RVIPro Series - 2.0mm

The RVIPro is lightweight, portable and easy-to-use with 360° articulation and an integrated design. Its waterproof and dustproof 3.5 inch TFT LCD screen and high definition image sensor technology meet IP67 requirements and can take video and pictures.

INDSPEK Inc.
Instruments for Inspection

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1 Users Instruction

1.1 Use and Application
This product is only for real-time detection and analysis for industrial equipment, casting components, aerospace, oil and gas, inspections etc.

1.2 Maintenance and Modification
This product does not have any spare parts for repairs which can be used. Please Call INDSPEK Inc. service at (1)-902 405-4100 for an RMA number to return for evaluation.

1.3 Warnings
• When using this product, please observe the following:
• This instrument is prohibited for human and/or animal biological inspection.
• Do not use or store the product in explosive or strong electromagnetic field environments.
• Do not use the product to check objects that are electrified as to avoid electric shock.
• While using, do not touch the end of the lens, particularly after use in high temperature environments, as the end of the lens may cause burns.
• Do not look directly into the LED light source at the end of the lens.
• Do not excessively bend, stretch, twist, or roll the cable.
• After long term use of this product, there is potential for the lens to become dirty, resulting in blurred images and the impact of data collection. Please use alcohol or acetone to clean the objective lens and wait until dry to continue inspection.
• If there is abnormal angle in the articulation operation, stop the current operation, turn off and then contact the supplier.
• Keep the insert tube away from any other liquid besides water, salty water or oil.
• When finished using, clean the front section of the instrument with alcohol or acetone to avoid corrosion.

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2 Product Specifications

2.1 Parameters

Replaceable Insertion Tube	Users can easily replace the spare insertion tube
Camera Diameter (mm)	2.0mm
Camera Material	Titanium alloy
Camera Pixel	160,000
Depth of Field	Standard: 2mm ~ 50mm
Field of View	120°
Image Magnification	4X
Light Control	7 levels
Bright/Chroma/ Contrast Ratio Adjustment	0-16 levels
White Balance	Auto white balance
Articulation Control	360 ° all-way mechanical control/4-way articulation
Bending Angle	≥120°
Effective Working Length	1.0m/1.5m
Insertion Tube	Triple tungsten-braided tubes
Protecting Device of Durability	Buffer protection device between the host and wear-resistant tube
Language	English, French, Spanish, German, Russian, Dutch, Italian, Chinese, Japanese and Korean, etc. (12)
Display	Highlight 3.5 inches TFT LCD
Display Resolution	400/400
Image/Video Format	JPEG/AVI
Host Structure	Handheld Design
Memory	Standard SD card:8G, Maximum: 32G
Data I/O port	Micro-USB port, HDMI output port
Probe articulation control	The speed of the probe articulation is controlled by rocker. Release the rocker to complete positioning.
Waterproof	Camera/Object glass/Tubes:IP67
Host Working Time	≥4.5 hours
Weight	≤0.45kg/0.99lbs (with batteries)
Power Supply	Rechargeable lithium battery (removable)/ Direct power supply
Battery Capacity	4.2V,3200mAh
Power Consumption	3W
Charging Parameters	DC5V, Maximum current:1A

2.2 Operation Environment (Temperature/Humidity)

Host System Working Temperature: -10ºC ~ 50ºC, when below 0ºC, the display needs preheating.	
Camera Working Temperature: -20ºC ~ 85ºC, when below 0ºC, please reduce oriented operation.	
Store Temperature	-20°C ~ 60°C
Relative Humidity	Maximum: 90%, non-condensing

3 Operations

3.1 Removing the Instrument

Open instrument box, and while taking out the unit, set aside and pay close attention to the probe. Avoid hitting the probe and scratching probe lens.

3.2 Prior to Operating

Check whether the insertion tube is fully inserted and the locking nut is tight.
Insert SD card.

3.3 Insert the Tube/Probe

Gently put the endoscope insertion tube into the handheld device.

3.4 Adjust Brightness

Adjust the brightness of the light source to obtain the appropriate level of illumination.

3.5 Articulation

Depending on the inspection, operate the joystick control to articulate the end of the probe.
1. If joystick suddenly meets tension or resistance, immediately stop using, return the joystick to the middle position and remove the probe carefully.
2. Slowly operate the joystick.

3.6 Remove Insertion Tube

Place the insertion tube in a straight position length wise.
Ensure joystick is in the middle position and then carefully disconnect.

3.7 Power Off

Turn off the power switch, put the scope into the instrument box and place the insertion tube into the tube well.

4 Operation Guide

4.1 Working Modes

1. Real time detection mode
2. Playback mode
3. System settings mode. When turning on, it begins in "real time detection mode."
   Details of the various modes and the key functions, please refer to the table below, "Button Function List."

Buttons	Name	Real Time Direction Mode	Play Back Mode	Video Play	System Setting	Time Settings
On/Off	On/Off	Real Time Direction			—	
Up	Up	—	Up	—	Up	Up
Return/Playback	Return/Playback	Photo/Video Playback	Return	Exit	Return	Exit
Menu/OK	Menu/OK	Enter into Menu	—	—	OK	OK
Down/Switch Photo	Down/Switch Photo	Switch Photo & Video	Down	—	Down	Down
LED Brightness	LED Brightness	Adjust Brightness				
Joystick Controller	Joystick Controller	Control the direction of probe : up / down / left / right				

- ## Real Time Detection Mode:

    Under this mode, users can see real-time image taken by the probe; control the probe movement and speed by joystick, lock the position as well as adjust the LED light. Press ⬚ button to select photo or video mode.

- ## Playback Mode:

    Press ⬚ "playback" to view images of JPG files and playback recorded video of AVI files. When in video mode, press this button, the system will enter the video playback mode.

- ## System Setting Mode:

    In "real time detection mode", ⬚ok⬚ press this will enter system setting mode and set the parameter of the image and system.

5 Connect with PC & Read the Data of SD Card

Method 1: Read the data directly from your PC

5.1 Remove SD card and insert into the USB card reader.

5.2 Click "my computer" to find the removable disk.

Method 2: Connect with PC by USB line.

5.3 If it is the first time to connect RVIPro with PC by USB, it needs to be automatically installed with USB drivers. When the two are connected successfully, RVIPro will enter the PC read mode. Then you can read the data in SD card like Method 1.

5.4 When the RVIPro is in USB mode, please do not pull out the SD card. It will lead to an error.

6 USB Connection

The USB port is used for recharging or connecting with a PC. When it is connected with a PC, the RVIPro screen will display "memory", "camera" or "charging" options for users to choose:
1. Selecting "memory", the PC only has card reader (SD card) function.
2. Selecting "camera", with the camera connected into PC, the RVIPro display interface will be transferred to the PC end. Video and other video features can be achieved through remote observation of the Internet.
3. Selecting "charging" to enter charge mode.

7 System Setting

In the "real-time detection mode", press [ok] will enter "system setting" mode.

7.1 Playback

In system settings menu, you can select the playback of photos or video playback.

7.2 Language setting

12 Languages: English, French, Spanish, German, Russian, Dutch, Italian, Chinese, Japanese and Korean, etc.

7.3 Date/Time

Users can set the system display time.

7.4 Standby time setting

Users can set the standby time, in order to reduce power consumption.

7.5 Auto power off

User can set the auto power off time.

7.6 Continuous shooting

According to different needs, users can set single shooting, continuous shot or triple shot mode.

7.7 Recording time

Users can set the recording time.

7.8 Format

When entering into the format interface, if you press "Yes", all the date in the SD card will be deleted. Be sure to back up any data you wish to keep.

7.9 TV mode

TV mode setting.

7.10 Image rotation

Image rotation of 180°setting.

7.11 Color adjustment

After entering the color setting interface, the brightness, chroma and contrast can be adjusted.

7.12 Factory default setting

Pressing this button will clear the user settings, and restore to the factory default settings.
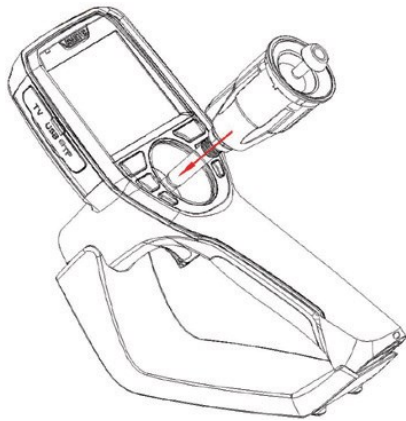
7.13 Version

It shows the current system version in the version setting.

8 Powering Off

During normal operation, hold On/Off button for 1 to 2 seconds, to power off. It needs to store some system parameters and the image data, which takes a few seconds to finish the power off operation.
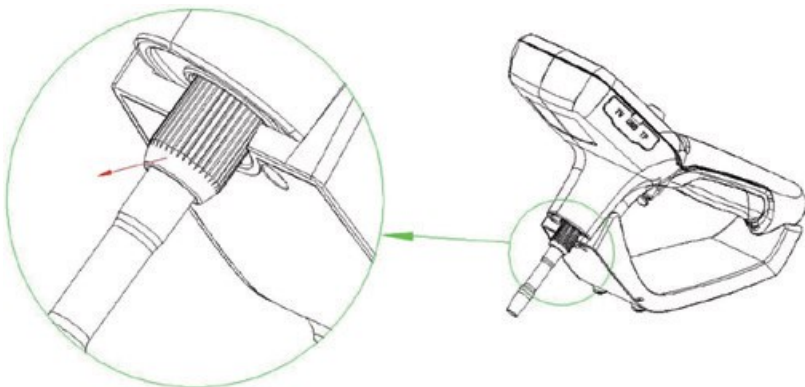
9 Replace The Insertion Tube

Part 1: Inserting Replacement Head

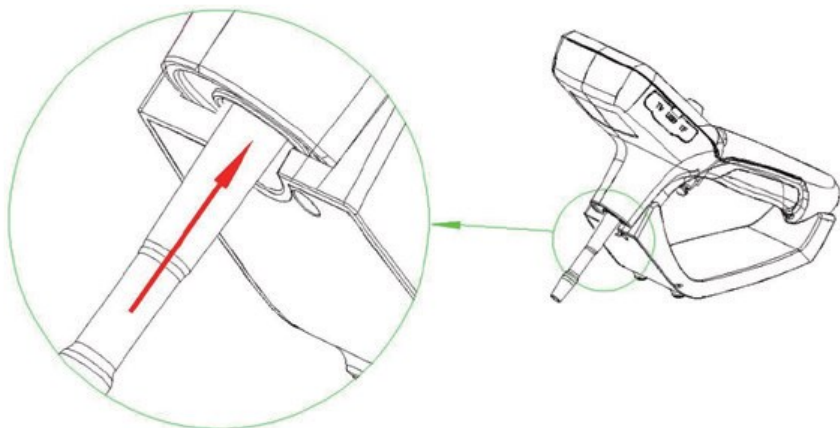**Step 1:** Insert replacement Tube through the front side of scope.

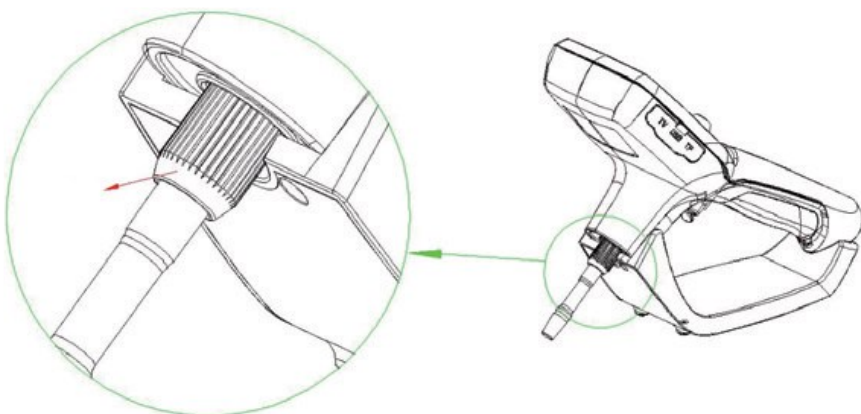**Step 2:** Align the triangle located on the replacement Tube at top center

Step 3: After replacement Tube is inserted and aligned, tighten the locking nut on the back side of probe.

Part 2: Removing Replacement Insertion Tube

Step 1: Remove locking nut from the back side of the replacement Tube.

Step 2: Push the rubber sleeve upwards to remove replacement Tube.

Standard Configuration:
Instrument Case, RVIPro, battery, card reader, 8G SD card, adaptor, USB line, manual.

Optional:
Detachable magnetic base, battery, insertion tube, and digital battery charger.

10 Instrument Storage

• Keep the instrument at room temperature, keep it clean, dry and avoid large impacts.
• It is prohibited to store the instrument in high temperature, high humidity, strong light, strong shock, high dust, polluted or corrosive environments.
• Do not store the instrument with other objects.
• When the product is not in use for a long periods, take out the battery and regularly check the operation of the instrument.

11 Solutions to Common Problems

Problem	Reason	Solution
Boot without reaction	No Battery or Power Shortage	Charge or Install Battery
Auto Shutdown	Battery Power Shortage	Charge or Change Battery
Boot Screen Freezing	System Boot Failure Or Battery Power Shortage	Remove the Battery to Reinstall and Restart or Charge
Image can not be recorded or Found	The SD card has not Enough Memory	Replace SD card or Delete unwanted files

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