**BM601 Digital Clamp Meter Operating Instruction**

**Ⅰ.General introduction**

Welcome to use this product!

This product is one kind of 3 1/2 portable multipurpose automatic measuring range instrument, may measure the AC/ DC voltage, the AC current, resistance, frequency, capacitance, continuity test, diode，Clamp detects AC voltage, etc.. This measuring appliance structure is exquisite, the operation is easy, it is your ideal test service tool!

**Ⅱ. Safety Rules and Notes**

2.1 Please read this manual carefully before use.

  Warning, be careful!

  Danger of being hit by high-pressured electric!

 Dual insulation protection.

2.2 Do not surpass the greatest stipulated input value when measure.

2.3 Do not turn switch to change the measuring range at random in the process of measuring,, in case to destroy the measuring appliance, .

2.4 The measuring appliance can display the mark while the voltage is bigger than DC51V and AC30V, remind the user that the measured voltage has surpassed the safety voltage, please operate carefully.

2.5 Measuring appliances should avoid the straight sunlight, the high temperature, and moisture.

2.5 Please must be release the power switch to turn off the power after use.

2.7 If it doesn’t use for a long time, please should be take out the battery, in case the battery leaks to damage the parts.

**Ⅲ. Features**

**3.1 General Features**

3.1.1 Please take the CMOS big scale integrated circuit as the core, in AC / DC voltage, the AC electric current, the resistance, the frequency and the electric capacity measure it can automatically transform the measuring range, making it more convenient.

3.1.2 Greatest display: 1999

3.1.3 Automatic cathode display: Displays " - "

3.1.4 Maximum span of jaw: 28mm.

3.1.5 Batteries insufficient display: Displays “ ”.

3.1.6 Auto power OFF

 After turning on the instrument and without turning the function switch or pressing any button, the instrument will automatically enter into sleep mode after 15 minutes to save battery power. when it is in the sleep mode you can press the any button to wake up the instrument. If you don't need the automatic sleep mode, you should hold down the SELECT button to turn on the instrument, and then the symbol"" will not be display on the LCD.

3.1.7 Working condition：0C~40C，75%RH（max）

3.1.8 Storage environment：-10C~60C，80%RH（max）

3.1.9 Battery : AAA1.5V×2

3.1.10 External dimensions: 175（L）×64（W）×28（H）mm

3.1.11 Weight: About 170g (including battery’s weight)

**3．2 Technical index**

Accuracy: ± (% reading + word count)

Guarantee period of one year

   Guaranteed accuracy Temperature: 23℃± 5℃

Relative humidity: < 70%.

**3.2.1 DCV**

|  |  |  |
| --- | --- | --- |
|  Range | Accuracy | Resolution |
| 200mV | ±(0.5% of rdg + 5 digit ) | 0.1mV |
| 2V | 1mV |
| 20V | 10mV |
| 200V | 100mV |
| 600V | 1V |

Input resistance:approx.10MΩ.

Overload protection:DC/AC 600V.

3.2.2 ACV

|  |  |  |
| --- | --- | --- |
|  Range | Accuracy | Resolution |
| 2V | ±(1.2% of rdg + 5 digit ) | 1mV |
| 20V | 10mV |
| 200V | 100mV |
| 600V | 1V |

Input resistance ：about10MΩ.

Frequency：10Hz~1kHz.

Display：True RMS(sinusoidal waveform RMS calibration).

Caution: The measured voltage amplitude is greater than 2V, please press “SELECT” key at AC electric voltage measuring to get to the frequency function, then carry on measure.

Frequency measurement range is 10Hz~20KHz.

**3.2.3 ACA**

|  |  |  |
| --- | --- | --- |
| Range | Accuracy | Resolution |
| 2A | ±(2%rdg+10digit) | 1mA |
| 20A | 10mA |
| 200A | 100mA |
| 600A | 1A |

AC Conversion Type: TRUE RMS responding,calibrated readings consistent with sinusoidal waveform RMS.

Frequency Range:50~60Hz.

3.2.4 resistance Ω

|  |  |  |
| --- | --- | --- |
|  range  | Accuracy | Resolution |
| 200Ω | ±(0.8% of rdg + 5 digit ) | 0．1Ω |
| 2KΩ | 1Ω |
| 20KΩ | 10Ω |
| 200KΩ | 100Ω |
| 2MΩ | 1KΩ |
| 20MΩ | ±(2% of rdg + 5 digit ) | 10KΩ |

Overload protection ：250V virtual value.

Open voltage approximately :1V

**3.2.5 Capacitance**

|  |  |  |
| --- | --- | --- |
| Range | Accuracy | Resolution |
| 20nF | ±(3% of rdg + 10digit ) | 0.01nF |
| 200nF | 0.1nF |
| 2uF | 1 nF |
| 20uF | 10nF |
| 200uF | 100nF |
| 2mF | ±(5% of rdg + 15 digit ) | 1uF |

Overload protection ：250Vvirtual value.

**3.2.6 Diode positive voltage**

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| Display of similar diode positive voltage. Measuring condition：positive DC electric current 1mA, reverse DC voltage approximate 2.2V. |

**3．2．7 Continuity Test** 

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| When the transited resistance is smaller than about 50Ω,the buzzer beeps. Test condition: Open-circuit voltage is about 2V. |

**Ⅳ．Instructions**

4.1 Key Function

 4.1.1“SELECT” button: When press the key continuously, change the range of all function for a proper range you need.

4.1.2 “HOLD” button: The user may hold the present reading and keep it on the display by pressing the “DH” button. Press the button again to cancel the data-hold function

**4.2 DC/AC voltage measure**

Turn the Rotary switch to “V”. Then plug black lead in “COM” socket, and plug red lead in “VΩ” socket. Connect the test lead with the two ends of the circuit and then directly read the reading on the LCD display .

If measuring AC voltage and frequency, press the SELECT key to switch.

Don't measure the voltage more than 600V, otherwise it might damage the instrument, if the screen only displays OL, it means that the tested voltage is higher than 610V.

3. Press the SELECL button in the ACV function to enter the voltage frequency measurement mode. It can measure the frequency range of 10Hz to 20KHz under the condition that the voltage is AC 2V~600V.

**4.3 Measurement of AC current**

Turn the range switch into the range “~200A/600A”, clamp the wire of the measured current, shall put the wire into the center of the completely closing clamp mouth as soon as possible, directly get the reading. When the reading is less, turn the range switch at ~2A/20A range to measure again.

  Note: When measuring current, the clamp might hold only one wire, it is null to catch one more another wire

**4.4 Resistances**

1. turn the Range switch to the range to Ω position, and this time the measuring appliance will be set for the resistance measuring range.
2. Insert red lead into the VΩ jack, black lead into " COM " jack.
3. Connect the pen with the beginnings and ends of the test circuit to read the resistance value.

When the leads is overloaded input, display monitor can display

" OL ".

**4.5 Measurement of forward voltage of diode and Continuity Testing**

（1) Turn the Range switch to “/ ”position. insert the red lead to “V/Ω” jack，insert the black lead to “COM” jack.（red pen “+”）

（2) Connect the test leads to the two ends of the measured to read positive voltage.

（3) If the measured resistance is less than about 50Ω，the buzzer will beep. This is continuity testing..

Caution：

a. When reverse diode or the input end leads the way, it displays “OL”。

b. The measured circuit should be measured under the off-power condition, because any overload signal would make the buzzer beep, thus cause wrong measure.

**4. 7 Capacitance measure**

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| 警告.jpg**Warning**！When measure the electric capacity, must guarantee the measured capacitor has sent the electricity out, if the big electric capacity contains the oversized non-electric capacity ingredient, possibly affects the measuring accuracy. |

1. Turn the range switch to “”position .

ouchonly the figure’（2）Insert the red lead to “VΩ” jack，insert black lead to “COM” jack.

1. Connect the test leads to the two ends of the measured capacitor， could get the capacity value.

（4）When the capacity value is big, the measure may need about 10 seconds .

**4.8 Clamp Detect AC voltage**

 Turn the Rotary switch to the “ ” function, then the LCD display “EF” Insert the red test lead into the VΩ jack, the black test lead can be used, the red test lead is in contact with or close to the live conductor or the electrical switch or socket. When a voltage is detected, the meter displays “---”. When the higher the induced voltage, the more the number of "-" is displayed, the denser the buzzer alarm sound and the light flicker.

**Caution:**

1. Even if there is no indication, voltage may still exist. Do not judge the wire whether there is voltage absolutely through the non contact voltage testing, the testing may be effected by many factors such as the socket design, the insulation thickness and types etc.

2. Interference source of external environment, such as flash, motor etc, may false trigged the non- contact voltage testing.

**Ⅴ．Maintenance**

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| 警告.jpg**warning**！before open the cover or the battery cover, cut off the power source and test pen and any input signal, in case electric shock. |

5．1 When the meter displays “”，please replace the battery. Open the battery cover, replace with the same type new battery to keep it work well.

5.2 Keep the meter and test lead clean, dry and not damaged, could use the clean cloth or cleanser to clean the cover，do not use abrasive or solvent.

5.3 Avoid to damage, shake, shock，avoid high temperature and strong magnetic field.

5.4 Please should be corrected at least once per year

**Ⅵ. Accessories**

6.1 Test lead: 1 pair

6.2 Users manual: 1 piece

6.3 Cloth bag: 1 piece