

Hawkeye[®] Q2 Video Borescope User Guide

Interactive Digital Guide for Use and
Care



Gradient Lens Corporation®



Q2 HD VIDEO BORESCOPES

VQ2-0XX-XXXX-4
VQ2-0XX-XXXX-4D

User's Manual



PRECISION BORESCOPES

Version 1.1_December 2024








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GENERAL WARNINGS:

The following warning statements apply to use of the Hawkeye® Q2 Video Borescope in general.

-  DO NOT allow the Hawkeye® Q2 insertion tube, system, or working tools to come into direct contact with any voltage or current source. Prevent all contact with live electrical conductors or terminals. Damage to the equipment and/or electrical shock to the operator may result.
-  DO NOT use or store the Hawkeye® Q2 in explosive environments, places with strong electromagnetic fields, or combustible gas. Fire or explosion may result.
-  DO NOT use the Hawkeye® Q2 on humans or animals.
-  DO NOT look directly into the light from the LED on the tip of the Q2. Visual damage may result.
-  USE PROPERLY. Using the Hawkeye® Q2 in a manner not specified by the manufacturer may impair the product's ability to protect the user from harm.





General Cautions :

The following caution statements apply to use of the Hawkeye® Q2 Video Borescope in general. Caution statements that apply to specific procedures appear in the corresponding sections of the manual.



HANDLE CAREFULLY.

- Keep the insertion tube away from sharp objects that might penetrate its outer sheath.
- Keep the insertion tube as straight as possible during operation;
 - loops or bends anywhere in the insertion tube decrease the ability to steer the probe tip.
- Avoid bending, stretching, twisting or rolling the insertion tube excessively as doing so may cause damage to the Hawkeye® Q2.



CHEMICALS MAY DAMAGE THE Q2.


- For a list of substances that are safe for the Hawkeye® Q2, see [Chemical Compatibility](#).



Chemical Compatibility



Chemical compatibility refers to the probe's ability to withstand contact with various liquid substances for short periods of time and not be damaged.

 DO NOT use the Hawkeye® Q2 Video Borescope in explosive environments.

These substances are safe for a short duration of contact with the insertion tube:

- Water
- Aircraft Gasoline
- Jet-A-Fuel
- Isopropyl alcohol
- JP-4Fuel
- Kerosene
- Synthetic Turbo Oil
- Gasoline
- Diesel Fuel
- Hydraulic Oil
- Inhibited Transformer Oil

After contact with the above fluids, the insertion tube must be cleaned using soap and water and then dried prior to returning the Hawkeye® Q2 Video Borescope to the case for storage. The foam in the storage case is not compatible with these chemicals.



Hawkeye Q2 Illustration





Battery Release Button



micro SD HDMI USB

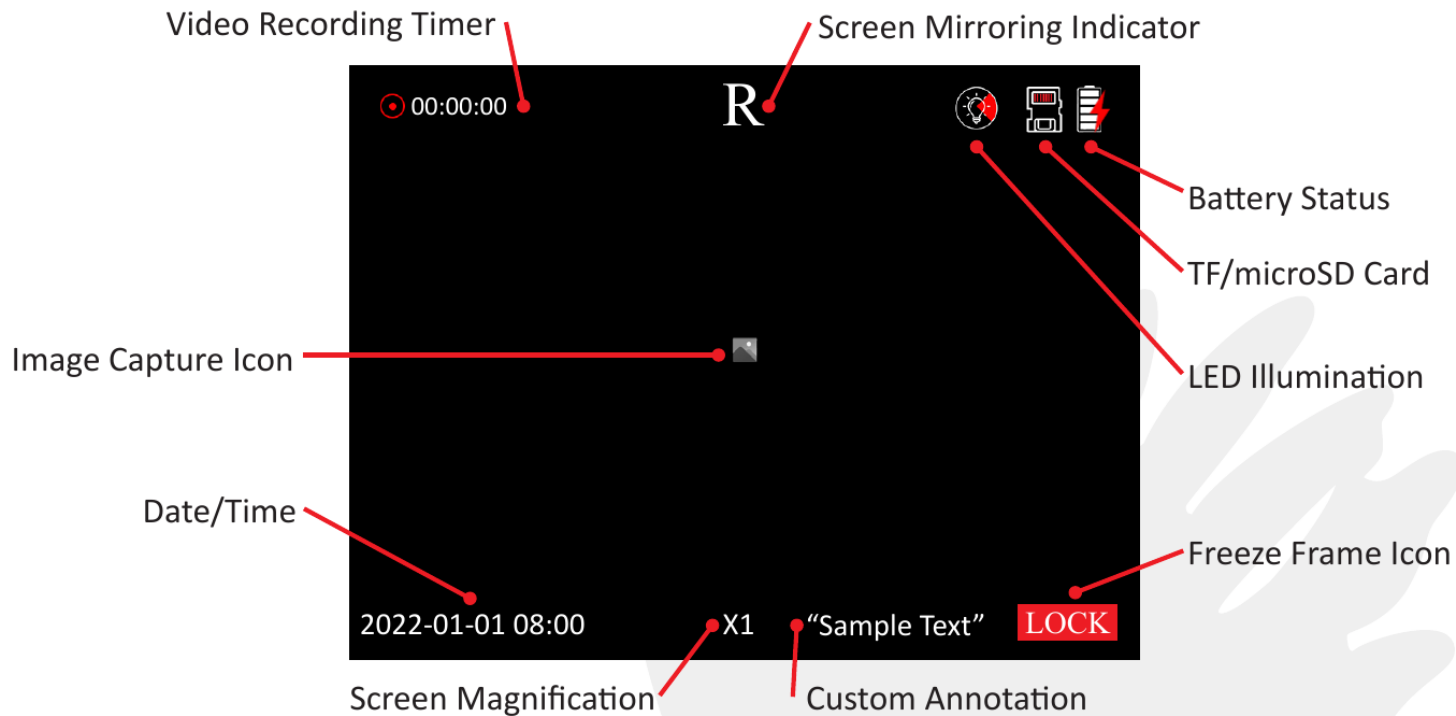


Battery Charge Indicator

USB



Screen Icons






Insertion Tube

Use the Insertion Tube to guide the Tip to the location that is to be viewed.

Joystick

Move the Joystick to articulate the Bending Neck. As the Bending Neck is articulated, the live image will pan in the same direction that the Joystick is moved.

 ALWAYS straighten the bending neck before withdrawing insertion tube from the inspection area or putting the probe away. Never pull, twist, or straighten the bending neck by hand; internal damage may result. At the first sign of damage, return the probe for repair.

Trigger

Pressing the *Trigger* will capture a still image or record video. Quick press the *Trigger* to **CAPTURE A STILL IMAGE**. Long press the *Trigger* to **RECORD VIDEO**. A timer 00:00 will appear next to the video icon in the upper left of the screen to indicate the length of the video recording. Long press the *Trigger* again to end video recording





1. [Power/Freeze Frame](#)

2. [Photo/Video](#)

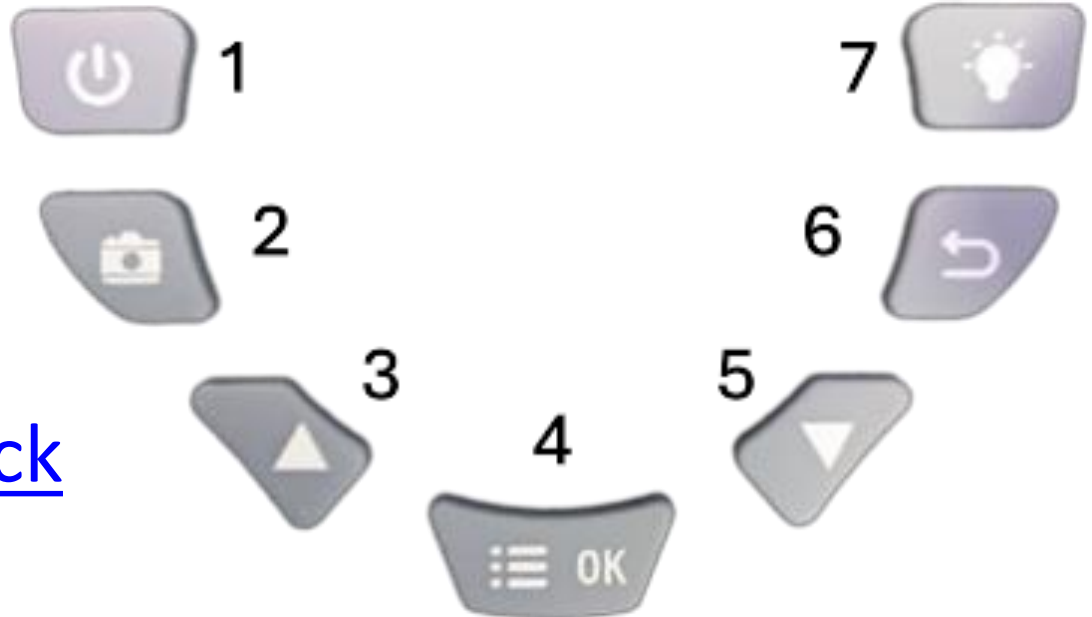
3. [Up/Mirror](#)

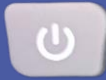
4. [Menu/OK](#)

5. [Down/Zoom](#)

6. [Return/Playback](#)

7. [LED/Delete](#)





Keypad

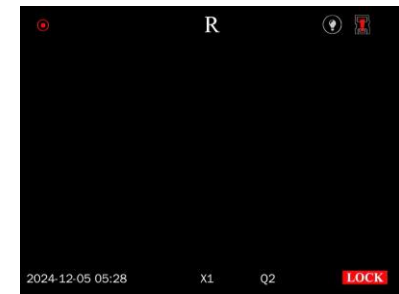
The Keypad buttons have different functions in different modes.

Power/Freeze Frame



To **POWER ON** the Q2 press and hold the *Power/Freeze Frame* button for 3 seconds. Live-View is the default mode. In this mode, the user can observe the live image captured by the camera on the Video Display. To turn the **POWER OFF**, press and hold the *Power/Freeze Frame* button for 2 seconds. The Q2 will store data then power off. In *Live-View* mode short press the *Power/Freeze Frame* button to **FREEZE THE IMAGE** on the screen. Short press the *Power/Freeze Frame* button again to release the freeze.

The **LOCK** icon appears in the lower right of the image when Freeze Frame is operating.





Photo/Video



Quick press the *Photo/Video* button to **CAPTURE A STILL IMAGE**. Long press the *Photo/Video* button to **RECORD VIDEO**. A timer 00:00:00 will appear next to the video icon in the upper left of the screen to indicate the length of the video recording.

Long press the *Photo/Video* button again to end video recording.

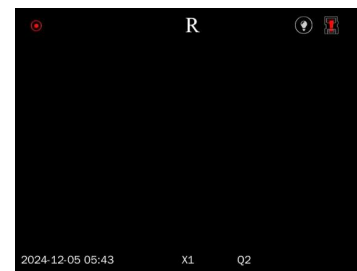
Up/Mirror



In Live-View mode press the *Up/Mirror* button to **MIRROR THE LIVE IMAGE**.

The image will cycle through four orientations:

- Standard view
- Flip horizontal
- Flip horizontal and vertical
- Flip vertical

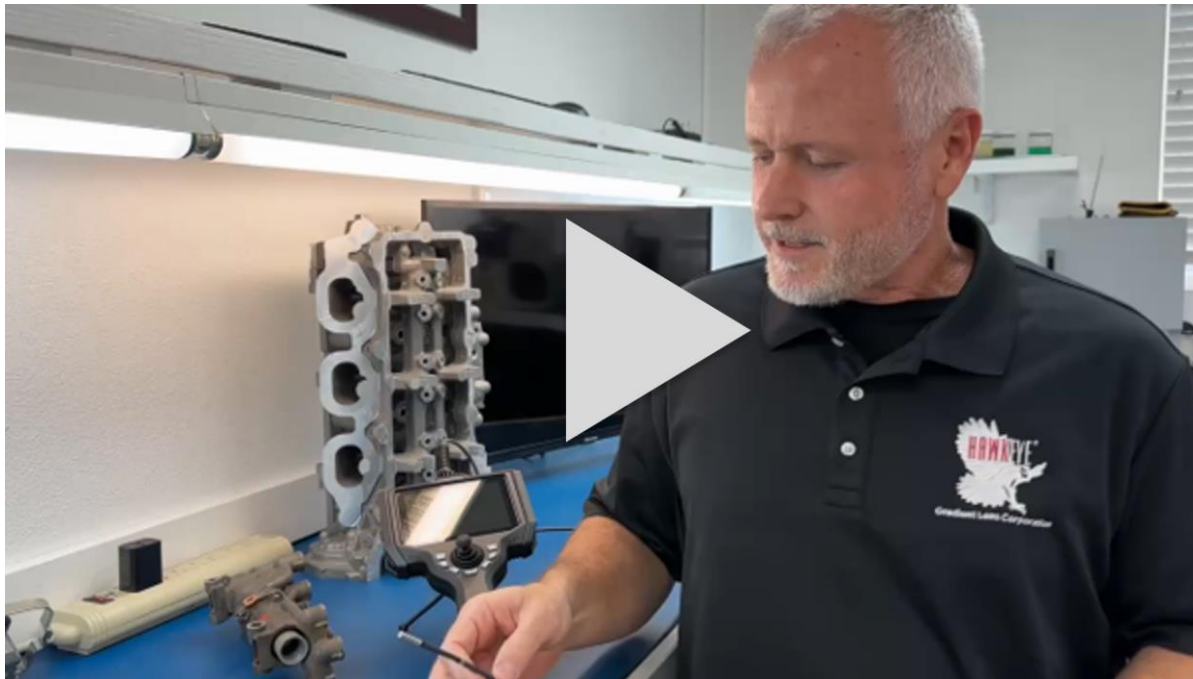


The state of image mirroring is indicated by the orientation of the “R” graphic at the center top of the display screen. In System Settings or Play-Back mode, use the *Up/Mirror* button to navigate menus





<< Keypad Keys



Up/Mirror function on a “Dual View” Insertion Tube

For Hawkeye® Q2 Video Borescopes equipped with a “Dual View” Insertion Tube, long pressing the Up/Mirror button will switch between the 0° camera and the 90° camera. “Camera Connecting” message is displayed while switch is taking place.

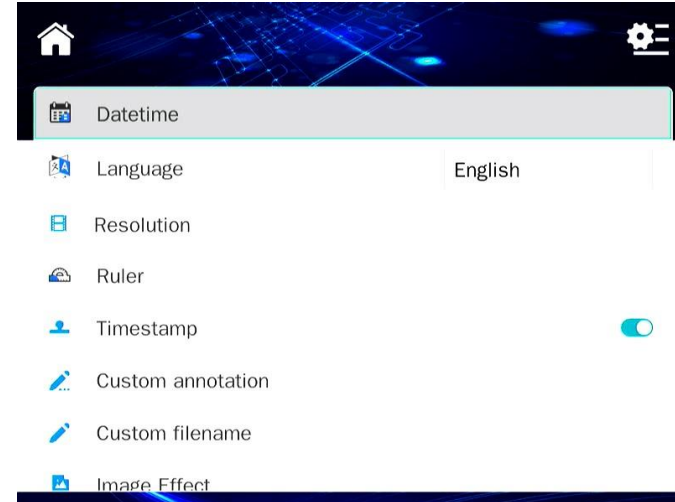




Menu/OK



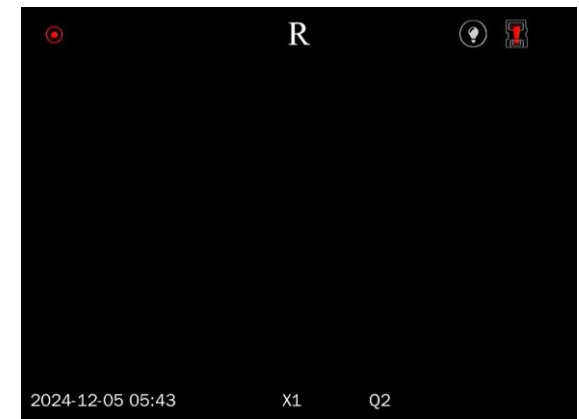
- In live-View mode, press the *Menu/OK* button to enter the System Settings.
- In Menu-Mode use the *Menu/OK* button to confirm selections.



Down/Zoom



- In Live-View Mode press the *Down/Zoom* button to **INCREASE IMAGE MAGNIFICATION**. The *Down/Zoom* button will cycle through 5 levels of image magnification. The X# bottom center of screen indicates level of zoom.
- In System Settings or Play-Back mode press the *Down/Zoom* button to navigate in menus



Keys: Return/Playback & LED/Delete



<< Keypad Keys

Return/Playback

In *Menu mode* press the *Return/Playback* button to exit the *Menu mode* or to back out of a System setting sub-menu.

In *Live-View mode* press the *Return/Playback* button to enter *PlayBack* mode for image and video capture review.

LED/Delete

In *Live-View mode* press the LED/Delete button to cycle through 8 levels of LED ILLUMINATION.

The onscreen LED illumination indicator will show the level.








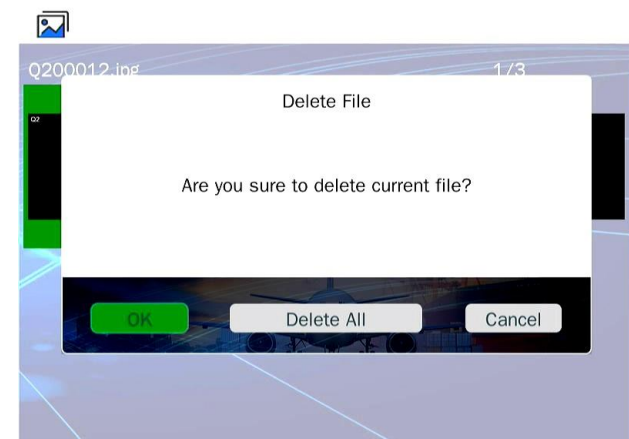
In Playback Mode this button is used to initiate file deletion





Playback

- In *Live-View* mode press the *Return/Playback*  button to enter *PlayBack* mode for image and video capture review. The captures will be displayed as thumbnails for review.
- Use the Up  and Down  buttons to select an Image or Video to view.
- Confirm the selection and hit the *Menu/OK* button  to view in full screen or play the video.
- While playing back a video press the *Menu/OK* button to pause the video. Press the *Menu/OK* button again to resume playback.
- In Play-Back mode when viewing **thumbnails** or **full screen** use a short press of the *LED/Delete*  button to **DELETE** the selected image or video.
- Select and confirm your choices to complete the deletion of files.





- In Live-View mode, press the Menu/OK button to enter the System Settings.



- Navigate to the System Settings with the Up/Down buttons



- Confirm selections with the Menu/OK button.



The following system parameters can be set:

[Time and Date](#)

[Language](#)

[Resolution](#)

[Ruler](#)

[Timestamp](#)

[Custom Annotation](#)

[Custom Filename](#)

[Image Effect](#)

[Headphone Sound](#)

[Format SD Card](#)

[System Info](#)

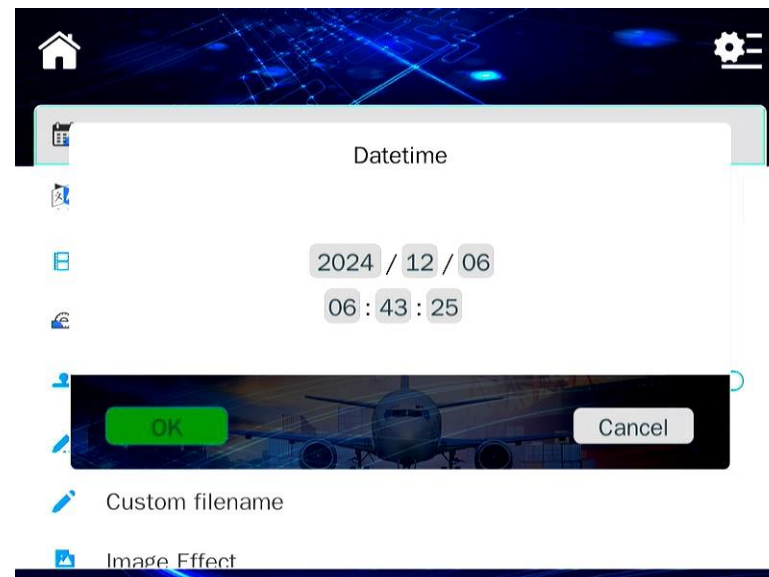
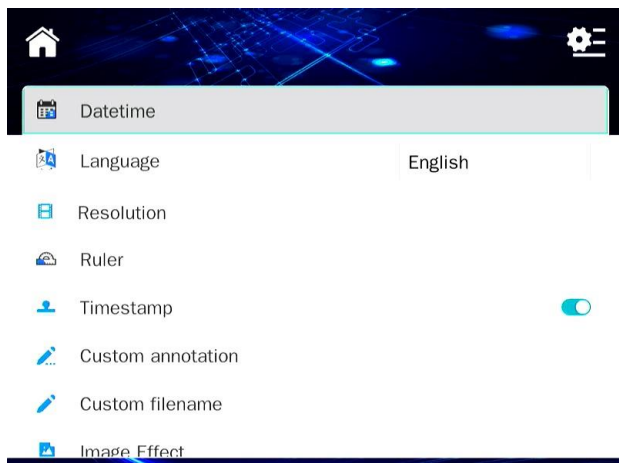




Set the Date & Time.

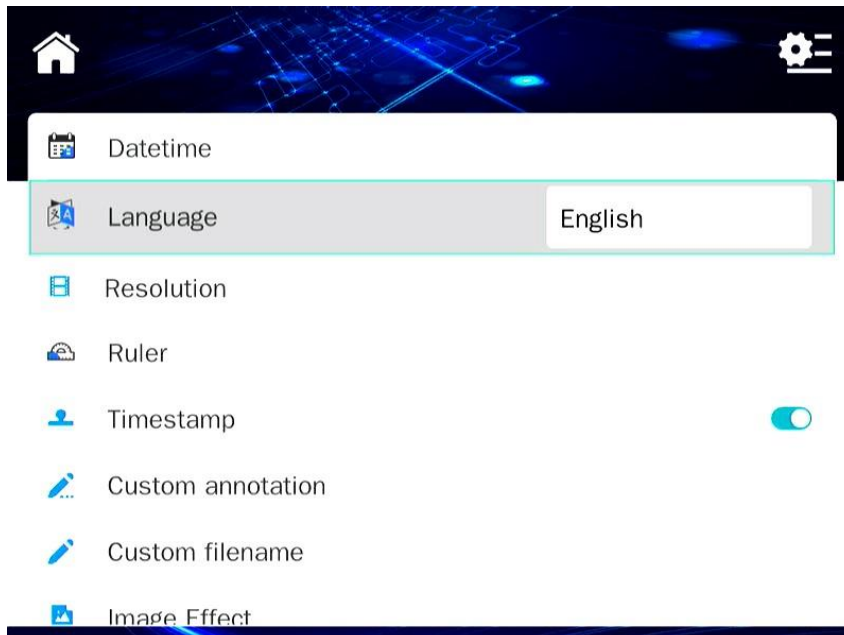
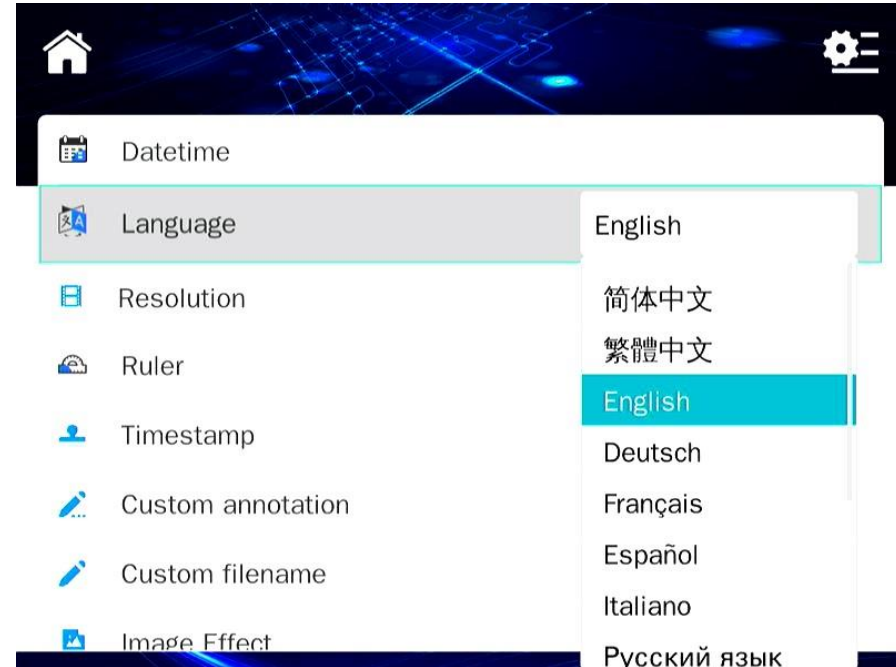
Date is in Year/Month/Day format.

Time is in 24- hour format.





The display language can be set to the following languages: Chinese (Simplified), Chinese (Traditional), English, French, German, Italian, Japanese, Polish, Spanish, Russian, Ukrainian.

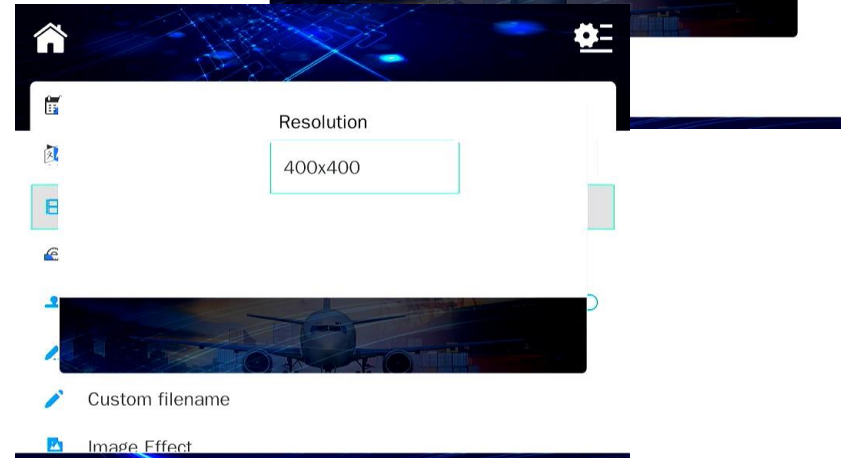
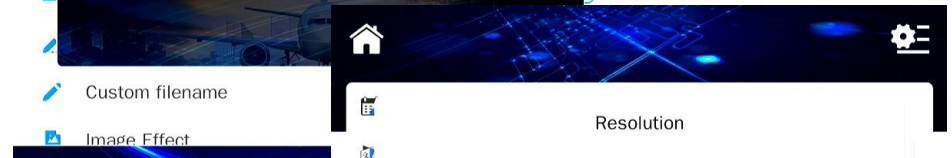
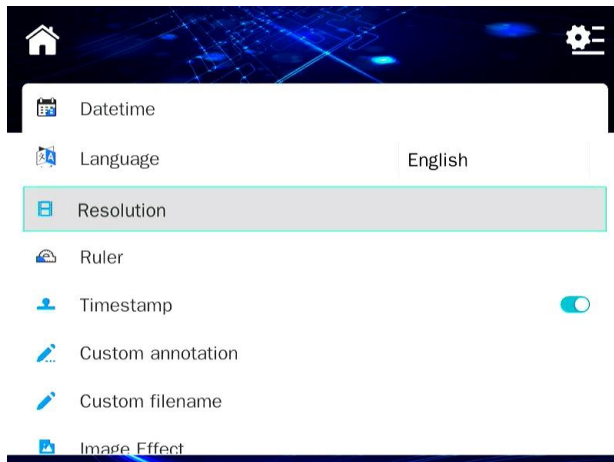


Resolution



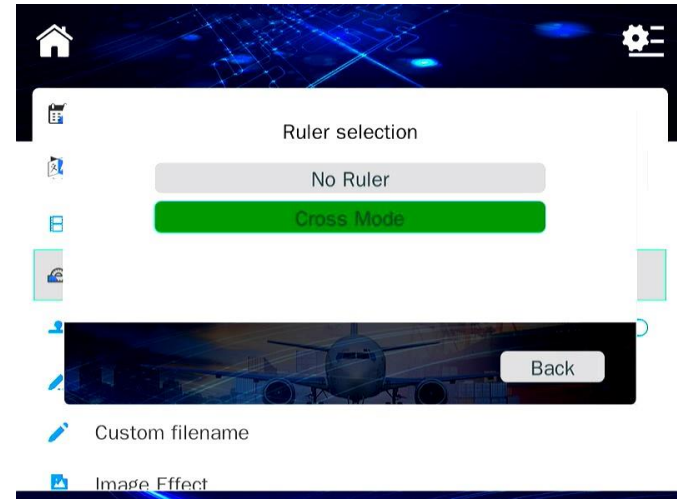
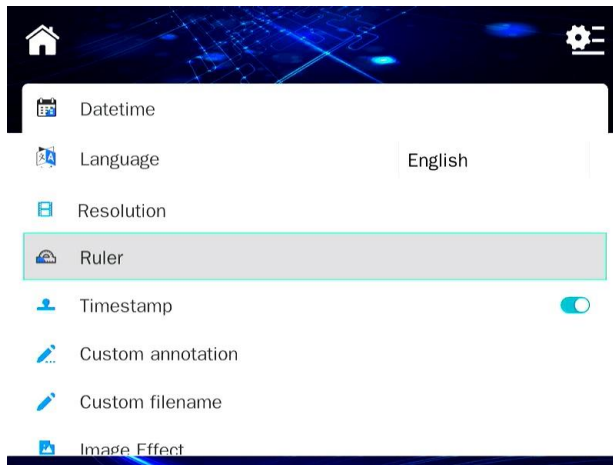
<< System Settings

- Screen resolution can be set to: 960x720, 1280x720, or 640x480 and 400x400
- The available Display resolutions depend on the model of VQ2

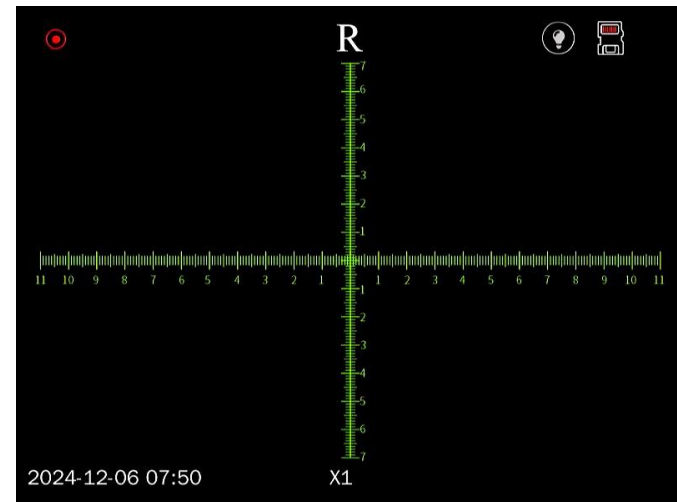




Choose- No Ruler or a reference cross-hair to be shown on the screen.



This reference mark is only visible on the live image and does not capture to the microSD card.

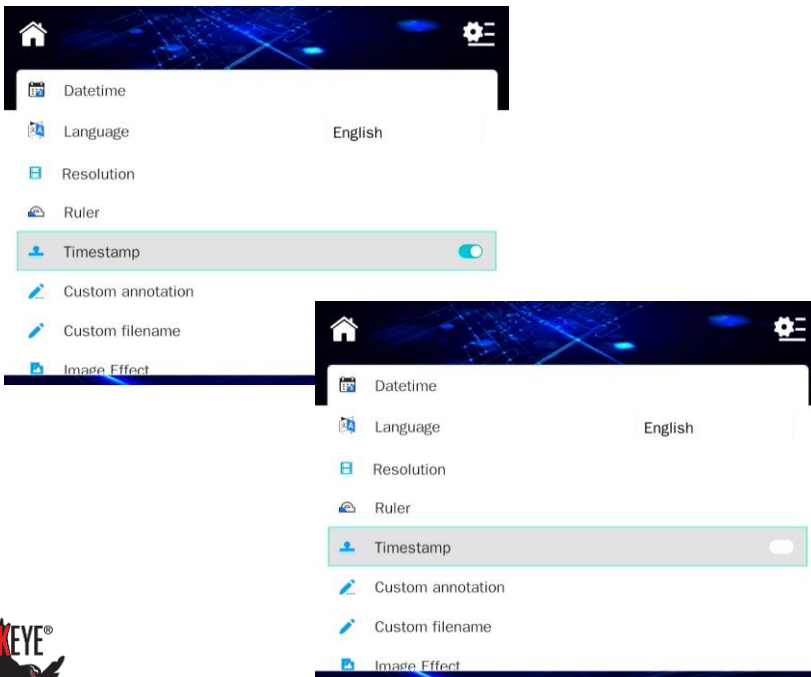
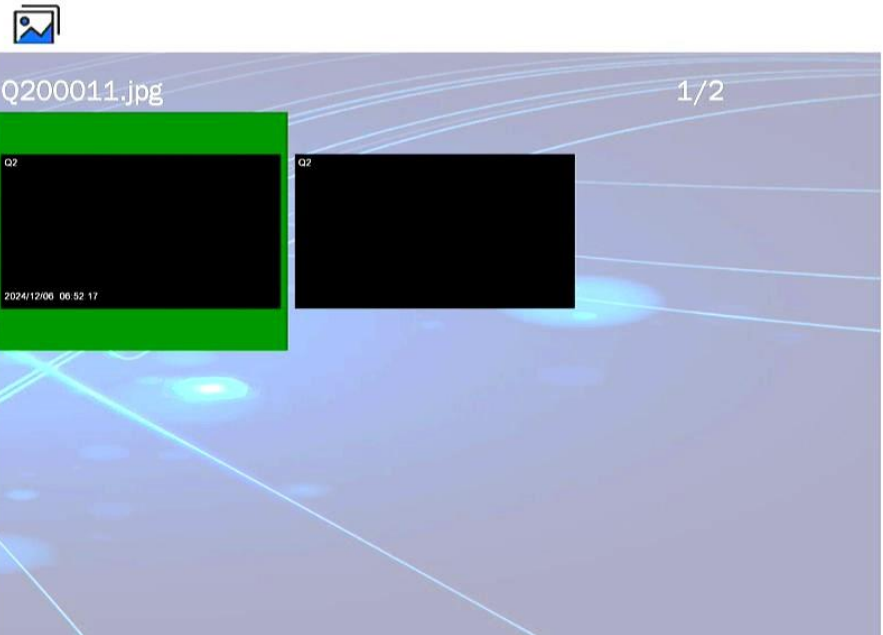


Timestamp



<< System Settings

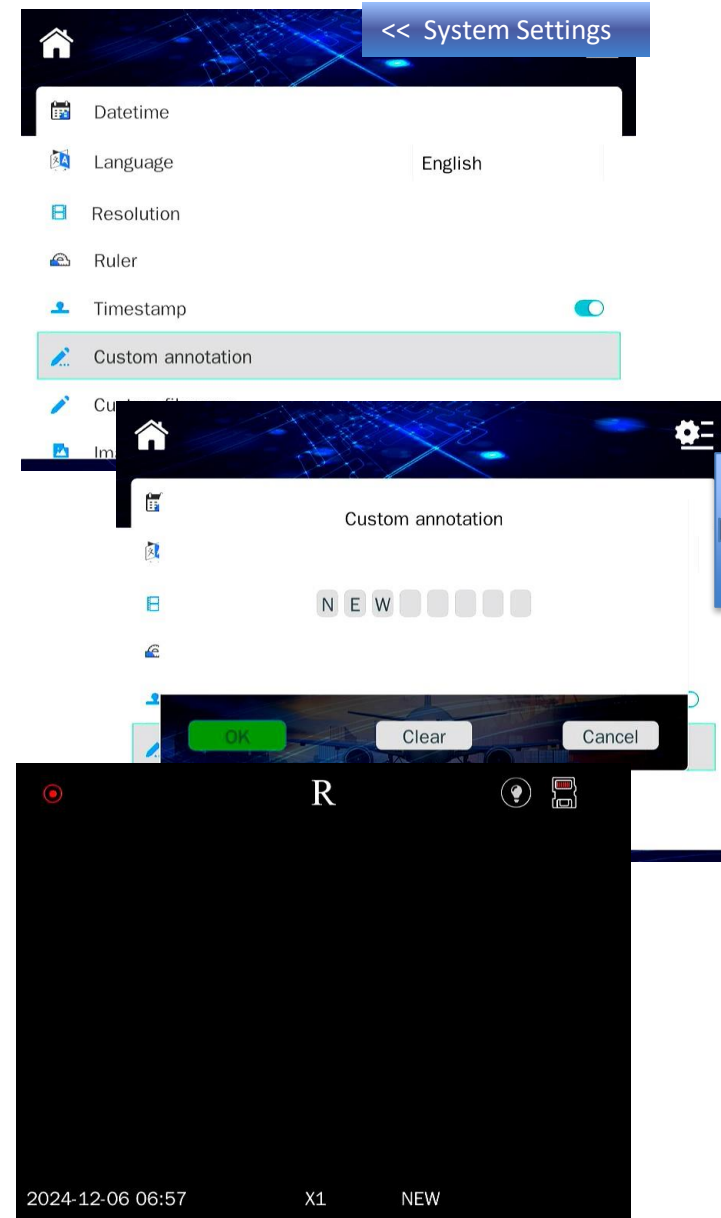
- Toggle the Timestamp switch to Capture a timestamp with images and video.
- The Live View will always display the time and date, but when “Timestamp” is off the captured images will not display it.



Custom Annotation



- The custom annotation setting allows the user to add text notes to images or videos.
- The notation will appear at the **lower right** of the display screen when in Live-View mode and be watermarked on the images or video.
- To enter a custom note, highlight a field with the Up/Down buttons
- Confirm field selection with the Menu/OK button.
- Use the Up/Down buttons to select a “number” or “letter” for that field
- Confirm with the Menu/OK button.
- Use the Up/Down buttons to move to the next or previous field.
- Repeat until you have completed the custom annotation.
- Use the Up/Down buttons to move to the OK tag
- Confirm with the Menu/OK button to save the annotation



Custom Filename



- The custom filename setting allows the user to add a custom prefix to the filename.
- The file names will follow the form of “prefix” + “serial number”,
i.e. JT15DXXXXX.
- To enter a custom filename
- Highlight with the Up/Down buttons
- Confirm field selection with the Menu/OK button.
- Use the Up/Down buttons to select a “number” or “letter” for that field
- Confirm with the Menu/OK button.
- Use the Up/Down buttons to move to the next or previous field.
- Repeat until you have completed the custom filename.
- Complete Custom filename change with OK selection.

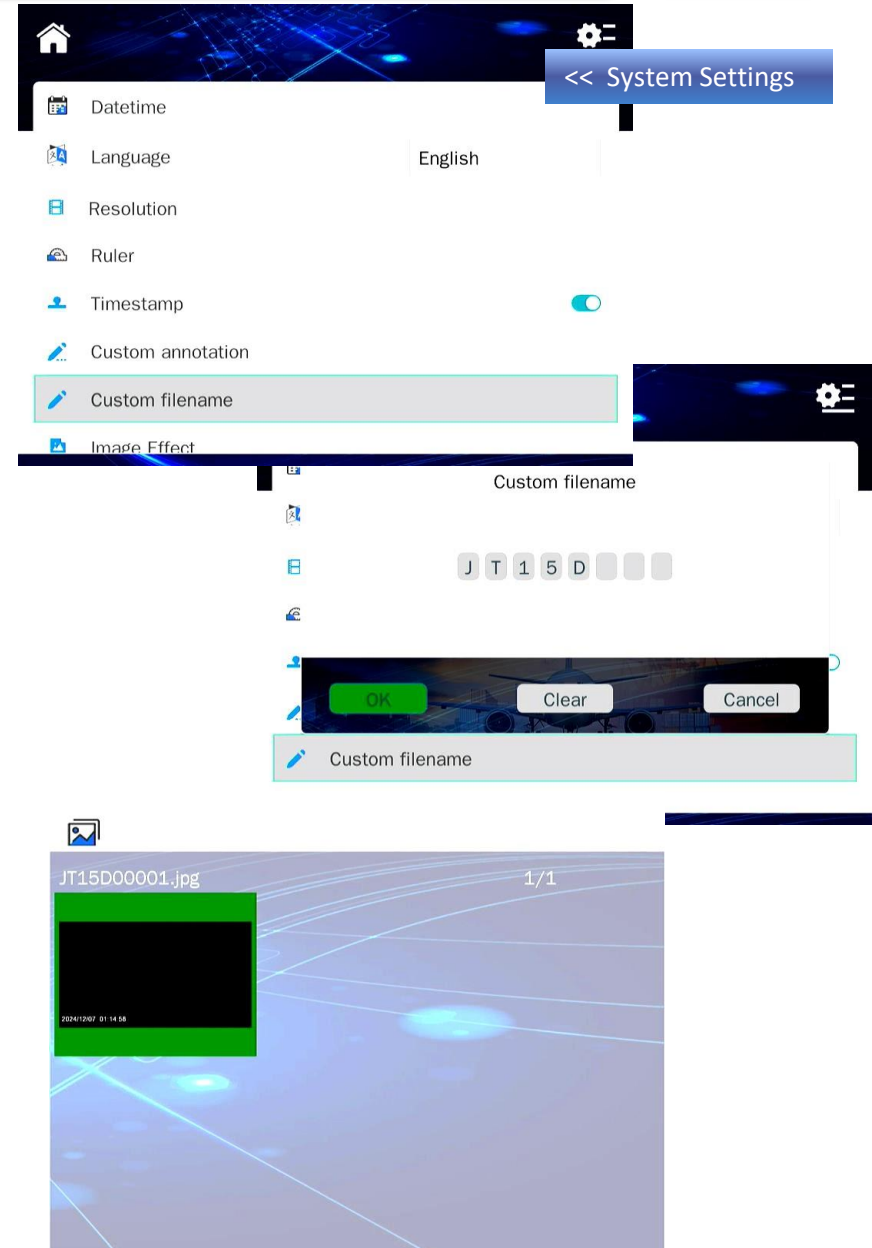
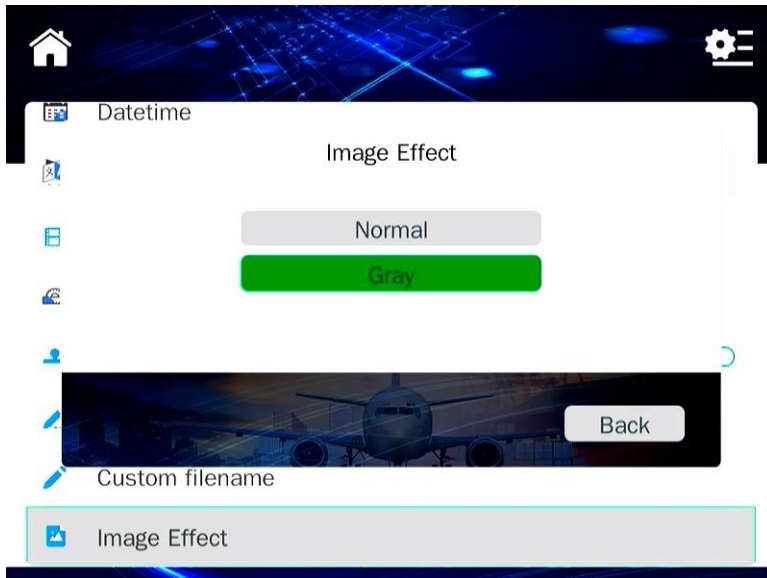




Image Effect

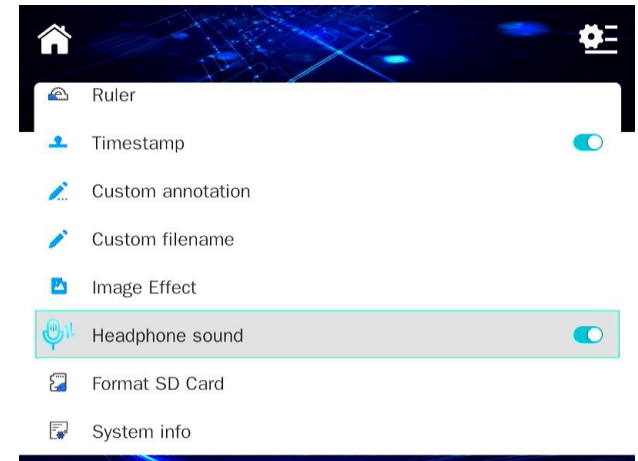
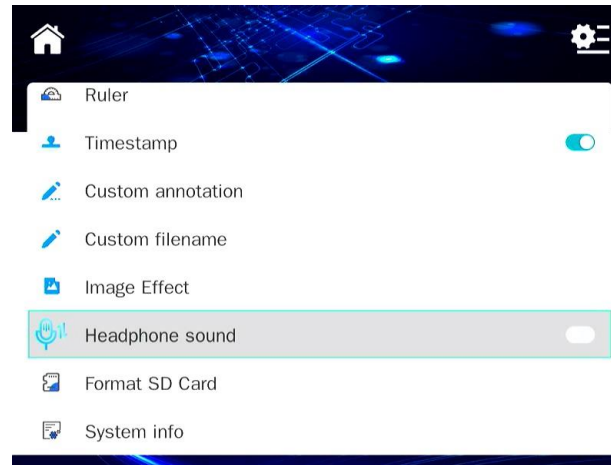
Choose between Normal and Gray scale





Headphone sound

- You can record narration on video captures using a connected headset when this option is turned on.



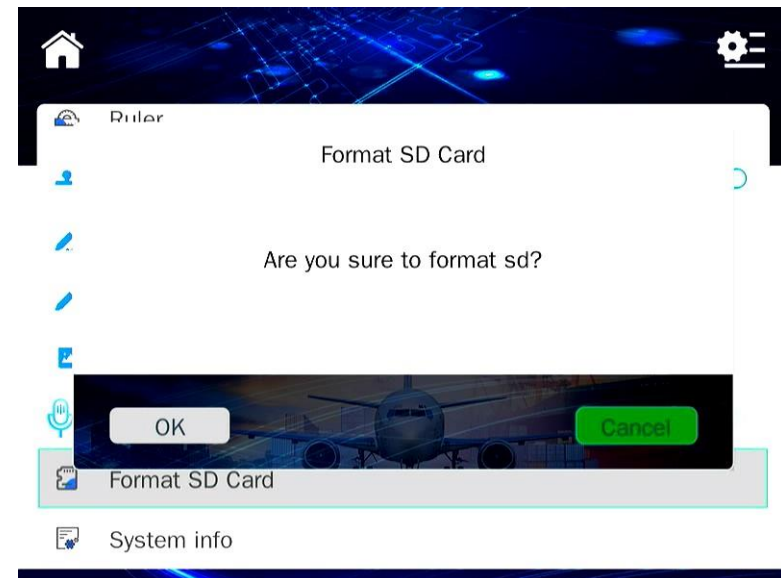
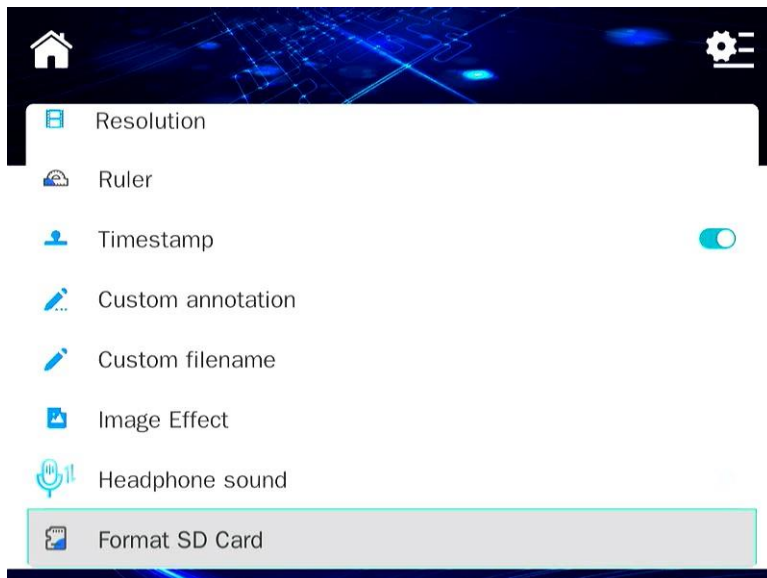


Format SD Card

- Format memory Card.



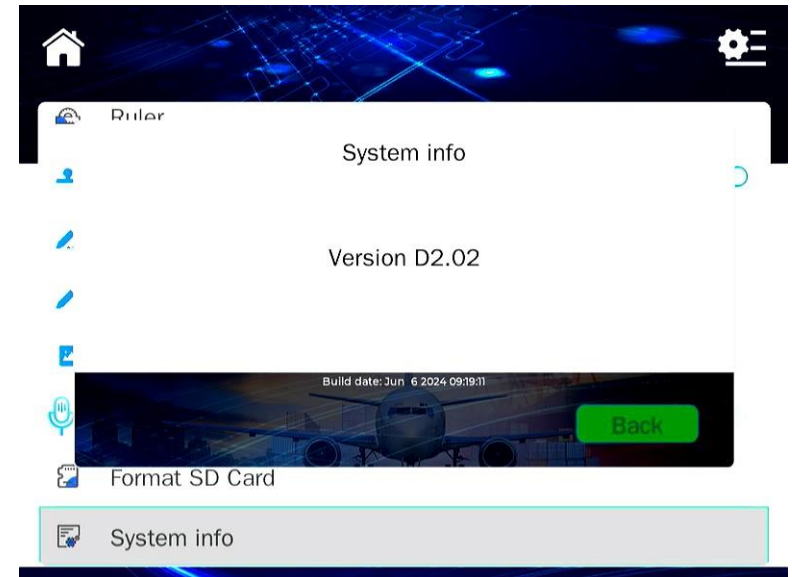
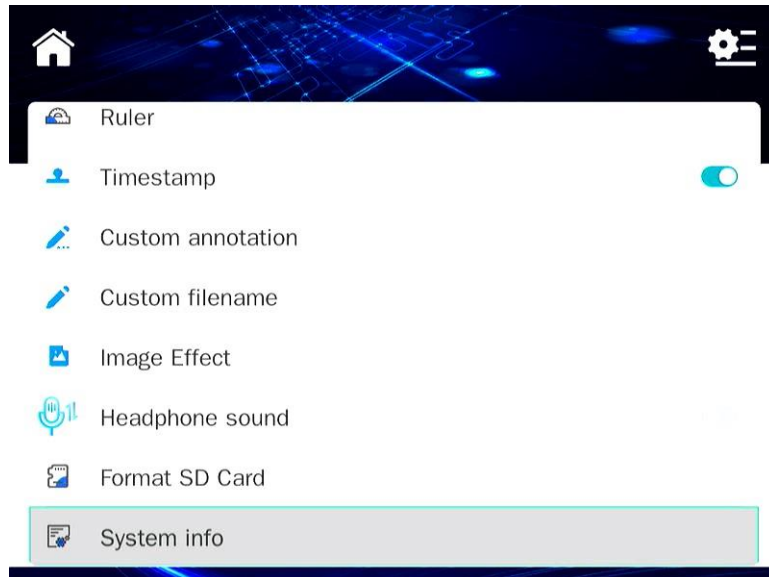
Unintentional formatting may cause unrecoverable data loss





System Info

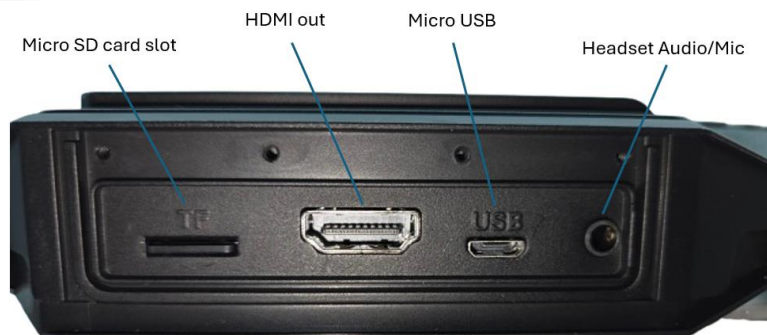
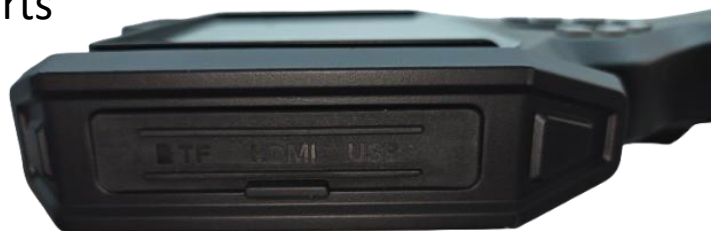
- Display firmware version.





Behind the host cover are IO ports

- Micro SD card slot
- HDMI output
- Micro USB
 - For data transfer
 - For Powering Q2
 - For charging an attached battery
- Headset Audio/Mic jack
- There is an additional Micro USB port on the battery for charging on or off the Q2 host



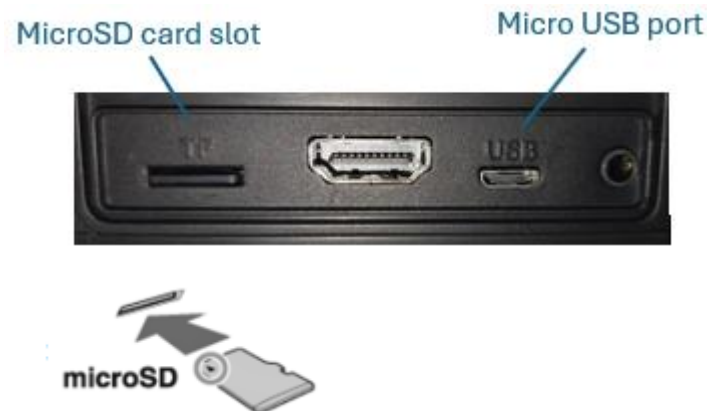


• Transfer Data

- Connect the Q2 Micro USB (Under the port Cover) to a USB port on your computer and power cycle the Q2.
- The Q2 will connect to your device, and the microSD card will show in your file navigation where files can be moved or copied, or deleted.

• TF/microSD

- The microSD card is used to store and transfer media via the included microSD card adapter.
- To insert the card, hold the memory card with the arrow pointing toward the slot, and carefully slide it into the slot until it clicks into place.
- If no memory card is present, the memory card icon in the upper right corner of the display will show an exclamation point and warn that the memory card is missing.



⚠ DO NOT insert the memory card in the wrong orientation. If you force it into the slot upside down or backwards, the slot may be damaged



Battery Charging & maintenance



- The Hawkeye® Q2 Battery can be charged with the battery connected or disconnected.
- To charge the battery, connect the Q2 Micro USB port on the side of the display or the Battery Micro USB to a powered USB port on your computer or to a power outlet using the supplied Micro USB cable and USB power adapter.
- The Q2 can be used while the battery is charging.
- Replace the battery if performance declines significantly.
- Avoid exposing the battery to extreme temperatures.





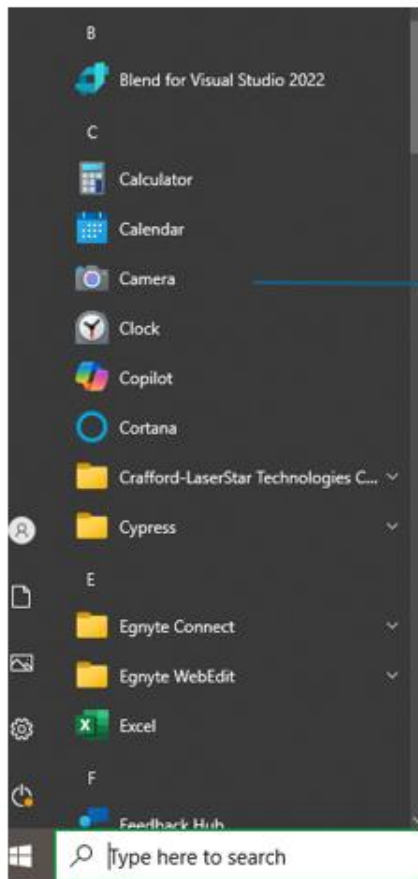
- Connect the borescope to an external display using the HDMI port.
- Ensure the display is set to the correct HDMI input source.
- Use the borescope controls to navigate while connected.
- The HDMI port and cable can be used with an HDMI capture device to convert the display output to USB camera input for use with a windows computer camera app.



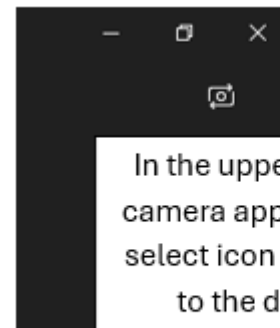
HDMI out to computer via capture device



- HDMI out with Capture device
 - The HDMI output paired with an HDMI capture device can make the Q2 compatible with your Windows camera app on the computer.
 - Connect to a USB port on your computer and open the camera app in Windows.



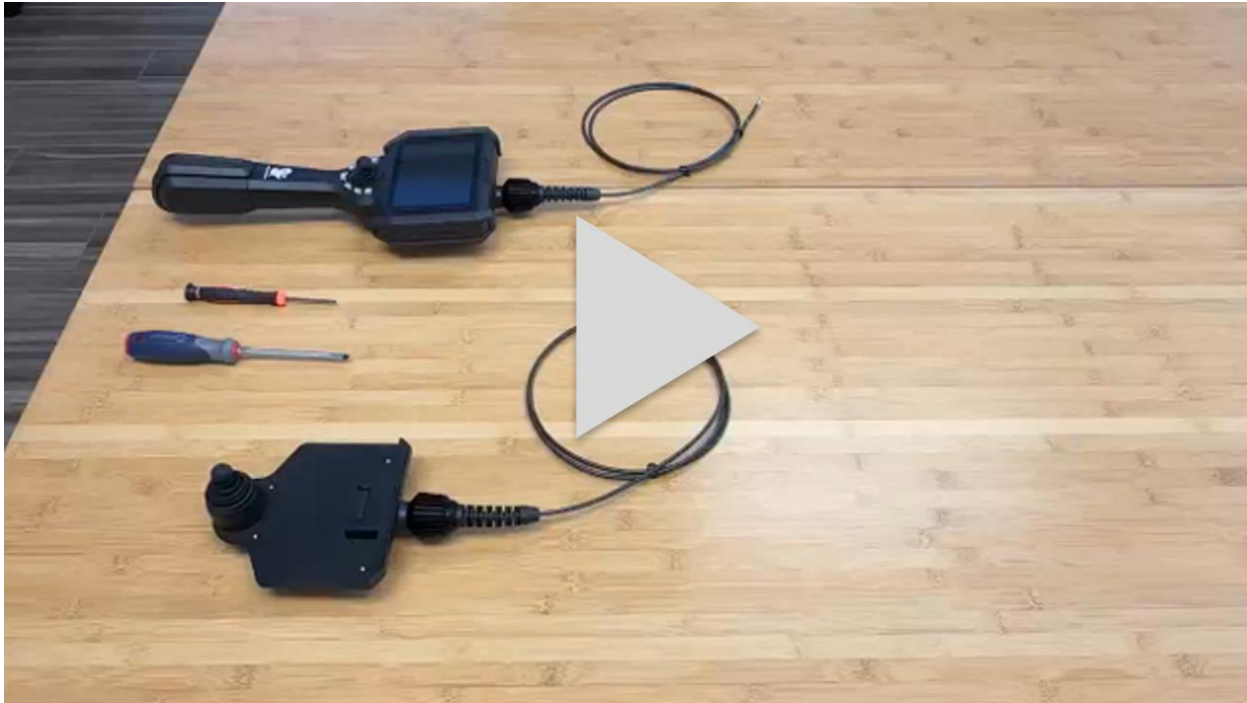
Camera App



In the upper right corner of the camera app window the camera select icon allows you to switch to the different cameras connected to the computer.



Change Insertion tubes



The Hawkeye® Q2 Video Borescope Insertion Tubes are easily replaced when damaged, to change size, or to add features like Dual View.

- 1. Remove 2 rubber feet and 4 T8 screws.
- 2. Lift the display away from the insertion tube.
- 3. Align the joystick with the opening in the display.
- 4. Press the insertion tube and display together.
- 5. Reinstall screws and rubber feet.



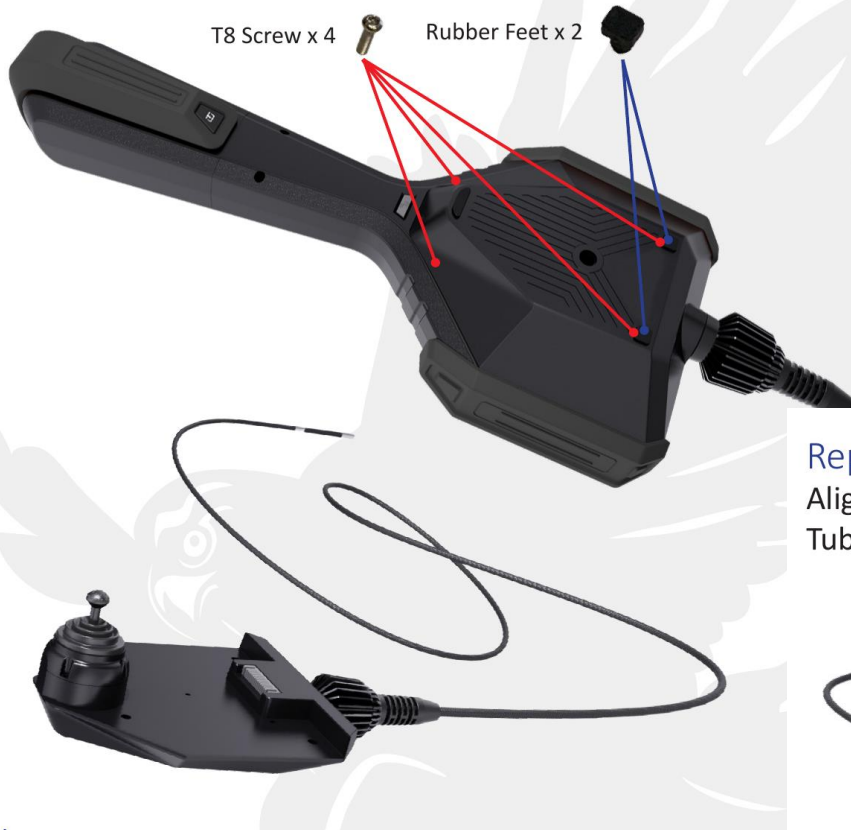
Change Insertion Tube



The Hawkeye® Q2 Video Borescope Insertion Tubes are easily replaced when damaged, to change size, or to add features like *Dual View*.

Remove

To change the Insertion Tube, remove 2 x rubber feet and 4 x T8 screws, then lift the Display away from the Insertion Tube.



Replace

Align the Joystick with the opening in the Display. Press the Insertion Tube and Display together. Reinstall 4 x T8 screws and 2 x Rubber Feet.



Cleaning the VQ2



- Use a soft, damp cloth for exterior cleaning.
- Use lens cleaning solution for optical surfaces.
- Avoid strong solvents like acetone.





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Service

- To obtain service for a Hawkeye® Q2 Video Borescope, please contact your reseller or Hawkeye Borescopes directly.
- If the problem cannot be corrected over the phone, a Return Materials Authorization number (RMA) will be issued along with instructions for shipment to an authorized service center.





Warranty: Gradient Lens Corporation warrants that all Hawkeye® Borescopes and accessories will be free of defects in materials and workmanship for one year from the date of first retail purchase. Video and lighting products have manufacturer's warranties for one year. This warranty does not cover breakage or failure due to tampering, misuse, neglect, accidents, improper installation, modification, shipping, or to improper maintenance, service, and cleaning procedures. This warranty is also void if the instrument is not used in accordance with the manufacturer recommendations or if required service is performed by anyone other than a Gradient Lens Corporation authorized agent. **NO OTHER EXPRESS OR IMPLIED WARRANTY IS GIVEN.**

