multicomp PRO

Digital Oscilloscope and Multimeter Clamp Meter

Quick Start Guide

MP101

Table of Contents

1.Safety Information

（Be sure to read the safety information before using this product.）

General Safety Requirements

Before first use, please read the following safety precautions to avoid any possible personal injury and prevent this product or any other products connected to it from damage.

- **Limit operation to the specified measurement category, voltage, or amperage ratings.**
- **Do not use the digital clamp meter if it is damaged.** Before you use the digital clamp meter, inspect the case. Look for cracks or missing plastic. Pay particular attention to the insulation surrounding the connectors.
- **Do not use the test leads provided for other products.** Use only the certified test leads specified for this product.
- Inspect the test leads for damaged insulation or exposed metal.
- Before use, verify the digital clamp meter’s operation by measuring a known voltage.
- **No user serviceable parts inside.** Do not disassemble, all servicing must be done by an approved technician.
- **Always use the specified battery type.** The power for the digital clamp meter is supplied with a battery. Observe the correct polarity markings before you insert the battery to ensure proper insertion of the battery in the digital clamp meter.
- **Check all Terminal Ratings.** To avoid fire or shock hazard, check all ratings and markings on this product. Refer to the user's manual for more information about ratings before connecting to the digital clamp meter.
- **Do not operate without covers**. Do not operate the instrument with covers or panels removed.
- **Do not operate if in any doubt.** If you suspect damage occurs to the digital clamp meter, have it inspected by qualified service personnel before further operations.
- **Do not operate this product in wet or damp conditions.**
- **Do not operate in an explosive atmosphere.**

- **Keep product surfaces clean and dry.**
- Do not apply more than the rated voltage (as marked on the digital clamp meter) between terminals, or between terminal and earth ground.
- When measuring current, turn off the circuit power before connecting the digital clamp meter in the circuit. Remember to place the digital clamp meter in series with the circuit.
- When servicing the digital clamp meter, use only the specified replacement parts.
- Use caution when working above 60 V DC, 30 V AC RMS, or 42.4 V peak. Such voltages pose a shock hazard.
- When using the test leads, keep your fingers behind the finger guards on the test leads.
- Remove the test leads from the digital clamp meter before you open the battery cover.
- To avoid false readings, which may lead to possible electric shock or personal injury, recharge / replace the battery as soon as the low battery warning indicator appears.
- Disconnect circuit power and discharge all high-voltage capacitors before testing resistance, continuity, diodes, or capacitance.
- **Use the proper terminals, function, and range for your measurements.** When the range of the value to be measured is unknown, set the rotary switch position as the highest range, or choose the auto ranging mode. To avoid damages to the digital clamp meter, do not exceed the maximum limits of the input values shown in the technical specification tables.
- Connect the common test lead before you connect the live test lead. When you disconnect the leads, disconnect the live test lead first.
- Before changing functions, disconnect the test leads from the circuit under test.

Measurement Category

The digital clamp meter has a safety rating of 1000 V,CAT III and 600V,CAT IV.

Measurement category definition

Measurement CAT I applies to measurements performed on circuits not directly connected to the AC mains. Examples are measurements on circuits not derived from the AC mains and specially protected (internal) mains-derived circuits.

Measurement CAT II applies to protect against transients from energy-consuming equipment supplied from the fixed installation, such as TVs, PCs, portable tools, and other household circuits.

Measurement CAT III applies to protect against transients in equipment in fixed equipment installations, such as distribution panels, feeders and short branch circuits, and lighting systems in large buildings.

Measurement CAT IV applies to measurements performed at the source of the low-voltage installation. Examples are electricity meters and measurements on primary over current protection devices and ripple control units.

Safety Terms and Symbols

Safety Terms

Terms in this Manual. The following terms may appear in this manual:

⚠ **Warning:** Warning indicates the conditions or practices that could result in personal injury or death.

⚠ **Caution:** Caution indicates the conditions or practices that could result in damage to this product or other property.

Terms on the Product. The following terms may appear on this product:

Danger: It indicates an injury or hazard may immediately happen.

Warning: It indicates an injury or hazard may be accessible potentially.

Caution: It indicates a potential damage to the instrument or other property might occur.

Safety Symbols

Symbols on the Product. The following symbol may appear on the product:

	Direct current (DC)		Fuse
	Alternating current (AC)		Caution, risk of danger (refer to this manual for specific Warning or Caution information)
	Both direct and alternating current	CAT I	Category I overvoltage protection
	Ground terminal	CAT II	Category II overvoltage protection
	Conforms to European Union directives	CAT III	Category III overvoltage protection
	Equipment protected throughout by double insulation or reinforced insulation	CAT IV	Category IV overvoltage protection

2.Quick Start

General Inspection

After you get a new digital clamp meter, make a check on the instrument according to the following steps:

1. Check whether there is any damage caused by transportation.
   If it is found that the outer carton or internal packaging has suffered serious damage, do not dispose of it until the complete device and its accessories have been thoroughly tested.

2. Check the Accessories
   Check that all the accessories are intact. If there is any accessory missing or damaged, please get in touch with the Multicomp-pro distributor.

3. Check the Complete Instrument
   If it is found that there is damage to the appearance of the instrument, or the instrument does not work normally, or fails in the performance test, please get in touch with the Multicomp-pro distributor.
   If there is damage to the instrument caused by the transportation, please keep all the packaging. Please get in touch with the Multicomp-pro distributor to arrange repair or replacement as required.

Battery Replacement

The digital clamp meter is powered by a pre-fitted 3.7V 2600mA (18650) type lithium battery.

Warning: To avoid false readings, which could lead to possible electric shock or personal injury, recharge the battery as soon as the low battery indicator appears using the supplied USB C cable.
If the battery is to be replaced, turn off the meter, disconnect test leads and any connectors from any circuit under test, remove test leads from the input terminals. Use only the specified battery type.

Use the following procedure to replace the battery：

(1) Power off, remove test leads and any connectors from the input terminals.

(2) Loosen the screw with a suitable Phillips screwdriver and remove the battery cover.

(3) Observe the battery polarity indicated inside the battery compartment, Insert the battery.

(4) Place the battery cover back in its original position and tighten the screw.

Caution: To avoid instruments being damage from battery leakage, remove the batteries and store them separately if the digital clamp meter is not going to be used for a long period.

Power on/off

It can be turned on in the following ways:

- Press the  button at the bottom left of the host;

It can be turned off in the following ways:

- Manual shutdown, tap and hold  button;
- Automatic shutdown, emit a short beep one minute before shutdown, emit a long beep during shutdown;
- Low power automatic shutdown.

Selecting the Range

- Auto ranging is set as default when the meter is powered on, **Auto** is displayed.
- Under automatic range, press  or  to enter the manual range mode.
- Under manual range, each additional press of  sets the next higher range; each additional press of  sets the next lower range.
- Under manual range, press  to enter the auto range mode.

Note: Manual range is not available when measuring capacitance, only in multimeter measurement mode.

Instrument Panel

Front Panel and Keys

Figure 2-1：Front panel

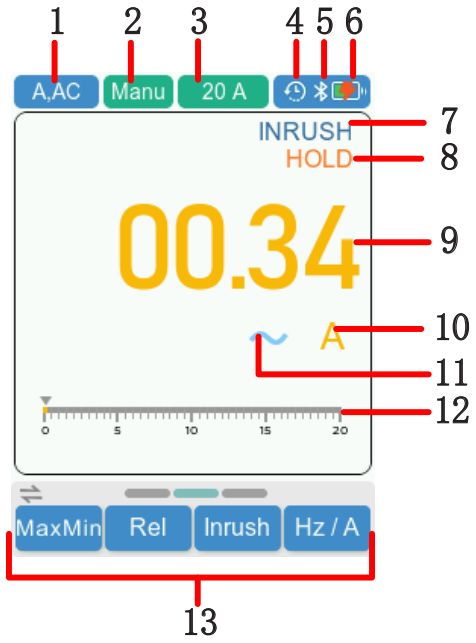
Description:

Num	Illustration in multimeter mode	Illustration in oscilloscope mode
1	NCV measurement.	
2	Safety level.	

3	Maximum current allowed to be measured.	
4	Operation indicator light.	
5	Reading hold button, press and hold to perform DCA to zero.	Run/Stop button.
6	Display area.	
7	The **F1 - F4** keys are multi-function keys. In each menu mode, press the corresponding key to select the corresponding menu item.	
8	Function of direction keys   : used for changing range. Function of  key:Restore auto gear.	Function of direction keys   : used for the voltage or current scales. Function of direction keys   : used for zooming waveforms and the time base changing. Function of  key: Perform automatic setup.
9	Measurement input port: the input of the measurement signal.	
10	Charging port.	
11	Switch key for working state of oscilloscope and multimeter. Press the power button briefly to turn on the device. After powering on, press briefly to switch to the oscilloscope or multimeter mode. Press and hold to turn off the device.	
12	Tab function switch button.	
13	Clamp head trigger: Press the trigger to open the clamp heads; release the trigger, and the clamp heads will automatically close.	
14	Clamp head: The current measurement sensor converts alternating or direct current into voltage.	

Instrument Interface

Multimeter interface



Description:

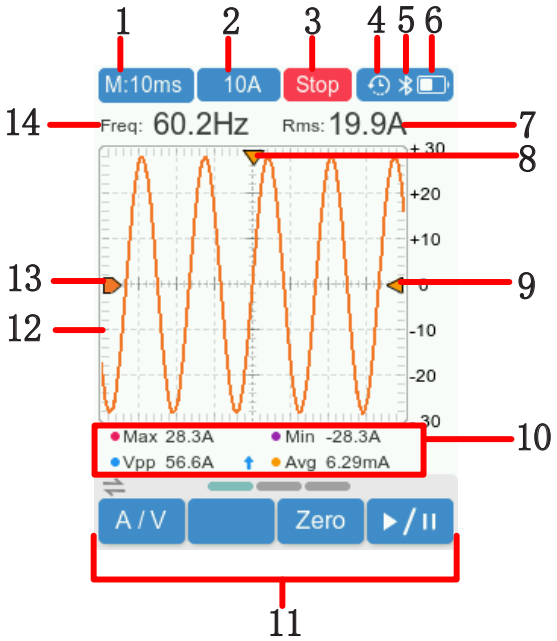
1. Measurement type indication:

Measurement type	Description
A,DC	DC current measurement
A,AC	AC current measurement
V,DC、mV,DC	DC voltage measurement
V,AC、mV,AC	AC voltage measurement
Res	Resistance measurement
Cont	On/Off measurement
Diode	Diode measurement
Cap	Capacitance measurement
Freq	Frequency measurement
NCV	Non-contact AC voltage sensing

2. Range indication: **Manu** means manual range; **Auto** means automatic range.

3. Current measurement range.
4. Automatic shutdown sign: Display the flag when enabled. Closing will hide the identity.
5. Bluetooth sign: Display the flag when enabled. Closing will hide the identity.
6. Battery power and external power supply indication.
7. Inrush mode (Only in ACA mode).
8. Reading hold mode.
9. Current measurement menu.
10. Current measurement unit
11. DC/AC/On-Off/Diode/Capacitance mode.
12. Range simulation strip.
13. Operation menu.

Oscilloscope interface



Description:

1. Time base display (In the horizontal direction, each grid represents a specific time interval.).

2. Scale (In the vertical direction, each grid represents a specific voltage or current value.)
3. The trigger status indicates the following information:

   Trig: A trigger has been detected and post trigger information is being collected.

   Ready: All pre trigger data have been obtained and the oscilloscope is ready.

   Scan: Continuously collect and display waveform data.

   Stop: Stop collecting waveform data.
4. Automatic shutdown sign: Displays the flag when enabled. Closing will hide the identity.
5. Bluetooth sign: Displays the flag when enabled. Closing will hide the identity.
6. Battery power and external power supply indication.
7. Rms value.
8. Trigger horizontal displacement.
9. Trigger level position.
10. Measurement value.
11. Operation menu.
12. Waveform display area.
13. Channel waveforms.
14. Frequency value.

How to Connect with Android Device

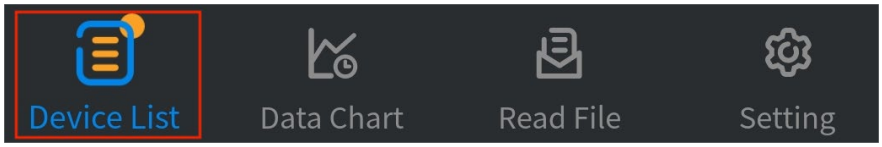
(1) On your mobile device, download the mobile app from the product page (Technical documents) section of the Farnell website.

(2) Open the installed application on your mobile device.

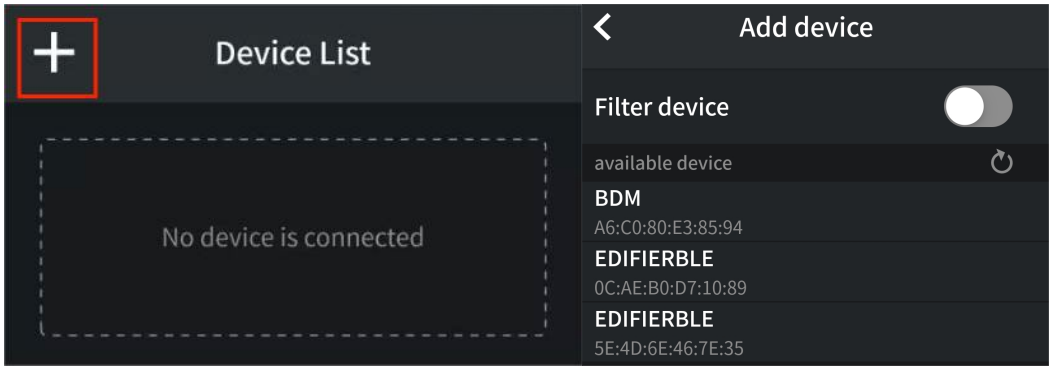
(3) Turn on the multimeter, press and hold 

until  appear on the display.

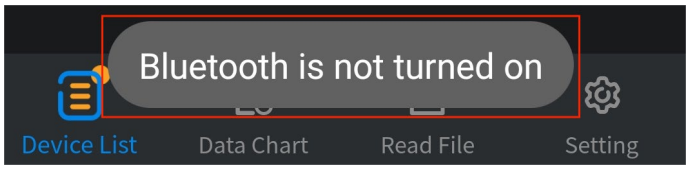
(4) Click on **"Device List"** in the bottom navigation bar.



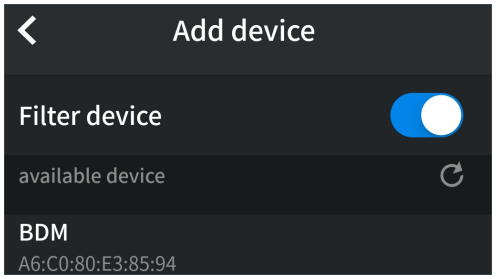
(5) Click the **"+"** icon in the upper left corner to begin searching for devices and list out the multimeters found.



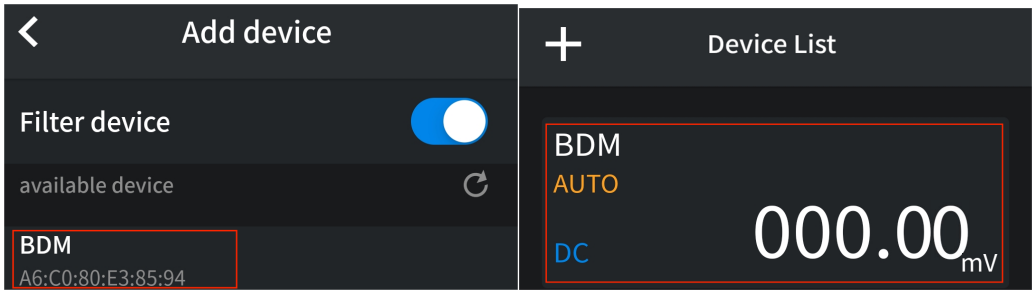
(6) If the Bluetooth of the mobile device is not enabled, a prompt box will pop up at the bottom, indicating **"Bluetooth is not turned on"**. You need to manually open the Bluetooth of the mobile device before connection can be made.



(7) Active **"Filter device"** to hide incompatible multimeters.



(8) After **"BDM"** appears in the list of available devices, click and select to connect it to the mobile device.



Note: When Bluetooth is enabled, the auto power-off function is disabled. After Bluetooth is turned off, the auto power-off function will be restored.

3.Appendix

Appendix A: List of Accessories

- 1 set of probe leads
- 1 quick guide
- 1 USB-TYPE C cable

USB Cable

Quick Guide

Multimeter Leads

Appendix B: Maintenance and Cleaning

General maintenance

Do not store or place the instrument in a place where the LCD screen will be exposed to direct sunlight for long periods.
Caution: Do not let spray, liquid or solvent touch the instrument or probes to prevent damage to the instrument or probes
Cleaning:
Check the instrument and probe frequently according to the operation. Clean the external surface of the instrument as follows:

1. Wipe any dust outside the instrument and probe with a soft cloth. When cleaning the LCD, be careful not to scratch the transparent LCD display screen.

2. Wipe the instrument with a moist soft cloth. Please disconnect the power supply. Stubborn marks can be removed using a mild detergent. Do not use any abrasive chemical cleaning agent to avoid damaging the instrument or probe.

Warning: Please make sure the instrument is dry before re-energizing to avoid electrical short circuit or personal injury caused by moisture.

Charging the Battery

During the long-term storage of the device, the battery may be discharged due to the self-discharge of the lithium battery and the device cannot be turned on. This is a normal phenomenon.
Please use the included USB cable to pre-charge the device for 0.5 to 1 hour (depending on the storage time) before turning it on. In addition, if the device is not used for a long time, it is recommended to charge it at regular intervals to avoid over-discharge of the lithium battery.

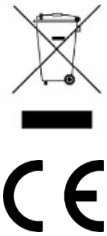
Battery Charging
The lithium battery may not be fully charged when delivered. To fully charge may take up to 8 hours resulting in a peak discharge battery life of about 18.5 hours. The power supply and battery indicator symbols in the upper right corner of the screen are explained as follows:

 symbol indicates the power-on charging status;

 symbol indicates battery power charge rating;

 symbol indicates that there is only about five minutes of use time left.
Please charge as soon as possible when this low battery warning displays to avoid damage to the battery.

Charging Method
Connect the digital clamp meter to a suitable USB power source through a USB charge cable for charging (pay attention to the load capacity of the power supply equipment to avoid possible damage).
Note
To avoid overheating of the battery during charging, the ambient temperature must not exceed the allowable value given in the technical specifications.



INFORMATION ON WASTE DISPOSAL FOR CONSUMERS OF ELECTRICAL & ELECTRONIC EQUIPMENT.
When this product has reached the end of its life it must be treated as Waste Electrical & Electronic Equipment (WEEE). Any WEEE marked products must not be mixed with general household waste, but kept separate for the treatment, recovery and recycling of the materials used. Contact your local authority for details of recycling schemes in your area.

Made in China
150 Armley Road, Leeds, LS12 2QQ (UK)
Riverside One, Sir John Rogerson Quay, Dublin 2, D02 X576 (EU)