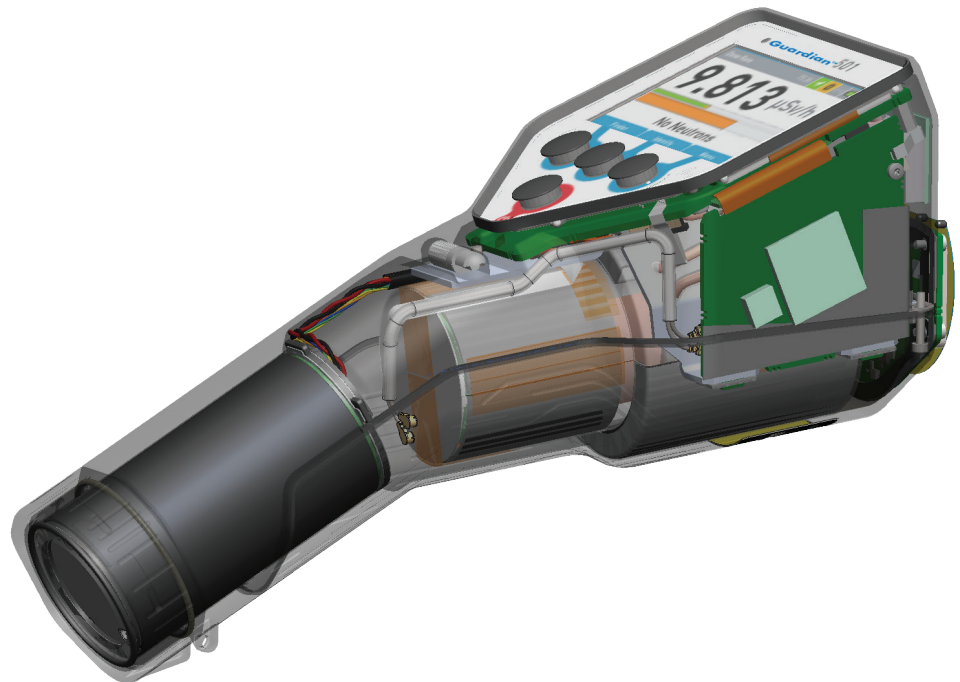


GUARDIAN 501 BGO

HANDHELD RADIONUCLIDE DEVICE

KEY FEATURES AND BENEFITS

- Ultra-compact, rugged, and sensitive Radionuclide Identifying Device (RID)
- Intuitive and user-friendly operation with built-in web interface for easy reach-back
- Gamma and thermal neutron detection



The Guardian 501 BGO
A fast, efficient radionuclide identifying device

The Guardian™ 501 family of handheld Radionuclide Identifying Devices (RID) excels at detecting gamma, beta, neutron, and cosmic radiation emitted by both natural and man-made sources. With exceptional precision, it can identify special nuclear material as well as industrial, medical, and naturally occurring radioactive sources.

Additionally, the Guardian 501 line enables accurate measurement of X-ray and gamma exposure, making it an indispensable tool for multiple applications. By delivering unwavering performance in various conditions and environments, the Guardian 501 RID ensures the utmost accurate results, which minimizes false positives and expedites decision-making in the field. The Guardian 501 BGO offers gamma and thermal neutron detection.

SPECIFICATIONS

GUARDIAN 501 BGO

TECHNICAL DATA

- **Technology:** Radionuclide Identification Device (RID)
- **Scope:** Detection of gamma, beta, neutron, and cosmic radiation emitted from natural and man-made sources. Identification of special nuclear material, industrial, medical, and natural radioactive sources. Measurement of X-ray and gamma exposure rate or ambient dose equivalent.

BGO DETECTOR

- **Operating Range:** Gamma and thermal neutron detection
- **Material:** Bi₄Ge₃O₁₂ (Gd₂O₃)
- **Size:** 51 Ø x 25 mm³ (2 in x 1 in)
- **PHR:** 9.0 ± 1.5 % @ 662 keV
- **Energy Range:**
 - 10 keV_{ee} to 1000 MeV_{ee} (total)
 - 10 keV to 10 MeV (gamma and X-rays)
 - 10 MeV_{ee} to 1000 MeV_{ee} (cosmic radiation, muons, charged particles)
- **Dose Rate Range (Cs-137):** 10 nSv/h to 10 mSv/h (1 µrem/h to 1 rem/h) ±30 %
- **Dose Rate Range ID Mode (Cs-137):** 10 nSv/h to 200 µSv/h (1 µrem/h to 20 mrem/h)
- **Dose Rate Overload Range (Cs-137):** 0.2 mSv/h to 500 mSv/h (0.02 rem/h to 50 rem/h)
- **Maximum Input Count Rate in ID Mode:** 1 million cps (Cs-137)
- **Gamma Sensitivity:** 1,850 cps/µSv/h (Cs-137)
- **Neutrons:** According to ANSI N42.34
- **Neutron Sensitivity:** ~5 cps/nv

PERFORMANCE

- **Power-up Time:** Operative in less than one minute
- **Identification Time:** Identification of 1 µCi Cs-137 in 3 s (5 cm to crystal center)
- **Linearisation:** Real-time linearization of gamma energy
- **User-interface Update Frequency:** 0.5 s
- **Nuclide Library:** > 70 nuclides (exceeding IEC 62327, ANSI N42.34)

PHYSICAL

- **Weight:** 1,200 to 1,350 g (2.65 to 3.00 lbs) depending on detector type
- **Dimensions (L x H x W):** 232 mm x 88 mm x 92 mm (9.13 in x 3.46 in x 3.62 in)
- **Housing material:** Machined aluminum

OPERATING CONDITIONS

- **Operating Temperature:** -20 °C to 50 °C (-4 °F to 122 °F)
- **Operating Humidity:** Up to 93 % at 40 °C (104 °F) non-condensing
- **Protection Rating:** IP68 according to IEC 60529 submersible, up to 10 m (33 ft) 30 min

OPERATING MODES

- **Dose Rate:** Gamma dose rate and neutron count rate
- **Finder:** Dose rate history display
- **Easy Finder:** Source strength and direction
- **Identification:** Gamma spectrum measurement and identification

POWER MODULE PM18650

- **Capacity:** 3,7 V / 6.7 Ah / 24 Wh
- **Run Time at 20 °C (68 °F):** > 6 h regular use (non-alarm state)
- **Run Time at -20 °C (12 °F):** > 1 h regular use (non-alarm state)
- **Operating Temperature:** -20 °C to 50 °C (-4 °F to 122 °F)
- **Charging Temperature:** 0 °C to 40 °C (+32 °F to 104 °F)
- **Storage Temperature:** -20 °C to 50 °C (-4 °F to 122 °F)

HARDWARE

- **Data Storage:** 30 GB internal memory
- **Wi-Fi:** Wi-Fi access point 2,4 GHz 802.11 g, encryption WPA-PSK AES
- **Bluetooth:** Bluetooth LE for connection to the Mobile App
- **GPS:** Navstar GPS, Galileo, Glonass, Beidou
- **USB-C:** Power and data port

SOFTWARE

- **Web Server:** Web Interface for setup, data download and remote control
- **Data Streaming:** Support of the Sigma streaming API via BT tethering
- **Data Reporting:** Support of the Sigma reporting API via BT tethering
- **Easy Finder:** Convenient directional finder mode for locating gamma sources
- **Session Data:** Continuous tracking of GPS position, dose rate, alarms and identification results

MOBILE APP

- **Supported Operating Systems:** Apple iOS, Android
- **Remote Setup:** Adjustment of all instrument settings
- **Remote Operation:** Remote operation and observation of the instrument
- **Reachback:** Reachback functionality (e-mail with attached ANSI N42.42 data)

STANDARDS COMPLIANCE

- **RID:** IEC 62327, ANSI N42.34
- **Environmental Tests:** IEC 62706
- **Data Format:** ANSI N42.42, IEC 62755

All technical data are subject to change without further notice.

The performance characteristics and photos in this document are indicative and for information only and do not represent any specific system configuration. Specifications and features of individual systems will vary based upon customer requirements, operation, supplied options, and other factors. Customers must refer to the relevant quote, proposal, or contract for the definition of a system configuration, including specifications and optional items. Due to continual development of our products, we reserve the right to amend any of the information listed here without notice. Please note that due to U.S. laws and regulations, not all products are available for sale in all countries without restriction.

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