

Gradient Lens Corporation®



**HD VIDEO BORESCOPES Q2**

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

User's Manual





## Contents

Power .....	4
Freeze Frame .....	4
Image Capture .....	4
Video Capture.....	5
Image Magnification/Zoom .....	5
Image/Video Playback .....	5
Delete Image or Video.....	5
LED Illumination .....	5
System Settings.....	6
I/O Ports (HDMI, Micro USB, TF/microSD) .....	7
Battery Charging .....	7
Change Insertion Tube.....	9
Maintenance .....	10
Sales and Technical Support.....	11

## Safety Information

### General Warnings

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

 **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 my 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

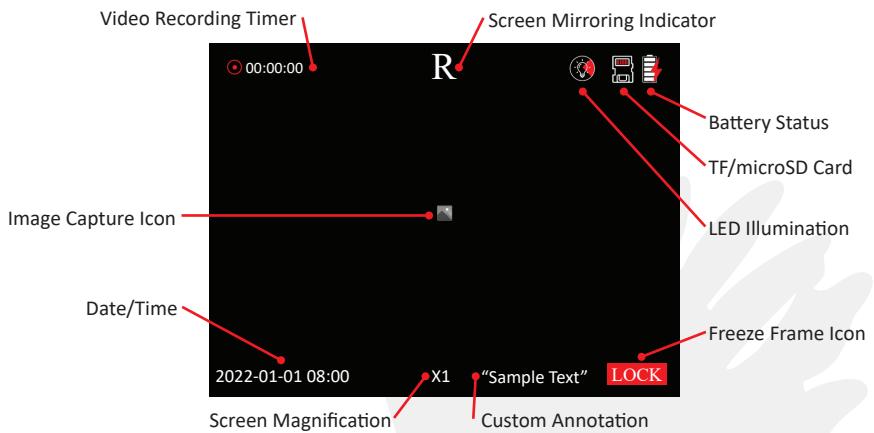
Borescope in general. Caution statements that apply to specific procedures appear in the corresponding sections of the manual.

**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.

## Hawkeye® Q2





## Controls

### 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

#### Trigger function on a Standard View Insertion Tube

For *Hawkeye® Q2 Video Borescopes* equipped with a “*Standard View*” Insertion Tube, 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.

#### Trigger function on a “*Dual View*” Insertion Tube

For *Hawkeye® Q2 Video Borescopes* equipped with a “*Dual View*” Insertion Tube, pressing the *Trigger* will switch between the 0° camera and the 90° camera.

### 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.

### 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 orientation: horizontal left, horizontal right, vertical left, vertical right. 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.

#### *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.

In *System Settings* or *Play-Back* mode press the *Down/Zoom* button to navigate menus.

#### *Return/Playback*

In *Live-View* mode press the *Return/Playback* button to enter *Play-Back* mode. Use the *Up/Down* buttons to select an image to **VIEW FULL SCREEN**, or a video to play. Confirm with the *Menu/OK* button.

While viewing a full screen image, press the *Menu/OK* button to zoom into the image. The *Menu/OK* button will cycle through 5 zoom levels.

While playing a video press the *Menu/OK* button to pause the video. Press the *Menu/OK* button again to resume playback.

In *Play-Back* mode press the *LED/Delete* button to **DELETE** the selected image or video. An image or video can also be deleted by pressing the *LED/Delete* button when viewing an image in full screen or while playing a video.

#### *LED/Delete*

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

In *Play-Back* mode press the *LED/Delete* button to delete an image or video.

## System Settings

In *Live-View* mode, press the *Menu/OK* button to enter the *System Settings*. Navigate the *System Settings* with the *Up/Down* buttons and select the *Menu/OK* button. The following system parameters can be set:

### Time and Date

Set the Date & Time. Date is in Year/Month/Day format. Time is in 24-hour format.

### Language

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

### Resolution

Screen resolution can be set to MJPEG: 960x720, 1280x720, or 640x480.

### Ruler

Toggle display reference lines On or Off.

### Timestamp

Images and videos can be watermarked with a timestamp. Set the switch to ON to enable this feature.

Note: The Date and time displayed at the bottom left of the display screen will remain visible. The timestamp setting only affects recorded images and video.

### 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 and confirm field selection with the *Menu/OK* button. Use the *Up/Down* buttons to select a “number” or “letter” for that field and 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.

### 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 num-

ber”, i.e. abcdXXXX.

To enter a custom filename, highlight a field with the *Up/Down* buttons and confirm field selection with the *Menu/OK* button. Use the *Up/Down* buttons to select a “number” or “letter” for that field and 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.

**Custom filenames will take effect the next time the Q2 is powered on.**

## Image Effect

Choose from 3 image effects: Normal, Gray, or Negative.

## Format SD Card

Format memory Card.



Unintentional formatting may cause unrecoverable data loss.

## System Info

Display firmware version.

## I/O Ports

The Hawkeye® Q2 Video Borescope comes equipped with HDMI, Micro USB, and TF/microSD ports.

### HDMI

The Hawkeye® Q2 Video Borescope can be connected to an external monitor or television equipped with an HDMI port using the supplied HDMI cable.

### Micro USB

The Micro USB ports are used to power the Q2, charge the battery, and transfer data. The USB ports are located under the port cover on the left side of the Q2 and at the base of the battery. When you connect to one of the Micro USB ports you will be asked to choose from “connect to computer” or “power only”.

### Powering the Q2

The Q2 will run off battery power or USB power. To use the Q2 without a battery, or when the battery has been depleted, connect the Q2 Micro USB or 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.

### Charging the Battery

The Hawkeye® Q2 Battery can be charged with the battery connected or

disconnected. To charge the battery, connect the Q2 Micro USB or 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.

#### Data Transfer

Connect the Q2 Micro USB or battery Micro USB to a USB port on your computer, select “connect to computer”, wait for the Q2 to connect, and the Q2 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!

## 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.



## Maintenance

### Cleaning the System

Clean the exterior of the *Hawkeye® Q2* with a soft, damp cloth. Clean the optical surfaces at the tip, as well as the Touch Screen with the supplied lens cleaning solution, or a commercial glass cleaner. Use a soft, non-scratching cloth or the included cotton swabs or equivalent.

 **DO NOT** use strong solvents such as acetone on the *Hawkeye® Q2*.

### 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.

## Sales and Technical Support

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Toll Free: 800-536-0790

### Service

To obtain service for a *Hawkeye® Q2 Video Borescope*, please contact your reseller or Gradient Lens Corporation 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.

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