



**ST230F TELEPHONE LINE TESTER**  

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**USER MANUAL**

Shandong Senter Electronic Co., Ltd

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## 1. Summary

**ST230F Telephone Line Tester** is one portable and intelligent line fault tester, which adopts advanced technologies such as intelligent CPU, IC & surface mounted technology (SMT) technology. It integrates various kinds of functions such as telephone, line performance test and safety test to be the one.

The caller telephone number display function is compatible with FSK/DTMF two types. Its particular function of automatically detecting high AC voltage test can test whether there is dangerous high AC 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 cooperating with the high quality earphone when the lineman is climbing or doing other things; the max continuous working duration when the inside rechargeable Ni-MH battery is fully charged is about 7 hours without replacing battery; the shell is made of new material and it is very reliable.

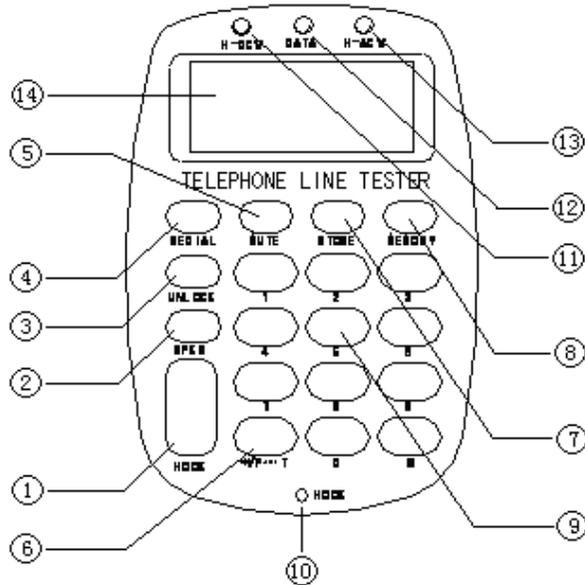
## 2. Layout

### 2.1 Tester

- ① ST230F telephone line tester shell
- ② Pothook---use it to hung tester to tool belt of waist or cable
- ③ Terminal box---operate with assistant test line-RJ11 port
- ④ Test clamp
- ⑤ Charge hole
- ⑥ Earphone hole
- ⑦ Assistant RJ11test line-operate with terminal box
- ⑧ Charger



### 2.2 Front faceplate



- ① Hook—Open/close the tester key
- ② SPKR—Hands free function key(Loudspeaker)
- ③ Unlock—Data key of override function
- ④ Redial—Redial the last telephone number
- ⑤ Mute—Press it, you can hear of the voice on the line, but others can not hear of you.
- ⑥ \*/P...T—“\*” and P/T
- ⑦ Store—Store the calling telephone number
- ⑧ Memory—Telephone number extracting key and you can press one key to do quick dial.
- ⑨ Dial key—1.....9,\*,#
- ⑩ Talk indicator light—this light will be bright when talking
- ⑪ H-DCV LED indicator— If there is high DV voltage on the line, the indicator will be light
- ⑫ Data LED indicator—If there is living data ADSL service on the line when you do the data identification operation, the data indicator will be light.
- ⑬ H-ACV LED indicator— If there is high AV voltage on the line, the H-ACVA indicator will be light.
- ⑭ LCD—Display telephone number and test result

### 2.3 Test faceplate

#### ① Phone/Tester

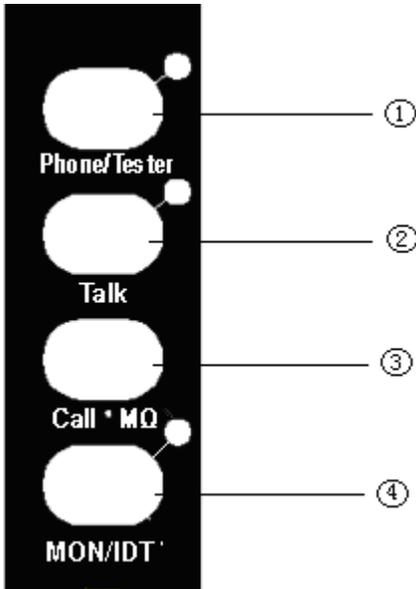
Press it to enter test status; loose it to enter telephone status.

#### ② Talk

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

③ **Test:** after pressing key ①, Press it to test line insulation; press it after press key ① and key ② to call user.

④ **MON/IDT:** 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. Main Functions and Specifications

- ◆ DC V test  
Range: 0~260V, Error:  $\pm 5\%$
- ◆ Insulation impedance test  
Range: 0.1~10M $\Omega$ , Error:  $\leq \pm 5\% \pm 0.1 \text{ M}\Omega$   
Range: 10~30M $\Omega$ , Error:  $\leq \pm 10\% \pm 0.5 \text{ M}\Omega$
- ◆ Induction voltage function
- ◆ Ring distance  $\leq 2\text{Km}$
- ◆ Open line resolution  $\leq 2\text{Km}$
- ◆ Monitoring resistance  $\geq 1\text{M}\Omega$
- ◆ Caller telephone number display, FSK/DTMF auto compatibility
- ◆ DTMF applying to GB/T15279-94
- ◆ Dialing number display
- ◆ Hands free (louder speaker) function, which can free your hands to do other operations.
- ◆ Telephone number storage and dial function
- ◆ Data lockout override function
- ◆ Mute function
- ◆ P/T transfer function
- ◆ ADSL/ISDN identification
- ◆ High voltage indication
- ◆ Checking wire pairs function as the cable tracker
- ◆ Battery: rechargeable 9V NI-MH battery

### 4. Dimension & Weight

- ◆ Dimension (mm) : 232×73×95

- ◆ Weight (kg) : 0.5

## 5. Operation environment

- ◆ Environment temperature: -10℃~55℃
- ◆ Relative humidity: 10%~95%
- ◆ Environment noise: ≤60dB
- ◆ Atmospheric pressure: 86~106Kpa

## 6. Operation directions

### 6.1 Telephone functions

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

#### 6.1.1 Dialing

Press **Hook**, LED is on and there will be a dial sound, Then you can dial number to others.

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

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

Press **Hook** again to end talk.

#### 6.1.2 Receiving

Press **Hook** to talk when the tester is ringing, press **Hook** 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 Caller telephone number display

This function is only used in the line which has caller telephone number display service. The caller telephone number will be displayed when it receives the TSK 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 caller telephone 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	...
-----	---	-----

Notice: 1. Do not use the telephone function if there is high AC or DC.

2. Only the line which has opened the caller phone number display service can use this caller number display function

### 6.1.5 Free Hands (loudspeaker) Function

Loose all the keys of the tester, connect with POTS cable, press the key and the tester is in the off-hook mode, and you can hear the louder speaker sound, press the key again, it is in hook mode. If you press Hook first, and then press the key, you also are in the loudspeaker mode, press the key again, and cancel the loudspeaker function.

### 6.1.6 Telephone number storage and dial function

#### ◆ Telephone number storage

Under hook status and no ringing signal, this tester can store telephone number. First, press the number you want to store like "0-1-...n", then press "**STORE**", and press storage address number "n",  $0 \leq n \leq 9$ .

#### ◆ Storage number dial

Connect terminal post to the telephone line, then press "**MEMORY**", and press number address key "n", press "**HOOK**" or "**SPKR**", you can dial the number you want.

### 6.1.7 Data lockout override function

Loose all keys, connect clamps to a telephone line with data service (ISDN, ADSL and data service is being used), in this situation, telephone can not off-hook, if you want to off-hook, and you should firstly press "**UNLOCK**" (Note: if the high voltage light is bright, please do not off-hook in order not to damage the tester.).

### 6.1.8 Mute function

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

### 6.1.9 P/T transfer function

Loose all keys, under test 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".

### 6.1.10 High DC voltage indication

Connect this tester to the telephone line, if there is high DC voltage, the **DATA** 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 150V.

## 6.2 Tester test

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

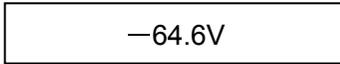
### 6.2.1 AC V & DC V test

In the normal status, press "**Phone/Tester**" ("Phone/Tester" LED on) to have the voltage test.

It means that there is high voltage in the line if the LCD display like following and there is fluting sound. Please take the clamps quickly.



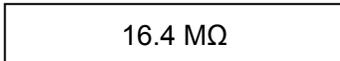
The LCD will display the line voltage figure automatically if there is DC voltage in the line. In the following graph, it means that there is minus 64.6V DC voltage in the line; then the line which is connected by the red clamp is positive port and the black clamp is negative port.



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 20MΩ and there is a fluting sound, it means that the insulation resistance figure of the line is small; there is bad insulation fault.



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 checking the user line.

### 6.2.3 Open line 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 MΩ.

### 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

Disconnect the local side, connect the test line to passive user's line, press "**Phone/Tester**" (its right **LED on**), press "**Talk**" after judging there is no voltage in the line and then press "**Test**", and you can call user telephone of the line. (**Call LED on** indicates the signal has been sent out); that **Talk LED** is on indicates user off hook, loose "Test" enable to talk.

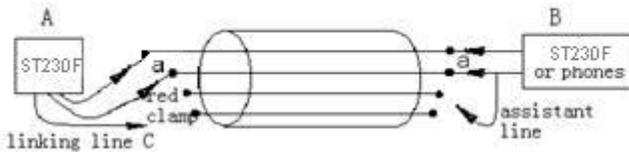
This function can be used to check the line condition of repair.

### 6.4 Phone test

The phone quality can be tested by the ST230F.

Connect the tester line to the user phone through clamps 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



On the one end (END A) of the cables, use the ST230F black alligator clamping one cable and red alligator clamping another cable. On the other end (END B), we name the cable with red alligator as the assistant cable. Use the telephone or ST230F clamping the same two cables to confirm normal talk. Then at the other end (END B), choosing any waiting checked cable connects with assistant cable, after that, on the end (END A), you should insert single alligator cable into the charge hole, using this single alligator to connect any of waiting checked cables, when you hear the long “Du...” sound, you find the checked cable.

## 6.6 Monitor

High resistance monitoring function helps operators choose/check line without influence to the user telephone and digital service. This can less user complaints and avoids interruption of user data service.

Has high resistance monitor function,

### Usage:



- ① Press button , the MONITOR indicator light is on. The tester enters into Monitor & Identifying state.
- ② Connect line clamps to telephone line that is being used, the tester can clearly hear voice call in the line, and the **DATA-LED** light will be bright accompanying the talk.
- ③ Connect clamps to ISDN network, **DATA-LED** light will be bright when user uses this service, and there will be rustle sound in the receiver, if there is no user using this service, you will hear code stream sound like da,da...and occasionally rustle sound.
- ④ Connect clamps to ADSL line, **DATA-LED** light will be bright when user uses this service, and there is no sound in the line, if there is no user using this service, **DATA-LED** light is not bright.

## 6.7 High AC voltage alarm



Press “Phone/Tester” and then press  when the ST230F is near the line circuit which has high AC voltage;



 LED on and there is alarm sound. Please take care and operate it carefully!

Purpose: the safety of the line can be tested before 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 caused by using this function.**

## 6.8 Low voltage self-checking

After pressing “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.

## 6.9 Charge

Insert the output plug of charger into charge hole, and then insert the charger into 220V socket. The charge indicator light

on the charger will be bright, which means the tester is in normal charging status.

The 7 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.

### 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 to do other work at the same time.

## 7. Notes

Before using this tester, you should use induced voltage 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 status, there will be dangerous voltage in the line when you press the Test key, please pay attention to the safety 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 clamps and pay attention to the safety.**
- **The distance of induced voltage test is related to the high/low of the voltage which is tested, the test environment and the weather; the higher the voltage which is tested is, the longer the distance of electromagnetic radiation is, and the longer the test distance is; the rain, snow and fog can absorb part of electromagnetism, therefore, the test distance is small; if there is other barriers such as trees, house, wall and so on, and they can absorb 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 (dialing does not consume battery, only the test status, monitor or induced voltage can consume battery).**
- **Please check whether there is high AC V or DC V in the line or not before operating the tester to avoid the damage to the instrument or person.**
- **Take the clamp immediately and do not do other operation if there is high DC V in the line.**

## 8. Accessories

### 8.1 Main test line

The **SEXTER** soft test line has the terminal box and special clamps. 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 all kinds of telephone lines conveniently to have test using the special clamps of main test line.

### 8.2 RJ11 linking line

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

### 8.3 The American type plug line (optional)

It can be inserted into the special socket to have test through the Terminal box.

#### 8.4 Distribution frame test line (optional)

It can be inserted into distribution frame conveniently to test the line through the terminal box.

SHANDONG SENTER ELECTRONIC CO., LTD.

NO.98, WANJIE RD,  
NEW & HI-TECH AREA,  
ZIBO, SHANDONG, CHINA

P.C. 255086

TEL: 86 533 3589257

FAX: 86 533 3587522

[WWW.SENTER.COM.CN](http://WWW.SENTER.COM.CN)

[export@senter.com.cn](mailto:export@senter.com.cn)