

BAT-1B

LEVEL ALARM

SET-UP AND TECHNICAL MANUAL



Custom
BioGenic
Systems

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Leading the World with Innovative Cryopreservation Technology Solutions

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- SAFETY -

IMPORTANT! The following section on LIQUID NITROGEN SAFETY should be read carefully and followed completely, but is by no means a complete volume on the use of cryogenic liquids. All personnel should have a complete knowledge of the correct procedures, as well as the hazards of working with liquid nitrogen. Failure to do so could result in serious injury or death.

HANDLING & FIRST AID:

Personnel handling liquefied gases should be thoroughly instructed as to the nature of these materials. Proper training is essential to safety and will ensure the accident-free use of this equipment.

Because of their low temperatures, liquefied gases will burn the skin much the same way as hot liquids can. For this reason, always wear the proper protective clothing when handling these materials. It is advised that during use, handlers of liquid nitrogen should protect themselves by wearing goggles or face shields, heavy rubber gloves large enough to allow quick removal and a heavy rubber apron. It is preferable that shoes worn at these times have high tops as to not permit accidentally spilled liquid from entering as well as pant legs which come down over the tops of shoes for further protection.

Also because of the extremely low temperatures, liquid nitrogen should only be handled and transported in approved containers. Many materials become brittle and may shatter when put into contact with liquid nitrogen and other cryogenic liquids.

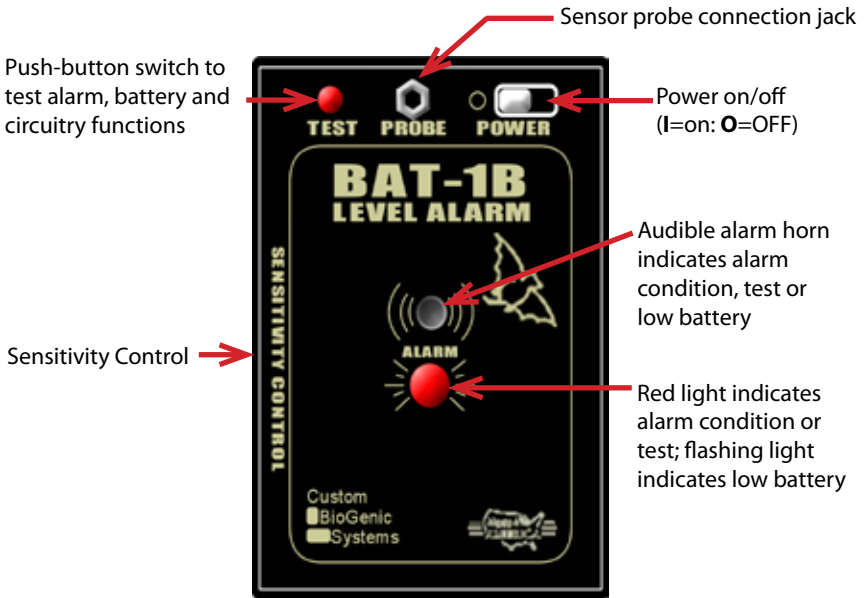
In the event a person is burned by liquefied gas, the following first aid treatment should be given while awaiting the arrival of medics or a doctor:

1. If the material has contacted skin or eyes, flood those areas with large quantities of unheated water and protect frozen areas with loose, bulky, dry and sterile dressings.
2. If the skin is blistered or there is a chance that the eyes have been affected, seek medical help immediately.

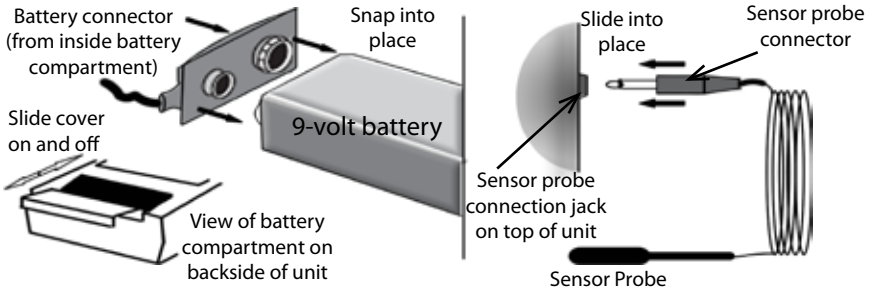
WARNING:

Liquefied gases are extremely cold liquids. Liquid nitrogen exists at -196°C . Because of these temperatures, liquefied gases will "burn" if they come into contact with skin. Never allow direct skin contact with liquid nitrogen or serious burns will result. Although liquid nitrogen itself is non-toxic, when released in to a confined space it can displace oxygen causing asphyxiation. Entering an oxygen deficient room can cause unconsciousness without warning. Always check air quality upon entering a room where cryogenic liquids are being used and if possible, have a respirator available. Introducing equipment which is at room temperature into liquid nitrogen is always somewhat hazardous. Beware of splashing and "boiling" which may occur. All personnel performing these operations should be fully informed of proper handling procedures and should always wear a face shield and protective clothing. Liquefied gases should never be used in combination with other substances without knowing what the result will be. When in doubt, contact a competent authority.

- FRONT PANEL PARTS IDENTIFICATION -



- POWER CONNECTIONS -



- SPECIFICATIONS -

Power requirements: One 9-volt battery
 Dimensions (L x W x H): 3 1/4" x 1 1/2" x 4 3/8" or
 8.3cm x 3.8cm x 11.1cm
 Weight: 7 oz. or 0.196kg (including battery)

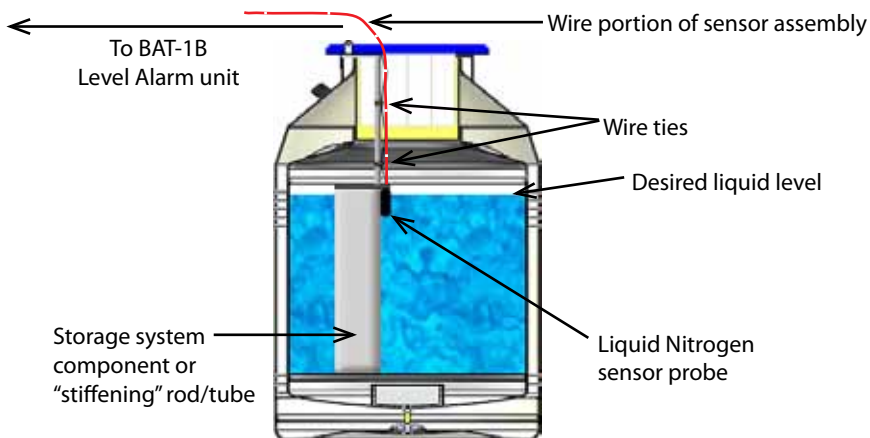
- SET-UP AND OPERATION -

This section represents a generic installation situation. Because the BAT-1B Level Alarm is so versatile, many different installations are possible, however, all should be based on the following instructions.

1. Remove sensor plug from connector terminal.
2. Using wire ties, firmly but gently attach sensor probe and wire to a component of the storage system in a location which will expose it to the liquid nitrogen. A "stiffening" rod or tube may be used to mount the sensor probe in an appropriate position.
3. Position the sensor so it accurately monitors the liquid level.

NOTE: It is extremely important for proper operation, that the sensor probe is positioned at the (liquid) level where an alarm condition would occur.

4. Mount the BAT-1B Level Alarm as described. The level alarm does not need to be mounted in a level position, but should be readily visible. Also, do not close-in the BAT-1B unit creating a situation where the audible alarm cannot be heard.
5. Attach sensor probe connector to corresponding jack on top panel.
6. Connect battery to connector inside the battery compartment.
7. Move the power switch to the ON position.
8. If no alarm condition is occurring, push test button to check system.
9. When sensor probe has been submerged in liquid nitrogen for 5 minutes, turn sensitivity adjustment screw counter-clockwise until alarm sounds.
10. Slowly turn sensitivity adjustment clockwise just until alarm stops.
11. Double check installation, including all connections, to ensure accurate trouble free operation.



- TROUBLESHOOTING -

BAT-1B		
CONDITION	CAUSE	SOLUTION
<ul style="list-style-type: none"> ◆ Red alarm light and audible alarm are present 	<ul style="list-style-type: none"> ◆ Alarm condition present ◆ Sensor plug disconnected ◆ Sensor is shorted ◆ Sensitivity control needs adjustment 	<ul style="list-style-type: none"> ◆ Correct low liquid level condition, or adjust sensor to proper liquid level ◆ Connect sensor properly ◆ Locate and correct short ◆ Turn sensitivity adjustment screw clockwise just until alarm stops
<ul style="list-style-type: none"> ◆ Alarm light flashes and audible alarm sounds intermittently 	<ul style="list-style-type: none"> ◆ Battery is losing power 	<ul style="list-style-type: none"> ◆ Replace with fresh battery
<ul style="list-style-type: none"> ◆ No light 	<ul style="list-style-type: none"> ◆ Power switch in the OFF position ◆ Defective battery 	<ul style="list-style-type: none"> ◆ Move power switch into the ON position ◆ Replace with fresh battery

- REPLACEMENT PARTS & ACCESSORIES -

When ordering parts or accessories, use the following part numbers to ensure that you get the correct parts for your level alarm application.

Number	Description
51006	BAT-1B Level Alarm System (includes one 9 volt battery and liquid nitrogen sensor probe)
51006-1	Liquid Nitrogen Sensor Probe (with 60" wire)
51006-2	9-volt battery
51004-5	Wire Ties (for mounting sensor probe)
51004-6	Mounting Rod (for mounting sensor probe -36")
51004-7	Velcro Hold-down

NOTES and MAINTENANCE

- ◆ Clean with mild, non-abrasive cleaners.
- ◆ Visually check all lights regularly to ensure proper operation.
- ◆ It is suggested that at the end of each day the system be tested by pushing the TEST button.
- ◆ Visually check wires and connections for signs of wear and to locate potential future problems.
- ◆ Avoid exposing the unit to conditions that may cause damage or interrupt proper operation.
- ◆ Use only a mild, non-abrasive household type cleaner for cleaning all surfaces of the unit.
- ◆ If stored for a long period of time, remove battery to ensure performance.

The BAT-1B is intended to operate in the following environment:

- ◆ Indoor use only
- ◆ Installation category II per IEC664
- ◆ Pollution Degree Level II per IEC61010-1
- ◆ Temperature: 10°C to 50°C operating per IEC61010-1
Humidity: Maximum relative humidity 80% for temperatures up to 31°C decreasing linearly to 50% relative humidity at 40°C
- ◆ BAT-1B Power Requirements: 9 V DC battery. Use only battery provided by Custom BioGenic Systems.

PRODUCT WARRANTY

Custom BioGenic Systems warrants all manufactured cryogenic equipment to be free from defects in workmanship and materials for a period of one year. Custom BioGenic Systems' liabilities under the warranty shall be limited to correcting or replacing the defective workmanship or materials. A claimant under the warranty must notify Custom BioGenic Systems within ten (10) days after discovery of the defect and immediately discontinue use of the defective equipment. Custom BioGenic Systems reserves the right, at their discretion, to correct the defect(s) in the field without return shipment to Romeo, Michigan. This warranty does not cover defects on cryogenic equipment resulting from abusive handling and subsequent failure.

AVAILABLE FROM CBS

Liquid Nitrogen Equipment Including:

Freezers & Dewars

Controlled Rate Freezing Systems

Freezer Racks and Boxes

Transfer Lines

Solenoid Valves

Liquid Level & Temperature Alarms

Liquid Level & Temperature Controls

Temperature Recorders / Monitors

Cryogenic Accessories



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