

HC833 hot cell interlock monitor



Key features

- Wide measurement range
- Easy to read logarithmic display
- Sensitive, stable detection
- Simple electronics - zero maintenance
- Easily cleaned stainless steel enclosure

Overview

The HC833 is a self-contained gamma monitoring system for use within shielded areas containing radioactive sources, such as hot-cells.

The system is designed to give a visual indication of cell radiation level and to provide a door interlock function and a visual alarm when levels exceed a preset threshold.

Technical specifications

Introduction

The HC833 has a large, easy to read analog scale, which allows the operator to review in-cell radiation levels when required. A variety of scales are available and the system can be supplied with units of Sv, Gy, Rem, Rad, cps, and cpm.

The system contains one alarm trip level, and this can be adjusted manually using the logarithmic visual scale and an adjustable locking dial located on the front panel. Alarm events are indicated by a front panel LED and dry contact relay will switch to 'interlock' access to the cell.

The HC833 has a stainless steel enclosure and has mounting fixtures for fascia mounting or bracket mounting. The system is compact and robust and is designed for easy decontamination in a GMP laboratory environment.

The HC833 is used within an external GM detector mounted within the cell or cell wall. Ultra Energy supplies a range of GM probes for wide measurement ranges and the system will support an instantaneous measurement of dose rates of 10 Sv/h (1,000 Rem/h), equivalent to a 100 Ci (TBq) activity level in most cell environments.

Alarms

The front panel of the HC833 contains four status LED's. A green LED is used as a visual indication that the unit is operating in a 'Normal' mode, while 'Alarm' events are indicated using a red LED. LED's are also used to indicate 'Over-range' (when the detector count rate goes above the working range) and to register when counts are seen by the detector.

Detectors

The HC833 can be supplied with a range of detectors. Typical choices include the GM-1324 or a GM-1314, both of which give a flat energy response and a wide measurement range. The detector output is dead-time compensated and over-range protected to improve system performance.

Outputs

The HC833 is supplied with a fail-safe volt free relay contacts for the remote alarm indication or interlock function.

For most applications, the HC833 is used in a standalone configuration. However, the system has a 4-20 mA output that will allow the cell activity levels to be transmitted to data acquisition systems.

Technical specification

Feature	Description
GM-1304 detector range	0.1 mSv/h to 10 Sv/h (10 mrem/h - 1,000 rem/h)
GM-1314 detector range	10 μ Sv/h - 3 Sv/h (1 mrem/h - 300 rem/h)
GM-1324 detector range	0.3 μ Sv/h - 0.1 Sv/h (300 μ rem/h - 10 rem/h)
GM-1202 detector range	0.1 μ Sv/h - 40 mSv/h (10 μ rem/h - 4 rem/h)
GM-1301 detector range	0.1 mGy/h - 10 Gy/h (10 mrad/h - 1,000 rad/h)
GM-1313 detector range	10 μ Gy/h - 3 Gy/h (1 mrad/h - 300 rad/h)
GM-1321 detector range	3 μ Gy/h - 0.1 Gy/h (300 μ rad/h - 10 rad/h)

About Ultra Energy

Organizations working with nuclear and industrial technologies must deliver reliable production at the same time as safeguarding people, the environment and infrastructure. We develop and manufacture measurement and control solutions that give our customers complete, long-term control over systems operating in harsh environments, helping them operate safely and increasing the value derived from their investments over their total lifespan.

Part of Ultra Group, a global electronics company, Ultra Energy has worked with nuclear and industrial customers for over 60 years. We support customers across the world from facilities located in the US and UK. Our solutions are embedded in strategic national infrastructure and our people are active partners in customer programs that are focused on delivering advanced future nuclear and industrial capabilities.

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