UNI-T®

UT255A/UT255B

Operating Manual

High Voltage Clamp Ammeters

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REV.2

Contents

⚠ Warnings

Thank you for purchasing UNIT series high voltage clamp ammeter.
In order to use the product properly, please follow instructions below:
-----Read this manual carefully and the operator is required to fully understand the manual and operate skillfully before beginning on-site tests.
-----Strictly observe safety rules and notes mentioned in this manual.

- Please use the meter carefully, especially when measuring circuits with higher than AC100V
- Insulation bar must be used if measuring voltage higher than 600V.
- Given high potential risks of high-voltage circuits, the operator is allowed to perform on-site tests only after having received strict training and relative national operation certificate.
- Pay attention to word labels and symbols on front and back panels

- Do not place and store the meter on sites exposed to high temperature, Humidity, moisture condensing, and strong sunshine.
- Please ensure right polarity when changing the battery, and take out if not used for a long time
- Only authorized staff is allowed to discharge and repair the meter.
- Do not use the meter if the clamp jaw and other parts are found with any damage.
- Try to avoid jaw strike and keep the meter regularly maintained. Soft cloth (eg: glass cloth) dampened with anti-rust and dehumidified lubricant(eg: WD-40). not corrosive or rough cloth is expected to use for cleaning the meter.
- Please stop using and pack the meter immediately for authorized treatment if further operation will cause potential risks.
- “ ⚠ ” is used on the meter and in this manual to indicate users should observe safety notes.

- “ ⚡ ” is used on the meter and in this manual to indicate users must strictly follow safety rules
- Insulation strength testing is expected to perform at least one time a year for the meter (AC100kV/rms, performed on fifth insulation rod and the tester housing).
- Items marked with “ * ” in the manual is for UT 255B model only : (with wireless data transmission).

I. Introduction

High voltage clamp ammeter stands out from traditional concept and is especially designed for on-line measurement on current, leakage current of high-voltage lines and determining working status of zinc oxide arrester. It is supported by latest CT and screening technologies and made up of exclusively high-voltage tester and high-voltage insulation rods. UT255B, in particular can offer wireless data transmission function and be equipped with wireless receiver that allows it to straightly receive data within 20 meters. The meter is also used as kinds of low-voltage leakage current clamp tester and amperemeter that are capable of accuracy up to 0.01mA .You had better to use wireless transmission model when focusing on measuring extremely small flow of leakage current or current and at the same time offered with timely data display.The design to integrate both clamp jaw and guide zone ensures this kind of meter to enjoy high accuracy, reliability and stability all the year around, and it is offered with insulation rods with outstanding

features such as moisture proof, high temperature resistance, anti-strike and bending, high insulation, extendibility ,ect.

With the insulation rod, the meter can measure leakage current in high-voltage lines below 60kV and on-line current, and identify if zinc oxide arrester is moisture-affected or not. There are also other functions provided for the meter: peak value hold, data hold, data save and wireless data transmission. Given the condition that high-voltage clamp can be easily connected or disconnected to measured lines with the help of insulation rods, so the meter can be widely used in transformer station, power plant, mining, inspection center, electrician maintenance and repairing center for conducting leakage current testing and outdoor electrical operation.

This kind of meter is also used as high/low-voltage current transformer ratio tester and zinc oxide arrester meter, that is to say it can respectively measure two times of loop current of current transformer and then calculate

the ratio or reduced ratio. One thing to mention is: under general circumstances, considering the leakage current should be lower than 500uA for a running arrester, the meter can tell us the working status of the arrester. If checked out with leakage current higher than 500uA, the arrester may have been contaminated, moisture-affected or experienced aging, because the higher flow of leakage current it is, the more severe phenomena above are.

under general circumstances

II. Electrical Symbols

⚡	Extreme danger! To avoid personal injury or accidents in case of electric shock, observe safety rules strictly.
⚠	Danger! To avoid personal injury or accidents in case of electric shock, please follow safety notes.

⚠	Warning! Confirm to the safety instructions, otherwise it may cause personal injury or damage to the meter.
~	Alternating Current（AC）
⎓	Direct Current（DC）

III. Model Comparison

Model	Range	Resolution	Jaw Size	Notes
UT255A	10uA～600A	10uA	ϕ33mm	General Type
UT255B	10uA～600A	10uA	ϕ33mm	Special, with wireless transmission function

IV. Technical Specifications

Functions	To measure high-and low-voltage AC leakage current and on-line current; indirectly obtain ratio of current transformer
Power	DC6V Alkaline dry battery（1.5V AAA×4）
Measuring Mode	Clamp-type CT, integral mode
*Transmission mode	UT255B：433MHz wireless transfer up to about 20 meters
Display Mode	4- digit LCD display, backlight, suitable on dark sites
LCD Size	47mm×28.5mm
Dimensions	High-voltage tester (wide×high×thick): 68mm×245mm×40mm UT255B Receiver (wide×high×thick): 75mm×170mm×30mm

Jaw Opening	ϕ33mm
Sampling Rate	2 times per second
Measuring Range	AC 0.01mA～600.0A（50/60Hz auto）
Resolution	10uA
Function Switchover	0.01mA～600A automatically switch
Accuracy（23℃±5℃，<80%RH）	0.01mA～100.0A: ±1%±5dgt
	100.0A～200.0A: ±2%±5dgt
	200.0A～600A: ±3%±5dgt
Data Save	Max.99sets, “ MEM ” icon displays during storing, “ FULL ” icon shows if fully save
PEAK Hold	Automatically hold peak values, Press PEAK button under general measuring mode to start, indicated by peak light, repress to switch off

Line Voltage	To measure line voltage below 60kV（operate with insulation rod）
Data Hold	Press HOLD button to hold data under general measuring mode, indicated by “ HOLD ” icon, then repress to cancel the operation.
Data Access	Indicated by “MR” icon，able to scroll up or down to read out data
Overload Display	Out of-range display: indicated by “OL A” icon
* Display for no signal	Dynamic display of “no- -” icon when receiving no signal
Auto Power Off	15 minutes later after power on, to conserve power energy
Battery Voltage	Low battery icon displays with voltage lower than 4.8V, please timely change the battery

Weight	Tester：335g（battery included）；total weight：2.5Kg（insulation rod and battery included）
Operating Temperature /Humidity	-20℃～40℃；＜80%Rh
Storage Temperature/ Humidity	-20℃～60℃；＜70%Rh
*Interference	No 315MHz, 433MHz shared frequency interference
Insulation Rod	Φ32mm, 1m per piece（5PCS）
Insulation Strength	Insulation strength between fifth insulation rod and tester housing: AC 100kV/rms; between tester housing and iron core: AC1000V/rms
Structure	Leakage resistance Ⅱtype

V. Meter Description

1. Clamp Jaw (Guide zone included)
2. UT255A Tester
3. LCD Display
4. PEAK Measuring Indication
5. PEAK Button
6. POWER Button
7. HOLD Button

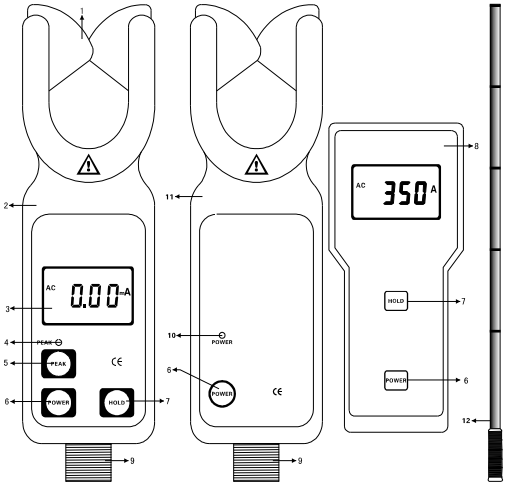
*8. UT255B Receiver

9. Insulation Rod connection Terminal

*10. POWER Indication

*11. UT255B tester

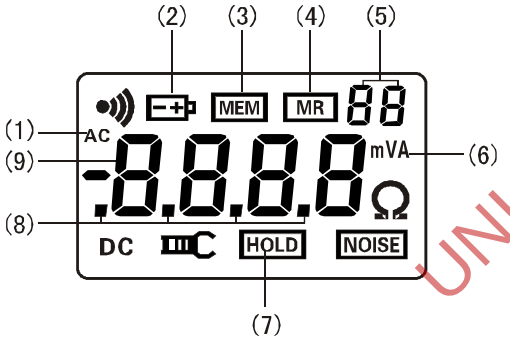
12. Insulation Rod (5 Pcs)



VI. Display Mode

1. LCD display

(1). AC icon
(2). Low battery icon
(3). Data Save Display
(4). Data Access Display
(5). 2-digit serial numbers for data save
(6). Unit Icon
(7). Data hold Display
(8). Decimal Point
(9). 4-digit LCD Display



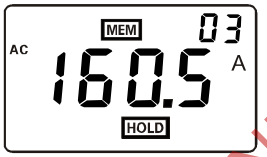
2. Special Icon Description

(1). Low battery displays with voltage lower than 4.8V, please change batteries timely.
(2). “OL A” icon indicates measured current is out of limit.
(3). “MEM” icon displays during data save process.
(4). “FULL” icon flashes when maximum value of 99sets are achieved, indicating no save operation any more.
(5). “MR” icon displays together with saved data serial numbers during data research.
(6). “End” is to indicate exiting the process.
(7). “dEL” indicates during data delete process.
*(8). “no- -” dynamically indicates no signal is received; it is likely the tester is not under testing mode, or being adjusted for right receiving place and distance.

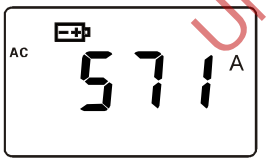
3. Display Examples

(1). ——Measured current displayed：
0.002A (2mA)

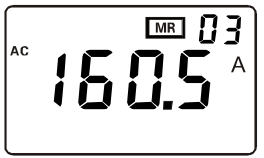
(2). ——Displayed data hold
——Saved data serial number 03
——Measured current displayed：160.5A



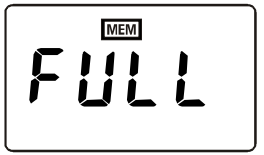
(3). ——Measured current displayed：571A
——Low battery display, please change
the battery.



(4). ——Access to data No.03
——Measured current displayed：160.5A

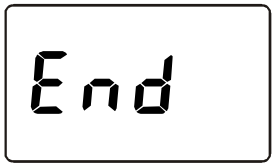


(5). —— “FULL” icon flashes：
——Max.99 is achieved.
——Memory needs clearing before resave.

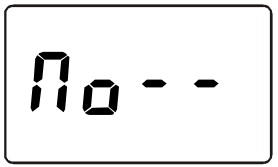


(6). —— “dEL” to indicate data clearing.

(7). —— “End” display to exit the operation



*(8). —— “no- -” dynamic display No signal received.



VII. Operating Instructions

⚠ **Notes:**

- Please Check if there is any damaged parts or not before safe use.
- Install the battery as required in the manual

1. Testing Instructions

(1) Power On/Off

Press POWER to power on, display LCD and enter into general measuring mode. You should change the battery if dark LCD appears after power on and may be caused by low battery voltage. To conserve power energy, the meter will automatically switch off 15 minutes later after power on, indicated by 30 seconds of LCD flashing. And you can continue operations by pressing POWER button to stop LCD flashing.

- Press POWER button to switch off under HOLD mode

- Press POWER button to switch off under general measuring mode.
- Press POWER button to switch off under PEAK mode.
- Under data access mode, long press HOLD button to exit and return to general measuring mode, indicated by "End" icon during this process, then press POWER button to power off.

(2) General Measurement

Dangerous Voltage!

- High Voltage, extreme Danger! To avoid personal injury or accidents in case of electric shock, only trained and authorized staff is allowed to operate and should strictly observe safety rules.
- Danger! To avoid personal injury or damage to the meter in case of electric shock do not measure line voltage higher than 60KV.
- Danger! Do not measure line current higher than 600A, otherwise it may cause personal injury or damage to the meter in case of electric shock.

General Measurement: LCD will display real-time measured current during measuring process. Displayed data on LCD varies with current flow and will be back to zero if no measuring result has been held after disconnecting the tester with measured lines.

General measuring mode is suitable for short-distance operation and facilitates direct reading of LCD data. B Type model is not restricted to this distance limit.

Warning !

- Connect insulation rods and ensure right connection before measurement. Try not to avoid earth strike to the meter when connecting it to rods.
- Only exclusive insulation rods are allowed to connect to the meter.
- Lean down and pull back insulation rods after finishing testing, then disconnect the tester first and discharge rods later to avoid earth strike to the tester

Locate conductor to be measured at the center of clamp guide zone after normally power on, see Figure A. Guide zone should be kept perpendicular to the conductor when moving the meter forward to completely enclose it. If "OL A" displays on LCD, it indicates that measured current is out of limit and requires higher range or choose another meter, then if disconnecting the conductor with the meter, pull back the meter (see Figure C) and try to keep the conductor perpendicular to the guide zone during this operation.

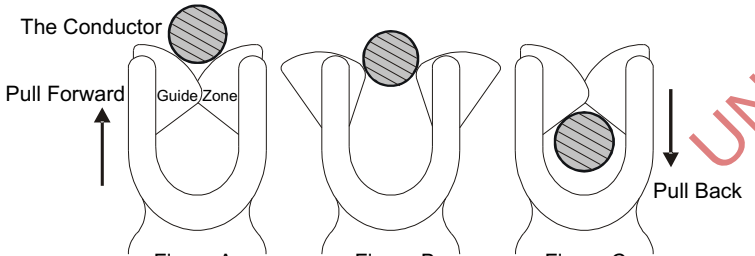
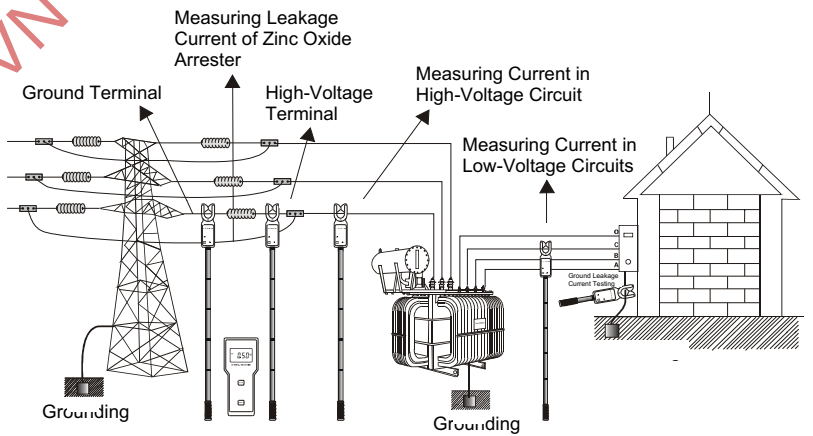
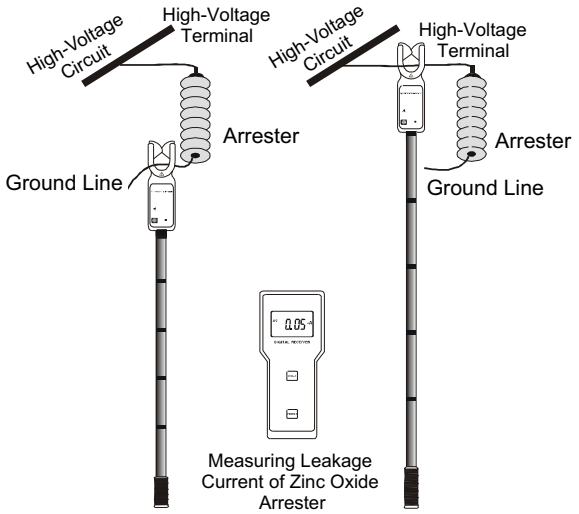


Figure A Figure B Figure C





⚠ **Notes:**

- Given the fact that leakage current should be lower than 500uA for running arrester(Just for reference, specific data are subject to standards of target country /state), we can tell working status of arrester based on measured leakage current. If leakage current is over 500uA and ruling out high-voltage factor, the arrester may have been contaminated, moisture-affected and aging to cause this problem. The more flow of leakage current it is, the more severe the phenomenon is. The operator can decide to repair the arrester or discharge it for lab testing based on leakage current flow so as to avoid blind operations.

Press HOLD button to return to general measuring mode if under HOLD mode.

Press HOLD button to return to general measuring mode if under data access mode.

Press PEAK button to return to general measuring mode if under PEAK mode

The meter will automatically return to general measuring mode after data delete

⚠ **Notes:**

- Attention! For the sake of your safety, disconnect the meter with the conductor and do not keep it connected for a long time.

(3) PEAK Measurement

Peak Measuring: to obtain maximum current value. The meter can automatically compare changing currents, hold the existing maximum value of current and still keep it after disconnecting the meter to the conductor. Such operation is often used when direct reading on LCD data is not available.

Press PEAK button to switch from general measuring mode to PEAK

Mode, indicated by PEAK light. Then the meter will display and automatically hold the maximum current value.

If under other modes, you need to return to measuring mode before starting PEAK measurement.

Press PEAK to exit and go back to general measurement mode, indicated by “End” during the process.

(4) Data Hold

Press HOLD button to maintain data on LCD under general measuring mode, indicated by “HOLD” icon, repress to cancel the operation and switch into general measuring mode, then “HOLD” icon will disappear.

(5) Data Save

Under measuring mode, the meter will automatically number the current data when pressing HOLD button to maintain data. “MEM” icon flashes during this process. The maximum storage is 99 sets and achieved when “FULL” icon continuously flashes to indicate you should

Lear the memory for second save.

(6) Data Access

Under general measuring mode, press both PEAK + POWER buttons to access data, indicated by “MR” icon and meanwhile data No.01 shows. You can scroll up or down to read other data by using PEAK or POWER button. If final set of data is obtained, the first set of data will then automatically display.

Press HOLD to exit and return to general measuring mode, indicated by “End” icon during this process

(7) Data Delete

If still under data access mode, press PEAK + POWER buttons to clear the memory and return to general measuring mode, indicated by “dEL” icon during this process.

***(8) Data Transmission**

UT255B model: it can offer wireless data transmission function and allow

testing results to send back to the receiver in a wireless way. So the receiver can provide real-time data and is easy to observe. Send back signals only under measuring mode. If not successfully receiving those signals, it will dynamically display “no- -” icon.

UT255B; it can wirelessly transfer data and the receiver can receive data within about 20 meters even through walls.

2. Receiving Instructions

(1) Power On/Off

Press POWER button to switch on, display LCD and enter into data receiving mode. You should change the battery if dark LCD appears and may be caused by low battery voltage. To conserve power energy, the receiver will automatically switch off 15 minutes later after power on, indicated by 30 seconds of LCD flashing. You can press POWER button to stop the flashing for further operation.

Under HOLD mode, press POWER button to switch off.
If under data access mode, first long press POWER button (over 3 seconds) to exit and return to receiving mode, then repress to power off, indicated by “End” icon during this process.

(2) Data Receive

The receiver will immediately go into receiving mode after power on and display on-line results if data signal have been sent back. If not, the receiver will continue to search for signals and dynamically display “no- -” icon.

(3) Data Hold

Under data receiving mode, short press HOLD button to keep the LCD display, indicated by “HOLD” icon. Press again to cancel the operation and return to receiving mode, then “HOLD” icon will disappear.

(4) Data Save

Under receiving mode, the receiver will automatically number current data

when pressing HOLD button to keep data. “MEM” icon displays one time during the process. The maximum storage is 99 sets and achieved when “FULL” icon continuously flashes to indicate the memory needs clearing for second save.

(5) Data Access

Under receiving mode, press HOLD + POWER buttons to enter into data access mode. “MR” icon and at the same time data NO.01 display on LCD, then you can scroll up or down to access more data by using HOLD or POWER button. If final set of data is obtained, the meter will automatically return to the first set.
Long press POWER button (over 3 seconds) to exit and return to data receiving mode, indicated by “End” icon during this operation.

(6) Data Delete

Under data access mode, press HOLD + POWER to clear the memory and return to data receiving mode, indicated by “dEL” icon during this process.

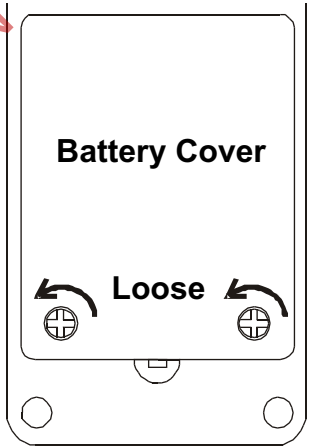
VIII. Battery Replacement

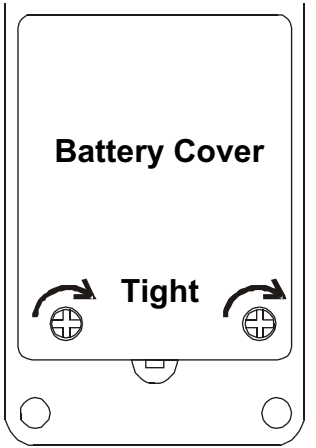
⚠ Warning !

- To avoid risks do not test if battery cover is not well placed.
- To avoid damage to the meter, please ensure right polarity of battery.
- Do not combine old batteries with new ones for use.

1. Low battery icon displays with voltage lower than 4.8V, please change batteries timely.
2. Power off, confirm it and then loosen two screws on the battery cover. With the cover opened, change old batteries with new specified ones. Ensure right polarity is selected and tighten screws to close the cover
3. Press POWER button and check if the meter can successfully power on, if not, repeat the second step.

UT255A/255B OPERATING MANUAL





IX. Packing List

Tester	1
*Receiver(UT255B only)	1
Insulation Rod(1meter per piece)	5PCS
Carrying Case	1
Battery(Alkaline dry Battery AAA）	4PCS（*or 8）
User Manual/Warranty Card/ Certificate	1 set

The manual information is subject to changes without prior notice.

UT255A/255B OPERATING MANUAL
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