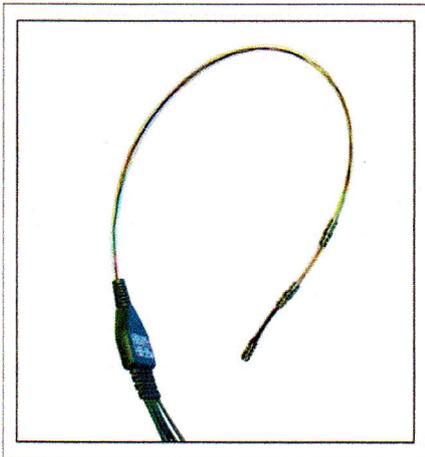


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Esophageal Probe Manual



1. Overview

The Esophageal Probe (E-Probe) has been developed for monitoring cardiac function, respiratory activity and body temperature for doctors and technicians of veterinary medicine. The E-probe provides added flexibility for its practitioners by allowing them to simplify the method in which the required parameters are gathered.

The E-probe serves three functions:

- A) monitors ECG and heart rate
- B) monitors respiration rate
- C) monitors body temperature

The E-probe has many benefits such as:

- A) convenience
- B) time saving
- C) anchors and secures sensors and probes
- D) simplifies the management of multiple cables

When the probe is applied with knowledge and skill, the practitioner will find the E-probe dramatically increases their efficiency and productivity, while maintaining the life signs of their patient.

2. Application

The E-probe comes in three different sizes:

- A) Extra Small: Length of sensor = 61cm, Diameter of sensor = .6cm
- B) Small: Length of sensor = 56cm, Diameter of sensor = .7cm
- C) Large: Length of sensor = 89.5cm, Diameter of sensor = .8cm

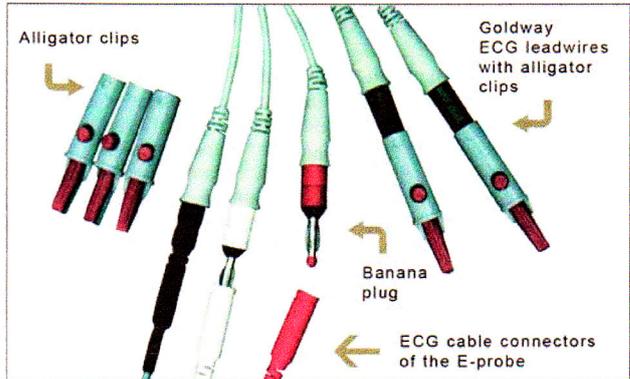
The E-probe functions and connects seamlessly to Lutech and Goldway series of multi-parameter monitors. However, the universal connector allows connection to most vital signs monitors used today.

- The extra small E-probe should be applied to patients under 10 lbs.
- The small E-probe should be applied to patients under 30 lbs.
- The large E-probe should be applied to patients over 30 lbs.

The above are only general guidelines and individual results may vary depending on the animal, breed and morphology.

3. Connecting the E-Probe

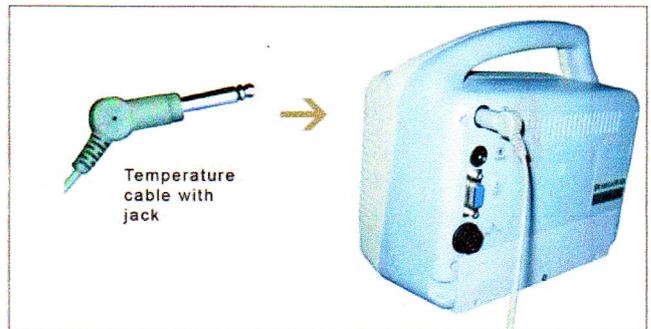
Connect the ECG lead wires to the ECG cable connectors of the E-probe by matching up the colored cords. Lutech ECG cables have a removable set of alligator clips. When these clips are removed the banana plugs connect seamlessly to the ECG cable connectors of the E-probes.



Other brands may not have removable alligator clips. These brands will be able to connect to the E-probe using their own alligator clips by attaching it to the universal connectors, which comes with your Lutech E-probe. Make sure the colors match up.



The E-probe also has a temperature cable with a jack. The jack also connects seamlessly to the Lutech monitors. Other brands may not have the necessary port to accept the jack. In some cases an adaptor may be used. However, Lutech does not recommend modifying the connector jack beyond the use of a small or large store bought adaptor.



4. Applying the E-Probe

The front end of the E-probe should be moistened with mineral water before insertion into the esophagus of the patient. The monitor should be powered up and the depth of the E-probe should not exceed beyond the chest cavity. Gentle pressure will insert the E-probe until the QRS waveform is visible on the screen.

If the QRS waveform is inverted, the E-probe has been inserted too far. Simply reposition the E-probe until the QRS waveform is corrected.

The E-probe will also pickup respiration rate through impedance and

the rate and waveform will be visible on the monitor screen. The thermistor located on the E-probe will provide core temperature, if and only if, the temperature jack is connected properly.

5. Setting the ECG Lead Option

The Lutech monitors have ECG lead options in their menus. The ECG lead must be set on lead II. Lutech recommends that each monitor be set to lead II, otherwise the E-probe will not perform properly.

Other brands of monitors will also need to be adjusted according to these instructions, but individual circumstances may vary.

6. Setting the Respiration Option

The respiration is gathered by the E-probe through impedance. Because of this, it is quite likely there will be detection of each heart beat. However, the impedance resulting from heartbeats is generally much less than that caused by respiratory efforts so it should not affect the proper calculation of respiration. It should be noted that when the respiration rate drops below 5 breaths per minute, the monitor will begin searching for distinct waveforms and may inadvertently use heartbeat waveforms. When this occurs, a spuriously high respiration rate will be displayed. This aberration automatically corrects itself once a more consistent and normal respiration effort is achieved.

For optimum respiration rate monitoring, it is necessary to enter the RESP-TEMP menu of the monitor and set the RESP Lead to RA-LA.

7. Temperature

Lutech monitors will automatically pickup temperature after the temperature jack is inserted into the correct port. Other brands may not measure temperature unless the monitor port accepts the jack

as provided by the E-probe.

8. Maintenance and Cleaning

The E-probe is a delicate sensor for administering veterinary medicine. The life expectancy of the E-probe is a function of the care in which it is utilized. The E-probe has been designed to last many years.

- The E-probes should be put away when not in use.
- Do not let it fall on a hard surface.
- Do not bend the probes excessively.
- Never soak the E-probe in any solution.
- Store E-probes in a dry environment.
- After cleaning, dry the E-probe thoroughly before storing it away.
- The E-probes can be washed using a gentle disinfectant or mild antibacterial soap with a paper towel or a damp cloth.
- Do not autoclave or use harsh chemicals and wipes to clean the E-probe.
- Do not store wet or moist E-probes.

9. Precautions

- Never use an E-probe on a patient that is awake.
- If the patient is not anesthetized, the E-probe is a health hazard and the patient may choke.
- Do not apply the E-probe rectally.
- Do not use electro-surgical units, lasers, magnetic resonance units or any other electronic instruments near the monitor when the E-probe is in use. The patient may be susceptible to injury when this occurs.
- Do not use the E-probe during dental or oral work.
- Never use the E-probe if the operator is not present. The E-probe should only be used by trained veterinarians and technicians who understand how the E-probe works and how to apply it properly.
- Lutech Veterinary Industries, Inc. does not accept responsibility for the misuse of the E-probe. The owner is solely responsible for the safety associated with the use of this product.

