**AT2503 AT2503A**

Easy to operate, pocket-sized microprocessor instruments with high accuracy and reliability. Together with the reader connected to PC it can be a part of automated monitoring system of staff dose burden.

**Features**

- Simultaneous wide-range gamma radiation dose and dose rate measuring
- Proof against impacts and vibrations, dust and water. electromagnetic-resistant
- Continuous self-testing of detector and cells discharge
- Audible and visual alarm
- Stand-alone or system application
- Pocket-sized and light weight
- Pulsed x-ray radiation alarming mode, pulse duration more than 10 ns

**Application**

- Nuclear industry
- Nuclear medicine
- Radiology
- NDT
- Emergency
- Civil aviation
- Scientific research
- Population dose burden monitoring

The dosimeters are intended to measure personal x-ray and gamma radiation dose equivalent and dose rate equivalent in the energy range from 50 keV to 1.5 MeV. The detector is a GM-tube with the energy compensating filter. Microprocessor processing and proper background detection ensure high accuracy of dose measurement within the wide dose rate measuring range. The microprocessor controls operation modes over, calculates, outputs data on a backlit LCD and performs self-testing. The nonvolatile memory keeps the accumulated dose and its accumulation history when the dosimeter is off. The dosimeter is calibrated on a water phantom of 30 x 30 x 15 cm. The dosimeter is designed to be carried in a breast pocket. It complies with ISO4037-3 International standard requirements.
The dosimeter can operate stand-alone or in a dosimetry monitoring system: dosimeter - reader - PC. The dosimeter connects to the
reader via IR channel, and the reader connects to PC via RS232. The dosimeter software is intended to:

- read/setup personal and serial dosimeter numbers;
- change dose and dose rate thresholds;
- disable/enable to change dosimeter thresholds by the dosimeter button;
- change the dose accumulation interval in the range from 1 to 255 min and evaluate accumulated dose for each time interval within a work shift;
- save automatically up to 800 dose values in the nonvolatile memory accumulated for the selected accumulation interval;
- reset accumulated dose;
- disable/enable to reset accumulated dose by the dosimeter button;
- save automatically data in the data base and print them.

The operation modes are "Dose ", "Dose rate ", "Economical", "Menu", "Reset dose", "Dose threshold", "Dose rate threshold", "Data exchange with PC".

### Specification

#### Measuring range
- personal dose equivalent (in increment of 0.1 μSv)
  - AT2503, AT2503A: 1 μSv - 10 Sv
- personal dose rate equivalent
  - AT2503: 0.1 μSv/h - 0.5 Sv/h
  - AT2503A: 0.1 μSv/h - 0.1 Sv/h

#### Intrinsic dose measurement error
- ±15%

#### Calibration error on 137Cs
- ± 5%

#### Intrinsic dose rate measurement error in the range
- from 0.1 to 1 μSv/h: ± 25%
- more than 1 μSv/h: ± 15%

#### Energy range
- 50 keV - 1.5 MeV

#### Energy sensitivity response
- in the range of 50 keV - 1.5 MeV: ±30%

#### Audible and visual alarm
- at dose and dose rate measuring range or dose and dose rate threshold exceeding;
- detector failure; cells discharge

#### Alarm thresholds (independent)
- dose: 30 μSv; 200 μSv; 1 mSv; 4.2 mSv; 12.5 mSv; 50 mSv; 100 mSv; 1 Sv
- dose rate: 0.6 μSv/h; 3 μSv/h; 30 μSv/h; 300 μSv/h; 3 mSv/h; 30 mSv/h; 300 mSv/h; 500 mSv/h
- customized thresholds

#### Anisotropy
- within ±75° angle
  - for 137Cs and 60Co: ±20%
  - for 241Am: ±50%

#### Response time to dose rate change
- when Hp(10) > 10 μSv/h: 5 s

#### Radiation overload
- AT2503: up to 5 Sv/h
- AT2503A: up to 1 Sv/h

#### Operating conditions:
- operating temperature range: -10° ÷ +40°C
- relative humidity at temperature of + 35 º C: up to 90%
- shock-proof (to fall from 1.5 m)

#### Protection class
- IP54

#### Power requirements
- 3 cells type: SR44, V357, LR44, A76

#### Continuous operation time
- from one cells set when Hp(10) < 1 μSv/h: 1000 h
  - in economical mode (the LCD is off): 5000 h

#### Electromagnetic compatibility
- EN 61000-4-2:1995
- EN 61000-4-3:2002

#### Dimensions
- dosimeter: 85×66×16 mm
- reader: 90×66×28 mm

#### Weight
- dosimeter: 70 g
- reader: 300 g

### Complete set
- personal dosimeter, cells, chain with a clamp, plastic boxes for easy decontamination, Manual and package.
- The reader and applied software and AT2503 and AT2503A modifications with the temperature from -30 to +60 °C or the optional pulsed x-ray radiation alarming mode are supplied on additional order.

The personal dosimeters AT2503 and AT2503A have pattern approval certificates of Republic of Belarus, Russian Federation, Ukraine, Kazakhstan and Lithuania.

They comply with IEC 61283 International standard requirements. They also conform with the 89/33/EEC directive complying with EN 55022 B:1998 and EN 55024 B:1998 standard requirements.

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