

MINI

The 900 series



MONITOR

Monitors for contamination control

The mini-monitor is well established in teaching, research, hospital and industrial laboratories as a reliable, convenient and inexpensive contamination meter.

The 900 series has the following features:

- * A large logarithmically scaled meter with an open scale at the lower end to show background levels of contamination while displaying high levels without switching.
- * A speaker to give an audible estimate of radiation intensity.
- * An alarm which can be set to trip at any level on the scale.
- * Battery or mains operation using a separate power unit. Included is an internal constant current charger for rechargeable batteries.
- * Lightweight aluminium case.
- * A comprehensive manual containing tables and curves of response to different radiations and other useful information.
- * The monitor conforms to the requirements of the International Electrotechnical Commission publication 325.

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Certificate no. FM23048



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Type E

A general purpose monitor using a thin end window G-M tube. It is suitable for the monitoring of soft beta emitters. Under certain conditions surface beta and gamma dose rates may be estimated. The probe is supplied with a protective grille and plastic end cap.

Window area	6.4cm ²
Window thickness	1.5-2.0mg cm ⁻² mica
Beta sensitivity	0.7 counts s ⁻¹ for 1Bq cm ⁻² ¹⁴ C 1.8 counts s ⁻¹ for 1Bq cm ⁻² ⁹⁰ Sr/ ⁹⁰ Y
Alpha sensitivity	0.6 counts s ⁻¹ for 1Bq cm ⁻² ²³⁸ Pu
Gamma sensitivity	2.2 counts s ⁻¹ for 1μSv h ⁻¹ (0.1mR/h) ¹³⁷ Cs

Type EP15

Similar to the type E but using a large end window halogen quenched G-M tube. It is approximately twice as sensitive as the type E but has a lower scale limit and is recommended for measuring the lower contamination limits of soft beta emitters. The window is protected by a stainless steel grille and removable plastic cap.

Window area	15.5cm ²
Window thickness	1.5-2.0mg cm ⁻² mica
Beta sensitivity	1.3 counts s ⁻¹ for 1Bq cm ⁻² ¹⁴ C 4.0 counts s ⁻¹ for 1Bq cm ⁻² ⁹⁰ Sr/ ⁹⁰ Y
Alpha sensitivity	0.9 counts s ⁻¹ for 1Bq cm ⁻² ²³⁸ Pu
Gamma sensitivity	5.0 counts s ⁻¹ for 1μSv h ⁻¹ (0.1mR/h) ¹³⁷ Cs

Type SL

A monitor using a side window G-M tube. Suitable for bench and personal monitoring of hard beta and gamma contaminants. The stainless steel holder may be used for beta-gamma discrimination. The type S monitor is similar but uses a tube with an active length of 60mm and approximately half the sensitivity.

Sensitive length	120mm
Half value thickness	approx 500keV max beta energy
Beta sensitivity	2 counts s ⁻¹ for 1Bq cm ⁻² ⁹⁰ Sr/ ⁹⁰ Y
Gamma sensitivity	10 counts s ⁻¹ for 1μSv h ⁻¹ (0.1mR/h) ⁶⁰ Co

The 900 Series Mini-Monitor

Specification

Weight	1.0kg
Size	180w by 110d by 165h mm overall
Batteries	6 type AA cells, alkaline (IEC LR6) or rechargeable (IEC KR15/51)
Battery life	Approximately 300 hours at 4 hours/day (Alkaline cells)
Meter range	0.5 to 2000 counts s ⁻¹ for types E, EP15F, S and SL 0.5 to 600 counts s ⁻¹ for type EP15 and EL
Paralysis time	Scale corrected to give true count rate
Ratemeter integration time	1 to 4 seconds set to match count rate
Radiation detector	Halogen quenched G-M tube for all types except EL which is organic quenched
G-M tube supply	300-700 Volts or 600-1500 Volts internally preset for tube type
Overload protection	No meter 'fallback' with intensities at least 100 times full scale reading
Mains power	12-18 Volts D.C. from mains unit

Monitors are delivered complete with alkaline batteries, G-M tube and instruction manual. Rechargeable batteries are fitted on request. Mains power units are available for all series 900 monitors.

Please Note: 1Bq Cm⁻¹ ≈ 2.7 x 10⁻⁵ μCi cm⁻² Sensitivity data derived from tests carried out by the NRPB. Contamination response figures are given for a probe to source distance of 1cm.

Type EP15FL

The EP15FL uses the same G-M tube as the EP15 and has a similar response. The tube is housed in a rugged aluminium holder which has been primarily designed for industrial use. The meter is scaled 0.5 to 2000 counts s⁻¹.

Type EL (not illustrated)

An older design using a large organic quenched 19.6cm² area end window G-M tube. For most contamination monitoring applications the type EP15 has improved characteristics and is recommended as a replacement.

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