



POLIMASTER®



Innovating Radiation Detection Technologies Since 1992

MULTIPURPOSE HANDHELD RADIATION MONITOR

PM1401K-3

PM1401K-3M



Devices are designed for adequate detection of the alpha, beta, gamma and neutron radiation sources as well as for gamma spectra accumulation and precise measuring of gamma dose rate and levels of contamination of surfaces, contaminated with alpha and beta irradiating sources.

These are the smallest and lightest instruments in the world which is capable to operate simultaneously as an alarming device, search instrument, survey meter, spectrometer and identifier.

Identification results appear on a bright, easily read color LCD display. Belt clip and ability to an automatic mode of operation make device convenient to use.

All detectors are built into one lightweight and compact case. Shock and water resistant case ensures IP65 class environmental protection.

PM1401K-3 is equipped with alpha, beta, gamma and neutron detectors.

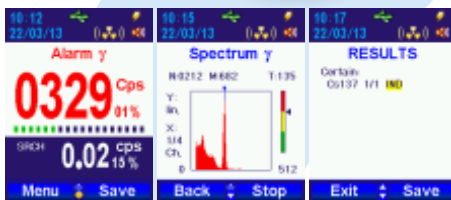
PM1401K-3M is equipped with alpha, beta and gamma detectors.

Applications

- Customs and border patrol
- Radiological and isotope laboratories
- Emergency services
- First responders
- Police and security
- Various industry branches where the nuclear technical units and ionizing radiation sources are used

Features

- Detect, search and locate alpha, beta, gamma and neutron radiation sources including weapon grade materials
- Measure levels of contamination of surfaces, contaminated with alpha and beta irradiating sources
- Measure precisely the dose rate
- Measure radionuclide specific activity in samples
- Alert users of the presence of radiation source via both audible and vibrating alarms
- Record and store more than 10 000 events and 1000 gamma spectra in its non-volatile memory
- Transmit all of the recorded data to PC via USB
- Built-in GPS
- Bright, color LCD display



ALARM

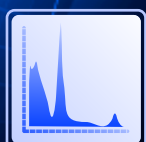
LOCATION

MEASUREMENT

IDENTIFICATION



α
 γ β
 n



GPS
USB

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GAMMA SEARCH, SPECTROMETRY AND ACTIVITY CHANNEL

Detector	Cs(Tl)
Sensitivity on ¹³⁷ Cs, no less than on ²⁴¹ Am, no less than	200 s ⁻¹ /(μSv/h) or 2.0 s ⁻¹ /(μR/h) 200 s ⁻¹ /(μSv/h) or 2.0 s ⁻¹ /(μR/h)
Energy range of gamma radiation	0.06 - 3.0 MeV
Coefficient n setting range, (the number of mean square deviations of background)	1.0 - 9.9
Detection of gamma radiation sources at a distance of 0.2m (0.7 ft), velocity of 0.5 m/s (1.64 ft/s) and level of radiation background of no more than 0,25 μSv/h (25 μR/h) when the activity of the sources is	¹³³ Ba 55.0 kBq ¹³⁷ Cs 100.0 kBq ⁶⁰ Co 50.0 kBq
Detection of the sampling sources at a distance of 0.2m (0.7 ft), velocity of 0.5 m/s (1.64 ft/s) and level of radiation background of no more than 0,25 μSv/h (25 μR/h) when the activity of the sources is	Pu 0.3 g U 10 g
Measuring range of specific activity on ¹³⁷ Cs	100 Bq/kg - 10 000 Bq/kg

NEUTRON SEARCH CHANNEL (only PM1401K-3)

Detector	He-3
Energy range	from thermal (0,025x10 ⁻⁶ MeV) to 14 MeV
Coefficient n setting range, (the number of mean square deviations of background)	1.0 - 9.9
Detection of the ²⁵² Cf alternative source with neutron flux 1,5x10 ⁴ s ⁻¹ at a distance of 1 m (3.28 ft), velocity of 0.5 m/s (1.64 ft/s) and the level of radiation background of no more than 0.25 μSv/h (25 μR/h), equivalent of plutonium	250 g

MEASURING GAMMA CHANNEL

Detector	GM-counter
Dose equivalent rate measurement range (DER)	0,1 μSv/h - 100 mSv/h (10 μR/h - 10 R/h)
Energy range	0.015 - 15 MeV
Energy response relative to 0.662 MeV (¹³⁷ Cs) in the photon radiation measuring mode, no more: - within the energy range from 0.015 up to 0.045 MeV - within the energy range from 0.045 up to 15.0 MeV	±40% ±30%
Accuracy of DER measurement (where Ḣ is the DER value in mSv/h)	±(15 + 0,0015/Ḣ)%

MEASURING ALPHA AND BETA CHANNEL

Detector	GM-counter
Alpha-flux density measurement range	from 15 to 10 ⁵ min ⁻¹ cm ⁻²
The minimal detectable alpha-flux density	from 2 min ⁻² cm ⁻¹
Accuracy error of measurement of the alpha-flux density on ²³⁹ Pu (where φ - the measured density of alpha-flux in min ⁻¹ cm ⁻² , A - coefficient equal to 450 min ⁻¹ cm ⁻²)	±(20 + A/φ)%
Beta-flux density measurement range	from 6.0 to 10 ⁵ min ⁻¹ cm ⁻²
Accuracy of measurement of beta-particles within the range on ⁹⁰ Sr+ ⁹⁰ Y (where φ - the measured density of beta-flux in min ⁻¹ cm ⁻² , A - coefficient equal to 60 min ⁻¹ cm ⁻²)	±(20 + A/φ)%

GENERAL SPECIFICATIONS

Standards compliance (most relevant parts)	ANSI N42.48, ANSI N42.42, ANSI N42.32, ANSI N42.33, ANSI N42.34
Alarms	visual (color LCD), audible, external vibration
Data transfer communication channels	USB
Battery lifetime to	250 hours
Battery	2 x AA
Protection degree	IP65
Weight, no more	800 g without batteries
Dimensions	261x60x65 mm

Design and specifications of the device can be changed without further notice.

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