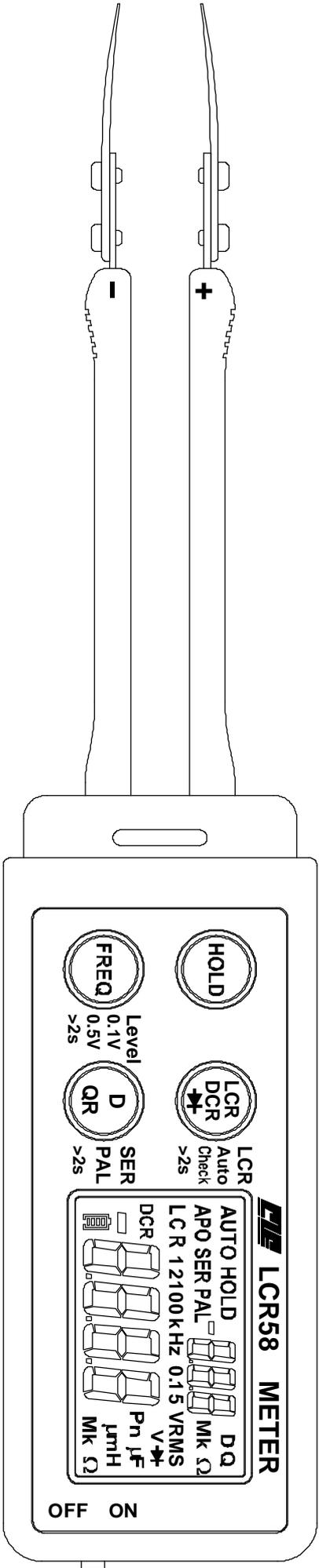
Set the LCD meter to off position, press (HOLD) button, and hold the

(HOLD) button, set the LCR meter to ON position. Release the button

when LCD displays normally. Note "APO" annunciator is missing from

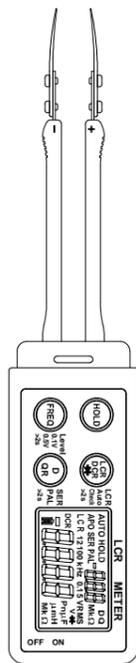
the LCD. The Auto Power Off mode is activated with an "APO" symbol

indicating on LCD.



OPERATING INSTRUCTIONS

LCR METER



SAFETY INFORMATION

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

Use the Meter only as specified in this manual or the protection provided by the Meter might be impaired.

Do not use the meter if the meter or test leads look damaged, or if you suspect that the meter is not operating properly.

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.

Turn off power to the circuit under test before cutting, unsoldering, or breaking the circuit. Small amounts of current can be dangerous.

When Using the probes, keep your fingers behind the finger guards on the probes.

Measuring voltage which exceeds the limits of the multimeter may damage the meter and expose the operator to a shock hazard. Always recognize the meter voltage limits as stated on the front of the meter.

SPECIFICATIONS

Display: 6000 counts.

Polarity: Automatic, (-) negative polarity indication.

Overrange: "OL" mark indication.

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 times per second, nominal.

Auto power off: approx. 30 minutes.

Operating environment:

0°C to 40°C (32°F to 104°F) at <70% R.H.

Storage temperature: -20°C to 60°C (-4°F to 140°F) at <80% R.H. with battery removed from meter.

Temperature Coefficient: 0.1 × (specified accuracy) per °C. (0°C to 18°C, 28°C to 40°C).

Power: 3.0V button-type lithium Batteries x2, CR2032.

Battery life: 50 hours continuous operation.

Dimensions: 205mm (H)×40mm (W)×24.5mm (D).

Weight: Approx. 3.9 oz. (110g) including battery . (Accuracy at 23°C ±5°C, <70% R.H.)

INDUCTANCE (L)

Ranges: 600μH, 6000μH, 60mH, 600mH, 6H, 60H, 200H

Resolution: 0.1μH

Accuracy: (Q>10)

Level: Test signal amplitude 0.5V RMS

±(1.0% rdg + 5 dgts) on 60mH to 200H ranges

±(2.0% rdg + 5 dgts) on 600μH, 6000μH ranges

Level: Test signal amplitude 0.1V RMS

±(1.5% rdg + 5 dgts) on 60mH to 60H ranges

±(3.0% rdg + 5 dgts) on 600μH, 6000μH ranges

Test Frequency:

(100Hz/120Hz:60mH, 600mH, 6H, 60H, 200H ranges)

(1kHz: 6000μH, 60mH, 600mH, 6H, 60H ranges)

(10kHz: 600μH, 6000μH, 60mH, 600mH, 6H ranges)

Minimum Input Range: >1.6μH

Note: For Q >1-Q <10, accuracy is the printed specifications x 1.5

Overload protection: 10VDC or 10VAC RMS

CAPACITANCE (C)

Ranges: 600pF, 6nF, 60nF, 600nF, 6μF, 60μF, 600μF, 6mF

Resolution: 0.1PF

Accuracy: (D<0.1)

Level: Test signal amplitude 0.5V RMS

±(2.0% rdg + 8 dgts) on 600pF range

±(1.0% rdg + 5 dgts) on 60nF,600nF,6μF ranges

±(2.0% rdg + 5 dgts) on 6nF, 60μF, 600μF, 6mF ranges

Level: Test signal amplitude 0.1V RMS

±(3.0% rdg + 8 dgts) on 600pF range

±(1.5% rdg + 5 dgts) on 60nF,600nF,6μF ranges

±(3.0% rdg + 5 dgts) on 6nF, 60μF, 600μF, 6mF ranges

Test Frequency:

(100Hz/120Hz: 60nF, 600nF, 6μF, 60μF, 600μF, 6mF ranges)

(1kHz: 6nF, 60nF, 600nF, 6μF, 60μF, 600μF ranges,

on 600μF range maximum input range: < 300μF)

(10kHz: 600pF, 6nF, 60nF, 600nF, 6μF ranges)

Minimum Input Range: > 0.8pF

Note: For D >0.1-D <1, accuracy is the printed specifications x 1.5

Overload protection: 10VDC or 10VAC RMS

Discharged capacitor before connecting.

RESISTANCE (R)

Ranges: 60Ω, 600Ω, 6kΩ, 60kΩ, 600kΩ, 6MΩ, 20MΩ

Resolution: 0.01Ω

Accuracy: (Q<0.1)

Level: Test signal amplitude 0.5V RMS

±(2.0% rdg + 10 dgts) on 60Ω range

±(1.0% rdg + 5 dgts) on 600Ω to 600kΩ ranges

±(2.0% rdg + 5 dgts) on 6MΩ, 20MΩ ranges

Level: Test signal amplitude 0.1V RMS

±(2.0% rdg + 10 dgts) on 60Ω range

±(1.5% rdg + 5 dgts) on 600Ω to 600kΩ ranges

±(3.0% rdg + 5 dgts) on 6MΩ, 20MΩ ranges

Test Frequency:

(100Hz,120Hz,1kHz,10kHz: on 60Ω to 6MΩ ranges)

(100Hz,120Hz,1kHz: on 20MΩ range)

Minimum Input Range: > 0.1Ω

Overload protection: 10VDC or 10VAC RMS

LCR AUTO CHECK MODE

For Q < 0.15 the R+Q mode is selected.

For Q > 0.15 the L+Q mode is selected.

For D < 6.66 the C+D mode is selected.

Level: Test signal amplitude 0.5V RMS

Test Frequency : 1kHz

Overload protection: 10VDC or 10VAC RMS

RESISTANCE (DCR)

Ranges: 60Ω, 600Ω, 6kΩ, 60kΩ, 600kΩ, 6MΩ, 20MΩ

Resolution: 0.01Ω

Accuracy: ±(2.0% rdg + 10 dgts) on 60Ω range

±(1.0% rdg + 5 dgts) on 600Ω to 600kΩ ranges

±(2.0% rdg + 5 dgts) on 6MΩ, 20MΩ ranges

Open circuit volts: 0.5Vdc typical

Overload protection: 10VDC or 10VAC RMS

DIODE TEST

Test current: 0.8 mA (approximate)

Accuracy: ±(2% rdg + 5dgts)

Open circuit volts: 2.0Vdc typical

Audible indication: Less than 0.05V

Overload protection: 10VDC or 10VAC RMS

ON/OFF SWITCH: Power.

LCR / DCR / (LCR AUTO CHECK > 2 sec) Button

1. Shift " L (Inductance) "  " C (Capacitance) "  " R (Resistance) "  " DCR (DC Resistance) "  "  " DIODE TEST " ranges.
2. Depress this button for more than 2 seconds to enter LCR AUTO TEST mode.
3. Depress this button again for more than 2 seconds to exit.
4. Note: In the LCR Auto Check mode, the "AUTO" symbol will flash continuously on the display.

DQR (SER / PAL > 2 sec) Button

1. Shift " D " (Dissipation factor)  " R " (Equiva-lent series or parallel resistance) , " Q " (Quality factor)  " R " (Equivalent series or parallel resistance) measurement parameters.
2. Depress this button for more than 2 seconds to enter " SER (Series test mode) "  " PAL (Parallel test mode) " .
3. Depress this button again for more than 2 seconds to exit.
4. Auto-detection is defaulted for the SER(series test mode) and PAL (parallel test mode) . SER (series test mode) defaults for resistance to be measured lower than 10kΩ; and PAL (parallel test mode) defaults for resistance to be measured higher than 10kΩ. Depressing DQR/SER/PAL button can settle to either SER(series test mode) or PAL (parallel test mode) .

FREQ (LEVEL 0.1V/0.5V RMS > 2 sec) Button

1. Shift " 100Hz "  " 120Hz "  " 1kHz "  " 10kHz " test frequency.
2. Depress this button for more than 2 seconds to enter " 0.1V " RMS  " 0.5V " RMS test signal amplitude (LCR mode) .

Data Hold Feature

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.

Inductance(L) Measurements

1. Set the function " L " position.
2. Touch the probes to the Inductance.
3. Read the Inductance directly from the display.
4. In the Inductance(L) mode, if a capacitor is measured by mistake, the meter will show a negative value on the display to indicate the mistaken measurement.
5. When performing tests, do not touch the metal part of the tweezers by hands, otherwise the readings would be disturbed and inaccurate.

Capacitance(C) Measurements

1. Set the Function to " C " position.
2. Touch the probes to the capacitor.
3. Read the capacitance directly from the display.
4. Discharge the capacitor before taking capacitance measurements.
5. In the Capacitance(C) mode, if an inductor is measured by mistake, the meter will show a negative sign in front of the reading on the display to indicate the mistaken measurement.
6. When performing tests, do not touch the metal part of the tweezers by hands, otherwise the readings would be disturbed and inaccurate.

Resistance Measurements

1. Set the function to " R " or " DCR " position.
2. Turn off power to the circuit under test. External voltage across the components causes invalid readings.
3. Touch the probes to the test points. In ohms, the value indicated in the display is the measured value of resistance with proper decimal point and annunciator indication.
4. When performing tests, do not touch the metal part of the tweezers by hands, otherwise the readings would be disturbed and inaccurate.

Testing Diodes

1. Set the Function to "  " position.
2. Turn off power to the circuit under test. External voltage across the components causes invalid readings.
3. Touch probes to the diode. A forward-voltage drop is about 0.6V (typical for a silicon diode).
4. Reverse probes. If the diode is good, "OL" is displayed. If the diode is shorted, a value near 0mV will be displayed.
5. If the diode is open, "OL" is displayed in both directions.
6. Audible Indiction: Less than 0.05V.

Auto Power off

1. Auto power off: approx. 30 minutes.
2. After auto power off, ON/OFF switch to restart the meter.

Cancellation Of Auto Power Off Feature

Press and hold the (HOLD) button while moving slide switch from off to any position to turn on the meter . The auto power off feature is disabled. Note "APO" annunciator is missing from the LCD.

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.



EMC: Conforms to EN61326-1.

The symbols used on this instrument are:

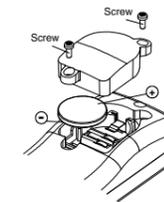
-  Caution, refer to accompanying documents
-  Equipment protected throughout by Double insulation (Class II)

BATTERY REPLACEMENT

Remove the batteries if the meter will be long time of no use.

Power is supplied by a 3volt button-type lithium batteries x2, CR2032. "" appears on the LCD display when replacement is needed.

1. Set the Function Switch to OFF.
2. Remove battery cover screw.
3. Slide off battery cover and change battery.
4. Replace battery cover and screw.



Battery
Compartment Cover
Battery Replacement

7000-1916 (LCR58)