



SN-D-2TM

Neutron Dose Probe



FEATURES

- Neutron H*(10) Dose Equivalent Rate
- Complies with public limits control
- Belongs to CSPTM family
- Calibration via PC
- Easy to carry
- Excellent fit of IEC 61005 and ICRP-74 starting from thermal energy

SN-D-2 probe is part of CanberraTM Smart Probe (CSPTM) family, that drives numerous benefits, such as plug and play capabilities and exceptional readiness for field operations. Please refer to the “hand-held probes” brochure for further details.

DESCRIPTION

The SN-D-2 probe for measurement of neutron dose equivalent rate is designed to be used with any CSP survey meter or any computer-based system developed within CSP environment. Its 8 atm ³He gas detector associated with a 200 mm polyethylene sphere, brings a best in class neutron efficiency and, an excellent Gamma rejection.

SN-D-2 probe's lightweight makes it an ideal tool for direct measurement of neutron ambient dose equivalent in reactor building during outages or on spent fuel transportation container, prior to shipment to reprocessing plant. A specific tripod can accommodate various heights and distances to the measurement scene while the user remains at a safe area with remote control, supporting ALARA principle.

Its measurement range starting from 300 nSv/h allows controlling neutron public limits within less than a minute. Most CSP meters can also improve MDA with the use of scaler-timer function whenever necessary. The top of range ending at 100 mSv/h supports occupational dose-rate monitoring in radiation controlled area.

The SN-D-2 probe includes an embedded carrying handle making it easy to move to the area to be monitored. Dedicated meter holders adapt each of the available host instruments to complete the probe as a one hand operational system. It can also be connected via CSP-COM modules to integrate third party system and behave as a neutron sub-assembly.

SN-D-2 probe can be calibrated and upgraded (probe's firmware) via CSPSTM software, a USB cable and a PC. It connects to survey meter via a 1.5 meter, 10 meter or 20 meter CSP cable.



NUCLEAR CHARACTERISTICS

- **Unit to display:** depending on survey meter: Sv/h, Sv, rem/h, rem
- **Emitter:** Neutron
- **Detector:** ^3He filled tube 16NH8NC (8 atm) with 1 mm Cadmium wrap and 200 mm PEHD moderating sphere
- **Detection sensitivity:** 0.3 c/s per $\mu\text{Sv/h}$ (Cf-252)
- **Measurement range:** 0.3 $\mu\text{Sv/h}$ to 100 mSv/h (30 $\mu\text{rem/h}$ to 10 rem/h)
- **Energy range:** 0.025 eV to 15 MeV within IEC61005-2014 tolerances
- **Dead time:** < 8 μs . Dead time correction is applied to cover entire linear measurement range
- **Measurement accuracy:** -17% to +25% according to IEC 61005
- **Response time:** from 1 $\mu\text{Sv/h}$ to 10 $\mu\text{Sv/h}$ < 20 s, from 10 $\mu\text{Sv/h}$ to 100 $\mu\text{Sv/h}$ < 10 s, above 100 $\mu\text{Sv/h}$ < 2 s
- **Gamma sensitivity:** Gamma Rejection $>10^3$
- **Background:** Ambient ≤ 100 nGy/h (10 $\mu\text{R/h}$): < 0.05 c/s (< 3.0 cpm)

ERGONOMIC

- **Display:** provided by survey meter
- **Alarm Setpoints:** 110 values for each unit to display. Saved in probe memory. They can be edited with CSPS software and PC or with Colibri® and AVIOR®-2 survey meters
- **Default alarm threshold** is chosen in a list by use of survey meter keypad.

ELECTRICAL

- **Power:** supplied by survey meter or PC (low voltage only): +5 V.
- **Consumption:** 25 mA maximum.

MECHANICAL CHARACTERISTICS

- **Housing:** painted aluminium for the top and painted Stainless steel for the base
- **Dimensions:**
Sphere dia x height (w/o survey meter): 200 x 330 mm (7.9 x 13 in)
Weight: < 5.9 kg (12.6 lb) without meter
- **Drop tested** on all faces from 30 cm (1ft) height.

ENVIRONMENT

- **Operating temperature:** -10 °C to +60 °C (+14 °F to 140 °F)
- **Storage temperature:** -30 °C to +70 °C (-22 °F to 158 °F)
- **Relative humidity:** 10% to 95% at 35 °C
- **Cleaning:** housing easy to decontaminate
- **Ingress protection:** IP64

NORM

- **EMC:** conform
- **CE:** conform
- **IEC:** Compliant with IEC 61005:2014
- **ANSI:** Compliant with ANSI N42.17A:2003
- **FCC:** Class A Digital device

ORDERING REFERENCES

• SN-D-2 :	EM108072
• Carrying strap:	EM108671
• SN-D-2-TRIPOD:	EM98148
• Colibri holder:	EM87622
• Radiagem holder:	EM98564
• RDS-31 holder:	EM108244
• RDS-31 Adapter cable:	1233-318
• CSP Cable (1.5 m length):	EM77336
• CSP Cable (10 m length):	EM99006
• CSP Cable (20 m length):	EM98830
• CSP Coil Cable (0.7-1.5 m extensible length):	EM77337
• CSP-PC USB Cable:	EM78466
• Calibration/Setup Software (CSPS):	
- CSPS-F:	EM78468
- CSPS-R:	EM80642
- CSPS-E:	EM80643



SN-D-2 on tripod



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