

# Two Way Articulation Probe

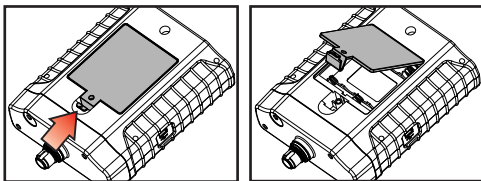
## User Manual



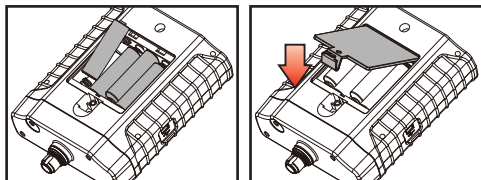


## First Time Use

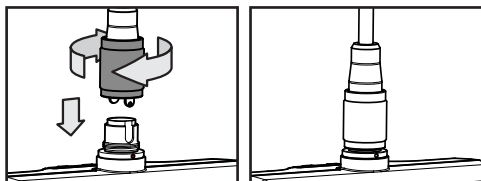
Step 1: Remove the battery cover.



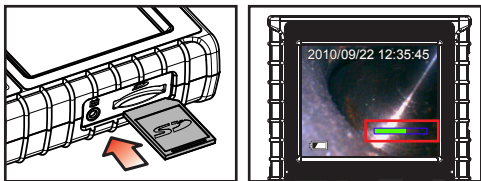
Step 2: Place battery in correctly, put the battery cover back on.



Step 3: Insert probe onto the device connector and tighten it up clockwise.

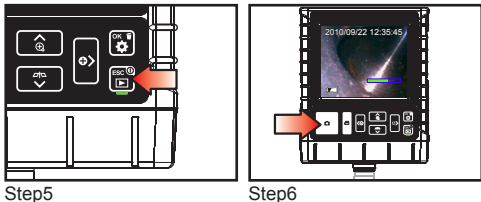


Step 4: Insert SD memory card correctly, then screen will shows memory card capacity.



Step 5: Hold down the device switch until the screen displays.

Step 6: After the device turns ON, aim the probe front end at an area to be snapped or recorded. Press down the snap or record button to make the image into an image or video file.



Step5

Step6

## System Mode

This device offers 3 easy-to-operate modes: "Preview", "Browse" and "Menu".










- Preview:** Once the device turns ON, "Preview" mode is activated. Images received by the device are shown on the screen real-time. Under the "Preview" mode, the user may retrieve pictures or record.

**-Browse:** Under “Browse” mode, the user may view recorded pictures and video and conduct basic file management.

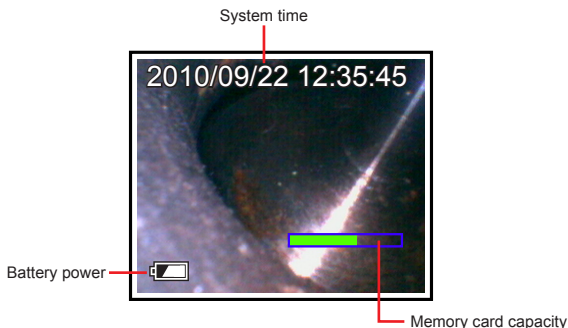
**-Menu:** Under “Menu” mode, the user may change device settings.

Note: Under the “Menu” mode, the system will automatically return to the “Preview” mode if no action is made.


## Multifunction Key



Key	Preview	Browse	Menu
	Increase brightness	Right	N/A
	Decrease brightness	Left	N/A
OK  	Enter “Menu” mode	Delete	Execute confirm instruction
	Zoom-in	Up	Up
	Mirror	Down	Down
ESC 	Enter “Browse” mode	Return to “Preview” mode	Return to “Preview” mode
	Snapshot	Play film / Pause	N/A
	Record video	N/A	N/A

## Screen



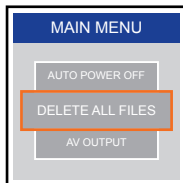
## System menu

Step 1: Press  to enter the Menu mode.



Step 2: Press the button  or  to choose the item you need.

Step 3: Press **OK** to enter it.

Instructions which can be executed on the menu are listed as follows:



### Delete All Files

After initiating this command, select "yes" or "no" by pressing  or  buttons. To delete all, selete "yes". Exit by pressing the **ESC** button.

## AV Output

This command will send the video signal out through the AV port. The screen of the device will turn black until you execute this command again.

## Date / Time

The user may set system time through this instruction.

-**Format:** Set sequence of day, month, year.

-**Display:** Set if time is to be shown on Preview mode.

-**Setting:** Set the device's time.



Step 1: Press > or < button to choose day, month or year to be changed.

Step 2: Press the button ^ or v to adjust figures.

## Language

The user may choose any language he or she needs in this option.

## TV System


Set video format, NTSC or PAL.

## Auto Power Off

Use this function to setting auto power off in 5, 10, 15 or 30 minutes, then you can disable the auto power off function by selecting "off".

## Operating Guide

### Zoom-in & Mirror

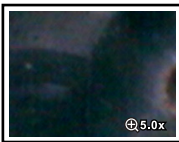
**-Zoom-in:** Press  to enlarge the image, press again to enlarge more, and press it again to the default image setting.




\* Default image



\* enlarged 3X



\* enlarged 5X

**-Mirror:** Press  to mirror the image, and press it again to the default image setting.





\*Default image




\*Activated

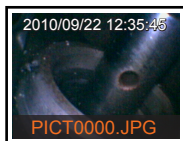
### Adjust the brightness

When the camera's light is too bright (it might be because the lens is too close to the target), the subjects on the screen may appear "fully-blank". In this case, please use the dimmer by using the  button. On the other hand, if you wish to have more light, use the  button.




## Taking Photos

Press  button during Preview mode to take the photo. If the bottom of the screen displays the file name, then your file is properly saved.





## Video Recording



Press  button during Preview mode to record the video. In the recording process, the recording time is displayed on the screen. If the bottom of the screen displays the file name, then your file is properly saved.



## Viewing photos/videos

Step 1: Press  to enter the Browse mode.

Step 2: Press  or  to view the oldest or second to last photo / video.

Step 3: Press  to delete a file, then press  again to confirm or press **ESC** to cancel.

Step 4: Press  to play a film.

## Specification

Main System	
System Dimension	140mm x 116mm x 42mm
System Weight	300g (w/o battery)
Display	3.5" TFT LCD QVGA
Display Resolution	320X240
Power	AA x 4 (Alkaline or Ni-HM)
Battery life	4hours
Recording Medium	SD CARD (Support to 32G)
Video Out Format	NTSC & PAL
Interface	AV out
File Format	AVI, JPEG
Video Resolution	640x480,30FPS
Image Resolution	640X480
Exposure	Automatic
White Balance	Fix
Language	English, French, German, Italian, Spanish, Portuguese, Dutch, Danish, Polish, Russian, Bulgarian, Turkish, Swedish, Finnish, Norwegian, Romanian, Greek, Estonian, Lithuanian, Latvian, Hungarian, Czech, Slovak, Slovenian, Traditional Chinese, Simplified Chinese, Japanese
Working Temperature	0°C~60 °C
Storage Temperature	-20°C~60 °C

## Cautions for Use

- To avoid danger, do not put the insert tube into any flammable liquid or gas. Oil Pass: Leadless Gasoline, Machine Oil, Diesel, Brake Oil (DOT 4), Transmission Oil, Neutral Cleanser.
- Do not use this product in a fuel tank or other dangerous environment such as a gasoline or alcohol storage tank.
- The insert tube contains a series of small wires that control the optics and electronics of the camera tip. To ensure long-term reliability, do not bend the insert tube more than 180 degrees, and always bend the insert tube in as large an arc as possible during usage and storage.
- Do not remove the SD card when capturing photos or videos. This can cause a loss of the image or video and may damage the SD card.
- Video recording requires an SD card with fast writing speed.
- This product is designed for industrial use only. Do not use the system for human or any other biological inspection.
- Do not try to disassemble the product. This presents a short-circuit risk and could damage the unit.
- Please use only recommended components or accessories. Unapproved accessories and components may cause damage.
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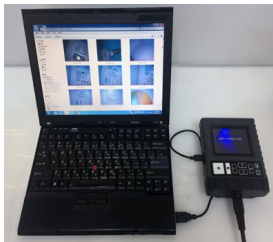
- Avoid direct exposure to sunlight for long period of time. Store the system in a cool, dry and well-ventilated place.
- Always remove the battery before long-term not using.
- Camera lens cleaning: The user may clean the camera lens with a cotton swab and small amount of soft grease remover. Do not use any corrosive liquid for cleaning, such as alcohol or thinner.

**The USB port provides both card reader and DC-in power function.**

**1. Card reader function (mass storage mode):**

While USB cable is connected to PC, the screen will show MASS STORAGE MODE (while SD card is correctly inserted), you can access the image/video data from the SD card.

Note: You can only process the images data in SD card, other operations are not allowed.



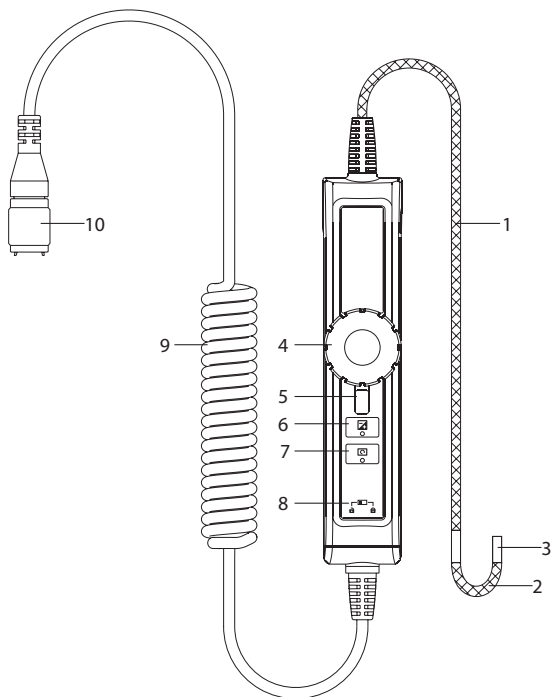
## 2. DC-in mode power function

You can activate DC-in power by plugging in the power adaptor. After the power adaptor is plugged-in, the system will show up MASS STORAGE MODE, you can press “esc” button to live view and continue the inspection.

Note: You don't need to remove batteries inside the system while DC-in mode is on. When you unplug the DC power, the system will automatically switch to battery power.



# Product outlook

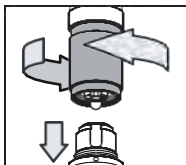


1. **Probe** - To guide camera head to inspection area.
2. **Bending Neck** - To bend camera to change view angle.
3. **Camera Head** - Lighting and image capture.
4. **Control Wheel** - To adjust bending neck angle.
5. **Control Wheel shaft lock** - To lock bending neck angle.
6. **Boost button** - To enhance brightness for dark environment inspection.
7. **Image rotation button** - Four 90° image rotations to identify codes.
8. **Lock** - To lock up button functions.
9. **Connecting Cable**
10. **Connector**



## Getting started

Step1: Connect Articulation probe to main system with align dot then tighten the screw nut.



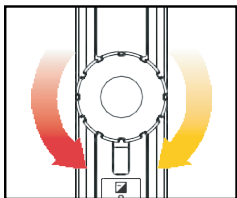
Step2: Turn on the system until the image is displayed.

Step3: After the system is turned on, you can start your inspection.

# Operations

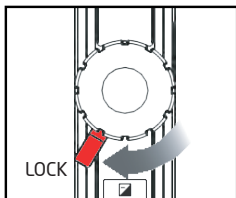
## Articulation

Rotate the control wheel clockwise to bend tip right, counter clockwise to bend left.



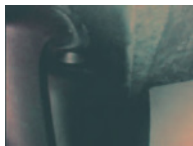
## Lock

To fix bending neck angle, just switch the lock shaft clockwise to the lock position.



# Function buttons

## Boost button



\* live image



\* boost

## Image rotation button



# Specifications

## 4.5mm Two Way Articulation Probe

Probe head diameter	4.5mm
Probe head length	13mm
Probe length	1.5m, 3m
Articulation angle	right-left 180°(*)
Probe head material	Stainless steel
Probe material	Outer braided Stainless steel
Light source	5 x white LEDs
FOV	90°
DOF	1cm~10cm
Button	Boost, image rotation
Working temperature	-10°C~60°C
Storage temperature	-10°C~60°C
Resolution	640x480
Applicable systems	F series

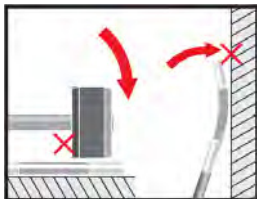
\*The maximum articulation angle may degrade due to the bending loops of tube.



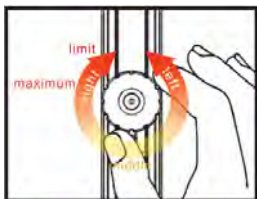
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- This product is designed for industrial use only. Do not use the system for human or any other biological inspection.
- Do not use any corrosive liquid for cleaning, such as alcohol.
- Do not try to disassemble the product, it might cause damage or electric shock.
- Please use only recommended components or accessories, unapproved accessories and components may cause damages.
- Avoid direct sun exposure and store it cool, dry and well-ventilated place.
- In order to protect camera module, be sure to have a thread protective ring on the top of camera head if no accessories are used.

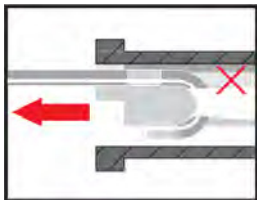
Bending neck is composed with precision components, DO NOT put under heavy load on this.



DO NOT rotate the wheel when it is at the maximum angle.



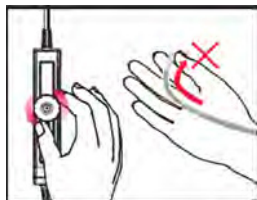
Never use the bending neck as a HOOK.



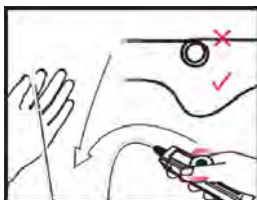
Please straighten the bending neck every time before storage.



NEVER bend the bending neck with hand, operate by control wheel only.



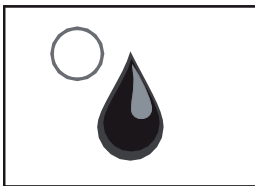
Please keep the insert tube straight while in use.



DO NOT bundle the insert tube less than a 15cm circle while not in use.



Liquid immersion passed:  
unleaded gasoline, diesel,  
machine oil, brake oil,  
transmission oil, and water.



Use cleaning liquid and swab  
provided in the cleaning kit for  
camera head cleaning.

