

Multifunction Video Inspection

Model: DCS500T/DCS500R

Operation Manual



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Overview

DCS500T/DCS500R Multifunction video inspection has been designed as a user friendly and economical way of solving hidden problems and increasing productivity. (eg. Inspect vent pipe and system of air conditioner, machine equipment, engine and so on).

The product has a high clarity color LCD of 5 ” size. It uses an interchangeable 9mm probe and can be connected to probes with different length and diameter (customized camera head and probes are also available). The camera head is with adjustable LED lights, which helps you to inspect gaps and holes. The camera head can equip with several accessories(magnet, mirror, hook etc.), making it more flexible.

DCS500T/DCS500R can take a photo wirelessly .It has built-in polymer lithium battery, also could use AC adapter for charging with LED indicator. The screen can detach from grip and the grip can control monitor to take photos and videos. DCS500T/DCS500R has an internal memory (support Micro SD), and is capable to capture videos and take photos both manually and automatically. It has a built-in microphone and a speaker, which makes it possible to record and playback sound. The product has a TV output and a USB port, which allows the users to connect the unit to a TV or a computer. The product also supports image zooming and rotation. It has the advantages of small size, clear image, stable performance, easy operation and portability. It is widely used in applications such as the industry, the building, the aviation, the vehicles maintenance.

Safety Instructions

Failure to follow the instructions listed below may result in electric shock or personal injury.

- Read and understand all instructions prior to any operation.
- Do not remove any labels from the tool.
- Keep the work area clean and well lit, cluttered and dark areas may cause accidents.
- Do not operate the tool with the presence of flammable/explosive gases.
- Do not use the product around corrosive chemicals, which can ruin the picture quality.
- Keep bystanders、 children and visitors away while operating the tool.
- Stay alert, watch what you are doing and use common sense. A moment of inattention will result in serious personal injury.
- Do not overreach. Keep proper footing and balance all the time.
- Always wear protective eyewear. Dust mask、non-skid safety shoes、hard hat or hearing protection must be used for appropriate conditions.
- Do not place this product on any unstable cart or surface. The product may fall causing serious injury to a person or serious damage to the product.
- For safety please always keep the video inspection away from any kind of liquid. Liquid increases the risk of

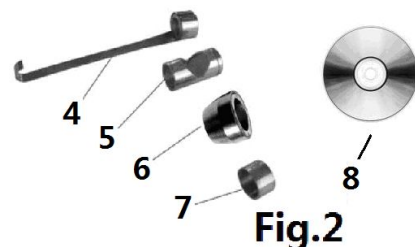
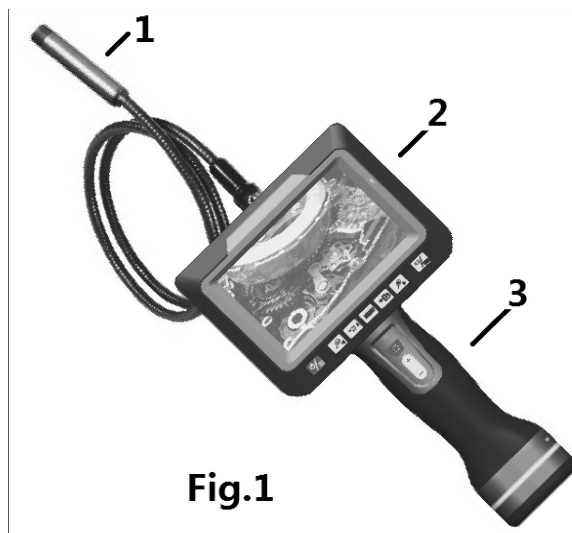
electrical shock and damage to the product.

- Do not use this device for personal or medical use.
- The unit is not shock-resistant. Do not use it as a hammer or drop it.

Battery precautions

- Please use the standard factory power adapter, otherwise will destroy the inside battery.
- Please completely exhaust the power for the first time. And we recommend full charging and full discharging for the first three times. And the charging time should not less than 5 hours. Fully activate the battery could play maximum capacity of the built-in battery.
- The charging and discharging time differs because the different power from the factory.
- Please always keep the charging connector away from the metal and oily objects.
- Please fully charging the battery before it is not for use, to make sure the high performance while using.
- Don't compress and puncture the inside battery.
- Please stop operating if the inside battery is broken.
- Don't throw the product into fire, which will cause explosion.
- Please dispose the battery properly. High temperature will cause the battery to explode. Please follow the local regulations for disposing the old battery.

Product Configures



1. Camera and probe

2. LCD screen
3. Grip
4. Hook tip
5. 45° Mirror tip
6. Magnetic tip
7. Protection cap
8. CD Driver
9. DC adapter
10. TV cable
11. USB cable
12. Signal cable

Product overview

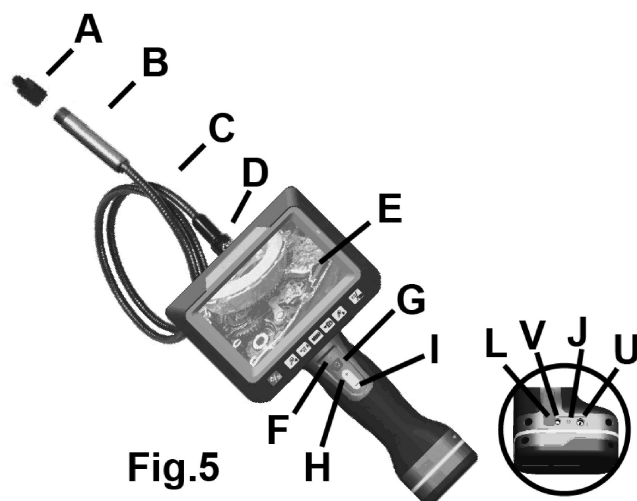


Fig.5

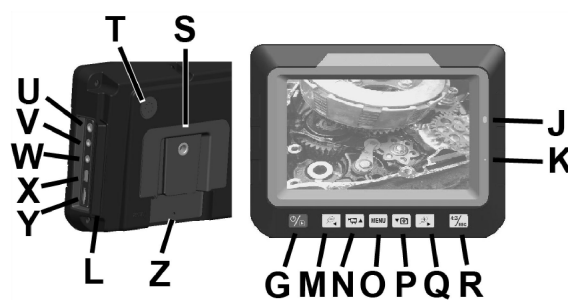















Fig.6

- A. Camera protection
- B. Camera head
- C. Probe
- D. Probe connector
- E. TFT screen
- F. Power indication
- G. Power button
- H. LED brightness increase key
- I. LED brightness decrease key
- J. Charging light indicator
- K. build-in microphone
- L. Plughole protection cover
- M.  key——left key/zoom out
- N.  key——upward key/video recording key
- O.  key——menu key

- P.  key——downward key/camera key
- Q.  key——right key/zoom in
- R.  key——screen display switch/ return key
- S. Tripod nut
- T. build-in microphone
- U. Charging interface
- V. signal interface
- W. TV output socket
- X. USB socket
- Y. Micro SD socket
- Z. reset pin hole

Screen Keys Instructions

Key	Preview Mode	Playback Mode	Menu
	switch to playback mode; press and hold for 3 seconds to power off the unit	switch to playback mode, press and hold for 3 seconds to power off the unit	press and hold for 3 seconds to power off the unit
	the screen display switch as 4:3 or:16:9	browse files in grid view, press again to browse folders	return to parent menu
	switch to main menu configures	switch to operations of current file: delete one file, delete all files, format memory etc.	setups and data/time settings
	image zoom out	display previous picture or video clip	left key
	image zoom in	display next picture or video clip	right key
	record video	Play and pause video playback	upward key/increase data/time
	Take photos manually	stop video playback	downward key/decrease data/time

Operation Instructions

●Battery Charging

- 1、 Connect the DC cable to the grip or screen.
- 2、 Plug the AC plugs to household power outlet.
- 3、 The LED L turns red ,means charging.
- 4、 The LED L turns green, means fully charging
- 5、 Pull out the AC plug of adapter.

Notes: DC adapter has double DC output plugs. If you want to charge both the grip and screen, you can connect the two plugs to the DC port of grip and screen.

●Connect the grip unit to camera probe

The inspecting grip must be connected to the camera probe. To connect the probe, make sure the keyed ends are properly aligned. (Fig7). Once they are aligned, finger tighten the nut.



Fig.7

Note: The probe can't be connected after the unit is on. Before connecting the probe, be sure the unit is off, in case of the current harms the unit.

●Accessories installation

The unit uses accessories for 9mm probe shown in Fig.2. Accessories and camera head are connected using thread connection. Put on the screw thread protector when no accessory is installed to avoid damage to the thread in daily use.

Remove the thread protector before install any accessories, then put on the accessory.

● Connect the grip to screen

The product can work both the grip detach from screen and the grip attach to screen; Slide the bottom of slot at the back screen into the slot of grip downward until you hear the locking sound, which means connection is finished (see Fig.8). Push the screen to the upper direction until slide away the lock buckler to detach the screen.

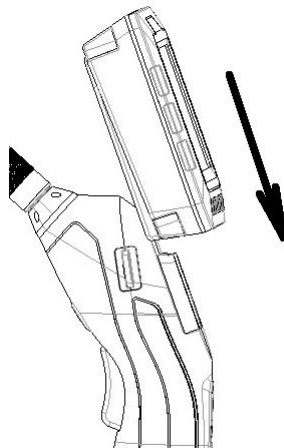




Fig.8

● Install Micro SD card (Optional Accessory)

Photos and video clips will be stored in internal memory when a Micro SD card is not inserted and detected, and icon  will be displayed on LCD screen. Icon  will be displayed when a Micro SD card is detected, recorded photos and video clips will be stored in the Micro SD card instead of internal memory.

- **Connect to a PC via USB port**



KC-250 has a USB 2.0 port, and can be connected to a PC.

Minimum configuration of the PC:

- P4 1.4GHz or higher CPU
- 256 MB RAM of system memory or above (recommended)
- One available USB port (USB2.0)
- Graphics Card (Must support Direct X 9.0c)
- 1GB Free HD Space
- CD-ROM Drive (For software installation)
- Microsoft Windows XP/Vista/Win7/Win8

1. Insert the included disk, find the disk folder in “My Computer”, double click the file “ScopeView” to install control software and the driver;

2. Follow the steps, and the installer will prompt to restart the computer to complete the installation;

3. Connect the unit with a PC via USB and connect the probe on the grip. Press  for 2 seconds to turn on the grip power. Then, press  to turn on the unit, and windows will detect new devices itself. Choose install driver, a message says new device installed and ready to use will be prompted when it is done.

4. Open the software “ScopeView”, select “Instant USB Camera” under device drop list, and then click “Connect” button to the right. The real-time image can be viewed from both the computer and the inspection LCD screen.

5. Please refer to the software manual included in driver disk for detailed information about software installation and operations.



6. Users are allowed to perform operations on received images using the control software, such as taking photos and recording video clips etc.

7. Press grip “+” key to increase the LED brightness (Fig.13).



Fig.13


8. Press grip “-” to decrease the LED brightness.

9. Press and hold  for 3 seconds to power off the screen. Then press  on the grip for 2 seconds to turn off the grip power.

Note: Under USB Camera mode, do not disassemble the camera probe to avoid the current disturb the unit. When remove the USB connection wire, the unit will turn to the LCD display mode automatically.

- **Work with a computer USB Disk**

Following below steps, users are allowed to download and upload files from the inspection unit to a computer via USB 2.0:



1. Press  on screen on the screen to turn on the screen.
2. Connect the screen to a computer using a USB cable.
3. “USB Disk” will be displayed on the LCD screen, and two portable disk (the internal memory and external Micro SD card) will be recognized by the computer. The inspection unit now works as an U-disk.

● Video Output to TV

To view real time image from a TV, connect the VIDEO OUT port of the unit with the VIDEO IN port of the TV using a video cable, select the right signal to review the image on TV..

●How to work

1、 How to operate the grip:

- a、 Hold  key for 2s, power on the grip, the green LED flashes (Note: when low battery, green LED flashes and then the unit power off automatically).
- b、 Press  to increase the LED brightness. (Fig.13) .

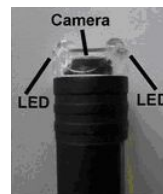








Fig.13


- c、 Press  decrease the LED brightness.
- d、 Under review mode, press the shoot key once on the grip, the red LED flashes once and the screen will take a photo (this function is the same as the  function)
- e、 Under review mode, continue to press the shoot key for 2s. The red LED flashes two times and the screen enters video state. When release the key and press it again, the red LED flashes two times. At this time, the screen stops to take video(this function is the same as the  function)
- f、 Press  key for 2 seconds. The green LED is off and the grip power turns off.


2、 How to view the screen


- a. Default memory is the internal memory when powered on, users can also use Micro SD card as external memory. When a Micro SD card detected, the inspection will store files in the external memory.
- b. Press  to enter preview mode in which users can preview images.
- c. Press  to take pictures manually (press the shoot key can do the same function), files will be stored in internal memory or Micro SD card automatically. (Note: when Auto Capture is OFF, press




to take a picture; when Auto Capture is ON, unit will detect image changes and pictures will be taken and saved automatically if any changes detected)


d. Press  to record video clips (press the shoot key can do the same function), a red indicator will be displayed on screen, and clips will be saved in internal memory or SD card.


e. Press  key to show switch function. Every press, the screen will switch between 4:3 and 16:9

f. Press  to zoom in from x1 to x4.0. The magnification increase by 0.5 and will be displayed on screen.

g. Press  to zoom out, the corresponding magnification will be displayed on screen; no magnification will be displayed when the magnification is x1.

h. Press **MENU** to configure menu options

i. Press  to enter playback mode(message will show up if no files found)

j. Press  and hold for 3 seconds to turn off.

Tips: A folder named “YCKC” will be created in the internal memory or TF card in which the product will create a sub-folder named as the current date. Videos and photos captured for the day will be saved in this folder.


Warning: DO NOT remove the SD card while system is working (especially while recording and transferring files with computers), doing so may result in damage to stored files and SD card.

3、Menu Configuration



a. Press **MENU** key in preview mode to enter menu configurations;



b. Select to be changed options using the 4 direction keys;

c. Press **MENU** to confirm the changed option;









d. Press  to return to parent menu, and all the way back to preview mode.


e. Menu Instructions (highlighted options are factory default settings)


Menu	Submenu	Options
 Auto Capture	Auto Capture	ON; OFF
	Master Ch.	Photo 1 ; Photo 3; Movie 5s; Movie 10s
	Range	1/1 ; 1/4; 1/16
	Timeslot	1s; 3s ; 5s
	Sensitivity	Low; Middle; High
 Advanced Setting	Movie Size	QVGA; D1
	File OverWrite	ON; OFF
	TV Output	NTSC ; PAL
	LCD Bright	LOW; NOR-; NOR ; NOR+; HIGH
	Format	Yes; No
	Set to Default	Yes; No



	Disk Information	Free ****MB Total ****MB
	FW Version	Ver *.* UI *.*
 Set Time/Date	Set Time/Date	YY/MM/DD
	Photo TimeStamp	On; Off
	Moive TimeStamp	On; Off
	Off Delay	Never; 5min; 15min; 30min
 Language Select	Language Select	English; Français; Español; Português; 简体中文

4、File Operations in Playback Mode

- Press  to browse files in grid view, press again to browse folders.
- Press  to view files or folders.
- Press  or  to view last or next image.
- If the current selected file is video clip, press  to play video, press again to pause, and press  to stop playback.
- Press  to activate file operations, press the direction keys to perform delete single file, delete all files and format memory etc.
- Press  to return to parent menu, and all the way back to playback mode.
- Playback mode settings:

 Playback Menu	File Delete	Single; All Files In Folder; All
	Format	Yes; No

- Press  to go back to preview mode.

Tips: while playback video clips, press  to play and pause the clip, press  to stop playback.

Users can perform other operations after the playback has been stopped.

5、Connect Signal Wire to Grip and Screen

The image signal is transferred between grip and screen wirelessly. When the signal is disturbed and can't be received, we can connect the grip and screen with a signal wire to transfer the signal. In wirely-transferring state, the unit will close the wireless function automatically. In this way, the image quality will not be disturbed by environment and the resolution will be improved.

6、Applications

This product is designed for hard-to reach distance inspection. Typical applications include HVAC

inspection, automobile inspection, circuitry, vessel and aircraft inspection. While in operation, the product is easy to extend ahead. If there is a distance limitation, the accessories could be applied to pick up rings or screws on the floor.

- **Operation Precautions:**


- a. Please read the safety instructions carefully, choose desirable work area for fear causing danger.
- b. The probe is flexible to help you operate in hard-to-reach areas. Please don't insert or bend by force.. Please do not over bend any part of the probe. Normally, the bending radius should more than 5cm to prevent from causing permanent damage to the probe.
- c. Don't use the probe or camera head to modify surroundings, clear pathways or clogged areas. It couldn't be used as a fishing rod or tape.
- d. The hand-held display unit is not waterproof .The camera head and its cover are waterproof, but not acid-proof or fireproof. Don't touch with these materials or they will ruin the camera head's protective plastic. Avoid immersing the camera head into corrosive, oily places or high-temperature objects.
- e. Don't place the inspection into anything or anywhere that may contain a live electrical charge. Please check following methods to avoid injury.

For walls: For inspecting the inside walls, be sure to shut off the circuit breaker to the whole house before using the tool.

For pipes: If you suspect a metal pipe could contain an electrical charge, have a qualified electrician to check the pipe before using. A ground circuit, in some cases, can be returned to the cast aluminum pipes and cause them to be charged.

For automobiles: Be sure the automobile is not running during inspection. Metal and liquid under the hood may be hot. Don't get oil or gas on the camera head.

Operation Notes

- Please read the manual thoroughly and make sure proper training has been complete before operating this product.
- The green LED on the grip will flash when battery is low, eventually the grip power will power off itself.
- The product can display real time battery capacity, “” and “Low battery” will flash when battery is low, eventually the product will power off itself.
- Do not remove SD card during recording and USB connection mode.
- Don't immerse the inspection into water, which will result in electric shock and damage.
- Only while the product is assembled well, the camera head is water-proof, but the grip and the screen isn't fully water-proof.
- Don't use the product if white dew forms inside the camera head.

- If the tool couldn't work well after turning it on. Please stop use and have the unit checked by a qualified technician.
- Store idle product out of reach of children and other untrained persons. The tool is dangerous in the hands of untrained users.
- Maintain the inspection tool with care. If the tool is dropped, check for the breakage ,which may affect the tool's operation. If it is damaged, have the tools serviced before using. Many accidents are caused by poorly maintained products.
- Use only accessories that are recommended by the manufacturer for your product. Accessories are suitable for the tool, but may become hazardous when used on another product.
- Dry your hands before turning the tool ON or OFF.
- Protect against excessive heat. The product should be kept away from heat sources, such as radiators 、 heat registers 、 stoves or other products (including amplifiers) that produce heat. Don't use the tool near moving machinery or areas where the temperature exceeds 45°C .
- Please cover the camera protection while not in use.
- Store the product in ventilated and dry places.

Maintenance Instructions

- Product service must be performed only by qualified personnel. Performed by untrained personnel could result in injury.
- When servicing the product, only use identical replacement parts. Use of authorized parts or failure to follow maintenance instructions may create a risk of electrical shock or injury.
- Don't attempt to disassemble the product other than the needs specified on this manual.
- Provide proper cleaning: don't use acetone to clean the product. Gently clean the LCD with a soft dry cloth.
- Upon completion of any service or repair, please ask the service technician to check if the tool is in proper condition.
- Stop using the unit if it starts smoking or emitting noxious fumes.
- Please ask qualified person under the following conditions:
 - a. If liquid has been spilled or objects have fallen into product.
 - b. If product doesn't operate normally even if you have followed the operation instructions.
 - c. If the product has been dropped or damaged in any way.
 - d. When the product exhibits a distinct change in performance.

Trouble Shootings

Problems	Causes	Solutions
Can't charge.	Adapter didn't connect well with the product.	Please check and try again.
	The connect or or cable is broken.	Replace and try again.
	The working temperature of battery is so high (indication is when plug in the adapter, the red and green LED on at the same time) .	Charge after the temperature is down.
The screen is on but without image or shows "No Signal"	1、 the grip power is off	Check and open the grip power
	2、 The probe is loosed.	Check and connect again.
	3、 Stains on the camera head.	Check if exists stains
The product couldn't power on.	The circuit is in protection status.	Use adapter for charging to release.
	Low energy of inside battery	Use adapter for charging
	Dead battery	Ask a technician to replace the battery.
Unusual display or invalid keys	Interference to the screen or voltage fluctuation.	Please use the reposition key on the back of screen

C a u t i o n s

- Don't drop the product or use by force.
 - Don't disassemble the product to avoid failure.
 - Don't place the product with corrosive gas or objects.
 - Don't expose the product in vibration、 high or low temperature.
 - Store the product in a safe area.
 - Don't immerse the product into water, which will result in damage to product. •
- Please charge the inside battery every three month if no use for long time.

Technical Specification

Name		Multifunction video inspection
Model		DCS500T/DCS500R
Recommended use		Indoor
Standard probe specifications (KC09AV4)	image sensor type	30,000 pixels CMOS image sensor
	Outer diameter of camera head	Φ9mm
	Focal length	50mm
	visible angle	60°
	Probe length	standard flexible 1m; 2m/3m or customized (the longest length of obedient probe is 10m and flexible probe is 40m)

	Probe accessories	magnet, hook, mirror and screw thread protector
Support camera head assembly specifications (not included)	KC12AV4	The assembly of Φ 12mm camera head
	KC05AV3	The assembly of Φ 5.5mm flexible or obedient camera head
	KC23AV	The assembly of Φ 23mm camera head checking the probe
	KC12AV5	The assembly of Φ 12mm camera head without probe
The probe connection head for choice (not included)		Used to connect the old camera head
Probe and camera head protection		IP67
Light source		High lighting LED
Image display		5" TFT/LCD
Image resolution		640×480 pixels
LCD Resolution		800×480 pixels
Image zooming		4 times
TV output format		NTSC/PAL
USB export mode		moveable storage mode (USB Disk)
		real-time export image mode (USB Camera)
Image storage media		128MB memory
		Micro SD card (Support up to 16G), the SD card for choice
Wireless transmission frequency		2468MHz
Wireless transmission distance		Up to 10M; If no obstacles, will more than 10M
Remote control for a photo		Up to 4M; If no obstacles, will more than 4M
Attachment		Adapter、TV cable、USB cable、signal cable、CD driver
Adapter	INPUT	AC 100~240V (50~60Hz)
	OUTPUT	DC 9V 1.3A
Inside battery		Polymer Lithium battery
Battery capacity	Grip	7.4V/1350mAh
	Screen	7.4V/1500mAh
Charging time of inside battery		About 3.5 hours
Battery life		>2.5 hours
Operating temperature		0℃~45℃
Operating humidity		RH 5%~95% non-condensing
Storage temperature		-20℃~+60℃, ≤85% (w/o battery)
Dimension	Grip	280mm×138mm×71mm (w/o probe)
	Screen	153.5mm×116.5mm×38mm
Weight	Grip	About 353 g (w/o probe)
	Screen	About 428 g

Warranty

The product is warranted to be free from defects in materials and workmanship for a period of one year from the date of purchase on the basis of providing relevant card.

Notice:

The warranty does not apply to the following conditions:

- Unauthorized disassembling the device will void the warranty.

- We are not responsible for any damage resulting from abrasion, water, dropping or disassembling

Tips: Most parts of the product could be recycled, please refer to your local regulations for disposing of them instead of throwing into the dustbin.