

- Prevents loss of data
- Avoids thermal cycling of older HPGe detectors
- For HPGe coaxial, LEPS, and Si(Li) systems
- Sounds alarm when liquid nitrogen level is low
- Available with a variety of thermistor probes
- Battery backup
- Totally fail-safe



The ORTEC Model 729A Liquid Nitrogen Level Monitor is a single-width module (NIM-standard) designed to serve as an accessory on HPGe coaxial (GEM and GMX), LEPS, Si(Li), and old Ge(Li) detectors in the field.

There are two uses for the 729A: (1) for customers whose applications will not tolerate detector warmup, (e.g., unacceptable loss of experimental data); (2) guarding against thermal cycling older HPGe detectors.

When used with the appropriate probe, the monitor will sound an alarm long before the detector can warm up as a result of loss of liquid nitrogen in the dewar. The level of liquid nitrogen is sensed by a thermistor probe in the dewar. When the liquid nitrogen falls below a safe level (approximately 1/4 of the dewar capacity), an alarm sounds and a red light on the front panel of the control module flashes a warning.

The module is totally fail-safe with a battery backup in case of power failure and an audible, flashing alarm that sounds if: (1) bin power is shut off, (2) the sensor is broken, (3) the sensor is disconnected, or (4) an attempt is made to remove the module from the bin.

Impedance considerations do not permit using the detector's internal, high-voltage shutdown and the Model 729A together. A 3.66 m (12 ft) BNC coaxial cable for connecting the probe to the Model 729A is included.

### Specifications

#### CONTROLS

**TEST/NORM-OPER/HV DISABLED** Front-panel toggle switch permits normal operation when set at its center position. The switch can be set at Test to check for response of the warning indications and is spring loaded to return to the Norm-Oper position. The switch can be set at HV Disabled to provide the interlock output signal that clamps the Model 659 output at zero; this setting does not affect the alarm circuit.

**BALANCE ADJ** Rear-panel screwdriver control adjusts the sensitivity level of the sensor and bridge circuit to determine the alarm threshold. When ordered as an integral part of a detector system, this is preset at the factory.

**SHIP/USE** Internal slide switch accessible through the side panel. Set at Ship, the alarm circuit is not activated unless power is applied to the module. Set at Use, with no probe connected, the alarm circuit is activated as intended when power is applied to the module, providing the internal batteries are not removed. The alarm is also activated when power is not furnished from the bin to the module.

#### INPUT

**SENSOR** Rear-panel BNC connector accepts the cable from the sensing element.

#### OUTPUTS

**INTERLOCK OUTPUT** Rear-panel BNC connector for cable to the Remote Shutdown connector on the detector bias supply module such as the ORTEC Model 659. Clamps high-voltage power supply output to zero when alarm condition is present or when front-panel switch is set at HV Disabled.

**AUDIO ALARM** Warning buzzer mounted at the center of the front panel sounds when the alarm circuit is activated.

**ALARM HV DISABLED** Flashing red light on front panel indicates that the alarm circuit is activated.

**HV ENABLE** Red monitor light on front panel indicates that the signal through the interlock output permits operation of the Model 659 Detector Bias Supply.

#### ELECTRICAL AND MECHANICAL

**POWER REQUIRED** +12 V, 100 mA; +24 V, 20 mA, -24 V, 20 mA. (Furnished from NIM-standard bin and power supply.)

Two internal nickel-cadmium rechargeable battery cells provide battery backup against power failure; the Model 729A is normally furnished with the cells installed unless otherwise indicated.

#### WEIGHT

**Net** 1.4 kg (3.1 lb).

**Shipping** 3 kg (7 lb).

**DIMENSIONS** NIM-standard single-width module 3.43 X 22.13 cm (1.35 X 8.714-in. front panel) per DOE/ER-0457T.

# 729A

## Liquid Nitrogen Level Monitor

### INCLUDED ACCESSORIES

A 3.66 m (12 ft) BNC coaxial cable for connecting the probe to the Model 729A is included.

### Ordering Information

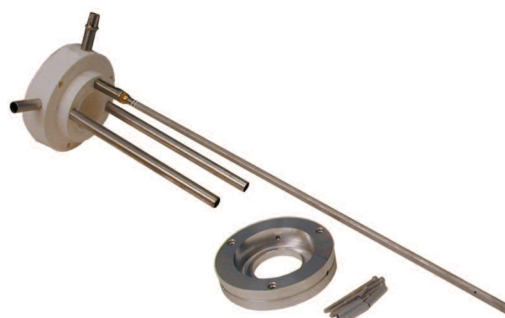
To order, specify Model 729A, Liquid Nitrogen Level Monitor.

### SEPARATE ACCESSORIES

**PROBES:** The appropriate probe for the particular cryostat/dewar combination must be ordered separately.

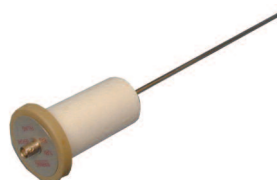
**C-24-12 CABLE:** RG-62A/U 93-Ω Cable with two BNC male plugs; 12-ft. length

Custom built probes and different length cable available on special request.



**LNP-30D-2** Probe for use with 729A; used on dipstick cryostat CFG-PH-4 and CFG-PV4. Center hole diameter is 1.5 inch.

**LNP-30D-3** Probe for use with 729A; used on all dipstick cryostats except CFG-PH-4 and CFG-PV4. Center hole diameter is 1.25 in.



**LNP-7D** Probe for use with 729A; fits standard 7.5-liter bucket type dewar.

**LNP-30B** fits standard 30-liter bucket type dewar.

Specifications subject to change  
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