



***Process V/mA
calibrator
ZUTEMER 04***

User Manual

www.zutemer.cz

WARRANTY

Our company warrants to the original purchaser that each product it manufactures will be free from defects in material and workmanship under normal use and service for a period of one year from date of purchase. Our company's warranty does not apply to fuses, test leads or any product which, in our company's opinion, has been misused, altered, or damaged by accident or abnormal conditions of operation or handling.

To obtain warranty service, contact your nearest Service Center (or send the product, with a description of the difficulty, and postage prepaid, to the nearest Service Center). Our company assumes no risk for the damage in transit. Our company will, at its option, repair or replace the defective product free of charge or refund your purchase price. However, if our company determines that the failure was caused by misuse, alterations, accident or abnormal condition of operation or handling, you will be billed for the repair and the repaired product will be returned to you transportation prepaid.

SHIPPING TO MANUFACTURER FOR REPAIR OR ADJUSTMENT

All shipment of our company's instruments should be made via United Parcel Service or "Best Way" prepaid. The instrument should be shipped in the original carton; or if it is not available, use any suitable container that is rigid and of adequate size. If a substitute container is used, the instrument should be wrapped in paper and surrounded with at least

four inches of excelsior or similar shock-absorbing material.

CLAIM FOR DAMAGE IN SHIPMENT TO ORIGINAL PURCHASER

The instrument should be thoroughly inspected immediately upon original delivery to purchaser. All material in the container should be checked against the enclosed packing list. The manufacturer will not be responsible for shortages against the packing sheet unless notified immediately.




If the instrument is damaged in any way, a claim should be filed with the carrier immediately. (To obtain a quotation to repair shipment damage, contact the nearest Service Center.) Final claim and negotiations with the carrier must be completed by the customer.

INDEX



	P a g e
1. Safety Information.....	1
2. Instrument Panel Layout and Functions.....	2
3. Instrument Maintenance.....	2
4. Power-on/off of Instrument.....	4
5. Output from Instrument.....	4
6. Setting Function.....	7
7. Performance Index.....	8
8. Notice of the Manual.....	9

Section One Safe Use

To ensure safe use, the meter and manual employ the following symbols:

-  **Warning** identifies conditions and actions that may pose hazard(s) to the user and avoid methods.
-  **Caution** identifies conditions and actions that may damage the meter or the equipment under test and avoid methods.
-  **Note** reminds Users of knowledge of symbols for the operation and explanations of the features.

To avoid possible electric shock or any other dangers, please do follow the under-mentioned rules:

-  **Warning**
 - Do not operate the meter around explosive gas, vapor, or dust, which is extreme dangerous.
 - Never apply voltage exceeding 30V between any two terminals and earth ground terminals.
-  **Caution**
 - Do not open the meter's case except for the professional technicians.
 - Use a damp cloth with neutral detergent for cleaning the meter periodically. Do not use abrasives or solvents.

Note

- To ensure accuracy, preheat for 5 minutes after power-on.
- Please contact the manufacture or dealers if the Users have higher accuracy requirement.

Section Two Components and functions of Meter's Panel

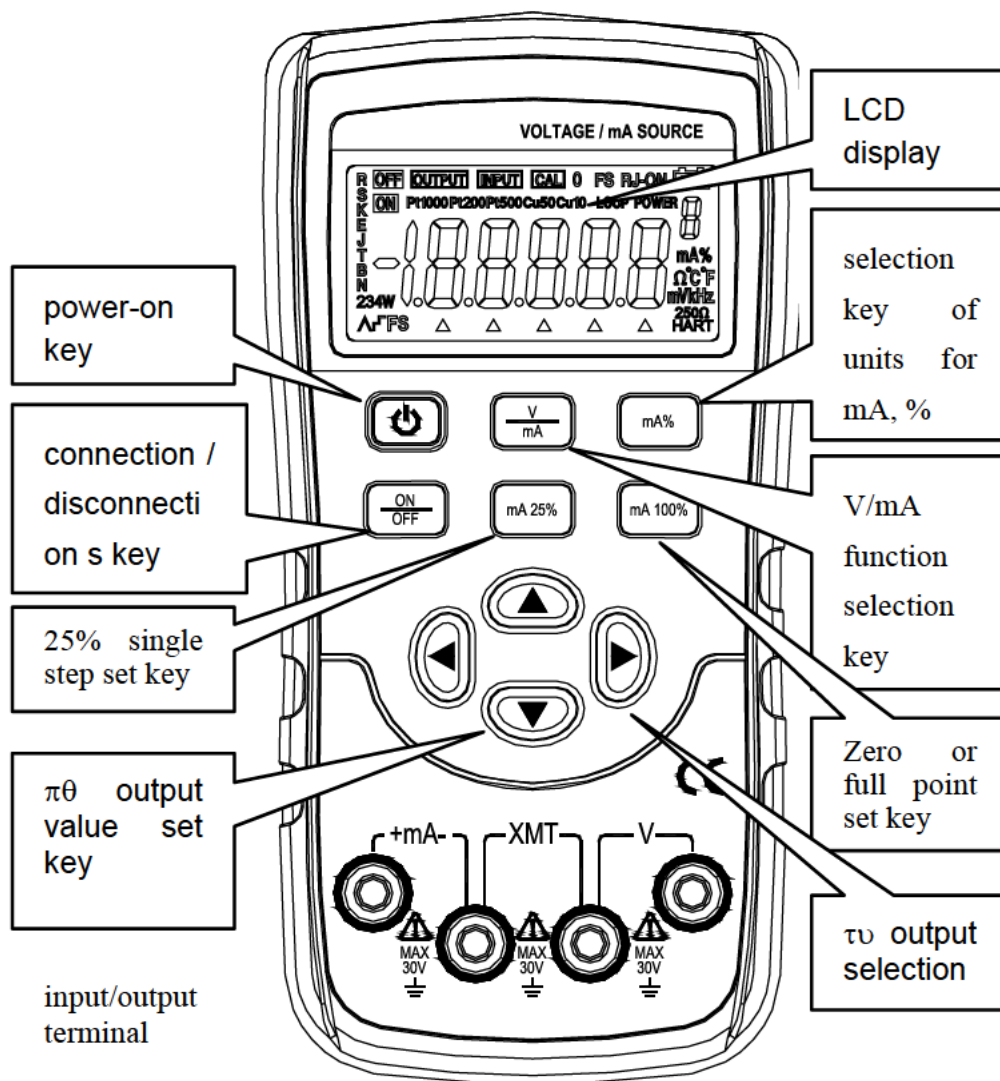
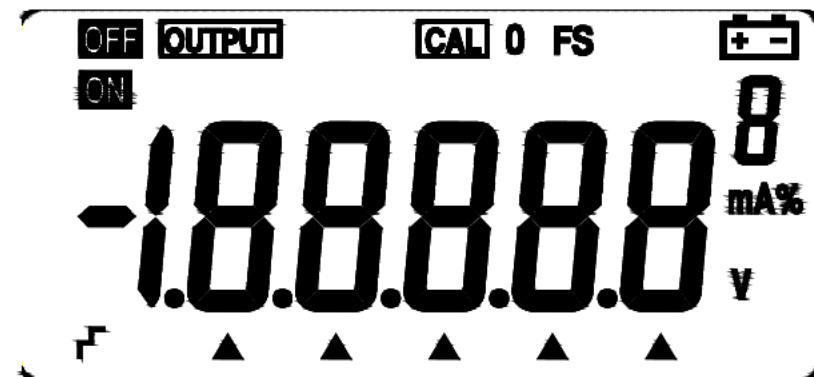



Illustration for LCD display area



OUTPUT : indicates the meter is in output state.

CAL : indicates the meter is in calibration state.

0 FS : indicates the present calibrated zero point or full point etc. when the meter is in calibration state.

 : indicates the batteries are exhausting and need replacement.

π : indicates present set output value.

V, mA, % : indicates the unit for present output or input value.

ON, OFF : indicates connection or disconnection of output signals.

- : indicates 25% step output or zero/full point output.

Section Three Maintenance

This section provides some basic maintenance procedures. Repair, calibration, and servicing not covered in this manual must be performed by qualified

personnel. For maintenance procedures not described in this manual, contact a Service Center.

(1) General maintenance

- Periodically wipe the case with a damp cloth and detergent; do not use abrasives or solvents.
- Take out the batteries if the meter won't be used for a long time.
- Dirt or moisture in the terminals can affect readings.

Clean the terminals as follows:

- (1) Turn the meter off and remove all test leads.
- (2) Shake out any dirt that may be in terminals.
- (3) Soak a new swab with alcohol. Clean each terminal with the swab.

(2) Replacing the batteries

The meter is powered by two LR6 alkaline batteries (AA).

⚠ Warning

To avoid electrical shock or personal injury:

- Remove test leads from the meter before opening the battery door.
- Close and latch the battery door before using the meter.

⚠ Note

- The new and old Batteries can not be mixed.
- Make sure the battery's poles are in accordance with the marks illustrated in battery pool when replacing them.
- Take out the batteries if the meter won't be used

for a long time.

- Dispose the old batteries in accordance with the local law.

Replace the batteries as follows (See Figure 3-1):

1. Turn the rotary switch to OFF and remove the test leads from the terminals;
2. Take off the support of the meter, remove the battery door by a standard-blade screwdriver, and then take off the battery case;
3. Replace with two new batteries;
4. Reinstall the battery case, spin the screws and tighten screws.

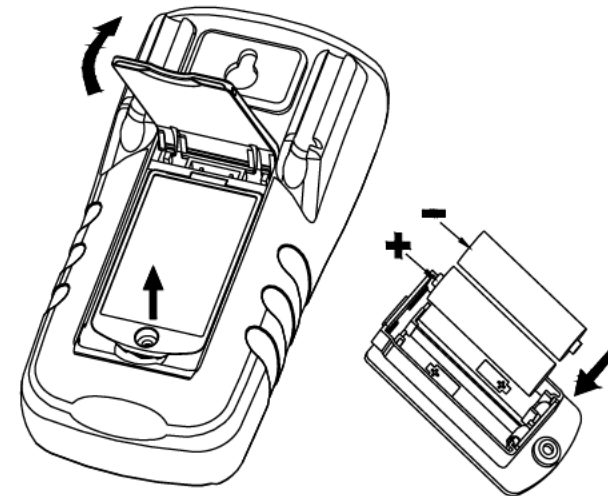


Figure 3-1 replacing batteries

Replacing Fuse

⚠ Warning

To avoid personnel injury or damage to the meter,

use only the specified fuse. The specification is 63mA 250V fast-melt.

Replace the fuse as follows (Refer to Figure 3-2 if necessary):

1. Remove the test leads from the meter and turn the meter OFF;
2. Take off the protector of the meter, remove the four screws by using a standard-blade screwdriver, and then take off the cover;
3. Replace the blown fuse(s);
4. Reinstall the cover;
5. Reinstall the meter's protector.

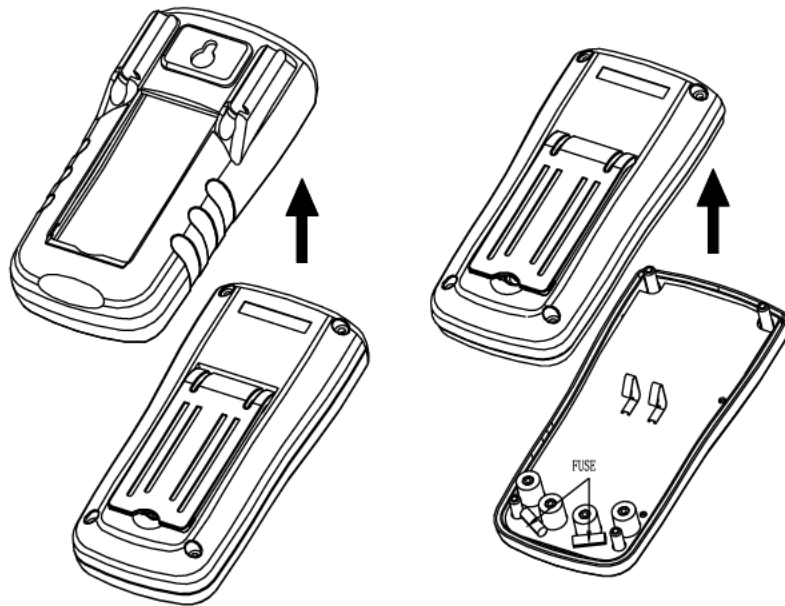


Figure 3-2 Replacing fuse

Section Four Power on/Power off the Meter

(1) Turn on/off the meter

Press (power) key to electrify the meter, and repress (power) key for more than 1 second to cut off the power.

When turning on the power, the meter starts to make inner diagnose and display in full screen, and then undertakes corresponding operation.

⚠ Note

To ensure correct electrifying operation, please wait for 5 seconds to turn on the meter again after cutting off the power.

(2) Automatically turn off the power

The default factory value is set as: the meter will automatically turn off if no operation has been made within 15 minutes.

The Users can set by themselves to choose whether using this function or not (See Section Seven).

Section Five Output of the Meter

The meter generates DC current or simulate resistance set by the Users from the corresponding output terminals (OUTPUT) .

⚠ Caution

Do not apply any voltage to output terminal; otherwise damage to interior circuit may occur if the voltage is not proper.

Output operation flow

Function operation	% operation	Display	Setting range
DCV 10V		0.000 V	0.000V ~ 11.000 V
DCI 20mA	20 mA 2 %	00.000 mA -025.00 mA %	00.000 ~ 22.000 mA -025.00 ~ 112.50 mA %

Voltage output

1. Insert the testing probe into the V jack of the meter's output terminal (OUTPUT), and connect the other end with input terminal of the Users' meter, see Figure 5-1:

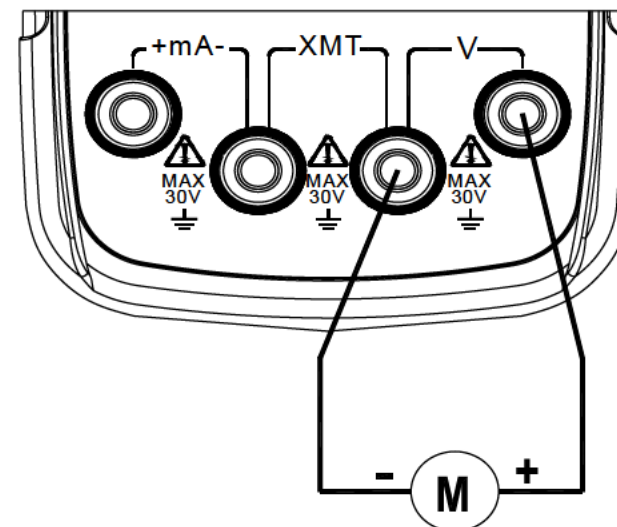


Figure 5-1

2. Press (V/mA) key, select V function, and display 'V' unit;
3. Press (τ) / (υ) key, select output set bit;
4. Press (π) / (θ) key, change the value of set bit, and the value can carry or abdicate automatically, and hold the key, the value will alter constantly after one second.
5. Press (ON/OFF) key, then connect / disconnect the power and the LCD displays 'ON' or 'OFF'.

Current output

1. Insert the testing probe into the +mA- jack of the

meter's output terminal (OUTPUT), and connect the other end with input terminal of the Users' meter, see Figure 5-2:

2. Press (V/mA) key , select mA function, and display 'mA' unit;
3. Press (mA%) key , select output for mA set in form of value or percentage , and the LCD displays in unit 'mA' or 'mA%'; in which: the value for 0 % is 4mA; the value for 100 % is 20mA.

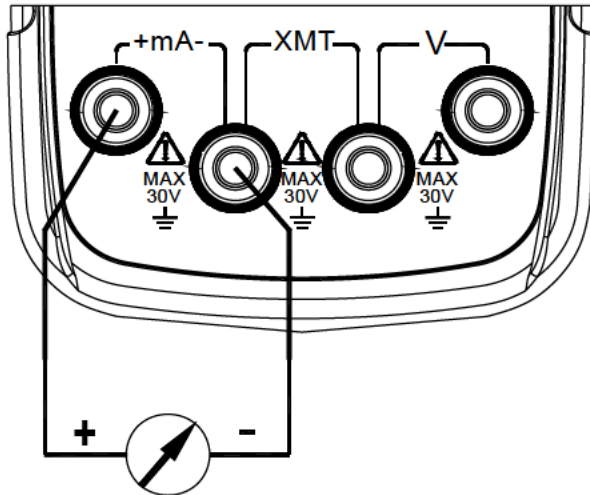


Figure 5-2

4. Press (τ) / (υ) key, select output set bit;
5. Press (π) / (θ) key , change the value of set bit, and the value can carry or abdicate automatically, and hold the key, the value will alter constantly after one second.
6. Press (ON/OFF) key, then connect / disconnect the power and the LCD displays 'ON' or 'OFF'.

25% step current output

1. Connect as shown in Figure 5-2;
2. Press (V/mA) key , select mA function, and display 'mA' unit;
3. Press (mA 25%) key , and the LCD displays ' ' and 'π' symbols;
4. Press (mA%) key , select output for mA set in form of value or percentage , and the LCD displays in unit 'mA' or 'mA%';
5. Press (π) / (θ) key, and the output value can be changed by 25 in which: the value for 0 % is 4mA; the value for 100 % is 20mA.
6. Repress (mA 25%) key to exit from the step current output.
7. Press (ON/OFF) key, then connect / disconnect the power and the LCD displays 'ON' or 'OFF'.

Zero/full point set current output

1. Connect as shown in Figure 5-2;
2. Press (V/mA) key , select mA function, and display 'mA' unit;
3. Press (mA 100%) key , and the LCD displays ' ' and 'π' symbols;

- ' , 'π' , '0' and 'FS' symbols.
- Press (π) key to set selection as 100% , and the current outputs (20mA) . Press (θ) key to set selection as 0% , and the current outputs (4mA) .
 - Repress (100%/START) key to exit zero/full point set current output.
 - Press (ON/OFF) key, then connect / disconnect the power and the LCD displays 'ON' ' or 'OFF'.

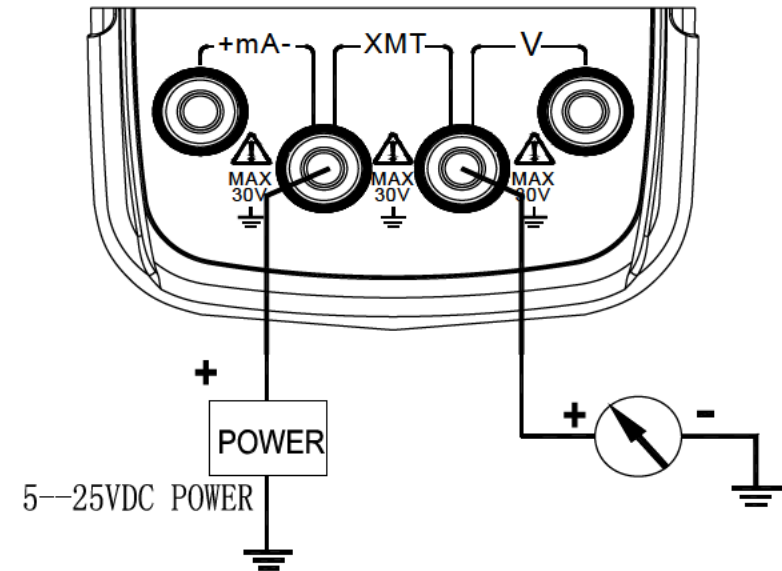


Figure 5-3

Simulate transmitter output (XMT)

- Insert the testing probe into the XMT jack of the meter's output terminal (OUTPUT), and connect the other end with input terminal of the Users' meter, see Figure 5-3:
- Operation for other key is the same as current output.

⚠ Note

- Power supply range: 5~25VDC
- Usage: it is better to employ 24VDC external power source when outputting current and transmitter connection method, which can prolong batteries' life-span extremely.

Section Six Function Setting

The following operation can change the automatic power off function of the meter:

When the meter is in power off state, press (mA%/V) key and press (power) key simultaneously, wait until the full-display is over then release the (mA%/V) key, the meter enters into maintenance state and the LCD displays 'AP-XX'

Press (π) , (θ) key and the LCD displays symbol 'AP-OF', the meter stops automatically power-off

function ; The LCD displays symbol 'AP-ON', the meter restores automatically power-off function.

Press (100%/START) key to store selection.

The meter exits from maintenance state if cutting off the power again.

Section Seven Performance Index

Accuracy is specified for a period of one year after calibration, at $23\pm 5^{\circ}\text{C}$, with relative humidity to 75%.

Accuracy specifications are given as: \pm ([% of reading] + [number of least significant digits]) ("Counts" refers to the number of increments or decrements of the least significant digit).

Output	Range	Output range	Resolution	Accuracy	Illustration
DC voltage DCV	10V	0.000~11.000V	0.001V	0.05%+2	Max. output current 5mA
DCA	20mA	0.000~22.000mA	0.001mA	0.05%+4uA	20mA Max. load $1\text{K}\Omega$
simulate transmitter(sinking current)	-20mA	0.000~-22.000mA	0.001mA	0.05%+4uA	20mA Max. load $1\text{K}\Omega$ Note: power supply range: 5~25VDC
Loop power	24V			$\pm 10\%$	Max. output current 25mA

General Feature

- power : two 1.5V alkaline batteries(LR6)
- power consumption : about 400mA /3V, in condition of $1\text{k}\Omega$ load and 20mA output
- maximum allowed : 30V (within terminals or between terminal and earth ground)
voltage
- operation temperature : $0^{\circ}\text{C}\sim 50^{\circ}\text{C}$

- range
- operation humidity : $\leq 80\%RH$
- range
- storage temperature : $\leq -10^{\circ}C \sim 55^{\circ}C$
- range
- storage humidity range : $\leq 90\%RH$
- temperature coefficient : $0.1 \times (\text{dedicated accuracy}) \%/^{\circ}C$ ($5^{\circ}C \sim 18^{\circ}C$ 、 $28^{\circ}C \sim 40^{\circ}C$)
- measurement : $180 (L) \times 90 (W) \times 47 (D) mm$ (with protector)
- weight : about 500g
- accessory : User's Manual, industrial testing lead CF-36 (clips for probe)
- safety : complies with IEC1010 (safety standard issued by International Electrician Committee)

Section Eight Note 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 the customer misuse or inadvertent operation;
- The functions described in this operation instruction should not be used as grounds to apply this product to a particular purpose.