



WORTHINGTON
INDUSTRIES

Low Level Alarm

For Liquid Nitrogen Refrigerators



The Cryo-Sentry low level alarm 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 a 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 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-Sentry low level alarm arrives ready for immediate use.

110 VAC Power

The alarm runs on either a universal power supply or four (4) AA size battery power. Batteries not included. To use the universal power supply, simply plug the power supply into alarm module at the input labeled "AC POWER". Next, plug the sensorcore into the alarm module at the input labeled "SENSOR". (The Cryo-Sentry alarm module 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, select the appropriate plug configuration and plug the power supply in a suitable wall 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.

Low Level Alarm

Installation (cont.)

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.

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-Sentry low level alarm automatically checks the liquid level every 30 minutes. This conserves battery power thereby extending the security. The 25 percent level notification provides sufficient time for the user to refill the refrigerator.

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

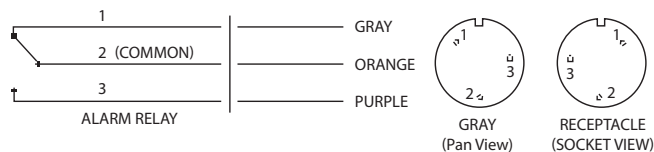
MUTE: The user can mute the audible alarm at any time by pressing the "TEST/MUTE" button. The alarm will remain muted until the next 30 minute check is made. However, the LED will remain red until the LN₂ level is raised above 25 percent.

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 Alarm

The remote alarm circuit is activated immediately once a Low Battery, Low LN₂ or Sensor Fault is detected. The remote alarm 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 alarm condition.

Remote Alarm Plug Connection



Ordering Information

Order all replacement parts and accessories from your local distributor. Please include the model number of your refrigerator, part number, quantity, and description of each part requested. For more information or to find the name of your local distributor, contact Worthington at the phone number or email listed below.

REPLACEMENT PARTS	
DESCRIPTION	PART NUMBER
Alarm Module	367184
Power Supply	367200
Remote Alarm Plug (optional)	366880
Sensorcore Assembly for XT20 or XT34	366788
Sensorcore Assembly for XT21 or TXT24	367819
Sensorcore Assembly for HC20 or HC34	366816
Sensorcore Assembly for HC35 or LS750	366846
Sensorcore Assembly for VHC35	366834
Sensorcore Assembly for LS3000	366648
Sensorcore Assembly for LS4800	366868
Sensorcore Assembly for LS6000	366660
Sensorcore Assembly for VHC38	369629

CONTACT US

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