

Model 30-7B Lightweight Digital Neutron Detector

Features

- Small & Light 19.5 cm (7.7 in.) REM Ball
- Moderated Neutron Detector
- Digital Display with Adjustable Viewing Angle
- Range: 0–99.9 mSv/h (0–9.99 rem/hr)
- Low-Weight Unit Provides Same Readings as Standard REM-ball from Bare AmBe and Lower Energies
- Includes Adjustable Shoulder Strap



upper left: with included shoulder strap
bottom: detail of digital display unit

Specifications

Part Number: 48-4309

INDICATED USE: Neutron dose rate

DETECTOR: ^3He proportional detector, 1.6 x 2.5 cm (0.6 x 1.0 in.) (D x L), surrounded by a 19.5 cm (7.7 in.) diameter polyethylene sphere with internal borated layer

MEASUREMENT RANGE: 0 to 99.9 mSv/h (0 to 9.99 rem/hr)

SENSITIVITY: Typically 4.5 cpm per $\mu\text{Sv/h}$ (45 cpm per mrem/hr) (bare AmBe neutrons)

ENERGY RESPONSE: Provides appropriate inverse RPG curve for neutrons from thermal through 7 MeV, provides response up to 12 MeV (see graph on back)

LINEARITY: Reading within 10% of actual value

GAMMA REJECTION: < 10 cpm through 0.1 Sv/h (10 R/hr) (^{137}Cs gamma)

LCD DISPLAY: 3 digit LCD with large 13.4 mm (0.53 in.) digits, (k)cps, (k)cpm, (μ)(m)Sv/h, (μ)(m)rem/h, low-battery indicator, MAX, ALARM, MUTE

DISPLAY RANGE: 0.0 cps to 99.9 kcps; 0.00 cpm to 999 kcpm; 0.00 rem/hr to 999 rem/hr; 0.00 $\mu\text{Sv/h}$ to 999 Sv/h. Display range can be set to limit display to calibrated range

BACKLIGHT: Built-in ambient light sensor automatically activates low-power LED backlight, unless internal dipswitch is set to continuous-on (will reduce battery life). Alarm light intensity varies based on ambient light levels.

USER CONTROLS:

- ON/OFF/ACK - Press to turn ON; Tap to acknowledge alarms and silence alarm tone; Press to reset Sigma Audio alarm; Turn "click" audio On/Off; Turn Sigma Audio beep On/Off; Hold for OFF
- MODE - Alternates between NORMAL (count rate), MAX (captures peak rate), and COUNT (user-selectable preset count time from 0 to 10 minutes). Number of modes can be reduced in setup.
- UNITS - Changes the units between count rate (cpm, cps), or dose/exposure ($\mu\text{Sv/h}$, rem/hr)

RESPONSE TIME: User-selectable from 1 to 60 seconds, or Auto-Response Rate FAST or SLOW

ALARMS: Count rate, exposure/dose, and scaler alarm setpoints adjustable over the display range

OVERLOAD: High count rate saturation protection prevents false display of lower count rates

ZERO PROTECTION: After a user-settable time interval (default 60 seconds) of no pulses from detector, the instrument will flash zero reading and the alarm audio will be triggered

DEAD TIME CORRECTION: Employs first and second order corrections for extended performance

OPERATING VOLTAGE: Approximately 1200 Vdc

THRESHOLD: -2 mV

AUDIO: Greater than 75 dB at 0.6 m (2 ft), approximately 4 kHz

POWER: Two alkaline or two rechargeable "AAA" batteries

BATTERY LIFE: Approximately 100 hours of operation, 24-hour low battery warning

CONSTRUCTION: High-impact plastic with water-resistant rubber seals and separate battery compartment

WORKING ENVIRONMENT: Splashproof shields for outdoor use

TEMPERATURE RANGE: -20 to 50 °C (-5 to 122 °F), may be certified for operation from -40 to 65 °C (-40 to 150 °F)

ENVIRONMENTAL RATING: NEMA rating of 3x or IP rating of 52 with audio hole seal option (hole seal option will reduce maximum volume by approximately 10 dB)

SIZE: Display Unit: 8.5 x 8.0 x 4.8 cm (3.4 x 3.1 x 1.9 in.) (H x W x L); Detector: 19.5 cm (7.7 in.) REM ball with ^3He detector (1.6 x 2.5 cm)

WEIGHT: Display Unit: 174 g (0.38 lb); REM Ball Component: 4.6 kg (10.2 lb)

OPTION: Transport and Storage Case (P/N 2311487)

Also Available

Model 30-7: Uses the same detector, except the internal borated layer has a lower boron concentration. This instrument offers greater sensitivity, typically 10 cpm per $\mu\text{Sv/h}$ (100 cpm per mrem/hr), but tends to overrespond in the 5 keV range.

Comparison of the Energy Response Curves for the Model 30-7B and Thermo's 4 atm NRD REM Meter

