



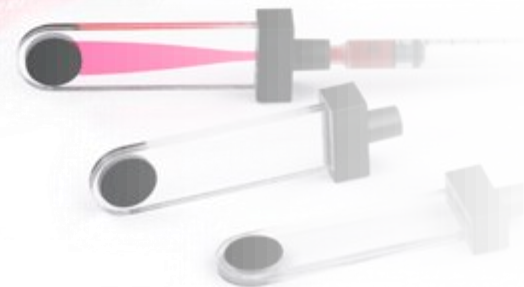
**GVH** GRAND VIEW HEALTH

# AVOX 1000E

Whole blood oximetry

Tutorial

Policy Manager #3700



# Intended Use:

- The ***AVOXimeter 1000E*** is a battery-operated bedside whole blood oximeter that performs individual point-of-care measurements of oxyhemoglobin saturation (%HbO<sub>2</sub>) and total hemoglobin concentration [THb] on lithium/sodium or heparin or EDTA anticoagulated whole blood samples. Oxygen content [O<sub>2</sub>] of the blood sample is automatically calculated from the %HbO<sub>2</sub> and THb measurements.

## Test Cuvettes

Tests are performed with single-use disposable test cuvettes (Figure 3). Each test cuvette contains a finger grip, filling port, optical window, and a vent patch.

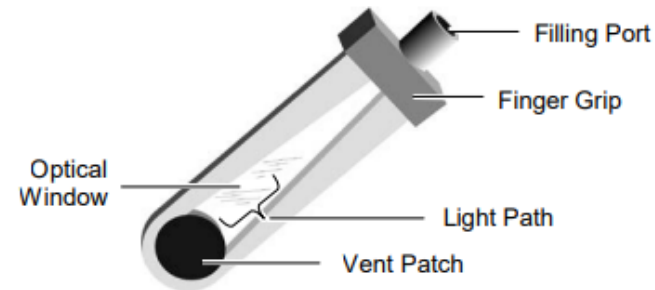


Figure 3. Test Cuvette

A whole blood sample is inserted into a test cuvette by connecting a luer lock syringe, slip syringe or capillary tube containing the whole blood sample to the filling port and then gently pressing the syringe plunger to dispense approximately 50  $\mu\text{L}$  of whole blood into the test cuvette. Air escapes from the vent patch at the end of the test cuvette while the whole blood sample is being inserted. The test cuvette (with the syringe still attached) is then inserted into the test chamber of the instrument (see page 28 for details).

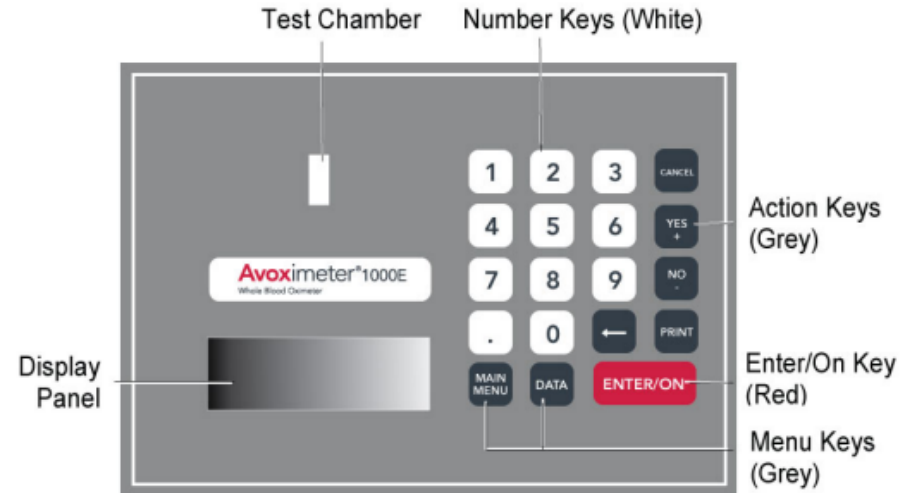
**Note:** *Be sure to handle the cuvette either by the edges or by the finger grip. Refer to the package insert accompanying the test cuvettes for storage and handling instructions.*



- Remove any blood or debris from the exterior of the test cuvette before inserting it into the test chamber.
- After filling the cuvette with blood, inspect the vent patches to ensure they are not bulging out. If a vent patch protrudes, discard the cuvette. **Do not insert a cuvette with a protruding vent patch into the test chamber.**



**BIOHAZARD WARNING:** Any items exposed to human blood, plasma or serum must be handled cautiously as a biohazardous material in accordance with laboratory safety practices and federal and local regulations. Federal, state and local laws and regulations require that hazardous waste be disposed of in a specific manner. Waste material from the *AVOXimeter 1000E* which may be classified as biohazardous include used cuvettes. It is important that steps be taken to dispose of these materials in accordance with the prevailing regulations in your location.



## Keypad

The routine analysis of blood samples does not require the use of menus or the numeric keypad. However, these enable the user to take advantage of many useful features.

The purpose of each key is summarized below:

| Key | Purpose   |
|-----|---|
|     | Switch the instrument on. Select a command.   |
|     | Display a menu of commands for calibration, printing, stored data, and shutdown.  |
|     | Display a menu of commands for entering hemodynamic variables, entering device settings, entering the time and date, viewing battery status, and managing data. |
|     | Print the results that are displayed.   |
| and | Respond to questions that are displayed.  |
|     | Backspace over a numerical entry (such as a QC lot number) so that it can be corrected.   |
|     | Return to the previous menu.  |
|     | Enter characters for Operator IDs or Patient IDs. Enter a character for selection of a command.   |

# EQC

## QUALITY CONTROL:

Quality control testing will consist of daily readings on yellow and orange optic filters, weekly liquid readings and bi-annual linearity testing.

QC will be performed on weekends and holidays if the machine will be used during a case. Every effort must be made to perform QC prior to an emergent case.

### Daily Calibration:

Each day of use complete the following.

- a. Wipe off one of the cuvette shaped **yellow or orange optical filters**.
- b. Observe that the AVOXimeter is displaying its **READY** message.
- c. Insert the optical filter into the AVOXimeter
- d. **User ID (Y/N)** if correct ID enter Yes, if not enter No and enter the correct User ID
- e. Wait until the readings appear on the display.
- f. Repeat steps "**a**" through "**d**" for the other filter.
- g. If all four readings fall within the ranges shown, the AVOXimeter passes both the "Quick Cal Check" and the test for spilled blood. If any one of the 4 readings falls outside the acceptable range, the AVOXimeter fails and should not be used for clinical studies until the problem has been remedied. Ranges below:

|               |                   |                       |
|---------------|-------------------|-----------------------|
| <b>Yellow</b> | %HbO2             | THb                   |
|               | <b>93.5-96.5%</b> | <b>7.7-8.3 g/dL</b>   |
| <b>Orange</b> | %HbO2             | THb                   |
|               | <b>37.2-40.8%</b> | <b>16.4-17.6 g/dL</b> |



## Patient Specimen testing using the **AVOX1000e**

- From Ready Screen
  - Prepare cuvette
  - Insert cuvette with rough vent patch to the left
  - Verify correct operator ID, change, if necessary, enter
  - If prompted, label site yes, choose site and subsite
  - Enter Patient ID, enter last 7 digits of V number, drop leading zeros (e.g. V00009380240 is entered as 9380240), correct ID yes
  - Record results
-

## Sample Collection

Collect ***freshly-drawn whole blood*** samples in a heparin- or EDTA-anticoagulated syringe. Do not use samples that contain excessive volumes of anticoagulant or are diluted with saline.

Note: Refer to CLSI document H18-A3, entitled “Procedures for the Handling and Processing of Blood Specimens – Approved Guideline, Third Edition” for additional information on sample collection

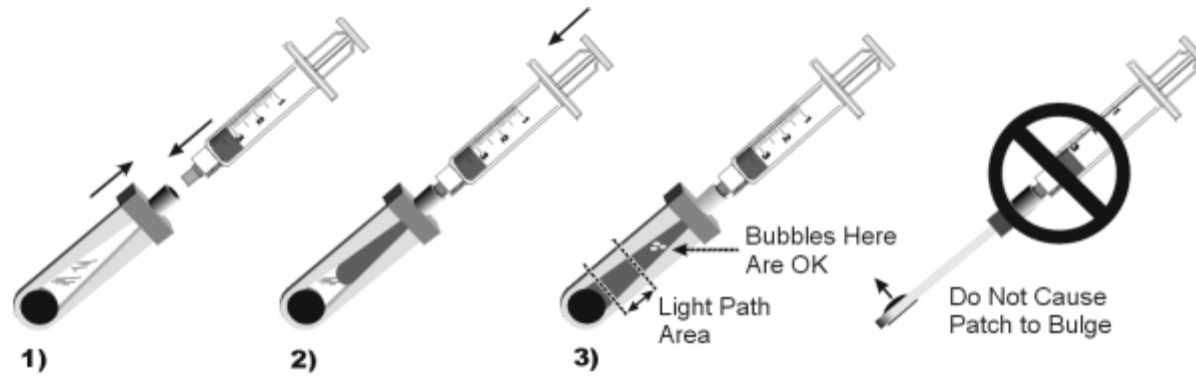
## Sample Preparation

1. If the sample was not infused into the cuvette immediately after blood draw, mix the whole blood sample by rolling the syringe between the palms of your hands.
2. Connect a syringe containing the sample to an unused cuvette. Hold the cuvette by means of the finger grip on the black cap (see next slide).
3. Firmly holding the syringe and cuvette at a 45° angle, fill the cuvette by gently pressing the syringe plunger.

*CAUTION: Never force sample into the cuvette. If a cuvette does not fill easily, discard it and use a new one.*

4. Fill cuvette until the sample fills the cuvette to the opposite end. Do not continue to fill the cuvette and cause the vent patch to bulge.

5. Verify that the light path area is free of bubbles.
6. Remove any sample from the exterior of the cuvette before placing the cuvette (with syringe still attached) into the test chamber.





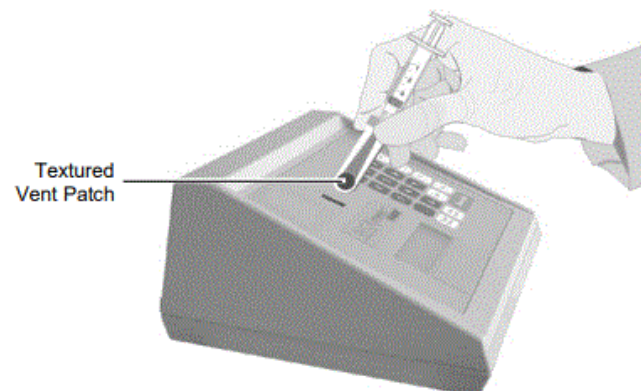
## Running a Test

1. Enter the User ID and/or Patient ID
2. Verify that the instrument is ready to run a test and that the **"READY" - "Insert Cuvette"** screen is displayed:

```
---READY---  
Insert Cuvette  
Pt. ID:      None  
User ID:     None
```

3. Holding the cuvette by the finger grip on the black cap, insert the cuvette (with the syringe still attached) into the test chamber, as shown below.

**Important:** *Always keep the syringe attached when inserting the cuvette into the test chamber. Removing the syringe may cause inaccurate results.*



**Note:** If an optical quality control test is being run, insert the yellow or orange filter instead of the cuvette. If use of oximetry sites is enabled enter the site information when prompted.



**CAUTION:** *Never inject sample directly into the test chamber.*



**CAUTION:** *Carefully review the additional precautions on page 9. of Operator's Manual*

4. Test results are displayed within ten seconds:

```
Sample # 49  
%HbO2 = 94.8 %  
[O2] = 18.6 ml/dl  
[THb] = 14.1 g/dl
```

5. Holding the cuvette by the finger grip on the black cap, remove the cuvette from the test chamber.

## References:

Policy Manager #3700 Whole Blood Oximetry located on The Insider

AVOX 1000E Whole Blood Oximeter Operator's Manual  
copy located on Lab shared drive [avoximeter\\_1000e.pdf](#)

Reviewed 5/2024 DMK/POC