



PeakTech 1080 Digital Pen Type Multimeter Instruction Manual

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PeakTech[®]

PeakTech 1080 Digital Pen Type Multimeter



Safety Precautions

This product complies with the requirements of the following directives of the European Union for CE conformity: 2014/30/EU (electromagnetic compatibility), 2014/35/EU (low voltage), 2011/65/EU (RoHS).
Overvoltage category III 600V; pollution degree 2.

CAT I: For signal level, telecommunication, electronic with small transient overvoltage

CAT II: For local level, appliances, main wall outlets, portable equipment

CAT III: Distribution level, fixed installation, with smaller transient overvoltages than CAT IV.

CAT IV: Units and installations, which are supplied overhead lines, which are stand in risk of persuading of lightning, i.e. main-switches on current input, overvoltage-diverter, current use counter










To ensure safe operation of the equipment and eliminate the danger of serious injury due to short circuits (arcing), the following safety precautions must be observed. Damages resulting from failure to observe these safety precautions are exempt from any legal claims.

- Do not use this instrument for high-energy industrial installation measurement.
- Do not exceed the maximum permissible input ratings of 600V AC/DC (danger of serious injury and/or destruction of the equipment).
- The meter is designed to withstand the stated max voltages. If it is not possible to exclude without that impulses, transients, disturbance or for other reasons, these voltages are exceeded a suitable prescale (10:1) must be used.
- Disconnect test leads or probe from the measuring circuit before switching modes or functions.
- Do not conduct voltage measurements with the test leads connected to the mA- and COM-terminal of the equipment.
- To avoid electric shock, disconnect power to the unit under test and discharge all capacitors before taking any resistance measurements.
- Do not conduct current measurements with the leads connected to the V/-terminals of the equipment.
- Check test leads and probes for faulty insulation or bare wires before connection to the equipment.

- To avoid electric shock, do not operate this product in wet or damp conditions. Conduct measuring works only in dry clothing and rubber shoes, i. e. on isolating mats.
- Never touch the tips of the test leads or probe.
- Comply with the warning labels and other info on the equipment.
- Always start with the highest measuring range when measuring unknown values.
- Do not subject the equipment to direct sunlight or extreme temperatures, humidity or dampness.
- Do not subject the equipment to shocks or strong
- Keep hot soldering irons or guns away from the equipment.
- Allow the equipment to stabilize at room temperature before taking up measurements (important for exact measurements).
- Do not input values over the maximum range of each measurement to avoid damage of the meter.
- Do not turn the rotary function switch during voltage or current measurement, otherwise, the meter could be damaged.
- Use caution when working with voltages above 60V DC or 30V AC. These voltages pose a shock hazard.
- Replace the battery as soon as the battery indicator appears. With a low battery, the meter might produce false readings that can lead to electric shock and personal injury.
- Fetch out the battery when the meter will not be used for a long period.
- Periodically wipe the cabinet with a damp cloth and mid-detergent. Do not use abrasives or solvents.
- The meter is suitable for indoor use only
- Do not operate the meter before the cabinet has been closed and screwed safely as the terminal can carry voltage.
- Do not store the meter in a place of explosive, inflammable substances.
- Do not modify the equipment in any way
- Opening the equipment and service – and repair work must only be performed by qualified service personnel
- Measuring instruments don't belong to children's hands.

Safety Symbols

The following symbols are imprinted on the front panel of the meter to remind you of measurement limitations and safety.

	Dangerously high voltage between the inputs. Extreme caution when measuring. Do not touch the inputs and measuring tips.
	Refer to the complete operating instructions.
	To avoid electric shock or instrument damage, do not connect the common input COM and V/mA/Ω terminal to any source of more than 600 V with respect to earth ground.
	Double insulation (Protection class II)
CAT III	Overvoltage category III
	Earth ground
AC	Alternating current
DC	Direct current
	AC or DC (alternating current or direct current)
	Diode
	Continuity buzzer
M.H	The maximum value is being held
D.H.	This indicates that the display data is being held
AUTO	Auto range
	The battery is not sufficient for proper operation

CAUTION!

Note on using the supplied safety test leads according the IEC / EN 61010-031:2008:

Measurements in the field of overvoltage category CAT I or CAT II can be performed with test leads without sleeves with a maximum of up to 18mm long, touchable metallic probe, whereas for measurements in the field of overvoltage category CAT III or CAT IV test leads with put on sleeves, printed with CAT III and CAT IV must be used, and therefore the touchable and conductive part of the probes have only max. 4mm of length.

Technical Data

General

Display	3 ½-digit 11 mm LCD indication: 1999
max. Voltage between terminals and earth ground	600 V DC/ACrms
Ranging Method	Auto or manual
Sampling rate	2.5 times per second
Polarity indication	“-” displayed automatically
Overload indication	“OL” displayed
Low battery indication	“BAT” indicates low battery
Power Supply	2 x 1.5 Batteries AAA (UM4)
Fuse protection	FF400mA/600V (6.3x32mm)
Auto power off	after 15 minutes
Operating temperature	0° C...40° C < 80 % RH
Storage temperature	-10°C ...+50°C < 70 % RH
Dimensions (HxWxD)	222 x 40 x 29 mm
Weight	130 g (Batteries included)
Accessories	2 pcs. test leads, 2 pcs. 1.5 V AAA

Functions and Ranges

Accuracy is specified for a period of one year after calibration and 18°C to 28°C with relative humidity of 75%

DC Voltage

Range	Resolution	Accuracy
200 mV	0.1 mV	+/- (0.7% + 2 dgt)
2 V	1 mV	
20 V	10 mV	
200 V	0.1 V	
600 V	1 V	

- **Input Impedance:** 10 M Ω
- **Overload Protection:**
 - 250 V DC/ACrms: 200 mV-ranges
 - 600 V DC/ACrms: 2 V – 600 V-ranges
- **max. input voltage:** 600 V DC

AC Voltage

Range	Resolution	Accuracy
200 mV	0.1 mV	+/- (0.8% + 3 dgt)
2 V	1 mV	
20 V	10 mV	
200 V	0.1 V	
600 V	1 V	+/- (1.0% + 3 dgt)

- **Input impedance:** 10 M Ω
- **Frequency range:** 40 – 400 Hz
- **Overload Protection:**
 - **250V DC/ACrms:** 200 mV-ranges
 - **600 V DC/ACrms:** 2 V – 600 V-ranges
- **max. input voltage** 600 V ACrms

DC Current

Range	Resolution	Accuracy
20 mA	10 μ A	+/- (1.5% + 3 dgt.)
200 mA	100 μ A	

Overload Protection: FF 400 mA/600 V (6.3 x 32mm)

Max. Input: 200 mA DC/ACrms

AC Current

Range	Resolution	Accuracy
20 mA	10 μ A	+/- (2.0% + 3 dgt.)
200 mA	100 μ A	

Overload Protection: FF 400 mA/600 V (6.3 x 32mm)

Frequency range: 40-200 Hz

Max. Input: 200 mA DC/ACrms


Resistance

Range	Resolution	Accuracy
200 W	0.1 Ω	+/- (1.0% + 3 dgt)
2 kW	1 Ω	+/- (1.0% + 1 dgt)
20 kW	10 Ω	
200 kW	100 Ω	
2 MW	1 k Ω	
20 MW	10 k Ω	+/- (1.0% + 5 dgt)

Overload Protection: 250 V DC/ACrms

Open circuit voltage: approx. 250 mV

Diode

Range	Resolution	Function
	0.001 V	Displays approx. forward- biased voltage

Forward DC Current: approx. 1 mA

Reversed DC Voltage: approx. 1.5 V

Overload protection: 250 V DC/ACrms

Audible continuity

Audible threshold: Less than 50 Ω

Open circuit voltage: approx. 0.5 V

Overload protection: 250 V DC/ACrms

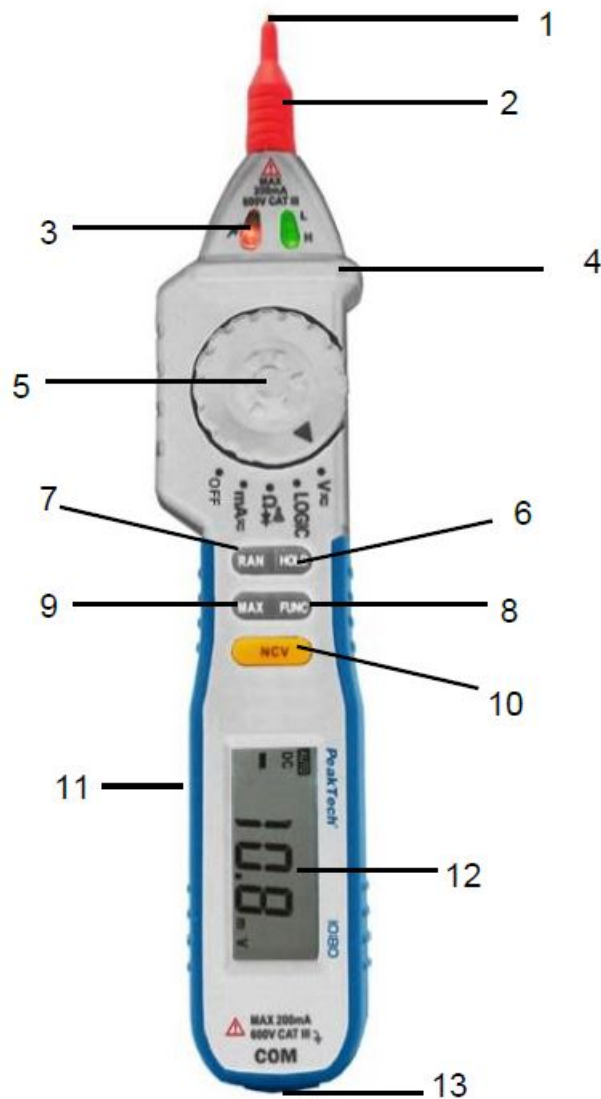
Logic Test

Range	Description
LOGIC	<div> <div>0V</div> <div>Low "0"</div> <div>1.5 V</div> <div>3.5 V</div> <div>High "1"</div> <div>5 V</div> </div> <div> <div>Green LED on</div> <div>Green LED off</div> <div>Red LED on</div> </div>

Input Impedance: approx. 1 M Ω

Overload Protection: 250 V DC/ACrms

Front Panel Description



1. Probe Tip
2. Removable protective cap for measurements in CAT III conditions
3. LED-Indicator for Logic-Test
4. Protection Ring

5. Function Switch
6. DATA-HOLD push button
7. RANGE-HOLD push button
8. FUNC push button
9. MAX-HOLD push button
10. NCV push button for voltage detector
11. Handle grip
12. LCD-display
13. COM-input socket

Operation

Data Hold

If you need data hold when measuring, you can put on "HOLD" button, it will hold the reading; if you put the button again, data hold is not continue.

Maximum value measuring and Hold (MAX HOLD)

At the range of voltage, you can put on "MAX" button, it will hold the maximum value; if you put the button again, the maximum value will not be held.

Function Transform (FUNC)

Put down the "FUNC" button when measuring the voltage. Meter will be transformed between DC and AC range. Put FUNC button when measuring the resistance, diode and continuity, meter will transform among them.

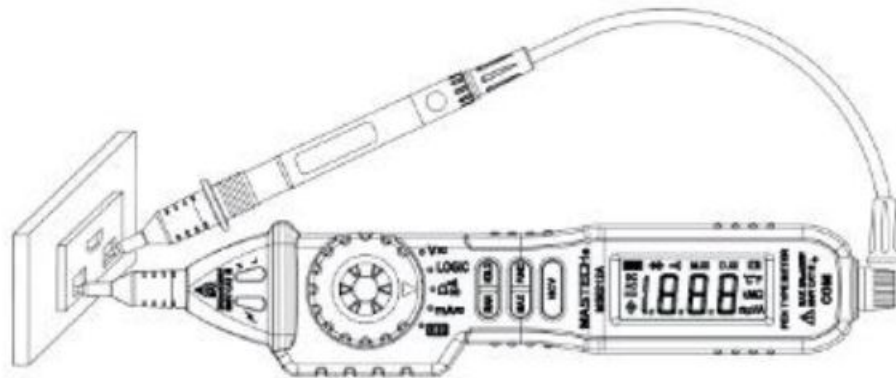
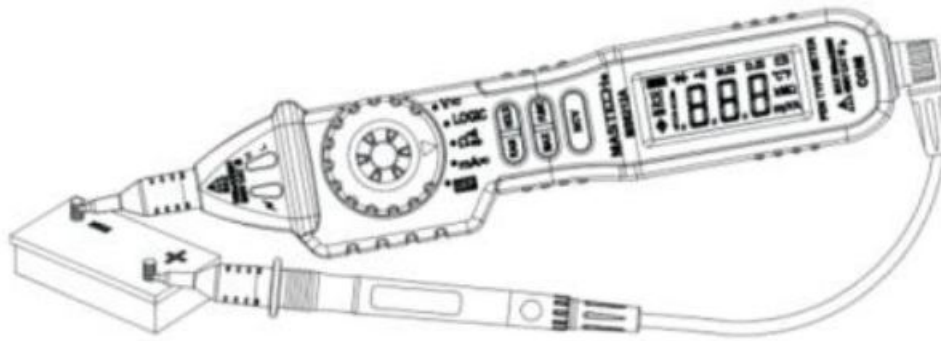
Range Transform

The auto range is used when measuring the voltage and resistance. Put down the "RAN" button if the manual range is needed. Each time you put down, range will go upward; the minimum range is transformed if "RAN" button is put down at the maximum range. If the "RAN" button is put down more than two seconds, auto range is used again.

Voltage measurements

WARNING! Do not try to measure a voltage greater than 600 V DC/AC. You might damage your meter and expose yourself to a severe shock hazard.

1. Connect the black test lead to COM jack.
2. Set the function switch at V range to be used and connect test leads across the source or load under measurement.



3. Read LCD display. The polarity of probe tip connection will be indicated when making a DC measurement.

Current measurements

WARNING! Do not apply voltage directly across the terminals. You must connect the meter in series with the circuit.

1. Connect the black test lead to the COM jack.
2. Set the function switch at mA range to be used and push FUNC-button to select DC or AC measuring mode.
3. Connect test leads in series with the load in which the current is to be measured.
4. Read LCD display. The polarity of red lead connection will be indicated when making a DC measurement.

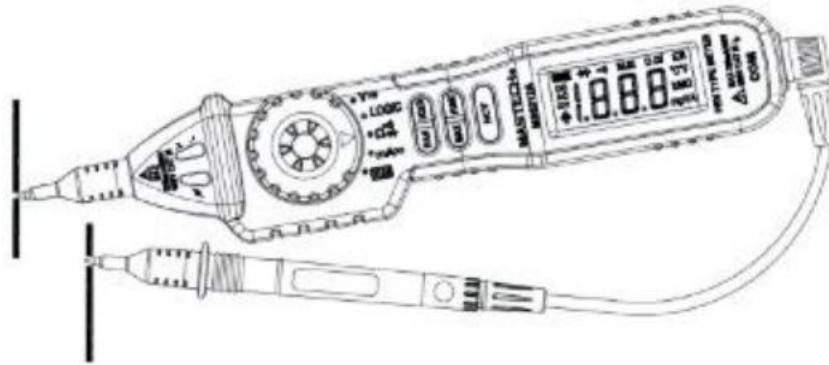
Resistance Measurements

WARNING! Be sure that the circuit under test has all power removed and that any associated capacitors are fully discharged before you make a resistance measurement.

1. Connect the black test lead to the COM jack. (Note: The polarity of the probe tip connection is positive "+").
2. Set the function-switch at Ω -range to be used and connect test leads across the resistance under measurement.

CAUTION! Never perform a continuity measurement on a circuit that has power connected!

1. Connect the black test lead to the COM jack. (**Note:** The polarity of the probe tip connection is positive “+”).
2. Set the function switch to Ω -position and push the “FUNC” button to select continuity or diode test mode.
3. In continuity testing if continuity exists (i. e. resistance less than about 50 Ω) built-in buzzer will sound.



Logic Test

WARNING!

Risk of Electrocution. You can't input a voltage which is higher than 250 V ACrms, it may damage the inner circuit or cause electrical shock. Pay attention to avoid getting and electric shock when testing logic level.


1. Rotate the probe socket anti-clockwise to spin the probe into the meter
2. Insert the black test clip in the COM jack
3. Set the transform switch at the LOGIC range position
4. Connect the black test clip to the GND (-) of the circuits being measured
5. Keep pressing the “FUNC” button and Touch the tip to the testing object in the circuits being measured. And observe the logic state indicated by LED light. (Red LED light expresses high level/logic “1” and green LED light expresses low level/logic “0”)

NOTE:

- If the input open circuit (or the object's logic state is lower than 1.5 V), the green LED will be lighted.
- You must keep pressing the “FUNC” button during the logic testing.


Maintenance

Battery replacement

If the sign “  ” appears on the LCD display, it indicates that the battery should be replaced.

WARNING!

Before attempting to open the battery cover of the meter, be sure that the probe tip of the meter and test lead (or test clip) have been disconnected from the measurement circuit to avoid electric shock hazards.

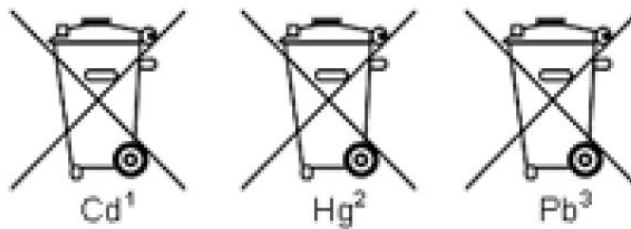
1. If the  sign appears on the LCD display, it indicates that the battery should be replaced.
2. Loosen the screw fixing the battery cover and remove it.

3. Replace the exhausted battery with a new one.
4. Put the battery cover as its origin

Notification about the Battery Regulation

The delivery of many devices includes batteries, which for example serve to operate the remote control. There also could be batteries or accumulators built into the device itself. In connection with the sale of these batteries or accumulators, we are obliged under the Battery Regulations to notify our customers of the following:

Please dispose of old batteries at a council collection point or return them to a local shop at no cost. The disposal in domestic refuse is strictly forbidden according to the Battery Regulations. You can return used batteries obtained from us at no charge at the address on the last side in this manual or by posting with sufficient stamps. Contaminated batteries shall be marked with a symbol consisting of a crossed-out refuse bin and the chemical symbol (Cd, Hg or Pb) of the heavy metal which is responsible for the classification as a pollutant:



1. "Cd" means cadmium.
2. "Hg" means mercury.
3. "Pb" stands for lead.

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This manual considers the latest technical knowledge. Technical changings which are in the interest of progress are reserved.

We herewith confirm that the units are calibrated by the factory according to the specifications as per the technical specifications.

We recommend calibrating the unit again, after 1 year.

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Documents / Resources



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1080, Digital Pen Type Multimeter, 1080 Digital Pen Type Multimeter, Pen Type Multimeter, Type Multimeter, Multimeter

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