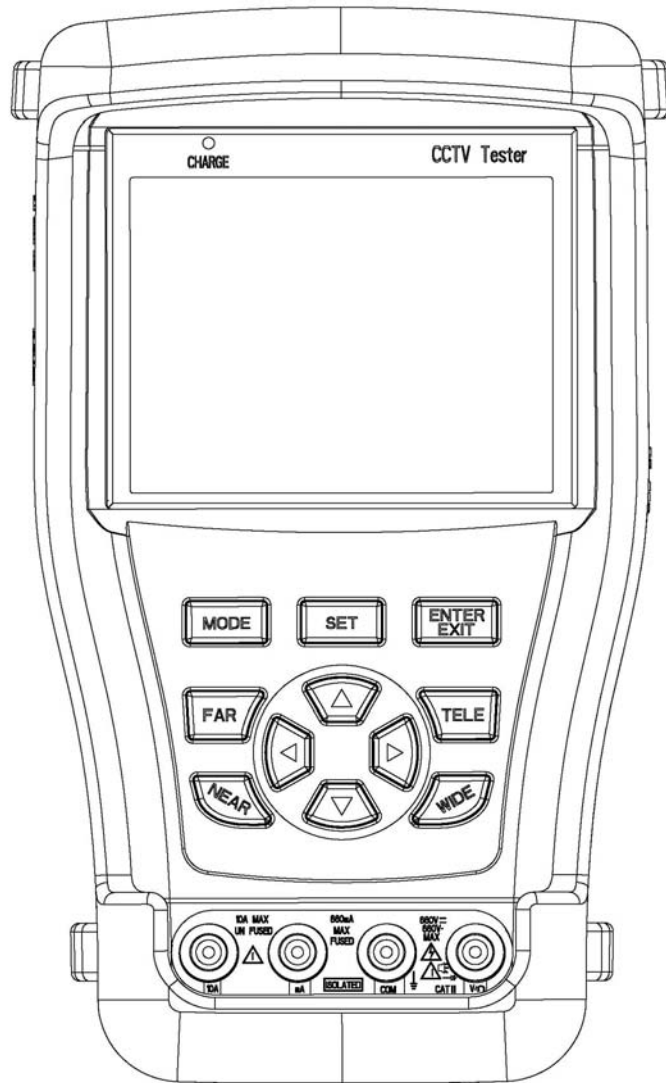


# USER'S MANUAL

CCTV TESTER Model : TM035



3.5" TFT LCD Colour Monitor with LED Back light, Composite Video In/Out BNC, 12volts output for Camera, Colour Pattern Generator, Multi-meter, PTZ controller, LAN cable tester, Audio input for Microphone checking. Carry bag, Straps, Rechargeable Li-Polymer Battery, Test leads.

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# 1 Safety Information

## 1.1 Notice

- ◆ Please comply to local regulations when using the Tester.
- ◆ To prevent functional decline or failure, please keep the Tester dry and dust free. Do not operate the Tester when wet or with wet hands.
- ◆ During transportation it is highly recommended to avoid sudden shocks to the tester as this can cause damage to internal components and can cause failure. Using the bag will reduce the risk. Care should also be taken when using the Tester.
- ◆ It is recommended not to leave the tester alone while charging. It gets lonely. If the battery is found to become severely hot, the Tester should be disconnected from the charger and advice should be sort from your Dealer. The tester should not be charged longer than 8 hours.
- ◆ Don't use the tester where there is high humidity or in damp conditions. If the Tester becomes damp, power off immediately and disconnect all cables connected.
- ◆ The tester should not be used where there is flammable gas.
- ◆ Do not attempt to take the Tester apart as there are no user adjustments. If you are experiencing problems please read this manual in full and if not solved then contact your dealer.
- ◆ The Tester should not be used where there is a strong electromagnetic force.
- ◆ To clean the Tester use a dry cloth only. Do not use detergents.

## 1.2 Digital multi-meter

- ◆ Before using, you must select the right input socket, function and range. It is best to select a higher range then reduce if necessary. If you select the wrong socket, Function or range damage can occur which will not be covered by the warranty.
- ◆ Never exceed the limit values on the Range selected, always switch to a higher range first then lower if required.
- ◆ When the meter is connected to a Source DO NOT TOUCH UNUSED TERMINALS.
- ◆ Do not measure voltage if the voltage on the terminals exceeds 660V or damage will occur which is not covered by the warranty.
- ◆ Always be careful when working with voltages above 60V DC or 30V AC, keep your fingers behind the probe barriers while measuring. As you could receive a severe electric shock.
- ◆ While the meter is connected Never change the Function, always disconnect the meter, change the Function and reconnect otherwise damage will occur which is not covered by the warranty.
- ◆ When performing capacitance measurements ensure it is fully discharged.
- ◆ Never measure resistance, capacitance, diode, continuity on live circuits.

## 2 Introduction

This CCTV TESTER has been developed for On-Site installation and maintenance of video security systems. With features for displaying video, controlling PTZ, generating images, capturing data of RS485/RS232, testing LAN cables and checking audio output from the microphone. It has an easy and friendly interface and its portability makes it simple for the technician to install and maintain CCTV security systems.

### 2.1 Features

- ◆ 3.5"TFT-LCD ~ 960 × 240 resolution (HxV).
- ◆ DC12V 1A power output for camera testing.
- ◆ Audio input for Microphone testing.
- ◆ Digital multi-meter: Voltage, Current, Impedance, Capacitance, Continuity and Diode testing can be achieved.
- ◆ PTZ control: Pan/tilts the P/T unit, zooms in/out of the lens, adjustment of the focus, aperture and can set and call the preset position
- ◆ Video display: Automatically adapts and displays the video format of either NTSC or PAL.
- ◆ LCD: The Brightness, Contrast, Colour and Saturation can be adjusted.
- ◆ Video Generation: Using the PAL/NTSC Colour bar video generator.
- ◆ Data analyst: Can capture and analyze RS485/RS232 controlling data.
- ◆ Cable testing: It can test LAN cables, measuring the connecting status and display the sequence of connection and the NO. of the LAN cable.
- ◆ Multi-interface and Multi-baud rate: Supports RS232, RS485 and RS422 interface, with the baud rate ranging from 300 to 19200bps.
- ◆ Multi-protocol: Supports in excess of twenty PTZ protocols. PELCO-P, PELCO-D, SAMSUNG etc.
- ◆ PTZ address scanning: It can search for the ID of a PTZ camera.
- ◆ Lithium Ion Polymer Battery (12V / 1050mAh). The battery employs advanced power control and circuit protection. It is a high power-efficient and energy saving unit. Can last up to 6 hours for normal use after charging for 6 hours.

## 2.2 Main function outline

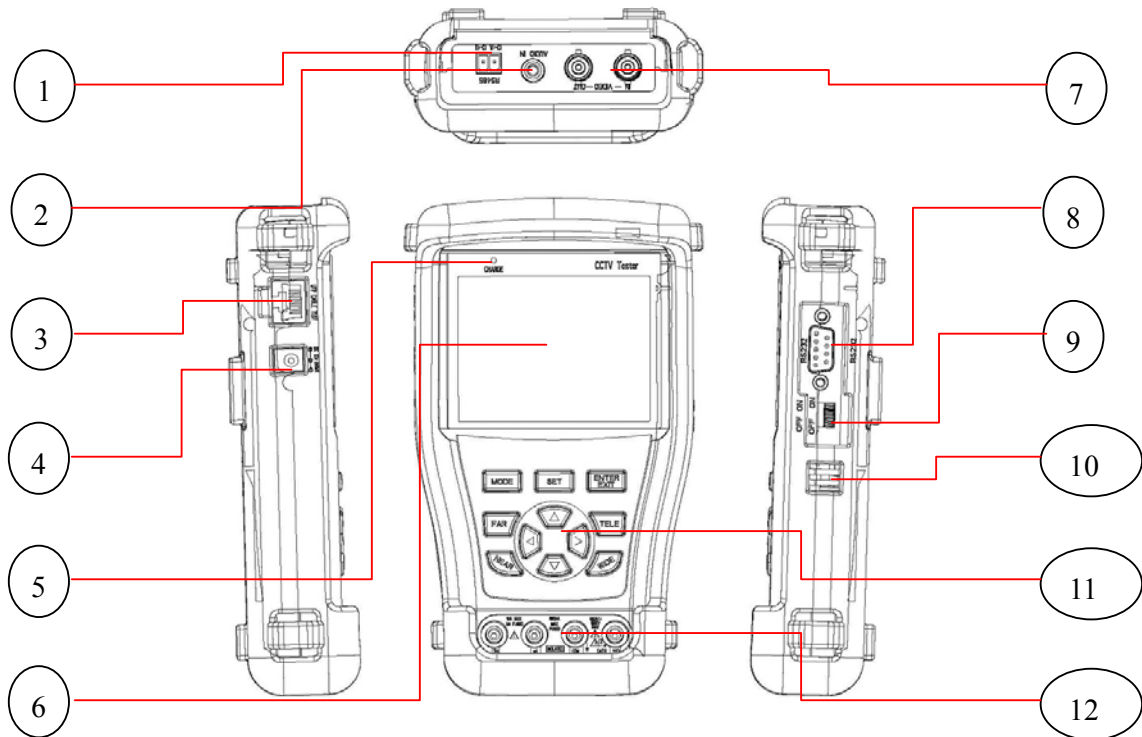










Table 1. Function table

Item	Function
1	PTZ control (RS-485)
2	Audio in from Microphone
3	RJ45 connector for LAN connection
4	DC 12V input/output jack
5	Charging indicator for internal Battery
6	LCD panel Display
7	Video input / output
8	RS232 connector
9	On/Off Power switch
10	Speaker
11	Function buttons (see Table 2)
12	Digital multi-meter Sockets

Table 2. Key buttons

Key	Image	Function
Mode		Quickly switch among main functions
SET		Active sub menu under each main functions
ENTER EXIT		Enter sub item options or exit the menu
FAR		Focus the image faraway
NEAR		Focus the image nearby
TELE		Zoom in the image
WIDE		Zoom out the image
NAVI		<ol style="list-style-type: none"> <li>1. PTZ control: Tilt the PTZ toward UP/DOWN/LEFT/RIGHT</li> <li>2. Select the item or adjust the parameter in sub menus</li> </ol>

### 3 Operation

#### 3.1 Power On/Off

Toggle the Power switch (Tab 1-9) to turn the power ON / OFF.

#### 3.2 Key functions

Press MODE key continuously to switch the functions (PTZ controller, Video settings, Colour bar generator, LAN cable tester, Data monitors, Digital Multi-Meter)

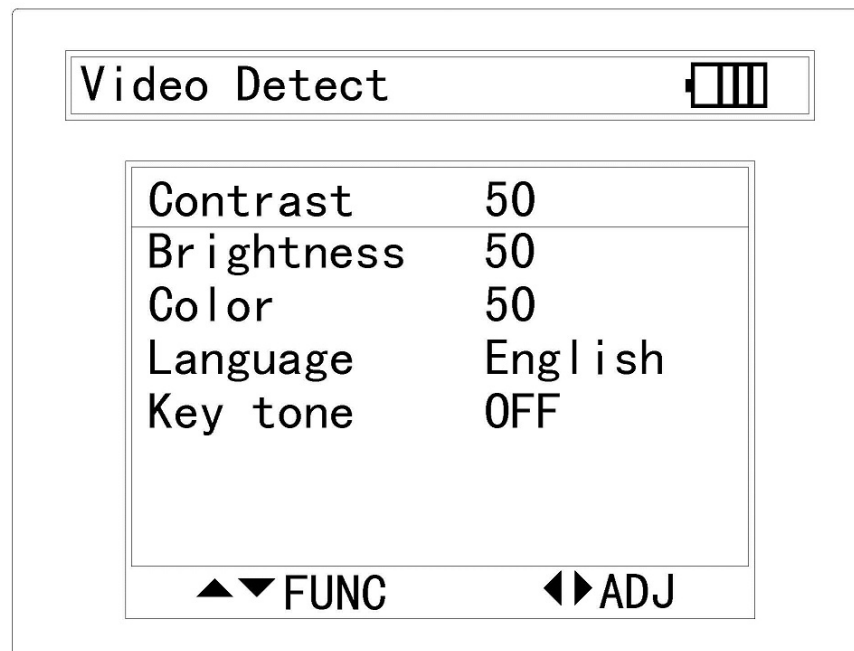
Press SET key to enter corresponding function setting sub-menu, Use navigation buttons to set the parameters in sub-menu.

**Note: When the TESTER is re-powered on, it will keep the last memory and return to the function which is being used before it was turned off.**

#### 3.3 Video Detect

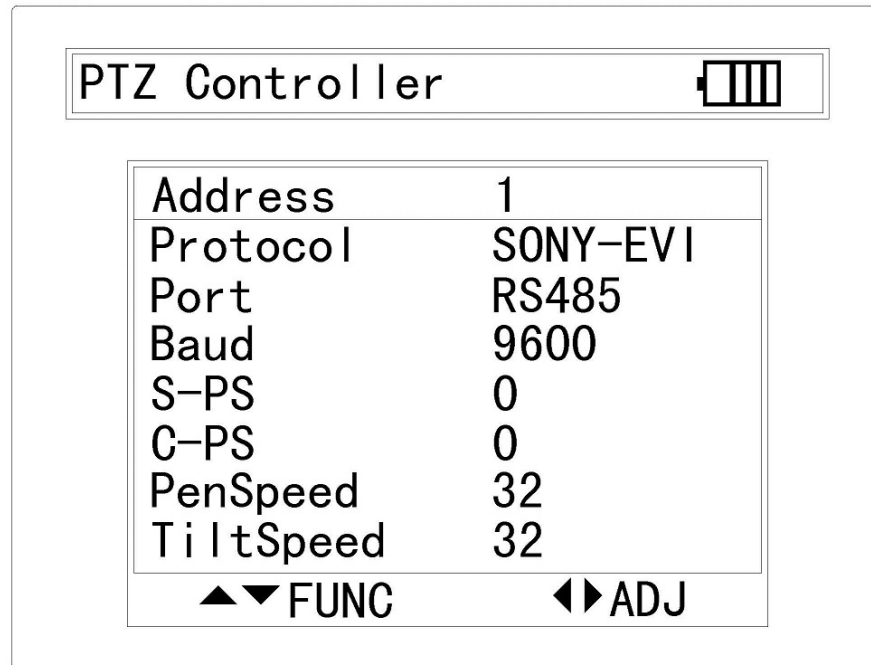
Connect to camera video via BNC jack to the video input port (Tab 1-5), the video can be displayed on the LCD panel.

Press SET will activate the sub menu of Video Detect, use navigation buttons to setup the parameters of video contrast, brightness, color, and change the language and turn on/off the key tone.



### 3.4 PTZ Controller

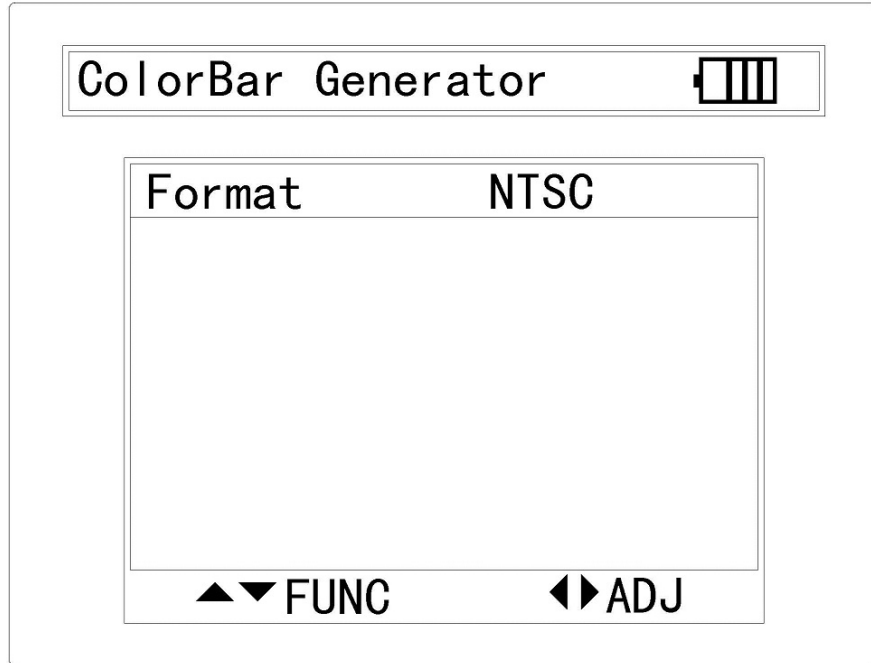
Connect the communication cable to RS485/RS232 (Tab 1-7), once the PTZ device is connected, use navigation buttons or FAR/NEAR/TELE/WIED to control the camera lens; Press SET to enter the sub menu and use the navigation buttons to setup the parameters for Address / Protocol / Port / Baud rate / S-PS / C-PS / Pen speed and Tilt speed.



### 3.5 Colour Bar Generator

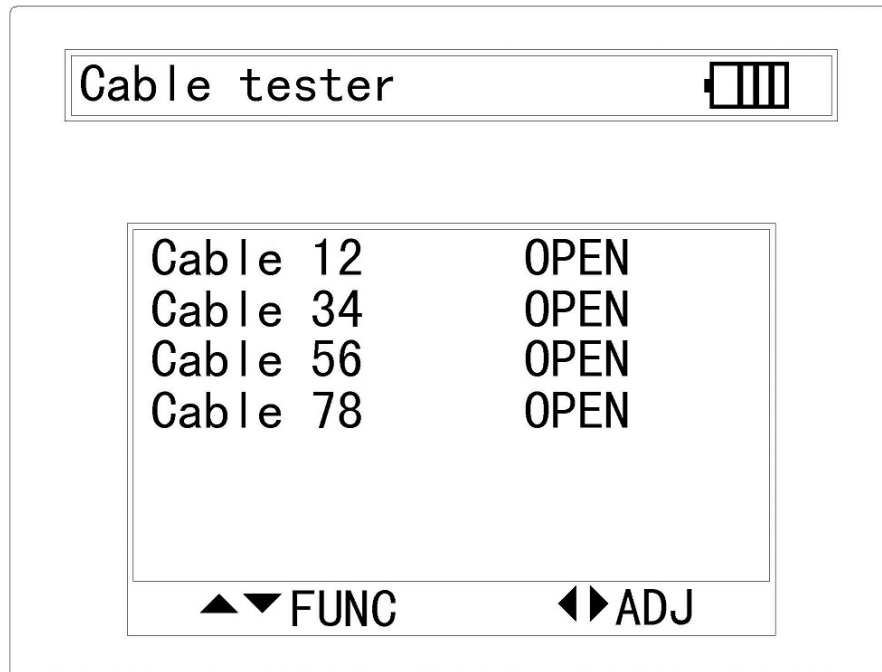
The Colour Bar will be turned on automatically, this video is able to be transmitted by the video output (Tab 1-5) via BNC connector to the external display; Press SET to enter the sub menu and use the navigation buttons to setup the video format between NTSC/PAL.





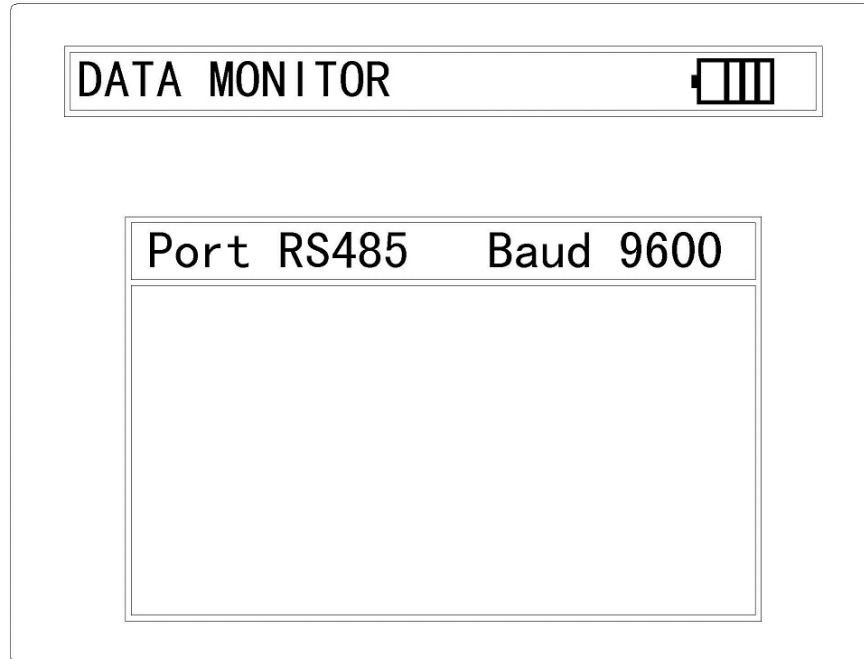
### 3.6 Cable Tester

Connect the LAN cable to the RV45 connector (Tab 1-11), and another terminal to the LAN test kit, to check to connections for each channel.



### 3.7 Data Monitor

Once the PTZ device is connected, the Data Monitor is able to capture the protocol from the controlling system and display command data. It is helpful to debug and maintain RS485/RS232 communication.

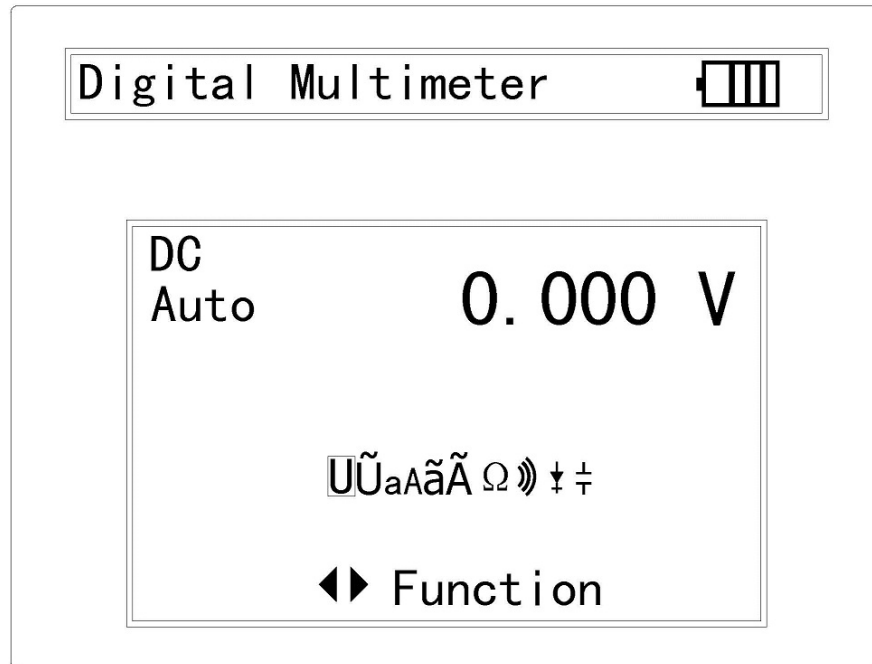


### 3.8 Digital Multi-meter

#### 3.8.1 SYMBOLS

U : DC Voltage Measuring  
A : DC Current Measuring  
 $\Omega$  : Resistance Measuring  
✱ : Diode Testing

$\tilde{U}$  : AC Voltage Measuring  
 $\tilde{A}$  : AC Current Measuring  
» : Continuity Testing  
≠ : Capacitance Measuring



## 3.8.2 OPERATING INSTRUCTION

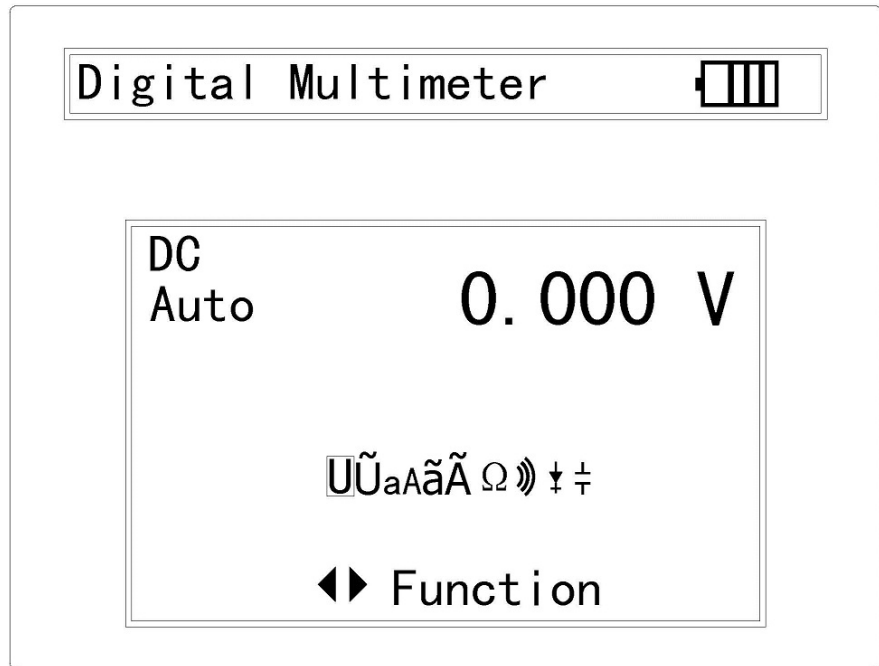
### 3.8.2.1 DC Voltage Measuring

**WARNING!**

**DO NOT input the voltage which more than 660V DC, it's possible to show higher voltage, but it's may destroy the inner circuit.**

**Pay attention not to get an electric shock when measuring high voltage.**

- a. Connect the black test lead to the COM jack and the red test lead to the V jack.
- b. Press LEFT / RIGHT to set the highlight cursor on the DC measurement.
- c. Connect test leads across the source or load under measurement.
- d. The value will be displayed on the LCD. The polarity of the red lead connection will be indicated along with the voltage value.



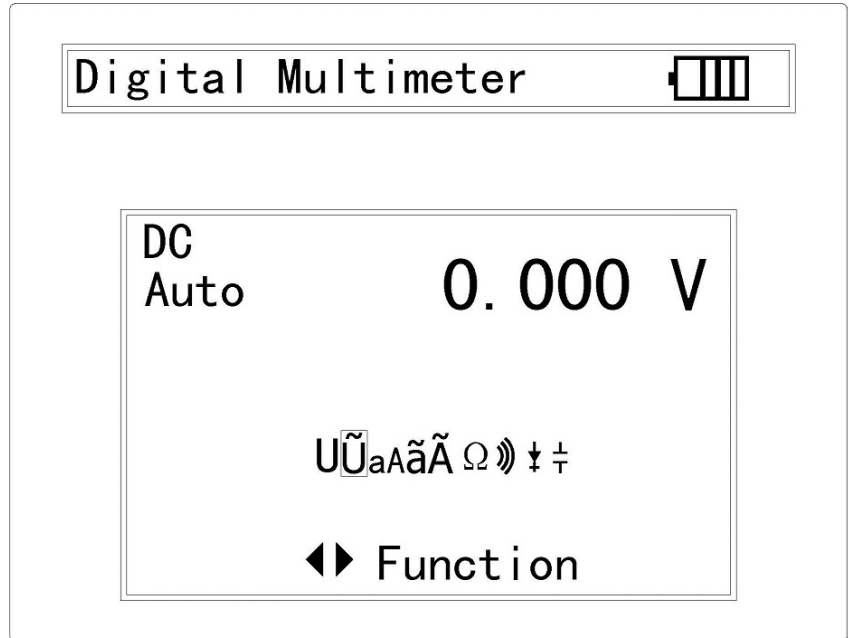
### 3.8.2.2 AC Voltage Measuring

**WARNING!**

**DO NOT input the voltage which more than 660V AC, it's possible to show higher voltage, but it's may destroy the inner circuit.**

**Pay attention not to get an electric shock when measuring high voltage.**

- Connect the black test lead to the COM jack and the red test lead to the V jack.
- Press LEFT / RIGHT to set the highlight cursor on the AC measurement.
- Connect test leads across the source or load under measurement.
- The value will be displayed on the LCD. The polarity of the red lead connection will be indicated along with the voltage value.

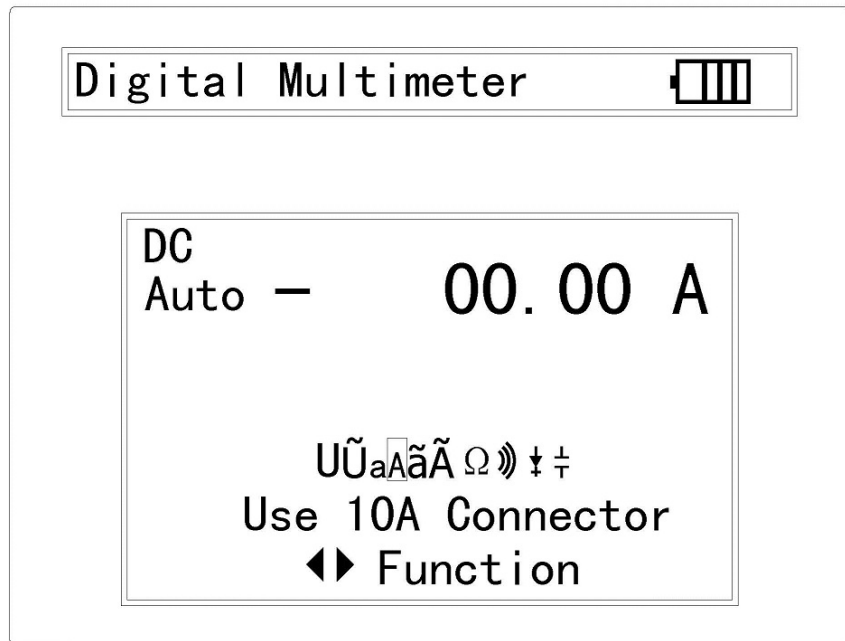
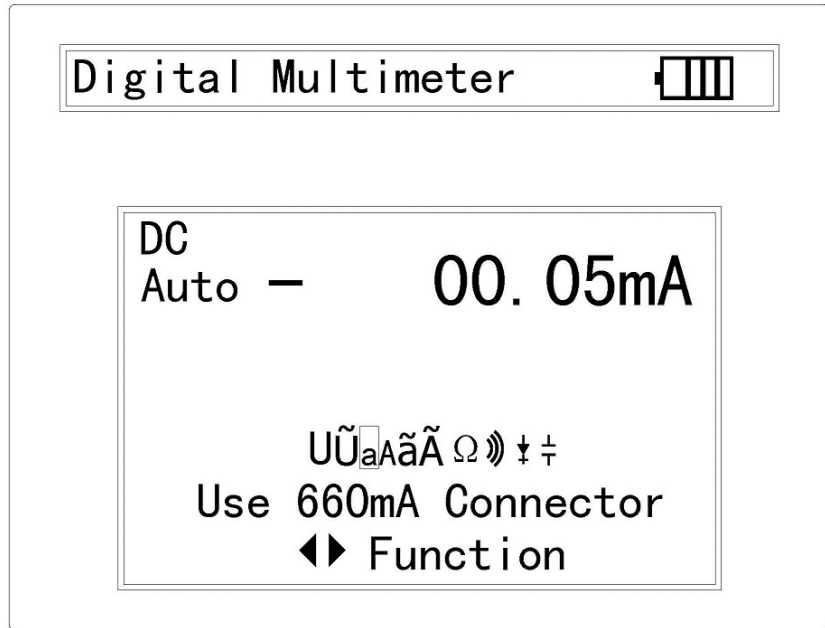


### 3.8.2.3 DC Current Measuring

**WARNING!**

**Shut down the power of the test circuit; connect the meter with the circuit for measurement.**

- a. Connect the black test lead to the COM jack and the red test lead to the mA jack for a maximum of 660mA current. For a maximum of 10A, move the red lead to the 10A jack.
- b. Press LEFT / RIGHT to set the highlight cursor on the DC current measurement.
- c. Connect test leads in series with the load under measurement.
- d. The value will be displayed on the LCD. The polarity of the red lead connection will be indicated along with the voltage value.



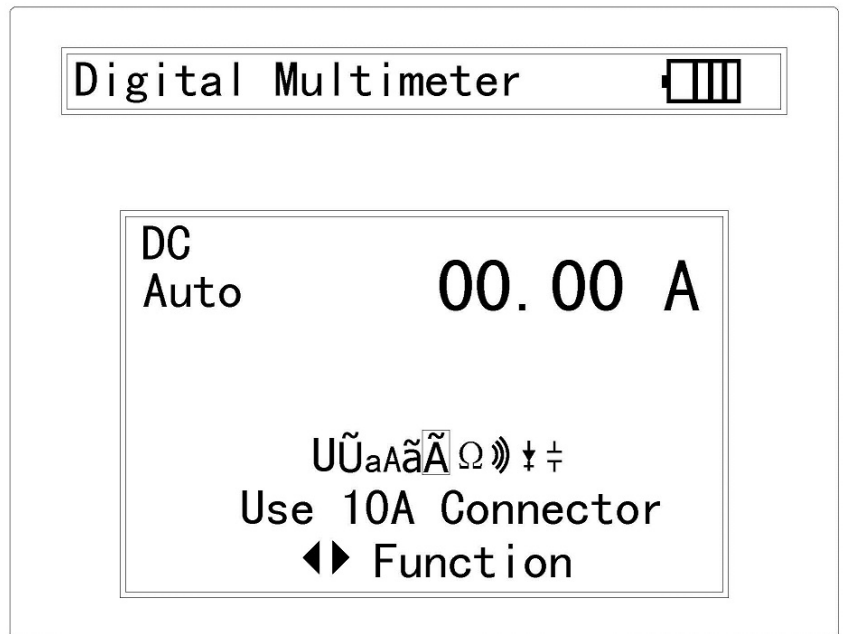
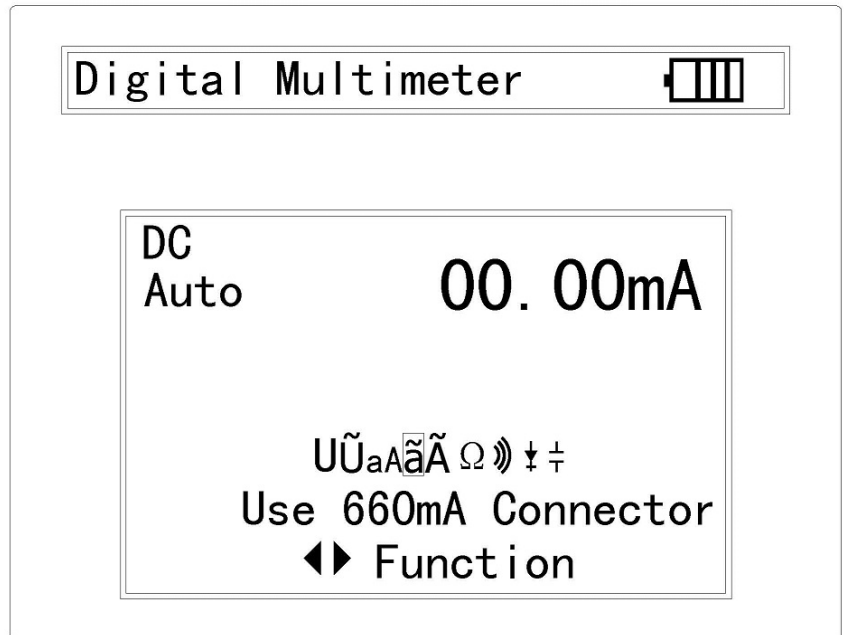
### 3.8.2.4 AC Current Measuring

**WARNING!**

**Shut down the power of the test circuit; connect the meter with the circuit for measurement.**

- a. Connect the black test lead to the COM jack and the red test lead to the mA jack for a maximum of 660mA current. For a maximum of 10A, move the red

- lead to the 10A jack.
- Press LEFT / RIGHT to set the highlight cursor on the AC current measurement.
  - Connect test leads in series with the load under measurement.
  - The value will be displayed on the LCD. The polarity of the red lead connection will be indicated along with the voltage value.

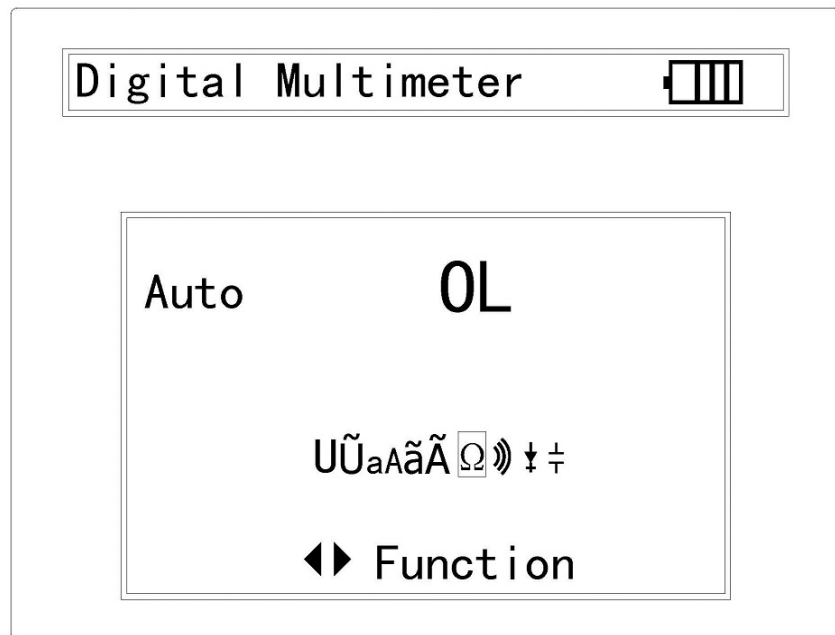


### 3.8.2.5 Resistance Measuring

**WARNING!**

**When measuring in-circuit resistance, be sure the circuit under test has all power removed and that all capacitors have discharged fully.**

- a. Connect the black test lead to the COM jack and the red test lead to the  $\Omega$  jack.
- b. Press LEFT / RIGHT to set the highlight cursor on the Resistance measurement.
- c. Connect test leads across the resistance under measurement.
- d. The value will be displayed on the LCD.



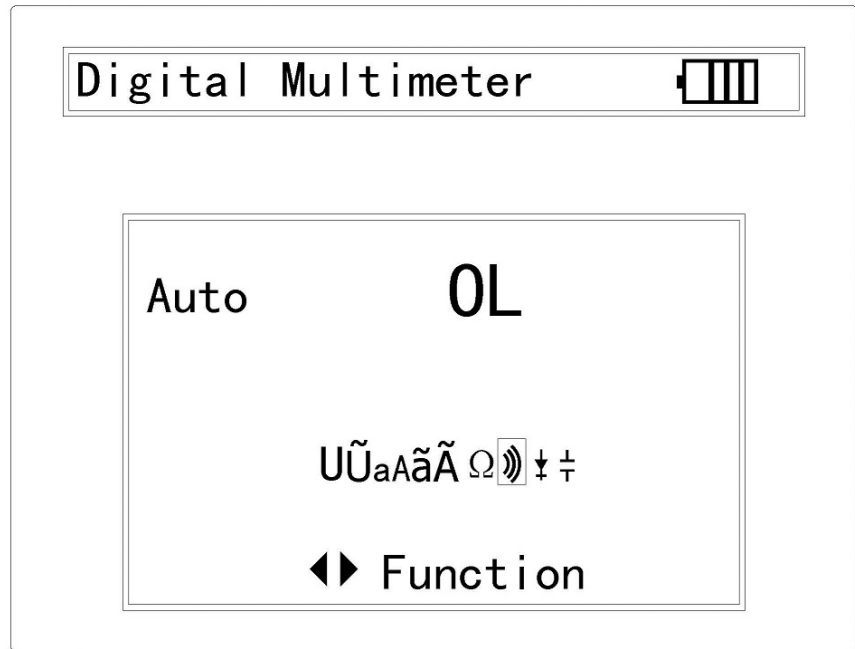
### 3.8.2.6 Continuity Testing

**WARNING!**


**When measuring in-circuit resistance, be sure the circuit under test has all power removed and that all capacitors have discharged fully.**

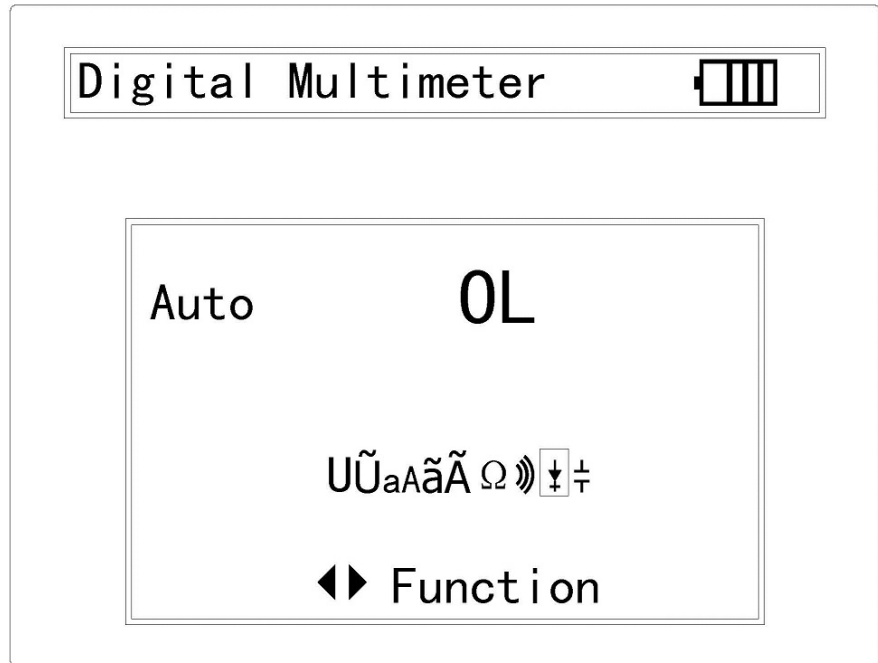
- a. Connect the black test lead to the COM jack and the red test lead to the  $\Omega$  jack.
- b. Press LEFT / RIGHT to set the highlight cursor on the continuity test.
- c. If continuity exists (i.e., resistance less than about  $50\Omega$ ), the built-in buzzer will beep.
- d. The value will be displayed on the LCD.





### 3.8.2.7 Diode Testing


- Connect the black test lead to the COM jack and the red test lead to the  jack.
- Press LEFT / RIGHT to set the highlight cursor on the Diode test.
- Connect test leads across to the anode, the black lead to the cathode of the diode under testing.
- The value will be displayed on the LCD.

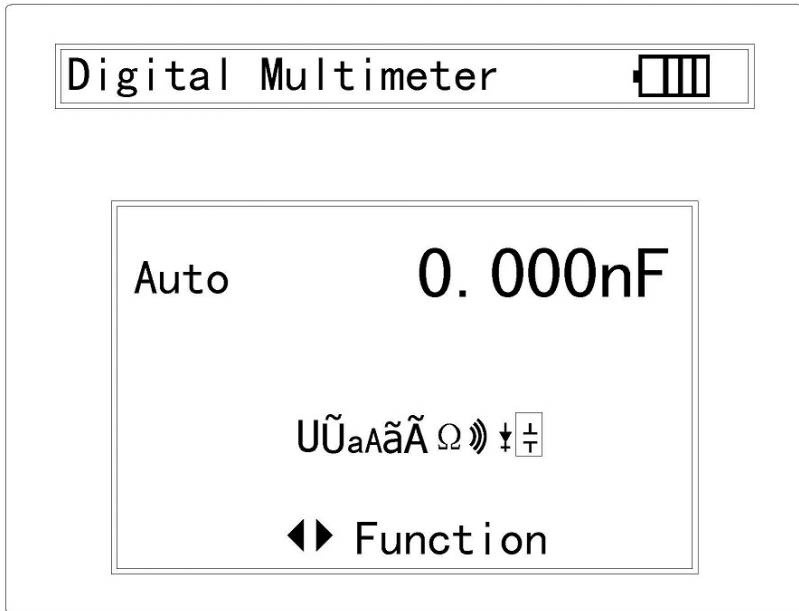


### 3.8.2.8 Capacitance Measuring

**WARNING!**

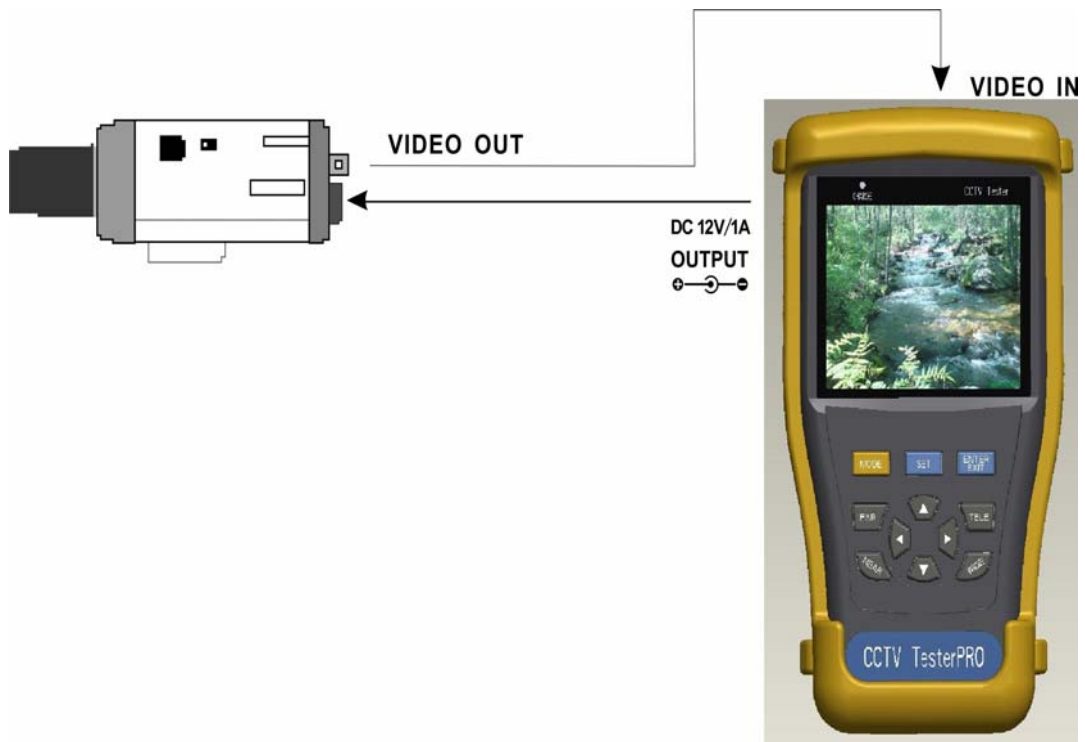
**To avoid electric shock, be sure the capacitors have been discharged fully before measuring the capacitance of a capacitor.**

- Connect the black test lead to the COM jack and the red test lead to the  jack.
- Press LEFT / RIGHT to set the highlight cursor on the Capacitance Measuring.
- Before connect test leads across two sides of the capacitor under measurement, be sure that the capacitor has been discharged fully.
- The value will be displayed on the LCD.



#### 4 DC 12V power Input / Output

Power the camera with DC12V (1A) power output from the TESTER. It is helpful for demo and testing where there is no power supply available.



**Notice**

- a. Please use DC 12V power adaptor with standard 5  $\phi$  power jack for power charging.
- b. To support the DC 12V output to a CCTV camera, a proper power cable with F-M adaptor cable may necessary.
- c. When the requirement of the camera is higher than 1A, the CCTV tester will enter protection mode. Disconnect all the connections of the CCTV tester and then connect the CCTV tester with power adaptor to resume the CCTV tester.

**5 Audio input**

Test the audio input from pickup devices. Connect the TESTER and pickup device with the RCA audio jack.

## 6 Specification

<b>Video Test</b>	
Video signal system	NTSC/PAL (Auto detect)
LCD	3.5" TFT-LCD, resolution = 960 x 240
Video parameter	CONTRAST / BRIGHTNESS / COLOR / LANGUAGE / KEY TONE
Video IN/OUT	BNC jack
Video Output spec	1.0 Vp-p
<b>PTZ controller</b>	
Communication	RS232 / RS485
PTZ Protocol	Compatible with PELCO-D, PELCO-P, Yaan, Samsung, Lilin, Molyax, Minking, AD, Fastrax, CBC, SONY, LG, DTA, Pearmain, Vicon, Vcltp, DHYCT06, SANYO.
Baud Rate (bps)	300/600/1200/2400/4800/9600/19200
<b>Video Signal Generation</b>	
Color bar generation	Output one channel PAL/NTSC colorbar video signal for testing monitor or video cable.
<b>Digital multi-meter</b>	
Multi-meter	DC Voltage/Current, AC Voltage/Current, Resistance and Capacitance measuring, Continuity testing, Diode testing, Capacitance.
<b>UTP CABLE TEST</b>	
UTP cable test	Test UTP cable connection status and display in the screen. Read the number of the test box.
<b>DC12V 1A power output</b>	
DC12V power output	Output DC12V1A power for camera
<b>Audio input test</b>	
Audio input test	test the pickup and other audio equipments on the front-end
<b>RS485/RS232 data analyst</b>	
Data Monitor	Captures and analyzes the command data from controlling device
<b>POWER</b>	
Power Adapter	DC12V/1A
Battery	Built-in 12V/1050mAh Li-poly battery

Rechargeable	After charging 3-4 hour, working time lasts 4-5 hours
Low Consumption	Energy saving technology
<b>General</b>	
Working Temperature	0°C---+70°C
Working Humidity	30%-90%
Dimension/Weight	176mmx94mmx36mm/340g