Gamma Radiation Detection Unit BDG2 for PM1403

Gamma Radiation Detector Detection BDG2 performs the following functions when connected to the Spectroscopic Radiation Monitor PM1403: indication of the measured value of DER and DE of gamma radiation; indication of average count rate and measured DER value; programming of BDG2 operation modes.

BDG2 can be used by radiological and isotope tracing laboratories, customs officers, emergency services to search and detect ionizing radiation sources.

Operation Principle

Geiger-Muller counter is used to measure DER and DE of photon radiation. Operation algorithm enables continuous measurement process, processing of the results and quick adaptation to radiation intensity changes. BDG2 in the programming mode enables recording data into non-volatile memory and continuous control over two DER and DE threshold values, as well as sound and light alarming when set thresholds are exceeded.

Operating Mode

When the instrument is connected to the Spectroscopic Radiation Monitor PM1403 / Display and Control Unit PM1403 / Display and Control Unit PM1403-01 or PC it enables reading from BDG2:

- DER and DE measurement data
- DER measurement statistical error
- DE accumulation time
- BDG2 number
- DER and DE threshold levels values
- sound alarm state (On/Off)

Recording into BDG2 the following information:

- DER and DE threshold levels values
- command of accumulated DE and DE
- accumulation time resetting
- command sound alarm "On/Off"

Radiation Detectors Set PM1403

BDG2 - GM detector, gamma radiation detector

BDG3 - CsI(Ti) detector, gamma radiation detector

BDN - He-3 detector, neutron radiation detector

BDAB - proportional counter, alpha-beta radiation detector

Application

- Exploration Geology
- Surface Contamination
- Laboratory Equipment

Standards Compliance

BDG2 corresponds to ANSI 42.34, section 9.11 according to their electromagnetic emission level (local state standard of manufacturing country).

Specifications

Detector	Geiger-Muller tube
Dose equivalent rate (DER) measurement range	from 0.1 μSv/h to 10.0 Sv/h
DER measurement accuracy	± (20+K/Ḣ)%, where Ḣ – DER value, μSv/h; K – coefficient = 2,0 μSv/h
Dose equivalent (DE) measurement range	from 0.1 μSv/h to 9999 mSv
DE measurement accuracy	± 10 %
Thresholds	0.01 to 9999 mSv (DE thresholds)

Energy range	from 0.03 to 3.0 MeV

Energy response relative to 0.662 MeV:

within energies range from 30 to 48 keV minus 40 %

within energies range from 48 keV to 3.0 MeV ± 25 %

Data exchange	USB or RS-485 interface (with BDOI or PC)
Power supply	3.6 (minus 0.6; +0.7) V
Ingress protection	IP65
Weight	0.11 kg
Dimensions	162 x 40 mm
Mean time between failures	20000 hours
Mean service lifetime	10 years
Mean recovery time	60 min
Operating temperature	from -20 to +50 °C
Humidity	up to 95 % at 35 °C
Atmospheric pressure	from 84 to 106.7 kPa.