MIRION TECHNOLOGIES

SafePoint™ RMS : SUSTAINABLE » COMMITTED » SECURE

EcoGamma γg

Environmental Gamma Radiation Monitor

Features

- Advanced, dual detector, environmental gamma radiation monitor designed for unattended monitoring in demanding operating conditions
- CANBERRA's unique Time-To-Count technique eliminates dead time and saturation effects of conventional GM detectors
- Extensive historical database with 180+ days of storage protects from loss of data if communication is lost
- Built-in software application supports two-way communication via web or with connected system or computer right out of the box
- Environmentally robust housing provides stable, reliable performance in demanding operating environments
- Modular design and platform neutral application accommodate a range of power, communication and hardware requirements
- Built-in temperature monitoring provides supplemental meteorological information and aids in preventative maintenance
- Total Integrated Dose (TID) tracking aids in predictive maintenance
- Built-in calibration and linearity check functions with test points and ranges that are scalable to local regulatory requirements

Description

CANBERRA's EcoGamma™-g is an advanced, dual detector, environmental gamma radiation monitor designed to operate in the most extreme conditions with unsurpassed accuracy, range and stability. Leveraging a long history of operating experience from CANBERRA's environmental monitoring family, the EcoGamma incorporates CANBERRA's unique "Time To Count", counting technique with its high and low range Geiger Mueller detectors in an assembly that provides excellent accuracy and linearity throughout its 1 µR/hr (10 nSv/hr) to 1000 R/hr (10 Sv/hr), H*10 compliant, 30 keV to 5.0 MeV operating range. The assembly is housed within a single IP67 rated weatherproof aluminum enclosure designed to provide stable, reliable performance in demanding operating environments.

The EcoGamma-g logs all data including dose rates, detector status, count rates, alarms, faults, etc. to its internal memory at one minute intervals, for 180 days of continuous storage. The historical data is completely maintained by the device, assuring that data will continue to be captured and stored even if communication with clients has been lost. The client application supplied with the EcoGamma-g includes capabilities for displaying and reporting historical and current data in various forms, including histogram and tabular. Historical and current data is also available for routine activities such as plotting of trends and enhanced performance monitoring.

Monitor performance and reliability are further assured through the EcoGamma's rigorous self test functionality, that continuously evaluates detector and sensor performance, high voltage, communications and critical circuit operation.

The EcoGamma-g's serial number is burned-in at the time of manufacture. All measurements and log data are tagged with this data. This feature makes supporting the traceability of calibrations, testing, performance plotting, measurements and trending an automatic affair.

Each monitor comes complete with LED operating status indicator, Ethernet and USB connectors and is "Powered over Ethernet" (POE). The EcoGamma-g can also accommodate a variety of external communication, power and hardware requirements. Its platform neutral software readily handshakes with common communication protocols, including line, RF, GSM, etc. EcoGamma monitors are designed to be easily networked. The monitor's threaded base accommodates a variety of mounting options and modular add-ons like back-up power.

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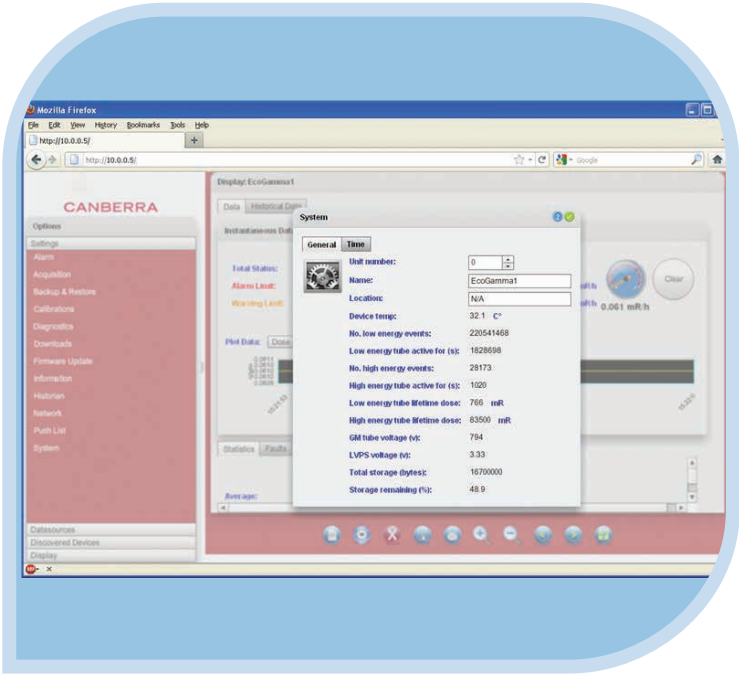
EcoGamma contains an embedded temperature detector and logs its temperature data within the monitor's internal historical database. This data can supplement general environmental information at the monitor's location providing additional background concerning local conditions. Moreover, temperature data can assist with preventative maintenance and troubleshooting by providing early warning in the unlikely event that the broad temperature range of the detector has been exceeded.

The Total Integrated Radiation Dose (TID) of the monitor, as well as individual detector tube doses are also tracked by the EcoGamma. With this data, failures may be anticipated based on the accumulated counts. TID information aids in proactive maintenance by providing users with an estimate of how much life is available on the detectors. Associating all of this data with each detector aids in retrospective performance analysis.

The design of the EcoGamma offers an unparalleled degree of positional integrity, consistency and repeatability of its calibration routine. Its assembly is designed with tight tolerances for repeatable positioning and its housing provides visible marking of detector centerpoints to assure that the detectors are always calibrated at the same location and orientation. Calibration and linearity check functions within the software allow adjustment of calibration test points and ranges in accordance with local regulatory requirements. Test points may be added or subtracted to better refine calibration without special software modifications or workarounds. Calibration data is loaded and retained by the device maintaining complete calibration history within the device.

EcoGamma User Interface

The EcoGamma-g is "ready to go" right out of the box with its platform neutral, web and desktop EcoGamma user interface. It can be easily connected to a computer or system and quickly brought into operation. Except for the physical and practical limitations of a typical network system, there is no limit to the number of EcoGamma units that can be supported on a single system.



EcoGamma's detailed real-time performance data.

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EcoGamma-g's user interface provides the following functionality:

- Web and desktop user interface.
- The web interface runs in most Flash 10 or greater browsers.
- Rich interactive display of data.
- Hardware setup and control.
- Alarm and fault annunciation (audible and visual).
- Statistical analysis and display of time domain data.
- Full calibration functionality and recording of data.
- View and control of devices.
- Saving historical data to text file and can be reviewed with this application.
- Automatic discovery of devices.
- Generating reports.
- An optional communications SDK is available to allow for creation of custom applications.

EcoGamma-g's data display and system settings window.

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Specifications

EcoGamma TOTAL RANGE
- 10 nSv/hr (1.0 µR/hr) to 10 Sv/hr (1000 R/hr) Linearity ±10% referenced to Cesium-137.
- Evaluated to 100 Sv/hr (10 000 R/hr).

EFFECT OF TEMPERATURE ON RESPONSE
- From -40 °C to 60 °C (-40 °F to +140 °F).
  - Low range: ±3%.
  - High range: ±5% (±13% below -25 °C).

ENERGY RESPONSE RANGE
- 30 keV to 5.0 MeV (H*10).

LOW RANGE
- DETECTOR – GM Detector.
- RANGE – 10 nSv/hr to 5 mSv/hr (1 µR/hr to 0.5 R/hr).
- SENSITIVITY – 960 CPM/µSv/hr; 9.6 CPM/µR/hr.
- LINEARITY – ±10%.
- DETECTOR BACKGROUND – 48 cpm or 0.8 cps.
- ENERGY RANGE – ±28% 60 keV to 1.25 MeV.

HIGH RANGE
- DETECTOR – GM Detector.
- RANGE – 0.05 mSv/hr to 10 Sv/hr (5 mR/hr to 1000 R/hr).
- SENSITIVITY – 1.56 CPM/µSv/hr; 15.6 CPM/mR/hr.
- LINEARITY – ±10%.
- ENERGY RANGE – ±28% 83 keV to 5.0 MeV.

PERFORMANCE
- Two Geiger Mueller Detectors
  - Crossover on increasing dose rate: 500 mR/h (5 mSv/hr).
  - Crossover on decreasing dose rate: 300 mR/h (3 mSv/hr).

TEMPERATURE SENSOR
- RANGE – -55 °C to +125 °C.
- RANGE ACCURACY – ±1 °C , 0 °C to 70 °C.

COMMUNICATIONS
- One Ethernet (10Base-T).
- One USB Port.

CONTROLS
- None on instrument.
- All interaction through web or desktop EcoGamma user interface.

NON VOLATILE MEMORY
- Combination of Flash memory and non-volatile RAM memory is allocated in the device for 180 days of historical data storage at one minute interval logging rate.

DISPLAYS AND ALARMS
- Dual color LED.

POWER
- Power over Ethernet (POE) 1.25 watts.
- Power over USB 0.5 watts.

PHYSICAL
- CONSTRUCTION – Cylindrical Aluminum, IP67 enclosure.
- Threaded mounting base.
- SIZE – 467.86 mm (18.42 in.) length; 76.2 mm (3.0 in.) diameter.
- WEIGHT – 1.1 kg (2.4 lb).
- EMC – Tested to IEC 61010-1:2001 (Second Edition)/ EN 61010-1:2001.

ENVIRONMENTAL
- OPERATING TEMPERATURE RANGE – -40 °C to +60 °C (-40 °F to +140 °F).
- OPERATING HUMIDITY – 0 to 100%.
- Meets the environmental conditions specified by EN 61010, Installation Category I, Pollution Degree 2 and IEC 60532.

QUALITY
EcoGamma series environmental monitors are designed and manufactured under a quality system in compliance with the following standards and requirements:

- ISO 9001
- IEC 61000
- IEC 61010-1
- IEC 61326-1,2,3
- IEC 60532
- IEC 60846
- CE
- NRTL
- MIL-STD-461
- MIL-STD-810F

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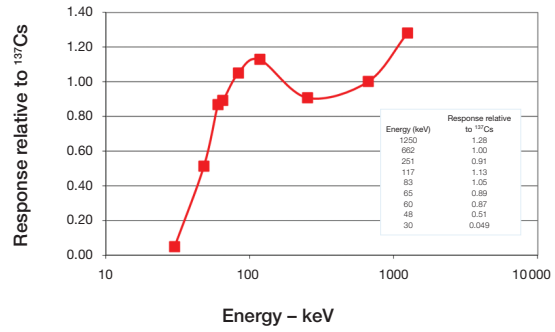
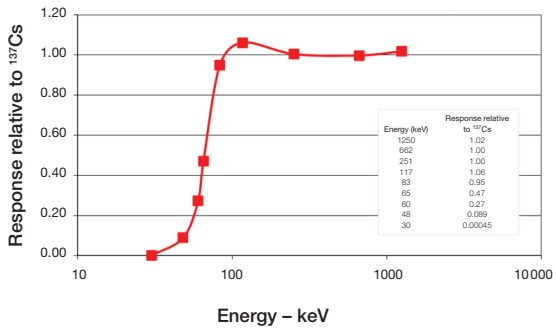
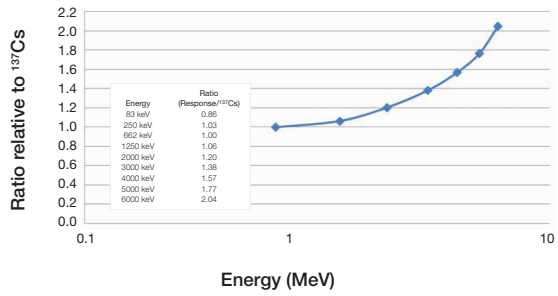
Low Range Energy Response



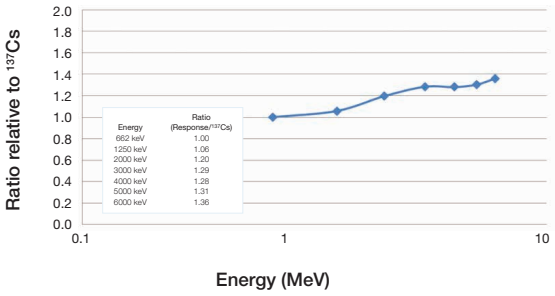
High Range Energy Response



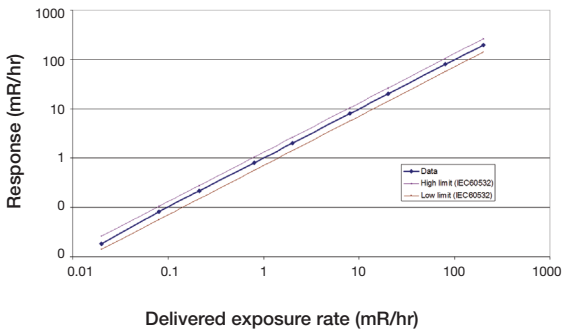
Low Range Modeled Response



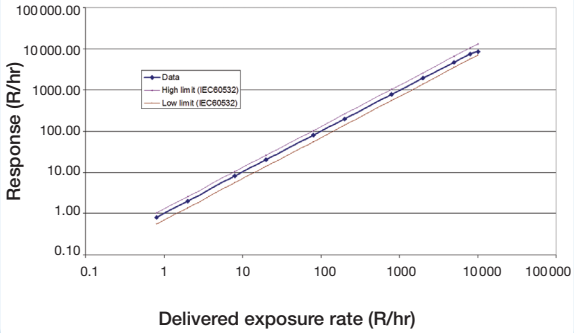
High Range Modeled Response



Low Range Linearity



High Range Linearity



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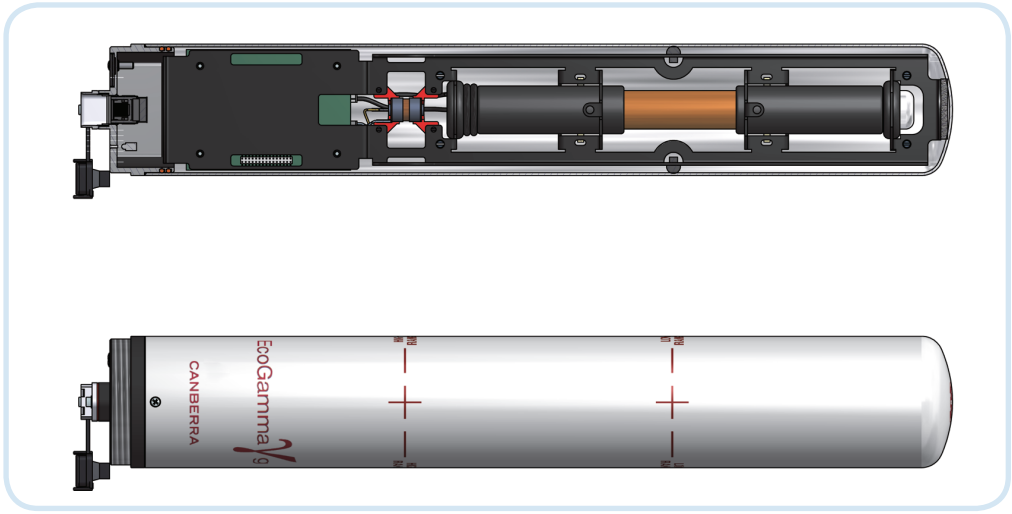
ORDERING INSTRUCTIONS

- Eco-g, EcoGamma environmental gamma monitor includes – EcoGamma-g Environmental Gamma Monitor, 3 m (10 ft) USB cable, 3 m (10 ft) Ethernet cable, PoE input injector (110/220), IP67 RJ-45 Connector, Eco-g utility disk.
- ECO-MT – EcoGamma mounting bracket, threaded.
- ECO-SDK – Allows creation of custom EcoGamma applications.

OPTIONS

- Horizon Supervisory Software (see specification sheet for details).



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