SECTION 1
INTRODUCTION

In this manual, “WARNING” is reserved for conditions and actions that pose hazard(s) to the user; “CAUTION” is reserved for conditions and actions that may damage your meter.

Caution

This Manual contains information and warnings that must be followed to ensure safe operation and retain the meter in safe condition.

⚠ Warning

READ THE “MULTI-METER SAFETY” SECTION BEFORE USING THE METER.

The Dual Display Multi-meter is a 5-digit high resolution mode. The meter is designed for bench-top. The features provided by the meter are:

- A dual, Liquid Crystal, Display that allows two properties of an input signal to be displayed at the same time.
- Accurate true rms AC value.
- 10uV sensitivity in volts DC.
- Precise K division measurement.
- Wide range capacity measurement.
- Slow and Fast selectable count resolution, with reading speeds of 3(Slow) and 20(Fast) reading per second, respectively.
- Panel calibration function (without open-case adjustment).
- Isolation of Universal Serial Bus(USB) Port
- Remote Control, display, record, Data Analysis, print with computer.

Introduction of Sections

This manual has been organized to assist you in getting started quickly. It is not necessary for you to read the entire manual before using the meter effectively. However, we recommend that you do so in order to use

your meter to its full advantage.

Begin by scanning the Table of Contents to familiarize you with the organization of the manual. Then, read Section 2, “GETTING STARTED”. Refer to the appropriate section of the manual as needed.

The contents of each section are summarized below:

SECTION 1. INTRODUCTION

Introduces the Multi-meter‘s features and operation methods.

SECTION 2. GETTING STARTED

Explains how to prepare the meter for operation and get started quickly to take basic measurements from the front panel.

SECTION 3. OPERATING THE METER FROM THE FRONT PANEL

Provides complete descriptions of each operation, which can be performed by pressing the keys on the front panel. Section 3 is organized so that related operations and functions are grouped together.

SECTION 4. MAINTENANCE

Describes how to perform basic maintenance and how to replacing fuses as order.

SECTION 5. SPECIFICATIONS

SECTION 6. NOTES FOR THE MANUAL

Multi-meter Safety

The meter has been designed and tested according to GB4793.1(Equivalent of IEC Publication 1010-1 Safety Requirements for Electronic Measuring Apparatus). This manual contains information and warnings which must be followed to ensure safe operation and retain the meter in safe condition.

Some common international electrical symbols used in this manual are shown below.

○	OFF(power) SWITCH POSITION	⚡	DANGEROUS VOLTAGE
|	ON(POWER) SWITCH POSITION	⏚	EARTH GROUND
~	AC LOOP	⚠	WARNING INFORMATION
⎓	DC LOOP		

Before using the meter, read the following safety information carefully:

- Avoid working alone
- Follow all safety procedures for equipment being tested
- Inspect the test leads for damaged insulation or exposed metal. Check test lead continuity. Damaged leads should be replaced
- Be sure the meter is in good operating condition
- Select the proper function for your measurement.
- To avoid electrical shock, display'⚡'when working above 30V dc or 30V ac RMS
- Disconnect the live test lead （V Ω⊣▶ ）before disconnecting the common test lead (COM)
- Disconnect the power and discharge high-voltage capacitors before testing in Ω, ⊣▶and •))
- When making a current measurement, turn the circuit power off before connecting the meter in the circuit
- Check meter fuses before measuring transformer secondary or motor winding current; (See Section 4, "MAINTENANCE") an open fuse may allow high voltage build-up, which is potentially hazardous.

SECTION 2
GETTING STARTED

Introduction

Section 2 explains how to prepare the meter for operation, discusses general operating features, and walks

you through the basics of taking some common measurements.

Preparations for Operation

Unpacking and Inspecting the Meter

Carefully remove the meter from its shipping container and inspect it for possible damage or missing items. If the meter is damaged or something is missing, contact the place of purchase immediately. Save the container and packing material in case you have to return the meter.

Font Panel and Rear Panel

Front panel (shown in Figure 2-1) has three main elements: the input terminals on the right, the display and the press keys. The press keys are used to select major functions, function modifiers, and ranging operations. These elements are described in detail in Section 3.

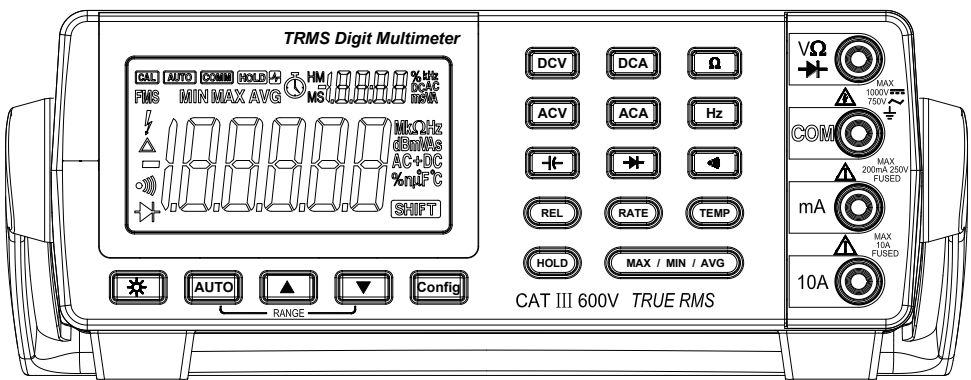

Figure 2—1

The rear panel (shown in Figure 2-2) includes a power switch, a power selection switch, a 0.2A/250V fuses, a power interface, a communication interface, and an instrument factory number label.

Figure 2—2

Adjusting the Handle

The handle can be positioned to provide four different viewing angles. To adjust its position, pull the ends out to a hard stop and rotate it to a position. To remove the handle, adjust it to the vertical stop position and pull the ends all the way out. See Figure 2—3.

Handle position 1- instrument flat wise
Handle position 2-support fixed elevation, convenient for use
Handle position 3-lift up the instrument
Handle position 4-dismantle position for the hand shake

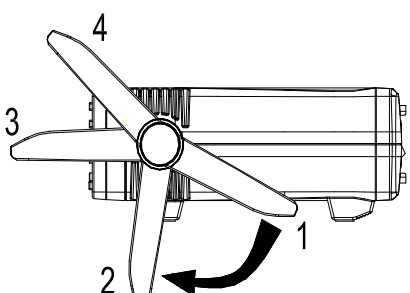

Figure 2—3

Power

⚠ Warning

TO AVOID SHOCK HAZARD, CONNECT THE INSTRUMENT POWER CORD TO A POWER

RECEPTACLE WITH EARTH GROUND.

Caution

Apply the rated voltage and frequency to the meter as marked on the rear panel of the meter.

Please confirm that the power selection switch is in the right place. When your area is 110V city electricity, please switch the power selection switch down to show 110V or 115V; when your area is 220V please switch the power selection switch upwards, showing 220V or 230V.

Turning the Meter On

Open the power switch on the back panel and turn on the multimeter. If you turn the meter off, you must wait for five seconds before turning the meter back on. If you do not, the meter will not power-on.

When the meter is turned on, the full screen displays light while the instrument performs an internal self-test of its digital circuitry. These tests check RAM, ROM, A/D, and the display. The meter has passed all tests and is ready for normal operation if an error code is not displayed.

After the meter completes the power-on sequence, it assumes the power-on measurement configuration stored in non-volatile memory. The power-up configuration set at the factory is shown in Table 3-6. (To change the power-on configuration, refer to “CHANGING THE POWER-ON CONFIGURATION” in Section 3.)

Using the Press Keys

The press keys on the front panel select meter functions and operations. A summary of basic press key operations is shown in Figure 2-4.

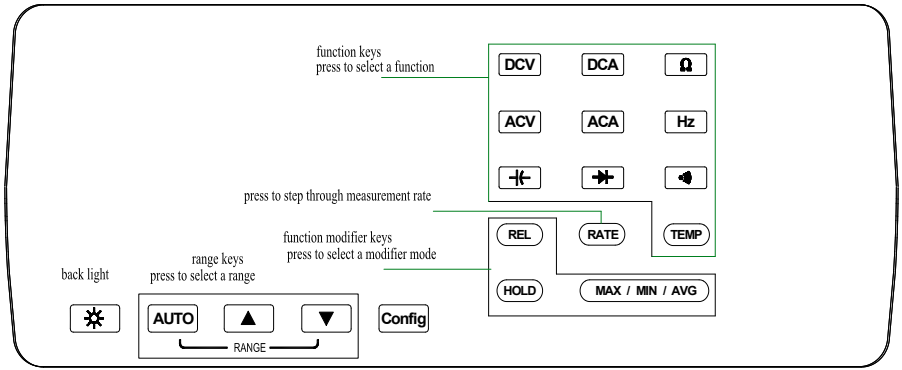

Figure 2—4

Press keys can be used in two ways. You can:

- Press a single key to select a function or operation.
  EXAMPLE: Press ACV to select volts ac function.
- Press a combination of keys, one after the other.
  EXAMPLE: Press ACV to select volts ac function, and then press REL to select the decibels modifier.

For more details on the uses of each key, refer to Section 3, "OPERATION THE METER FROM THE FRONT PANEL."

Selecting a Measurement Range

Measurement ranges can be selected automatically by the meter in "auto-range" or manually by the user. In the auto-range mode, the meter selects the appropriate range for the measurement reading.

To manually select a range, press AUTO key to toggle in (or out) of the manual ranging mode, or press ▲

or ▼. In the manual range mode, press ▲ or ▼ to up range or down range to the desired range. For more details on ranging, refer to “RANGING” in Section 3.

Taking Some Basic Measurements

⚠Warning

READ “MULTI-METER SAFETY” BEFORE OPERATING THIS METER.

The following procedures describe the basics of taking common measurements from the front panel. These procedures are provided for the user who needs to get started quickly, but does not want to read the rest of the manual at this time. However, in order to take full advantage of your meter, you should read the remainder of this manual carefully and completely.

⚠ Warning

TO AVOID ELECTRICAL SHOCK OR DAMAGE TO THE METER, DO NOT APPLY MORE THAN 1000V (PEAK) BETWEEN ANY TERMINAL AND EARTH GROUND. THE METER IS PROTECTED AGAINST OVERLOADS UP TO THE LIMITS SHOWN IN TABLE 3-1. EXCEEDING THESE LIMITS POSES A HAZARD TO THE METER AND OPERATOR.

Measuring Voltage, Resistance, or Frequency

To measure voltage, resistance, or frequency, press the desired function button and connect the test leads as shown in Figure 2-5. The meter will select the appropriate range in the autorange mode.

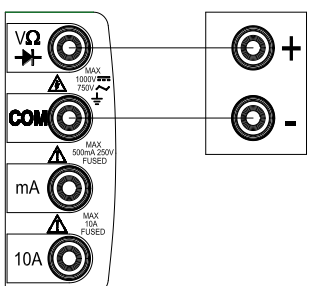

Figure 2—5

Measuring Current

To measure current, insert the red test lead in the mA input terminal for currents up to 220mA or in the 10A input terminal for higher current, and insert the black test lead in the COM terminal.

1. Turn off the power of the current under tested, and connect the test leads as shown in Figure 2—6.
2. Cut off the current (earth connection can minimize the common mode rejection voltage), and connect the multi-meter to the current in series.
3. Turn on the current power, read the value displayed in the LCD, note that the unit of the measured value displayed in the LCD should be in conformity with the input terminal.
4. Turn off the current power, and cut off the multi-meter from the measured current.

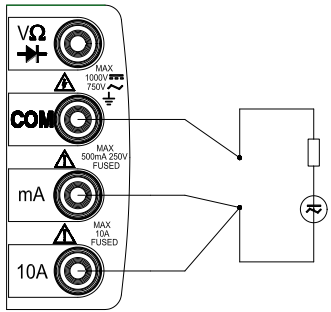

Figure 2—6

Caution

After measuring high current using the 10A input, thermal voltages are generated that may create errors when making low-level dc measurements of volts, current, or ohms. To make the most accurate measurements, allow up to ten minutes for the thermals to settle out.

Diode/Continuity Testing

The continuity test determines whether a circuit is intact (i.e., has a resistance less than about 40Ω). To perform a continuity test, press , and connect the test leads as shown in Figure 2-7. The beeper emits a continuous beep when the input drops below 40Ω (Beep condition can be changed, refer to "Changing the Power-ON Configuration" later in Section 3), and the readings for the test circuit are displayed in the LCD.

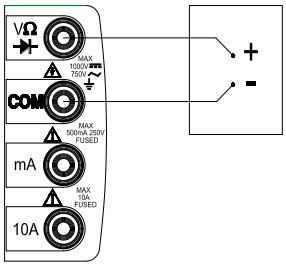

Figure 2—7

The diode test measures the forward voltage of a semiconductor junction at approximately 200uA. Readings are displayed in the 2V range at the fast measurement rates. “OL” is displayed for voltages above 2.0V. Under normal measurement condition, the negative pole of diode is connected with the black COM test lead.

To perform a diode or transistor junction test, press ⊣▶⊢ to select the diode function. Then connect the test leads across the diode as shown in Figure 2-8. Notice how the test leads are placed. Reversing the polarity will reverse-bias the diode.

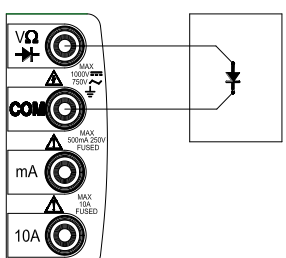

Figure 2—8

Communication Interface

The real time measured value can be transmitted to the computer by the devote USB cable and the DMMVIEW software (refer to SECTION 3 “CONNECT WITH THE USB PORT OF COMPUTER).

SECTION 3
OPERATING THE METER FROM THE FRONT PANEL

Introduction

This section explains how to operate the meter from the front panel.

Front Panel Operations

The following operations can be performed from the front panel:

- Select a measurement function DCV DC voltage measurement，ACV AC voltage measurement，DCA DC current measurement，ACA AC current measurement，Ω resistance measurement，FREQ frequency measurement，CAP capacity measurement，diode measurement，continuity measurement，TEMP temperature measurement）
- Select function modifiers REL , MNMX that cause the meter to display relative readings, maximum, minimum or average values
- Enter the Touch Hold mode (HOLD) to hold a reading on the display
- Set Measurement Rate (RATE), change the rate as “F”(Fast) or “S”(Slow)
- Select the manual or autorange mode (AUTO), up range ▲ or ▼ down range manually to desired range
- Back light operation key , to turn on or turn off the back light (when arrive the setting time the back light can automatically off)
- Power-on or off the power supply (POWER)

These operations are described in detail in the following part of Section 3.

Display

The meter has a 5-digit, Liquid Crystal Display (Main Display) and a 4-digit, Liquid Crystal Display (Auxiliary Display). The display shows measurement readings, measurement units and messages. As shown in Figure 3-1.

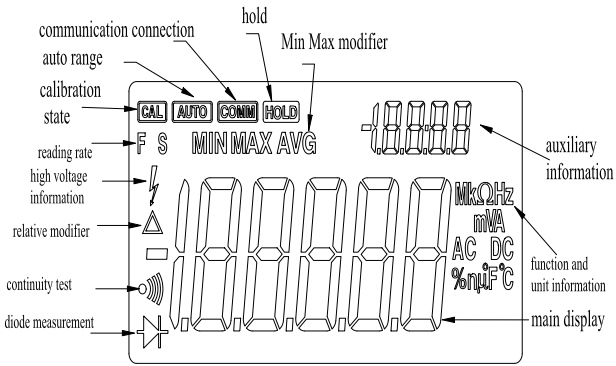

Figure 3—1

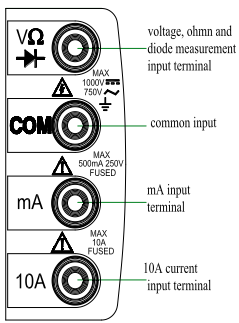

Figure 3—2

Input Terminals

The input terminals, as shown in Figure 3-2, are located on the right of the front panel:

The meter is protected against overloads up to the limits shown in Table 3-1. Exceeding these limits poses a hazard to both the meter and operator.

Table 3-1 Input Limits

Function	Input Terminals	Maximum Input
DC voltage	VΩ and COM	1000V dc
AC voltage	VΩ and COM	750V ac rms, 1000V peak value
DC and AC miliampere	mA and COM	200mA dc or ac rms
DC and AC Ampere	10A and COM	10A dc or ac rms
Frequency	VΩ and COM	400V ac rms,600V peak value
Resistance	VΩ and COM	250V dc or ac rms on all ranges
Diode	VΩ and COM	250V dc or ac rms on all ranges
All functions	any terminal to earth	1000V dc or ac peak value

Selecting a Measurement Function

Press a function key, as shown in Figure 3-3, to select a measurement function. When you select a function, annunciators turn on to indicate the function selected. Rang and full scale values are summarized in Table 3-2 for voltage, current, ohms and frequency.

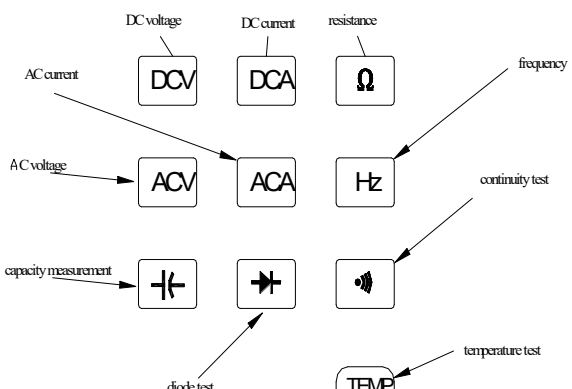

Figure 3—3

Table 3—2 Measurement Range and Full Scale Value

Function	Range	Full Scale Value	Description
DC/AC voltage	200mV	220.00mV	*750 V ac rms
	2V	2.2000V	
	20V	22.000 V	
	200 V	220.00 V	
	1000V*	1100.0 V*	
DC/AC voltage mA	0.2mA	0.22000 mA	
	2 mA	2.2000 mA	
	20 mA	22.000 mA	
	200mA	220.00 mA	
DC/AC voltage A	10A	11.000A	
Resistance	200Ω	220.00Ω	
	2KΩ	2.2000 KΩ	
	20 KΩ	22.000 KΩ	
	200 KΩ	220.00 KΩ	
	2MΩ	2.2000 MΩ	
	20 MΩ	22.000 MΩ	

	60 MΩ	60 MΩ	
Capacity	10nF	11.00nF	
	100nF	110.0nF	
	1000nF	1100nF	
	10uF	11.00μF	
	100uF	110.0μF	
	1000uF	1100μF	
Frequency	10Hz	9.9000Hz	10MHz range have no full scale value
	100Hz	99.000 Hz	
	1000Hz	999.00Hz	
	10KHz	9.9000KHz	
	100KHz	99.000K Hz	
	1000K Hz	999.00K Hz	
	10MHz	9.9000M Hz	

Selecting Range

Ranging operations are performed using the AUTO , ▲ , ▼ keys (see Figure 3-4).

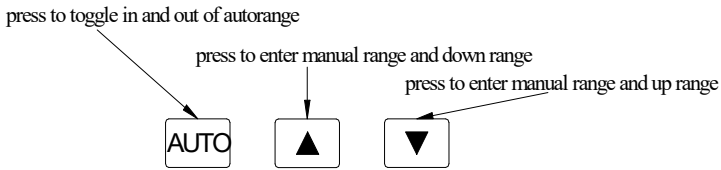

Figure 3—4

Auto-ranging AUTO

When the meter enters into the autorange mode, the "AUTO" annunciator is lit.

In autorange mode, the meter automatically selects the next higher range when a reading is greater than full scale. If no higher range is available, "OL" (overload) is displayed. The meter automatically selects a lower range when a reading is less than approximately 10% of the selected range.

Manual Ranging ▲, ▼

Press AUTO key to toggle in and out of manual ranging. The range you are in when you enter the manual range mode becomes the selected range.

In manual range, the meter remains in the selected range regardless of input. Press AUTO key to toggle back to autoranging.

Press ▲ key to up range. If the ▲ key is pressed when the meter is still in autorange, manual ranging is selected, the "AUTO" annunciator turns off, and the next higher range is selected (if there is one).

Press ▼ key to down range. If the ▼ key is pressed when the meter is still in autorange, manual ranging is selected, the "AUTO" annunciator turns off, and the next lower range is selected (if there is one).

When the meter is in DCV、ACV、DCA、ACA、Ω、FREQ or CAP measurement function, the selected range is displayed on the auxiliary display.

Measuring Frequency FREQ

Press the FREQ key to select the digital frequency function, the frequency is displayed on the main display and the selected range is displayed on the auxiliary display. Select the rang manually or automatically

Frequency Measurement Rates

The rate at which frequency measurements are taken is selected by the meter automatically, when the frequency function has been selected, press RATE has no effect on the frequency update rate.

Frequency Sensitivity Selection

Before a frequency measurement is started, the amplitude of the input signal is sampled and the optimum ac voltage range is selected automatically. For more information refer to the Section 6 for ac voltage sensitivity.

The input signal sensitivity is based on sine waveforms. If the input signal is below the required level, the frequency will be displayed as zero. If the measurements are unstable, the input signal may be near the threshold level.

Select a Function Modifier (REL, HOLD, MNMX)

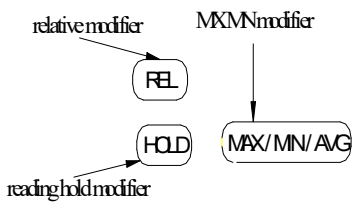

Figure 3—5

Selecting a function modifier causes the meter to perform an action on an input (e.g., convert to relative reading mode or compare to another value) before a reading is displayed. To use a function modifier, press a function key to select a primary function (including six basic functions of DCV, DCA, OHM, ACV, ACA, and CAP), and then press a function modifier key. See Figure 3-5.

REL (Relative Readings) Modifier

Press REL key to select the relative modifier. When the relative modifier is selected: the last valid reading is stored as the relative base and displayed on the auxiliary display. The reading on the main display is always the difference between the relative base and an input measurement, and the "△" annunciator turn on. Namely:

Relative Value= present measured value – reference base

For example, if the relative base is 15.000V, and the present reading is 14.100V, the main display will show -0.900V.

⚠ Warning

REMEMBER, A RELATIVE READING MAY NOT INDICATE THE PRESENCE OF DANGEROUS VOLTAGES AT THE INPUT CONNECTORS OR TEST LEADS. USE CAUTION TO AVOID ELECTRICAL SHOCK OR DAMAGE TO THE METER.

Press REL again, the relative base is displayed on the auxiliary display. The reading on the main display is REL%, and the "%" annunciator turn on simultaneous (△ in the beginning part, and % annunciator in the last part). Namely:

$$\text{REL\%} = \frac{\text{present reading-relative base}}{\text{relative base}} \times 100\%$$

For example, if the relative base is 15.000V, and the present reading is 14.100V, the main display will show -6%. Press REL again to exit the relative modifier.

Caution

The relative modifier cannot be selected if the display shows "OL" or is blank. (The display would be blank, for example, because of range changes.)

Selecting the relative modifier (REL) turns off autoranging and locks in the present range. Make sure you are in the correct range before selecting the relative modifier. If you press other keys after the relative modifier

has been selected, you will automatically exit REL.

HOLD (Touch Hold) Modifier

The Touch Hold modifier allows you to hold the measurement reading on the display.

Press HOLD to select the Touch Hold modifier. When Touch Hold is selected, "HOLD" annunciator is lit on, and the beeper emits a single beep. Press HOLD again to exit Touch Hold modifier, and the beeper emits a single beep.

MNMX (MN MX AVG) Modifier

The meter will store the minimum and maximum inputs measured when the MN MX AVG modifier is selected.

Press MN MX to select the "MNMX" modifier. When the "MNMX" modifier is first selected, the minimum, maximum and average values are set to the displayed reading and the "MAX" annunciator lights, once the maximum value showed on the main display, the beeper emits a single beep. Press MNMX again to display the minimum reading and the "MIN" annunciator lights, once the minimum value showed on the main display, the beeper emits a single beep. Press MNMX again to display the average reading on the main display ("AVG" annunciator lights). Each subsequent press of the MNMX key toggles among the maximum, minimum and average value. The measurement reading displayed on the auxiliary display. To exit the MNMX modifier, press and hold down the MN MX key for two seconds or press other function keys.

Selecting the MNMX modifier turns off autoranging and locks in the present range. Make sure you are in the correct range before selecting the MN MX modifier.

Table 3-5 Function Modifier and Measurement Function

FUN / Modifier Function	REL	HOLD	MNMX
DCV	√	√	√
ACV	√	√	√
DCA	√	√	√
ACA	√	√	√
Ω	√	√	√
CAP	√	√	√
FREQ		√	
⊣▶⊢		√	
•)))		√	

Selecting a Measurement Rate（RATE）

The meter takes measurements at one of two, user-selectable rates: slow and fast. The rate selected is indicated by “S”, “F” on the display.

Press the RATE to change the measurement rates at “S” or “F”. The selected rate applies to the basic measurement of DCV, DCA, Ω, ACV, ACA.

Connect with the USB Port of Computer

Plug one end of the devote USB cable to the communication connector on the real panel, plug the other end of the cable to the USB port of the computer, running the devote DMMVIEW_F figure restoring software, set the corresponding connector port to achieve online. When success, the COMM annunciator is lit on, the instrument transmits measured value and state to computer, thus, the computer can remote Control, display,

record, Data Analysis, print all the measurement process. use the DMMVIEW_F figure restoring software stop the communication, the instrument stop transmit measured value and the COMM annunciator disappears.

Power-on Configuration

Factory Setting of Power-on Configuration: When the meter is turned on and completes the power-on sequence, it assumes its power-on configuration. The power-on configuration set at the factory is shown in Table 3-6.

Table 3-6 Power-on Configuration Set at Factory

Parameter	Configurations	Remark
Function Setting Range Reading Rate	DC voltage（DCV） Autorange（/AUTO） Slow（S）	
Reference Value of Relative Base Value Minimum/Maximum/Average	0 0	
Back Light Time	0000 S	changeable
Continuity beep	continuous beep	changeable

Changing the Power-on Configuration

You can change the power-on configuration to one that more closely meet your needs and preferences in maintenance mode. The operation is shown as follows:

Entering Maintenance State

After turning the meter on, press the Config to enter into maintenance state.

1. Change Back Light Time

   Press AUTO, when “bLOFF” is annunciator showed on the main display. The value of setting is showed on the auxiliary display, then press ▲ or ▼ to step up or down the setting value with 60s. The limit of the

setting value is 1 hour (3600s), when the setting value is “0000” indicates that back light will not be turned off automatically and only press the ⊛ key could turn off the back light. Press the HOLD save the set value, the “SAVE” annunciator is lit on , indicating successful storage.

2. Change Temperature Display Unit
   Press AUTO, when ‘TEP-U’annunciator is showed on the main display, the Display Unit is showed on the auxiliary display, then press ▲ or ▼ to change display unit, the setting value is C or F. Press the HOLD save the set value, the “SAVE” annunciator is lit on , indicating successful storage.
3. Change the continuity beep mode
   Press AUTO key, when “BEEP” annunciator is showed on the main display, the “YES”(connect beep) or ”NO”(disconnect beep) is showed on the auxiliary display. Press the HOLD save the set value, the “SAVE” annunciator is lit on, indicating successful storage.
4. Factory set
   Press AUTO, when “FACTY” annunciator is showed on the main display, select the default factory set. To resume the factory set, Press the HOLD save the default value. Press the Config to exit factory set mode.

SECTION 4
MAINTENANCE

Caution

When servicing the meter, use only the replacement parts specified

Introduction

Section 4 provides the information necessary for the user to perform basic maintenance. Users should not attempt to perform maintenance not described in this section. Qualified service personnel should refer to this Manual for complete maintenance and calibration service.

⚠ Warning

TO AVOID ELECTRICAL SHOCK OR DAMAGING THE METER, NEVER GET WATER INSIDE THE CASE. TO AVOID DAMAGING THE METER HOUSING, NEVER APPLY SOLVENTS TO THE METER. IF THE METER REQUIRES CLEANING, WIPE IT DOWN WITH A CLOTH THAT IS LIGHTLY DAMPENED WITH WATER OR A MILD DETERGENT. DO NOT USE AROMATIC HYDROCARBONS, CHLORINATED SOLVENTS, OR METHANOL-BASED FLUIDS WHEN WIPING DOWN THE METER.

Replacing the Line Fuse

⚠Warning

OPENING THE CASE MAY EXPOSE HAZARDOUS VOLTAGES. ALWAYS DISCONNECT THE POWER CORD AND MEASURING INPUTS BEFORE OPENING THE CASE.

1. Use a screwdriver to remove the clamp seat insurance from power socket.
2. The fuse holder clamping the insurance tube, multimeter power using a 0.2A/250V (slow blow fuse).
3. The insurance will reload the gland into a power socket.

Replacing the Current Input Fuses

200mA (include 200mA) and 10A inputs are protected by user-replaceable fuses.

- The 200mA input is protected by a fuse rated at 200mA, 250V (Fast blow).
- The 10A input is protected by a fuse rated at 11A, 250V (Fast blow).

Testing Current Input Fuses

Perform the following procedure to test these fuses:

1. Short the V, Ω, ⊣▶⊢ input terminal and the mA terminal with a test lead.
2. Press Ω to select the ohms function. Insert the test lead probe into the mA input terminal. If the fuse is good, the meter will read between 1Ω to 19Ω. If the fuse is blown, the meter will read >10MΩ to OL.
3. Remove the test lead probe from the mA input terminal and insert it into the 10A input terminal. If the fuse is good, the meter will read between 0.00 and 0.05Ω. If the fuse is blown, the meter will read >10MΩ to

OL.

Replacing the Current Input Fuses

⚠Warning

FOR PROTECTION AGAINST FIRE, REPLACE A BLOWN FUSE ONLY WITH ONE OF IDENTICAL

The input fuse is mounted on the input socket on the front panel (see Figure 4-1). To replace the fuse, first pull out the power connection line and test the input line, then remove the measuring terminal cover from the side of the instrument panel, replace the fuse fuse with the same fuse, and then reload the measuring terminal cover.

Figure 4-1

SECTION 5
SPECIFICATIONS

Introduction

This Section contains the specifications of the Dual Display Multi-meter. These specifications assume:

- A 1-year calibration cycle
- An operating temperature of 18℃ to 28℃ (64.4℉~82.4℉)
- One-hour warm-up
- Slow reading rate
- Relative humidity not exceeding 70% (non-condensing)

Accuracy is expressed as ± (percentage of reading + digits).

Reading Rates

Rate	Readings per Second
Slow（S）	3
Fast（F）	20

DC Voltage（DCV）

Range	Resolution	Accuracy
200mV	10uV	0.05%+4
2V	100 uV	0.05%+4
20 V	1 mV	0.05%+4
200 V	10 mV	0.05%+4
1000V	100 mV	0.1%+4

Input Impedance: 200mV range >100MΩ and 10MΩ at other ranges.

Normal Mode Rejection Ratio (NMR):≥80dB (at 50Hz or 60Hz （1KΩ unbalanced resistance）)
Common Mode Rejection Ratio (CMR): ≥120dB (at 50Hz or 60Hz)
Maximum Input Voltage:1000V peak

TRUE RMS AC VOLTAGE, AC-COUPLED

Range	Resolution	45~400Hz	400Hz~1KHz
200mV	10uV	1%+40	3%+40
2V	100 uV	0.5%+40	3%+40
20V	1 mV	0.5%+40	
200V	10 mV	0.5%+40	
750V	100 mV	1%+40	

Remark: Accuracy specifications apply to the range from 10% to 100%
Input Impedance: 200mV range >100MΩ， 10 MΩ at other ranges, less than 100pF
Maximum Crest Factor: 3.0
Common Mode Rejection Ratio: >80 dB at 50Hz or 60Hz (1KΩ unbalanced resistance)
Maximum Input: 750V rms, 1000V peak.

DC CURRENT （DCA）

Range	Resolution	Accuracy	Input Impedance
0.2mA	0.01uA	0.2%+20	1000Ω
2mA	0.1uA	0.2%+10	100Ω
20mA	1uA	0.2%+10	10Ω
200mA	10uA	0.2%+10	1Ω
10A	1mA	0.5%+20	0.01Ω

Maximum Input :200mA. Protected with a 200mA, 250V fast blow fuse;
10A. Protected with a 10A, 250V fast blow fuse. for 30 seconds maximum.

TRUE RMS AC VOLTAGE, AC-COUPLED

Range	Resolution	Accuracy
		45Hz~1KHz
0.2mA	0.01uA	0.8%+30
2mA	0.1uA	0.8%+30
20mA	1uA	0.8%+30
200mA	10uA	0.8%+30
10A	1mA	1.5%+20

Maximum Input: 200mA. Protected with a 200mA, 250V fast blow fuse; 10A. Protected with a 10A, 250V fast blow fuse. for 30 seconds maximum

Maximum Crest Factor: 3.0

Resistance（OHM）

Range	Resolution	Accuracy	Open Circuit Voltage	Short Circuit Current
200Ω	10mΩ	0.2%+10	About 2.3V	About 800uA
2KΩ	100mΩ	0.2%+5	About 2.3V	About 200uA
20KΩ	1Ω	0.2%+5	About 2.3V	About 24uA
200KΩ	10Ω	0.5%+5	About 2.3V	About 3uA
2MΩ	100Ω	0.6%+5	About 2.2V	About 0.1uA
20MΩ	1KΩ	1%+40	About 1.8V	About 0.1uA
60MΩ	10KΩ	5%+20	About 1.8V	About 0.1uA

Maximum Input Voltage: 250V dc or RMS ac on all ranges

DIODE TEST（⊳）/CONTINUITY （•))）

Range	Measuring Scope	Resolution	Sensitivity
2V	0～2.2000V	0.0001V	1%+10
600Ω	0～600.0Ω	100mΩ	About ≤40ΩBB

Capacity（CAP）

Range	Measuring Scope	Resolution	Accuracy
10nF	0～11.00nF	0.01nF	5%+50
100nF	0～110.0nF	0.1nF	5%+5
1000nF	0～1100nF	1nF	5%+5
10μF	0～11.00μF	0.01uF	5%+5
100μF	0～110.0μF	0.1uF	5%+5
1000μF	0～1100μF	1uF	5%+50

Frequency（FREQ）

Range	Resolution	Accuracy	Sensitivity	Remark
10Hz	0.0001Hz	0.02%+4	≥200mV RMS	The reading is zero for frequency less than 3Hz
100Hz	0.001Hz			
1000Hz	0.01Hz			
10KHz	0.1Hz			
100KHz	1Hz			
1000KHz	10Hz			
10MHz	100Hz		undesignated	

TC Measurement

Division No.	Measurement Scope	Resolution	Accuracy
K	-200.0°C～1372.0°C	0.1°C	0.5%+5°C
	-328.0°F～2501.6°F	0.1°F	0.5%+5°F
1. Comply with ITS-90 temperature standard. 2. Errors for RTD compensation are not included in the accuracy.			

Environmental Conditions:

Temperature Coefficient : <0.1 times the applicable accuracy specification per degree C for 5℃ to 18℃ and 28℃ to 40℃.

Operating Temperature : 5℃ to 40℃

Storage Temperature : -25℃ to 50℃

Relative Humidity : ≤90% at 5℃ to 28℃ (non-condensing)
≤80% at 28℃ to 40℃
≤70% at 10℃ to 40℃ for the 200KΩ, 2MΩ, 20MΩ and 60MΩ resistance ranges.

General Specifications:

Common Mode Voltage: 1000V dc or peak ac maximum from any input to earth

Size: 245×220×82(mm)

Weight: about 2Kg

Power: about 3VA

Accessories:

A couple of test leads

A power line cord

A Users Manual or A Quick Reference Guide
A disk
A USB serial port communication wire

SECTION SIX
Notes for the Manual

- The present operation instruction is subject to change without notice.
- The content of the operation instruction is regarded as correct. Whenever any user finds its mistakes, omission, etc., he or she is requested to contact the manufacturer.
- The present manufacturer is not liable for any accident and hazard arising from any Mis-operation.
- The functions described in this operation instruction should not be used as grounds to apply this product to a particular purpose.