

Gamma Contamination and Dose Rate Monitor

Radiation Detection Division

Health Physics



The RAM GENE-1 mark II model is the latest edition to the successful line of GENE instruments produced by Rotem. We have upgraded the basic reliable model to be compliant to applications which demand a rugged instrument for harsh environments.

Ideal for Emergency Response Teams, Ambulance Services and the Police force.

The RAM GENE-1 mark II features a specially designed energy filter embedded in the cap for ambient dose equivalent dose rate radiation monitoring down to 17keV, with the additional flexibility of a contamination meter.

The RAM GENE-1 is equipped with a recessed, internal GM pancake detector using a thin mica window protected by a stainless steel screen. The transition between measuring radiation dose rate and contamination is achieved with the aid of a mechanical switch on the gm housing which is activated by either removing or replacing the plastic cap

Features

- External power input which can also be used to charge appropriate batteries
- Aluminum case with splash resistant keypad
- Backlight for easy reading in unfriendly environments
- Large, four digit, continuous ranging, LCD display
- Simple, three key operation
- Large 1.75" pancake GM detector
- Suitable for alpha, beta or gamma contamination detection
- Unit readouts of count rate:
(CPS in contamination mode and (μ Sv/hr) in dose mode.
- Audible and visual (LED) count rate indication
- Smart Firmware provides fast, yet stable response
- Alarms for overflow, low battery and detector failure
- Automatic self diagnostic routines

Technical Data

Display	Large, four digit, continuous ranging LCD readout for display of count rate, dose rate, overflow, low battery, and detector failure
LED	Flashing count rate indication
Audio	Piezo electric element synchronized with count LED
Units	Counts per second (cps) or counts per minute (cpm) and $\mu\text{Sv/hr}$ or mR/hr
Controls	Three key keypad with positive feedback for ON/OFF Key combinations for selecting count rate or dose rate unit displays
Power	External 9VDC or Standard 9V alkaline battery - approximately 50 hours continuous use with speaker off. Automatic battery check under full load.
Detector	1.75" Pancake GM tube - LND73118 or equivalent
Window	Mica, 1.5 - 2.0 mg/cm^2 protected by stainless steel mesh
Count Range	0 - 42,000 cps
Sensitivity	Approximately 5.8 $\text{cps}/\mu\text{Sv/hr}$ (58 cps/mR/hr) - ^{137}Cs
Measuring Range	0.05 mR/hr to 700 mR/hr (0.05 $\mu\text{Sv/hr}$ to 7000 $\mu\text{Sv/hr}$)
Display Resolution	0.001 mR/hr (0.01 $\mu\text{Sv/hr}$)
Background	0 - 1 cps
Temperature Range	Operation: -10°C to $+50^{\circ}\text{C}$ (15°F to 122°F) Storage: -20°C to $+60^{\circ}\text{C}$ (-5°F to 140°F)
Humidity Range	40% to 95% RH (non condensing)
Case	High impact ABS
Dimensions	11cm x 6.7cm x 7.4cm (4.3" x 2.6" x 2.9")
Weight	0.340 Kg (0.75 lbs)

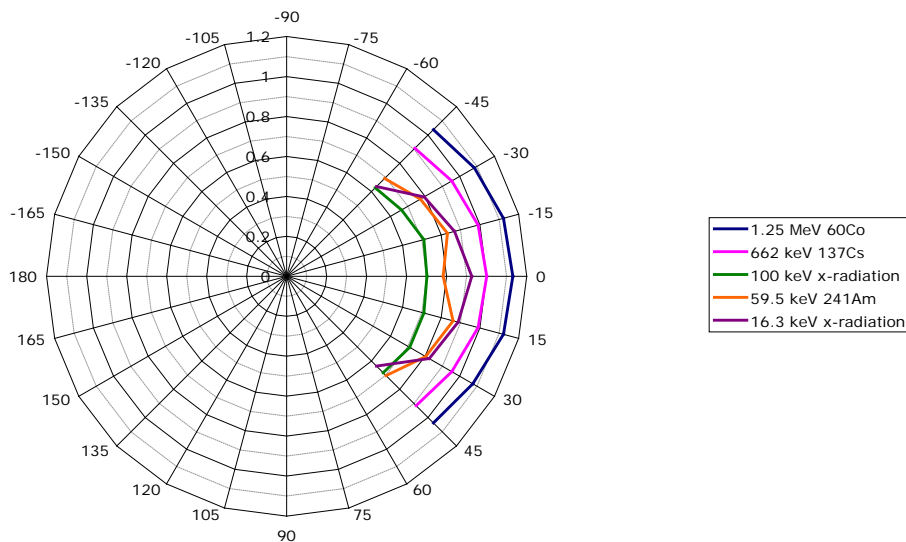
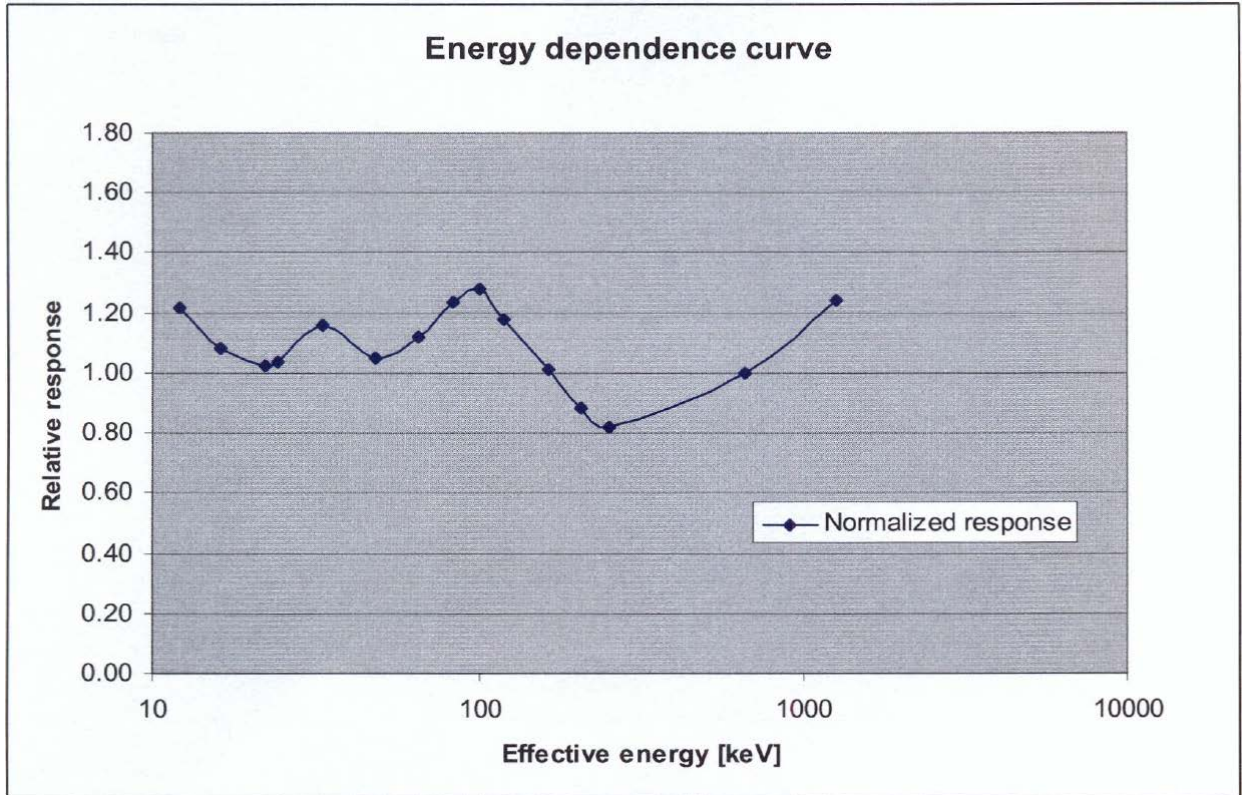
Variation of Response with Particle Energy

Radioactive Source	Detection efficiency [cps/Bq/cm ²]
C-14	0.71
Cl-36	4.3
Co-60	2.2
Sr-90/Y-90	10.5
Cs-137	3.8
Tl-204	3.6
Unat	5.4
Am-241	1.8

ROTEM INDUSTRIES reserves the right to change specifications without advance notice

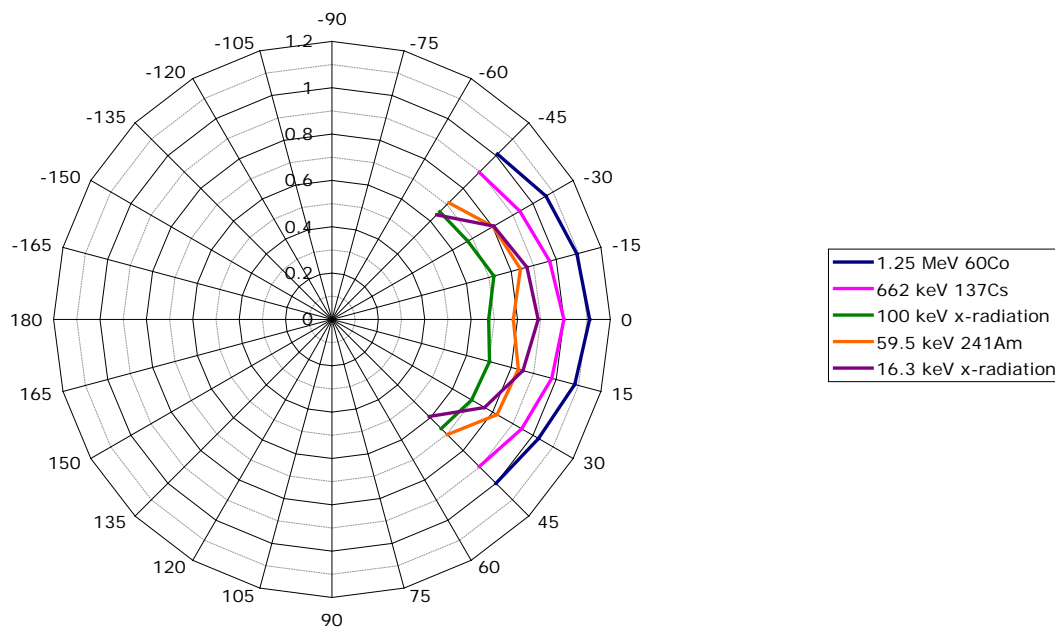
Technical Data

Compliant to IEC 60846 and IEC 60325 for ambient dose equivalent and contamination monitoring



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Vertical Polar Response



Full Energy Response Data

Radiation Quantity	Energy (keV)	Normalized Response	Uncertainty
^{60}Co γ -radiation	1250	1.17	$\pm 10\%$
^{137}Cs γ -radiation	662	1	$\pm 10\%$
ISO Low series x-radiation	248	0.92	$\pm 10\%$
ISO Low series x-radiation	205	0.93	$\pm 10\%$
ISO Low series x-radiation	161	0.91	$\pm 10\%$
ISO Low series x-radiation	118	0.75	$\pm 10\%$
ISO Low series x-radiation	100	0.74	$\pm 10\%$
ISO Low series x-radiation	83	0.83	$\pm 10\%$
ISO Low series x-radiation	65	0.9	$\pm 10\%$
^{241}Am γ -radiation	59.5	0.94	$\pm 10\%$
ISO Low series x-radiation	48	0.95	$\pm 10\%$
ISO Low series x-radiation	33	0.93	$\pm 10\%$
ISO Low series x-radiation	24.5	0.87	$\pm 10\%$
ISO Low series x-radiation	20.2	0.91	$\pm 10\%$
ISO Low series x-radiation	16.3	0.94	$\pm 10\%$

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