# AT6110 Radiation Portal Monitor (rapid deployable)

***Pillar*** *(2090x1025x955 mm, ≤78 kg)*

AT6110 is a rapid deployable radiation portal monitor (RPM) for continuous radiation monitoring designed to detect gamma and neutron sources in vehicles, cargo and pedestrian traffic offering gamma source type identification as natural or artificial (categorization feature).

RPM rapidly detects elevation of radiation level over background caused by a moving source of gamma radiation while a dedicated method prevents significant deterioration of detectability due to the effect of background reduction by vehicle walls.

## Features

- Rapid deployment
- High sensitivity
- Categorization of radiation sources into natural and artificial
- Up to 20 h of operation time on built-in batteries
- Storage and operation in rugged cases
- Severe operating conditions

***Rugged 10" tablet PC***

If RPM detects an exceedance over background radiation level, the yellow alarm light is lit. At the same time the system determines the category of radiation source. If this radiation is generated by an artificial source, the red alarm light is lit.

RPM consists of two or more monitors, each composed of a detection unit based on plastic scintillation detector, and one or two counting neutron radiation detection units based on helium-3 counter tubes. These monitors attach to special frames to guarantee the system is stable and has a proper geometry for measurements.

RPM is operated from a tablet PC. RPM software receives and processes consolidated counting and spectrometric data in a single flow from all detectors.

***Case with frames (x2) and accessories***
*(1550x550x465 mm, ≤65 kg)*

***Monitor***
*(1630x460x190 mm, ≤45 kg)*

# AT6110 Radiation Portal Monitor (rapid deployable)

| Specifications | |
|---|---|
| Monitor configuration | Gamma channel: 1 x **BDRM-05**<br>Neutron channel: 2 x **BDKN-05** |
| Total number of monitors in the system | Up to 8 |
| Continuous operation time | ~20 h |
| Monitors power supply | Built-in rechargeable battery pack |
| Charging options for detector rechargeable battery packs | 1) Mains 230 VAC, 50 Hz<br>2) External source of 12 VDC<br>Battery charge level is automatically monitored by the system. |
| Protection class | IP55 |
| Average operating life | ≥15 years |
| Operation temperature range | -20°C to +50°C |
| Relative air humidity | ≤95% (Air temperature ≤35°C without condensation) |
| Overall dimensions, weight<br>*Monitor*<br>*Case with frames (x2) and accessories*<br>*Pillar (monitor attached to frame)* | <br>1630x460x190 mm, ≤45 kg<br>1550x550x465 mm, ≤65 kg<br>2090x1025x955 mm, ≤78 kg |

| Gamma radiation detection units | | BDRM-05 |
|---|---|---|
| Detector | | Scintillation plastic, 1000x100x50 mm |
| Energy range | | 50 keV – 3 MeV |
| Typical sensitivity to source radiation | $^{241}$Am<br>$^{137}$Cs<br>$^{60}$Co | 60000 cps/(μSv·h$^{-1}$)<br>32000 cps/(μSv·h$^{-1}$)<br>17000 cps/(μSv·h$^{-1}$) |

| Neutron radiation detection units | | BDKN-05 |
|---|---|---|
| Detector | | Two He-3 proportional counters in polyethylene moderator |
| Energy range | | 0.025 eV – 14 MeV |
| Typical sensitivity to source radiation at the distance of 1 m | $^{252}$Cf | 20 cps/(neutron·s$^{-1}$·cm$^{-2}$) |

**Detection threshold for unshielded source** under natural radiation background conditions not more than 0.1 μSv/h
*(Probability of source detection 80% under confidence level P=0.95)*

***Road vehicles.*** Travel speed 8 km/h

| | Monitors configuration (location and number) | Gamma channel | | Neutron channel |
|---|---|---|---|---|
| | | ***Detection*** | ***Categorization*** | |
| Control zone width – 3 m, height – 2 m | | 940 kBq [$^{241}$Am]<br>130 kBq [$^{137}$Cs]<br>70 kBq [$^{60}$Co] | 1100 kBq [$^{241}$Am]<br>310 kBq [$^{137}$Cs]<br>330 kBq [$^{60}$Co] | 2.1·10$^{4}$ neutron/s [$^{252}$Cf] |
| | | 690 kBq [$^{241}$Am]<br>100 kBq [$^{137}$Cs]<br>50 kBq [$^{60}$Co] | 800 kBq [$^{241}$Am]<br>240 kBq [$^{137}$Cs]<br>250 kBq [$^{60}$Co] | 1.2·10$^{4}$ neutron/s [$^{252}$Cf] |
| Control zone width – 6 m, height – 4.5 m | | 2140 kBq [$^{241}$Am]<br>290 kBq [$^{137}$Cs]<br>150 kBq [$^{60}$Co] | 2500 kBq [$^{241}$Am]<br>690 kBq [$^{137}$Cs]<br>710 kBq [$^{60}$Co] | 2.2·10$^{4}$ neutron/s [$^{252}$Cf] |
| | | 1570 kBq [$^{241}$Am]<br>210 kBq [$^{137}$Cs]<br>110 kBq [$^{60}$Co] | 1900 kBq [$^{241}$Am]<br>500 kBq [$^{137}$Cs]<br>520 kBq [$^{60}$Co] | 1.4·10$^{4}$ neutron/s [$^{252}$Cf] |

The radiation portal monitor complies with: GOST 27451-87, GOST 26874-86, Safety requirements of IEC 61010-1:2010, EMC requirements of EN 55011:2009, IEC 61000-4-2:2008, IEC 61000-4-3:2008

Design and specifications are subject to change without notice

ATOMTEX®
http://www.atomtex.com

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

ISO 9001

Corporate Member of European Nuclear Society