RADIATION DETECTORS BDMN-310 and BDKN-310

Purpose

The radiation detectors are aimed to measure of ambient dose equivalent dose rate of neutron radiation and flux density of thermal neutrons. It is used as a part of dosimeter-radiometer MKS-2020 or in an automated radiation monitoring system for operative and periodical control of radiation situation at nuclear stations, plants of nuclear industry, nuclear fuel cycle enterprises, and also at the companies which use the sources of ionization radiation.

BDMN-310

BDKN-310

Features:

- single-block, functional and constructive complete device;
- operative mode – continuous or turning the power on and off without limits;
- efficiency control of all main parts in real time and data exchange about the measured values, cases of exceeding of setting threshold levels, condition and settings at the request of external workstations via line RS-485 using communication protocols Modbus RTU or DiBUS;
- there is a possibility to set a sensitivity coefficients, dead time and thresholds (preliminary and alarm) in radiation detector by user;
- to provide a light-sound alarm at the installation place by means of block BUS-04 (if there is in the order);
- the average service life of radiation detector no less 10 years in case of the parts that have developed their resource are replaced.

SPECIFICATIONS

Measurement range of ambient dose equivalent rate of neutron radiation	
BDMN-310	0,1 μSv•h^{-1} – 0,1 Sv•h^{-1}
BDKN-310	0,1 μSv•h^{-1} – 0,1 Sv•h^{-1}
Measurement range of flux density of neutron radiation	
BDMN-310	0,1 – 1•10^{5} s^{-1}·cm^{-2}
BDKN-310	0,1 – 1•10^{5} s^{-1}·cm^{-2}
Energy range	
BDMN-310, BDKN-310[1]	from 0,025 eV to 14 MeV
Limits of tolerable intrinsic relative error, %	
BDMN-310, BDKN-310	± (20 + 5/Ax)
Type of detecor	
BDMN-310	scintillation detector of thermal neutrons (Ø 30 × 5 mm)
BDKN-310	neutron counter
Sensitivity, not less	
BDMN-310 (in polyethylene moderator, sphere Ø 240 mm)	0,40 s^{-1}·μSv^{-1}·h
BDKN-310 (in polyethylene moderator, cylinder Ø 100 mm)	1,0 s^{-1}·μSv^{-1}·h
Energy dependance, %	
BDMN-310	± 40 (calibration by Pu-α-Be) at ionization energy 1 KeV – 14 MeV
Anisotropy of radiation detector, no more	
	± 20 %
Time of setting the operating mode	
	no more 10 minutes
Time of continuous work	
	no less 24 hours
Communication interface	
	RS-485
Power at rated supply voltage does not exceed	
BDMN-310, BDKN-310	0,30 VA
Relative humidity (at 35°C)	
	up to 95 %
Atmospheric pressure	
	from 86 to 108 kPa
Protection class, not worse	

[1] The radiation detector BDMN-310 and BDKN-310 without moderators measure the flux density of thermal neutrons in energy range from 0,025 eV.

	IP67
Ambient temperature range	
BDMN-310, BDKN-310	from minus 40 to +60 °C
Dimensions and weight, no more	
BDMN-310	260×260×380 mm, 11,0 kg
BDKN-310	ø101×360 mm, 2,0 kg

Delivery set: a radiation detector BDBG-310/BDKS-310, a warning device BUS-04*, a junction box КК-2*, an operation manual.
** - if there is in the order.*

«SPE «TETRA» Ltd
52210 Zhovti Vody, Franko 2
Dnipropetrovsk region., Ukraine
Tel: +38 (098) 894-06-06, +38 (050) 145-76-84
e-mail: info@tetra.ua http://www.tetra.ua