



## **ST230 TELEPHONE LINE TESTER**

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**USER MANUAL v3.0**

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## 1. Summary

**This Telephone Line Tester** is one portable and intelligent line fault tester, which adopts advanced technologies such as intelligent CPU, IC & SMT technology. It integrates various kinds of functions such as telephone, line performance test and safe test to be the one.

The incoming call number display function is compatible with FSK/DTMF two types. Its particular function of AC voltage detect and test can judge whether there is dangerous AC high voltage in the line or not quickly and accurately in order to protect lineman from high voltage.

The tester is designed following the human engineering theory with the appearance style like barbell, it can be put on the shoulder, the lineman can do other work using hands at the same time; besides, it can be hung in the tool belt of waist through the pothook, it is convenient to realize the talk function cooperate with the high quality earphone when the lineman is climbing or doing other things; inner chargeable NI-MH battery can works about one week after full charging; the shell is made of the new type of material and it is solid.

## 2. Layout

### 2.1 Tester

- ① The telephone line tester shell
- ② Belt clamp---use it to hung tester in tool belt of waist or cable
- ③ Terminal box---operate with assistant test line
- ④ Test clamp
- ⑤ Charge jack
- ⑥ Headphone jack
- ⑦ Assistant test line---operate with terminal box
- ⑧ Charger



## 2.2 Front faceplate



- ① ---HOOK
- ② \* / P...T—"\*" and P/T
- ③ LCD—Display telephone number and test result
- ④ REDIAL
- ⑤ MUTE
- ⑥ Dial key—1.....9, \*, #
- ⑦ on line H-DCV LED indicator— If there is high DC voltage ( $70V < \text{voltage} < 250V$ ) on the line, the indicator will be lighted.
- ⑧ Charger LED—this light will be on when the tester is charging
- ⑨ H-ACV LED indicator— If there is high AV voltage on the line, the H-ACV indicator will be lighted.
- ⑩ Talk indicator light—this light will be bright when talking.

## 2.3 Tester faceplate

### ① Phone/Tester

Press it to enter test status; loose it to enter telephone status.

### ② Talk

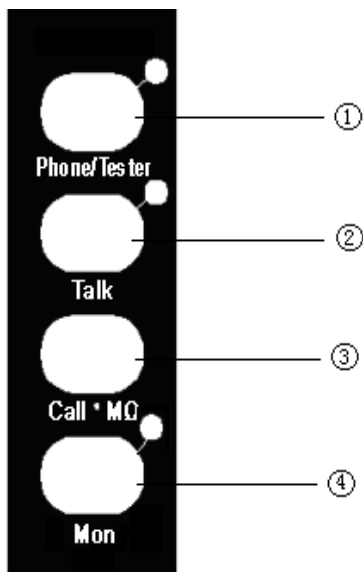
Press it and cooperate with key ① to talk; then cooperate with the key ③ to call user.

### ③ Call MΩ

Press it after press ① key to test line insulation; press it after press ① and ② to call user.

### ④ Mon

Press it in telephone status and it will be in monitor status; press it after press key ① and it will be in AC voltage test status.



### 3. Specifications

- ◆ DC V test  
Range: 0~260V, Error:  $\pm 5\%$
- ◆ Insulation impedance test  
Range: 0~10M $\Omega$ , Error:  $\leq \pm 5\% \pm 0.1 \text{ M}\Omega$   
Range: 10~30M $\Omega$ , Error:  $\leq \pm 10\% \pm 0.5 \text{ M}\Omega$
- ◆ AC voltage test function
- ◆ Ring distance  $\leq 1\text{Km}$
- ◆ Open resolution  $\leq 2\text{Km}$
- ◆ Monitoring resistance  $\geq 1\text{M}\Omega$
- ◆ DTMF applying to GB/T15279
- ◆ CID function, FSK/DTMF compatibility
- ◆ Telephone number dial and display function
- ◆ Mute function
- ◆ P/T transfer function
- ◆ High voltage indication
- ◆ Checking wire pairs function
- ◆ Battery: rechargeable 9V NI-MH battery

### 4. Dimension & weight

- ◆ Dimension (mm) : 232x73x95
- ◆ Weight (kg) : 0.5

### 5. Operation environment

- ◆ Environment temperature: -10°C~55°C
- ◆ Relative humidity: 10%~95%

- ◆ Environment noise:  $\leq 60\text{dB}$
- ◆ Atmospheric pressure: 86~106Kpa

## 6. Operation directions

### 6.1 Telephone functions

Connect test clamp to telephone line directly or through assistant test line, it can be used as telephone to dial, talk and realize caller ID.

#### 6.1.1 Dialing

Press HOOK key, talking LED is on and there will be a sound, to dial number.

Example: Dial number of 3584060 and the LCD will display like followings:

3	5	8	4	0	6	0
---	---	---	---	---	---	---

Press HOOK key to end talk.

#### 6.1.2 Receiving

Press HOOK key to talk when the tester is ringing, press HOOK key to end talk.

#### 6.1.3 Redial

Press “**REDIAL**”, you can redial last telephone number. If it is busy, please hang and press redial again.

#### 6.1.4 Incoming call number display

This function is only used in the line which has incoming call number display service and the function can check the line repair quality, the incoming call number will be displayed when it receives the FSK or DTMF incoming call. The number can be refreshed automatically.

If the incoming call number is secret and it will be displayed as:

... P ...
-----------

If the size of incoming call number exceeds the range and it will be displayed as:

... 0 ...
-----------

If the incoming call signal is wrong and it will be displayed as:

... E ...
-----------

### 6.1.5 Mute function

Loose all keys, connect clamps to the telephone line, press **Hook** and then press "**MUTE**", the other side can not hear our voice, and press "**MUTE**" again, it becomes normal.

### 6.1.6 P/T transfer function

Loose all keys, under hook-off status and no ringing signal, this tester can do P/T transfer operation. Pressing "\*" more than 3 seconds can realize pulse dialing and tone dialing transformation, after successful transformation, the LCD will display "pulse" or "tone".

### 6.1.7 High DC voltage indication

Connect this tester to the telephone line, if there is high DC voltage, the **H-DCV** light will be bright all the time. Please do not off-hook in order to damage the tester.

#### Notice:

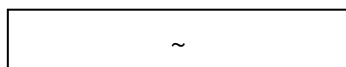
1. If the line has high AC/DC voltage, please do not use telephone function.
2. Only the line which has opened caller ID service can has caller telephone number function.
3. Line high voltage indicator can only apply to lines with low current and the range can not exceed 250V.

## 6.2 Tester test

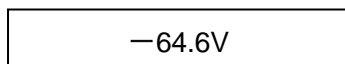
Press "**Phone/Tester**" and connect test line of tester to user line, which will be tested, you can have the tests like followings:

### 6.2.1 AC V & DC V test

In the normal status, press "**Phone/Tester**" ("Phone/Tester" LED on) to have the voltage test. It means that there is high AC voltage in the line if the LCD display like following and there is fluting sound. Please take the clamp quickly.



The LCD will display the line voltage value automatically if there is DC voltage in the line. In the following graph, it means that there is minus 64.6V DC voltage in the line; the line, which is connected by the red clamp, is negative port and the black clamp is positive port.



Purpose: This function can be used to test whether the ringing up/off voltage of line is normal or not; it can help lineman to distinguish the positive port and negative port of the line quickly in order to ensure whether they connect the line correctly or not when install the relevant equipment.

### 6.2.2 Insulation test

Press "**Phone/Tester**" in the normal status to judge there is no voltage in the line, and keep

pressing **“Test”** about 3 seconds to test the insulation. The LCD will display the insulation resistance figure automatically like the following graph. If the insulation resistance is less than 10MΩ and there is the fluting sound, it means that the insulation resistance figure of the line is in small side; there is bad insulation fault.

16.4 MΩ

Please take off the user phone if you want to test the insulation resistance of the line.

It can be confirmed whether the fault has been canceled or not through the line insulation test after check the user line.

### 6.2.3 Open test

In the normal status, connect the tester to the line which will be tested and press **“Phone/Tester”**, after confirm there is no voltage in the line, keep pressing **“Test”** for about 3 seconds. It means that the line is break if the LCD only displays 9999MΩ.

### 6.2.4 Earth insulation

Like the above operation, connect the black clamp to earth line and the red clamp to the line which will be tested. The LCD will display the earth insulation degree.

## 6.3 Call user & talk

Connect the test line of tester to passive user's line, press **“Phone/Tester”** (**“Phone/Tester” LED on**), press **“Talk”** after judge there is no voltage in the line and then press **“Test”**, you can call user telephone of the line. After both sides is off hook, and loose **“Test”**, enable to talk.

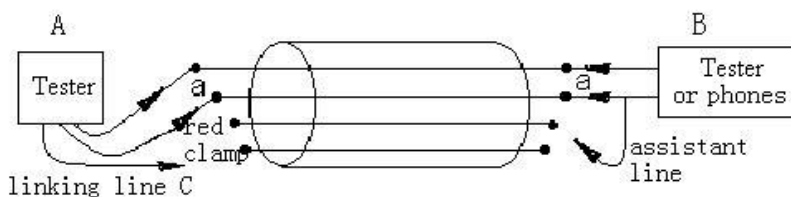
This function can be used to check the line maintenance.

## 6.4 Phone test

The phone quality of users can be tested by the tester.

Connect the tester line to the user phone through clamp or assistant line and ring the user phone, it means that the user phone is normal if it rings normally; the phone quality is good if the quality of the communication voice is good, otherwise, there are faults in the phone.

## 6.5 Check wire pairs





Firstly, side A and side B are in normal communication status from the agreed line. The man in side A tell the man in side B which line links with the red clamp, and appoint this line as





assistant line. The man in side B twist one of needing checking lines with the assistant line and still keep in communication status with side A. Then, the man in side A use the assistant line C which insert into the charge hole to touch the core line one by one, until both sides hear flute sound , which means the same line in two ends. Then check other line in the same way.

## 6.6 Monitor

This function can monitor and check line without influence to the user normal communication.

- ① Press MON button  (  LED is on);
- ② Connect the two clamps to the line which is talking, the tester can clearly hear the voice on the line.


## 6.7 High AC voltage detect and alarm

Press “**Phone/Tester**” and then press  when the tester is near the line circuit which has high AC voltage;  LED is on and there is alarm sound. Please take care and operate it carefully!

Purpose: the safety of the line can be tested before by using this function and to avoid the danger effectively.

**Notice: This function is the accessorial function, please operate it according to the manual and the manufacturer does not respond for damages.**

## 6.8 Under voltage self-checking

After press “**Phone/Tester**”, if it displays  and there is the sound “di di...”, it means the battery is low voltage. Please loose “**Phone/Tester**” and charge the tester. Please do the charge before your using.

## 6.9 Charge

Insert the output plug of charger into charge hole, and then insert the charger into 220V socket, the charger LED is on. The 8 to 10 hours charge duration is the best. Please do not press “**Phone/Tester**” during the charge process; otherwise, there will be the fluting sound. If you do not use the tester for a long time, please charge it full for storage, and charge the tester every 30 days.

**Note:** reference values of duration time under different status as below:

180mAH NI-MH battery	Theoretic service time	Actual use time
Standby time	80 days	More than 30 days
Talkback	4 hours	More than 2.8 hours
Insulation test	3 hours	More than 2.7 hours
Voltage test	10 hours	More than 8 hours
Induction voltage	5 hours	More than 4.4 hours
Monitor	18 hours	More than 15 hours

### 6.10 Accompanied earphone (Optional)

Earphone jack is on the upside. Hang the tester in tool belt of waist or cable by Belt Clamp, using earphone accessory can liberate the hands of the user.

## 7. Notes

**Before using this tester, you should use high AC voltage detect and alarm function to make sure there is no high AC voltage in the line, and use voltage test function to make sure there is no high DC voltage in the line, after that, you can use other functions, which not only protects user safety but also protects the tester from damage.**

◆ During the test, there will be the dangerous voltage in the line when you press the test keys, please pay attention to the safe and do not touch the test clamp.

◆ If there is “V”, which is displayed in the LCD during the test, it means that there is high DC V in the line, please take the clamp and pay attention to the safety.

◆ The distance where tester can detect the voltage is related to the high/low of the voltage which is tested, the test environment and the weather; the voltage which is tested is higher, the distance of electromagnetic radiation is longer; the rain, snow and fog can absorb part of electromagnetism, therefore, the test distance is small; if there is other bars such as the trees, wall and so on, and they can absorb a part of electromagnetism and the distance is small.

◆ Please loose all the keys to avoid discharge of the battery when the instrument is not used.

◆ Please check whether there is high AC V or DC V in the line or not before operate the tester to avoid the damage to the instrument or person.

◆ Take the clamp immediately if there is high DC V in the line.

## **8. Accessories**

### **8.1 Main test line**

The soft test line has the terminal box and special clamp. The red line is the anode and the black line is cathode when the voltage is tested; you can realize the connection with many kinds of plugs or sockets using the terminal box of main test line and the assistant line; you can connect every kind of telephone line conveniently to have test using the special clamp of main test line.

### **8.2 RJ11 linking line**

It can be inserted into the socket in the wall or used to test the telephone line through terminal box.

