

# LUDLUM MEASUREMENTS, INC.

## Model 30-7 Series 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

**Model 30-7** Part Number: 48-4192

**Model 30-7B** Part Number: 48-4309

**INDICATED USE:** Neutron dose rate

**DETECTOR:** <sup>3</sup>He 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 (bare AmBe neutrons):**

Model 30-7: Typically 10 cpm per  $\mu$ Sv/h (100 cpm per mrem/hr)

Model 30-7B: Typically 4.5 cpm per  $\mu$ Sv/h (45 cpm per mrem/hr)

**ENERGY RESPONSE:** Provides appropriate inverse RPG curve for neutrons from thermal through 7 MeV, provides RPG response up to 12 MeV (see graphs on back). Model 30-7 tends to overrespond in the 5 keV range.

**LINEARITY:** Reading within 10% of actual value

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

**LCD DISPLAY:** 3 digit LCD with large 13.4 mm (0.53 in.) digits, (k)cps, (k)cpm, ( $\mu$ )(m)Sv/h, ( $\mu$ )(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  $\mu$ rem/hr to 999 rem/hr; 0.00  $\mu$ 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 - Long 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 - Long press 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 - Long press changes the units between count rate (cpm, cps), or dose/exposure ( $\mu$ Sv/h, rem/hr)

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

**CLICK AUDIO:** x1, x10, x100, x1k

**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 <sup>3</sup>He detector (1.6 x 2.5 cm)

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

**OPTIONS:** See website for a list of available options.

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

