

**STANDARD OPERATING PROCEDURES**  
**DIVISION OF COMPARATIVE MEDICINE**  
**UNIVERSITY OF SOUTH FLORIDA**

SOP#: 1108.3

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<b>TITLE:</b>	<b>Surgi-Vet Advisor® Veterinary ECG/S<sub>P</sub>O<sub>2</sub> Monitor/Recorder</b>
<b>SCOPE:</b>	Research and Animal Care Personnel
<b>RESPONSIBILITY:</b>	Facility Manager, Professional and Administrative Staff
<b>PURPOSE:</b>	To Outline the Proper Procedures for Use and Maintenance of a Veterinary ECG/S <sub>P</sub> O <sub>2</sub> Monitor/Recorder

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**I. PURPOSE**

1. This procedure outlines the use and maintenance of a veterinary ECG/S<sub>P</sub>O<sub>2</sub> Monitor/Recorder to continuously monitor and record the electrical activity of the heart and oxygen saturation of blood in a variety of species.

**II. RESPONSIBILITY**

1. It is the responsibility of the Facility Manager i to ensure that equipment is appropriately cleaned, maintained in good working order, and available for research personnel as requested.
2. It is the responsibility of the veterinary professional, administrative, and managerial staff to ensure that all research and technical staff using this equipment are adequately trained and experienced to perform veterinary ECG/S<sub>P</sub>O<sub>2</sub> Monitor/Recorder.

**III. EQUIPMENT USE - ECG**

1. Push power button on front of unit; will automatically enter ECG/S<sub>P</sub>O<sub>2</sub> mode (both) to display one channel ECG and one channel pulse wave forms, heart rate, and S<sub>P</sub>O<sub>2</sub> rate.
2. Set wave form speed by pressing select key to display main menu and push select key to choose wave; enter key to wave sub-menu; push select to choose speed and enter key to set.
3. Set ECG sensitivities by select key to display main menu and push select key to choose gain; enter key to enter gain sub-menu; use arrow key to select and push enter key to set. NOTE: Default is 1. This makes the unit able to display and print out large tracings even when ECG signal is very weak. When recording on small animals, set at 4 or 8. Medium to large animals, gain can be set at 1 or 2. If signal is very strong, set gain at ½ to prevent wave form from being saturated (can be observed at peak of R-wave if it is cut flat).

**IV. EQUIPMENT USE - S<sub>P</sub>O<sub>2</sub> PULSE OXIMETRY**

1. Blue sensor for use on tongue' position at the center of the tongue. On thin dog ears, use a piece of gauze to wrap the ear or fold the ear and then clip on the sensor. NOTE: if the sensor is not picking up valid pulses, put a piece of gauze

between sensor and tongue or wrap tongue with gauze and then apply sensor.

2. If sensor is not picking up any signal at a particular site, remove the sensor, close the sensor clip for several seconds and reposition. The two sides of the clip must touch each other for several seconds.

## **V. SET UP – EKG**

1. Apply alligator clips to legs of animal in an area with extra skin EG axillary region.
2. Lead II white clip on R front leg (arm), green clip on R rear leg, red clip on L rear leg. (also printed on base of electrodes plug) See manual for lead I or III set if needed.
3. Wet alligator clip with Surgilube®.
4. Do not allow legs to touch each other as this may give false or unusual readings.

NOTE: Use of electrocautery unit on patient will give unusual readings.

## **VI. EQUIPMENT USE - PRINTER**

1. Push select key to display main menu; push select key to choose print.
2. Push enter key to enter print sub-menu.
3. Push select key to choose wave, trend, or both (wave and trend); default setting is wave.
4. Turn power of printer on; load paper.
5. One push on the print key will make the unit start printing. NOTE: At 50 mm/s, the ECG tracings are 7.5 seconds of data recorded immediately before pushing the print key; at 25 mm/s, it is 15 seconds of data.
6. Push freeze key to freeze wave forms on screen; push freeze again to release wave forms.
7. Push on/off key to deactivate “beep” sound and audio alarm; unit will indicate an alarm and its type on the screen.

## **VII. MAINTENANCE**

1. Inspect condition of unit and electrical cord/plug to ensure safe operation. Equipment determined to be unsafe will be removed from service immediately.
2. Clean unit and sensors by wiping with mild disinfectant and soft cloth. NOTE: sensors are delicate, do not immerse in liquid, and do not drop.
3. Any additional maintenance/service should be performed by authorized personnel.

## **VIII. CALIBRATION**

1. Calibration ensures that the ETCO<sub>2</sub> and CO<sub>2</sub> measurements are accurate and is performed **once a month** when unit is in-service and prior to use if frequency is less than monthly.
2. Use only the calibration canister and flow regulator supplied with or specifically intended for this device. The device has 2 calibration modes: Low calibration (zero cal) and low/high calibration (HILO cal).
3. **Low calibration:**
  - a. Turn on the device.
  - b. Select the **CO<sub>2</sub>** parameter box
  - c. Select "**ZERO CAL**" from the menu options. The menu bar returns to the main menu after "**ZERO CAL**" is selected.
  - d. The following message appears in the parameter box area, "**LO CAL IN PROGRESS.**"
  - e. When the unit is finished, a "**CAL DONE**" message will appear.
4. **Low/High Calibration**
  - a. Disconnect the patient attachment from the leur lock adapter.
  - b. Turn on the device.
  - c. Attach calibration gas canister with hosing to the gas inlet on the monitor. Ensure the gas canister is OFF.
  - d. Select **CO<sub>2</sub>** parameter box. Select "**HILO CAL**" from the menu bar options and follow the directions in the parameter box display message area. The menu bar will return to the main menu after "**HILO CAL**" is selected.
  - e. After the message "**TURN GAS ON**" appears, quickly open the flow control valve on the calibration gas canister. The valve must be fully opened in less than 30 seconds.
  - f. When the message "**TURN GAS OFF**" appears, close the flow control valve of the calibration gas canister.
  - g. When the "**CAL DONE**" message appears the unit is done. Disconnect the calibration gas fixture.
5. An unsuccessful calibration procedure causes an error message to appear. Operation resumes using old calibration data.
6. Calibration is documented on **CMDC 205, Anesthesia Machine Hang Tag** with the date of calibration.
7. Record date, initial, and circle the appropriate maintenance interval on the anesthetic machine hang tag to indicate that all items/actions for that interval were completed.

## IX. REFERENCES

1. Refer to the manufacturer's manual for additional information.

**Approved:**

**Date:**