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## **HHB-ISCOPE (iBorescope)**



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**WARNING:** These products are not designed for use in, and should not be used for, human applications.

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## INTRODUCTION

Thank you for purchasing Omega's IScope. Please read this manual carefully and thoroughly before using the instrument.

IScope is a unique instrument that can wirelessly stream high-quality video from a camera at the tip of a long probe to a nearby iPhone or iPad screen. Typical applications include inspections of hard-to-reach or hard-to-see areas like crowded engine compartments, equipment enclosures or HVAC ductwork.

To receive the video, the iPhone or iPad must install and run a free app (also called iBorescope), downloadable from the iTunes® App Store. A soft button on the app allows the user to take snapshots of the video stream and store them on the iPhone or iPad. The pictures can be viewed immediately and shared immediately via text message, or shared later via e-mail or Skype. All transfers between IScope and the iPhone/iPad are wireless, via an ad hoc WiFi hot spot (without Internet access) generated by the instrument.

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## KEY FEATURES

- Generates ad hoc WiFi network (without Internet access) for transmitting transmit probe video to app-enabled iPhone or iPad
- Long (35 in./900mm), thin (0.39 in./9.8mm diameter) flexible-obedient probe captures VGA (640 x 480 pixel) resolution video. Longer and thinner probes for specific applications are also available. Visit [www.generaltools.com](http://www.generaltools.com) for details.
- Ideal camera depth of field of 1/2 in. to 12 in. (12.7 to 305mm)
- App's **SNAP SHOT** soft button captures still .jpg images of live video stream and saves files to Photos folder on iPhone/iPad. Photos can be viewed immediately, shared immediately by text, or shared later by e-mail or Skype.
- Non-replaceable Li-ion battery charges through included USB cable (compatible with iPhone/iPad Power Adapter and all computers). Full charge is good for three hours of operation.
- Thumbwheel on pistol grip controls camera lighting
- Adjustable video attributes (brightness, contrast, hue, saturation)
- Video Out jack and cable and Low Battery indicator
- Includes three useful probe tip accessories (45° mirror, pickup hook, magnetic pickup)

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# SAFETY INSTRUCTIONS



Do not use IScope to inspect spaces or enclosures known or suspected to contain live electrical wiring.

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## WHAT'S IN THE CASE

The IScope's grip and probe come pre-attached in a protective hard plastic case along with a USB charging cable (compatible with the iPhone/iPad Power Adapter and all computers), a video cable, three probe tip accessories (a 45° mirror, a magnetic pickup and a pickup hook) and this user's manual.


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## PRODUCT OVERVIEW

Fig. 1 shows the controls, indicators and physical features of the IScope instrument. Fig. 2 shows the unit's standard accessories. Familiarize yourself with the names and functions of all components before moving on to the Setup Instructions and Operating Instructions.



### Fig. 1. The controls, indicators and physical features of IBorescope

1. **WiFi** status light: Red = Preparing hot spot; Green = Hot spot available
2. **Video Out** jack
3. **DC5V** charging jack
4.  (Charging) light: Orange = Charging; Off = Fully charged
5. **LOW** battery charge light (glows red)

6. Power switch/brightness adjustment thumbwheel
7. Pistol grip
8. Camera-tipped probe
9. Camera head



**Fig. 2. IScope's standard accessories**

- |                        |                 |
|------------------------|-----------------|
| 10. 45° mirror         | 11. Pickup hook |
| 12. Magnetic pickup    | 13. Video cable |
| 14. USB charging cable |                 |

## SETUP INSTRUCTIONS

### ***CHARGE THE BATTERY***

To charge the IScope's battery, insert the USB plug end of the provided charging cable into the charging port on your iPhone's or iPad's Power Adapter (see figures below). Insert the other end of the cable into the **DC5V** jack (Fig. 1, Callout 3) on IScope.



USB charging cable


iPad Power Adapter (not included)



USB charging cable

iPhone Power Adapter (not included)

Alternatively, you can charge IScope by inserting the USB plug end of the cable into a USB port of any computer.

While IScope is charging, the  light on the right side of the grip (Fig. 1, Callout 4) will glow orange. When the unit is fully charged, the light will go out.

It takes about 3 hours to fully charge a depleted IScope battery. While you wait, you can 1) download the app for the instrument (see next section) and 2) begin learning how the unit works while connected to a source of charging current.

## **DOWNLOAD THE APP**

To download the free iBorescope app that enables IScope (the instrument), go to <http://itunes.apple.com/app/id509964514> and touch the **Free App** link at the upper left of the page.

First, you will be prompted to sign in to the iTunes Store using your Apple ID and password. If you do not have an Apple ID, you can create one now.

Before downloading the app, you will be shown Apple's Privacy Policy page. Select the box indicating that "I have read and agree to these terms and conditions." Then touch **Agree**. Doing so will return you to the landing page of the iBorescope app and begin downloading it.

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# **OPERATING INSTRUCTIONS**

## **VIEWING VIDEO**

1. Turn on IScope by rolling the power switch/brightness adjustment thumbwheel (Fig. 1, Callout 6) to the right until you hear a click. The WiFi status light on top of the unit will glow red for 30 seconds while IScope prepares to generate an ad hoc hot spot (without Internet connectivity).
2. When the red light turns green, power on your device and touch the **Settings** icon to open your Settings screen.
3. Touch the WiFi row to enter the WiFi Networks screen. The iBorescope hot spot should appear in the list of available networks. Touching the iBorescope row connects the instrument to the network, enabling wireless transmission of probe video to a nearby iPhone or iPad running the iBorescope app. Be aware that while you are connected to the ad hoc iBorescope WiFi network, your iPhone/iPad will not have Internet connectivity.

The first time you try to connect to the hot spot, you will be prompted to enter the app's password (the default password is 12345678). Thereafter, you will not be asked for a password; the iBorescope line will already have a check mark.

4. Touch the button on your iPhone/iPad to back out of the Settings screen.
5. Locate the iBorescope icon among your apps and touch it. The app's green splash screen (shown at right) will appear.
6. There are three soft buttons at the bottom of the iBorescope app. Initially, the left  button is the only one that is active. Touch it to view live video captured by IScope's camera tipped probe.
7. Enabling live video activates the other two buttons at the bottom of the app. Touching the middle **VIDEO** button toggles the display between live video and a freeze frame of the video. The freeze frame remains on-screen until you touch the middle button again, but it is not saved in memory. Touching the middle **VIDEO** button also toggles its icon between  and .




## **TAKING AND VIEWING PICTURES**

1. To save a still image (also called a screen grab) of live video or paused video, touch the **SNAP SHOT** soft button at the bottom of the app. The familiar sound of a camera shutter confirms that a picture was taken. Pictures are stored as .jpg files within the Photos folder of your iPhone/iPad.
2. To view your pictures, touch the button on your device to back out of the iBorescope app. Locate your Photos icon and select it. By default, all of the photos you take with iBorescope are stored in the Camera Roll subfolder of the Photos folder with a thumbnail view. Touch any thumbnail to expand the image to fill the screen of your iPhone/iPad.
3. While your iPhone/iPad is connected to iBorescope's ad hoc WiFi network, your mobile device will not have Internet access. So if you want to share any snapshots immediately, you must do so by attaching them to text messages you send over your cellular network. After you have disconnected your device from the iBorescope network, you can connect to another WiFi network with Internet access and share your pictures using e-mail or Skype.



## **USING THE PROBE**

Once your IScope's battery has fully charged (indicated by the orange  light going out), you can disconnect the USB charging cable from the unit and begin using it as a battery-powered instrument. A fully charged battery will power the instrument for about 3 hours.

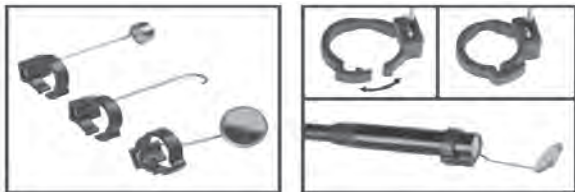
If you are unfamiliar with video borescopes, be aware that professional users like contractors and technicians typically insert a borescope probe into an orifice (a hole in a wall or an engine's cylinder, for example) or into an inaccessible or hazardous area (the back of an equipment rack or an engine compartment, for example) to view components or environments that would otherwise be invisible. Use the brightness adjustment thumbwheel (Fig. 1, Callout 6) to match the intensity of camera lighting to the application environment.

In practice, professionals usually insert flexible-obedient probes like the one that comes with IScope head-on into an orifice or area as a first step. They then pull the probe out and adjust its bend one or more times until the camera in the tip is pointing directly at the target or area of interest. With the probe inserted, you can twirl it until video appears right-side up, but in many cases you cannot change the probe's angle of approach very much.

## **INSTALLING ACCESSORIES**

IScope comes with three accessories (see left photo below) in a Ziploc bag that attach to the camera-tipped end of the probe. Each accessory has a specific purpose:

- The 45° mirror lets the probe see around corners.
- The pickup hook lets you retrieve otherwise inaccessible items seen by the probe—for example, a wedding ring accidentally dropped down a sink drain.
- The magnetic hook lets you retrieve lost or dropped metal objects—nuts and bolts, for example—located by the probe.



### To attach an accessory:

1. Hold its metal stem with your thumb and index finger.
2. Slide the accessory—plastic clasp first—past the camera head at the probe tip until the clasp is in the channel 1/4 in. from the end of the probe.
3. Squeeze the clasp until you hear a click (see right photos on previous page), indicating that the two halves have joined.

### To detach an accessory:

1. Use the nail of your index finger to unhook the clasp, opening it up.
2. Hold the accessory's metal stem with your thumb and index finger and slide the accessory and clasp past the camera head.
3. Put the accessory back in the Ziploc bag it came in.

## ADVANCED SETTINGS

To open the iBorescope app's advanced settings screen (shown at right), touch the **Setting** button at upper right.

As the screen shot shows, you can change iBorescope's WiFi Service Set Identifier (SSID) or password or adjust its video settings while watching live video in the window in the middle of the screen.

The default WiFi SSID for the unit is iBORESCOPE. The default WiFi password is 12345678.

You can change either value to any combination of letters and numbers that is at least eight digits long. Enter the new value in the appropriate field and click **Apply**.

To restore either default value, click the **Restore** button.

To adjust the brightness, contrast, hue or saturation of the live probe video displayed on your iPhone/iPad, move its slider to the left or right.



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## SPECIFICATIONS

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Compatible with	iPad, iPad2, “iPad3”, iPhone3GS, iPhone4 or iPhone 4S running iOS4.1 or later
Security	Wi-Fi (WEP) password
Video Resolution	640 x 480 pixels (VGA)
Frame Rate	30 frames per second (fps)
Streaming Video Format	MPEG4
WiFi Range	60 ft. (18m), max (unobstructed)
Camera Lighting	2 white LEDs
Camera Head Diameter	0.39 in. (9.8mm)
Camera Depth of Field	1/2 in. to 12 in. (12.7 to 305mm)
Probe Length	35 in. (900mm)
Probe Minimum Bending Radius	1.77 in. (45mm)
Dust & Water Resistance Rating (Probe & Camera Head only)	IP67
Operating Voltage	3.7V internal from 5V input
Current Consumption	600 mA, max @ 5VDC
Operating Temperature	32° to 104°F (0° to 40°C)
Power Supply	Rechargeable 2300 mAh Li-ion battery with 5V/1A output
Life of Full Battery Charge	3 hours, typical

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## OPERATING & MAINTENANCE TIPS

Never insert the probe into a fuel tank or a flammable liquid or gas such as unleaded gasoline, diesel fuel, machine oil, DOT 4 brake fluid or transmission fluid.

The probe contains thin wires running along its entire length. Accordingly, handle it with care:

- Do not bend it more than 90° anywhere along its length.
- Do not bend the probe more than 70° within 1.2 in. (30mm) of its camera tip.
- Do not bundle the probe into a tight circle to store it.

- Never use the camera end to clear its own path of debris.
- Do not overtighten the collar that secures the probe to the handle.

To clean the camera lens and LEDs, use a cotton swab and a small amount of mild detergent.

The grip requires no routine maintenance other than periodic cleaning with a soft, dry cloth. Never use a wet cloth, corrosive liquids, solvents or water. Avoid getting the grip wet.

Operate and store IScope only in a cool (under 140°F or 60°C), dry, well-ventilated place. Avoid exposing the unit to sunlight for long periods of time.

iBorescope is designed for industrial and environmental use only. Never use it for human or any other biological inspection.

## WARRANTY/DISCLAIMER

OMEGA ENGINEERING, INC. warrants this unit to be free of defects in materials and workmanship for a period of **13 months** from date of purchase. OMEGA's WARRANTY adds an additional one (1) month grace period to the normal **one (1) year product warranty** to cover handling and shipping time. This ensures that OMEGA's customers receive maximum coverage on each product.

If the unit malfunctions, it must be returned to the factory for evaluation. OMEGA's Customer Service Department will issue an Authorized Return (AR) number immediately upon phone or written request. Upon examination by OMEGA, if the unit is found to be defective, it will be repaired or replaced at no charge. OMEGA's WARRANTY does not apply to defects resulting from any action of the purchaser, including but not limited to mishandling, improper interfacing, operation outside of design limits, improper repair, or unauthorized modification. This WARRANTY is VOID if the unit shows evidence of having been tampered with or shows evidence of having been damaged as a result of excessive corrosion; or current, heat, moisture or vibration; improper specification; misapplication; misuse or other operating conditions outside of OMEGA's control. Components in which wear is not warranted, include but are not limited to contact points, fuses, and triacs.

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Direct all warranty and repair requests/inquiries to the OMEGA Customer Service Department. BEFORE RETURNING ANY PRODUCT(S) TO OMEGA, PURCHASER MUST OBTAIN AN AUTHORIZED RETURN (AR) NUMBER FROM OMEGA'S CUSTOMER SERVICE DEPARTMENT (IN ORDER TO AVOID PROCESSING DELAYS). The assigned AR number should then be marked on the outside of the return package and on any correspondence.

The purchaser is responsible for shipping charges, freight, insurance and proper packaging to prevent breakage in transit.

FOR **WARRANTY** RETURNS, please have the following information available BEFORE contacting OMEGA:

1. Purchase Order number under which the product was PURCHASED,
2. Model and serial number of the product under warranty, and
3. Repair instructions and/or specific problems relative to the product.

FOR **NON-WARRANTY** REPAIRS, consult OMEGA for current repair charges. Have the following information available BEFORE contacting OMEGA:

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2. Model and serial number of the product, and
3. Repair instructions and/or specific problems relative to the product.

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