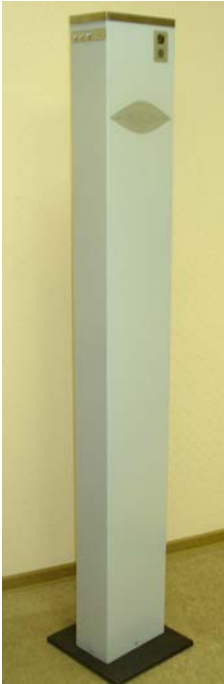


KRP-05 Gamma/Neutron Detector



The KRP-05 device monitors gamma and neutron radiation levels during passage of mail through a monitored space subject to inspection, with the intent of detecting both radioactive materials and special nuclear materials (SNM). Upon detecting a threat, it will generate audio and visual signals.

The detector is commonly housed in a column that may be placed in either a horizontal or vertical orientation. It may also be located inside a wall, ceiling or floor, inside an inspection bench, under a conveyer, inside a pass-through metal detector, etc.

The gamma radiation detector is based on a NaI(Tl) monocrystal that enables output of high-precision gamma radiation spectra that can be used to identify nuclide composition of the sources detected with software-based signal processing. Optical flashes formed in the crystal during operation are converted into electric pulses (with an amplitude proportional to the incident radiation energy level) by using a photomultiplier tube (PMT). An analog/digital converter converts the PMT photocurrent into digital code and submits it to an information processing unit where signals are analyzed and compared to stored nuclide spectral fingerprints and threshold levels. Based on this software analysis, a conclusion is reached on the presence or absence of

radioactive materials.

KRP-05 Technical Specifications

Parameter	Value
Inspection space (height x width x depth)	1600 x 1450 x 1000 mm
Gamma radiation energy range	0.05 to 3.0 MeV
Detection threshold-gamma (1)	450 kBq of Cs-137
Detection threshold-neutrons	Cf-252 source emitting 2×10^4 neutrons/s.
Overall dimensions (height x width x depth)	1700 x 230 x 130 mm
Weight	35 kg
Power consumption	50W, 110VAC
Start-up time	Less than 1 minute
Duty cycle	Continuous
Operating temperature range	+10C to +35C
Relative humidity	75% or less
Barometric pressure	84 to 106.7 kPa

Notes:

1. When a probability of correct detection is no less than 0.5, with an external background of up to 0.25 μ Sv/hr and a speed of the isotope standard traveling through the inspection space of 1 to 1.2 m/s.

Research International, Inc. is the exclusive distributor for mailroom applications of radiation detection technologies manufactured by RATEC, Inc. of St. Petersburg, Russia. RATEC has developed, over a 20-year period, a line of highly sensitive passive analyzers for radioactivity. These passive analysis methods use neutron and gamma radiation energy signatures to detect and identify radioactive materials and special nuclear materials. RATEC is one of the leading radioactivity detection technology companies in the world today, and also manufactures highly sensitive Advanced Thermal Neutron Analysis and Fast Neutron Analysis systems for the noninvasive detection of high explosives.



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