

KELCO INDUSTRIAL

VT Series Industrial Videoscope

Operation Manual



- Please read the manual before using.
- Please save it well for reading at any time.

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Product Introductions



VT series industrial Videoscope is a new NDT detection device. It is an integration of optics, electronics, precision machinery and micro camera technology.

○ Optics

The monitor is made up of high brightness color LCD display and ultra-small CMOS camera. Inspection results will be clearly shown on the 4.3 inches LCD. It has high definition, high reliability and stability which enable great on-site inspection capacity.

○ Precision Machinery

Bending part is constituted by precision and flexible material, 4-way articulation with more than 90 degrees bending angle.

○ Applications

It can be used in automobile, industrial machinery, electronics, petrochemical, aviation, marine, building and others industrial fields.

○ Features

High pixel: high resolution camera, CCD/CMOS image sensor, which ensures the ideal image effect in lower light circumstances.

Detection distance: highly intensive bright LED cold light can reach max 6 meters, in 4 directions.

High brightness: high brightness LCD ensures reading under direct sunlight.


Storage/display: still image, video and memorized functions, 8GB internal memory SD card.

Housing Instructions

Front Side



Lock/re-position button

Under the capture mode, push control knob to reach the target position and press this button (or keep the knob for 5 seconds), the articulation will be locked(joystick control knob will not work at this time), icon “  ” will appear on the up right side on the screen. Press this button again will unlock. Press this button for a while and then the articulation resume straight forward.

Illumination level selection

5 incremental intensity steps, recycles (includes off)

Video button

Press this button, video starts and press again to stop.

Still capture button

Press for still image capture.

Joystick control knob (confirm button)

To control the articulation directions. Push/press this knob to select menu/confirm

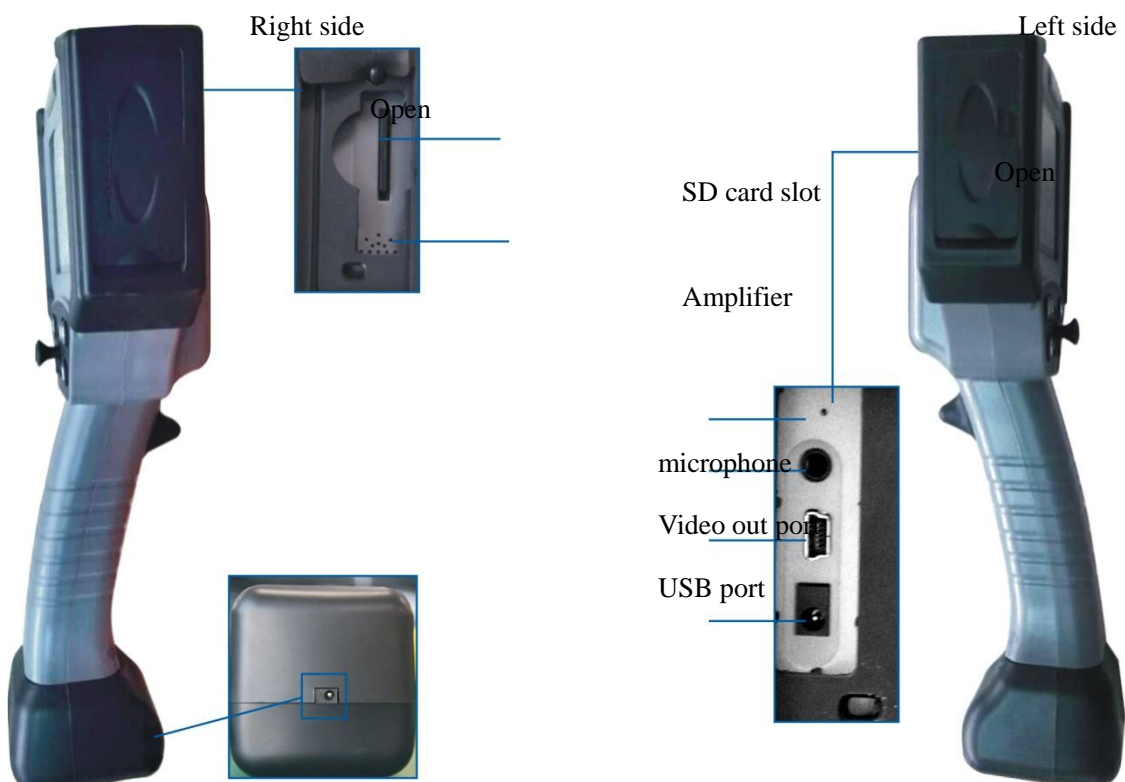
Menu button /Power button (return button)

Press this button for 5 seconds to swift on/off (indicating sounds along). After power on, press this button shortly to swift between capture and menu modes if necessary. And this button has a function of returning to the last menu.

Zoom button

3x MAX, 3 steps of zoom, recycles

Ports



SD card slot: Slot to accept SD card

Note: Please note the positive and negative side.

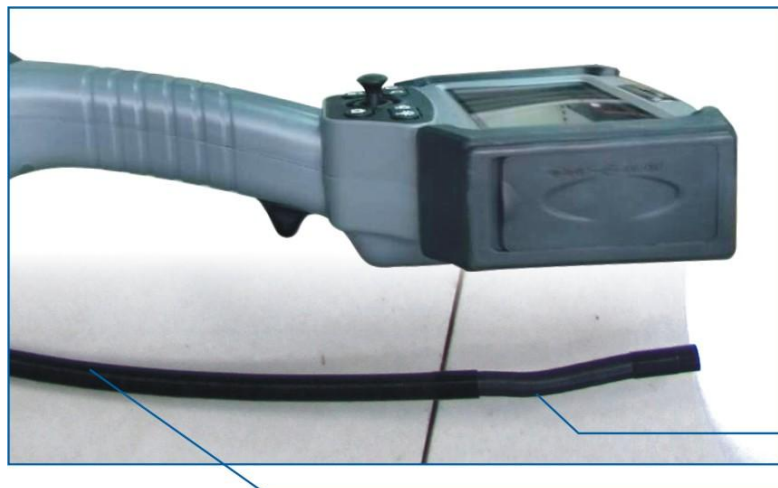
AV output: NTSC/PAL data output communications

USB Interface, to transfer the data from Videoscope to computer.

Power supply port: to supply power

Battery charging port: to charge the battery, meantime the device could work.

Insertion part and camera



Articulation part

Insertion part

Insertion part: tungsten braid

Articulation part: Use the joystick knob to control four bending directions. IP67 is optional.

Operating Instructions

Operation

1.before using, please confirm if power on the unit and install SD card and battery.

2.how to use

a. use adjust button to power on the LED light.;

b. put probe into the object to get to the testing area;

c.move the joystick to articulate, make the probe to the testing area

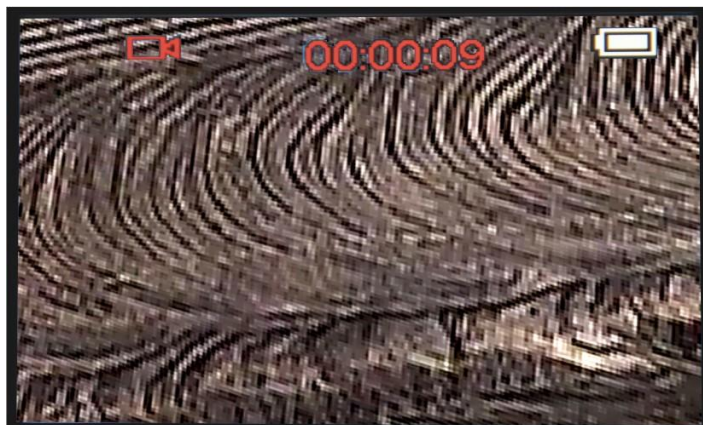
d.adjust the light and zoom button, to get the best display

Note : put the probe into the object, make sure articulation part straight, then test the object, avoid any damage to the probe.

3.when get to the testing area, record the testing results with control monitor

» Record:

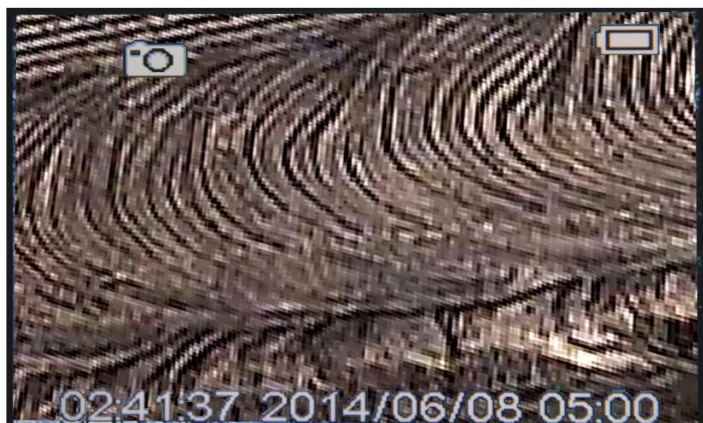
Under image mode, press video button to make videos.



Press video button again, to finish the videos and the videos will be stored in SD card.

» picture:

Under picture mode, press still capture button to take pictures and the pictures will be stored in SD card

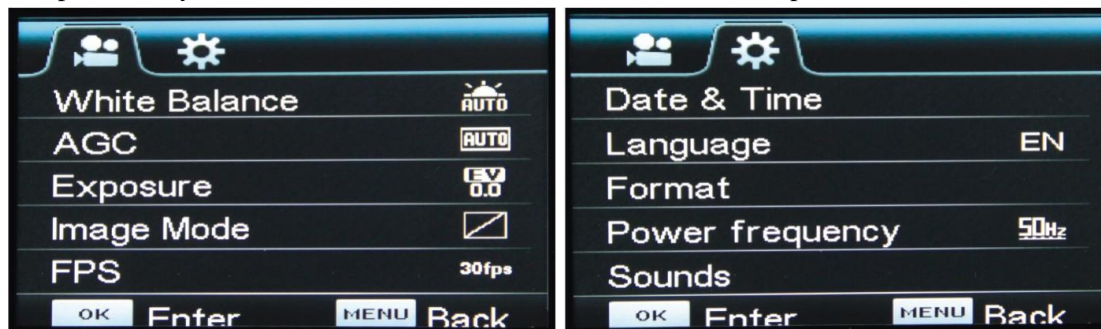


4. After finishing the testing, press the lock button for 3-5 seconds, make the articulation parts back to straight, exit the object, switch off the unit.
5. Put the unit into case

Menu operation

Switch on the Videoscope, press the menu button, enter menu mode. By moving joystick left and right, you could transfer between picture mode and system setting menu.

Note : when cursor under one menu, you can not transfer between picture menu and system setting top menu, if you need transfer the menu, the cursor should in the top.



Main menu

Into main menu, move up and down joystick to choose the submenu. When cursor move to the submenu, press the joystick (or right move the joystick) to choose the submenu parameter, then press the joystick to finish the parameter settings.

» Image parameter menu

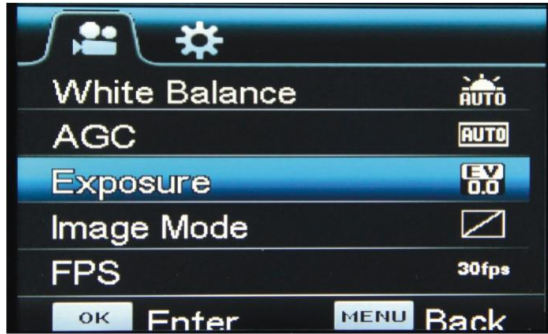
- white balance: adjust color and hue under different color temperature , restitute to true color. It's better to choose auto balance, which suitable for more conditions, but when auto mode can not get the suitable results, please choose other mode according to brightness of the environment, there are A type ,B type and C type. move the joystick to select. Then press the joystick to confirm.



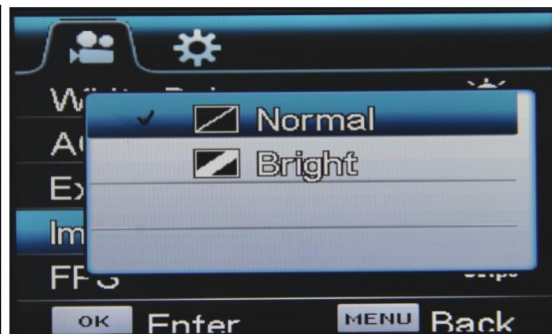
- AGC: AGC means automatic gain control: Default Values :auto—sensor auto gain control adjust according to light, also can set manually, which have $\times 4$, $\times 8$, $\times 16$, high gain value for high receiving light power, but the unit will display more points. The user should set according to requirements.



■ exposure: +1.7——(-1.7)user could set according to requirement, the setting method as above



■ image mode : standard ,brighter , user could set according to requirement, the setting method as above



■ screen brightness: 5—— (-5) user could set according to requirement, the setting method as above



■ screen contrast: 5—— (-5) user could set according to requirement, the setting method as above



■ screen scale: it have 4: 3、16: 9, user could set according to requirement, the setting method as above .



■ user could set according to requirement, the setting method as above . default is auto, when you want to set manually, after take pictures, keep pressing the joystick for 3-5 seconds to finish the pictures storage .



» system setting menu



System parameter setting menu

- date and time setting : move joystick to left and right to set year, month, date, hour and minute, when cursor moves to upside, move joystick up and down to set parameters. Press joystick to finish the time and date setting.



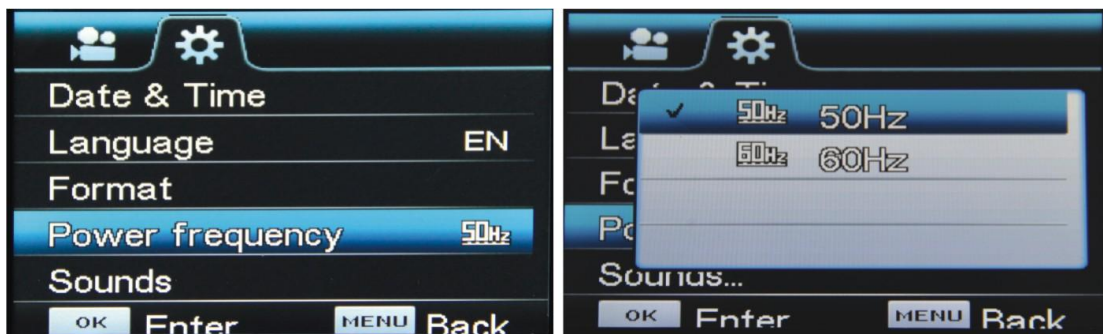
- multiple languages : the unit support English. Chinese and more other languages, user can choose according to requirements, method as above



- memory card format: user could choose to format the memory sd csard according to requirements , method as above.



- power frequency: user could choose different power frequency according to requirement , method as above



- Sound: The user could choose to open or close according to requirement, the method as above.



- TV system: the user could choose different formats according to requirement the method as above.



- Auto power off:: the user could set the auto power off time according to requirement, the method as above.



- Program upgrade: the user could contact with the supplier for program upgrade if necessary.



» Picture / video file browsing and editing

In the main interface, you can keep pressing the joystick for 5 seconds to enter the picture preview mode. The user can preview the picture/ video taken by the device, by moving the joystick to select the desired picture / video.

Note: when preview , the file with mark  is video ,while no mark  is image



Image

video

Choose desired image /video and press joystick to confirm, then open the chosen image /video.

A: Picture's viewing



Press the ZOOM button to enlarge the picture three times ,



Press the joystick, you can cut the current picture , move the joystick to select whether to cut . Press the joystick again to confirm selection of the picture, and the cut picture will be Automatically stored to the SD card.



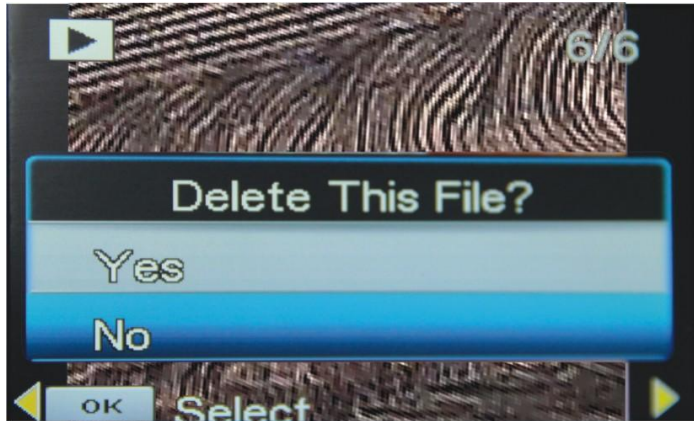
B: Video's viewing



Press the joystick to playback the video, press the joystick again to pause it. To exit video's playback by pressing menu button.

C: Picture/video's deletion

In the playback screen, keep pressing the joystick (for 2-3S), the screen of delete files will appear press OK to select.



Specifications

Camera	dia.	Φ 4.5mm	Φ 6.0mm	Φ 8.4mm
	Material	Stainless steel titanium , titanium alloys	Stainless steel titanium , titanium alloys	Stainless steel titanium , titanium alloys
	Waterproof	IP65	IP65/IP67(Φ6.4mm)	IP65/IP67*
	Resistance to oils	*	*	*
	Image Sensor	CMOS	CMOS	CMOS
	FOV	>90°	>90°	>90°
	FNO.	4.9	4.9/2.8	4.9/2.8
	DOF	8mm-80mm	8mm-80mm/15mm-∞	8mm-80mm/15mm-∞
	Illumination	Highlight LED	Highlight LED	Highlight LED
	Camera length	15mm	15mm	15mm
	Pixels	350,000	410,000	440,000
Insertion part	Length	1.5m/3m	1.5m/3m	1.5m/3m/6m
	Material	tungsten	tungsten	tungsten
Articulation part	Bending angle	>90° 360° full rotation	>90° 360° full rotation	>90° 360° full rotation
	Bending operation	Electric joystick	Electric joystick	Electric joystick
Controller	Display Size	4.3 inches	4.3 inches	4.3 inches
	Housing material	ABS	ABS	ABS
Power supply	Battery	3.7V/6000MAH		
	Working time	More than 4 hours		
	Charging time	5 hours		
	AC charger	100-240V~ 50/60HZ		
Package	Carton Size	506*460*160mm		
	Carton G.W.	About 5.7KG		
Brightness Adjustment	Off –high 5 levels	Detective function	*WIFI (optional)	
	real-time enlarge 1-3 levels		Tablet PC (optional)	

Video /Capture	real-time enlarge 1-3 levels	Sound	Mini pickup in the tip of probe(optional)	
Play function	Video: play/stop	Night vision	940nm Infrared Night vision (optional)	
	Picture: enlarge 1-3 levels	Input/output	Video output	NTSC/PAL output
Menu Operation	Picture/video delete		Storage	USB interface
	Date/time setting	Storage Media		Micro SD Card (8G)
	Language: Chinese/English/other	Still image format		JPG1024x768pixel
	Format SD card	Video format		AVI
Work temperature	-10℃~50℃		720*576pixel 30fps	

The function with “ * ” is optional.

Note: The above parameters are subject to change without notice.

Trouble shootings

Possible Problem	Remedy
Abnormal bending angle	Check whether insertion part is knotted , and should straight it before use it
No image	Check whether connect the power supply well, whether lack of electricity , then re-plug battery.
Fuzzy image	Check whether the probe lens is dusty ,turn off the videoscope and clean the tip of the lens. then reboot to check the image.

Precaution,

- 1.Do not use out of range of $-10^{\circ} C \sim 50^{\circ} C$
- 2.Do not use or place the videoscope in a corrosive environment
- 3.Do not expose the videoscope into the rain if the probe of the videoscope is not waterproof .And even the probe of the videoscope is waterproof ,do not place the probe under the water for a long time .
- 4.Do not place the Videoscope in the magnetic environment
- 5.Do not use the Videoscope under the mass dust environment
- 6.Keep the controller clean and do not scratch the screen.
- 7.Do not attempt to disassemble the videoscope, and the maintenance work should be carried out by authorized personnel from original factory.
- 8.Do not operate the joystick if the insertion part is knotted to avoid any damage to the internal steel wire.
- 9.When capturing and recording ,make sure the brightness of LED is suitable for inspection and

not make the probe tremble.

10. Check whether the battery is installed and fully charged before inspection

11. After inspection, straighten articulation and then pull out, do not pull out in a rush

12. Do not soak or wash the videoscope, after using it, clean the controller and the probe with soft cloth and then put the Videoscope into the packing case

Do not cause unnecessary damage by extrusion, collision, impact to the videoscope; please take out the battery when the videoscope is not in use for a long time to avoid any corrosion to the videoscope when the battery is damaged.

Maintenance

1. After the end of on-site work, clean the controller and the probe with soft cloth, to avoid corrosion and damage to the product due to dirt.

2. When the product is not in use, put it into the designated packing case for safe keeping, so that extend life of the product.

Warranty

1. The warranty of the product including spare parts (except for batteries) is 12 months from the procurement date.

2. Warranty covers repair or all replacement parts.

3. Repaired products, the warranty period for the following two ways of longer time shall prevail:

4. The buyer should be liable for all the cost of shipping and handling when transfer to the authorized service center

6. Warranty is not available for the following situations:

a. If a videoscope damaged by improper use and storage, accident, user modifications.

b. The buyer would not notify the manufacturer the defects and failure within warranty period.

After-sales Services

The warranty period of the Videoscope is 12 months.

Man-made damage is not included in warranty period. The warranty will enter into force from the purchase date (the formal purchase invoice date will prevail). In the warranty period, any damage or failure is verified due to the material quality in normal use, we will provide free maintenance service.

Repair would be finished in 30 days after receiving the Videoscope. If the repair can not be fulfilled during above period, we will notify the buyer by phone call or the email to negotiate, The time mentioned above does not include transportation.

QUESTIONS: Contact Kelco Industrial 248 421 9882 sales@kelcoindustrial.com