



APPA 158B Bluetooth Clamp On Meter User Manual

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Product Information

The APPA 158B Power Clamp Meter is a Bluetooth-enabled clamp-on meter designed for measuring both direct and alternating current.

The meter is protected by double or reinforced insulation and conforms to EU directives. The product comes with a user manual, test leads, a temperature probe, a carrying case, and a battery.

The meter has an APO (Auto Power Off) function and can display measurement results in AC only with RMS value or DC value, depending on whichever is greater.

Product Usage Instructions

1. Before using the meter, read the safety information and operating instructions carefully.
2. When measuring voltage, do not attempt to measure anything that might exceed 1000 V DC or AC RMS. If the measured voltage is greater than 30 V DC or AC RMS, the display will show the symbol.
3. When measuring current, do not hold the meter across the tactile barrier. Do not clamp on any conductor while the meter power is on.
4. Press the power button for 2 seconds to turn on/off the meter.
5. The APO function can be disabled by pressing the OK button while turning on the meter from the OFF position.
6. Use the arrow keys to move the blinking cursor to the target icon, and then press the OK button or hold it for more than 2 seconds to execute the function.
7. Before making measurements, observe the rules of warnings and cautions. When connecting test leads to the DUT (Device Under Test), connect the common test lead before connecting the live lead; when removing the test leads, remove the test live lead before removing the common test lead.
8. Periodically wipe the meter's case with a dry cloth and detergent. Do not use abrasives or solvents.
9. If the meter needs to be repaired or serviced, it should only be performed by qualified personnel as it contains no user-serviceable parts.



Safety Information

Understand and follow operating instructions carefully.












Warning

- Identifies hazardous conditions and actions that could cause BODILY HARM or DEATH
- When using test leads or probes, keep your fingers behind the finger guards.
- Individual protective equipment should be used if HAZARDOUS LIVE parts in the installation where measurement is to be carried out could be ACCESSIBLE.
- Remove test lead from Meter before opening the battery door or Meter case.
- Use the meter only as specified in this manual; otherwise, the protection provided by the meter may be impaired.
- Always use proper terminals, switch position, and range for measurements.
- Verify the Meter's operation by measuring a known voltage. If in doubt, have the Meter serviced.
- Do not apply more than the rated voltage, as marked on the Meter, between terminals or between any terminal and earth ground.
- Use caution with voltages above 30 Vac rms, 42 Vac peak, or 60 Vdc. These voltages pose a shock hazard.
- To avoid false readings that can lead to electric shock and injury, replace the battery as soon as the low battery indicator blinks.
- Disconnect circuit power and discharge all high-voltage capacitors before testing resistance, continuity, diodes, or capacitance.
- Do not use a Meter around explosive gas or vapor.
- To reduce the risk of fire or electric shock do not expose this product to rain or moisture.
- Probe assemblies to be used for MAINS measurements shall be RATED as appropriate for MEASUREMENT CATEGORY III or IV according to EN 61010-031 and shall have a voltage RATING of at least the voltage of the circuit to be measured.

CAUTION


- Identifies conditions and actions that could DAMAGE the meter or equipment under test.
- Disconnect the test leads from the test points before changing the position of the function rotary switch.
- Never connect a source of voltage with the function rotary switch in Ω , , and  position.
- Do not expose Meter to extremes in temperature or high humidity.
- Never set the meter in Ω , , and  function to measure the voltage of a power supply circuit in equipment that could result in damage the meter and the equipment under test.

Symbols as marked on the Meter and Instruction manual

| | |
|--|--|
|  | Risk of electric shock |
|  | See instruction card |
|  | DC measurement |
|  | Both direct and alternating current |
|  | Equipment protected by double or reinforced insulation |
|  | Battery |
|  | Earth |
|  | AC measurement |
|  | Conforms to EU directives |
|  | Application around and removal from hazardous live conductors is permitted |
|  | Do not discard this product or throw away. |

Unsafe Voltage

To alert you to the presence of a potentially hazardous voltage, when the Tester detects a voltage ≥ 30 V or a

voltage overload (OL) in V . The  symbol is displayed.

Maintenance

- Do not attempt to repair this Meter. It contains no user serviceable parts. Repair or servicing should only be performed by qualified personnel.

Cleaning

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

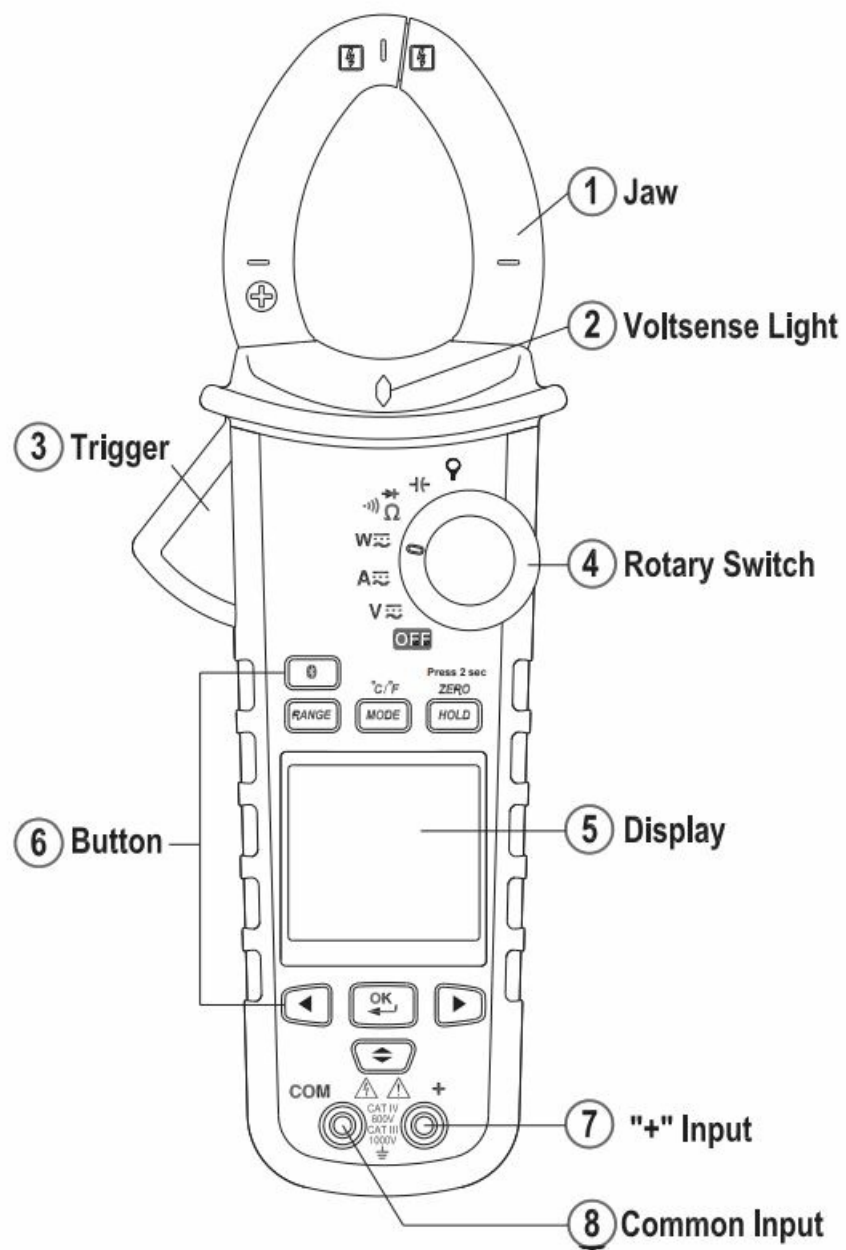
Feature

- 10000 Count digital display
- Active Backlit, Large scale display
- VoltSeek (None Contact Voltage)
- Analog Bar graph
- True RMS reading on AC and AC+DC mode
- Memory Save/Load (data amount up to 1000)

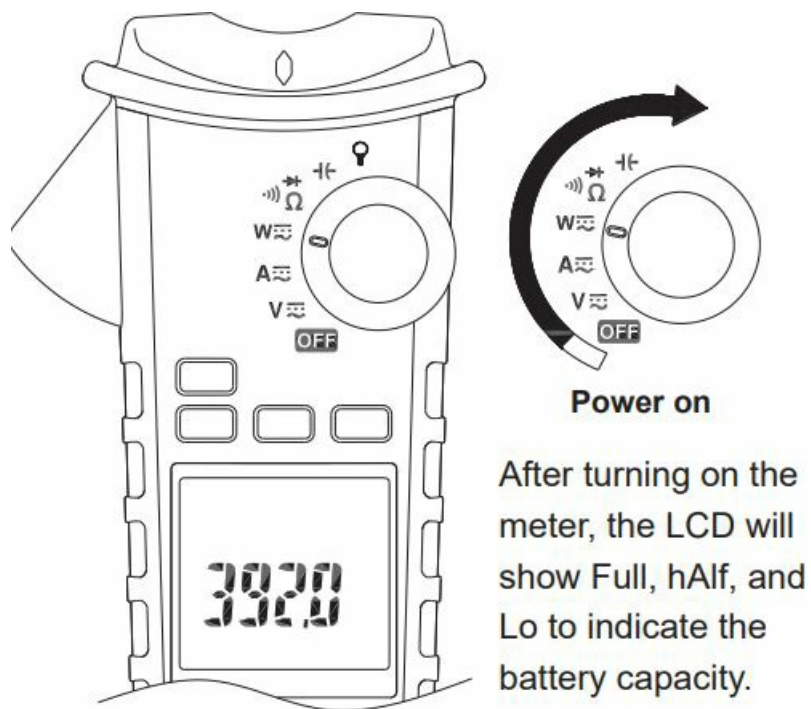
- Data logger (data amount up to 9999)
- Bluetooth wireless communication
- Torch lightening when clamping
- Auto AC/DC 1000 Amps capability and selection
- Auto AC/DC 1000 Volts capability and selection
- Auto Ohms/Continuity/Diode selection
- 100K Resistance capability
- Continuity Beeper
- Frequency Counter
- Power and Power factor measurement
- Total Harmonics distortion and Harmonics 1 to 25
- Capacitance capability
- °C / °F Temperature Function
- Inrush Current
- DCA Auto-Zeroing Button
- Peak Hold
- MIN/MAX HOLD
- Smart Data Hold
- Phase rotation indication
- Flex AC Current
- High frequency rejection
- Auto Power Off
- CAT.IV 600V / CAT.III 1000V Safety Standard

Unpacking and Inspection

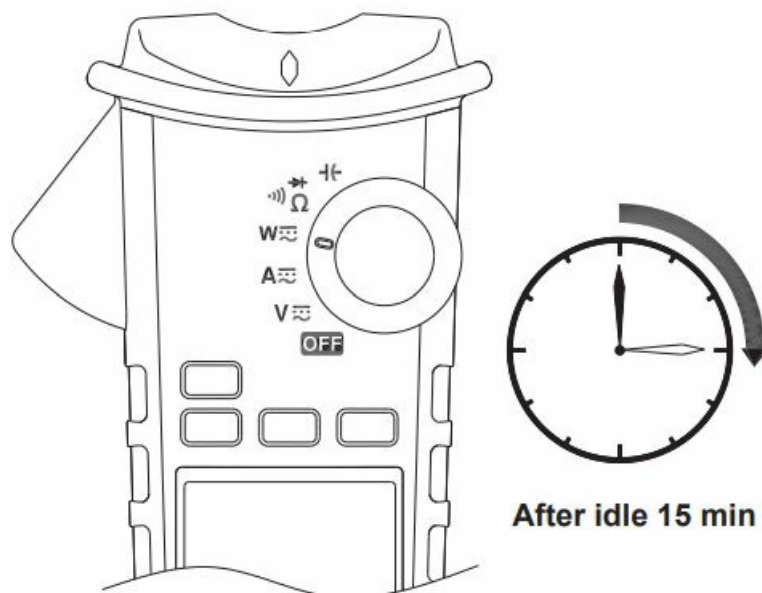
- Upon removing your new Power Clamp Meter from its packing, you should have the following items:
1. APPA 158B Power Clamp Meter
 2. Test leads. set (one black, one red)
 3. Temperature Probe
 4. User Manual
 5. Carrying case
 6. Battery



Power On / Off



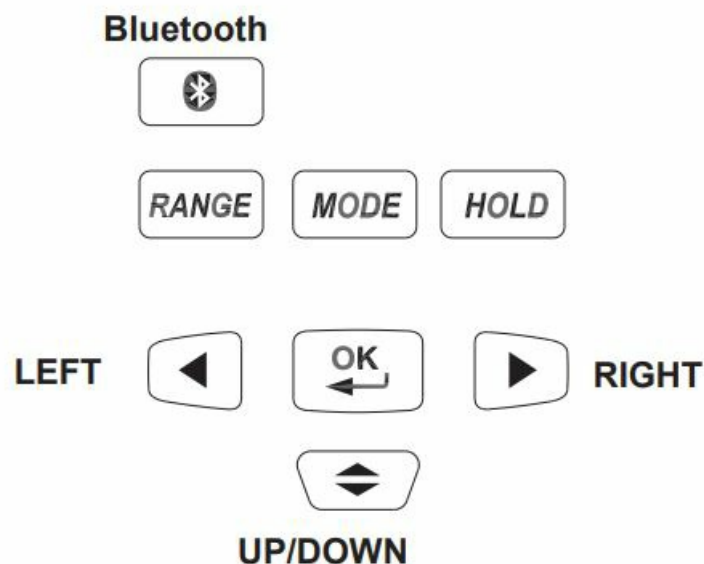
Auto Power Off





The meter can work again by turning it on from the OFF position.

Auto Power Off (APO) disable








Press OK button while tuning meter on from OFF position



Menu Operation

MMA **Hz** **HFR**   **MEM** **LOG**
A-SAVE **SAVE** **LOAD** **CLR** **RATE**

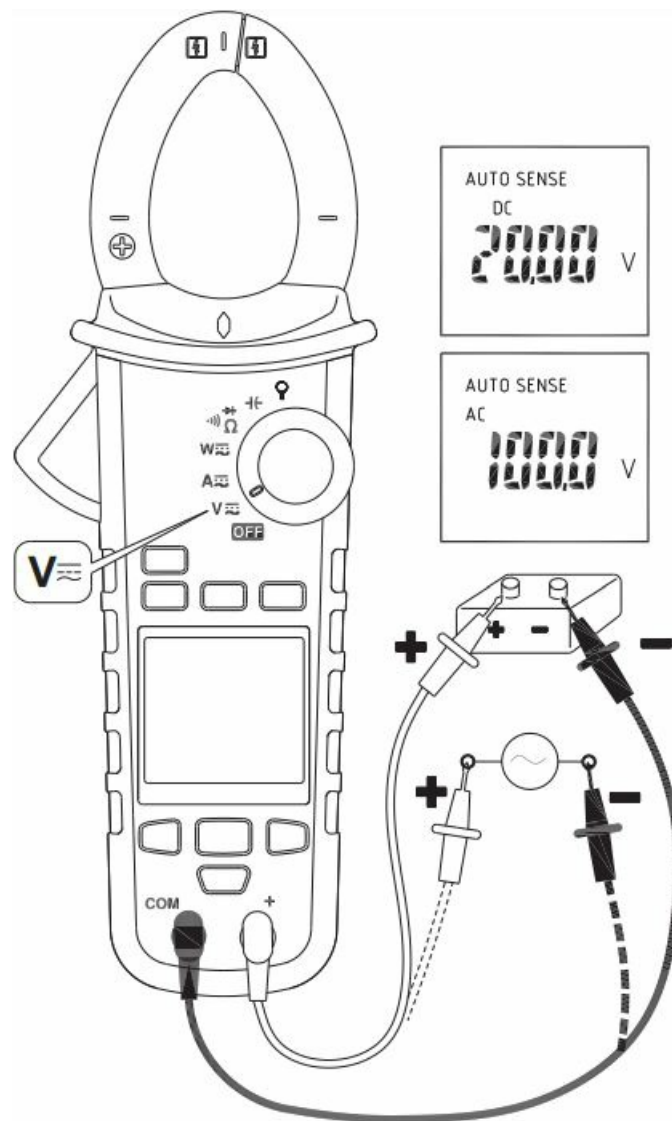
Example

| | |
|--|--|
|    | Use Arrow keys to move the blinking cursor to the target icon, and then press OK button |
|     | Use Arrow keys to move the blinking cursor to the target icon, and then press OK button or more than 2sec. |
| MMA | The icon without underline means the function is not executed. |
| <u>MMA</u> | The icon with underline means the function is executed. |

Making Basic Measurements

- Preparation and Caution Before Measurement
- Observe the rules of ! Warnings and ! Cautions The figures on the following pages show how to make basic measurements.
- When connecting the test leads to the DUT (Device Under Test) connect the common test lead before connecting the live lead ; when removing the test leads, remove the test live lead before removing the common test lead.

Measuring Voltage



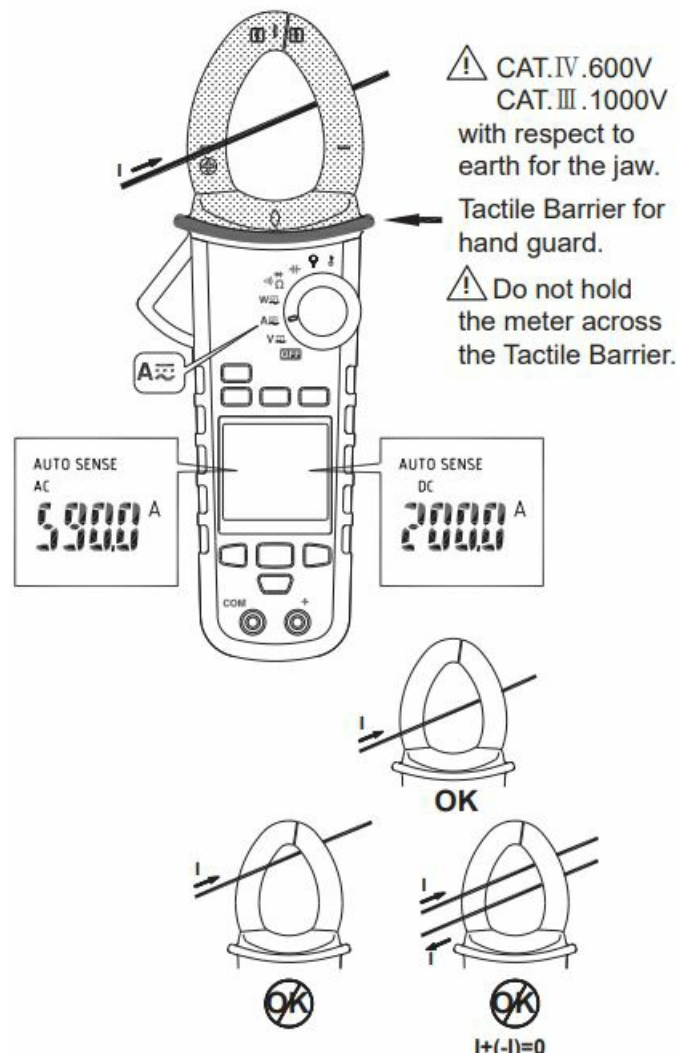
Warning

- To avoid electrical shock, hazard or damage to meter, do not attempt to measurement that might exceed 1000 V DC or AC RMS. Do not apply more then 1000 V DC or AC RMS between the common input terminal and earth ground. Note – If the measured voltage is greater than 30 V DC or AC RMS, the display will show the "



" symbol.

Measuring Current



- Don't clamp on any conductor while the meter power on.
- Torch lightening when clamping.

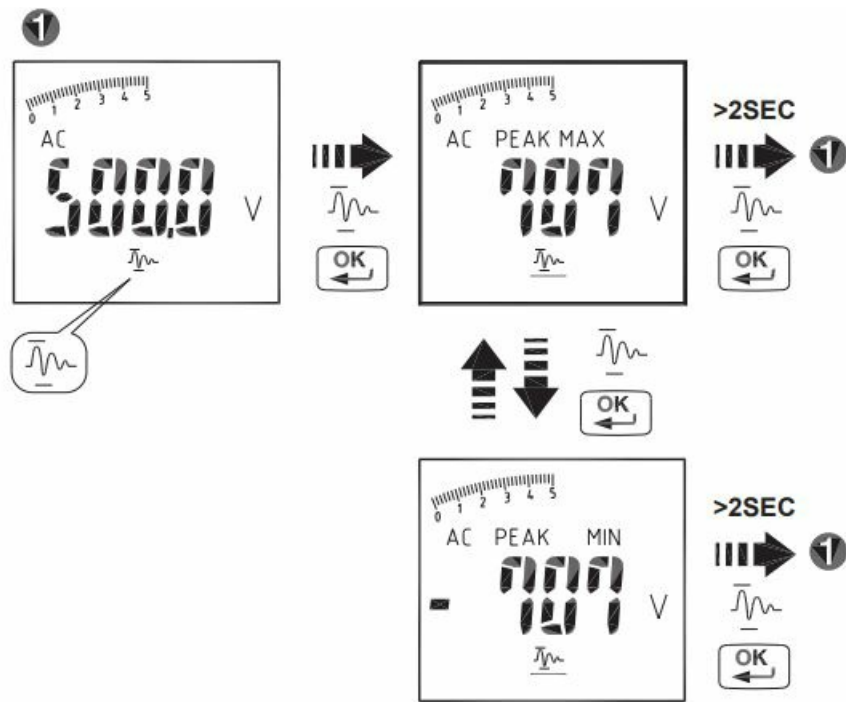
AUTO SENSE mode :

- Display measurement result at AC only with RMS value or DC value, it depends on whichever is greater.
- **AC mode** : AC only with RMS value.
- **DC mode** : DC value.
- **AC+DC mode** : AC+DC RMS value.

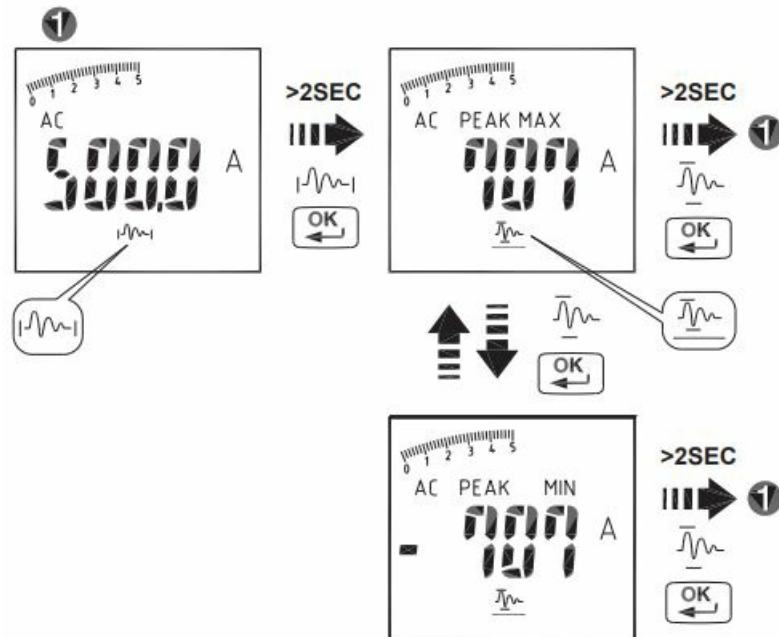
Note

- Press MODE button to enter the AC/DC/AC+DC mode.
- Press MODE button for more than 2sec to return to the AUTO SENSE mode.

PEAK HOLD (AC mode only)  ACV mode



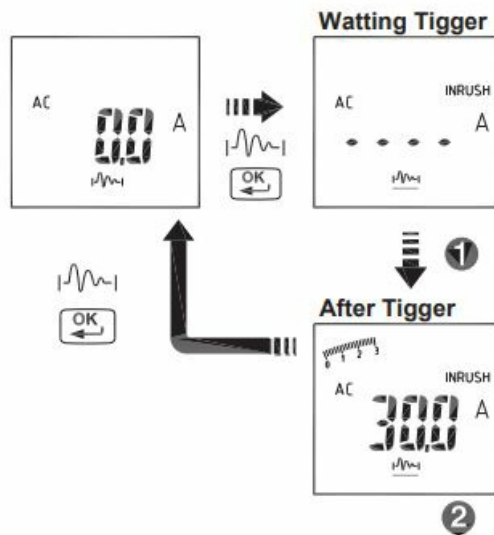
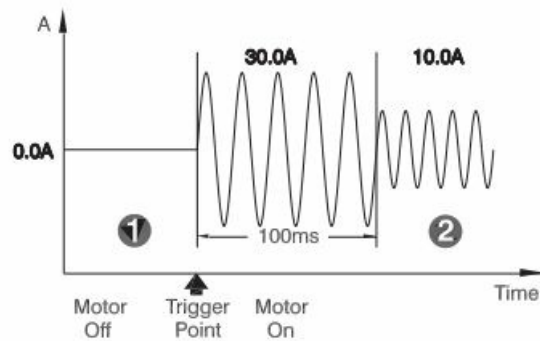
ACA mode



- In PEAK HOLD mode, the meter is activated to save the positive peak value and negative peak value. Positive peak value is displayed in PEAK MAX mode. Negative peak value is displayed in PEAK MIN mode.

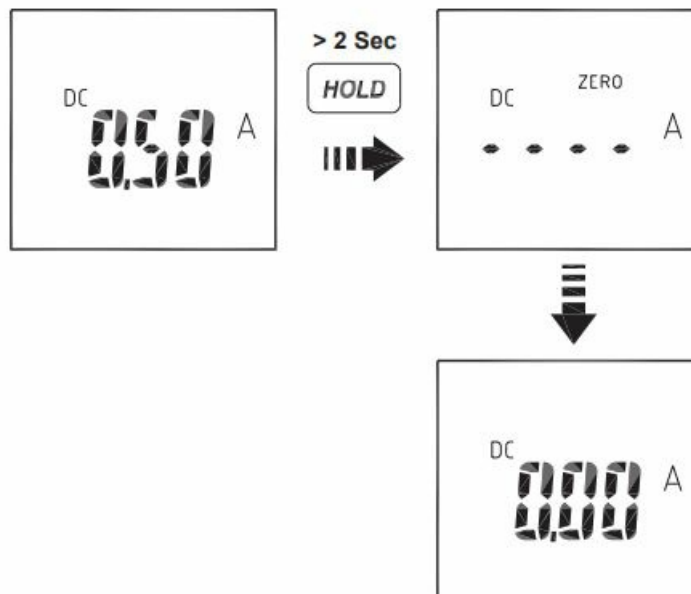
Inrush current : (AC mode only)

- If the under testing Inrush current could be bigger than 100A ac, please select the range to 600A/1000A in advance before activating inrush current.

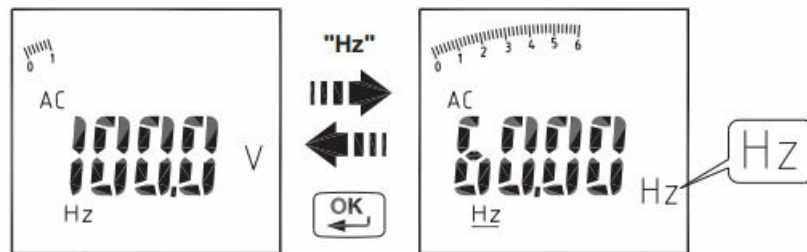


DCA ZERO

- Remove the jaw out of the conductor.
- Press HOLD Key 2 Sec to compensate the residual magnetism.

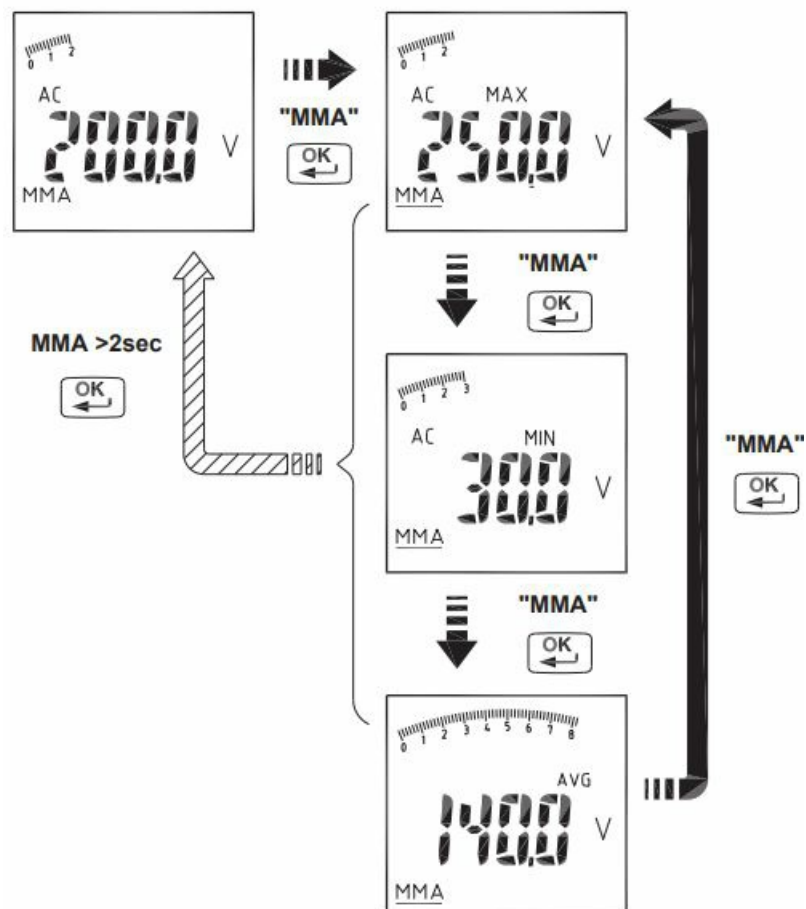


- DCA Zero is only available in Auto Sense, DC and AC+DC mode.
- Measuring Frequency (AC mode only)
- Select the "Hz" indicator then press the OK button to enter/exit the frequency measurement mode.



MAX/MIN/AVG

- The MAX/MIN/AVG mode records the minimum and maximum input values. When the inputs go below the record minimum value or above the record maximum value, the meter records the new value.
- The MAX/MIN/AVG mode can also calculate the average of reading.

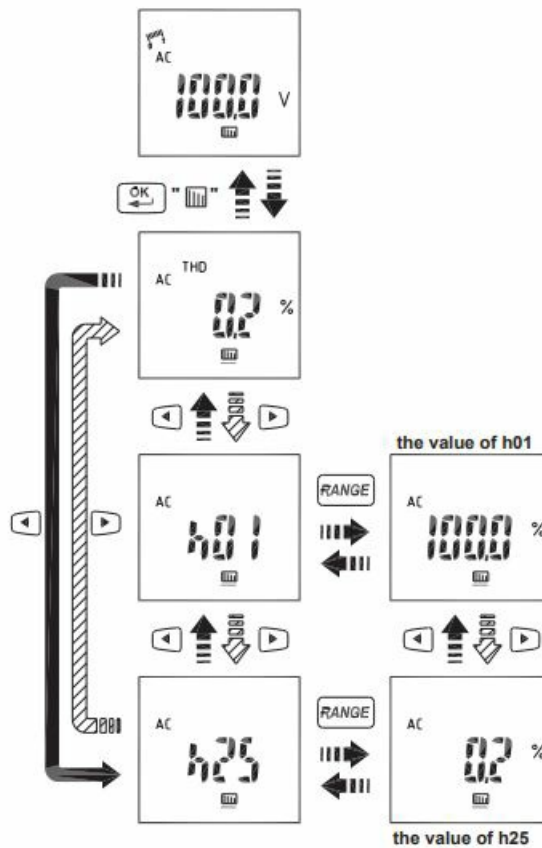


Note

- Press HOLD key in MAX MIN mode to make the meter stop updating the maximum and minimum value. When the HOLD mode is nested in MAX MIN mode, the HOLD mode must be released before the MAX MIN mode.

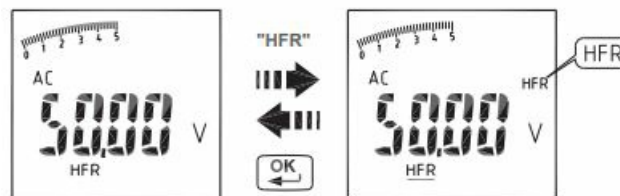
Harmonic Measurement (AC mode only)

- $THD-F = \text{RMS of Harmonics} \div \text{RMS of fundamental} \times 100\%$. (harmonics up to the 25 th)
- $H_n = \text{RMS of Individual Harmonic} \div \text{RMS of fundamental} \times 100\%$.
- Press RANGE button to display harmonic order or the value of the harmonic(unit : %).



HFR (AC mode only)

- Select the “HFR” indicator then press the OK button to eliminate high frequency noise.

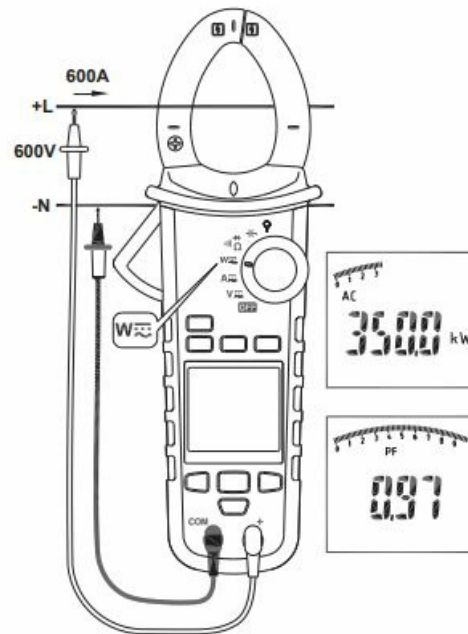


Note

- Peak Hold, Inrush, HZ, Harmonic and HFR mode are only available in AC mode.

Measuring Active power(W)/Power factor(PF) Single Phase Power Measurement

- **Step1.** Set the rotary switch to the “W” position.
- **Step2.** Connect the Red test lead to the L, and the Black test lead to the N.
- **Step3.** Press the trigger to open the transformer jaws and clamp one conductor only, make sure that the jaw is firmly closed around the conductor.
- **Step4.** Use the MODE button to select the “ACW/DCW/PF” mode.



NOTE :

- In AutoSense mode, The meter will displays ACW/DCW depends on if there has AC frequency been detected.

Active power sign :

- (The current direction must the same as the figure.)
- **No sign** : Indicates the power flows from the power source to the load.
- **sign** : Indicates the power flows from the load to the power source.

Power factor sign :

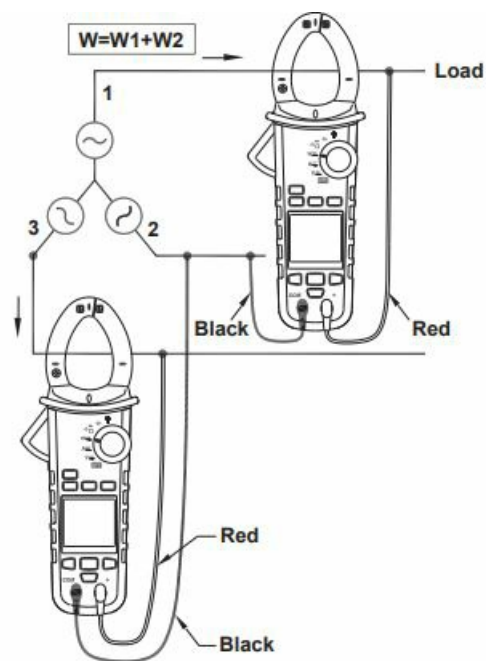
- **No sign** : The phase of the current signal is lagging behind the voltage signal (inductive load).
- **sign** : The phase of the current signal is leading the voltage signal (capacitive load).

Overrange display :

- **OL.U** : Voltage overload
- **OL.A** : Current overload
- **± OL kW** : Active Power > 1050 kW or < -1050 kW.

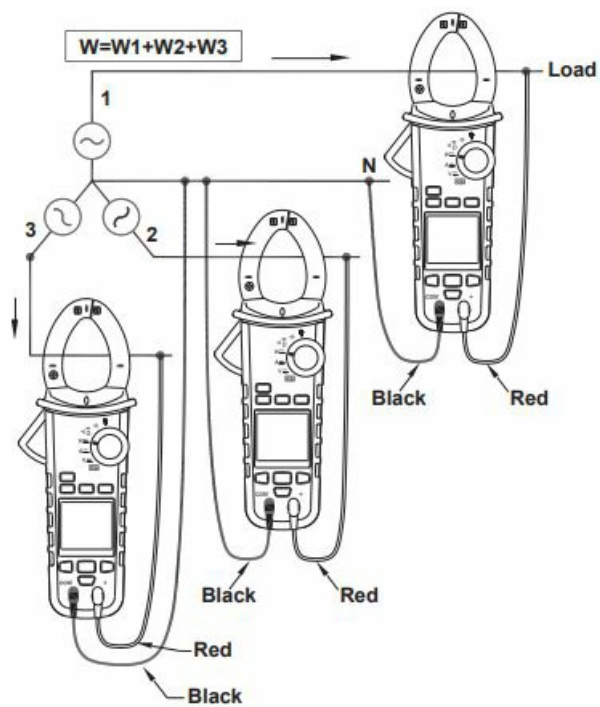
Three Phase Power Measurement

- a. 3 phase 3 wire balanced / unbalanced
- **Step1.** Set the rotary switch to the "W" position
- **Step2.** Using the MODE button to choose the ACW mode.

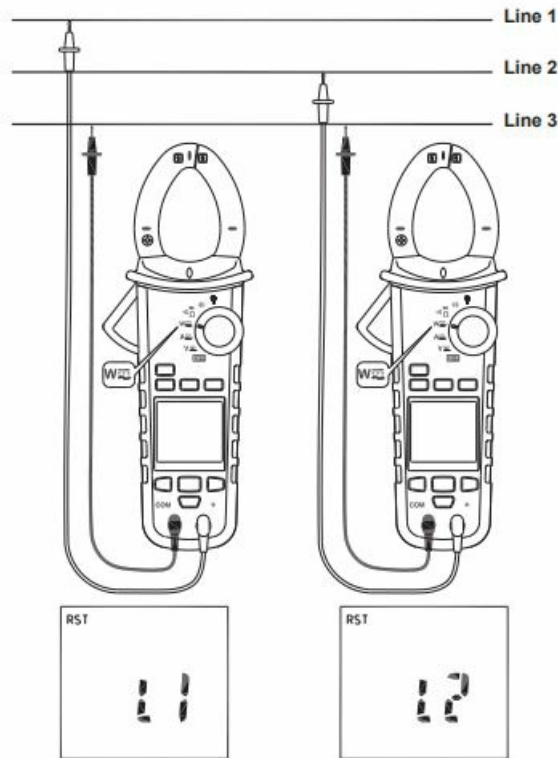


b. 3 phase 4 wire balanced / unbalanced

- **Step1.** Set the rotary switch to the "W" position
- **Step2.** Using the MODE button to choose the ACW mode .



Phase Rotation



NOTE :

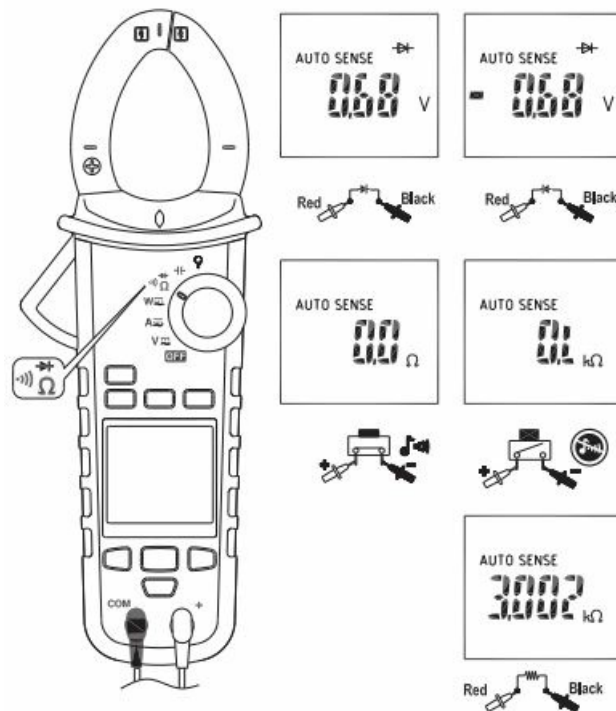
- Connect the supposed three phase of power source as shown above.
- The test is only available while the system frequency is stable.
- **Step 1.** Set the rotary switch to the “W” position.
- **Step 2.** Using the MODE button to choose the “RST” mode.
- **Step 3.** Connect the Red test lead to the supposed phase Line 1, and the Black test lead to the supposed phase Line 3.
- **a.** if volt > 1050V, it will display “OLU” and flash; if volt < 30V, it will display “LoU”
- **b.** If the frequency > 65Hz or < 45Hz, it will display “outF” and flash.
- **c.** If it is normal, then it will display “L1” and flash for about 3 sec.
- **Step 4.** If it displays “L2”, then BUZZER will be sound for twice. Please switch the Red test lead to connect to the supposed phase Line 2 immediately before the “ L2 ” is disappeared.
- **Step 5.** When “L2” is disappeared, it will display the testing result.



- **a.** If it displays “ 1 2 3 “, then the phase sequence is forward sequence, which means the supposed phase Line 1 is ahead of the supposed phase Line 2.
- **b.** If it displays “ 3 2 1 “, then the phase sequence is reversed sequence, which means the supposed phase Line 2 is ahead of the supposed phase Line 1.
- **c.** “—” means that the meter is unable to determine the results.
- **d.** If displays “LoU”, it is possible that you remove the test leads before completing the whole testing procedures.

- **Step 6 :** To repeat the test, press the OK button again.

OHM Measurement



CAUTION

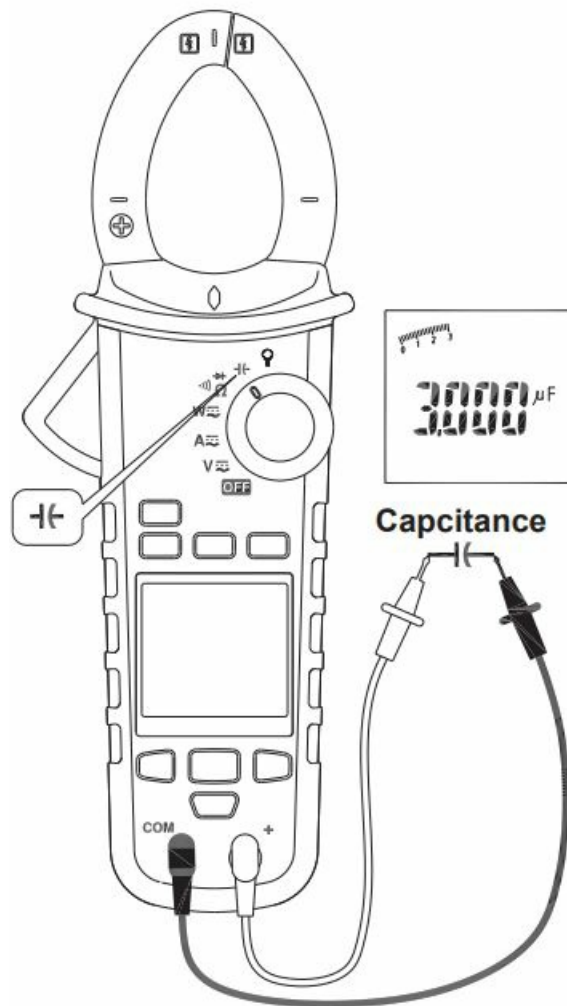
To avoid possible damage to the Meter or to the equipment under test, disconnect circuit power and discharge all high -voltage capacitors before measuring resistance and diode.

Note :

- Press MODE button to enter the "Ω", " " or " " mode.
- Press MODE button for more than 2sec to return to the AUTO SENSE mode.
- The red LED will turn on, if the resistance of DUT is < 30 Ω.
- Under diode mode, LCD displays "bad" when measuring a diode conducted at forward and reverse bias.

Measuring Capacitance


- Set the rotary switch to the position.

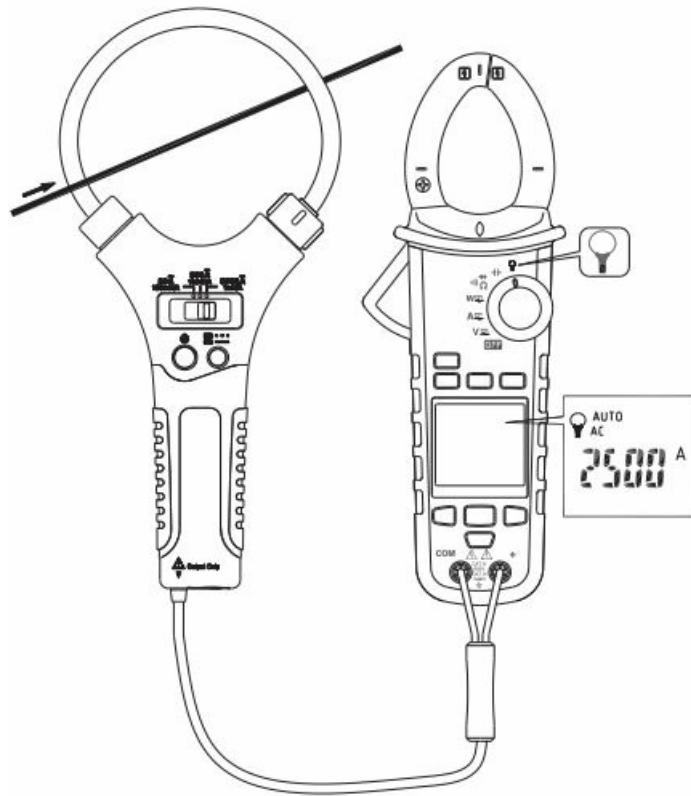


CAUTION

- To avoid possible damage to the meter or to the equipment under test, disconnect circuit power and discharge all high-voltage capacitors before measuring capacitance. Use the DC voltage function to confirm that the capacitor discharged.
- **Note** – The meter will display “diSC” while discharging the capacitor.


Measuring Current with Flex Clamp Meter

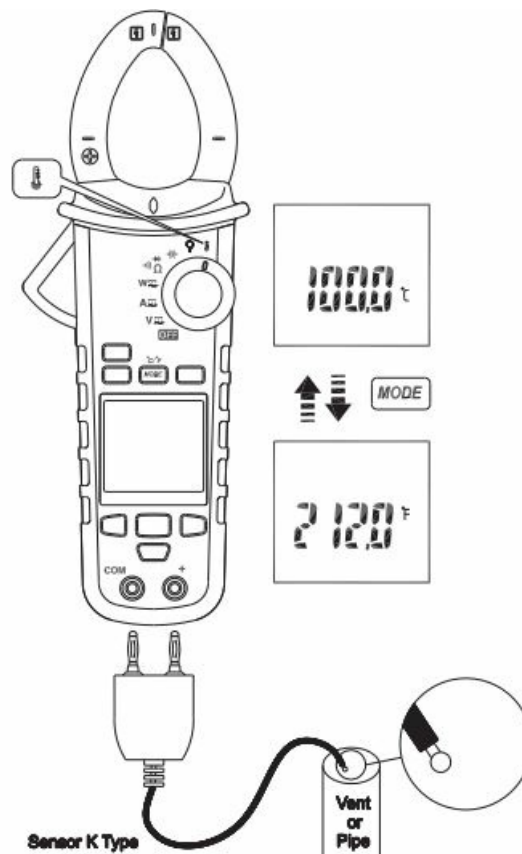
- Set the rotary switch to the “” position.
- Keep the range of Flex Clamp meter which has 3000A/3V output ratio.



- **Note** : Please follow the above illustrated instruction and measure a known current to make sure that the connection between two meters is correct.

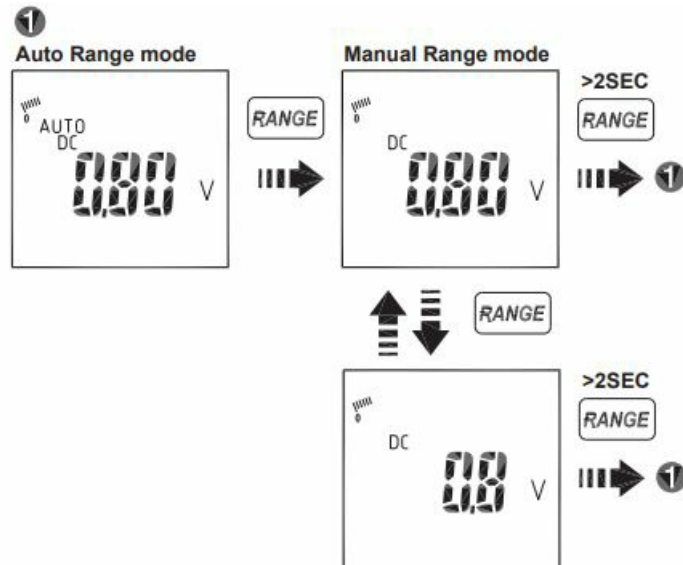
Measuring Temperature °C / °F

- Set the rotary switch to the "  " position.

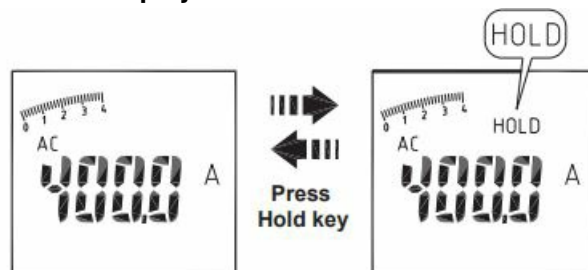


- Don't take any high voltage measurement prior to accurate °C/°F measurements.

Other Function : AUTO/MANUAL RANGE



HOLD Key Press HOLD key to freeze display value.



- **SMART HOLD** : The meter will beep continuously and the display will flash if the measured signal is larger than the display reading. (for V, A, W, and Flex AC current function)

MEM mode

- When measuring, you can save the reading to memory and load it from memory. The meter can store maximum 1000 data in memory.
- To enter MEM mode, use Arrow keys to select MEM icon, and press OK button.
- In this mode, you can operate the following options:

Use Arrow keys to select the following icons.

| | |
|-------------------------------|--|
| <p>A-SAVE (Auto-Save)</p> | <p>You can operate the A-SAVE mode to automatically save new reading. When you use the probes to measure a new reading, the meter will automatically save it. In some cases, the A-SAVE mode will not work. For example, the reading is smaller than the A-SAVE limit, or the reading is OL.</p> <p>Press OK button to enter/exit A-Save mode. Press RANGE button to display the recorded data amount /currently measured value.</p> |
| <p>SAVE</p> | <p>Press OK button to enter SAVE mode. Press OK button to save a new reading to memory.</p> <p>Press RANGE button to display the recorded data amount /currently measured value.</p> <p>Press OK button for more than 2sec to exit the mode.</p> |
| <p>LOAD</p> | <p>Press OK button to enter/exit LOAD mode. Press LEFT or RIGHT button to select data.</p> <p>Press RANGE button to select data index/recorded value.</p> |
| <p>CLR</p> | <p>Press OK button to enter CLR mode.</p> <p>Press OK button to delete all data in memory.</p> <p>Press OK button for more than 2sec to exit this mode.</p> |
| <p>MMA (MAX/MIN)</p> | <p>MMA mode is only valid when A-Save mode has executed and finished.</p> <p>Press OK button to enter MMA mode.</p> <p>Press OK button to display the maximum/minimum value.</p> <p>Press OK button for more than 2sec to exit this mode.</p> |

- To exit MEM mode, use Arrow keys to select MEM icon and press OK button.

A-Save limit

| Function | Limit |
|----------------------|--|
| V, A, W, Flex A, Cap | 5% of range |
| Hz | 10% of 100Hz range 5% of 1k/10k Hz range |

LOG mode

- You can record a lot of reading to memory in a long time, then analyze and plot graph.
- The meter can store maximum 9999 data in memory.
- The record rate can be set from 1 sec to 600 sec. The error of timer is less than 3 seconds per hour.
- To enter LOG mode, use Arrow keys to select LOG icon, and press OK button to enter.
- In this mode, you can operate the following options:

| Use Arrow keys to select the following icons. | |
|---|---|
| SAVE | Press OK button to start data logger. The logger automatically records at regular intervals. To stop data logger, press OK button to return. |
| LOAD | Press OK button to review data from memory. Press LEFT or RIGHT button to select data. Press RANGE button to select data index/recorded value. Press OK button to return. |
| RATE | Press OK button to setup the record rate of logger. Press LEFT or RIGHT button to select rate. Press OK button to return. |

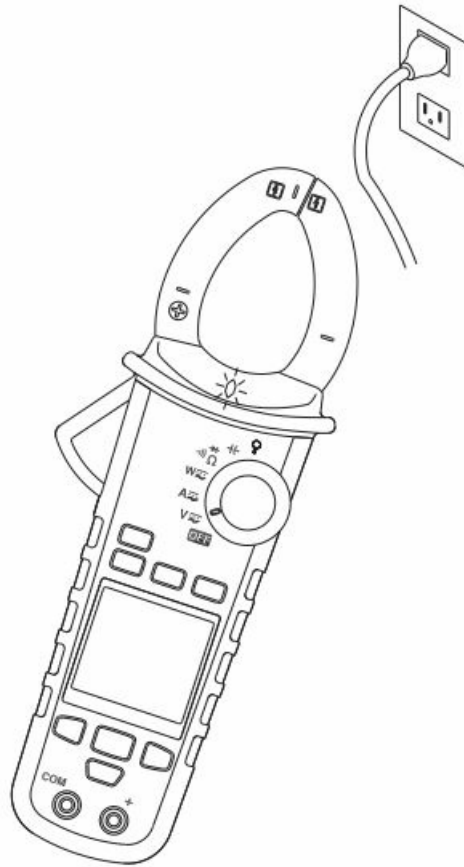
To exit LOG mode, select LOG icon, and press OK button.

Bluetooth

- The meter uses low-power Bluetooth v4.0 wireless technology to transfer the real-time data. You can use the RF communication to link to android or apple devices.
- The RF communication range : Open air up to 10 m.
- This function is invalid for INRUSH / Phase Rotation.

VoltSeek :

- The red diamond shape of LED will illuminate, If there has electric field been detected from the jaw.
- **Note** – This function is invalid for OHM, Capacitance, INRUSH, and Phase Rotation.



Buzzer





- The Meter beeps once for every valid key-press, and beeps twice for every invalid key-press.

Power-up options:

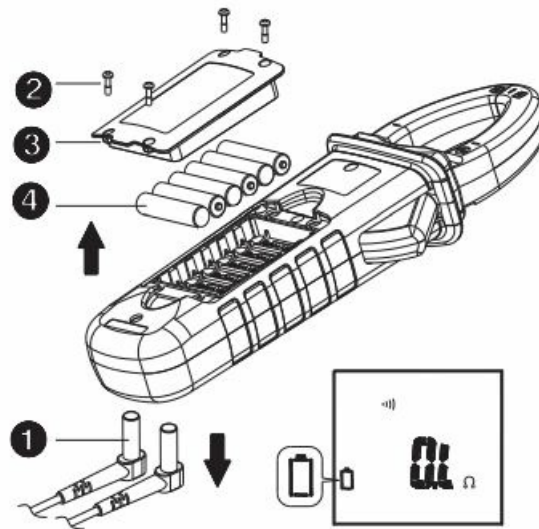
- Press one of the following buttons while tuning meter on from OFF position.
- **UP/DOWN button** : Display of the software version.
- **OK button** : Disable auto power off. The display shows “AoFF”.
- **LEFT button** : Disable active backlight. The display shows “LoFF”.
- **HOLD BUTTON** : Display all LCD symbols approx 10sec.

Battery State display

User can know the battery state from the battery indicator.

| Batter State | Description |
|---|--|
|  | The battery is full charged |
|  | The battery is remained 2/3 power |
|  | The battery is remained 1/3 power |
|  | Replace the battery as soon as the low battery indicator blinks to avoid inaccurate reading. |

Battery Replacement



CAUTION

- Remove test leads from Meter before opening the battery cover or Meter case.

Specifications

General Specifications

- **Overload protection** : 1000 Vrms / 1000 Arms
- **Display count** : 10000 or 4000
- **Measuring rate** : 3 times / sec.
- **Overrange display** : "OL" or "-OL" .
- **Auto Power Off** : Approx 15 minutes.
- **Power requirement** : 6×1.5 V AAA alkaline batteries.
- **Battery life** : 50 hours (without Backlight).
- **Dimensions** : 103mm(W) x 258mm(L) x 55mm(D)
- **Weight** : approx. 600g (with battery)

Environmental Conditions

Indoor Use.

- **Calibration** : One year calibration cycle.
- **Operating temperature** : 0 °C ~ 10 °C
- 10 °C ~ 30 °C ($\leq 80\%$ RH)
 - 30 °C ~ 40 °C ($\leq 75\%$ RH)
- 40 °C ~ 50 °C ($\leq 45\%$ RH)
- **Storage temperature** : -10 to 50 °C
 - 0 to 80% RH (batteries not fitted).

Temperature coefficient :

- $0.2 \times (\text{Specified accuracy}) / ^\circ\text{C}$, $< 18^\circ\text{C}$, $> 28^\circ\text{C}$.

Over voltage category :

- IEC 61010-1 600V CAT.IV. 1000V CAT.III.
 - IEC 61010-2-032, IEC 61010-2-033

CAT Application field

| | |
|-----|--|
| II | The circuits directly connected to Low-voltage installation. |
| III | The building installation. |
| IV | The source of the Low-voltage installation. |

- **Operating altitude** : 2000m (6562 ft)
- **Conductor Size** : 40mm diameter
- **Pollution degree** : 2
- **EMC** : EN 61326-1
- **Shock Vibration** : Per MIL-PRF-28800F for a Class 2 instrument.
- **Drop Protection** : 4 feet drop to hardwood on concrete floor.

Electrical Specifications

- Accuracy is $\pm(\% \text{ reading} + \text{number of digits})$ at $23^\circ\text{C} \pm 5^\circ\text{C}$ 80%RH. Accuracy is specified for a period of one year after calibration.

Voltage

| Function | Range | Accuracy* |
|----------|--------|--|
| DCV | 99.99V | $\pm (0.7\% + 2\text{dgt})$ |
| | 999.9V | |
| ACV | 99.99V | $\pm (1.0\% + 5\text{dgt})$ 50 ~ 500Hz |
| | 999.9V | |
| HFR ACV | 99.99V | 50 ~ 60Hz $\pm (1\% + 5\text{dgt})$ |
| | 999.9V | >60 ~ 400Hz $\pm (5\% + 5\text{dgt})$ |

- DCV <1000dgt, add 6 dgt to the accuracy.
 - ACV <1000dgt, add 3 dgt to the accuracy.
- **Input Impedance** : $3.5\text{M}\Omega$ // $<100\text{pF}$
- **AC Conversion Type**: AC Conversions are ac-coupled, true RMS responding, calibrated to the RMS value of a sine wave input. Accuracies are given for sine wave at full scale and non-sine wave below half scale.

- For non-sine wave (50/60Hz) add the following Crest Factor corrections:
 - For a Crest Factor of 1.4 to 2.0, add 1.0% to accuracy.
- For a Crest Factor of 2.0 to 2.5, add 2.5% to accuracy.
 - For a Crest Factor of 2.5 to 3.0, add 4.0% to accuracy.
- CF 3 @ 460V, 460A
 - 2 @ 690V, 690A
- AC+DC Vrms Accuracy: same as ACV spec. +DCV spec.

Current

| Function | Range | Accuracy |
|----------|----------------|----------------------------------|
| DCA | 99.99A | $\pm (1.5\% + 0.2A)$ |
| | 999.9A | $\pm (1.5\% + 5dgt) *$ |
| ACA | 0.10A ~ 99.99A | 50 ~ 60Hz $\pm (1.5\% + 5dgt) *$ |
| | 999.9A | >60 ~ 400Hz $\pm (2\% + 5dgt) *$ |
| HFR ACA | 0.10A ~ 99.99A | 50 ~ 60Hz $\pm (1.5\% + 5dgt) *$ |
| | 999.9A | >60 ~ 400Hz $\pm (5\% + 5dgt) *$ |

- The measured value < 1000 dgt, add 5 dgt to the accuracy.
 - Position Error: $\pm 1\%$ of reading.
- AC Conversion Type and additional accuracy is the same as AC Voltage.
 - AC+DC Arms Accuracy: Same as ACA spec + DCA spec.
- DCA is affected by the temperature and the residual magnetism.
 - Press the HOLD key > 2sec to compensate for it.

Peak Hold: Peak MAX / Peak MIN

| Function | Range | Accuracy |
|----------|--------|-----------------------|
| ACV | 140.0V | $\pm (3.0\% + 15dgt)$ |
| | 1400V | |
| ACA | 140.0A | $\pm (3.0\% + 15dgt)$ |
| | 1400A | |

Accuracy defined for :

- Sine wave, ACV>5Vrms / ACA \geq 5Arms, Freq.50~400Hz.
- For square waves, the accuracy is unspecified.

- Only suitable for repetitive events.

Frequency

| Function | Range | Accuracy |
|-----------|------------------|-----------------------------|
| Frequency | 20.00 ~ 99.99Hz | $\pm (0.5\% + 3\text{dgt})$ |
| | 20.0 ~ 999.9Hz | |
| | 0.020 ~ 9.999KHz | |

Sensitivity :

- 10~100Vrms for AC 100V range
 - 10~100Arms for AC 100A range (>400Hz Unspecified)
- 100~1000Vrms for AC 1000V range
 - 100~600/1000Arms for AC 600A/1000A range (>400Hz Unspecified)
- Reading will be 0.0 for signals below 10.0 Hz.

Total Harmonic Distortion

| Function | Range | Accuracy |
|----------|-------|------------------------------|
| ACA /ACV | 99.9% | $\pm (3.0\% + 10\text{dgt})$ |

Harmonic distortion measurement

| Harmonic order | Range | Accuracy |
|----------------|-------|-----------------------------|
| H01 ~ H12 | 99.9% | $\pm (5\% + 10\text{dgt})$ |
| H13 ~ H25 | | $\pm (10\% + 10\text{dgt})$ |

- If ACV<10Vrms or ACA <10Arms, it will display “rdy”.
- If the fundamental frequency out of range 45 ~ 65Hz, it will display “out.F”.

Inrush Current

| Function | Range | Accuracy |
|----------|--------|-----------------------------|
| ACA | 99.99A | $\pm (2.5\% + 0.2\text{A})$ |
| | 999.9A | $\pm (2.5\% + 5\text{dgt})$ |

Accuracy defined for :

- Sine wave, Freq. 50/60Hz
- Integration time about 100m sec
- **Trigger level of INRUSH** : 1Arms for 100A range 10Arms for 600A/1000A range

Active Power: Watt (DC/AC)

| Function | Range | Accuracy |
|-----------|-----------|---------------------------------------|
| ACW / DCW | 9.999 kW* | A,error×V,reading + V,error×A,reading |
| | 99.99 kW | |
| | 999.9kW | |

- The measured value<1.000kW adds 10 dgt to the accuracy.

Accuracy defined for :

- **ACW**: Sine wave, ACV \geq 10 Vrms, ACA \geq 5 Arms
 - Freq. 50~60Hz, PF=1.00
- **DCW** : DCV \geq 10V , DCA \geq 5 A

Power Factor

| Function | Range | Accuracy |
|----------|-------|----------|
| PF | 1.00 | ± 5dgt |

Resistance & Continuity & Diode

| Function | Range | Accuracy |
|------------|------------------|-----------------|
| Resistance | 999.9 Ω | ± (1.0% + 5dgt) |
| | 9.999 k Ω | |
| | 99.99 k Ω | |
| Continuity | 999.9 Ω | ± (1.0% + 5dgt) |
| Diode | 0.40~ 0.80V | ± 0.1V |

- **Max. Test Current**: Approx. 0.5mA.
 - **Maximum Open Circuit** Voltage for Ω , Approximate 3V
- **Maximum Open Circuit** Voltage for diode :
 - **Approximate** ±1.8V
- **Continuity Threshold**: 30 Ω Beep On 100 Ω Beep OFF.
 - **Continuity Indicator**: 2 KHz Tone Buzzer

- **Continuity response time:** < 100ms.

Capacitance

| Function | Range | Accuracy |
|-------------|---------------|-----------------------------|
| Capacitance | 3.999 μ F | $\pm (1.9\% + 8\text{dgt})$ |
| | 39.99 μ F | |
| | 399.9 μ F | |
| | 3999 μ F | |

Flex AC Current (voltage input)

| Function | Range(1mV/1A) | Accuracy* |
|--------------|-----------------|---|
| ACA | 300.0A/3000A | $\pm(1\%+5\text{dgt})$ (50~500Hz)** |
| HFR ACA | 300.0A/3000A | $\pm(1\%+5\text{dgt})$ (50~60Hz)** $\pm(5\%+5\text{dgt})$ (61~400Hz)** |
| Peak | 420.0A/4200A | $\pm(3\%+80\text{dgt})$ (50~500Hz) |
| INRUSH | 300.0A/3000A | $\pm(2\%+10\text{dgt})$ (50/60Hz) |
| Frequency | 99.99Hz/999.9Hz | $\pm (0.5\%+3\text{dgt})$ (<500Hz) |
| THD | 99.9% | $\pm(5\%+10\text{dgt})$ |
| Harm H01-H12 | 99.9% | $\pm(5\%+10\text{dgt})$ |

Temperature


| Function | Range | Accuracy |
|--------------------|---|---------------------------------|
| $^{\circ}\text{C}$ | -50 $^{\circ}\text{C}$ ~ 399.9 $^{\circ}\text{C}$ | $\pm (1\% + 3^{\circ}\text{C})$ |
| | 400 $^{\circ}\text{C}$ ~ 1000 $^{\circ}\text{C}$ | |
| $^{\circ}\text{F}$ | -58 $^{\circ}\text{F}$ ~ 751.9 $^{\circ}\text{F}$ | $\pm (1\% + 6^{\circ}\text{F})$ |
| | 752 $^{\circ}\text{F}$ ~ 1832 $^{\circ}\text{F}$ | |

- The above specification is assumed at the ambient temperature stability within $\pm 1^{\circ}\text{C}$. In addition, the temperature probe has to be connected to meter for more than 1 hour in advance.
- The meter needs 2 hour for stability for ambient temperature change more than $\pm 5^{\circ}\text{C}$.

Limited Warranty

- This Meter is warranted to the original purchaser against defects in material and workmanship for 3 years from the date of purchase. During this warranty period, manufacturer will, at its option, replace or repair the defective unit, subject to verification of the defect or malfunction.
- This warranty does not cover fuses, disposable batteries, or damage from abuse, neglect, accident, unauthorized repair, alteration, contamination, or abnormal conditions of operation or handling. Any implied warranties arising out of the sale of this product, including but not limited to implied warranties of merchantability and fitness for a particular purpose, are limited to the above.
- The manufacturer shall not be liable for loss of use of the instrument or other incidental or consequential damages, expenses, or economic loss, or for any claim or claims for such damage, expense or economic loss. Some states or countries laws vary, so the above limitations or exclusions may not apply to you.
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- 700020065 JULY 2021 V1 02021 MGL International Group Limited. All rights reserved.
- Specifications are subject to change without notification.

Documents / Resources

| | |
|---|---|
|  <p>APPA 158B</p> <p>Bluetooth Clamp On Meter</p> <p>CE</p> <p>RoHS</p> <p>REACH</p> <p>IP65</p> <p>158B, 158B Bluetooth Clamp On Meter, Bluetooth Clamp On Meter, Clamp On Meter, Meter</p> | <p>APPA 158B Bluetooth Clamp On Meter [pdf] User Manual</p> <p>158B, 158B Bluetooth Clamp On Meter, Bluetooth Clamp On Meter, Clamp On Meter, Meter</p> |
|---|---|

References

-  [APPA](http://www.appatech.com)

