



DoseG and DoseGX

Electronic Personal Dosimeter EPD-27

- Wide energy measuring range from 12 keV to 10 MeV (DoseGX model)
- Two threshold levels for dose, dose rate and time in the control zone
- High ingress protection rating IP67
- Complies with IEC 61526 standard

Description

DoseG and DoseGX represent a new EPD-27 family of electronic personal dosimeters from ECOTEST trademark.

The devices are intended for use as part of an automated system of individual dosimetric control and for autonomous use. EPD-27 dosimeters are available in two modifications – DoseG and DoseGX.

Purpose of use

- Measurement of individual dose equivalent (DE) of gamma and X-ray radiation
- Measurement of individual dose equivalent rate (DER) of gamma and X-ray radiation
- Monitoring of time spent in the control zone
- Maintaining an automated database of dose load on personnel as part of the software and hardware complex (unified) automated system of individual dosimetric control of personnel

Branches of Use



Nuclear power industry



Emergency Services and Civil Defense



Radiological laboratories



Medicine



Sanitary dosimetry and ecology



Mining industry



Metallurgy and scrap metal storage

Features

- Scintillator-based detectors with a silicon photomultiplier
- Ability to store data in non-volatile memory
- Sound, light, and vibration alarms of threshold levels exceeding
- Infrared port for transferring the dose accumulation history and event history from the dosimeter to the personal computer, as well as for setting up the dosimeter
- Glass-filled plastic shock-resistant housing of high ingress protection rating IP67
- Backlight of the digital display
- Resistant to 60 repetitive shocks, each corresponding to a drop of 10 cm on a hard steel surface, and resistant to 6 drops (one drop on each side) from a height of 1 m on a hard surface

Specifications

Measurement range of photon ionizing radiation DER	10·10 ⁻⁶ ... 10 Sv/h
Display range of photon ionizing radiation DER	1·10 ⁻⁶ ... 10 Sv/h
Main relative permissible error limit of EPD-27 DoseG dosimeter when measuring gamma radiation DER at ¹³⁷ Cs calibration with a confidence probability of 0.95	
<ul style="list-style-type: none"> – in the range from 1·10⁻⁵ Sv/h to 1·10⁻³ Sv/h (inclusive) 	20 %
<ul style="list-style-type: none"> – in the range from 1·10⁻³ Sv/h to 10 Sv/h 	15 %
Main relative permissible error limit of EPD-27 DoseGX dosimeter when measuring gamma radiation DER at ¹³⁷ Cs calibration with a confidence probability of 0.95	
<ul style="list-style-type: none"> – in the range from 1·10⁻⁵ Sv/h to 1·10⁻³ Sv/h (inclusive) 	20 %
<ul style="list-style-type: none"> – in the range from 1·10⁻³ Sv/h to 1·10⁻¹ Sv/h 	15 %
<ul style="list-style-type: none"> – in the range from 1·10⁻³ Sv/h to 10 Sv/h 	15 %
Measurement and display range of X-ray radiation DER by EPD-27 DoseGX dosimeter	1·10 ⁻⁶ ... 1·10 ⁻¹ Sv/h
Measurement and display range of photon ionizing radiation DE	1·10 ⁻⁷ ... 10 Sv
Main relative permissible error limit of DE measurement at ¹³⁷ Cs calibration with 0.95 confidence probability, not more	15 %
Complementary relative permissible error limit of photon ionizing radiation DER and DE measurement result caused by ambient temperature deviation from 20 °C, in the temperature range from minus 20 to + 50 °C	5 % per each 10 °C of deviation from 20 °C
Operating supply voltage of the dosimeter from Li-polymer battery with a capacity of at least 400 mAh	3.7 V
Time of continuous operation of the dosimeter under normal climatic conditions when powered from a fully charged battery:	
<ul style="list-style-type: none"> – under gamma background not more than 0.5 μSv/h and with switched off LCD backlight, switched off sound and vibration alarm, no less 	170 h
<ul style="list-style-type: none"> – under the conditions of DER measurement equal to 1 Sv/h and with switched-on LCD backlight, switched-on sound and vibration alarm, no less 	4 h

Unstable readings of the dosimeter during 8 hours of continuous operation, not more	5 %
Energy range of detected photon ionizing radiation	0.05 ... 10 MeV
Energy dependence when measuring photon ionizing radiation DER and DE relative to 0.662 MeV energy (¹³⁷ Cs), not more <ul style="list-style-type: none"> • – in the energy range from 0.05 to 1.25 MeV • – in the energy range from 1.25 to 10 MeV 	20 % 40 %
Energy range of detected X-ray radiation by EPD-27 DoseGX dosimeter	12 ... 200 keV
Energy dependence of EPD-27 DoseGX when measuring X-ray radiation DER and DE relative to 0.662 MeV energy (¹³⁷ Cs), not more	from minus 30 % to 35 %
Operating temperature range	– 20 ... + 50 °C
Dimensions of the dosimeter with a clip, not more	84.5 × 55 × 24.5 mm
Weight of the dosimeter, not more	0.11 kg