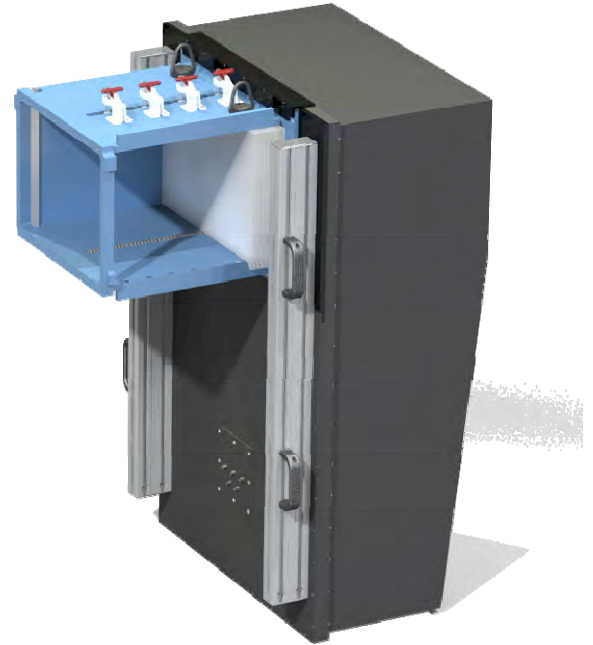


QA Detector for Particle Therapy (*Preliminary*)

Lexitek's Quality Assurance (QA) detector offers a complete system for accurately measuring particle therapy treatment plans prior to their delivery. A custom scintillator with excellent linearity and fast time response emits light proportional to incident hadron flux which is imaged with fold mirror and lens onto a scientific-grade CCD camera. Both the shutter opening/closing and CCD readout can be triggered by external logic signals so treatments delivered by scanned particle beams can be measured and compared with treatment plans. An integral solid water holder and mount direct to a gantry nozzle allow treatments to be measured in virtually identical geometry as when they are delivered.



FEATURES

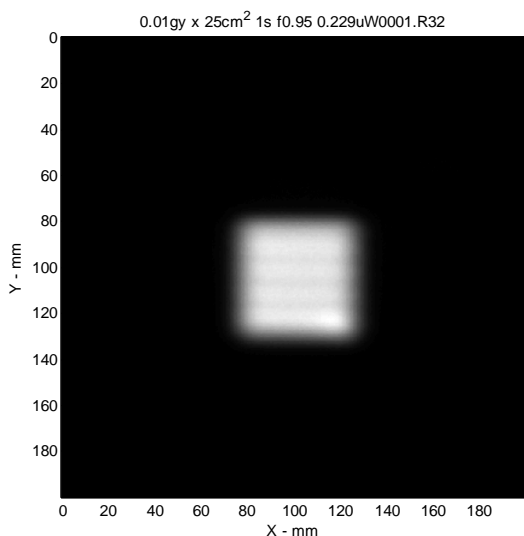
- Custom high-output, fast response, robust scintillator
- Low-noise cooled scientific CCD
- Electronic focus and aperture control
- User configurable TTL compatible external triggering
- Detection plane 5 mm behind entrance window
- Configurable for direct mount to nozzle
- Any-angle solid water/phantom holder and detector operation
- Internal LED light source and grid target for calibration
- Onboard tilt angle sensor and surveying targets
- Light-tight enclosure

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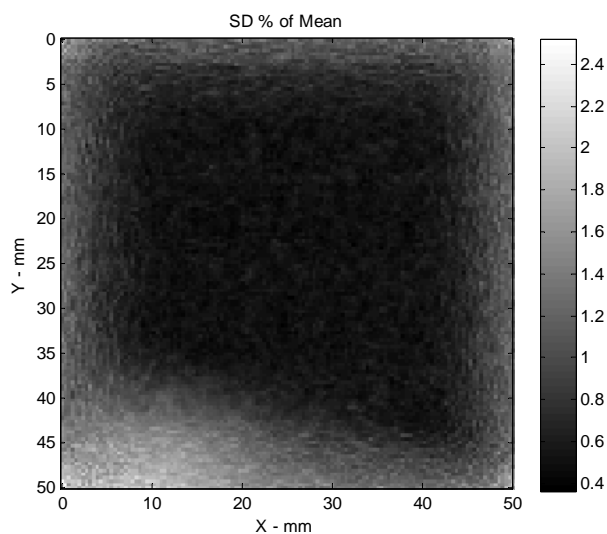
14 Mica Lane Ste 6, Wellesley, MA 02481-1708

Tel: (781) 431-9604 Fax: (781) 431-9605

www.lexitek.com



Detector response to a 0.01 Gy treatment of 5x5 cm area simulated with a scanning laser intensity-matched to the scintillator.



Accuracy over the treatment area as fractional standard deviation. Average percent deviation is 0.9%.

SPECIFICATIONS

- Minimum exposure time of 10 ms (shorter with gated beams)
- < 1x1 mm resolution, 0.4 mm square pixels
- 30 cm x 40 cm field size
- Sensitivity of .002 nA/cm² for 1 ms, SNR = 1 (protons)
- Linearity range of 0.002-10 nA/cm² (protons)
- Up to 50 m cable from detector to control computer
- Scintillator and calibration grid easily replaced by users in the field
- Software supplied performs bias, gain, distortion calibration and correction enabling accurate quantification of delivered hadron flux
- Software supplied removes bad pixels and direct radiation events

Related products: Fast Tracking Detector for Particle Therapy

Please consult us with your custom requirements

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