**AT1125, AT1125A Radiation Monitors**

**Rapid radiation background measurement and instant response to its change**

**Express-monitoring of radionuclides in raw products, materials and environmental objects**

**Measurement of alpha and beta particle flux density from contaminated surfaces**

Portable high-sensitivity Radiation Monitors are designed to search for and detect sources of gamma radiation, measure ambient gamma radiation dose equivalent rate, alpha and beta particle flux density from flat contaminated surfaces, as well as for radiometric monitoring of radionuclides in samples using 0.5-litre Marinelli beaker.

For radiometric radionuclide content monitoring in samples the following monitor design variants are possible:

1. $^{137}$Cs monitoring
2. $^{137}$Cs, $^{134}$Cs + $^{137}$Cs monitoring
3. $^{131}$I, $^{137}$Cs, $^{134}$Cs + $^{137}$Cs monitoring

**Operating principle**

It is equipped with NaI(Tl) scintillation detector of high sensitivity and is able to rapidly respond to minor changes in radiation background. "Spectrum-Dose" correction functions in energy range from 0.05 to 3 MeV allows high-accuracy dose rate measurement in a wide range of gamma energies.

Apart from scintillation detector AT1125A Radiation Monitor is equipped with a Geiger-Muller tube, that significantly expands the range of ambient gamma radiation dose equivalent rate measurement.

This device features a possibility of sample radiometric radionuclide content monitoring with lead protecting unit indoors and express-testing in field environment without lead protecting unit.

**Applications**

- Search, detection and localization of ionizing radiation sources
- Radiation monitoring of environment, areas, facilities, raw products and materials
- Rapid radiation monitoring of $^{137}$Cs content in wild-growing mushrooms and berries
- Dosimetric and Radiometric monitoring of manufacturing facilities
- Scrap metal radiation monitoring

**Features**

- Multiple functions
- High sensitivity
- Field operation capability over a wide temperature range
- Integrated system for measurement path LED stabilization
- Threshold level crossing alarm
- Memory function for up to 100 measurement results
- Writing, storing and transmitting measurement data into PC via RS232 or USB (adapter) interface

The Radiation Monitors can be delivered with an external BDPS-02 detection unit, designed for measuring alpha and beta particle flux density from flat contaminated surfaces, gamma and X-radiation ambient dose equivalent and ambient dose equivalent rate.
### Specification

#### Detector
- AT1125
- AT1125A
- BDP5-02

<table>
<thead>
<tr>
<th>Detector</th>
<th>Scintillator NaI(Tl) Ø25x40mm, Integrated Geiger-Muller counter tube</th>
</tr>
</thead>
<tbody>
<tr>
<td>AT1125</td>
<td>30 nSv/h – 300 µSv/h</td>
</tr>
<tr>
<td>AT1125A</td>
<td>30 nSv/h – 100 µSv/h</td>
</tr>
<tr>
<td>BDP5-02</td>
<td>0.1 µSv/h – 30 µSv/h</td>
</tr>
</tbody>
</table>

#### Ambient gamma and X radiation dose rate equivalent measurement range
- AT1125 10 nSv – 10 mSv
- AT1125A 10 nSv – 10 mSv
- BDP5-02 0.1 µSv – 1 mSv

#### Limit of intrinsic relative error of dose rate and dose measurement
- AT1125, AT1125A ±15%
- BDP5-02 ±20%

#### Energy range of registered X-ray and gamma radiation
- AT1125, AT1125A 50 keV – 3 MeV
- BDP5-02 20 keV – 3 MeV

#### Typical sensitivity
- AT1125, AT1125A
  - For 137Cs: 350 cps/µSv·h
  - For 241Am: 3800 cps/µSv·h
- BDP5-02 for 137Cs: 6.6 cps/µSv·h

#### Energy dependence relative to 662 keV (137Cs)
- AT1125, AT1125A ±15%
- BDP5-02 ±30%

#### Response time for dose rate change from 0.1 to 1 µSv/h
- ≤2 s (accuracy error ±10%)

#### Natural radiation background (0.1µSv/h) measurement time with ±20% statistical error (P=0.95)
- ≤15 s

#### Detection time of 137Cs source with 10 kBq activity at 5 cm distance
- <2 s

#### Count rate measurement range
- 1 – 105 s⁻¹

#### Flux density measurement range
- Alpha particles (BDP5-02) 2.4 – 1 x 10⁶ min⁻¹·cm⁻²
- Beta particles (BDP5-02) 6 – 1 x 10⁵ min⁻¹·cm⁻²

#### Spectrum maximum energy range of registered beta particles (BDP5-02)
- 155 keV – 3.54 MeV

#### 137Cs specific activity measurement range with 0.5 litre Marinelli beaker
- With Protection Unit 50 – 10⁸ Bq/kg
- W/o Protection Unit 100 – 10⁴ Bq/kg

#### Limit of intrinsic relative error of 137Cs specific activity measurement
- ±20%

#### Power supply
- Internal rechargeable Ni-MH battery or AC power adapter

### Additional Information

- **Burn-up life**: ≥100 Sv
- **Continuous run time** on integrated battery set: ≥24h
- **Operation mode setup time**: 1min
- **Protection class**: AT1125 IP54, BDP5-02 IP64
- **Working temperature range**: -20°C to +50°C
- **Relative humidity with air temperature ≤35°C without condensation**: ≤90%
- **Overall dimensions, weight**
  - AT1125, AT1125A: 258x85x67 mm, 1.0 kg
  - BDP5-02: 138x86x60 mm, 0.3 kg
  - Protection unit: 200x200x410 mm, 12 kg

The radiation monitors comply with:

---

**Design and specifications are subject to change without notice.**

5 Gikalo st., Minsk 220005, Republic of Belarus
Tel./Fax: +375-17-270-81-42
E-mail: info@atomtex.com

[Logo] ATOMTEX

http://www.atomtex.com