



**POLIMASTER®**



Innovating Radiation Detection Technologies Since 1992

# MULTIPURPOSE HANDHELD RADIATION MONITOR

## PM1401K-3 PM1401K-3M



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

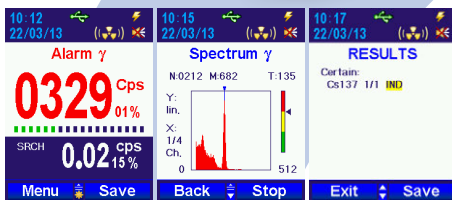
These are the smallest and the most light-weight instruments in the world which is capable to operate simultaneously as an alarming device, search instrument, survey meter, spectrometer and identifier.

Identification results appear on a bright, easily read color LCD display. Belt clip and ability to 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.



**ALARM**

**LOCATION**

**MEASUREMENT**

**IDENTIFICATION**

### Applications

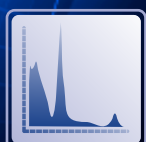
- Customs and border control
- Radiological and isotope laboratories
- Emergency services
- First responders
- Police and security
- Various industry branches where nuclear technical units and ionizing radiation sources are used

### Features

- Detect, search and locate alpha, beta, gamma and neutron radiation sources including weapon grade materials
- Measure levels of contaminated surfaces with alpha and beta irradiating sources
- Measure precisely dose rate
- Measure radionuclide specific activity in samples
- Alert users of the presence of radiation sources via audible and vibration 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



$\alpha$   
 $\gamma$   $\beta$   
 $n$



GPS  
USB

[www.polimaster.com](http://www.polimaster.com)

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## PM1401K-3 PM1401K-3M



### GAMMA SEARCH, SPECTROMETRY AND ACTIVITY CHANNEL

Detector	Cs(Tl)
Sensitivity on <sup>137</sup> Cs, no less than on <sup>241</sup> Am, no less than	200 s <sup>-1</sup> /(μSv/h) or 2.0 s <sup>-1</sup> /(μR/h) 200 s <sup>-1</sup> /(μSv/h) or 2.0 s <sup>-1</sup> /(μR/h)
Energy range of gamma radiation	0.015 - 15 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	<sup>133</sup> Ba 55.0 kBq <sup>137</sup> Cs 100.0 kBq <sup>60</sup> 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 <sup>137</sup> Cs	100 Bq/kg - 100 000 Bq/kg (Bq/l)

### NEUTRON SEARCH CHANNEL (only PM1401K-3)

Detector	He-3
Energy range	from thermal (0,025x10 <sup>-6</sup> MeV) to 14 MeV
Coefficient n setting range, (the number of mean square deviations of background)	1.0 - 9.9
Detection of the <sup>252</sup> Cf alternative source with neutron flux 1,5x10 <sup>4</sup> s <sup>-1</sup> 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 ( <sup>137</sup> 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 <sup>5</sup> min <sup>-1</sup> cm <sup>-2</sup>
The minimal detectable alpha-flux density	from 2 min <sup>-2</sup> cm <sup>-1</sup>
Accuracy error of measurement of the alpha-flux density on <sup>239</sup> Pu (where φ - the measured density of alpha-flux in min <sup>-1</sup> cm <sup>-2</sup> , A - coefficient equal to 450 min <sup>-1</sup> cm <sup>-2</sup> )	±(20 + A/φ)%
Beta-flux density measurement range	from 6.0 to 10 <sup>5</sup> min <sup>-1</sup> cm <sup>-2</sup>
Accuracy of measurement of beta-particles within the range on <sup>90</sup> Sr+ <sup>90</sup> Y (where φ - the measured density of beta-flux in min <sup>-1</sup> cm <sup>-2</sup> , A - coefficient equal to 60 min <sup>-1</sup> cm <sup>-2</sup> )	±(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	300 hours
Battery	2 x AA
Protection degree	IP65
Weight, no more	820 g
Dimensions	262x60x65 mm

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

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