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### Introduction

The Uni-Trend UT712 Volt/mA Calibrator is a source and measurement tool for 0 to 20mA current loop testing and DC Voltage from 0 to 20V. The calibrator does not source and measure simultaneously.






Your calibrator has a unique design and large LCD can read the data clearly.

Your calibrator is supplied with the following:

User Manual	1 piece
Test Leads	1 set
Alligator Clip	1 set
Carrying Bag	1 piece
9V alkaline battery (ANSI/NEDA 1604A or IEC 6LR61)	1 piece

If the calibrator is damaged or something is missing, contact the place of purchase immediately.

### International Symbols

Symbol	Meaning
	Earth ground
	Refer to this user manual for information about this feature.
	Battery
	Double insulated
	Conforms to European Union directives.


### Safety Information

Use the calibrator only as specified in this user manual, otherwise the protection provided by the calibrator may be impaired.

A **Warning** identified conditions and actions that pose hazard(s) to her user.

### **Warning**

To avoid possible electric shock or personal injury:

- Never apply more than 30V between any two jacks (terminals), or between any jack and earth ground.
- Make sure the battery door is closed before you operate the calibrator.
- Remove test leads from the calibrator before you open the battery door.
- Do not operate calibrator if it is damaged.
- Do not use or store the calibrator in an environment of high temperature, humidity, explosive, inflammable and strong magnetic field. The performance of the Meter may deteriorate after dampened.
- When servicing the calibrator, use only specified replacement parts.
- Use the proper jacks, function, and range for your measurement or output application.
- To avoid false readings, which could lead to possible electric shock or personal injury, replace the battery as soon as the battery indicator () appears.
- Turn the calibrator off when it is not in use and take out the battery when not using for a long time.

- **Constantly check the battery as it may leak when it has not been using for some time, replace the battery as soon as leaking appears. A leaking battery will damage the calibrator.**
- **The internal circuit of the calibrator shall not be altered at will to avoid damage of the calibrator and any accident.**
- **When the calibrator is off, the jacks cannot connect to any loading or they must not be short circuit between jacks.**  
**When the calibrator is carrying out measurement, do not contact any bare cable, connector, used jacks or the circuit under test.**

### The Calibrator Structure

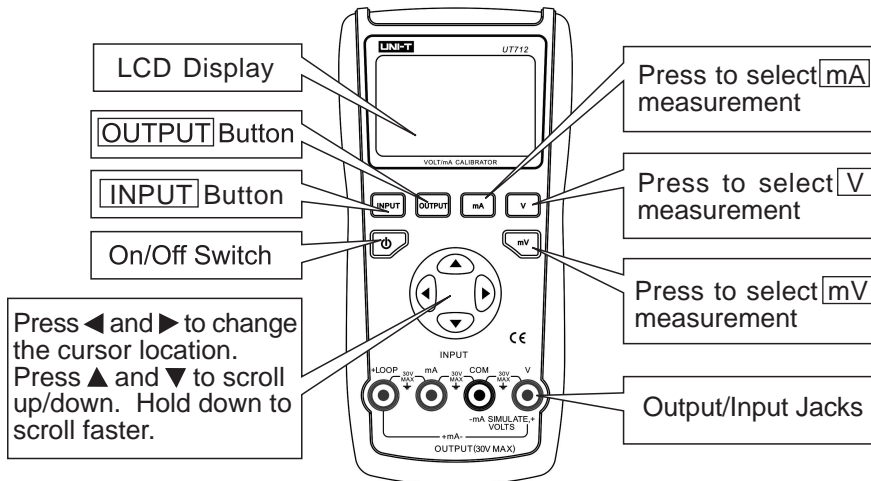


Figure 1

### LCD Display

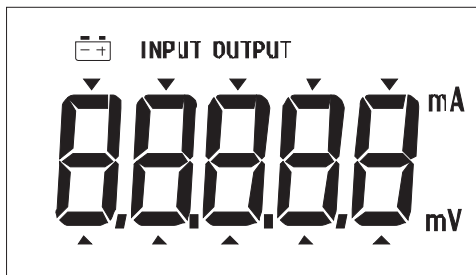




Figure 2

<b>OUTPUT</b>	The calibrator is in output mode
<b>INPUT</b>	The calibrator is in input mode
<b>mV, V, mA</b>	The measurement unit of the current reading
	Battery is low. Replace the battery
	The current cursor location



### Turning the Calibrator On

Press the yellow pushbutton to turn the calibrator on and off. Turn off the calibrator when not in use.

### Measuring DC Volts (V and COM jack)

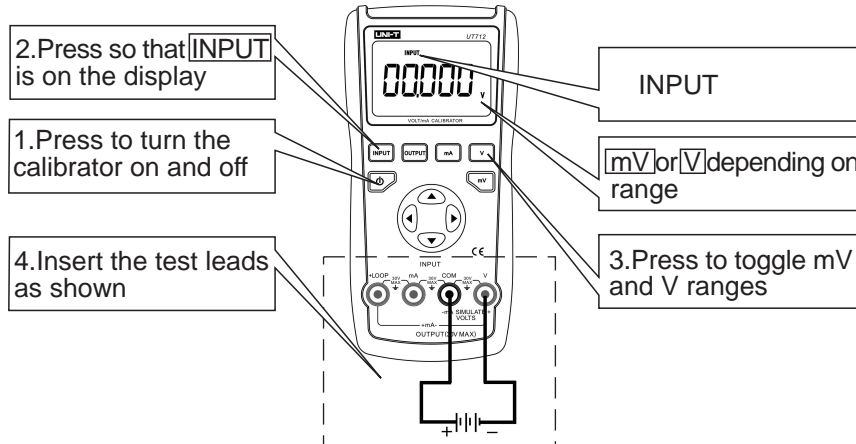
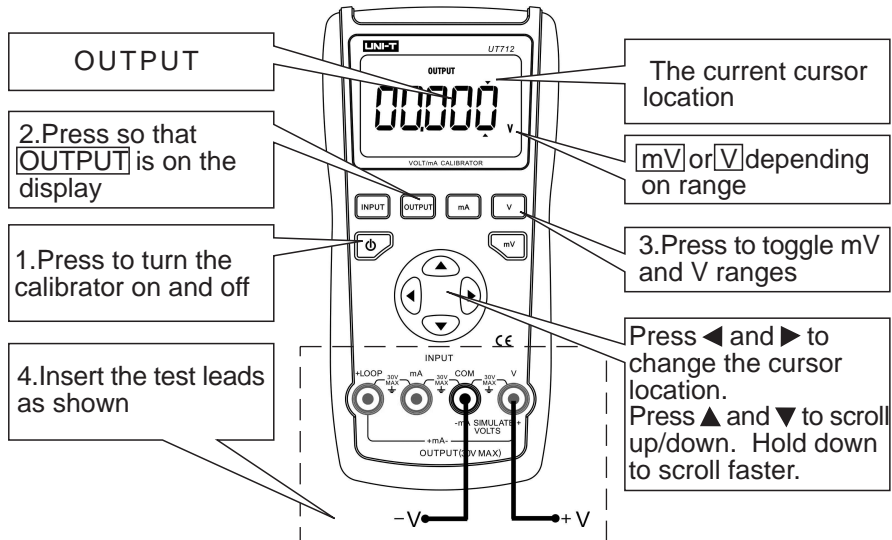


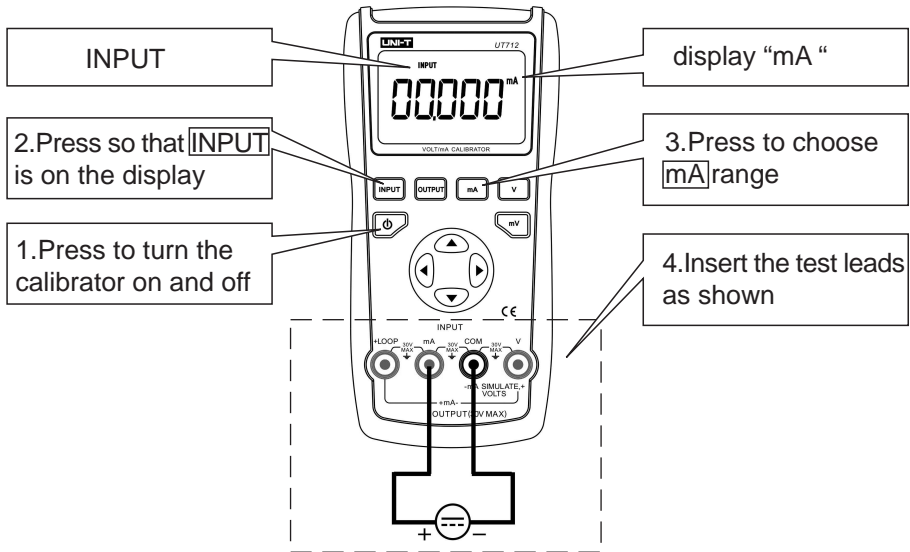
Figure 3

### Sourcing DC Volts (V and COM jack)



## Model UT712: OPERATING MANUAL

### Measuring DC mA (mA and COM jack)



### Measuring DC mA with Loop Power (LOOP and mA jack)

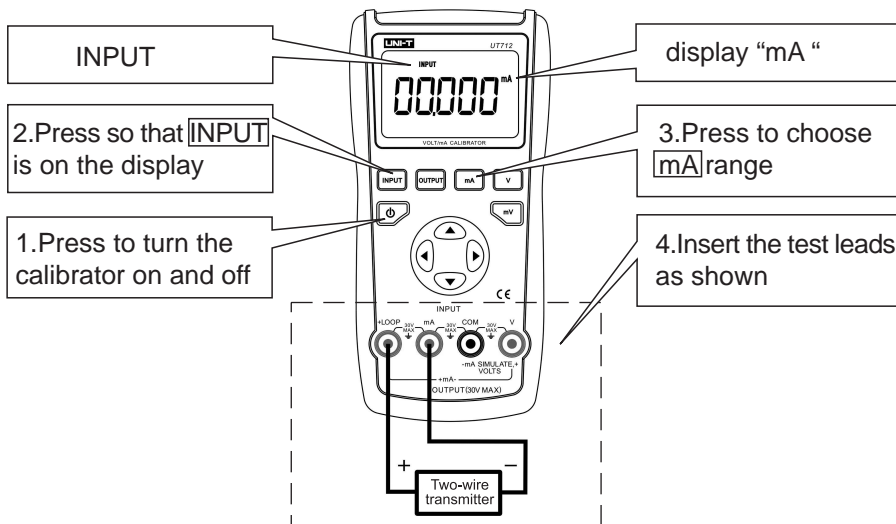


Figure 6

### **Using the Current Output Modes**

In source mode, the calibrator supplies the current. In simulate mode, the calibrator simulates a two-wire transmitter in an externally-powered current loop

#### **Sourcing mA**

Use source mode whenever you need to supply current into a passive circuit such as a current loop with no loop supply. Insert the test leads into the OUTPUT + and – mA jacks as shown on figure 7.

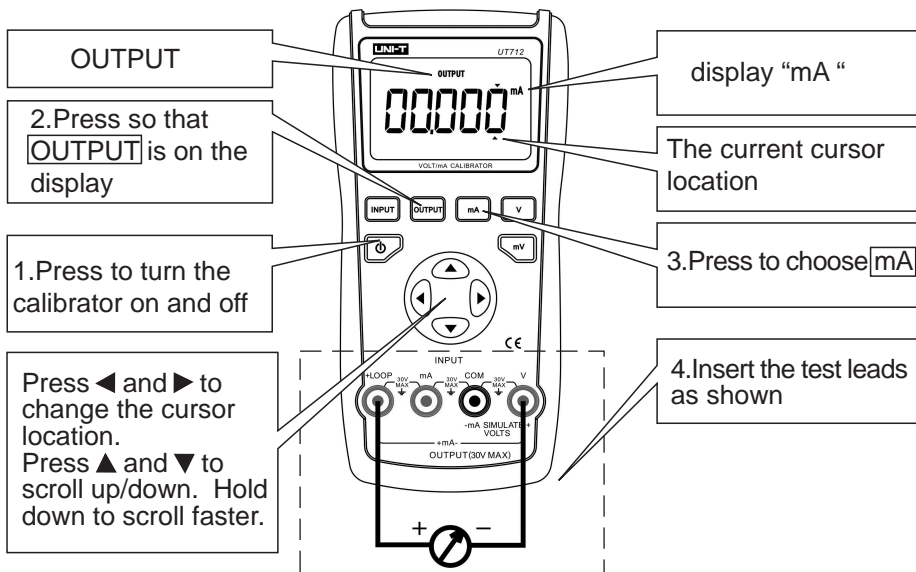


Figure 7

## Model UT712: OPERATING MANUAL

### Simulating a Transmitter

Use simulate mode when an external 24 to 30V loop power supply is available. Insert the test leads into the mA SIMULATE – and + jacks as shown below figure 8.

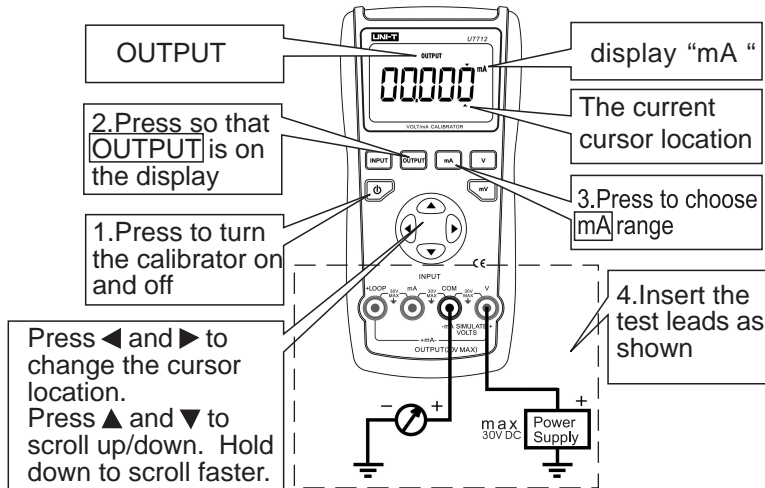


Figure 8

### Maintenance

Below provides basic maintenance information including battery and fuse replacement instruction.

#### **Warning**

**Do not attempt to repair or service your Meter unless you are qualified to do so and have the relevant calibration, performance test, and service information.**

#### In Case of Difficulty

- 1 Check the battery and test leads. Replace as necessary.
- 1 Review this user manual to make sure you are using the correct jacks and pushbuttons.

#### Cleaning

Periodically wipe the case with a damp cloth and detergent; do not use abrasives or solvents.

#### Calibration

Calibrate your calibrator once a year to ensure that it performs according to its specifications.



## Replacing the Fuses

 **Warning**

**To avoid electrical shock or arc blast, or personal injury or damage to the Meter, use specified fuses ONLY in accordance with the following procedure.**

Follow Figure 9 and proceed as follows to replace the Meter's fuse:

- 1 Turn the calibrator off and remove all connections from the terminals.
- 1 Remove the screw from the battery compartment, and separate the battery compartment from the case bottom.
- 1 Remove the three screws from the case bottom, and separate the case bottom from the case top.
- 1 Remove the fuse by gently prying one end loose, then take out the fuse from its bracket.
- 1 Install ONLY replacement fuses with the identical type and specification as follows and make sure the fuse is fixed firmly in the bracket.

Fuse 1: 125mA, 250V, fast type fuse,  
ø5x20mm

Fuse 2: 125mA, 250V, fast type fuse,  
ø5x20mm

- 1 Rejoin the case bottom and case top,  
battery compartment and case bottom,  
and install all the screws.

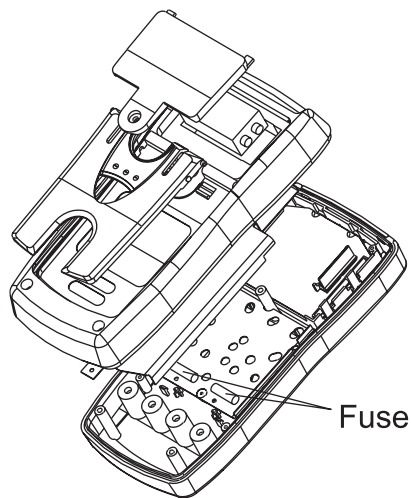


Figure 9

### Replacing the Battery

#### **Warning**

**To avoid false readings, which could lead to possible electric shock or personal injury, replace the battery as soon as the battery indicator () appears.**

Follow Figure 9 and proceed as follows to replace the battery.

- 1 Turn the calibrator off and remove all the connections from the terminals.
- 1 Remove the screw from the battery compartment, and separate the battery compartment from the case bottom.
- 1 Replace with a new 9V alkaline battery (ANSI/NEDA 1604A or IEC 6LR61)
- 1 Rejoin the case bottom and the battery compartment, and reinstall the screw,

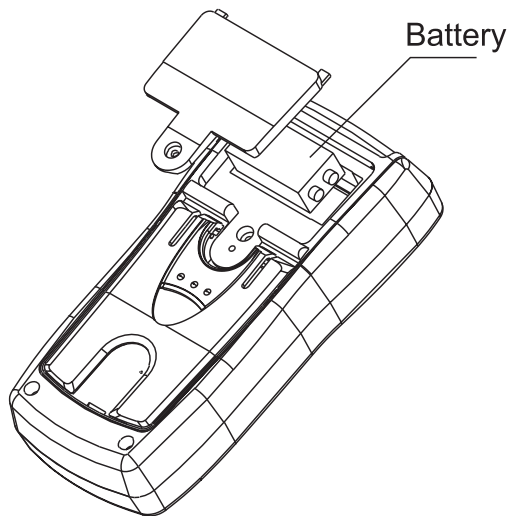


Figure 10

## Specifications

Specifications are based on a one year calibration cycle and apply from +18°C to +28°C unless stated otherwise.

### DC Voltage and DC Current Input

Input	Range	Input Range	Resolution	Accuracy
DC Voltage	200mV	(0.00~200.00) mV	0.01mV	±(0.04% readings +3 digits)
	20V	(0.000~20.000) V	0.001V	
DC Current	20mA	(0.000~20.000) mA	0.001mA	
Loop Current	20mA	(0.000~20.000) mA	0.001mA	
Input impedance: 1M (nominal). When the input value is over the range, the LCD displays OL.				

### DC Voltage and DC Current Output

Output	Range	Output Range	Resolution	Accuracy
DC Voltage	200mV	(0.00~200.00) mV	0.01mV	±(0.04% readings +3 digits)
	20V	(0.000~20.000) V	0.001V	
DC Current	20mA	(0.000~20.000) mA	0.001mA	
Simulate mode	20mA	(0.000~20.000) mA	0.001mA	
Loop Power	24V			

1 Voltage drive capability: 1mA.  
 1 **Source mode:**  
 Compliance: 700 at 20mA for battery voltage >6.5V  
 1 **Simulate mode:**  
 External loop voltage requirement: 24V nominal, 28V maximum, 12V minimum.

## General Specifications

- 1 **Resolution:**
  - DC Voltage:**0.01mV (200mV range), 0.001V (20V range)
  - DC Current:**0.001mA (20mA Range)
- 1 **Maximum voltage applied between any jack and earth ground or between any two jacks:** 30V
- 1 **Storage temperature:** -10°C to 55°C
- 1 **Operating temperature:** 0°C to 50°C
- 1 **Operating altitude:** 3000 meters maximum
- 1 **Temperature coefficient:**  $\pm 0.005\%$  of range per °C for the temperature ranges 0 to 18°C and 28 to 50°C.
- 1 **Relative humidity:** 95% up to 30°C, 75% up to 40°C, 45% up to 50°C
- 1 **Vibration:** Random 2g, 5 to 500Hz
- 1 **Shock:** 1 meter drop test
- 1 **Safety:**Complies with EN61326-1;2006,EN61326-2-2;2006
- 1 **Power requirements:** Single 9V Alkaline battery (ANSI/NEDA 1604A or IEC 6LR61)
- 1 **Size:** 193mm x 96mm x 47mm
- 1 **Weight:** around 0.45kg with battery

\*\* END \*\*

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