JorVet™
J-166M

RESPIRATORY MONITOR

APNEA ALARM:
Sets time interval
for alarm to sound

LIGHT SENSOR:
Pass hand over to reset

TIME DISPLAY INDICATOR:
The seconds elapsed since
the last breath

BATTERY LEVEL
Green - Charging
Red - Low

VOLUME:
Monitor beeps
with every breath

Figure 1

Respiratory Monitor

Figure 2

Jorgensen Laboratories, Inc.
1450 N. Van Buren Ave.
Loveland, Colorado 80538
(970) 669-2500
DIRECTIONS FOR USE

Setup Respiratory Monitor in four easy steps.

1. Select and connect endo-tube to appropriate sensor adapter.
2. Connect sensor to the sensor adapter and sensor cable to the monitor.
3. Select apnea time for alarm.
4. Turn on monitor and set alarm volume.

Setup Details

1a. For installing endo-tubes larger than 5 mm please refer to Figure 3. The 15 mm sensor adapter will fit standard 15 mm endotracheal tube connectors. The sensor adapter has a side mounted luer-lock fitting where the end of the sensor is inserted.

1b. For endo-tubes less than or equal to 5 mm, a small bore sensor adapter should be used as shown in Figure 4. The endo-tube is removed from the 15 mm connector and placed on the appropriate small bore sensor adapter with luer-lock side mount. The small bore adapters come in sizes of 3 to 5 mm.

The sensor adapters, sizes 3 to 5 mm, are used on animals of small tidal volumes. If this is not done, the warmth of the breath will be dissipated in the larger chamber of the 15 mm sensor adapter, reducing the sensitivity or possibly not being sensed at all. Larger animals should not use the smaller sensor adapters (5 mm and smaller).

2. The white housing on the end of the sensor cable has a small temperature sensor extending out from the luer-lock end of the housing (See Figure 4). This end of the housing should be inserted into the luer fitting on the side of the sensor adapter. Gently twist the sensor housing in as far as it will go. This should place the sensor in the middle of the air hole in the adapter.

The sensor is a sensitive electronic device that can be damaged if hit or its wires are bent. Be careful when handling it!
The other end of the sensor cable has an 1/8 inch plug on it. Insert the plug into the socket marked “SENSOR” on the back of the monitor (See Figure 2). Be sure that it is pushed all the way into the socket.

3. With the breath paths and the sensor connected, the monitor is ready for use. Now the apnea time can be selected. This is a time that should be long enough to include at least one animal breath. If the animal does not breathe before this time is up, the monitor alarm will sound. This time can be selected from 10 to 60 seconds in 10 second steps with the selector switch on the monitor front panel (See Figure 1 on the front cover).

4. The monitor is OFF when the VOLUME control knob on the front panel is turned fully counterclockwise. Turn it ON by turning the VOLUME control knob clockwise. The monitor should start counting seconds on the LCD display. The volume can be preset to half with the white mark on the knob pointing up. Adjust volume up or down as needed later.
GETTING THE MOST FROM YOUR MONITOR

Using the Breath Monitor
With no breathing present, the LCD display will count seconds continuously. The display will start with zero counting to 99 seconds, then return to zero and start over. When the apnea time selected is reached the alarm will start pulsing at a one second rate. Each time the animal breathes, the displayed time will return to zero and start counting again. The alarm will also emit a short beep with each breath.

Resetting the Alarm
If you want to stop the alarm or reset the LCD displayed count, just pass your hand or an object over the light sensor window on top of the monitor case. The light sensor is designed to reject small, slow changing light patterns. This means that a deliberate shadow must be cast across the light sensor window to reset the monitor. If there is a strong low angled light such as that from a window or lamp, the hand should be close to the monitor top for a sufficient shadow to be cast and sensed. This eliminates responding to movements in the room or clouds darkening outside light. Only be sure there is sufficient light on the sensor in the first place. This is needed to cast a shadow.

Other Considerations
The monitor’s breath sensitivity is adjusted by a microprocessor so no manual adjustments are needed. Responding to a breath cycle does require a different minimum level of breath volume under different room conditions. This minimum volume is dependent on several factors that make it difficult to specify just what volume is needed to trigger the monitor. Several of the more important influences are room temperature, room humidity, temperature of the sensor area, i.e., sensor adapter, and the type of plumbing used. The monitor is designed to respond to very small air flows (less than 1 cc of air at 3 seconds per breath under the right conditions).

WARRANTY SERVICE
Parts will be warranted only if a copy of the original invoice and defective parts are returned directly to:

Jorgensen Laboratories, Inc.
1450 N. Van Buren Avenue
Loveland, CO 80538

Phone (970) 669-2500
Fax (970) 663-5042

Important: When shipping your unit, pack your monitor securely and be sure that all pieces are insulated from each other to avoid abrasion. Ship prepaid and insured. Also, please indicate exactly what the problem is with any monitor returned.
The monitor acts on changes in temperature. This occurs when the animal exhales warm air and inhales the cooler room air over the sensor. The greater the temperature difference, the smaller the amount of air volume that is needed to trigger the monitor. But if there is too large a difference in temperature, another problem occurs. The animal’s breath is approximately 100 degrees Fahrenheit, so a temperature difference implies that the room air temperature must be lower. Cold room air can also make the sensor adapter cooler. The exhaled air must pass through the plastic adapter which will cool the breath down. So now we have lost some of the desirable temperature difference that we need to sense small breath volumes. The cooler the sensor adapter, the less temperature change and more air it takes to produce the same signal to the monitor.

The opposite can also happen when the sensor adapter is heated by, say, a warm overhead light. The adapter warms the incoming room air, reducing the temperature difference.

What can be done about this dilemma? In cold weather when the sensor adapter is also cold, warm the adapter up with your hand before depending on the monitor to respond to small breaths. If the monitor has been working for a time and quits responding to obvious breathing, then the sensor adapter is probably too warm. Cool it down until it is responding again. Then insulate the sensor with a small towel or other insulating material. One way of cooling the adapter would be to wrap it in a towel saturated with cool water.
CARE AND FEEDING OF THIS BATTERY POWERED INSTRUMENT

The external power can remain connected to the monitor for extended periods of time without damage. The DC power socket on the monitor is shown in Figure 2. Insert the plug on the end of the cable from the wall power supply into the socket. The wall power supply is then plugged into any AC, 60 cycles, 115 volt wall outlet.

If the instrument is not going to be used for a time such as weeks, or is put into storage, disconnect the external power cable and unplug the wall power supply. Be sure that the power switch on the monitor is OFF.

If it is known that the monitor is going to be put back into service after storage, it would be a good idea to reconnect the power cable and plug in the wall power supply. If this is done at least eight hours before using, the internal battery will have a good charge on it. No harm will result to battery if it is not precharged, but the monitor may not function for very long before a charge cycle is needed.

Avoid leaving the monitor power ON when the red battery-low light is illuminated. If it is necessary to use the monitor in this state, plug in the external power cable and wall power supply. This should power the monitor and perform a quick battery charge. A battery recharge should be completed in four to five hours.

TROUBLESHOOTING

✓ Symptom. Possible cause.
✓ Battery charge light is not green when charger is plugged in. Faulty wall power supply.
✓ Battery will not hold a charge or goes dead quickly.
✓ Battery red-discharged light does not change to green after 5 hours of charging. Faulty battery.
✓ Intermittent breath sensing or no response at all. Sensor cable or orange sensor broken.
Sensor clogged. Carefully clean with running water or isopropyl alcohol.
Sensor cable plug not inserted all the way into the socket.
✓ Light sensor not resetting count or alarm. Light window dirty. Clean with glass cleaner or water/alcohol mixture.
Not enough overhead light for good shadow. Relocate monitor.
Too much side light from window, etc. Create shadow closer to sensor window. Create shadow between bright side light and sensor window. Move monitor out of side light.
✓ Alarm will not sound. Turn up volume.
Monitor may be defective if unit is on and is counting past the set apnea time without the alarm sounding.