

LOW LEVEL ALARM

For Liquid Nitrogen Refrigerators

The Cryo-Sentry is an optional accessory for selected models of portable liquid nitrogen refrigerators. It is designed to provide visual and audible alarms when the liquid nitrogen level drops below a preset level, usually 25 percent of the container capacity. This monitoring system provides a high level of security, alerting the user to low nitrogen levels, and serves as a reminder for scheduled refilling.



Safety

The Cryo-Sentry consists of three components: Alarm Module, Power Supply, and Sensorcore.

Before using this accessory, read the *Handle with Care* booklet (TW-10) provided with the unit. It details safety precautions that must be read and understood before using the equipment.

Following are a few precautions described in *Handle with Care*. Please be sure to read the entire booklet.

Do not touch liquid or cold metal surfaces with your bare skin. The liquid nitrogen used in cryogenic refrigerators is **extremely cold**: -320°F (-196°C). Exposure of skin or eyes to liquid, cold gas, or frosted parts could result in a severe, frostbite-like injury.

Use only the sensorcore provided with this accessory or the one originally shipped with the refrigerator. A tight-fitting plug or stopper will cause a pressure increase in the container that may damage the container and/or cause personal injury.

Installation

The Cryo-Storage low level alert arrives ready for immediate use.

110 VAC Power

The alarm runs on either 110 VAC or 4 AA size battery power. For 110 VAC, simply plug the wall transformer into alarm module at the jack labeled "AC POWER". Next, plug the sensorcore into the alarm module at the jack labeled "SENSOR". (The Cryo-Sentry can either be attached to your dewar with the VELCRO® strips provided or can be mounted to the wall.) Lower the sensorcore into the refrigerator, and plug the transformer into a 110 VAC outlet or a surge protected power supply.

Battery Power

The alarm can also run on four (4) AA batteries. Once installed, the batteries will supply power to the monitor for an extended period of time.

To install the batteries, remove the back cover and insert the batteries. The positive (+) terminal should be pointed towards the "+" label on the battery holder.



Taylor-Wharton

Installation (cont.)

Duration of battery-powered operation can vary from six months to one year depending on the usage. An audible and visual alert will be activated once battery power is low.

Operation

The Cryo-Storage low level alert automatically checks the liquid level every 30 minutes. This conserves battery power thereby extended the security. The 25 percent level notification provides sufficient time for the user to refill the dewar.

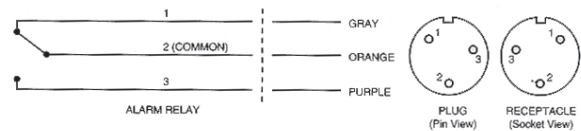
The user can check the level without opening the vessel by pressing the "LEVEL CHECK" button. Results will be displayed in 30 seconds. The possible results are provided in the following table:

| Conditions | Color | Flash Rate | Audible |
|---------------------|--------|------------|---------|
| Level Ok | Green | 30 sec. | No |
| Checking | Yellow | 1 sec. | No |
| Low Battery | Red | 1 sec | Yes |
| Low LN ₂ | Red | 2 sec. | Yes |
| Sensor Fault | Red | 3 sec. | Yes |

- **MUTE:** The user can mute the audible alarm at any time by pressing the "TEST/MUTE" button. The alarm will remain muted until the next 30 minute check is made. However, the LED will remain red until the LN₂ level is raised above 25 percent.
- **TEST:** The status light and the audible horn can be tested by depressing the "TEST/MUTE" button. This test can only be made so long as an alert condition does not exist.

Remote Alert

The remote alert circuit is activated immediately once a Low Battery, Low LN₂ or Sensor Fault is detected. The remote alert will remain active even if the battery power is depleted. Pins 1 and 2 are closed in normal operation. Pins 2 and 3 are closed during a remote alert condition.



Remote Alarm Plug Connection

Replacement Parts

Description

Part Number

| | |
|--|-----------|
| Alarm Module..... | 5140-1124 |
| Power Supply | 5190-3094 |
| Remote Alarm Plug | R06K-8C20 |
| Sensorcore Assembly for 18XT,20XT, or 34XT | R033-8C40 |
| Sensorcore Assembly for 34HC | R034-8C40 |
| Sensorcore Assembly for 35HC | R037-8C40 |
| Sensorcore Assembly for 35VHC | R036-8C40 |
| Sensorcore Assembly for 1575RS | RS15-8C40 |
| Sensorcore Assembly for 3000RS | RS30-9C16 |
| Sensorcore Assembly for 4800RS | R05K-8C27 |
| Sensorcore Assembly for 3K | R03K-8C49 |

Ordering Information – Order all replacement parts and accessories from your supplier or from Taylor-Wharton at the addresses listed below. Please include the part number, quantity, and description of each part requested.



Taylor-Wharton

Taylor-Wharton

4075 Hamilton Blvd.
Theodore, AL 36590
Phone: (334) 443-8680
(800) TW TANKS (898-2657)
Fax: (334) 443-2209