10A MICRO-OHM METER

PCE-MO 2010

INSTRUCTION MANUAL

INDEX **PAGE**

1. INTRODUCTION

NOTE

This meter has been designed and tested According to CE Safety Requirements for Electronic Measuring Apparatus, IEC / EN 61010-1 and other safety standards. Follow all warnings to ensure safe operation.

WARNING

READ "SAFETY NOTES" (NEXT PAGE) BEFORE USING THE METER.

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

CAT III - Is for measurements performed in the building Installation.

CAT II - Is for measurements performed on circuits directly connected to the low-voltage installation.

2. SAFETY NOTES

- Read the following safety information carefully Before attempting to operate or service the meter.
- Use the meter only as specified in this manual. Otherwise, the protection provided by the meter may be impaired.
- Rated environmental conditions :
  (1) Indoor Use.
  (2) Installation Category III.
  (2) Pollution Degree 2.
  (3) Altitude up to 2000 meters.
  (4) Relative humidity 80% max.
  (5) Ambient temperature 0~40°C.
- Observe the International Electrical Symbols listed below :


Meter is protected throughout by double insulation or reinforced insulation.


Warning ! Risk of electric shock.


Caution ! Refer to this manual before using the meter.

3. FEATURES

- Maximum testing current of 10A
- Ranges:
  200.0μΩ / 2000μΩ 10A
  20.00mΩ / 200.0mΩ 1A
  2.000Ω / 20.00Ω 100mA
  200.0Ω 10mA
- Maximum resolution of 0.1μΩ at 10A
- Four terminal measurement
- 4 Lines × 20 Characters LCD
- Optical USB to RS-232 data transmission
- Well isolated from contact
- 2 built-in optical LEDs for data transfer
- Memory function (200 measurement results)
- Auto power off
- Low battery indication
- Power source:
  Rechargeable battery DC14.8V 5200mAh 76.96Wh
- Safety Standard:
  IEC/EN 61010-1 CAT III 300V
  EN 61326-1

4. SPECIFICATIONS

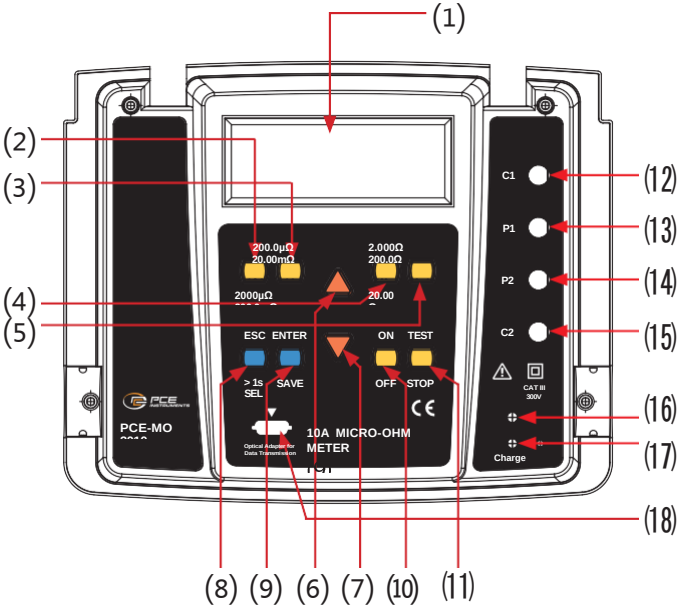
4-wire method measurement

Measuring ranges / resolution	200.0μΩ / 0.1μΩ 2000μΩ / 1μΩ 20.00mΩ / 0.01mΩ 200.0mΩ / 0.1mΩ 2.000Ω / 1mΩ 20.00Ω / 0.01Ω 200.0Ω / 0.1Ω
Accuracy	200.0μΩ ~ 2000μΩ: ±(2% + 8dgt) 20.00mΩ ~ 200.0Ω: ±(1% + 4dgt)
Testing current	10A: 200.0μΩ / 2000μΩ 1A: 20.00mΩ / 200.0mΩ 100mA: 2.000Ω / 20.00Ω 10mA: 200.0Ω

5. GENERAL

- **Operating temperature:** 0~40°C.
- **Operating humidity:** 80% RH.
- **Dimensions:**
  322(L) × 260(W) × 135(D)mm
- **Weight:**
  Approx. 3137g (battery included)
- **Power source:**
  Rechargeable battery DC14.8V 5200mAh 79.69Wh
- **Accessories:**
  Instruction manual
  Test leads
  Data transmission cable
  Software for PC interface
  Shoulder belt
  Charger
- **Safety Standard:**
  IEC/EN 61010-1 CAT III 300V
  EN 61326-1

6. INSTRUMENT LAYOUT



(1) 4 Lines × 20 characters LCD

(2) 10A Button

(3) 1A Button

(4) 100mA Button

(5) 10mA Button

(6) ▲ Button

(7) ▼ Button

(8) ESC / SEL Button

(9) ENTER / SAVE Button

(10) ON / OFF Button

(11) TEST / STOP Button

(12) C1 Terminal

(13) P1 Terminal

(14) P2 Terminal

(15) C2 Terminal

(16) Charge LED

(17) Charge Socket

(18) Optical Adapter for Data Transmission

• Test Leads

7. MEASUREMENT

1. Power On :
   Press "ON/OFF" button to turn the power on or off.
   Hold the "ON/OFF" button that can display the voltage of battery.

   The system will be auto off when it has no operation after 3 minutes.

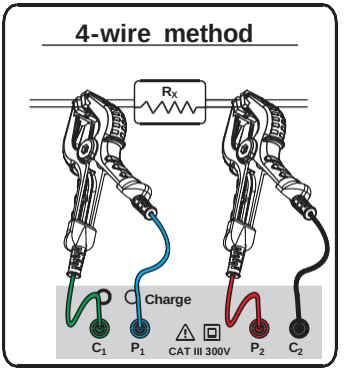
2. Before testing, you must make sure that the resistance under test does not have any voltage. When the voltage exceeds approx. 5 volts or the probe is connected to a power supply of more than approx. 5 volts,a warning message will be displayed.

3. Select test current & scale range :
   There are 4 buttons "10mA", "100mA", "1A" and "10A" which can choose the operation current and the scale range.
   "10mA" button for 200.0 Ω only.
   "100mA" button can choose 20.00 Ω & 2.000 Ω.
   "1A" button can choose 200.0 mΩ & 20.00 mΩ.
   "10A" button can choose 2000μΩ & 200.0μΩ.
   The screen will display date, time, test current and maximum resistance.

4.The measurement function

Press "TEST/STOP" button to measure the resistance value.

It needs a few seconds to complete the measurement, so press "TEST/STOP" button again that can interrupt the measurement.



When the measurement is finished, the screen will display the resistance value and testing current.

5.Record saving function

When the measurement is finished, press "SAVE/ENTER" button to save the result of measurement.

At the same time, the last line will display the number of records.

The memory can record up to 200 records.

6.Minor function

Press "ESC/SEL" button and hold over 1 second to enter the minor function.

Use the "UP" and "DOWN" button to move the function selection cursor, and press "SAVE/ENTER" to enter the minor function, and press "ESC/SEL" button to return back to the main page.

● Date/Time ADJ

Press "ESC/SEL" button to leave the Date/Time ADJ.
Press "UP" or "DOWN" button to set the correct number.
Press "TEST/STOP" button to switch to the next unit of date or time and go on the required adjustment.
After all adjustments are completed, press "SAVE/ENTER" button to confirm and save the date and time.

Press "ESC/SEL" button to return back to the minor function menu.

- RECORD DISPLAY

Press "UP" or "DOWN" button to reach the record that you want to look up.
Press "ESC/SEL" button to return back to the minor function menu.

- RECORD CLEAR

Press "SAVE/ENTER" button to clear all records in the memory.
Press "ESC/SEL" button to return back to the minor function menu.

REMEMBER TO CHARGE THE BATTERY!

ALWAYS recharge the battery when the Low Battery info appears on the display. Leaving the battery uncharged for a long period of time may affect the lifespan of the battery.
Charging interval: Every 3 months

8. MAINTENANCE

Charge:

When low battery warning information "LoBAT" appears, please charge the battery.

1. Plug one end of charger into the charge socket and the other end into the ACV power socket.
2. If ACV plug socket is energized, the charge LED is lit on indicating that charge is underway. If the ACV plug socket isn't energized, remove to another power-energized one making power charge.
3. After the voltage reaches approx. 16.0V~16.5V, charge process is complete.
   (It can be observed on LCD display.)

⚠ No measurement can be performed during the charging process.

9. INTERFACE CONNECTION AND OPERATION

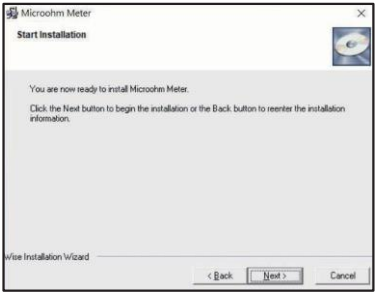
(A) Microohm Meter Setup Installation:

1. Install the "Micoohm Setup" on the personal computer.

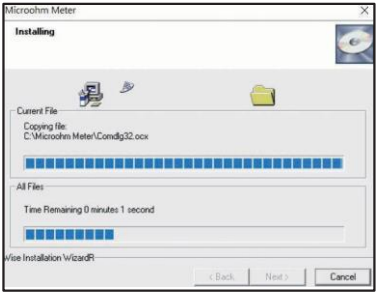
2. Click the "Next" button.

3. To install into a different folder, click Browse and Select another folder. If it's not necessary, click the "Next" button.

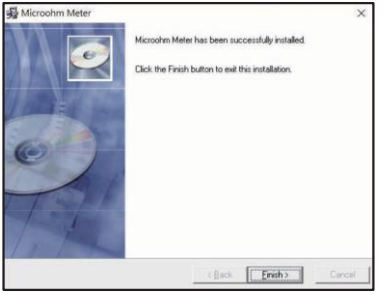
4. Click the "Next" button.



5. All the files are installing to your personal computer.



6. The Microohm Meter program has been successfully installed and then click "Finish" button.

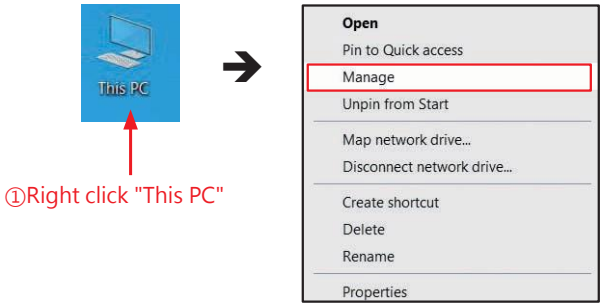


7. The software driver file:
   "CDM 2.08.24 WHQL Certified x64-64bit" and "CDM 2.08.24 WHQL Certified x86-32bit" files.

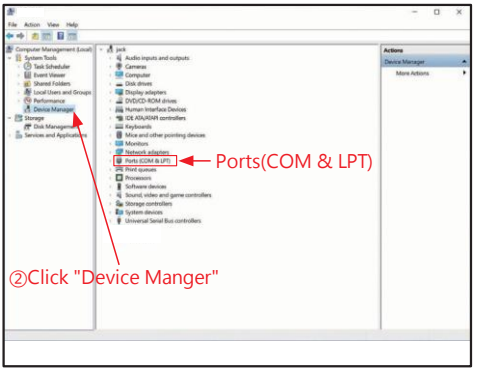
   (Note: New Windows system will install the software driver automatically. It's necessary to install the software driver only if it is the old windows system)

(B) Windows Comm Port setting:

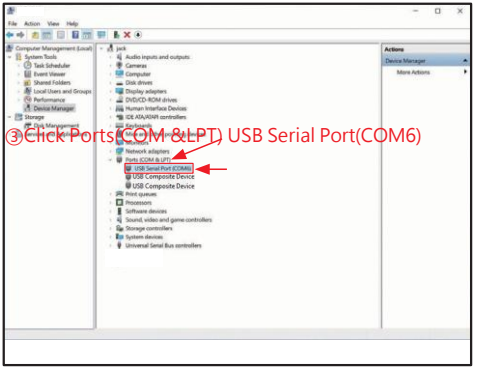
1. Plug CA-232 data transmission cable into the personal computer USB port.
2. On the windows system, right click the "This PC" icon to find manager.



3. Click the "Device Manager" to find ports (COM & LPT).



4. Click the Ports (COM & LPT) to find USB Serial Port (COM6).

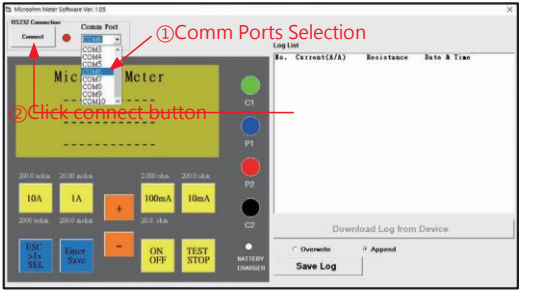


(Note: USB Serial Port will indicate automatically different "COM" port)

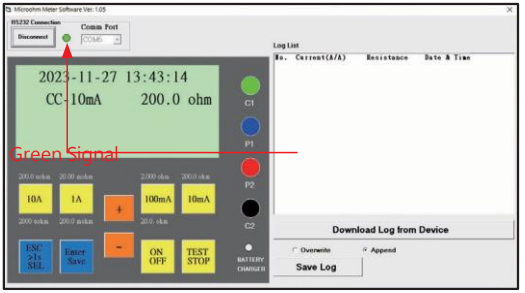
(C) Microohm Meter Software Comm Ports Setting:

1. Connect CA-232 data transmission cable to the Insulation Tester.
2. Click the "Microohm Meter" icon to the personal computer.

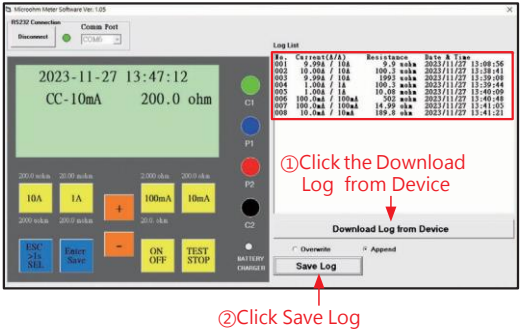
3. On the Microohm Meter windows, select the correct "Comm Port" and click the "connect button".



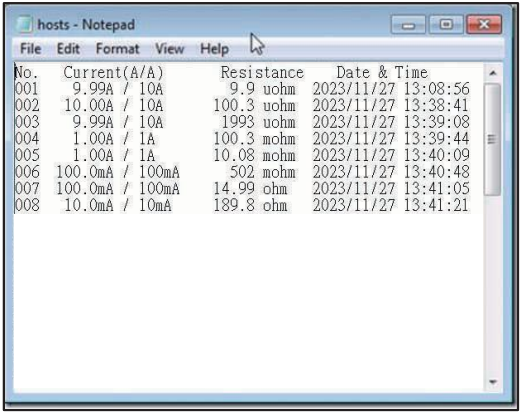
4. The Comm Port selection is workable when the red signal turns green signal.



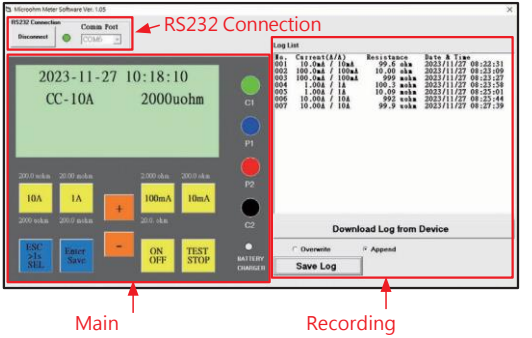
5. Click the "Download Log from Device" button can show the data.



6. Click the "Save Log" button to save the data records to the personal computer.



(D) Microohm Meter Windows Interface Introduction:



Cleaning and Storage :

> **⚠ WARNING**
> To avoid electrical shock or damage to the instrument, do not get water inside the case.

Periodically wipe the case with a damp cloth and detergent. Do not use abrasives or solvents.

Due to our policy of constant improvement and development, we reserve the right to change specifications without notice.

10 Contact

If you have any questions, suggestions or technical problems, please do not hesitate to contact us. You will find the relevant contact information at the end of this user manual.

11 Disposal

For the disposal of batteries in the EU, the 2006/66/EC directive of the European Parliament applies. Due to the contained pollutants, batteries must not be disposed of as household waste. They must be given to collection points designed for that purpose.

In order to comply with the EU directive 2012/19/EU we take our devices back. We either re-use them or give them to a recycling company which disposes of the devices in line with law.

For countries outside the EU, batteries and devices should be disposed of in accordance with your local waste regulations.

If you have any questions, please contact PCE Instruments.

PCE Instruments contact information

Germany

PCE Deutschland GmbH
Im Langel 26
D-59872 Meschede
Deutschland
Tel.: +49 (0) 2903 976 99 0
Fax: +49 (0) 2903 976 99 29
info@pce-instruments.com
www.pce-instruments.com/deutsch

France

PCE Instruments France EURL
23, rue de Strasbourg
67250 Soultz -Sous -Forets
France
Téléphone: +33 (0) 972 3537 17
Numéro de fax: +33 (0) 972 3537 18
info@pce -france.fr
www.pce -instruments.com/french

Spain

PCE Ibérica S.L.
Calle Mula, 8
02500 Tobarra (Albacete)
España
Tel. : +34 967 543 548
Fax: +34 967 543 542
info@pce-iberica.es
www.pce-instruments.com/espanol

United Kingdom

PCE Instruments UK Ltd
Trafford House
Chester Rd, Old Trafford
Manchester M32 0RS
United Kingdom
Tel: +44 (0) 161 464902 0
Fax: +44 (0) 161 464902 9
info@pce-instruments.co.uk
www.pce-instruments.com/english

Italy

PCE Italia s.r.l.
Via Pesciatina 878 / B -Interno 6
55010 Loc. Gragnano
Capannori (Lucca)
Italia
Telefono: +39 0583 975 114
Fax: +39 0583 974 824
info@pce -italia.it
www.pce -instruments.com/italiano

Turkey

PCE Teknik Cihazları Ltd.Şti.
Halkalı Merkez Mah.
Pehlivan Sok. No.6/C
34303 Küçükçekmece - İstanbul
Türkiye
Tel: 0212 471 11 47
Faks: 0212 705 53 93
info@pce-cihazlari.com.tr
www.pce-instruments.com/turkish

The Netherlands

PCE Brookhuis B.V.
Institutenweg 15
7521 PH Enschede
Nederland
Telefoon: +31 (0)53 737 01 92
info@pcebenelux.nl
www.pce-instruments.com/dutch

United States of America

PCE Americas Inc.
1201 Jupiter Park Drive, Suite 8
Jupiter / Palm Beach
33458 FL
USA
Tel: +1 (561) 320-9162
Fax: +1 (561) 320-9176
info@pce-americas.com
www.pce-instruments.com/us

Denmark

PCE Instruments Denmark ApS Birk
Centerpark 40
7400 Herning
Denmark
Tel.: +45 70 30 53 08
kontakt@pceinstruments.com
www.pce-instruments.com/dansk