GLIDESCOPE®

Video Laryngoscopes

Designed for 1st Pass Success

Reusable

Single Use

GLIDESCOPE AVL SYSTEMS

USER'S MANUAL

0900-4200-00-60

VERATHON MEDICAL

GlideScope AVL Reusable Video Laryngoscope

GlideScope Single Use System

GlideScope Direct Intubation Trainer

User's Manual

Effective: 7/13

CAUTION: In the United States, federal law restricts this device to use by or on the order of a physician.

For customers with AVL Systems utilizing the GlideScope Video Monitor (Version 0570-0338).

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All other brand and product names are trademarks or registered trademarks of their respective owners.

The GlideScope© technology is covered under US Patents (6,655,377) (6,543,447) (6,142,144) as well as European Patent 1307131. Additional patents pending.

Information in this User's Manual may change at any time without notice. For the most up-to-date information, see the online manuals on verathon.com.

GlideScope video laryngoscope systems are CE marked in accordance with the Medical Device Directive, and the Verathon Inc. quality system is Quality System Certified to ISO 13485:2003 standards.

CE 0413

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Color Coding

This document is color coded for your convenience:

Covers Both AVL Single Use & Reusable

Covers Single Use Only

Covers Reusable Only

Covers Intubation Trainer Only

Statement From the Company

The team at Verathon® is committed to improving health care delivery by putting healthcare providers and their patients first.

Our products support you, the health care provider, by consistently offering accuracy, utility, reliability and excellence.

Please contact us directly at 1.800.331.2313 (USA and Canada only) or 1.425.867.1348, if we can improve our service to you.

Sincerely,

Verathon

Important Information - Single Use

Product Information

The GlideScope AVL Single Use system is designed for “1st Pass Success.” It provides a consistently clear view of a patient’s airway, enabling quick intubations. The AVL design is based on the GlideScope GVL, which is clinically proven to achieve a Cormack-Lehane Grade I or II view 99 percent of the time.[1]

Product Description

The GlideScope AVL system combines a high-resolution, full-color digital camera with an integrated LED light source and Reveal™ anti-fog feature. The AVL video baton connects directly to a full-color, digital video monitor for real-time viewing.

The monitor can record video and photos directly to a USB flash drive for archiving and further review. The monitor has a DVI video output through an HDMI connector. It is recommended that you use the HDMI to DVI cable provided by Verathon® to connect to an external medically-approved monitor. You can operate the AVL by connecting it to the medical-grade power supply provided by Verathon™ or by using the internal, rechargeable lithium battery.

Figure 1: GlideScope AVL Single Use System

The GlideScope AVL system is an ideal tool for physicians and other health care professionals who need to effectively manage standard to difficult airways. It is useful for the intubation of normal airways, anterior airways, neonatal patients, obese patients, and patients with limited neck extension. Additionally, it is useful for teaching purposes, verification of endotracheal tube (ETT) placement, nasal intubation, and ETT exchange. The AVL is easy to learn, use, and teach. It is ideal for acute care settings and emergency environments. It also integrates into standard ED, OR, ICU, and NICU applications.

1. Cooper RM, Pacey JA, Bishop MJ, McCluskey SA. Early clinical experience _with a new videolaryngoscope (GlideScope) in 728 patients. *Can J Anaesth*. 2005;52(2):191-198.

Single Use

The AVL can be used with a choice of two video batons and GVL® Stats. Single-use GVL Stats are offered in a comprehensive range of sizes, allowing clinicians to meet the particular requirements of patients ranging in size from preterm infants to morbidly obese adults.

The AVL system is recommended for use with an endotracheal tube stylet, particularly the GlideRite® rigid stylet which complements the AVL blade angle.

The system may include the following components:

- Glidescope Video Monitor
- AVL Video Baton 1-2 (for neonatal patients)
  - GVL 0 Stat (patients less than 1.5 kg)*
  - GVL 1 Stat (patients between 1.5–3.8 kg)*
  - GVL 2 Stat (patients between 1.8–10 kg)*
  - GVL 2.5 Stat (patients between 10–28 kg)*
- AVL Video Baton 3-4 (for use on children and adults)
  - GVL 3 Stat (patients between 10 kg–Adult)*
  - GVL 4 Stat (patients between 40 kg–Morbidly obese)*
- GlideRite Rigid Stylet (recommended)
- GlideScope Direct Intubation Trainer (optional)

* Weight ranges are approximate; a medical professional must evaluate on a patient-by-patient basis.

GlideScope AVL system may be useful for the following procedures:

- First use intubations, replacing direct laryngoscopy (DL)
- Normal or restricted oropharyngeal views/visualization and assessment of the oropharynx
- Cormack-Lehane Grades I–IV laryngeal views
- Trauma airways—excellent when dealing with blood and secretions in the airway
- Airway management in morbidly obese patients
- Preterm and neonatal intubations
- Patients requiring cervical spine immobilization
- Re-intubation and Endotracheal Tube Exchange in Intensive Care Unit (ICU) settings
- Supervision and documentation of the laryngoscopy
- Nasal tracheal intubation
- Insertion of transesophageal echo cardiac probes
- Laryngoscopic foreign body removal
- Awake intubation for difficult airway management
- Insertion of double lumen tubes
- Teaching the anatomy of the airway

Statement of Intended Use

The GlideScope AVL system is intended for use by qualified medical professionals to obtain a clear, unobstructed view of the airway and vocal cords for medical procedures.

Single Use

Statement of Prescription

Federal (United States) law restricts this device to sale by, or on the order of, a physician. The GlideScope AVL system should be used only by individuals who have been trained and authorized by a physician, or by health care providers who have been trained and authorized by the institution providing patient care.

Notice to All Users

Verathon® recommends that all users read this User's Manual before using the GlideScope AVL system. Failure to do so may result in injury to the patient, compromise the performance of the system, and may void the system warranty.

Verathon recommends that new GlideScope users:

- Practice using the AVL system on a mannequin before clinical use
- Acquire clinical experience on patients without airway abnormalities
- Obtain instruction from a qualified individual

Cautions - AVL Single Use System

Caution. Risk of permanent equipment damage.

Do not expose the GlideScope AVL system to temperatures above 60 °C (140 °F).

Do not use autoclaves or pasteurizers for the AVL system.

Use of such methods to disinfect the GlideScope AVL system will cause permanent device damage and void the warranty. Refer to the **Cleaning sections** for a list of approved cleaning procedures and products.

Electrical Class II, Applied Part BF: Electrical shock hazard. Refer servicing to qualified personnel.

This device has been tested and found to comply with the standards listed in the **Specifications, Standards and Approvals** section of this manual. These limits are designed to provide reasonable protection against harmful interference in typical medical installations.

This device can radiate radio frequency energy and if used properly is very unlikely to cause harmful interference to any other device(s) in the vicinity

However, there is no guarantee that interference will not occur in a particular installation. Interference can be determined by turning the device on and off. If this device does cause interference with other devices, try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving device
- Reorient or relocate this device or other devices
- Increase the separation between devices
- Connect the device to an outlet on a circuit different from that to which the other device(s) is (are) connected

Note: The GlideScope AVL system must be used with the cables supplied by Verathon® to maintain electromagnetic interference (EMI) within certified limits.

Note: Users should be aware that portable and mobile equipment (cellular phones, etc.) may affect medical electrical equipment and take appropriate precautions during operation.

Single Use

Warnings

Several areas of the PAP (patient applied part) can exceed 41 °C as part of normal operation.

- The first area is the light emitting area surrounding the camera where the LED lighting defogging heater is located. When used as indicated, continuous contact with this area is unlikely because if tissue were to contact this area the view would be lost and devices would need to be adjusted to regain the airway view.
- The second area is the area surrounding the camera, out of view of the camera. Continuous contact with this area is unlikely because the product is typically not held stationary for an extended period of time exceeding 1 minute.
- If continuous contact is maintained for longer than 1 minute it is possible to cause thermal damage such as a burn to the mucosal tissue.

Note: Typical intubations are less than 1 minute in duration.

Single Use

Important Information - Reusable

Product Information

The GlideScope AVL Reusable video laryngoscope system is designed for "1st pass success." The AVL provides a consistently clear view of a patient's airway, enabling quick intubations. The AVL design is based on the GlideScope GVL, which is clinically proven to achieve a Cormack-Lehane Grade I or II view 99 percent of the time.[1]

Product Description

AVL Reusable video laryngoscopes are designed to work with the GlideScope Video Monitor. The scopes incorporate a high-resolution digital camera and LED lighting to provide views of anterior airways. The system is recommended for use with an endotracheal tube stylet, particularly the GlideRite® Rigid Stylet.

GlideScope AVL system may be useful for the following procedures:

- First use intubations, replacing direct laryngoscopy (DL)
- Normal or restricted oropharyngeal views/visualization and assessment of the oropharynx
- Cormack-Lehane Grades I–IV laryngeal views
- Trauma airways—excellent when dealing with blood and secretions in the airway
- Airway management in morbidly obese patients
- Preterm and neonatal intubations
- Patients requiring cervical spine immobilization
- Re-intubation and Endotracheal Tube Exchange in Intensive Care Unit (ICU) settings
- Supervision and documentation of the laryngoscopy
- Nasal tracheal intubation
- Insertion of transesophageal echo cardiac probes
- Laryngoscopic foreign body removal
- Awake intubation for difficult airway management
- Insertion of double lumen tubes
- Teaching the anatomy of the airway

Statement of Intended Use

The AVL Reusable System is intended for use by qualified medical professionals to obtain a clear, unobstructed view of the airway and vocal cords for medical procedures.

Statement of Prescription

Federal (United States) law restricts this device to sale by, or on the order of, a physician. GlideScope AVL Reusable video laryngoscopes should be used only by individuals who have been trained and authorized by a physician, or by healthcare providers who have been trained and authorized by the institution providing patient care.

1. Cooper RM, Pacey JA, Bishop MJ, McCluskey SA. Early clinical experience _with a new videolaryngoscope (GlideScope) in 728 patients. *Can J Anaesth*. 2005;52(2):191-198.

Reusable

Notice to All Users

Verathon recommends that all users read this manual before using AVL Reusable laryngoscopes. Failure to do so may result in injury to the patient, may compromise the performance of the system, and may void the system warranty. Verathon recommends that new users:

- Obtain instruction from a qualified individual
- Practice using the AVL Reusable video laryngoscope on a mannequin before clinical use
- Acquire clinical training experience on patients without airway abnormalities

Cautions - Reusable System

Caution. Risk of permanent equipment damage.

Do not expose the GlideScope AVL Reusable video laryngoscope to temperatures above 60 °C (140 °F).

Do not use autoclaves or pasteurizers for the AVL reusable laryngoscopes.

Use of such methods to disinfect the AVL reusable scope will cause permanent device damage and void the warranty. Refer to the **Cleaning sections** for a list of approved cleaning procedures and products.

Electrical Class II, Applied Part BF: Electrical shock hazard. Refer servicing to qualified personnel.

This device has been tested and found to comply with the standards listed in the **Specifications, Standards and Approvals** section of this manual. These limits are designed to provide reasonable protection against harmful interference in typical medical installations.

This device can radiate radio frequency energy and if used properly is very unlikely to cause harmful interference to any other device(s) in the vicinity

However, there is no guarantee that interference will not occur in a particular installation. Interference can be determined by turning the device on and off. If this device does cause interference with other devices, try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving device
- Reorient or relocate this device or other devices
- Increase the separation between devices
- Connect the device to an outlet on a circuit different from that to which the other device(s) is (are) connected

Note: The GlideScope AVL system must be used with the cables supplied by Verathon® to maintain electromagnetic interference (EMI) within certified limits.

Note: Users should be aware that portable and mobile equipment (cellular phones, etc.) may affect medical electrical equipment and take appropriate precautions during operation.

Reusable

⚠ WARNINGS

Warning

To ensure patient safety, routinely inspect the GlideScope video laryngoscope blade before and after every use to ensure the blade is free of rough surfaces, sharp edges, cracks, protrusions, shell separation, surface delamination, or any other indication of wear. If found, do not use the damaged or worn blade, otherwise blade breakage may occur and could cause patient injury or death.

- **Always ensure that alternative airway management methods and equipment are readily available.**

Warning

Several areas of the PAP (patient applied part) can exceed 41 °C as part of normal operation.

- The first area is the light emitting area surrounding the camera where the LED lighting defogging heater is located. When used as indicated, continuous contact with this area is unlikely because if tissue were to contact this area the view would be lost and devices would need to be adjusted to regain the airway view.
- The second area is the area surrounding the camera, out of view of the camera. Continuous contact with this area is unlikely because the product is typically not held stationary for an extended period of time exceeding 1 minute.
- If continuous contact is maintained for longer than 1 minute it is possible to cause thermal damage such as a burn to the mucosal tissue.

Note: Typical intubations are less than 1 minute in duration.

Reusable

Introduction - Single Use & Reusable

GlideScope AVL Buttons, Icons, and Connections

The main component of the GlideScope AVL System is the digital, full-color monitor. The front of the monitor includes the screen and the buttons you use to operate the AVL. Each operation status has an indicator light associated with it.

The back panel of the monitor includes the sockets and ports for connecting the power cord, video baton cable, external video cable, and USB drive. There is also a mounting plate to attach the monitor to a mobile stand or IV pole.

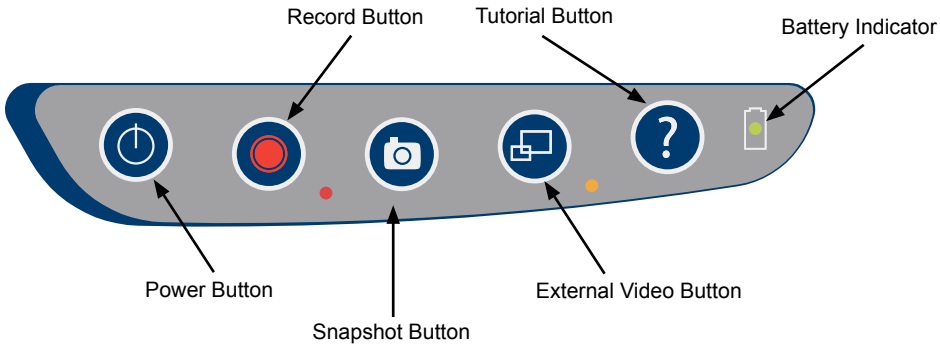
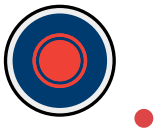


Figure 2: AVL Monitor Front Panel

Table 1 - GlideScope AVL System Button Panel	
	**Power:** Press and release to turn on the AVL System. Press and hold for three seconds to turn it off. ***Note: If the monitor freezes at any time during use, press and hold the Power button for 10 seconds to reset the system.***
	**Record:** Press to start and stop recording directly to a USB flash drive that has been inserted in the USB port. When you are recording, the red LED indicator to the right of the button will be lit and the record icon will be shown on the screen. **Note:** A USB drive must be inserted into the monitor to record video and still photos captured with the Snapshot feature.
	**Snapshot Button:** Press this button to save a snapshot of the live display to the USB drive. Snapshots may also be taken during video recording. **Note:** A USB Drive must be inserted into the monitor to record video and still photos captured with the Snapshot feature.
	**External Video:** Press to display video on an external monitor. The yellow LED to the right of the button will light up to indicate that the key has been activated. Press the key again to deactivate the external video.

Single Use & Reusable

	**Tutorial:** Press and hold for three seconds to play the GlideScope 4-Step Technique tutorial.
	**Battery Indicator:** LED is: **Green:** Unit fully charged **Red:** Charging **Flashing Red:** Indicates a problem with the battery. Charge for 12 hours and if still flashing, contact Verathon®.

Table 2 - GlideScope AVL System On-Screen Icons	
	**Battery Status:** Indicates the approximate battery capacity. If the icon is red, the battery should be charged as soon as possible. (See also **Charge the Monitor Battery**.) While the Battery is being charged a lightning bolt will be displayed alongside the Battery Status Icon.
	**Progress Confirmation:** These icons will appear to notify the user that activity is progressing while pressing a button. If the button is released before the operation is completed the operation will be canceled.
	**Power Down Countdown:** These icons will appear to notify the user that the unit is about to turn off. If this is due to the Auto Power Down feature to save battery life, pressing any button will stop the power down sequence.
	**USB Flash Drive:** Displayed if a USB flash drive is detected. During recording a number will be displayed next to the icon to indicate approximately what percentage of the USB Drive has been used.
	**USB Flash Drive Not Found:** Animation indicates that a USB drive needs to be inserted into the USB port.
	**Connect Video Baton:** Appears when the video baton is not connected to the monitor.

Single Use & Reusable

	**Recording:** The system is recording video to the USB flash drive. **NOTE:** DO NOT remove the USB flash drive while recording is in progress or the recording will be lost.
	**Snapshot:** Busy saving Snapshot to USB flash drive **NOTE:** DO NOT remove the USB flash drive while saving snapshot or the photo will be lost.
	**Saving File:** Recorded file is being saved to the USB flash drive. **NOTE:** DO NOT remove the USB flash drive before this icon is turned off or the recording will be lost.
	**External Monitor:** The external DVI/HDMI connector video is enabled. Video may now be displayed on an external monitor.
	**Hourglass:** Please wait while the system prepares for the next action.
	**Incompatible USB Drive:** Indicates that the USB flash drive that is plugged into the monitor is not suitable for recording videos. (This normally occurs when using an older, inexpensive USB flash drive not capable of the speed necessary to save video in real time.)
	**Audio Recording is Active**: Indicates that audio is being recorded on the video. NOTE: The default for audio recording is OFF, so this icon will appear only if the default has been changed to ON in user settings AND the monitor is busy recording a video.

Single Use & Reusable

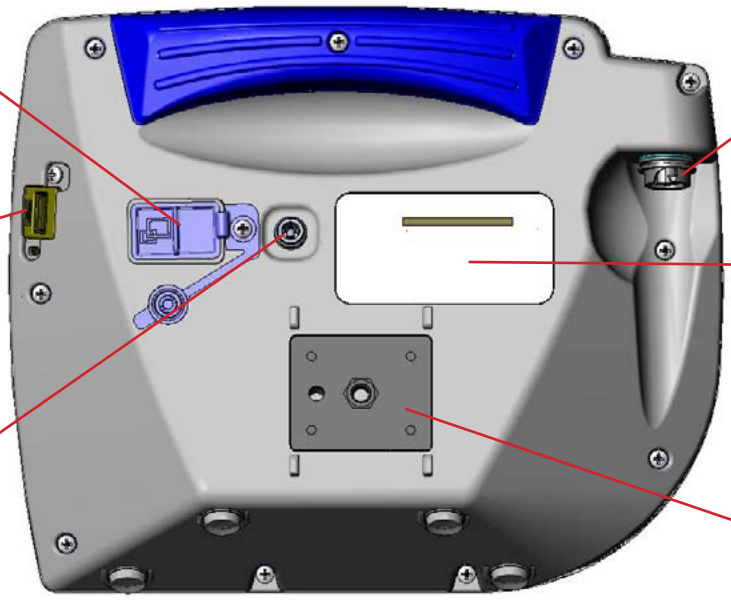


Figure 3: AVL Back Panel

Single Use & Reusable

Getting Started - Single Use & Reusable

Getting Started

Before you can use your GlideScope AVL system for the first time, you must inspect the components, set up the system, and perform a functional test by performing these steps recommended by Verathon. Additional detail on each step can be found in the sections on the following pages..

1. Inspect the system for any obvious physical damage that may have occurred during shipment.
2. Set up the AVL System in your preferred configuration: For specific instructions on system setup, see **Setting Up the GlideScope AVL System** and if using a stand also take note of **Set Up the AVL on a Mobile Stand**.
3. Charge the monitor battery. You can use the system while the battery is charging. For specific charging instructions, see **Charge the Monitor Battery**.
   Note: The GlideScope AVL system will operate without charging the battery by using the AVL Video Monitor 12V DC Power Adaptor that shipped with the unit.
4. Connect a video baton to the monitor.
5. If you are using the Single Use System, when preparing for intubation, insert the baton into a GVL® Stat. For specific instructions on connecting the baton, see **Connect the Video Baton**.
6. Optional: Connect the monitor to an external source (such as a larger monitor screen) using the HDMI to DVI cable. For specific instructions, see **Connect to External Monitor**.
7. Optional: Insert a USB flash drive into the USB Port to record the video images.
8. Perform a functional check. For specific instructions, see **Perform a Functional Check**.

Initial Inspection

When you receive the GlideScope AVL system, Verathon recommends that a biomedical engineer (or other qualified professional familiar with electronic medical devices) inspect the system for any obvious physical damage that may have occurred during shipment. The components you receive vary depending on which configuration you ordered. To verify that you received the appropriate components, refer to the packing list included with your system.

If any of the components are missing or damaged, notify the carrier and Verathon Medical Customer Care or your local representative:

- 800.331.2313 (Canada and US)
- 425.867.1348 (International)
- +31.30.68.70.570 (Europe)

For additional contact information, see **Contact Information**.

Single Use & Reusable

Configure System

You can set up the GlideScope AVL system in two configurations:

- Mount it on a mobile stand (**Figure 4)**. For specific set up instructions, see **Setting Up the GlideScope AVL System** & **Set Up the AVL on a Mobile Stand**.
- Mount it on a user-supplied IV pole (**Figure 5**). For specific set up instructions, see **Set Up the GlideScope on an IV Pole** & **Attach the GlideScope AVL to an IV Pole**.

Figure 4: AVL on mobile stand

Figure 5: AVL on IV pole

Charge the Monitor Battery

The GlideScope video monitor includes a lithium battery. Verathon® recommends that you charge the battery fully prior to first use. To charge the battery:

1. Connect the female end of the 12V DC power supply to the power socket on the back panel of the monitor.
2. Plug the male end of the power supply into a hospital-grade power outlet.

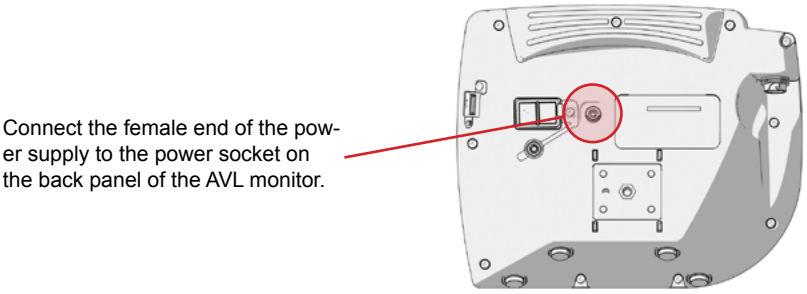


Figure 6

Single Use & Reusable

Under normal operating conditions, a fully-charged battery lasts approximately 90 minutes before it needs to be recharged. For optimal battery life, make sure that the battery is fully charged before you try to use the AVL in battery mode. You should charge the battery at temperatures between 0–40 °C.

The battery icons show the battery charge level.


Battery must be charged


Approximately 1/3 battery life remaining


Approximately 2/3 battery life remaining


Battery is 2/3 to fully charged

Connect the Video Cable

To connect the video cable to the monitor:

1. Align the arrow on the video baton cable and the arrow on the video socket.
2. Insert the cable into the socket. You will hear a “click” when the cable is successfully connected.

Note: When disconnecting the connector cable rotate the black connector ring.

Warning: For Single Use, if the video baton is powered on for an extended period of time, it is possible to exceed 41 °C at the tip of the baton where the lighting and camera are located.


Insert the video baton cable into the socket.

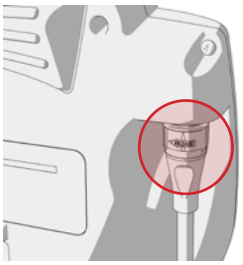

Black connector ring

Figure 7

Single Use & Reusable

Connect to an External Monitor (Optional)

You can connect the GlideScope Video Monitor to a medically approved external monitor such as a TV screen by using a HDMI (high-definition multi-media interface) to DVI cable. Please contact your Verathon Medical Customer Care Representative for more information.

To connect the GlideScope Video Monitor to an external medical monitor:

1. Connect one end of the video output cable to the HDMI socket on the back of the GlideScope Video Monitor.
2. Connect the other end of the cable to the medically approved external monitor with a DVI port.
3. To see the video on the external monitor, press the **External Video** button. The indicator LED illuminates when the connection is successful.

Connect one end of the video output cable to the HDMI socket.

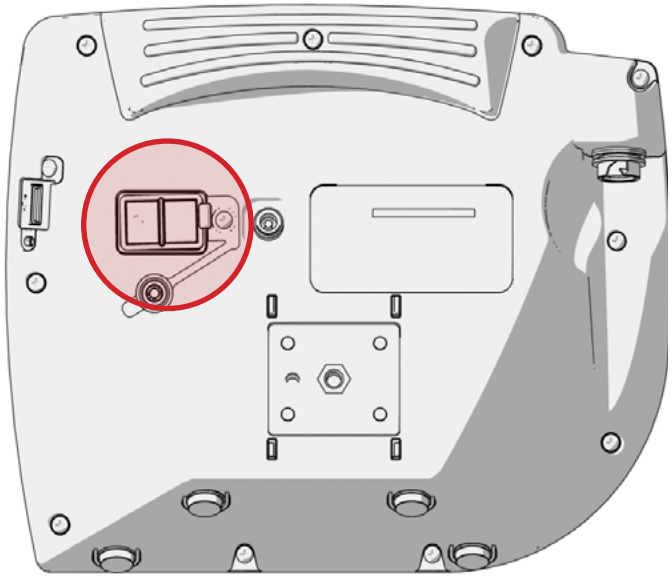


Figure 8

Single Use & Reusable

Functional Check Set Up - Single Use & Reusable

If Using for the First Time Perform a Functional Check

Before you use the device for the first time, perform the following functional check to assure that the system is working properly. Please contact your Verathon Medical Customer Care Representative if your AVL system does not function as described below.

To perform a functional check of the device:

1. Fully charge the monitor battery (this will take approximately 3 hours).
2. Connect the video cable to the monitor.
3. Turn the monitor on by pressing the **Power** button located on the front panel of the monitor.
4. Look at the monitor screen to verify that the image displayed is received from the video baton.

Figure 9

Note: Both the Single Use and Resable blades show a slight amount of blade in the upper left corner of the monitor screen. (**Figure 9**) The edge is captured in the view because of the wide-angle camera lens used in the baton. This image acts as a frame of reference during the intubation process and ensures that the orientation of the image is correct in the monitor.

5. Insert a USB flash drive into the USB port.
6. Press the **Record** button to start recording. To stop recording, press the **Record** button again. After the 'Saving File' icon is turned off, remove the USB flash drive from the monitor and check that the recorded video (.avi) file can be played on a computer.

Single Use & Reusable

Set Settings and Time - Single Use & Reusable

You may set the following items directly on the unit:

- Date and Time
- Date and Time Format
- Key Click Sound On/Off
- Auto Power Off Time
- Audio Recording On/Off
- Clinic Name

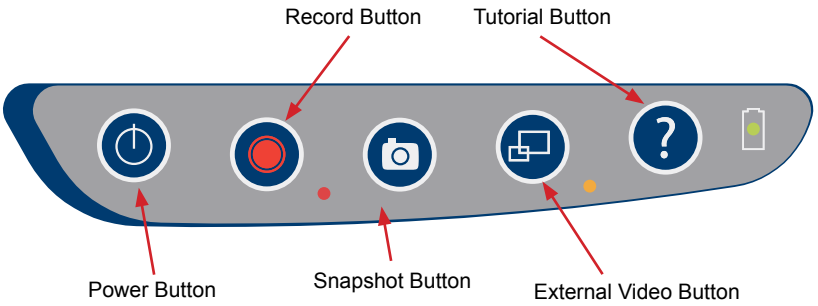


Figure 10: AVL Buttons

1. Remove the USB flash drive if one is inserted into the unit.
2. Continue to hold the Tutorial button while pressing Snapshot button until the User Setting screen appears on the monitor.
3. Press the **Record** button to select the parameter you want to set.
4. Press the **Snapshot** button to decrease the parameter value.
5. Press the **External Video** button to increase the parameter value.
6. When inputting the Clinic Name, the **Tutorial** button will move the selection to the next letter. Press the **Record** button to move the selection back to the Date/Time setting.
7. Press the **Tutorial** button to save the parameters and close the User Setting screen.

Items that may be changed are shown in yellow on the User Setting.

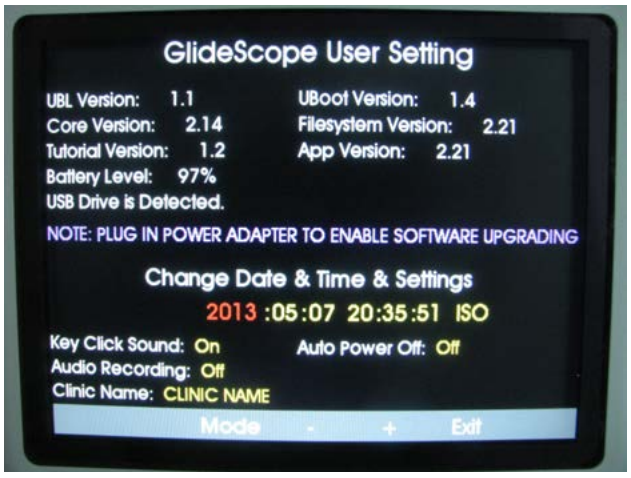


Figure 11: User Settings Display

Connecting the Device on a Stand or IV Pole - Single Use & Reusable

You can connect the GlideScope AVL system to:

- A mobile stand (**Figure 12**)
- An IV pole (**Figure 13**)

Connect the Device to a Mobile Stand

You can connect the AVL system to a mobile stand. The stand makes it easy for you to move the system from one location to another.

Figure 12: AVL System on mobile stand

Figure 13: AVL on IV pole

Attach the center pole to the base

1. Remove the hex bolt and washers from the bottom of the pole.
2. Insert the bottom end of the pole into the top of the base.
3. To attach the pole to the base, screw the bolt and washers back into place. To ensure stability, make sure that you tighten the bolt securely.

Adjust the Height of the Mobile Stand

1. Turn the black height adjustment knob counterclockwise.
2. Raise or lower the pole to the desired height.
3. Turn the knob clockwise to secure the pole at the desired height.
4. When adjusting the height of the monitor avoid placing hands where they could be pinched between moving parts.

Figure 14: Adjust the height of the mobile stand

Single Use & Reusable

Attach the Monitor to the Mobile Stand

1. Screw the quick-release locking plate to the back panel of the monitor (**Figure 15**).
2. Make sure that the quick-release mount is on top of the mobile stand pole.
3. Make sure the quick-release lever is in the release (horizontal) position.
4. Slide the monitor onto the quick-release mount.
5. Press the quick-release lever down to lock the monitor into place (**Figure 16**).
6. Adjust the locking pin to the locked (down) position.

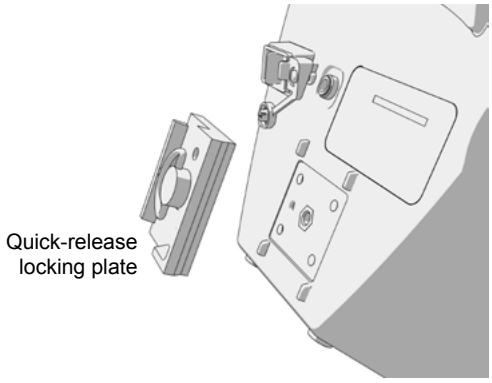


Figure 15: Attach the quick-release locking plate

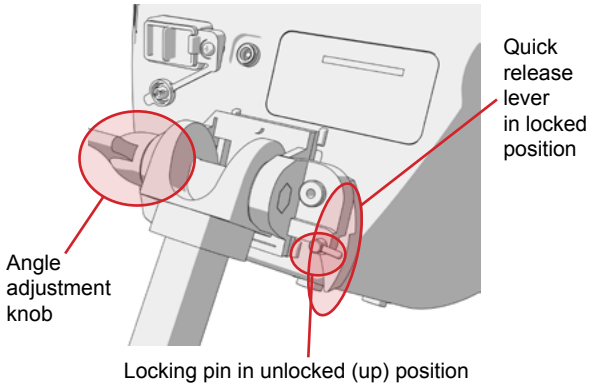


Figure 16: Attach the monitor to the quick-release mount

Adjust the Monitor Angle

Before you start using the GlideScope Video Monitor, adjust the angle of the monitor for optimal viewing. The ideal angle minimizes glare and maximizes visibility.

1. Turn the angle adjustment knob counterclockwise.
2. Tilt the monitor to the desired angle.
3. Turn the knob clockwise to secure the monitor at the desired angle (**Figure 16**).

Attach the GVL Cradle - Single Use

1. Open the cradle latch and position the mobile stand pole on the back of the cradle.
2. Close the cradle latch and tighten in place by turning the black cradle adjustment knob clockwise (**Figure 17**).

Attach the Video Baton Cradle - Single Use

You can attach the GlideScope video baton cradle to the GVL® cradle or directly to the mobile stand pole.

To attach the GlideScope video baton cradle to the GVL cradle:

1. Hook the video baton cradle into the GVL cradle (**Figure 17**).

Single Use & Reusable

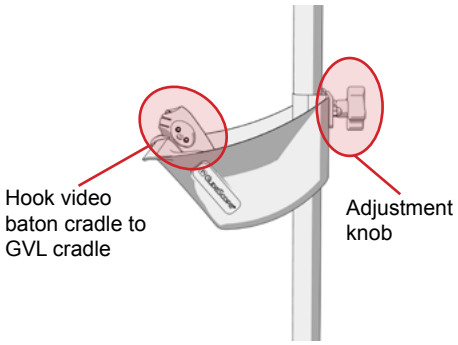


Figure 17: Attach the GVL cradle

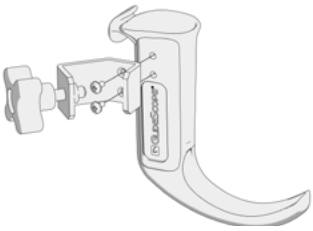


Figure 18: Attach the clamp to the baton cradle

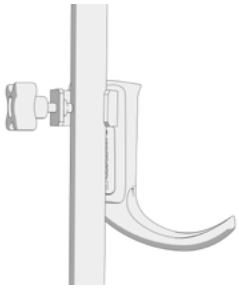


Figure 19: Clamp the cradle to the pole

To attach the GlideScope video baton cradle directly to the mobile stand or IV pole:

1. Screw the center pole clamp to the GlideScope video baton cradle (**Figure 18**).
2. Attach the center pole clamp and GlideScope video baton cradle to the mobile stand or IV pole, and then turn the black knob clockwise to tighten (**Figure 19**).

Set Up the Device on an IV Pole

You can set up the device on an IV pole **(Figure 20**).

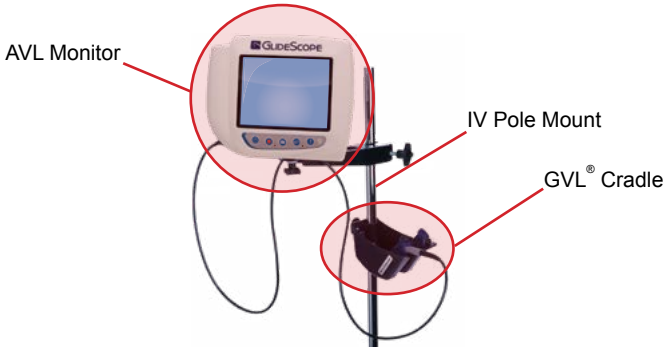


Figure 20: AVL on IV pole

Attach the Device to an IV Pole

1. Place the mounting bracket on the IV pole and tighten the bracket attachment knob until the mount is secure (**Figure 21**).

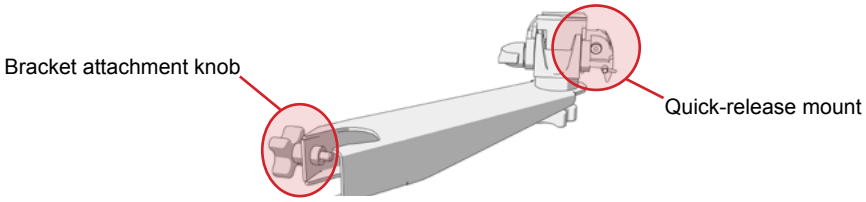


Figure 21: IV Pole Mount

Single Use & Reusable

2. Screw the quick-release locking plate to the back panel of the monitor (**Figure 15**).
3. Make sure the quick-release lever is in the release (horizontal) position.
4. Slide the monitor onto the quick-release mount.
5. Press the quick-release lever down to lock the monitor into place.

To attach a GVL cradle to the IV pole, refer to **Figure 17**.

To attach a video baton cradle to the IV pole refer to **Figure 18** & **Figure 19**.

Single Use & Reusable

Using the Device - Single Use & Reusable

Using the GlideScope AVL System

The GlideScope AVL system provides a consistently clear view of a patient's airway, enabling quick intubation. There are several tasks you must complete to successfully use the AVL monitor:

1. Select the appropriately sized AVL video baton and GVL® Stat (or AVL Reusable video laryngoscope blade) for the patient.
2. If the video baton is not connected, connect the baton to the AVL monitor.
3. Insert the video baton into the Stat.
4. Power on the system.
5. Verify that the video baton is operating properly and that an image appears on the monitor screen.
6. Insert a USB flash drive into the USB port on the monitor (if recording is required).
7. Press the **Record** button to start or stop recording. Video will be saved to the USB flash drive.
8. Press the **Snapshot** Button to save a photo of the live display to the USB flash drive.
9. Video has been saved to the USB Flash Drive.

Note: If the GlideScope AVL system locks up or becomes unresponsive for any reason, press and hold the **Power** key for 10 seconds to reboot the system.

Components of the GlideScope AVL Reusable Laryngoscope

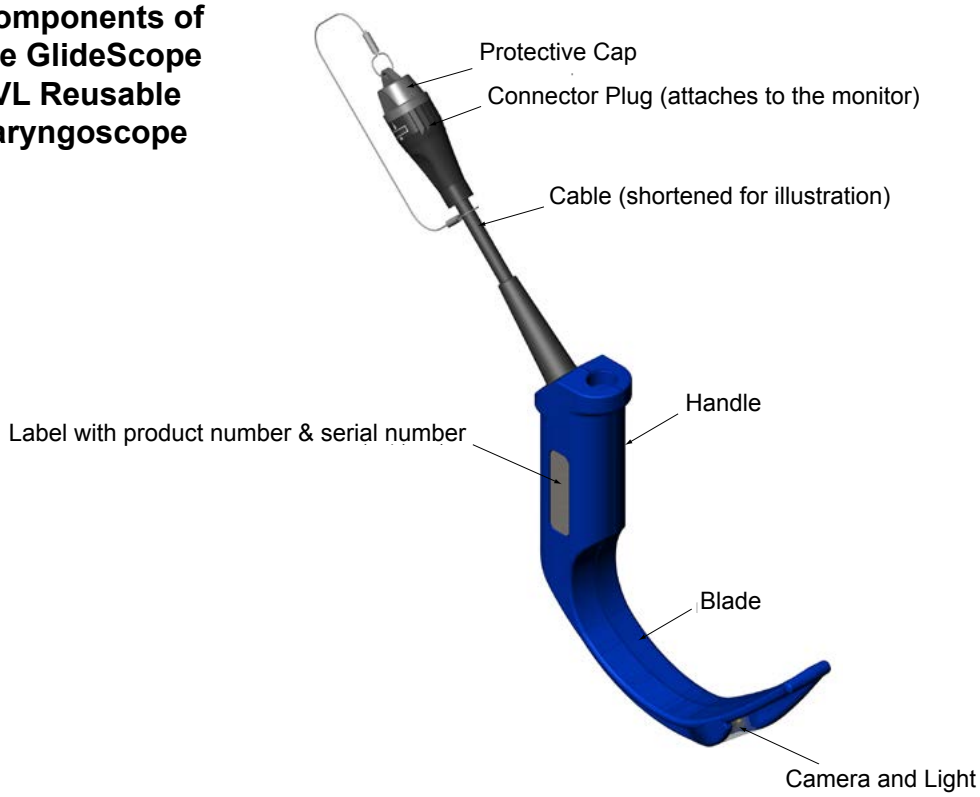


Figure 22

Single Use & Reusable

To Select the Correct Video Baton and Stat (Single Use)

Make sure that you select the AVL video baton and GVL Stat that is the best fit for your patient. Verathon® recommends the following:

- AVL Video Baton 1-2 (for use on infants and small children).
  - GVL 0 Stat (patients less than 1.5 kg)*
  - GVL 1 Stat (patients between 1.5–3.8 kg)*
  - GVL 2 Stat (patients between 1.8–10 kg)*
  - GVL 2.5 Stat (patients between 10–28 kg)*
- AVL Video Baton 3-4 (for use on children and adults)
  - GVL 3 Stat (patients between 10 kg–Adult)*
  - GVL 4 Stat (patients between 40 kg–Morbidly obese)*

Figure 23: AVL video batons and Stats (Single Use)

* Weight ranges are approximate; a medical professional must evaluate on a patient-by-patient basis.

Set Up

The procedure for set up is the same as is the procedure for a **Functional Set Up**. To set up, you must connect the baton to the monitor, and then if using the AVL Single Use insert the baton into the appropriate size Stat.

Connect the Video Baton

To connect the video baton to the monitor:

1. Align the arrow on the video baton cable with the arrow on the video socket.
2. Insert the cable into the socket. You will hear a “click” when the cable is successfully connected.

Note: When disconnecting the connector cable, rotate the black connector ring.

Warning: If the video baton is powered on for an extended period of time it is possible to exceed 41 °C at the tip of the baton where the lighting and camera are located.

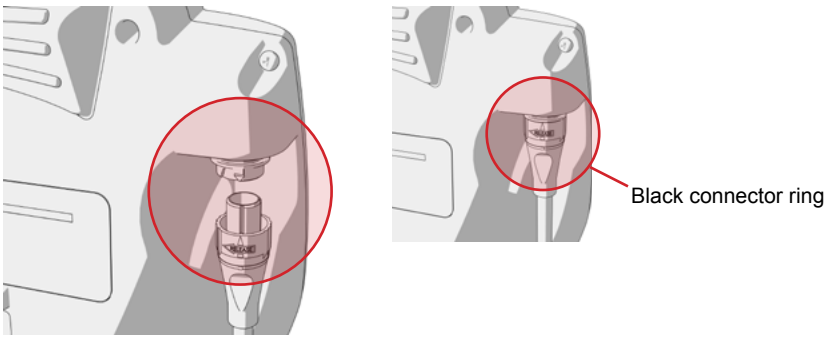


Figure 24: Insert the video baton cable into the socket

Single Use & Reusable

Insert the Video Baton into the Stat (Single Use)

1. Before you use the GVL® Stat, visually inspect the Stat to ensure that all exterior surfaces are free of unintended rough areas, sharp edges, protrusions, or cracks.
2. Before you slide the baton into the Stat, make sure that the logo on the side of the baton and the logo on the side of the Stat are aligned.
3. Slide the video baton into the GVL Stat until it clicks into place.
   Note: Make sure that you do not insert the video baton backwards.

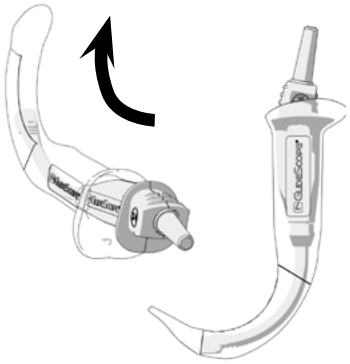


Figure 25: Insert the video baton cable into the Stat

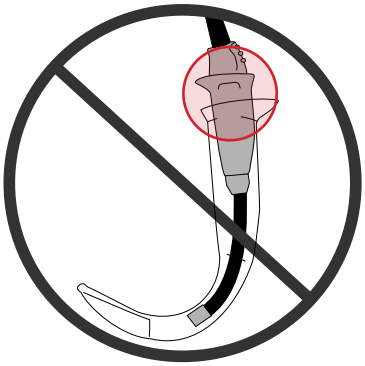


Figure 26: Do not insert the video baton cable into the Stat backward

GlideScope Reveal™ Anti-Fog Feature (Single Use & Reusable)

To ensure optimal results of the Reveal anti-fog feature on the GlideScope video laryngoscope, perform the following steps:

1. For the Single Use, prior to use, open the GVL Stat pouch, but do not remove the Stat from the packaging (to keep the Stat clean until ready for use). With the Stat still in the package, insert the video baton into the Stat. The video baton must be securely seated in the GVL Stat for efficient heating of the Stat.
2. Turn on the GlideScope monitor to activate the Reveal anti-fog feature.
3. After 30 seconds to 120 seconds, the anti-fog feature should be fully effective, depending on the ambient temperature and humidity where the equipment is being stored and/or used.

If the GlideScope video baton or Stat is stored in cold conditions, additional warming time may be required for optimal performance of the anti-fog feature.

To Remove the Video Baton from the Stat (Single Use)

The GVL® Stat is a sterile, single-use device. After each use, it should be removed from the AVL video baton and disposed of properly. To remove the AVL video baton from the GVL Stat:

1. Hold the Stat in one hand.
2. With the other hand, grasp the handle of the video baton and pull firmly (**Figure 27**).
3. To reduce the force required to remove the baton from the Stat, use your thumb and finger to gently press the Stat (**Figure 27**).

Single Use & Reusable

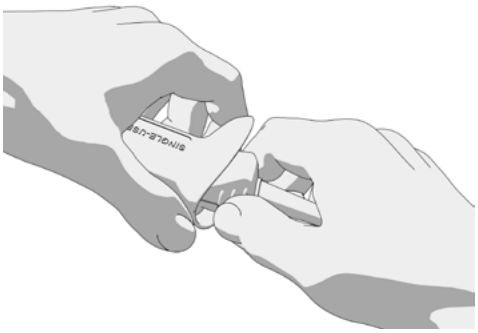


Figure 27: When using the GVL Stat, gently pressing the collar makes removing the baton easier

Verify the Video Baton is Operating Properly

Before you start, make sure that the video baton is operating properly. If the video baton is connected to the monitor and the monitor is turned on, a small portion of the Stat appears in the upper-left corner of the monitor screen as a frame of reference.

- Look at the monitor screen to verify that an image is being received from the video baton.

Figure 28: Frame of reference (Single Use Shown)

Single Use & Reusable

Start Recording

The AVL system records video and photos to a USB drive inserted into the monitor.

1. Power on the system.
2. Before recording can take place, insert a USB flash drive into the USB port on the monitor.
3. Press the Record button to begin recording video.
4. When you are ready to stop recording, press the **Record** button again.
5. Wait for the 'Saving File' icon to disappear. Remove the USB flash drive and view the recorded videos on a computer.
   NOTE: If the USB flash drive is removed during recording, or before the 'Saving File' icon disappears, the recording will be lost.
6. To take a snapshot, press the Snapshot button.
7. Wait for the 'Saving Snapshot icon to disappear. Remove the USB flash drive and view the recorded photos on a computer.
   NOTE: If the USB flash drive is removed before the Snapshot icon disappears from the screen, the photo will be lost.

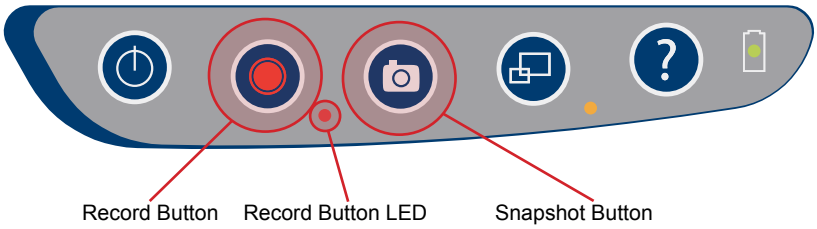


Figure 29: Record Button, Record LED and Snapshot Button

GlideScope 4-Step Technique

Verathon® recommends using the GlideScope 4-Step Technique as outlined below:

1. **In the Mouth:** looking directly into the patient's mouth and with the AVL in the left hand, introduce the GlideScope video laryngoscope into the midline of the oral pharynx.

2. **At the Screen:** With the laryngoscope inserted, look to the monitor to identify the epiglottis, then manipulate the scope to obtain the best glottic view.

3. **In the Mouth:** looking directly into the patient's mouth, not at the screen, carefully guide the distal tip of the tube into position near the tip of the laryngoscope.

4. **At the Screen:** Look to the monitor to complete the intubation; gently rotate or angle the tube to redirect as needed.

Single Use & Reusable

Single Use & Reusable

Tips for Using the GlideScope AVL

- The AVL video baton and the GVL® Stat are designed to be inserted down the midline of the tongue to the epiglottis.
- The AVL video baton with a GVL Stat may be used to produce a Macintosh style lift of the epiglottis, or to produce a Miller lift.
- Intubations using the AVL video baton with a GVL Stat only require approximately 0.5–1.5 kg (1–3.5 lbs) of lifting force.
- The use of an endotracheal tube stylet is recommended. The GlideRite® Rigid Stylet has been designed to complement the angle of the video baton to facilitate intubation, and should be used with endotracheal tubes 6.0 mm and larger. A malleable stylet may be used with a 60–90° angle.
- To aid the passage of the endotracheal tube when at the vocal cords, gradually withdraw the stylet approximately 5 cm. A 1 cm adjustment (withdrawal) of the laryngoscope may be beneficial to reduce the viewing angle and allow the glottis to drop.

Figure 30: GlideRite rigid stylet, video baton, and GVL Stat

Tips for Working with Endotracheal Tubes

Insert the ET tube behind or immediately adjacent to the GVL® Stat.

- Do not insert the stylet into the larynx during intubation.
- You can bend the proximal tip of the stylet backward to permit one-handed operation of the ET tube.
- Carefully introduce the distal end of the ET tube between the vocal folds.
- When introducing the GlideScope and/or the endotracheal tube, look directly into the mouth to avoid damaging the endotracheal tube cuff, the patient's teeth, or soft tissues such as the soft palate or tonsils.
- Advance the ET tube while simultaneously withdrawing the stylet with the thumb (**Figure 31**). The stylet should be withdrawn approximately 5 cm (2 in).
- Avoid excessive lifting or pushing of the glottis. Maximum laryngeal exposure may not facilitate intubation; reducing the elevation applied to the laryngoscope may make inserting the ET tube easier.

Figure 31: Withdrawing the stylet with the thumb

Cleaning, Disinfection, Maintenance & Safety - Single Use

Cleaning, Disinfecting, and Maintaining the GlideScope AVL

Cleaning the GlideScope AVL system is an important part of maintaining the system. Make sure that the system is clean before each use. You should also examine the AVL periodically to make sure it is operating correctly.

General Maintenance Information

Periodic inspections should be performed to ensure safe and effective operation. It is recommended that a qualified technician perform a full visual inspection of all components at least every three months.

The technician should check for the following items:

- External damage
- Damage to the power supply
- Connectors and cable insulation integrity

To ensure patient safety, users should perform a routine inspection of the GlideScope AVL video baton before every use to ensure that all endoscopic components are free of unintended rough surfaces, sharp edges, protrusions or cracks.

If inspection reveals any faults in the components, contact Verathon Medical Customer Care. All repairs must be performed by an authorized Verathon Medical Service Center.

Caution. Risk of permanent equipment damage.

Do not expose GlideScope AVL video batons to temperatures above 60 °C (140 °F). Do not disinfect the GlideScope AVL video batons using equipment such as autoclaves, ultrasonic cleaners, or pasteurizers. Use of such methods will cause permanent device damage and void the warranty. Refer to Cleaning Section for a list of approved cleaning procedures and products.

Single Use

General Cleaning and Disinfection Information

Table 3: Risk Assessment - Single Use

Device	Sterile	Use	Spaulding's/ CDC Classification	Disinfection			Sterilization
				Low Level	Int. Level	High Level	
GVL® Stat	Sterile	Single-use	Semicritical				
Video Baton*	Non-sterile	Reusable	Noncritical	X			
Stylet	Non-sterile	Reusable	Semicritical			X	
Monitor#	Non-sterile	Reusable	Noncritical	X			
Cradle#	Non-sterile	Reusable	Noncritical	X			

It is understood that all items in this chart will be used as intended.

NOTES: The level of disinfection or sterilization required may vary according to local regulations.

* The AVL video baton is a nonsterile, reusable device, which is protected from contact with mucous membranes and non intact skin by the Stat (sterile, single-use) when used as intended. Low Level Disinfection is recommended for the AVL video baton after every patient use. High Level Disinfection is required for the video baton when it is visibly soiled.

\# Disinfect monitor and cradle when they are visibly soiled and on a regular basis as per a schedule established by the medical care facility or provider.

– Shaded areas—not required/not compatible with device materials.
– Checked boxes (X) show minimum requirement.
– Unshaded areas show permissible levels of disinfection based on compatibility with device materials.

Warning: Disinfectants and cleaning methods listed are recommended by Verathon® based on compatibility with product materials. Refer to the disinfectant label instructions for guidance on disinfection efficacy and appropriate clinical uses.

Caution: Meticulous cleaning must precede any disinfection process, to ensure all foreign matter is removed from the surface of the device. This allows the active ingredients of the chosen process to reach all the surfaces of the device.

Availability of disinfection products varies by country, and we are unable to test products in every market. Please use the list of recommended disinfectants in this manual to compare with products available locally.

Note: When using any of the high-level disinfectants listed in **Table 4**, read and comply with product use instructions in all applications.

Single Use

Table 4: Chemical Compatibility & Disinfection Methods for AVL Video Baton & GlideScope Direct

Active Ingredient	Compatibility	Conditions	Disinfection Level	Caution/ Comments
Enzymatic debridement agent/ detergent	General hospital grade	As per chemical manufacturer's instructions	N/A	Surface cleaning only in preparation for disinfectant
Isopropyl Alcohol Solution	70%	70% used to wipe down with minimum 1 minute exposure	Low	This method only applies to the AVL video baton
Hydrogen Peroxide	Up to 7.5%	7.5% – exposure for 30 minutes at ≥20°C or as per manufacturer's instructions	High	
Hydrogen Peroxide	90%	90% / 42 min	See comments on right	Compatibility has been established in hydrogen peroxide sterilization systems for ease of use
Glutaraldehyde	Up to 3.4%	2.0% – exposure for minimum 20 minutes at 20°C or as per manufacturer's instructions	High	
Ortho-Phthalaldehyde	0.55%	0.55% – exposure for 12 minutes at 20°C or as per manufacturer's instructions	High	
Peracetic Acid	0.2%	0.2% – exposure for minimum 12 minutes at 50 to 56°C or as per manufacturer's instructions	See comments on right	Classified as a chemical sterilant
Bleach (Sodium Hypochlorite)	Up to 8000ppm	5000ppm – exposure for 10 minutes at 20°C	High	Corrosive for connector pins and SS ring
		500ppm – used to wipe down with minimum 1 minute exposure	Low	Noncorrosive at ≥ 500ppm

Single Use

Table 5: Chemical Compatibility and Disinfection Methods for GlideRite® Rigid Stylet

Active Ingredient	Compatibility	Conditions	Disinfection Level	Caution/ Comments
Glutaraldehyde	Up to 3.4%	2.0% – exposure for minimum 20 minutes at 20 °C or as per manufacturer's instructions	High	
Ortho-Phthalaldehyde	0.55%	0.55% – exposure for 12 minutes at 20 °C or as per manufacturer's instructions	High	
Peracetic Acid	0.2%	0.2% – exposure for minimum 12 minutes at 50 to 56 °C or as per manufacturer's instructions	See comments on right	Classified as a chemical sterilant
Isopropyl Alcohol Solution	70%	70% – exposure for 10 minutes at 20 °C	Intermediate	
		70% used to wipe down with minimum 1 minute exposure	Low	
Bleach (Sodium Hypochlorite)	≤ 500 ppm	500 ppm used to wipe down with minimum 1 minute exposure	Low	Non-corrosive at ≤ 500 ppm
Enzymatic debridement agent/ detergent	General hospital grade	As per chemical manufacturer's instructions	N/A	Surface cleaning only in preparation for disinfectant
N/A	Tested in autoclave (steam cycle)	Minimum 4 minute 132 °C pre-vacuum steam sterilization cycle	See comments on right	Based on requests from users, an autoclave cycle has been established for the Stylet for ease of use

Single Use

Cleaning and Disinfecting the GlideScope AVL System

Caution. Risk of permanent equipment damage.

Do not expose GlideScope AVL video batons to temperatures above 60 °C (140 °F).

Caution

Make sure that you do not overheat the video baton during cleaning.

The manufacturer's warranty is void if the product is exposed to temperatures above 60 °C (140 °F).

Caution

Do not use autoclaves or pasteurizers for the AVL system.

Use of such methods will cause permanent device damage and void the warranty.

Bleach can be used on the video baton but with special attention to the connector.

Bleach can corrode the stainless steel inserts and damage the connector pins.

Single Use

Cleaning the GlideScope AVL Video Baton

The GlideScope AVL video baton, which is protected by the GVL® Stat, is not intended to have direct patient contact.

Caution

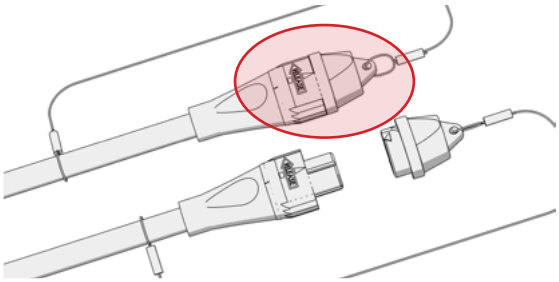
Do not place the GlideScope AVL video baton in the cradle if it is contaminated.

The video baton, which is protected from direct contact with the patient by the Stat, will normally only require cleaning and wiping down between uses using either IPA or bleach. If there is concern about its level of contamination or if it is exposed to contamination then it can be disinfected using a High Level Disinfection method, as defined in **Table 4**.

Caution

Ensure the protective cap is properly fitted on the video baton prior to immersion in water. Bleach can be used on the video baton but with special attention to the connector, as it can corrode the stainless steel inserts and damage the connector pins. You can also use a soft brush to scrub the video baton, taking care not to damage the camera lens. However, do not use a wire brush because it may damage the surface of the video baton

1. Detach the GVL Stat from the video baton as described in the section entitled: **Remove the Video Baton from the Stat**.
   Note: A used GVL Stat is a biohazard and must be disposed of in a manner consistent with local protocols.
2. Disconnect the video baton from the monitor.
3. Place the protective cleaning cap over the connector. Make sure that the mark on the cap is aligned with the arrow on the cable (**Figure 32**).



Make sure that the protective cap is in the correct position before you clean the video baton. Correct cleaning position – protective cap covering the electronic connector.

Figure 32

4. Wash the video baton manually using a hospital grade equipment detergent or an enzymatic debridement agent/detergent to remove all foreign material (e.g., soil and organic material) from the surface of the device.
5. The video baton can now be disinfected.

Single Use

Disinfecting the GlideScope AVL Video Baton

To disinfect use any of the chemicals listed in **Table 4** and do the following:

1. Ensure the equipment is clean (see Cleaning Section for video baton).
2. Ensure the protective caps on the connectors are secure.
3. Prepare the disinfectant solution at the concentration and temperature recommended by the disinfectant manufacturer. Disinfect the equipment following the disinfectant manufacturer's instructions or as stated in **Table 4**.
4. After the disinfection process, rinse (as applicable) and dry the video baton and then store the equipment in a clean environment.

Cleaning the GlideScope Video Monitor

Wipe the exterior of the monitor with IPA (70% isopropyl alcohol), bleach (100 ppm), or a mild detergent and water.

Cleaning the GlideScope AVL Cradle

Wipe the cradle with a standard hospital-grade surface cleaning product.

Cleaning and Disinfecting the GlideRite Rigid Stylet

The stylet is a nonsterile, reusable device which requires cleaning and High Level Disinfection as defined in the risk analysis - **Table 3**.

1. Clean using a Low Level Disinfection wipe method or rinse/ brush method.
2. Using a brush, apply detergent or an enzymatic debridement agent.
3. Rinse under clean, running water for 1 minute.
4. Disinfect the stylet using a High Level Disinfection method as defined in **Table 5**.

Single Use

Cleaning, Disinfecting, Maintenance & Safety - Reusable

Cleaning

Cleaning the GlideScope AVL Reusable video laryngoscope is an important part of maintaining the system. Make sure that the system is clean and that the laryngoscope has been high-level disinfected before each use.

General Maintenance Information

Periodic inspections should be performed to ensure safe and effective operation in addition to performing routine inspection by the user before and after every use. It is recommended that a qualified technician perform a full visual inspection of all components at least every three months. The technician should check for the following items:

- External damage
- Connectors and cable insulation integrity

Safety Information

⚠ WARNINGS

Warning

To ensure patient safety, routinely inspect the GlideScope video laryngoscope blade before and after every use to ensure the blade is free of rough surfaces, sharp edges, cracks, protrusions, shell separation, surface delamination, or any other indication of wear. If found, do not use the damaged or worn blade, otherwise blade breakage may occur and could cause patient injury or death.

- **Always ensure that alternative airway management methods and equipment are readily available.**

Visible Signs of Damage or Wear

Damages and wear that may affect safety are shown inside the red circles and are the result of accelerated cycle-to-failure testing to simulate worst case usage (end-of-life).

Surface Degradation | Cracking | Camera Window Cracking

Figure 33

Reusable

Caution. Risk of permanent equipment damage.

Do not expose GlideScope AVL video batons to temperatures above 60 °C (140 °F). Do not disinfect the GlideScope AVL video batons using equipment such as autoclaves, ultrasonic cleaners, or pasteurizers. Use of such methods will cause permanent device damage and void the warranty. Refer to Cleaning Section for a list of approved cleaning procedures and products.

General Cleaning and Disinfection Information

The GlideScope AVL reusable laryngoscope requires High-Level Disinfection prior to use.

Caution

Ensure the protective cap is properly fitted on the connector plug of the GlideScope AVL Reusable video laryngoscope prior to cleaning and disinfecting. The arrow on the connector plug should match to the dot on the protective cap.

Correct Fitting Incomplete Fitting

Figure 34

Reusable

Table 6: Risk Assessment - Reusable

Device	Sterile	Use	Spaulding's/ CDC Classification	Disinfection			Sterilization
				Low Level	Int. Level	High Level	
GlideScope Direct	Non-sterile	Reusable	Semicritical			X	
Stylet	Non-sterile	Reusable	Semicritical			X	
AVL Blade	Non-sterile	Reusable	Semicritical			X	
Monitor#	Non-sterile	Reusable	Noncritical	X			
Cradle#	Non-sterile	Reusable	Noncritical	X			

It is understood that all items in this chart will be used as intended.

NOTES: The level of disinfection or sterilization required may vary according to local regulations.

\# Disinfect monitor and cradle when they are visibly soiled and on a regular basis as per a schedule established by the medical care facility or provider.
– Shaded areas—not required/not compatible with device materials.
– Checked boxes (X) show minimum requirement.
– Unshaded areas show permissible levels of disinfection based on compatibility with device materials.

Warning: Disinfectants and cleaning methods listed are recommended by Verathon® based on compatibility with product materials. Refer to the disinfectant label instructions for guidance on disinfection efficacy and appropriate clinical uses.

Caution
Meticulous cleaning must precede any disinfection process, to ensure all foreign matter is removed from the surface of the device. This allows the active ingredients of the chosen process to reach all the surfaces of the device.

Availability of disinfection products varies by country, and we are unable to test products in every market. Please use the list of recommended disinfectants in this manual to compare with products available locally.

Note: When using any of the High-Level Disinfectants listed below, read and comply with product use instructions in all applications.

Reusable

Table 7: Chemical Compatibility and Disinfection Methods for the GlideScope AVL Reusable Video Laryngoscope

Active Ingredient	Compatibility	Conditions	Disinfection Level	Caution/ Comments
Bleach (Sodium Hypochlorite)	Up to 8000ppm	5000ppm - exposure for 10 minutes at 20°C	High	Corrosive for connector pins and SS housing
Glutaraldehyde	Up to 3.4%	2.0% - exposure for minimum 20 minutes at 20°C or as per manufacturer's instructions	High	
Ortho-Phthalaldehyde	0.55%	0.55% – exposure for 12 minutes at 20°C or as per manufacturer's instructions	High	
Peracetic Acid	0.2%	0.2% - exposure for minimum 12 minutes at 50°C to 56°C or as per manufacturer's instructions	See comments	Classified as a chemical sterilant
Hydrogen Peroxide	7.5%	7.5% - exposure for 30 minutes at ≥ 20°C or as per manufacturer's instructions	High	
Vaporized Hydrogen Peroxide	90%	90% / 42 min	See comments	Compatibility has been established in vaporized hydrogen peroxide sterilization systems for ease of use
Enzymatic debridement agent/ detergent	General hospital grade	As per chemical manufacturer's instructions	N/A	Surface cleaning only in preparation for disinfectant

Reusable

General Information - Single Use & Reusable

Replacing the GlideScope Video Monitor Battery

Under normal operating conditions, the monitor battery will last 2–3 years; or approximately 500 charge/discharge cycles.

The battery is not user-replaceable. In case of battery malfunction, do not attempt to replace the monitor battery. Any attempts to replace the battery by unauthorized service technicians may cause serious harm to the user and will void the warranty. Please contact your Verathon Medical Customer Care Representative for more information on battery replacement.

Device Disposal

Disposal of this device can be coordinated through your Verathon Medical Service Center in accordance with WEEE requirements.

Procedure to upgrade the GlideScope Video Monitor Software

When a new version of software for the Glidescope Video Monitor is available from Verathon®, the following procedure should be used to upgrade the software on the device:

- Copy the new software files onto a USB flash drive.
- Insert the USB flash drive into the USB port on the GlideScope Video Monitor or AVL System monitor.
- Plug in the power adapter into the monitor. NOTE: The software upgrade will not proceed if the unit is not receiving power from the power adapter.
- If the monitor is not already on, turn on the monitor by pressing the **Power** Button and wait until the icons appear on the display.
- Press and hold the Tutorial Button and then immediately press the **Snapshot** Button while still holding the **Tutorial** Button. Release both buttons when the display shows 'AVL Upgrading'.
- Wait until the white progress bar goes completely across the display and the following message appears: 'Upgrading is done. Please restart the device'. **NOTE:** This may take a few minutes to complete.
- Press and hold the **Power** Button for 3 seconds to turn the monitor off.
- Press the **Power** Button to turn the monitor back on. The new software version will be running..

NOTE: You MUST restart the monitor immediately after the upgrade is complete to finish installation. If you press any other button before restarting, the monitor will default back to the original software and you will have to reinstall the upgrade.

GlideScope AVL Warranties

Verathon Medical includes a one-year warranty when you buy a GlideScope AVL system. You can also buy a Premium Customer Care℠ warranty that can extend your warranty for up to five (5) years from date of purchase.

Single Use & Reusable

Original First Year Total Customer Care Warranty

Verathon® warrants the GlideScope AVL system against defects in material and workmanship. This warranty applies for one (1) year from the date of shipment from Verathon. This warranty applies only to the original purchaser of the GlideScope system. If a customer's system requires service or repair, Verathon will either replace or provide a loaner unit within one (1) business day from the date of customer service notification. The customer agrees to send the defective unit to Verathon (cleaned and disinfected as appropriate) upon receipt of the loaner unit, and the customer agrees to return the loaner unit within two (2) business days of receipt of the repaired unit.

- This warranty provides coverage for damage from accidental drops or mishandling. It does not cover damage due to deliberate mishandling.
- This warranty does not apply if the product has been damaged due to, or as the result of, service or modification by anyone other than an authorized Verathon Service Center.
- This warranty does not apply if there is evidence of the equipment being exposed to temperatures in excess of 60 °C.
- All exchange parts become property of Verathon.

The product shall be used in accordance with the instructions contained in this User's Manual. Consumable items (e.g., endotracheal tubes, Stats, stylets, etc.) shall be used in conformance with Verathon product specifications. Consumable items are not covered under this warranty.

What is covered?

Warranty coverage is extended to the GlideScope AVL system:

- Video monitor including display connector cable
- GlideScope AVL video baton
- GlideScope AVL Reusable video laryngoscope

Additional video batons or reusable laryngoscopes purchased either singularly or as a part of a system must be warranted separately.

Additional video monitors purchased either singularly or as part of a system must be warranted separately.

Premium Customer Care Warranty

The Premium Customer Care℠ warranty from Verathon Medical may be extended for a total of up to five (5) years from date of purchase.

Disclaimer of Additional Warranties

There are no understandings, agreements, representations of warranties expressed or implied (including warranties of merchantability or fitness for a particular purpose) other than those set forth in the preceding Warranty section. The contents of this manual do not constitute a warranty.

Some states disallow certain limitations on applied warranties. The purchaser, user, and patient should consult state law if there is a question regarding this disclaimer. This information, descriptions, recommendations, and safety notations in this manual are based upon Verathon® experience and judgment with GlideScope systems as of July 2013. The contents of this manual should not be considered to be all-inclusive, or to cover all contingencies.

Single Use & Reusable

GlideScope Direct Intubation Trainer

Figure 35: GlideScope Direct Intubation Trainer

Product Information

Product Description

The GlideScope Direct intubation trainer is designed to work with the GlideScope AVL video laryngoscope. The Glidescope Direct resembles a traditional Macintosh direct laryngoscope with the addition of a video camera near the end of the blade, permitting both direct laryngoscopy and a video display of the airway. This provides the user with a laryngeal view, permits mentoring by an instructor, and combined with the AVL allows the image to be captured for documentation, quality control and teaching.

The Glidescope Direct intubation trainer does not provide the same benefits of GlideScope AVL video laryngoscopes in settings when a line-of-sight cannot be achieved. Typically, these occur in patients with difficult (Cormack-Lehane grade 3 or 4) airways. It will, however, facilitate the instruction of direct laryngoscopy. Should the GlideScope Direct fail to provide an adequate laryngeal view, traditional adjuncts such as external laryngeal pressure or the use of gum elastic bougie can be attempted. Alternatively, the airway manager can easily convert to a GlideScope AVL video baton and GVL® Stat for an optimal view.

Warnings

1. Product is NON-STERILE - Clean and High Level Disinfect before use.
2. DO NOT use if the product appears damaged - INSPECT before use.
3. If the GlideScope Direct is powered on for an extended period of time, it is possible for the surface temperature to exceed 41°C at the tip of the blade where the lighting and camera are located.

For additional cautions, **Notice to All Users (Cautions, Warnings)**.

Intubation Trainer

About the GlideScope Direct Intubation Trainer

The GlideScope Direct Intubation Trainer is designed to work with the GlideScope AVL video laryngoscope. It is connected to a AVL monitor using the circular connector at the end of the cable extending from the top of the handle.

Setup and use of the monitor is the same.

Figure 36: GlideScope Direct Intubation Trainer

To connect the GlideScope Direct to the GlideScope Video Monitor:

1. Align the arrow on the GlideScope Direct cable with the arrow on the monitor video socket.
2. Insert the cable into the socket. You will hear a “click” when the cable is successfully connected.

Intubation Trainer

Instructions for Use

RECOMMENDED techniques for use of the GlideScope Direct intubation trainer are as follows:

Teaching Method #1

The use of a right-sided approach to the mouth, pharynx, and glottis.

1. The patient is optimally positioned with either extension of the neck or a “classic sniffing position.”
2. The mouth is opened and efforts are made to minimize contact with the lips and teeth. The GlideScope Direct is introduced along the right side of the tongue which is displaced leftward.
3. The GlideScope Direct is advanced along the tongue base until the epiglottis is seen. The GlideScope Direct tip is placed in the vallecula lifting the epiglottis by tension on the hyoepiglottic ligament.
4. A direct line-of-sight to the glottis may be achieved by elevation of the epiglottis. The laryngoscopist can view this directly. The instructor can observe the progress on the video monitor.
5. The use of a stylet is optional. The laryngoscopist attempts to introduce the endotracheal tube through the vocal cords.

Teaching Method #2

The use of a midline approach to the mouth, pharynx, and glottis.

1. The patient is optimally positioned with either extension of the neck or a “classic sniffing position.”
2. Using the GlideScope Direct, the operator then enters the midline of the mouth attempting to see directly to the epiglottis (guide to the glottis) and then the GlideScope Direct tip is placed in the vallecula lifting the epiglottis by tension on the hyoepiglottic ligament.
3. The student now attempts to gain a line-of-sight of the glottis while the instructor observes the student’s progress on the video monitor.
4. Where necessary, the student may also observe the video view.

PRIOR TO REUSE, CLEAN AND HIGH LEVEL DISINFECT THE GLIDESCOPE DIRECT.

Intubation Trainer

To Disconnect the GlideScope Direct

To disconnect the GlideScope Direct from the GlideScope Video Monitor, rotate the black connector ring in the direction of the arrow on the ring (**Figure 37**).

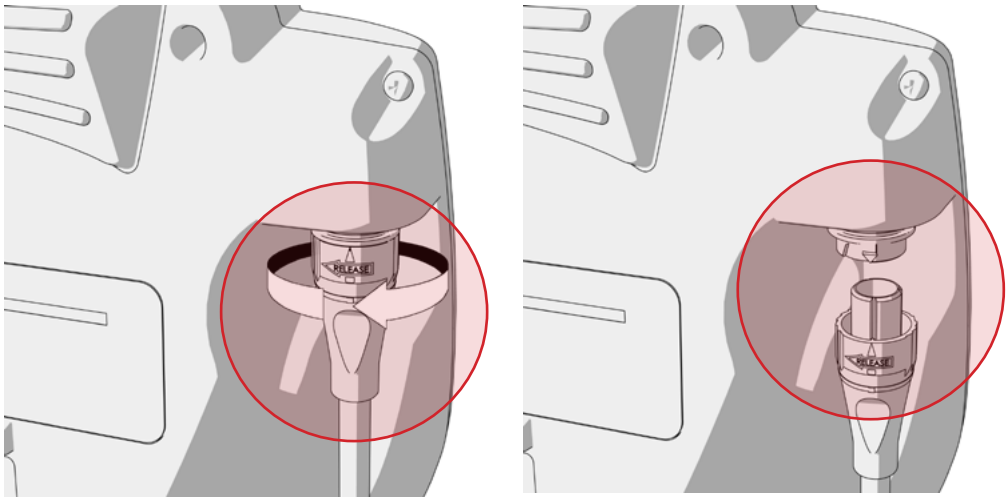


Figure 37: Back of the AVL monitor

Cleaning, Disinfecting & Maintaining the GlideScope Direct

Cleaning the GlideScope Direct intubation trainer is an important part of maintaining the system. Make sure that the system is clean and has been high-level disinfected before each use. For additional information, see **General Cleaning and Disinfection Information - Reusable**.

Specifications, Standards and Approvals for GlideScope Direct

General Specifications	
Classification:	Electrical Class II, Applied Part BF when it is connected to the GlideScope Video Monitor.
DC Power Supply	12V DC, 2.5A max – through the cable connected to the monitor
Electrical Standards and Approvals	
CSA Requirements met (Master Contract # 213281), CSA Certificates issued.	
CB Scheme requirements met (CB Bulletin 112a), CB Test Certificates issued	
CE Marking in accordance with the Medical Device Directive	
VCCI Technical V-3	

GlideScope Direct Product Specifications

Length (blade tip to camera)..... 119 mm Height at camera ..... 15 mm Width at camera ..... 23 mm Max blade width in front of camera..... 23 mm Weight ..... ~600 grams	

Intubation Trainer

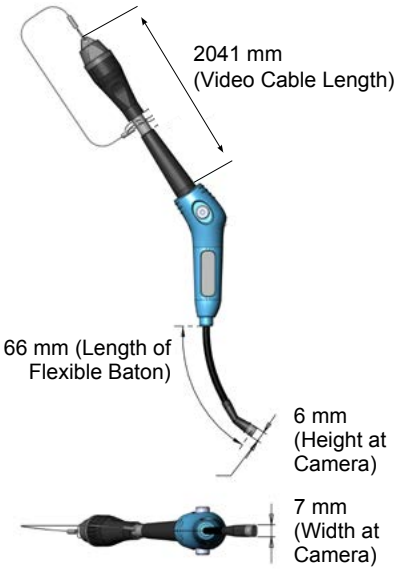
Symbol Directory - Single Use & Reusable

Symbol	Meaning
	Type BF equipment
	Class II Electrical equipment
CE 0413	CE marking in accordance with the Medical Device Directive
	Canadian Standards Association (CSA) mark of certification to applicable standards for electromedical equipment
	Tested to Federal Communications Commission Requirements
	Subject to WEEE (Waste of Electronic Electrical Equipment) regulations
	Refer to User Manual
	Warning or Caution - consult accompanying documents. Read instructions before connecting or operating. Pay special attention.
	Manufacturer of the Product
EC REP	European Representative
STERILE R	Sterilization by radiation

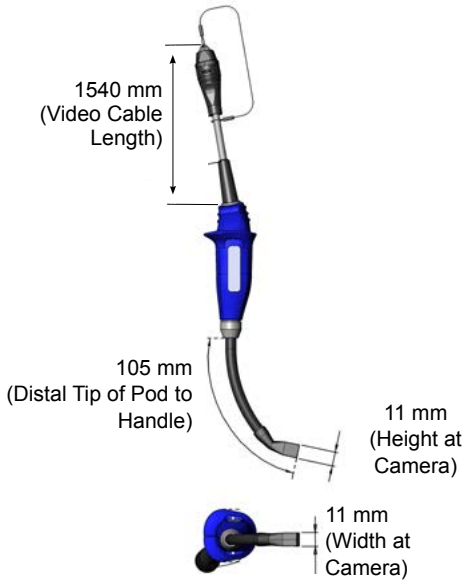
Single Use & Reusable

Product Specifications - Single Use

AVL Video Baton 1-2
Distal Tip of Pod to Handle.....66 mm
Height at camera .....6 mm
Width at camera .....7 mm
Video Cable Length .....2041 mm
Weight .....180 g



AVL Video Baton 3-4
Distal Tip of Pod to Handle .....105 mm
Height at camera .....11 mm
Width at camera .....11 mm
Video Cable Length .....1540 mm
Weight .....156 g

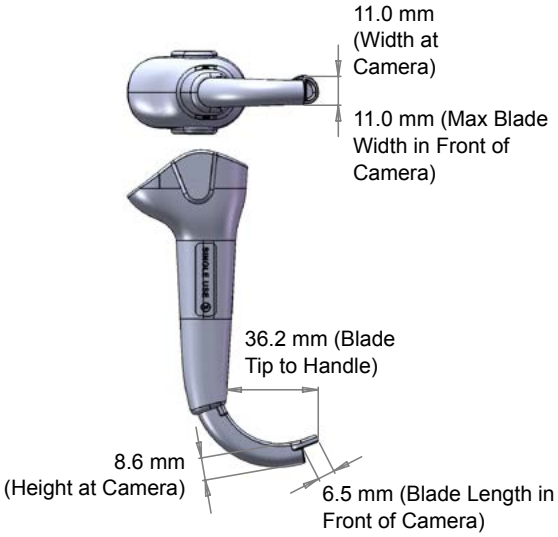


Single Use

Product Specifications - GlideScope AVL Single Use System

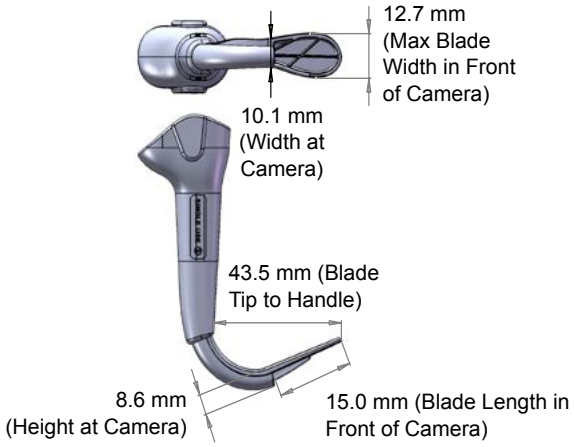
GVL® 0 Stat

Blade Tip to Handle .....36.2 mm
Height at camera .....8.6 mm
Width at camera .....11.0 mm
Blade length in front of camera.....6.5 mm
Max blade width in front of camera..11.0 mm



GVL 1 Stat

Blade Tip to Handle .....43.5 mm
Height at camera .....8.6 mm
Width at camera .....10.1 mm
Blade length in front of camera.....15.0 mm
Max blade width in front of camera .12.7 mm



Single Use

Product Specifications - GlideScope AVL Single Use System

GVL® 2 Stat
Blade Tip to Handle .....55.7 mm
Height at camera .....8.6 mm
Width at camera .....11.2 mm
Blade length in front of camera.....28.0 mm
Max blade width in front of camera .16.0 mm

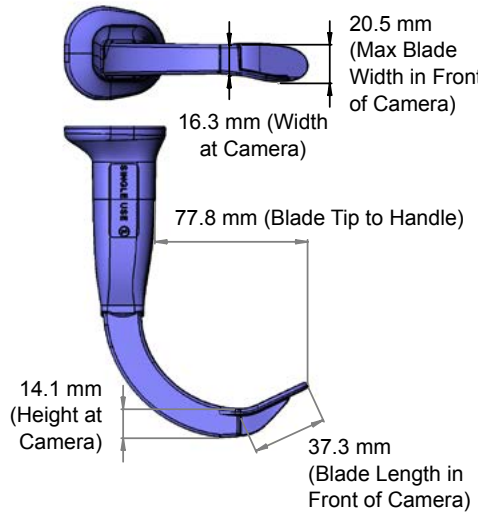
GVL 2.5 Stat
Blade Tip to Handle .....63.4 mm
Height at camera .....9.1 mm
Width at camera .....12.7 mm
Blade length in front of camera.....37.0 mm
Max blade width in front of camera .19.7 mm

Single Use

Product Specifications - GlideScope AVL Single Use System

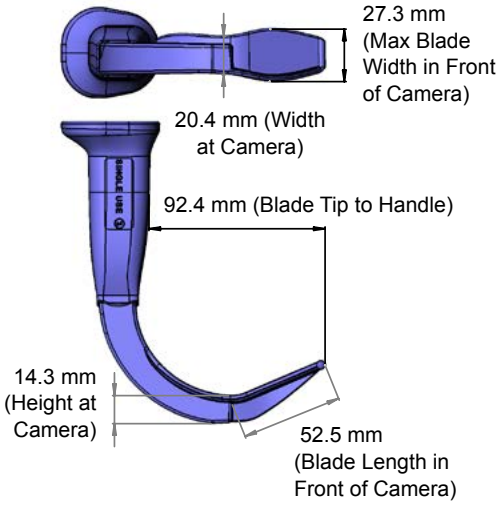
GVL® 3 Stat

Blade Tip to Handle .....77.8 mm
Height at camera .....14.1 mm
Width at camera .....16.3 mm
Blade length in front of camera.....37.3 mm
Max blade width in front of camera .20.5 mm



GVL 4 Stat

Blade Tip to Handle .....92.4 mm
Height at camera .....14.3 mm
Width at camera .....20.4 mm
Blade length in front of camera.....52.5 mm
Max blade width in front of camera .27.3 mm



Single Use

Product Specifications - GlideScope AVL Single Use System

AVL Monitor TFT Color, VGA 640 x 480 Monitor .....6.4 in Height .....183.3 mm Width .....223 mm Depth .....79 mm Weight .....1.1 kg	
GlideRite® Rigid Stylet Handle Length .....82 mm Handle Width .....16 mm Stylet Rod Length ..... 266 mm Distal Tip Diameter .....5 mm	
IV Pole Mount Weight .....0.9 kg Arm Length .....27 cm Width .....6.2 cm	
Mobile Stand Base height .....12.5 cm Base weight .....2.5 kg Base diameter .....61 cm Pole height range .....75–119 cm Pole weight .....0.7 kg	

Single Use

Product Specifications - GlideScope AVL Single Use System

General Specifications	
Classification:	Electrical Class II, Applied Part BF
Line Voltage:	Range: 100–240 VAC, 50 and 60 Hz. Connect to a medical grade power supply
DC Power Supply:	12V DC, 2.5A max
Fuse:	Internal 2.5A Hold / 5A Trip, 15V max

Operating and Storage Specifications

Operating Conditions

Temperature.....10 °C to 40 °C
Relative Humidity.....0 to 95%
Atmospheric Pressure.....540–1060 hPa

Shipping and Storage Conditions

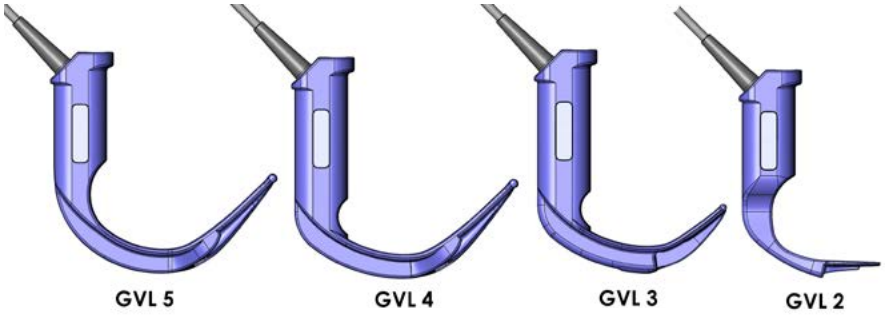
Temperature.....-20 °C to 45 °C
Relative Humidity.....0 to 95%
Atmospheric Pressure.....440–1060 hPa

Standards and Approvals
CMDCAS ISO 13485, Certificate No. 9235
EC Certificate for Class I sterile Stats, Certificate No. 41315937
CSA Requirements met (Master Contract # 213281), CSA Certificates issued
CB Scheme requirements met (CB Bulletin 112a), CB Test Certificates issued
CE Marking Medical Devices Directive
VCCI Technical V-3

Single Use

Product Specifications - Reusable

Sizes, Specifications, Standards and Approvals



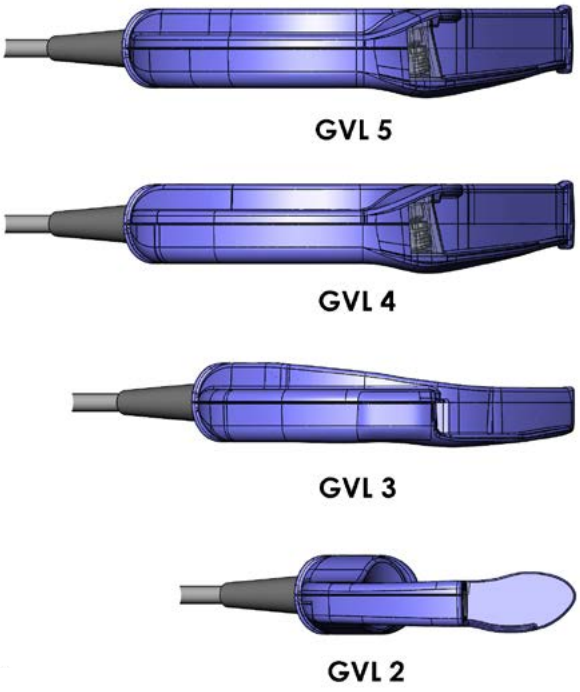


Figure 38

Reusable

Product Specifications - AVL Reusable Video Laryngoscope

General Specifications	
Classification:	Electrical Class II, Applied Part BF
Line Voltage:	Range: 100–240 VAC, 50 and 60 Hz. Connect to a medical grade power supply
DC Power Supply:	12V DC, 2.5A max
Fuse:	Internal 2.5A Hold / 5A Trip, 15V max

Operating and Storage Specifications

Operating Conditions

Temperature.....10 °C to 40 °C
Relative Humidity.....0 to 95%
Atmospheric Pressure.....540–1060 hPa

Shipping and Storage Conditions

Temperature.....-20 °C to 45 °C
Relative Humidity.....0 to 95%
Atmospheric Pressure.....440–1060 hPa

Standards and Approvals

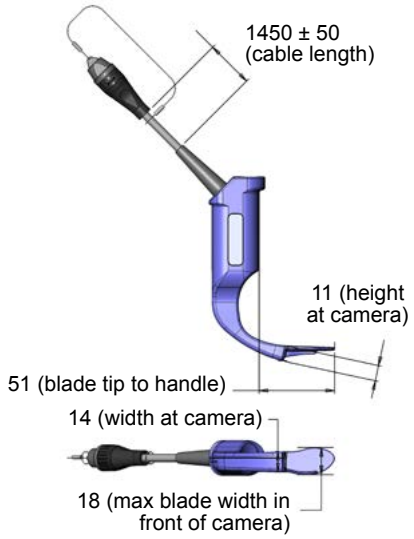
- CMDCAS ISO 13485, Certificate No. 9235
- EC Certificate for Class I sterile Stats, Certificate No. 41315937
- CSA Requirements met (Master Contract # 213281), CSA Certificates issued
- CB Scheme requirements met (CB Bulletin 112a), CB Test Certificates issued
- CE Marking Medical Devices Directive
- VCCI Technical V-3

Reusable

Product Specifications - AVL Reusable Video Laryngoscope

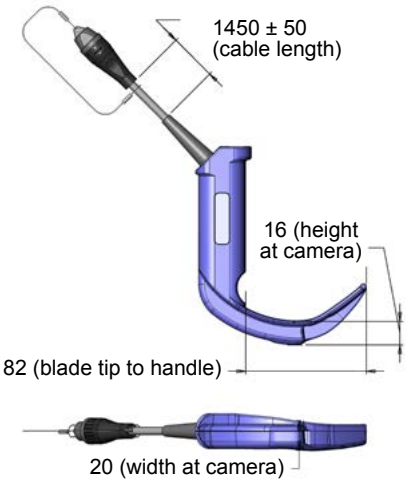
GVL 2

Cable Length: ~1450 mm
Height at Camera: 11 mm
Blade Tip to Handle: 51 mm
Width at Camera: 14 mm
Max Blade Width in front of Camera: 18 mm



GVL 3

Cable Length: ~1450 mm
Height at Camera: 16 mm
Blade Tip to Handle: 82 mm
Width at Camera: 20 mm
Max Blade Width in front of Camera: N/A

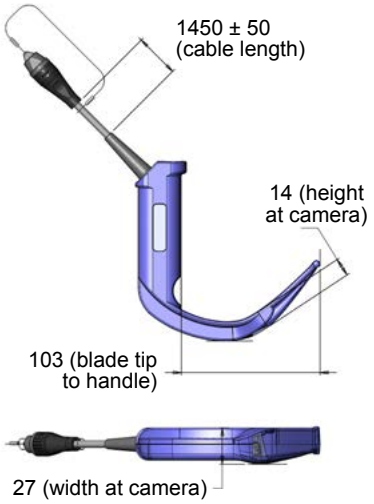


Reusable

Product Specifications - AVL Reusable Video Laryngoscope

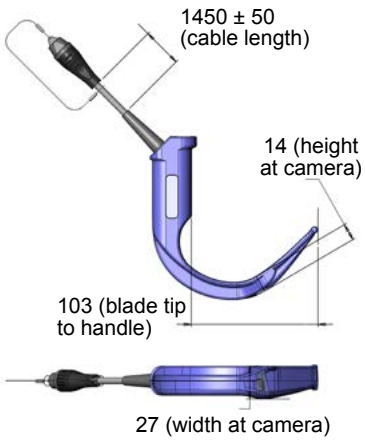
GVL 4

Cable Length: ~1450 mm
Height at Camera: 14 mm
Blade Tip to Handle: 103 mm
Width at Camera: 27 mm
Max Blade Width in front of Camera: N/A



GVL 5

Cable Length: ~1450 mm
Height at Camera: 14 mm
Blade Tip to Handle: 103 mm
Width at Camera: 27 mm
Max Blade Width in front of Camera: N/A



Reusable

Parts & Accessories

Parts and Accessories

Part Description	Part Number (available for order)
GlideScope Video Monitor	0570-0338
GlideScope AVL Video Baton 1-2	0570-0312
GlideScope AVL Video Baton 3-4	0570-0313
GlideScope Direct Intubation Trainer	0574-0103
GlideScope AVL System	0270-0656
GlideScope AVL System (Intl.)	0270-0657
GVL 4 Stat, Qty 10	0270-0628
GVL 3 Stat, Qty 10	0270-0626
GVL 2.5 Stat, Qty 10	0270-0709
GVL 2 Stat, Qty 10	0270-0429
GVL 1 Stat, Qty 10	0270-0428
GVL 0 Stat, Qty 10	0270-0679
GVL 4 Stat, Qty 100	0270-0629
GVL 3 Stat, Qty 100	0270-0627
GVL 2.5 Stat, Qty 100	0270-0710
GVL 2 Stat, Qty 100	0270-0431
GVL 1 Stat, Qty 100	0270-0430
GVL 0 Stat, Qty 100	0270-0680
GVL 2 - (AVL Reusable)	0574-0118
GVL 3 - (AVL Reusable)	0574-0115
GVL 4 - (AVL Reusable)	0574-0116
GVL 5 - (AVL Reusable)	0574-0117
AVL Video Baton 3-4 Kit (includes Stat)	0270-0662
AVL Video Baton 1-2 Kit (includes Stat)	0270-0663
GlideRite® Rigid Stylet, Qty of 10	0270-0681
GlideScope GVL® Cradle	0810-0126
GlideScope Video Baton Cradle 1-2	0810-0151
GlideScope Video Baton Cradle 3-4	0810-0134
AVL Mobile Stand	0800-0410
AVL IV Pole Mounting Kit	0810-0200
Universal Accessory Basket	0810-0201
AVL Video Monitor 12V DC Power Adaptor	0400-0105
HDMI to DVI Cable, 6m	0600-0533

Contact Information

To obtain additional information regarding your GlideScope AVL system, please contact Verathon Medical Customer Care at:

Corporate Headquarters: 20001 North Creek Parkway Bothell, WA 98011 U.S.A. 800.331.2313 (US and Canada only) 425.867.1348 Fax: 425.883.2896 verathon.com	EC REP Verathon Medical (Europe) B.V. Linnaeusweg 11 3401 MS IJsselstein The Netherlands +31.30.68.70.570 Fax: +31.30.68.70.512 verathon.eu
Manufacturer: Verathon Medical (Canada) ULC 2227 Douglas Road Burnaby, BC V5C 5A9 Canada 604.439.3009 Fax: 604.439.3039	