CCTV SECURITY TESTER User's Manual

CCTV SECURITY TESTER

PTZ Controller
Video Analize
Cable Tester
Data Monitor
Device Set
PTZ Address Search
Record Playback
Digtital Multimeter
Optical Power Meter

MODE   SET   POWER

FOCUS   ZOOM   IRIS

◆ Thank you for purchasing the CCTV security tester. Please read this manual before using the CCTV SECURITY TESTER, and use properly.

◆ For using the CCTV SECURITY TESTER safely, please first read the「Safety Information」carefully.

◆ The manual should be kept well in case for reference.

◆ Keep the S/N label for after-sale service within warranty period. Product without S/N label will be charged for repair service.

◆ Functions with (*) marking is available on part of modules of the device .

◆ If there is any question or problem while using the CCTV SECURITY TESTER, or damages occurred on the product, please contact our technical Department.

CONTENTS

1. Safety Precautions

◆ When using the instrument, be sure to comply with local electrical rules. Avoid hospitals, gas stations and other places where electrical use is not allowed.

◆ When use the instrument, please use the original accessories to avoid damage caused by the use of unauthorized accessories.

◆ Supplied accessories is only for the equipment usage. Please do not use for other purposes, avoiding malfunction or unpredictable accident.

◆ Do not expose the product to rain or moisture, in order to avoid performance degradation or damage.

◆ Do not have the instrument exposed to contact with dust or liquid.

◆ During transportation and usage of the device, should avoid violent collision and shock, otherwise the product may not work properly due to damage of components.

◆ While charging the device, please do not leave it unwatched.If the battery is heating badly, user should cut off power immediately.charging time should be no more than eight hours.

◆ Do not connect or remove any cable when the the device is power on.

◆ Do not use in high humidity areas. If the equipment gets wet, user should immediately disconnect battery, power cable and all other cables.

◆ Do not use in environments containing flammable gases.

◆ Do not attempt to disassemble the instrument, no user-serviceable parts inside. If really necessary to disassemble, please contact with the our technical department.

◆ Do not use on the environment of strong electromagnetic interference.

◆ Do not touch the instrument with wet hands or wet objects.

◆ Do not use detergent cleaning, use a dry cloth to wipe off dirt. If the dirt is difficult to remove,use a soft cloth moistened with water or a neutral detergent and fully wrung out.

When using digital multimeter

◆ Before making any measurement, make sure probes are in good contact, correctly connected, and good insulation, to avoid electronic shock to user.

◆ When measuring, do not input signal that exceeds the device limit, avoiding electronic shock to user or damage to the device.

◆ When measuring voltage over 60V(DC) or 40V(AC), user should operate carefully, avoid electronic shock.

◆ Choosing right function, avoid mis-operating.

When switching DMM function , probes should be disconnected from test circuit.

◆ Do not measure voltage when probe is in current measure connector.

2. Video security Tester Introduction

2.1 overview

This device is designed dedicated for video surveillance installing and maintenance. Combined with video displayer, PTZ controller, DC12V power output, audio tester, color bar signal generator, RS485 data monitor* , cable tester, digital multimeter*,optical power meter*, digital zoom, video screen shot , video recorder, and other function.

This device is fully functional, easy to use, easy to carry, very suitable for video security engineering installation, maintenance of front-end camera equipment. Engineering, installation efficiency can be greatly improved ,reducing cost of maintenance.

2.2 Product highlights

◇ Save video screen shot, and record video.*

◇ Playback recorded video and review screen shot images. Data files can also be copied to PC via USB port.*

◇ Unique digital zoom function, the video image can be magnified.

◇ 3.5-inch high-resolution LCD screen, 480 * RGB * 320 (HVGA) resolution, 64K colors

◇ Video display brightness / contrast / color saturation adjustable; LCD backlight brightness adjustable .

◇ Video Format NTSC, PAL automatically recognize and standard prompt.

◇ Video signal level measurements, to test if video signal level is attenuated.

◇ DC12V 1A power output, to provide temporary power to the camera.

◇ Audio test, test microphones and other audio devices.

◇ Digital multimeter, test voltage, current, resistance,continuity, diode, and capacitance.*

◇ Optical power meter, used for optic fiber CCTV system, CATV system, optic fiber communication networks testing.*

◇ Multi-standard color bar signal generator (seven standard selectable), outputs standard color bar signal that meets the world.

◇ Dome camera address search function to help users find the dome camera address.

◇ Cable test function, testing network cable ,telephone line. Testing wire sequence and conductivity.

◇ Support RS232/RS485/RS422 interface, baud rate 150 - 19200bps adjustable.

◇ Support PELCO-P, PELCO-D, SAMSUNG,AD Manchester..., totally more than 30 control protocols.

◇ The PTZ data monitor helps user analysis control protocol command data. It helps engineers to determine whether the RS485 transmission is normal.

◇ PTZ control, user can control the camera pan,tilt,zoom, focus, iris. User can also operates dome camera built-in menu, save and recall preset position.*

◇ Graphic display of the battery level in real time. With advanced power control and protection circuit, low-power design, the device can work 11 hours for a single charge. The battery charge time is about 4 hours.

Functions with (*) marking is available on part of modules of the device .

2

2.3 Functions
2.3.1 video test
This tester device has a built-in 3.5-inch high-resolution digital LCD monitor, user can more easily inspect camera image quality.The device can automatically recognize the input signal standard(PAL or NTSC) .

2.3.2 Digital zoom function
With built-in high-speed image processor, the device can display portion content of input video. With digital zoom, user can inspect video details more clearly. For example, the camera image corners can be enlarged for detailed observation, finding focus blur.

2.3.3 Vide screen shot and video recording.*
The device can take screen shot of input video ,and save as JPEG format in the internal storage. Picture resolution is depend on input signal standard. For NTSC 720*480,for PAL 720*576.

The device can record input video, and save as AVI format in the internal storage. Record resolution is depend on input signal standard. For NTSC 720*480 30fps,for PAL 720*576 25fps.

2.3.4 Video signal level measurement
The device can measure video signal level, and tell whether the video signal strength attenuated or too high. If the video cable is too long or in poor condition, the video signal will be attenuated. Attenuation of the video signal will cause the image dim, lower image dynamic range. If the video signal level is too high ,it will cause the virtual shadow, and reduce the sharpness of the image. The video signal level measurement can display the video signal level value in real-time. if the value is out of normal range, a message will appear on the screen to remind.

2.3.5 PTZ control function
Built-in Pelco-D / P, SAMSUNG, Panasonic AD Manchester ... Totally more than 30 PTZ control protocol. Though RS485 ,RS422 or RS232 interface, the user can control the PTZ pan ,tilt , zoom , focus, and iris. Support pan speed, tilt speed adjustment; save presets and recall preset ; operate dome camera built-in menu, setting parameters of the camera.

2.3.6 multi-standard video signal generator
Multi-standard video generator send a variety of standards(PAL, NTSC and subbranches) standard color bar signal though Video Out port. Can be used to check the video transmission path of video channel. By inspecting received standard color graphics in the surveillance center, user can judge signal attenuation or interference during transmission.

The device can also displays input video while "Video Out" outputs color bar signal. This is used to test video transmission.for example testing a video optical transceiver or a video cable.

2.3.7 DC12V 1A power output function
The device has a built in 12V 1A power output, to provide a temporary power supply for camera when power line is not ready or camera power adapter is worn out.

2.3.8 Audio test function
Audio teste function can test microphones and other audio equipment.

2.3.9 Cable test function
This tester device has a cable test function. user can test various cable connection (2 or more wires connected). The device can also display the number of cable (remote test gadget number. Eg. 255). Equivalent to the cable splitter, user can tag numbers for a cable heap using multiple remote test gadgets.

2.3.10 PTZ control data monitor
This device can capture data from RS485/RS422/RS232 interface. Displays codes sent from multifunction keyboard or DVR. Used to inspect the surveillance center PTZ control command data, to verify RS485/RS232 data transmission. Device screen displays hexadecimal code, for example: PELCO-P: A0 00 (address) xx xx xx xx AF xx
PELCO-D: FF 01 (address) xx xx xx xx xx

2.3.11 PTZ address search function
Video security tester has address search function. It can help user to find dome camera address quickly . When user need to maintain a dome camera, he may not know the address of camera. There will be a lot of effort to remove the camera to look for the address. With PTZ address search function, user can quickly find the address of the dome camera.

2.3.12 high precision digital multimeter*
A 3 3/4 digit(6600 counts) digital multimeter. Used to measure DC/AC voltage, DC/AC current, resistor,conductivity, diodes, capacitor. Equipped with auto/manual ranging, differential testing and data hold function. High precision , easy to use.
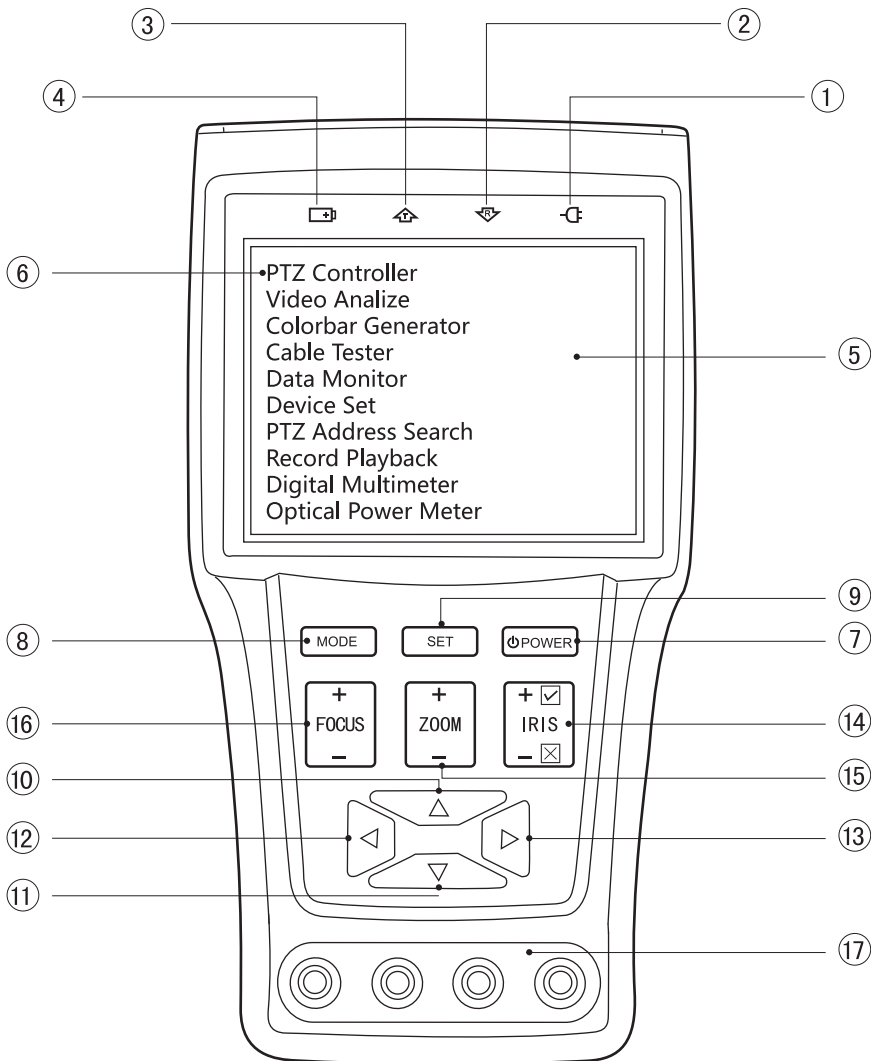
#### 2.3.13 high precision optical power meter *
The optical power meter is calibrated in 1625nm、1550nm、 1490nm、 1310nm、1300nm、 850nm wavelength. Can display data in linear mode or dB mode. Can be used to measure optical power, or measure optical fiber link lost.
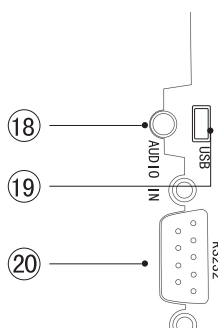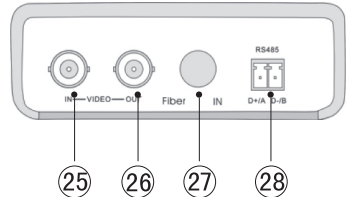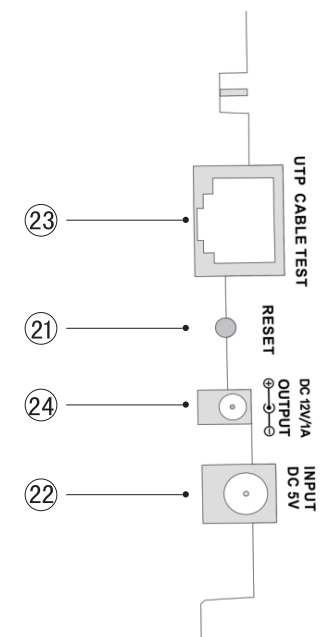
2.4 Accessories

1). Video security tester device

2). DC 5V 2.0A charger

3). Cable test gadget

4). li-polymer battery (3.7V DC 3000mAh)

5). multimeter probe*(one pair)

6). BNC cable

7). RS485 cable

9). Power output cable

10). USB cable*

11). AUDIO cable

12). Lanyard

13). Carriage bag

14). User's manual

15). inter-change fiber connector*

2.5 Device diagram and function

PTZ Controller
Video Analize
Colorbar Generator
Cable Tester
Data Monitor
Device Set
PTZ Address Search
Record Playback
Digital Multimeter
Optical Power Meter

MODE   SET   POWER

FOCUS   ZOOM   IRIS

1	⏻	External power indicator, when connected to external power supply, this green light is on.
2		Data receiving indicator, red lights flashing when receiving data.
3		Data transmission indicator light, red light flashes when sending data.
4		Charge indicator. When charging red light. After the battery is fully charged, this light is off.
5		Display area, display the video image, battery power, and the function menu and related data
6		The function menu, switch functions of the tester
7	⏻POWER	Press and hold for over 2 seconds to turn on or turn off the device. Short press to open or close the menu display.
8	MODE	Function select button. Use this key to bring up function select menu. Keep clicking this key or use the ▲ ▼ key to select device function.
9	SET	Settings button, use to bring up parameters setting menu for each function.
10	▲	Up Arrow. Change highlighted menu item/dome camera tilt control.
11	▼	Down Arrow. Change highlighted menu item/dome camera tilt control.
12	◄	The left arrow. Change highlighted parameters /dome camera pan control.
13	►	The right arrow. Change highlighted parameters /dome camera pan control.
14	+☑ IRIS −☒	Confirm and Cancel button. Some parameters setting needs confirm, press ☑ To confirm the change, press ☒ Cancel the setting. Controls camera iris.Or used as "blue" +/- button.
15	+ ZOOM −	Controls camera zoom. Or used as "red" +/- button.
16	+ FOCUS −	Controls camera focus. Or used as "yellow" +/- button.
17		Multimeter probe connector*
18		Audio input connector.
19		USB data connector and USB charger connector.
20		RS232 connector.

Figure of right side

Figure of top side

Figure of left side

21	RESET button. Restore to the factory default settings, and restarts device.
22	5V DC charger connector. Please use the 5V / 2A power adapter of accessories.
23	Cable test interface. Use with cable test gadget.
24	12V 1A DC temporary power output.
25	Video input BNC connector.
26	Video output BNC connector.
27	Optical fiber connector.*
28	RS485 connector, used for PTZ control.

3. instructions

3.1 Connecting battery and charging instructions

This device with built-in rechargeable lithium polymer battery. The battery was disconnected from circuit boards before leaving factory, compartment to ensure transport safety.

Before use, connect the battery connector to the socket on circuit board, the device will automatically boots. The battery is no longer needed to be disconnected from circuit board when using it. Press ⏻POWER Key and hold for over 2 seconds to turn power On / off.

⚠️ Note: Please use original Charger!

🔌 During charge, Red lights is on. After battery is fully charged, the light turns off.

⚠️ Note: After battery is run out, charge time is about 4 hours using DC adapter, USB charge time is about 8 hours.

⚠️ Note: If device is not functioning normally , disconnect all the cables, use a small tool to press the RESET button to restore to factory settings and restarts the device.

3.2 Instrument connection
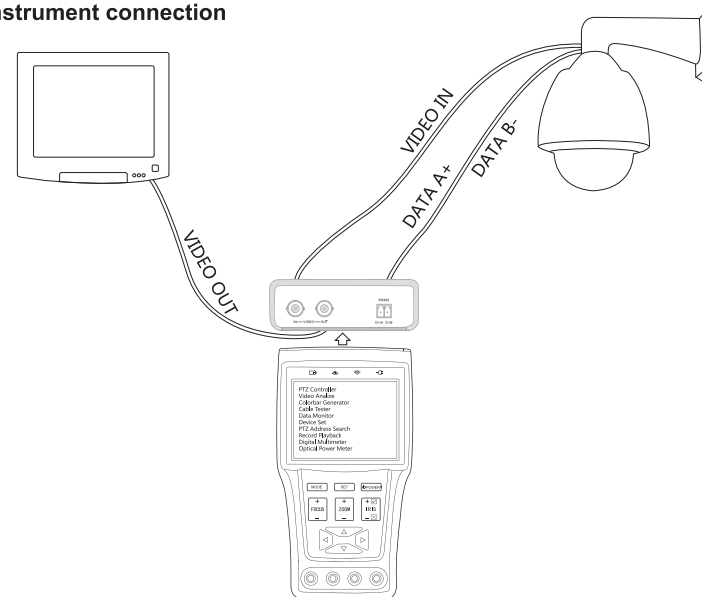
(1) Connect the video output of the camera to the video input of the video security tester. The LCD screen will display images from the camera;

(2) Connect the VIDEO OUT to an external monitor or optical video transceiver. The tester will output video while displaying.

(3) Connect camera PTZ RS485 wires to the RS485 port the tester. Beware of the cable polarity.
The tester also supports RS232 control. For system using RS232 , connect to RS232 port of the tester.

(4) When using multimeter, please strictly following the multimeter manual. Connect the red and black probe to the correct jack.

(5) When connecting an optical fiber, carefully align the fiber connector to the device "fiber in" coupler, avoid damage to the connector. Damage to the connector or coupler will reduce measure accuracy.

Black probe   Red probe
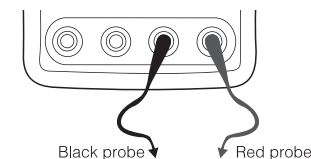
⚠️ warning: Device communication ports can not be connected to voltage over 6V, otherwise will break the internal circuit.
warning: Never measure voltage when probes is in to the current measure jack.

3.3 Menu operation

◆ Press and hold ⏻POWER for more than 2 seconds, device is turned on.

◆ When device is on, Press and hold ⏻POWER for more than 2 seconds, device is turned off. Auto power off is also available.

◆ When device is on, press MODE Function menu key will bring up the function select menu, press MODE multiply times or combine the use of ⭐⭐ to select function. Device will enter highlighted function if not switching for 2 seconds. User can also use ◀ to enter instantly.

◆ In some function mode, press SET to bring up parameter setting menu.

◆ After changing parameters, when there is a confirm prompt displayed, press ☑ to confirm. Or press ☒ to cancel.

3.3.1 PTZ controller

In PTZ controller function, screen will display input video. Press SET will bring up the PTZ parameter setting menu. Press ⏻POWER will turn off/on the PTZ controller title bar, displays full screen video.

When No video input, a "No input video" prompt will be displayed.(as figure on the right)

```
┌─────────────────────────────┐
│ 📷 PTZ Controller    00:00 🔋│
│                             │
│                             │
│      No Video Input         │
│                             │
│                             │
└─────────────────────────────┘
```
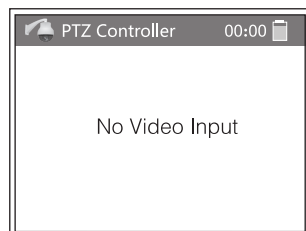
(1) PTZ controller parameter setting

In the PTZ controller mode, press SET to bring up the PTZ parameter setting menu.(as figure on the right). Use ⭐⭐ to highlight an item, use ◀ ▶ to change highlighted item values. If the changes parameters item need to be confirmed, a (Use ☑ To apply) prompt will be displayed, press ☑ to confirm or press ☒ to cancel.

```
┌─────────────────────────────┐
│ 📷 PTZ Controller    00:00 🔋│
│      protocol :  Pelco D     │
│          port :  RS485       │
│          baud :  2400        │
│       address :  1           │
│     pan speed :  40          │
│    tilt speed :  40          │
│    save preset : 8           │
│    call preset : 8  (Use☑To apply)│
└─────────────────────────────┘
```
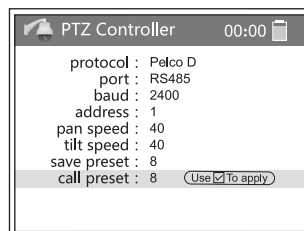
A. Protocol

Highlight the protocol item, then use ◀ ▶ to select PTZ protocol, or use the "yellow" key ⊞FOCUS to switch protocol when protocol item is not highlighted. The device with over 30 protocols available for users to choose ,containing: Pelco-P, Pelco-D, Samsung, Yaan, LiLin, CSR600, Panasonic, Sony-EVI , AD-Manchester ,etc..

B. Port

Highlight the "Port" item, then use ◀ ▶ to select PTZ control port . RS485, RS422 and RS232 is supported.

C. Baud rate

Highlight the "Baud" item, then use ◀ ▶ to select communication baud rate .baud rate.150/300/600/1200/2400 / 4800/9600/19200 is available.

D. Address

Highlight the "Address" item, then use ◀ ▶ to change to different address. When address item is not highlighted,use the "Red key ⊞ZOOM " to switch to different address directly. The address range is depend on protocol. For most protocol,address range is 0~255. Maximum address is 16383. The address setting must be same with the address of the dome camera to control.

E. pan speed

Highlight the "Pan speed" item, then use ◀ ▶ to change pan speed setting. Range is 0-63.

F. Tilt speed

Highlight the "Tilt speed" item, then use ◀ ▶ to change tilt speed setting. Range is 0-63.

G. set preset position

Highlight the "set preset " item, then use ◀ ▶ to change preset number. Range is 0~128. To actually save current camera position as a preset position, press ☑ . Maximum preset number is depend on dome camera.

H. call preset position

Highlight the "call preset " item, then use ◀ ▶ to change preset number. Range is 0~128. To actually call current camera position, press ☑ . Maximum preset number is depend on dome camera. For some dome camera, calling specified preset position will bring up the camera built in menu. Please refer to camera operating manual.

⚠ carefully check to make sure the protocol, address,port, baud parameter is meeting the camera setting. Otherwise the camera cannot be controlled.

After parameters setting, the tester can control the PTZ and lens:

+ ☑ IRIS − ☒	Press "+" to increase iris(open). press "-" to decrease iris(close).
+ ZOOM −	Press "+" to zoom tele. Press "-" to zoom wide.
+ FOCUS −	Press "+" to focus far. press "-" to focus near.
▲ ▼ ◄ ►	Controls pan and tilt.

(2) Dome camera preset position save and recall

Save presets position:
First set the PTZ parameter to gain control of the PTZ. And put the camera to desired position.

Then press SET to bring up the parameter set menu. Use ▲ ▼ to highlight the "set preset" item,and ◄ ► to select desired preset number.

Finally press ☑ to save the current position as a preset position, preset number is the setting number.

Calling preset position
First set the PTZ parameter to gain control of the PTZ.

Then press SET to bring up the parameter set menu. Use ▲ ▼ to highlight the "call preset" item,and ◄ ► to select desired preset number.

Finally press ☑ to call the desired preset position, preset number is the setting number. The camera will instantly turn to the preset position, including camera angle, zoom, focus and iris.

Note: The preset positions are save in the dome camera. Total settable preset number is depends on the dome camera.

(3) operating camera built-in menu

Different dome camera uses different way to operate their built-in menu. Here is just an example. Please refer to camera manual.

In this example, the dome camera uses preset number 64 to bring up the built-in menu. Under PTZ control function ,first gain control of the camera, then press SET to enter PTZ parameter setting, highlight "call preset" item. Use ◄ ► to change the value to 64. Press ☑ to confirm.

The camera built-in menu will be brought up. User can operate the menu using ▲ ▼ ◄ ► keys. For camera built-in menu operation, please refer to camera manual.

Dome camera built-in menu:

```
          MAIN MENU

      1.DISPLAY SETUP
      2.CAMERA SETUP
      3.CONTROL SETUP
      4.CAMERA MASK SET
      5.PROGRAM
      6.PAL  CAMERA
      7.CAM DEFAULT SET
      8.DOME RESET
      9.EXIT
```
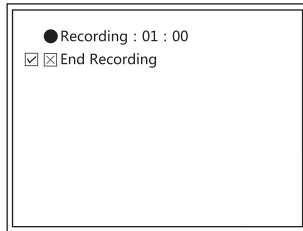
3.3.2 Video analyze

Press MODE multiply times or press ▲ ▼ to highlight the video analyze function. After two seconds, the device will enter video analyze function.

1. video screen shot

When in video analyze screen, press ☑ to save current frame to a file. If success, the file name will be displayed. Press any key to return. To review the screen shot, please go to the record playback function.

2. recording video

When in video analyze screen, press ☒ will start recording video. The screen will switch to video recording mode. A red dot flashes and a timer is counting. Press ☑ or ☒ to finish recording and return to video analyze screen. To review recorded video, please go to the record playback function.

```
● Recording : 01 : 00
☑ ☒ End Recording
```

3. Digital zoom function

When in video analyze, press [+ ZOOM −] to adjust digital zoom mode. "Fit screen" ,"1X" ,"2X" and " 4X " four zoom mode is supported. When selected zoom mode other than "fit screen", he video is only partially displayed on the screen. Use ▲ ▼ ◄ ► to move the view window around the full input video.

4、When in video analyze mode, the standard of input video (PAL or NTSC), will be displayed on the screen. This function needs no setup.

5、When in video analyze mode, the video signal level is constantly measured. The level of the input video signal is displayed on screen. By using different color of the prompt bar, (Amplitude:), the device is telling whether the video signal level(amplitude) is normal(blue) or exceeds normal range(orange).

6、when in video analyze mode, press (SET) will bring up the video display adjust screen. User can adjust the displayed video brightness, contrast, and color saturation. This setting only affects on the device video display, screen shot and video recording. Output video of the "video out" port is not affected.

```
  Video analyze        00:00
    Brightness : 10
    Contrast : 100%
    Saturation : 100%
```
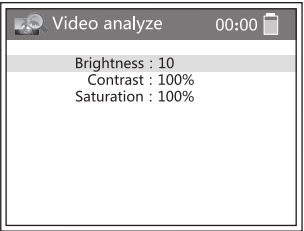
Digital zoom usage: It is common that cameras having defects like corner focus blur, or having dust on lens. And when installing a camera, user needs to adjust some finest detail. To discover the camera defects and do the adjust, there are some difficulty if using a small size screen. With the digital zoom function, user can do the job easily and efficiently.

Video signal level measurement function is mainly for finding signal attenuation. When video transmit cable is too long, signal attenuation is badly. This attenuation will cause image dim, reduce of image dynamic range. If video signal is too strong, it will cause the video shadow, reduce of clarity of image. The video signal level measurement function displays the video signal level real-time. Help user to verify the video quality and fixing problems.

3.3.3 The color bar signal generator

Press (MODE) multiply times, or use ▲ ▼ to highlight the color bar generator item in the function select menu. Device will enter the color bar signal generator function after two seconds.
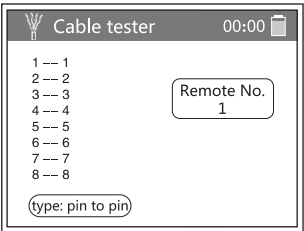
```
  Colorbar Generator   00:00
    standard : PAL-B,D,G,H,I
    display select : video Output
```
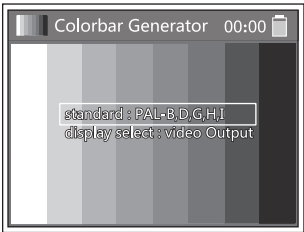
The color bar signal generator supports global PAL / NTSC seven standard. Highlight the "standard" then use ◄ ► to select different standard. Highlight "display select " item and use ◄ ► to select screen display. When selects "video output" the screen will display the output color bar screen. When selects "video input", the screen will display the video from the video in port.

This color bar signal generator generator function, can be used to test a video transmission channel, such as video optical transceiver or a video cable. To test a video optical transceiver, connect VIDEO OUT port to the optical transceiver input, and optical transceiver output to the tester VIDEO IN port. Then display selects the "video input", by inspecting the video ,user can judge the quality of the video transmission. At normal status, the input and output video should be exactly the same,If the screen does not displays a color bar but display "no video input" message, that means the transmit channel is not functioning. If the input video is distorted, that means the transmission channel is not good.

3.3.4 cable tester

Press ⬚MODE⬚ multiply times or combine the use of ⬚▲⬚ ⬚▼⬚keys to highlight the "cable tester" item. The device will enter the cable tester function after two seconds.
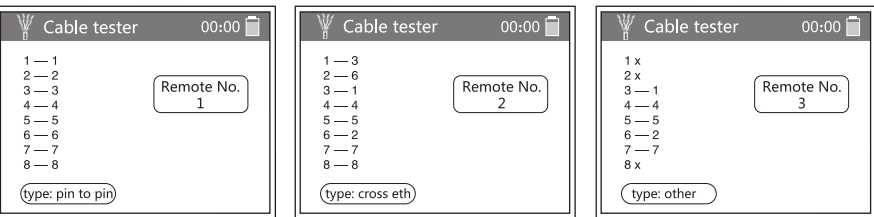
```
〰 Cable tester          00:00 ▯
1 — 1
2 — 2
3 — 3                ┌──────────┐
4 — 4                │Remote No.│
5 — 5                │    1     │
6 — 6                └──────────┘
7 — 7
8 — 8
(type: pin to pin)
```

This function can test cable with 2 to 8 core wire connected. With any two or more wires connected, this function can test the wire connecting sequence and conductivity. At the same time, this function is also displaying the number of the remote test gadget(Eg. 255). Using this remote number displaying function user can easily separate each cable from a bunch. One cable test gadget is provided as accessory.

◇ This function is together use with remote test gadgets.
◇ Connect one end of a cable to the test device, and the other end to the remote test gadget.
◇ By using multiply remote gadgets of different number (Sold separately), the remote number displaying function help can quickly separate each cable from a bunch.

Examples:
The following figure is screen of testing three different cables with three different remote test gadgets. Gadget No. 1, is testing a pin to pin cable, all wire is connected, Gadget No. 2 is testing a cross-Ethernet cable, all wire is connected. Gadget No. 3 is testing a cable with wire 1,2 and 8 disconnected or short circuit

```
〰 Cable tester    00:00 ▯
1 — 1
2 — 2
3 — 3          ┌──────────┐
4 — 4          │Remote No.│
5 — 5          │    1     │
6 — 6          └──────────┘
7 — 7
8 — 8
(type: pin to pin)
```

```
〰 Cable tester    00:00 ▯
1 — 3
2 — 6
3 — 1          ┌──────────┐
4 — 4          │Remote No.│
5 — 5          │    2     │
6 — 2          └──────────┘
7 — 7
8 — 8
(type: cross eth)
```

```
〰 Cable tester    00:00 ▯
1 x
2 x
3 — 1          ┌──────────┐
4 — 4          │Remote No.│
5 — 5          │    3     │
6 — 2          └──────────┘
7 — 7
8 x
(type: other)
```

3.3.5 Data monitor *

Press ⬚MODE⬚ multiply times or combine the use of ⬚▲⬚ ⬚▼⬚Keys to highlight the "Data Monitor" item, the device will enter "Data Monitor" function after two seconds.

```
▌▌ Data Monitor          00:00 ▯

port : RS485        baud : 2400

```
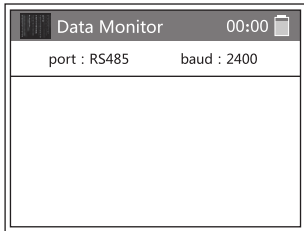
Press ⬚SET⬚ to highlight the "port:", then use ⬚▲⬚ ⬚▼⬚to change data port to monitor.

Press ⬚SET⬚to highlight the "baud:", then use⬚▲⬚ ⬚▼⬚to change data baud rate of transmission.

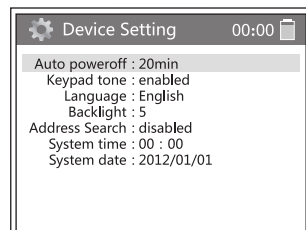When "port" or "baud"is highlighted use ☑ to confirm the change, Or use☒to discard change.

When not setting parameters, all data transmission on the data port will be displayed.

When not setting parameters, press ☑ or☒will empty all display data.

Use this data monitor function to capture data from control room keyboard or DVR. The data is sent to PTZs. User can judge if the transmission is good, by inspecting the displayed data.   (Note: data communication baud rate must be set to the exact transmission rate)
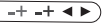
3.3.6 Tester settings

Press [MODE] multiply times or combine the use of ↘▲
↘▼ Keys to highlight the "Device setting" item, the device
will enter "Device setting" screen after two seconds.

```
⚙ Device Setting          00:00 🔋

Auto poweroff : 20min
Keypad tone : enabled
Language : English
Backlight : 5
Address Search : disabled
System time : 00 : 00
System date : 2012/01/01
```

Press ↘▲ ↘▼ to highlight items that needs change. Use ◄ ► to change settings.

If a (Use ☑ To apply) is displayed, use ☑ to save change. Or use ☒ to discard change.

Some item setting will take effect instantly and need no confirm.

When setting time and date, a key prompt is displayed: (-+ -+ ◄ ►). Use the "yellow""red"
and "white" keys to adjust the corresponding value.

Automatic power off : Set to automatically power off time from 5 to 60 minutes, or disable
this function. If not operating the device for a time exceeds the
setting, the tester will automatically shut down.

Keypad tone : Set keypad touch tone On of Off

Language : Selecting menu language.

Backlight : Setting the display backlight brightness. From 0 to 7 adjustable. High
brightness of the backlight is applicable to bright environment, but
consuming more battery.

PTZ address search: use to turn the address search function On/Off. This option is
automatcily reset to off every time tuning off the device. This is to
reduce the mis-operate of the address search function.
When this option is turned on, there will be a "address search"
item be added to the function select menu.

3.3.7 PTZ address scan

To use this function, you need to enter device setting and set the "address search" item to
"enable", and be sure to press ☑ to confirm. Then the "address search" function will appear
in the function select menu.

⚠ **Note:** When using this function, only operate in front-end with a single dome camera data
line connected. It is prohibited to use this function in backend with many camera
connected on a same data line. Otherwise it will cause multiple dome camera to rotate
constantly! Thus this function is turned off each time the device is turned off, user will need
to set the option on when you need to use it.

After enabling the PTZ address search function, choose to
enter the PTZ address search function.

```
🐾 PTZ Address Search  00:00 🔋

protocol : - Pelco D +
port : RS485
baud : 2400
address : - 1 +

(± StopSearch)
```
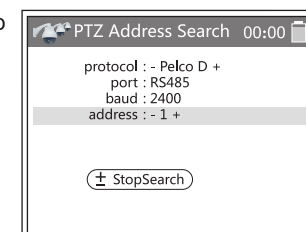
First set the protocol ,port and baudrate to meet the dome camera. Using [+ FOCUS -] can directly
adjust protocol, and [+ ZOOM -] can adjust address directly.

When the protocol, port and address are set to the same with the camera, the camera will
move down for a small angle. This movement can be observed on the tester screen. At this
time, user can do test control to the PTZ using ↘▲ ↘▼ ◄ ► .If control is confirmed,
press [MODE] to exit the the address search function.

When (± StartSearch) is displayed, press the "blue" key will start automatic address increase or
decrease. When the address passes the camera address, the camera will start to rotate to
its right side non-stop. User should keep watching the video and press "blue" key again to
stop the address increase or decrease once the camera to rotate. After address auto adjust
is stoped, user can use ↘▲ ↘▼ ◄ ► to test control the camera. If no success, user
should adjust address using [+ ZOOM -] . Once the address is same with the camera, the camera
will stop rotating, and move down a little. User can again use ↘▲ ↘▼ ◄ ► to test
control the camera.

After found the camera address, press [MODE] to exit the address search function.

3.4 DC12V 1A power output

The DC12V/1A OUTPUT port on the left side of the device is a temporary power supply for the camera. It should be used with power output cable in accessory. Connect the the smaller plug of the cable to the tester DC12V output, and the bigger plug to the camera power input port.

Power supply output function, is mainly used in demonstrating or testing a camera. In some field that need to install cameras, but the power line is not ready yet, the power supply function of the tester play the essential role then.

When the tester is turned on, the DC12V output is available.
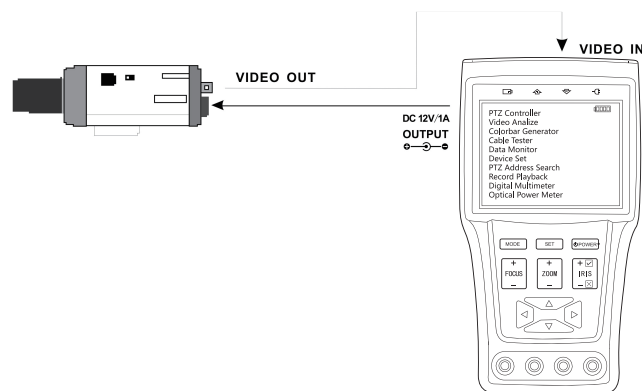
⚠️ **Note:**
1. Do not connect any external power supply to the device DC12V/1A OUTPUT port(like chargers, etc.). Otherwise the device will be damaged, and the external power supply device could be damaged too. Artificial damage is not within the scope of the device warranty.

2. Do not connect the DC12V/1A output to the tester DC5V power input port, otherwise the instrument may be damaged. Artificial damage is not within the scope of the device warranty.

3. The DC12V power output current is limited to 1A. If the camera current is higher than 1A, the tester will reduce output voltage to limit output current. In some cases, the tester may enter protected mode. In this case, disconnect DC12V power output cable from the tester and charge the tester using the tester charger. This will can release the protection.

4. When using this function, make sure that the battery level is full or over 50%, otherwise the power output time is very short.

3.5 Audio test function

The audio test function is used to test microphones or other audio equipment. Though the Through the tester device built in speaker, user can hear the audio. and judge the quality of microphone or audio equipment.
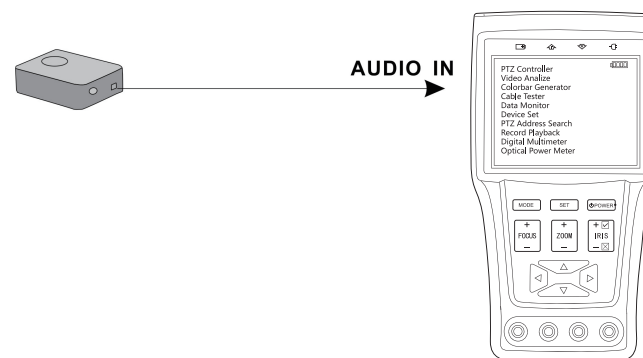
3.6 Record playback*

Press [MODE] multiply times or combine the use of [▲][▼] Keys to highlight the "Record playback" item, the device will enter "Record playback" screen after two seconds.

In the record playback function, first screen is the folder list(figure 1). Folder name is the record date. For example :"20120102" is a folder contains all screen shot and video file recorded on 2012-01-02

As figure 2, [ ] is for screen shot image files; [ ] is for video record files.

For file names, "20120101-010306.avi" means the video record start time is 2012-01-01 01:03:06.

Record playback 00:00
20120101
20121120
20121121
20121122

Record playback 00:00
..
20120101-005932.jpg
20120101-010306.AVI
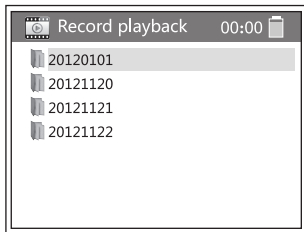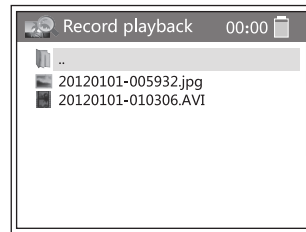
Figure 1   Figure 2

1. file/folder operation

In the folder/file select screen, use [▲][▼] to select folder, [FOCUS] to scroll page, and enter highlighted folder using [▶].

Selecting [ ].. means return to upper level.

To delete a file of a folder, highlight it then press [SET], then operate according to screen prompt.

2. screen shot playback operation

In file/folder select screen, highlight the screen shot image file([ ]) ,press [◀] or [☑] to open. The screen shot image will be displayed. And a [ ] icon flashed on the left top corner, indicating this is a screen shot playback, not the input video.

User can use [ZOOM] to digital zoom the image. Fit screen, 1x,2x,4x, four modes supported. When the image is zoomed, only part of the image can be displayed, use [▲][▼][◀][▶] to move the viewing window around the image.

Press [☑] or [☒] to close the image and return to file/folder select screen.

3. Video playback operation

In file/folder select screen, highlight the video file([ ]) ,press [▶] or [☑] to open. The video will start to play. While playing, a play status icon, playtime and total time is displayed on the left top corner, indicating this is a video playback, not the input video.

When recorded video playing, press [☑] will pause or resume playback, [◀] rewind 5 seconds, [▶] fast forward 5 seconds [☒], will stop playing and return to file/folder select screen.

3.7 Digital Multimeter*

Press [MODE] multiply times or combine the use of [▲][▼] Keys to highlight the "Digital multimeter" item, the device will enter "Digital multimeter" screen after two seconds.

Digital Multimeter 00:00
0.000 v DC
±autoRanging ±HonId ±Relative
V Ṽ A Ã Ω))) ⚡ ╪
◀▶ Function
▲▼ Range
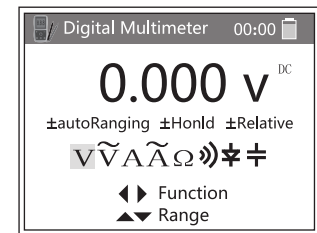
(1) Function Button:

[FOCUS]: Auto range   [ZOOM]: Data hold   [IRIS]: Relative measuring

[◀][▶] : Function select   [▲][▼] : Manual range

(2) SYMBOLS:

V: DC Voltage Measuring   Ṽ: AC Voltage Measuring

A: DC Current Measuring   Ã: AC Current Measuring

Ω: Resistance Measuring   ))) : Continuity Testing

⚡: Diode Testing   ╪ : Capacitance Measuring

HOLD(white): display is hold, not updating.

Relative(white): display is in relative mode.

(3) OPERATING INSTRUCTION

A. DC Voltage Measuring

WARNING!

User must not input voltage over 660V DC. Otherwise may destroy the inner circuit, and even endangers personal safety.

Be sure not to get electric shock when measuring high voltage.
---

a. Connect the black test probe to the COM jack and the red test probe to the V jack.

b. Press ◄ ► to select V. To manual adjust range, Press ▲ ▼. To re-enable auto ranging, press [FOCUS].

Manual range： 0.000V → 6.6V range

00.00V → 66V range

000.0V → 660V range

000.0mV → 660mV range

c. Connect test probes across the source or load under measurement.

d. User can get reading from LCD.

⚠ **NOTE:**

When only the figure "-OL-" is displayed, it indicates over range situation and the higher range should be selected.

When the signal scale to be measured is unknown beforehand, set the range to highest first.

B. AC Voltage Measuring

WARNING!

User must not input voltage over 660V AC. Otherwise may destroy the inner circuit, and even endangers personal safety.

Be sure not to get electric shock when measuring high voltage.
---

a. Connect the black test probe to the COM jack and the red test probe to the V jack.

b. Press ◄ ► to select $\tilde{V}$. To manual adjust range, Press ▲ ▼. To re-enable auto ranging, press [FOCUS].

Manual range： 0.000V → 6.6V range

00.00V → 66V range

000.0V → 660V range

000.0mV → 660mV range

c. Connect test probes across the source or load under measurement.

d. User can get reading from LCD.

⚠ **NOTE:**

When only the figure "-OL-" is displayed, it indicates over range situation and the higher range should be selected.

When the signal scale to be measured is unknown beforehand, set the range to highest first.

C． DC Current Measuring

WARNING!
Turn off the power of the circuit to be tested, then connect the meter with the circuit for measurement．

a. Connect the black test probe to the COM jack and the red test probe to the mA jack for current of not over 660mA . For a maximum of 10A current measurement , move the red probe to the 10A jack．

b. Press ◄ ► to select "A". Manual set range by press ▲ ▼ , only manual range supported．

Manual range： 0.000mA → 6.6mA range

00.00mA → 66mA range

000.0mA → 660mA range

00.00A → 10A range（use 10A socket）

⚠ **NOTE:**
When "OL" is displayed, it indicates over range situation and the higher range must be selected．

When the current scale to be measured is unknown beforehand, select highest range．

The maximum current apply to the mA socket is 660mA, over-current will burn the internal fuse, and may damage the meter．

The maximum current of 10A socket is 10A, over-current will destroy the meter, and endangers personal safety．

D． AC Current Measuring

WARNING!
Turn off the power of the circuit to be tested, then connect the meter with the circuit for measurement．

a. Connect the black test probe to the COM jack and the red test probe to the mA jack for current of not over 660mA . For a maximum of 10A current measurement , move the red probe to the 10A jack．

b. Press ◄ ► to select " Ã ". Manual set range by press ▲ ▼, only manual range supported．

Manual range： 0.000mA → 6.6mA range

00.00mA → 66mA range

000.0mA → 660mA range

00.00A → 10A range（use 10A socket）

⚠ **NOTE:**
When "-OL-" is displayed, it indicates over range situation and the higher range must be selected．

When the current scale to be measured is unknown beforehand, select highest range．

The maximum current apply to the mA socket is 660mA, over-current will burn the internal fuse, and may damage the meter．

The maximum current of 10A socket is 10A, over-current will destroy the meter, and endangers personal safety．

E．Resistance Measuring

> WARNING!
> When measuring in-circuit resistance, be sure the circuit under test has all power removed.

a. Connect the black test probe to the COM jack and the red test probe to the Ω jack.

b. Press ◀ ▶ to select "Ω". To Manually set range, press ▲ ▼ .To re-enable auto ranging, press FOCUS .

Manual range：(connect the red probe to black probe, will display the measure range)

       000.0Ω → 660Ω range

       0.000 KΩ → 6KΩ range

       00.00 KΩ → 66KΩ range

       000.0 KΩ → 660KΩ range

       0.000 MΩ → 6MΩ range

       00.00 MΩ → 66MΩ range

c. Connect test leads across the resistance to be measured

d. User can get reading from LCD.

⚠ **NOTE**:
When only the figure "-OL-" is displayed, it indicates over range situation or target resistor is not connected. When over range, higher range has to be selected to get resistor value reading.

F．Continuity Testing

> WARNING!
> When testing circuit continuity, be sure that power of the circuit is off.

a. Connect the black test probe to the COM jack and the red test probe to the Ω jack.

b. Press ◀ ▶ to select ﹀ .

c. Connect test probes across two point of the circuit under testing.

d. If the two test point is conductive (i.e., resistance below 30Ω), built-in buzzer will sound.

e. User can get resistance reading from LCD.

⚠ **NOTE**:
If input open circuit(or the circuit resistance measured is higher than 660Ω,then the figure "OL" will be displayed.

G．Diode Testing

a. Connect the black test probe to the COM jack and the red test probe to the jack.

b. Press ◀ ▶ to select ⊣⊢ .

c. Connect red probe across to the anode, the black probe to the cathode of the diode under testing.

d. You can get forward voltage drop reading of the diode from LCD.

⚠ **NOTE**:
The meter will show approximate forward voltage drop of the diode.
If the diode is connected reverse, figure "-OL-" will be display.

H． Capacitance Measuring

> WARNING!
> To avoid electric shock, be sure the capacitors have been fully discharged
> before measuring.

a. Connect the black probe to the COM jack and the red probe to the jack.

b. Press ◀ ▶ to select ╪. To Manually set range, press ▽▲ ▽▼ .To re-enable auto ranging, press [FOCUS]

Manual range： 0.000nF → 6.6nF range
　　　　　　00.00nF → 66nF range
　　　　　　000.0nF → 660nF range
　　　　　　0.000uF → 6.6μF range
　　　　　　00.00uF → 66μF range
　　　　　　000.0uF → 660μF range
　　　　　　0.000mF → 6.6mF range
　　　　　　00.00mF → 66mF range

c. Connect test probes across the capacitor.

d. You can get capacitance reading from LCD.

⚠ **NOTE**:
　　when in 66mF range, the measure time could be longer than other measure modes. Up to
　　6.6 second maximum.
　　If the test capacitor is electrically breakdown, the meter will not give a capacitance reading.
　　This is normal, meter will return to normal after the probes disconnected form the broken
　　capacitor.

3.8 Optical power meter*

(1) Function Button：
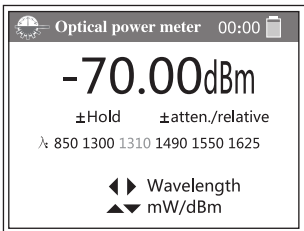
[FOCUS] ： Data hold　　　　　　　[IRIS] ： Relative/ atten. measuring

◀ ▶ ： Wavelength select　　　　▽▲ ▽▼ ： mW/dBm units select

(2) OPERATING INSTRUCTION

A． Absolute power value measurement

1． Select the wavelength using ◀ ▶ key.

2． Insert the optical fiber to be measured, the optical power value is displayed in LCD.

3． Linear and logarithm value of the current optical power displayed can be selected by pressing ▽▲ ▽▼ . The unit is:mW or dBm.

B． Relative power value (optical link loss) measurement

a) Select the wavelength for measurement.

b) Measure the optical power, and set to dBm display.

c) press [IRIS] .The current optical power value is stored as the base reference value.

d) Insert another optical fiber to be measured, the relative power value is displayed. The optical power meter displays loss of the fiber under test , the unit of loss value must be dB.

4. SPECIFICATION

4.1 OVERALL

Model	CCTV SECURITY TESTER
Video test	
Video System	NTSC/PAL Automatically recognize
Video level	1Vpp
Display screen	3.5-inch LCD 480 * RGB * 320 (HVGA) resolution, 64K color
Screen adjustment	Video display brightness, contrast, color saturation adjustable, LCD backlight brightness adjustable
Video input / output	1 channel BNC Video IN , 1 channel BNC Video output
Signal level measurement	Measure the video signal level, and displays exception information
Digital zoom	Supports "fit screen" "1X""2X""4X" options
Video screen shot and video record*	
Video screen shot	Save current video frame as JPEG file.
Video record	Record video in AVI format.
12V power output	
Power output	temporary power output 12V 1A DC
Audio test	
Audio test	Input audio signal, and played on the internal speaker
PTZ control test	
Communication Interface PTZ protocol	RS232/RS485/RS422 bus support
Baud Rate	Built-in Pelco-D/P, Samsung, Panasonic, Lilin, Yaan, AD-Manchester,... Totally over 30 protocol 150，300，600，1200，2400，4800，9600，19200bps
Color image generator	
Video signal generator	Generates industry standard color bar signal . Supports PAL / NTSC, totally 7 different subbranch standard.
Cable test	
cable test	Test any two or more wire cable Display connect sequence and remote number
Data monitor	
Data monitor	RS232/RS485/RS422 bus support
Power supply	
External power supply	DC 5V（2A）
Battery-powered	Built-in 3.7V li-polymer battery, Capacity 3000mAh
Charge	Charge time 3-4 hours Battery power time 11 hours
Power saving features	Low power consumption, automatic power off, Real-time display of battery level
System settings	
Language settings	Chinese, English user selectable
Auto power off	Disable / 5-60 minutes
Keyboard sound	On / off
Working environment and Specifications	
Temperature	-20℃—+70℃
Humidity	30%-90% Rh
Dimension	175mm x 94mm x 35mm （without protection case） 190mm x 105mm x 45mm （with protection case）
Gross weight	1.15KG

4.2 digital multimeter specification*

Reading range：-6600～+6600
Zeroing: auto
Conversion rate : 3pps
DMM Isolation : DMM probes are electrically isolated with all other tester connector(1KV).

DC voltage

range	accuracy	resolution
660mV (avaliabe in manual ranging)	±（0.3%+4）	0.1mV
6.6V		1mV
66V		10mV
660V		100mV

AC votage

range	accuracy	resolution
660mV (avaliabe in manual ranging)	±（1.5%+6）	0.1mV
6.6V	±（0.8%+6）	1mV
66V		10mV
660V		100mV

DC Current

range	accuracy	resolution
6.6mA	±（0.5%+3）	1uA
66mA		10uA
660mA		100uA
10A	±（1%+5）	10mA

AC Current

range	accuracy	resolution
6.6mA	±（0.5%+3）	1uA
66mA		10uA
660mA		100uA
10A	±（1%+5）	10mA

Resistor measurement：

range	accuracy	resolution
660Ω	±（0.8%+5）	0.1Ω
6.6KΩ	±（0.8%+2）	1Ω
66KΩ		10Ω
660KΩ		100Ω
6.6MΩ		1KΩ
66MΩ	±（1.2%+5）	10KΩ

Functions with (*) marking is available on part of modules of the device .

》conductivity test

range	accuracy	Test condition
660 Ω	0.1 Ω	Buzzer sounds when resistance is blow 30 Ω ± 3 Ω

Diode tet

range	accuracy	Reference forward drop voltage
2.0V	1mV	Schottky diodes：0.15 ~ 0.25V power diodes：0.6 ~ 1.0V PN junction of a transistor 0.5 ~ 0.8V

Capacitor test

range	resolution	accuracy
6.6nF	± （0.5%+20）	1pF
66nF		10pF
660nF	± （3.5%+8）	100pF
6.6 μ F		1nF
66 μ F		10nF
660 μ F		100nF
6.6mF	± （5%+8）	1 μ F
66mF		10 μ F

4.3 Optical power meter*

detector type	InGaAs
Calibrated wavelength	1625nm、1550nm、1480nm、1310nm、1300nm、850nm
measure range	−70 ~ +10 dBm
accuracy	< ± 0.03dB （−10dBm, 22℃） < ± 0.1dB（full range, 22℃）
Display resolution	linear: 0.1%, logarithm:0.01dBm
coupler	FC/PC inter−changeable
Operating temperature	− 10℃ ~ +50℃
Storage temperature	−20℃ ~ +70℃

The data above is only for reference and any change to them will not be informed in advance. For more detailed technical inquiries, please contact our Technical Department.