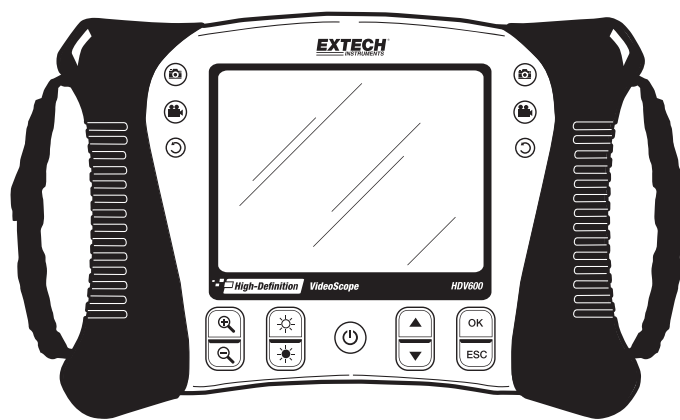


User Guide

EXTECH[®]
INSTRUMENTS
A FLIR COMPANY

High Definition VideoScope

Model HDV600



Introduction

Congratulations on your purchase of this Extech HDV600 series Video Borescope. This instrument is designed for use as a remote inspection device. It can be used to peer into tight spots, record and playback real-time video and images. Typical applications include HVAC inspection, automotive inspection, cable routing, and automotive/boat/aircraft inspection. The monitor is designed with dual left or right handed controls for maximum flexibility and is available with a full line of accessories. This meter is shipped fully tested and, with proper use, will provide years of reliable service.

Models and Descriptions:

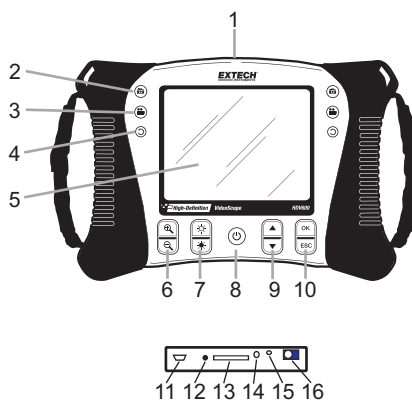
HDV600	VideoScope (Monitor only)
HDV610	VideoScope w/1m flexible cable, 5.5mm diameter
HDV620	VideoScope w/1m semi-rigid cable, 5.8mm diameter
HDV640	VideoScope w/1m Articulating semi-rigid cable, 6mm diameter
HDV640W	VideoScope w/1m Wireless Articulating semi-rigid cable, 6mm diameter

Note: Additional probe lengths and configurations are available. A list is available at the end of this guide.

Description

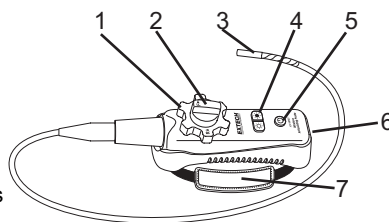
Monitor

1. Probe connector
2. Camera button
3. Video button
4. Rotate image button
5. Display
6. Zoom buttons
7. Light intensity buttons
8. Power Button
9. Scroll buttons
10. Selection buttons
11. USB connector
12. Microphone
13. SD card slot
14. Video output jack
15. Reset button
16. AC adaptor connector



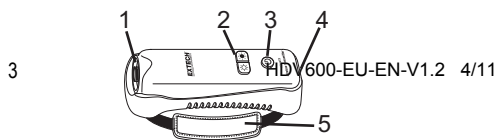
Articulating Probe

1. Articulation knob
2. Articulation tension knob
3. Articulating camera
4. Light intensity buttons
5. Power button
6. AC Adaptor and extension cable sockets
7. Carrying strap



Wireless Transmitter

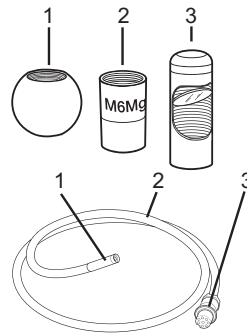
1. Probe Connector



2. Light Intensity buttons
3. Power button
4. AC Adaptor and extension cable sockets
5. Carrying strap

Probe accessories

1. Anti-snap tip
2. Magnet
3. 45° Mirror

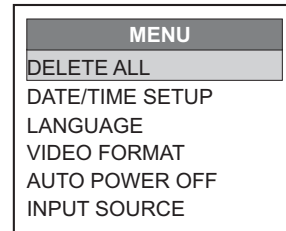


Probe

1. Camera
2. Shaft
3. Monitor connector

Setup

1. Connect the AC adaptor and charge the monitor for 2 hours before use.
2. Insert the SD card into the bottom SD slot
3. Press the Power button to turn the monitor on. The battery icon will briefly appear indicating the battery condition.
4. Press OK to open the setup MENU
5. Press the ▲ or ▼ button to scroll through the MENU selections.
6. Press OK to open the highlighted selection.
7. Press the ▲ or ▼ button to scroll through the items in an open menu item.
8. Press the ▲ or ▼ buttons to increase or decrease the selected value.
9. After there has been a change, press the OK button to save the change or the ESC button to exit without the change.
Note: After 10 seconds of inactivity, the Setup menu will exit without storing changes.





MENU Description:

DELETE ALL:	Erase all stored pictures and videos
DATE/TIME SETUP:	Set the date (year/month/day), time (hour:minute:second) and display on/off
LANGUAGE:	Set the menu display to any one of 21 languages.
VIDEO FORMAT:	Set the video output to NTSC or PAL format.
AUTO POWER OFF:	Set the APO to 5, 10, 15, 30 minutes or DISABLE.
INPUT SOURCE:	Set Direct or Wireless.



Operation

1. Connect the probe to the monitor.
2. Press the Power button to turn the monitor on.
3. Maneuver the probe into position to view the area to be examined. The probe can be bent into the shape of the area to be examined. Optimum focus distance is 2 to 6cm (0.79 to 2.3")
4. Optimum focus distance is probe dependent, but the typical range is 2 to 6cm



Zoom

Press the  or  zoom buttons to increase or decrease the display resolution from 1X to 2X.





Light Intensity

Press and release the  or  buttons to increase or decrease the camera LED light intensity


Taking a Picture

Press the  button to take and store a picture into memory. The  icon will appear on the display when a picture is taken.

Recording a Video

Press the  button to start recording a video. The   icons will appear on the display when a video is being recorded. Press the  button to stop the recording. Audio will be recorded on the video via the microphone on the bottom of the monitor.

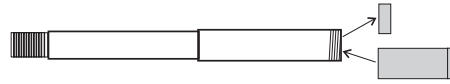
Display Rotation

Press the  button to rotate the display 90 degrees.

Installing probe accessories

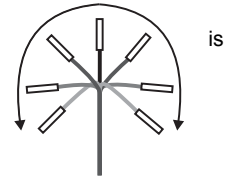
Three accessories (mirror, anti-snag tip and magnet) are supplied with each probe.

Attach the accessory by unscrewing the probe ring and screwing on the attachment.



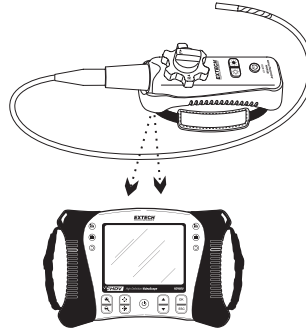
Articulating probe

The articulating probe, with adjustable tip angle, is used for improved viewing angles and optimum inspection when the probe is inserted into the inspection location. The articulating probe is available in a direct (wired) or wireless version.



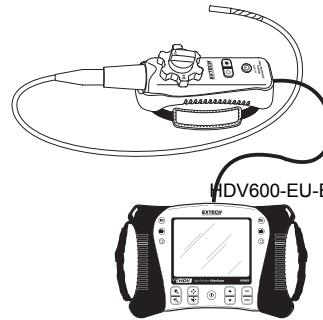
Wireless version

1. Connect the AC adaptor to the transmitter and charge the battery.
2. Press and hold the Power button for 4 seconds to turn the monitor on, then select "WIRELESS" under the INPUT SOURCE selection in the MENU screen.
3. Press and hold the Power button for 4 seconds to turn the transmitter on. The camera video will be transmitted to the monitor display.
4. Insert the probe into the area to be inspected.
5. Turn the probe outer knob to adjust the camera tip to the viewing angle needed.
6. Turn the upper knob to increase or decrease the outer knob tension



Direct version

1. Connect the probe to the monitor using the supplied patch cable.
2. Press and hold the Power buttons for 4 seconds to turn the probe and the monitor on
3. Insert the probe into the area to be inspected.



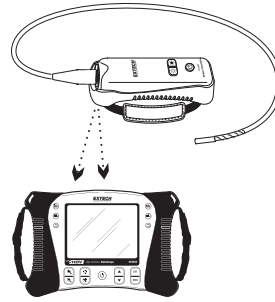
4. Turn the probe outer knob to adjust the camera tip to the viewing angle needed.
5. Turn the upper knob to increase or decrease the outer knob tension
6. In this mode, light intensity is controlled by the buttons on the monitor, not by the buttons on the transmitter.

Wireless transmitter

The wireless transmitter is intended for use in areas that are difficult to access or in situations when it is hard to maneuver the probe with the display attached. The probe can also be connected directly to the monitor using the patch cord.

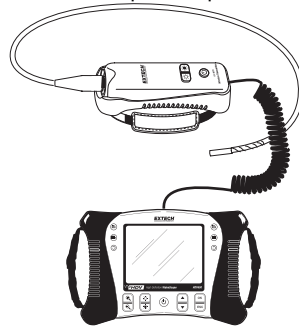
Wireless Mode

1. Connect the AC adaptor to the transmitter and charge the battery.
2. Attach the probe to the transmitter.
3. Press and hold the Power button for 4 seconds to turn the monitor on, then select "WIRELESS" under the INPUT SOURCE selection in the MENU screen.
4. Press and hold the Power button for 4 seconds to turn the transmitter on. The camera video will be transmitted to the monitor display.









Direct Mode

1. Connect the AC adaptor to the transmitter and charge the battery.
2. Attach the probe to the transmitter.
3. Connect the patch cord between the transmitter and the monitor probe input connector.
4. Press and hold the Power button for 4 seconds to turn the transmitter on.
5. Press and hold the Power button for 4 seconds to turn the monitor on, then select "DIRECT" under the INPUT SOURCE selection in the MENU screen.
6. In the direct mode, light intensity is controlled by the buttons on the monitor, not by the buttons on the transmitter.



Viewing a Stored Photo or Video in the Display

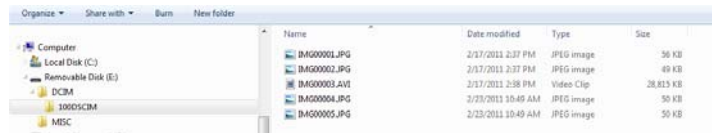
1. Press the ▲ button to access the pictures or videos in memory. Each button press will step through the files with the file number appearing on the screen (i.e. IMG00005)
2. Pictures will appear with the  photo icon on the display.
3. Videos will appear with the  film icon on the display.
4. To play a video, select a video file and press the  button. The  play icon will appear during playback. Press the  button again to pause playback. The  pause icon will appear.

Viewing an Image or Video on a PC

There are two methods to transfer stored files to a pc.

1. Remove the SD card from the monitor and insert it into the SD reader in the pc.
2. Connect the monitor to the pc with a USB cable.

Images are saved in *.JPG format and videos saved in *.AVI format



Deleting stored Images or Videos

1. Press the ▲ button to access the pictures or videos in memory.
2. When the file to be deleted appears, press the OK button and the DELETE YES/NO box will appear.
3. Press the ▲ button to highlight YES and then press the OK button to delete the file.
4. Press the ESC button to exit at any time without deleting the file.

Video Output

1. Turn the monitor on and select "PAL" or "NTSC", to match the video monitor to be used, under the VIDEO OUTPUT selection in the MENU screen.
2. Insert the video cable into the VIDEO OUT socket on the bottom of the monitor. Connect the other end of the cable into the VIDEO IN jack of a TV or other monitor.
3. The unit will output a high quality video image.

Reset button

If the monitor becomes unresponsive due to an EMI field or other magnetic event, use a paper clip or other pointed object to press the RESET button located on the bottom panel

Rear stand

The rear stand can be set to three positions. Lower (stored), middle position for bench viewing and upper position for hanging.

FCC Information

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.

Changes or modifications are not expressly approved by the manufacturer could void the user's authority to operate the equipment.

Specifications

Monitor

LCD Screen	14.2cm(5.6") active matrix, 640x480 pixels
Power	5VDC
Interface	Mini USB 1.1 and AV out
Battery	3.7V rechargeable Li-Polymer
Power adaptor	100 to 240V input / 9VDC output
Recording medium	SD Card
Compression format	MPGE4
Still image format	JPEG (640x480)
Video Recording Format	AVI (640x480)
Video output Format	NTSC and PAL
Receiver Frequency	2.4GHz
Receiver Sensitivity	-87dBm (SNR = 42dB, Fmod = 15kHz)
Video System	NTSC / PAL
Data	Video / Audio
Audio type	Stereo
Tripod mount	On rear, Accepts standard tripod screw
Battery	3.7V rechargeable Li-Polymer
Power adaptor	100 to 240V input / 5.5VDC output
Operating/Storage Temperature	-10 to 60°C(14 to 140°F) / -40 to 80°C(-40 to 176°F)
Operating Humidity (Max.)	80%
Dimensions (W x D x H)	24.1 x 17.8 x 7.0cm (9.5"x7"x2.75")
Weight	1474g (3.25lb)

Transmitter

Frequency	2.4GHz
Data	Video / Audio
Video System	NTSC / PAL
Battery	3.7V rechargeable Li-Polymer
Power adaptor	100 to 240V input / 9VDC output

Unobstructed Effective Range	10m
Operating/Storage Temperature	-10 to 60°C(14 to 140°F) / -40 to 80°C(-40 to 176°F)
Dimensions (W D H)	7.5' x 2.75 x 2.5" (19 x 7 x 6.35cm)
Weight (approx)	0.95lb (431g)

CAMERA

Imaging Sensor	CMOS
Total Pixels	See probe and camera chart
Video Format	NTSC
Depth of Field	See probe and camera chart
Field of View	55°
Number of lamps	4
Brightness Control	Manual
Lamp Type	LED
Lamp Output	4200 Lux at 20mm
Lamp Life	10000 hours, median
Interface	Composite Video
Housing	Copper with nickel coating
Waterproof Capacity	IP57
Operating Temperature	-10°C to 50°C (14°F to 122°F)

Probes and Cameras

Articulation 240 °±20 ° manual tip articulation

Part Number	Description	OD	Length	Camera	Focus Distance
HDV-TX1	Articulating Semi-Rigid	6mm	1m	640x480	2 to 6cm
HDV-WTX1	Wireless Articulating Semi-Rigid	6mm	1m	640x480	2 to 6cm
HDV-TX2	Articulating Semi-Rigid Cable	6mm	2m	640x480	2 to 6cm
HDV-WTX2	Wireless Articulating Semi-Rigid	6mm	2m	640x480	2 to 6cm
HDV-4CAM-1FM	Macro lens Flexible	4mm	1m	320x240	2 to 6cm
HDV-5CAM-1FM	Macro lens Flexible	5.5mm	1m	640x480	2 to 6cm
HDV-5CAM-3F	Long depth of field Flexible	5.5mm	3m	640x480	6 cm to ∞
HDV-5CAM-3FM	Macro lens Flexible	5.5mm	3m	640x480	2 to 6cm
HDV-5CAM-10F	Long depth of field Flexible	5.5mm	10m	640x480	6 cm to ∞
HDV-5CAM-1RM	Macro lens Rigid	5.5mm	1m	640x480	2 to 6cm
HDV-5CAM-3R	Long depth of field Rigid	5.5mm	3m	640x480	6 cm to ∞
HDV-5CAM-3RM	Macro lens Rigid	5.5mm	3m	640x480	6 cm to ∞
HDV-25CAM-10G	Fiberglass	25mm	10m	640x480	6 cm to ∞
HDV-25CAM-30G	Fiberglass	25mm	30m	640x480	6 cm to ∞

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