EXTECH®

User Manual

Wireless Dual HD Borescope

MODEL BR450W-D

Introduction

Thank you for selecting the Extech Dual HD Wireless Borescope. This device offers forward and side view high definition cameras. The camera lenses include adjustable LED lights for viewing in dark and dimly lit areas. The cameras are affixed on a flexible cable for easy insertion in pipes, ducts, etc. The cable is designed to retain the desired shape.

Camera views are monitored on mobile devices over a Wi-Fi network, using the ExView® app. Mobile devices can be attached to the Borescope using the supplied accessory. Images and video can be recorded on the mobile device and easily shared.

Safety

Risk of electric shock, fire, and serious personal injury. Read all operational and safety instructions before use. If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

WARNING

Follow all published warnings to reduce the risk of serious injury and product damage.

For industrial use only.

WARNING

Do not use this device in areas where there is a risk of explosion.

Do not use this device near flammable gas, liquid, or dust.

WARNING

The LED lighting produced by this device can cause eye injury if observed directly for extended periods.

WARNING

Replacing the battery with a type that is not recommended by the manufacture can cause a fire or an explosion. See the Rechargeable Battery section for additional battery safety information.

CAUTION

These liquids are safe for probe submersion to 3.3 ft. (1 m): water, brake fluid, gasoline, diesel fuel, and transmission fluid. Do not submerse in any other liquid.

CE NOTICE

This system is in conformance with the 2014/53/EU Electromagnetic Compatibility Directive standard.

RoHS NOTICE

This system is in conformance with the requirements of the European law on the Restriction of Hazardous Substances (RoHS) directive. This means that our product is both lead-free and without the hazardous substances either in the manufacturing process or in the final product.

FCC NOTICE

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference. (2) This device must accept any interference received, including interference that may cause undesired operation.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

⚠ **WARNING**
Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

SAR Warning Statement

This device meets the government's requirements for exposure to radio waves. This device is designed and manufactured not to exceed the emission limits for exposure to radio frequency (RF) energy set by the Federal Communications Commission of the U.S. Government. The exposure standard employs a unit of measurement known as the Specific Absorption Rate, or SAR. The SAR limit set by the FCC is 1.6 W/kg. Tests for SAR are conducted using standard operating positions accepted by the FCC with the EUT transmitting at the specified power level in different channels. The highest SAR value for the device as reported to the FCC is 0.68 W/kg when placed next to the body or on hand with a minimum of 0 mm separation from the body.

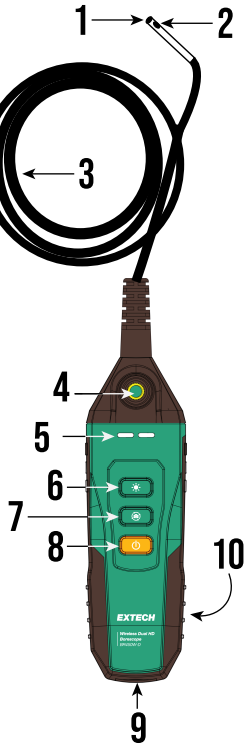
Description

WARNING

To avoid personal injury, do not use this device unless it is fully assembled. Do not use if parts appear to be missing or damaged. Do not modify this device or attach accessories not intended for use with this device.

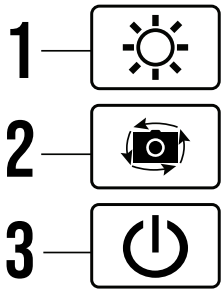
Borescope

1. Front view camera
2. Side view camera
3. Flexible cable
4. Mount for mobile device (supplied accessory)
5. Wi-Fi (left) and battery (right) status indicators
6. Camera light brightness button
7. Front/side camera select button
8. Power button (short press ON, long press OFF)
9. USB charging port (supplied cable)
10. Battery compartment on back



Control Buttons

1. Camera brightness adjustment button. Short press to step through the five (5) intensity levels and OFF.
2. Camera select button. Short press to toggle front and side view camera images.
3. Power button. Short press to switch ON the device. Long press to switch OFF the device. The APO timer switches the device OFF after five minutes of inactivity. To adjust the APO timer, use the Settings menu in the Ex-View app.



LED Indicators

The two LED indicators, above the control buttons, show Wi-Fi connection status (on left) and battery status (on right). Refer to the table below for battery and Wi-Fi status.

Condition	Wi-Fi LED (left)	Battery LED (right)
100% charged, not connected to Wi-Fi network	Blinking Green	Solid Green
100% charged, connected to Wi-Fi network	Solid Green	Solid Green
Battery charging, not connected to Wi-Fi network	Blinking Green	Solid Red
Battery charging, connected to Wi-Fi network	Solid Green	Solid Red
Low battery	n/a	Blinking Red

Mobile Device Attachment Accessory

The Borescope system includes an accessory for attaching a mobile device to the control unit. The side of the accessory with the fixed washer, screws into the mounting hole on the Borescope control unit.

The side of the accessory with the moveable washer, attaches to a mobile device bracket (not supplied). The handle on the accessory allows you to easily loosen, tighten, and position the accessory. Do not overtighten.

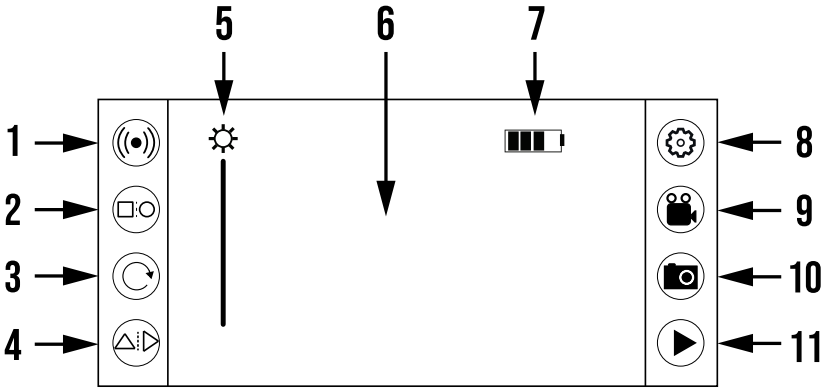
Operation

Quick Steps

1. Download the ExView app to your mobile device from Google Play™ (Android™) or the App Store® (iOS®).
2. Short press the power button to switch the Borescope ON, the LED indicators will switch ON.
3. From the list of available Wi-Fi networks on your mobile device, select the BR450W. If you do not perform this step before the APO timer elapses, the Borescope will automatically switch OFF. In this case, switch ON the Borescope and continue.
4. The password is **12345678**
5. Open the ExView app on your mobile device. Refer to the ExView app information, below, and in the app.
6. To switch the Borescope OFF, long press the power button. When you release the button, the LED lamps will switch off.
7. The Borescope camera probe can be safely submersed in the liquids listed in the Safety section of this manual. The camera can be submersed to a depth of 3.3 ft. (1 m), maximum, for limited periods. Never submerse the control unit in liquid or expose it to rain or excessive moisture.

ExView Application

The app screen shot, below, provides a basic overview of the app icons and features. Refer to the ExView user manual for complete instructions. A link to the manual is provided in the app Settings menu, or navigate to the FLIR support site, directly from your web browser, to obtain a copy of the manual.



1. Switch to Bluetooth® mode
2. Select an image from the gallery, for a side-by-side comparison with the live camera image
3. Rotate the camera image
4. Toggle front and side view camera images
5. Adjust camera light brightness
6. Camera image
7. Borescope battery status
8. Settings menu
9. Start/Stop video recording
10. Capture camera image
11. Open image and video gallery

App Connection Troubleshooting

If the Borescope and app stop communicating, follow the steps below.

1. Switch OFF the Borescope
2. Close the ExView App
3. Switch ON the Borescope
4. Select the BR450W from the list of available Wi-Fi networks
5. Open the ExView app and try again
6. If issues persist, delete the app, completely, from your mobile device, and reinstall it. After reinstalling, repeat the steps above.

Rechargeable Battery

Battery Overview

The Borescope is shipped with a partially charged 3.7 V lithium ion battery. Fully charge the battery before putting this device into operation, per the instructions below. Using the Borescope while charging can interfere with its Wi-Fi connection.

Battery Safety

WARNING

- Remove the battery from the device before storing for extended periods.
- If the battery needs replacing, use only a battery of the same type.
- Do not use this device while the battery compartment is open.
- To reduce the risk of explosion, do not place the battery near fire, compact it, or otherwise damage it.
- Battery charging circuit is DC input ⎓ 5 V (3 A).

Battery Charging

1. Open the flap on the bottom of the Borescope to access the USB (mini) port.
2. Connect the supplied USB cable to the Borescope USB port.
3. Connect the other end of the USB cable to a 5 volt (3 amp) charger.
4. The LED indicator on the right of the Borescope shows the charging status. The battery is fully charged when the LED glows solid green; the LED is solid red when charging and blinking red when the battery is weak.

Auto Power Off (APO)

To conserve battery energy, the Borescope switches off after five minutes of inactivity. To switch the APO feature off, or to change the APO time, use the app (Settings > Device Information > Auto Power Off).

Battery Replacement

The rechargeable lithium ion battery is accessible from the back of the device.

1. Remove the two (2) Phillips screws from the back of the device.
2. Carefully open the device housing to access the battery compartment.
3. Remove the old battery and dispose of responsibly and in accordance with applicable laws and regulations.
4. Install the new battery, observing correct polarity. Use only a 3.7 V lithium ion battery (2600 mAh). Using a different battery type can cause fire or explosion.
5. Secure the device housing with the two screws before use.

Do not dispose of used batteries or rechargeable batteries in household waste.

Specifications

Battery type	3.7 V lithium ion rechargeable battery (2600 mAh)
Camera resolution	1280 x 720 pixels (front & side cameras)
Camera lighting	Front facing: Six (6) LED lamps Side facing: One (1) LED lamp
Camera diameter	5.5 mm
Flexible cable length	5 ft. (1.5 m)
Video frame rate	30 fps (frames per second)
Field of view angle	68°
Optimum focus distance	1.6 to 3.2 in. (4 to 8 cm)
Waterproof rating	IP67 (camera probe, only) to a depth of 3.3 ft. (1 m)
Pollution degree	2
Operating temperature	32 to 122°F (0 to 50°C)
Operating Relative Humidity	85% RH, maximum
Operating altitude	6562 ft. (2000 m)
Storage temperature	-4 to 140°F (–20 to 60°C)
For Indoor use only	

Cleaning

Use clean water or mild liquid detergent and a swab (supplied) to clean the camera head after use. A lens cloth is also supplied. Do not use corrosive liquids, such as alcohol to clean the lens.

The control unit can be wiped with a damp cloth when necessary; never use solvents or abrasives.

Warranty

Teledyne FLIR warrants this Extech brand instrument to be free of defects in parts and workmanship for two years from date of shipment.

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Disclaimer
Specifications subject to change without further notice. Models and accessories subject to regional market considerations. License procedures may apply. Products described herein may be subject to US Export Regulations.

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