Using the GlobalMed TotalExam Camera

The GlobalMed TotalExam 3 camera, designed specifically for telemedicine, is an easy-to-use hand-held photo/video system. The device includes interchangeable lenses and incorporates high definition camera technology to stream images and video of the human body. It also integrates easily with OTNhub eVisit Videoconference, enabling you to share your examination with others in a videoconference.

The GlobalMed TotalExam 3 camera and its attachments are "class 1" medical devices*. The unit is certified for use on the OTN Network when connected as an auxiliary camera source with OTNhub Videoconference. The camera connects via a USB cable into a Windows-based PC or a Mac with a USB 3.0 port.

There are no drivers or software to install or download and it does not require an external power supply (it is powered via the USB 3.0 connection).

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* The Medical Devices Bureau of Health Canada recognizes four classes of medical devices. **Class I devices present the lowest potential risk and do not require a licence**. Each class is based on the level of control necessary to assure the safety and effectiveness of the device as well as the risk the device poses to the patient and/or the user.

1 Getting Started Checklist

Before you begin using your GlobalMed TotalExam 3 camera, ensure you have all the necessary permissions and equipment.

You must have:

1. Contacted your OTN Account Manager to complete the required forms to set up your USB medical peripheral device and coordinate your equipment purchase.
2. OTNhub user credentials to access the OTNhub Videoconference service.
3. Received your GlobalMed TotalExam 3 camera kit.
4. Verified that your computer meets the required specifications for OTNhub Videoconference service. See the eVisit Technical Readiness guide.
5. Received a 'Welcome' email from OTN that contains information about completing your device's initial certification (prior to use).
   - If you have not received a "Welcome" email, please contact your OTN Account Manager.
   - Your "Welcome" email will contain information about accessing the GlobalMed TotalExam 3 camera's e-training materials.
6. If all the above is complete, then you may proceed with certification of your new medical peripheral. (See Certifying Your USB Medical Peripheral and Completing a Test Call on page 3.)

Certifying Your USB Medical Peripheral and Completing a Test Call

Once you have prepared the GlobalMed TotalExam 3 camera and connected it to your computer, it is time to do a test call with OTN Technical Support and complete the certification process.

It is important to test the GlobalMed TotalExam 3 camera as an additional camera source within OTNhub Videoconference prior to using the device in a clinical event.

1. For Technical Support, call 1-855-654-0888 and choose option 2.
2. Ask the OTN Technical Support person to certify your videoconference system with the GlobalMed TotalExam 3 camera.
3. OTN Technical Support will send out a certification notice after you have successfully completed the test.

Note: Your GlobalMed TotalExam 3 camera will be added to the **OTNhub Directory** as a medical peripheral associated with your site only after you have completed a successful test.

2 Precautions & Warnings

Before you begin using your GlobalMed TotalExam 3 camera, ensure you understand and follow these precautions and warnings. Use only the manufacturer's recommended accessories to ensure the proper functioning of the device.

Precautions

- Avoid direct contact with liquids.
- Do not store or operate the device in areas with excessive moisture.
- Do not use the device if its cable is damaged.

Warnings

- When plugging in the USB connection, ensure it is oriented correctly. An incorrect USB connection (plugged in upside down) could result in the deactivation of integral computer circuits.
- Do not attempt to submerge the device in any kind of liquid. The camera is an electrical device and this could cause an electric shock or short circuit.

3 Understanding the Device

Camera, Lenses, and Attachments

TotalExam 3 Camera

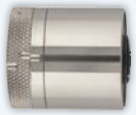
Auto focus (AF)

Freeze-Frame (FF)

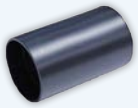
Lighting Control (LED)

White Balance (WB)

General Viewing Lens & Attachments



General viewing lens



Derm hood

Tongue depressor adaptor

Tongue depressors (quantity 5)

Touch collars (quantity 5)

Variable Polarizing Hood

Otoscope Lens & Attachments

Otoscope lens

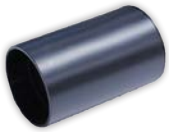
Welch Allyn specula (quantity 5)

Specifications

Feature	Specifications
Dimensions	Camera Body: 155mm x 33mm General Viewing Lens: 38mm x 33mm Otoscope Lens: 60mm x 33mm
Weight of camera body	~8 ozs
Focus type	Manual focus
Snapshot size	1 Megapixel
Captured video resolution	1280 x 720p
Camera frame rate	Up to 60 frames per second
Output	USB 3.0
Integrated freeze rate	Push button (toggles between freeze-frame and live video)
White balance	Push button (sets the white balance for the attached lens)
Lighting	Push button (toggles through available light levels) General Viewing: Lens 8 LEDs (4 brightness levels) Otoscope Lens: 2 LEDs, 5100K (2 brightness levels)
Operating temperature range	0° – 42° C (32°-107°F)
Operating humidity	Less than 90%
Power usage	Less than 4W
Voltage usage	~ 0.800 mA @5 VDC using USB 3.0 only
Aspect ratio	16:9
Lens (aperture)	General Viewing Lens: f:3.0 M12 650nM IR filter Otoscope Lens: f:18.0 FOV: r= 10mm DOF: 12mm – 14mm

Lenses and Attachments

The GobalMed TotalExam 3 camera is available with various lenses and attachments. Depending on which package you purchased, different combinations of the following are included.

General Viewing Lens & Attachments	
	**General Viewing Lens** Use this lens to focus on specific a body part and get clear images. The broad focus range (~50 mm to 10 meters) and pivoting head (3 positions: 0º, 37.5º 75º) enable you to examine from a variety of perspectives.
	**DermHood** Use this for close up examinations of the skin's surface. Fit this attachment onto the general viewing lens and it focuses the light from the camera's LEDs down onto the surface of the area being examined. Use it together with a Touch Collar.
	**Touch Collar** A single-use disposable device that fits onto the end of the DermHood. Use a Touch Collar to protect the camera and lens from being contaminated by contact with mucous membranes or broken skin. After use, the Touch Collar should be disposed of as medical/biohazard waste.
	**Tongue Depressor Adaptor** Use this to hold a standard tongue depressor blade for examining the throat, mouth, or to stabilize the camera during close ups. Place the general viewing lens in the upright position (not pivoted) and clip the adaptor to the TotalExam device at the narrow neck of the camera.
	**Variable Polarizing Hood** Use this to remove unwanted glare from the surfaces you examine. Fit this attachment onto the general viewing lens and you can control the amount of reflected light.

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Otoscope Lens & Attachments	
	**Otoscope Lens** Use this lens to examine the external auditory canal or nasal passages. It works at 12 mm-14 mm from the eardrum and is a fixed focus lens.
	**Specula** A single-use disposable device that fits onto the otoscope lens. Use this to protect the camera and lens from being contaminated by contact with the patient. After use, the specula should be disposed of as medical/biohazard waste.

Camera Controls

The camera's default mode is live video. The controls work only while the device is actively used by an application on your computer (e.g., OTN eVisit Videoconference).

Control	Description
Auto Focus (AF)	The AF button enables you to toggle auto focus on and off. OTN recommends that you leave auto focus on. When on, the AF button appears with a blue light.
Freeze Frame (FF)	The FF button automatically selects the clearest frame from the last 16 frames and displays it as a still image. To freeze the live video, press the FF button. The image is frozen upon release of the button. To return to live video mode, press the FF button again.
Light Control (LED)	The LED button controls the light intensity of the attached lens. • General viewing lens has four light levels. • Otoscope lens has two light levels. To turn on the lights, press the LED button. To increase the light intensity, press the LED button again. The light intensity increases one level with each push of the button. When the maximum level is reached, the next press of the button turns off the light.
White Balance (WB)	The WB button sets the way light affects the image and adjusts for poor contrast and color. To set the camera's white balance point, press the WB button while the lens is pointed at a white sheet of paper in front of the patient. *Note: Before you set the white balance, select the LED level.* The steps to set white balance are different, depending on which lens you use and whether your examination is close up (less than one meter) or at a distance (one meter or more). General Viewing Lens i. Hold a white sheet of paper in front of the patient. ii. Aim the camera at the white paper and: • For close-up examinations (< 1 meter), hold the camera about 100 mm (4 inches) from the white paper. • For less close examinations (>= 1 meter), hold the camera at a distance where the video view is filled as much as possible with the white paper. iii. To set the white balance, press the WB button: Otoscope Lens i. Hold a white sheet of paper in front of the patient. ii. Aim the camera at the white paper and hold the camera about 1 cm (½ inch) from the white paper. iii. To set the white balance, press the WB button.

4 Using the Device

If you are in a videoconference and want to share the GlobalMed TotalExam camera's live video with another participant, you can switch from your standard webcam and use the GlobalMed TotalExam camera instead.

There are no drivers or software to install and it is powered via the USB connection.

Attaching a lens

1. Align the pin in the lens bottom with the hole in the base and gently bring the two part together.
2. Align the green dot on the lens with green dot on the base unit and gently turn the lens' locking ring in a clockwise direction until it 'clicks' into place.
3. To remove the lens, turn the locking ring counter-clockwise until the lens is loosened and gently lift off the base.

Align lens pin with base pin-hole

Turn locking ring clockwise to lock into place

Connecting to your computer

Connect the camera's USB cable to a USB port on your computer.

Ensure that you use a USB 3.0 connection port. (In most cases, this is marked by SS next to the USB port connection.)

Using the camera with OTNhub Videoconference

Before logging in, attach a lens to the camera and connect the device to your computer.

1. Open a browser, log in at otnhub.ca, and go to the **Videoconference** service.

2. If you are the **patient host site** – wait to receive a video call from the consultant site.

   If you are the **consultant**, start the video call:

   - If it is a scheduled event, click the event's **Call** button ( ).
   - If it is an unscheduled call, click the **Connect to** button ( ).

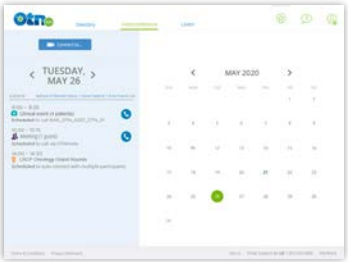
3. When the video window appears, to view the Settings panel, click the **More** button ( ) and then the **Settings** button ( ).

4. In the Settings panel > Cameras section, click the **Auto Focus (TE3)** option.

5. To hide the Settings panel, click the white **Settings** button ( ).

   The patient site (with the GlobalMed TotalExam camera) will see the device's video feed in the Self-View picture-in-picture.

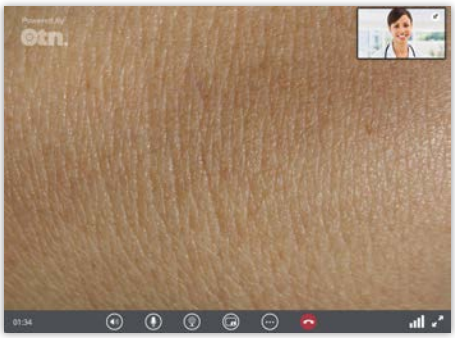
   The consultant site will see the device's video feed in the main panel of the video window.



OTNhub Videoconference calendar

Device Settings – Auto Focus (TE3) camera

Patient site video window



Consultant site video window

Cleaning and Disinfecting

Before cleaning the camera, disconnect it from the laptop/personal computer.

The camera is not intended to be sterilized.

Component	Procedure	Frequency
Unit base and cord	Gently wipe all parts of the outer surfaces of the equipment and cord with a disinfecting wipe and/or soft cloth moistened with a cleaning solution approved by your organization or Public Health Ontario.	At least weekly or when contaminated.
General viewing lens	Use a lens cloth or soft cotton swab with a lens cleaning solution approved by your organization or Public Health Ontario. Wipe the lens in a circular motion to clean.	At least weekly or when contaminated.
DermHood and Tongue depressor adaptor	DermHood and the Tongue Depressor Adaptor can be gently wiped down or soaked in a cleaning solution approved by your organization or Public Health Ontario.	After each use.
Touch collars and Specula	N/A	Dispose of as medical/biohazard waste after each use.
Otoscope lens	Gently wipe down with cotton swabs and Isopropyl alcohol (90% or higher). Wipe the lens in a circular motion to clean.	Clean after every exam of the ear or nose.

5 Best Practices

Room Preparation

- Arrange the furniture in the room so that you can easily see your own image on your monitor. Have a chair positioned for the patient in such a way that you can examine the patient without pulling any cables.
- Check to ensure you are sending a good image to the Consultant by adjusting the screen layout.
- It may be easier for the nurse to also be seated for the exam to provide a steady image. This will minimize motion and improve the quality of the image transmitted.
- Anticipate the areas on the patient's body that will require close-up examination prior to the start of the consultation and prepare the site for easy viewing when the patient arrives.
- Become acquainted with the device and test your equipment prior to use in a clinical setting.

Camera Considerations

- It is important that your device is plugged into your PC and powered on before you log into the OTNhub.
- Check that the USB cable is properly plugged into a USB port to ensure that the device does not lose its connection.

Video Recommendations

- Use the best possible connection – wired is better than wireless.
- If you use a laptop, ensure you use your computer's 'high performance' power plan.
- Good lighting is important for a high-quality videoconference. Make sure there is enough light and avoid sitting where there is a bright light behind you.
- Before starting a clinical consultation, confirm with the person you are calling that they are ready and expecting your video call.
- Allocate a few minutes at the start of the session to confirm that both you and the party you're calling have good quality audio and video before starting the clinical consultation.

6 Troubleshooting

Issue	Possible Causes	Possible Solutions
Camera input does not display in the OTNhub	Device was connected to computer after user logged into the OTNhub	Log out of the OTNhub and ensure USB device is connected prior to log in. See Using the camera with OTNhub Videoconference on page 11.
Internet connection keeps dropping	Inconsistent service from the internet service provider	Talk to your IT department or call your internet service provider to ensure consistent connectivity.
	Wireless internet connection signal strength is weak	Use the best possible connection – wired is better than wireless.
Unable to access videoconference page	Vidyo plugin has not initiated ( )	Refresh the browser. If the problem persists, log out of OTNhub and back in again. Then validate that you are connected (green check mark).
Unit won't turn on	The USB cable is not connected	Connect the USB cable and plug it into your laptop/computer.

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