

## Neutron Survey Meters



### Model 12-4

The Model 12-4 consists of a count rate meter with a removable detector. The detector assembly consists of a 1.6 cm by 2.5 cm  $^3\text{He}$  proportional tube, surrounded by 0.0038 cm (0.0015 in) thick cadmium shield, within a 22.9 cm (9 in) diameter polyethylene moderator. This assembly provides an approximate inverse RPG response curve for neutrons ranging from thermal through 10 MeV. Efficiency for AmBe neutrons is approximately 30 cpm/mrem/h. Gamma sensitivity at  $^{137}\text{Cs}$  is less than 10 cpm through 10 R/h.

### Specifications

Detector: .....  $^3\text{He}$  proportional, 2.5 cm active length  
 Ranges: ..... 10, 100, 1000, 10,000 mrem/h  
 Sensitivity: ..... typically 30 cpm/mrem/h (AmBe neutrons)  
 Energy response: ..... non-linear, energy dependent  
 Gamma rejection: ..... <10 cpm to 10 R/h ( $^{137}\text{Cs}$ )  
 Meter: ..... analog, 6.4 cm arc, 0 - 10 mrem/h, 0 - 2.5 kV, battery test  
 Time constant: ..... fast (4 seconds) or slow (22 seconds), for 90% of final reading, selected by a toggle switch  
 Reset: ..... push button to zero meter after over-range exposure  
 Probe connector: ..... series C  
 Audio: ..... unimorph speaker with on/off switch  
 Calibration controls: ..... accessible from front panel  
 Construction: ..... aluminum with polyurethane finish  
 Power: ..... two "D" cells  
 Battery life: ..... 600 hour life with alkaline  
 Size: ..... 43 cm x 23 cm x 27 cm (17 in x 9 in x 10.5 in)  
 Weight: ..... 9.5 kg (21 lbs)



### Model 15

The Model 15 is designed to detect alpha, beta, gamma and neutron radiation. It consists of a count rate meter with a removable thin-end window alpha, beta gamma probe and a  $^3\text{He}$  neutron proportional tube detector with a 3 in diameter cadmium-lined moderator. The detector can be removed from the moderator for fast neutron response.

### Specifications

Detector: Neutron: .....  $^3\text{He}$  proportional  $\alpha$ ,  $\beta$ ,  $\gamma$ : Model 44-7 GM thin-end window  
 Ranges: ..... 500, 5,000, 50,000, 500,000 cpm  
 Sensitivity: ..... neutron: typical 7.2 cpm/mrem/h (AmBe neutrons)  $\alpha$ ,  $\beta$ ,  $\gamma$ : typical 2100 cpm/mR/h, at  $^{137}\text{Cs}$   
 Energy response: ..... non-linear, energy dependent  
 Gamma rejection: ..... <10 cpm to 10 R/h (Cs-137)  
 Meter: ..... analog, 6.4 cm arc, 0 - 500 cpm, 0 - 2.5 kV, battery test  
 Time constant: ..... fast (4 seconds) or slow (22 seconds), for 90% of final reading, selected by a switch  
 Reset: ..... push button to zero meter after overrange exposure  
 Probe connector: ..... series C  
 Audio: ..... unimorph speaker with on/off switch  
 Calibration controls: ..... accessible from front panel  
 Construction: ..... aluminum with polyurethane finish  
 Power: ..... two "D" cells  
 Battery life: ..... 300 hour life with alkaline batteries  
 Size: ..... 32 cm x 9 cm x 22 cm (12.5 in x 3.5 in x 8.5 in)  
 Weight: ..... 3.7 kg (8.1 lbs)

