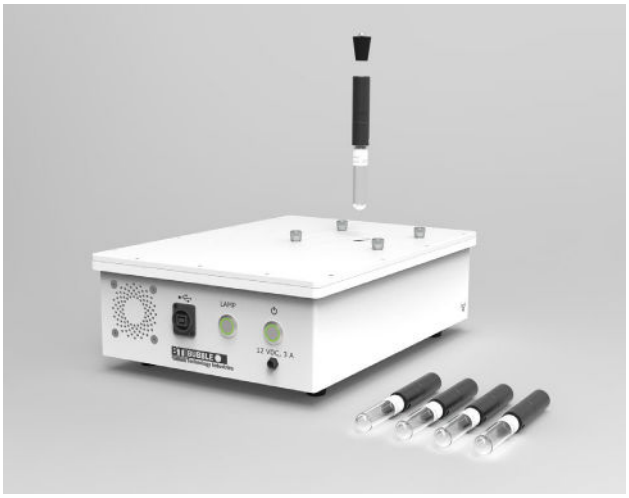
BDR-III
Bubble Reader



- **Fully automatic neutron bubble detector counting**
- **USB camera machine vision technology**
- **Auto, Manual, Factory Set-up, Cal modes**
- **Built-in system diagnostics**
- **Bar code ready for detector ID**
- **Simple single key commands**
- **Database compatible file generation**
- **Image storage for archival/audit purposes**
- **Compatible with current PC hardware platforms (desktops and laptops) and Windows 7/10**

The Bubble Technology Industries BDR-III automatic reader was specially designed for fast and accurate analysis of the complete range of patented neutron bubble detectors.

BTI bubble detectors consist of an elastic polymer throughout which droplets of a superheated liquid have been dispersed. When these droplets are struck by neutrons they form small gas bubbles that remain fixed in the polymer to provide a visual record of the dose. Dose is directly proportional to the number of bubbles. BTI detectors are used around the world at nuclear research institutions, nuclear utilities and medical accelerator installations.

The BDR-III reader is the instrument of choice for users who process intermediate or large numbers of bubble detectors as part of their dosimetry program. Counting parameters are preset at the factory and are accessible in software only at a supervisory level (password protected).

Once detector serial numbers, sensitivity and user information are entered into a look-up table, accessed through the Factory Set-up menu, the BDR-III will operate completely unattended. The detector is identified (via an optional external bar-code reader), bubbles are counted, dose is calculated and all information is stored in an on-board database. Each detector file has appended its related digital photo for archival and/or audit purposes.

Each BDR-III system ships complete with an optical unit, cabling and application software. An external PC must be supplied by the user. The reader is compact, lightweight and simple to use. The Bubble Technology Industries BDR-III automatic bubble counter is the ideal compliment to BTI neutron bubble detectors for fast and accurate analysis of neutron dose.

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BDR-III
Technical Specifications

(Visit www.bubbletech.ca for more information)

OPTICAL ASSEMBLY

Size: 36.8 x 26.7 x 13.2 cm (14.5 x 10.5 x 5.2 in)

Weight: 5 kg (11 lbs.)

Power Supply (External): Input: 90-260 VAC, 47-63 Hz, Output: 12 VDC

Camera: Single 640x480 pixel CCD, 12.5 mm lens

Detector Compatibility: BD-PND, BDT, BDS

Diagnostics: Lamp intensity (on start-up)
Fluid level (on start-up)
USB camera status (on start-up)
Detector insertion (in auto mode)
Shock cluster (all modes)

SOFTWARE

Count Time: < 2 seconds typical (100-150 bubbles)

Count Accuracy: ± 10% for < 150 bubbles

Detector ID: Manual or barcode entry (optional)

Auto Trigger: Yes, in automatic mode

Modes: Manual, Auto, Factory, Calibration (BTI)

Password Protection: Yes, in Automatic mode

Data Storage: Grey scale 330k/image, TIFF format
Data file MS Access compatible

Required System/Hardware Requirements: Windows XP/Windows 7/Windows 10 (32 bit or 64 bit). Available USB port.

Available Bubble Detector Models

BD-PND:

The BD-PND is the recommended detector for personal neutron dosimetry. Its sensitivity exceeds the ICRP-60 requirements for neutron dosimetry. It incorporates automatic compensation for sensitivity change with temperature over the operational range of 20 - 37 °C. Nuclear laboratories, utilities, and military personnel have found that the BD-PND's immediate visual response and high sensitivity, coupled with its small size, light weight and rugged construction, make it the ideal device for ALARA programs.

BDT:

Health physicists and others who are especially concerned with **thermal** neutron dose can take advantage of the simplicity and low cost of thermal Bubble Detectors. The BDT Bubble Detector is preferentially sensitive to thermalized neutrons, with a ratio of thermal-to-fast neutron response exceeding 10:1.

BDS:

The BDS is a complete low-cost neutron spectrometer package consisting of 36 Bubble Detectors that have been specifically formulated with six different energy thresholds. Each spectral measurement can be made with 18 detectors (3 of each threshold supplied – 10, 100, 600, 1000, 2500, 10000 keV). A simple algorithm is included for "unfolding" the neutron measurement data. Detectors can be re-used through recompression in a pressure chamber (available from BTI).

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