



- Unique portable neutron spectrometer
- Acquires accurate neutron spectra in minutes
- Spectroscopy from thermal to 20 MeV
- Spectroscopy/Dosimetry modes
- Gamma rejection ratio of ~ 1000:1
- Kerma (K), Dose equivalent (D, NCRP 38), Ambient dose equivalent [H\*(10)]
- Maximum dose rate: 200  $\mu$ Sv/hr (20 mrem/hr)
- Automatic calibration
- Compatible with MICROSPEC-2, Mobile Microspec analyzers

Bubble Technology Industries' N-Probe is a revolutionary portable neutron scintillation spectrometer, designed to be used by non-specialists for measurement of low-intensity neutron doses in the mixed field environments often found in nuclear utilities, fuel storage areas, fuel and waste processing operations and military applications. It is compatible with the current generation of BTI MICROSPEC analyzers and shares the philosophy of spectral dosimetry with other BTI spectroscopic probes, where the dosimetric quantities are computed from the spectrum using appropriate fluence-dose conversion functions.

The N-Probe uses two separate detectors to cover the neutron energy range from thermal to 20 MeV. A NE213-type liquid scintillator is used to cover from 800 keV to 20 MeV while a  $^3\text{He}$  proportional counter based on the  $^3\text{He}(n,p)$  T reaction is used to cover the energy region from thermal to 800 keV. Sophisticated pulse-shape discrimination circuitry distinguishes unwanted gamma-ray signals from the desired neutron signals. The two detectors work in unison and pulse-height distributions from both are shown during data collection. With one command from the keyboard, these distributions are merged and processed automatically to yield the desired neutron spectrum.

### Technical Specifications

**DETECTOR TYPE:** Liquid scintillator and  $^3\text{He}$  counter  
**SIZE (without handle):** 30.0 x 18.0 x 17.5 cm (11.8 x 7.1 x 6.9 in.)  
**BATTERY:** NiMH (runtime > 12 hrs)  
**DOSE RATE (Max.):** Approximately 200  $\mu$ Sv/hr (20 mrem/hr)  
**COMPATIBLE ANALYZERS:** MICROSPEC-2  
 Mobile MICROSPEC

**SPECTRAL RANGE:** Thermal to 20 MeV  
**WEIGHT:** 4.1 kg (9.0 lbs)  
**GAMMA REJECTION:** Approximately 1000:1  
**DOSE CONVENTIONS:** Kerma, Dose equivalent (NCRP-38), Ambient dose equivalent [H\*(10), ICRP-74]

\*Photon and beta probes also available

