



STARCHECK^{maxi} Ion Chamber Panel

Field Size
40 cm x 40 cm
707 ion chambers

Measures profiles of
high-energy therapy
beams in real-time

Features

- ▶ Measures fields up to a size of 40 cm x 40 cm
- ▶ Measures high-resolution (3 mm) profiles along the principal axes and along the diagonals
- ▶ Checks the start-up behaviour
- ▶ Checks congruence between light field and radiation field

STARCHECK^{maxi} is a precise and reliable tool for fast measurements in radiation therapy beams. Typical applications are quality control and LINAC beam adjustment measurements with the detector panel embedded in a solid state phantom. The ionization chambers feature an excellent relative response stability, avoiding the need of frequent recalibration.

A full set of 4 profiles is measured every 400 ms (or one profile every 100 ms), making the device useful for real-time measurements. The excellent spatial resolution of only 3 mm ensures precise measurements even in penumbra regions. The scanning lengths covered by the detectors are 40 cm along the principal axes and 56.5 cm along the diagonals. Detectors on the field boundaries allow the congruence between light and radiation field to be checked. The device is aligned visually to the light field, and the position of the radiation field is measured and compared with the expected ideal location. Shifts of 1 mm or rotational deviations of 1° can be easily detected.

BeamAdjust software displays up to four profiles in real-time. The profiles can be analyzed according to selectable dosimetry protocols and the protocols of the accelerator manufacturers. The software displays the start-up behaviour with a time resolution of 100 ms.

The delivery includes the detector panel, an interface box which connects to a PC via RS232 interface, data acquisition software and a manual in English.

Ordering Information

L981377 STARCHECK^{maxi} system with 707 ionization chambers, incl. interface and BeamAdjust software

Options

T10033.3.052 Build-up plate (25 mm)

Specification

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|---------------------------------------|---|
| ▶ Type of product | Two-dimensional detector panel with 707 ionization chambers in one plane |
| ▶ Application | Quality control of high-energy beams in radiation therapy |
| ▶ Measuring quantity | Absorbed dose to water, measured in Gy |
| ▶ Measuring range | 50 mGy ... 1000 Gy |
| ▶ Range of use | 50 mGy/min ... 50 Gy/min |
| ▶ Resolution | 0.1 mGy |
| ▶ Dead time | zero |
| ▶ Display cycle | 100 ms / 400 ms |
| ▶ Type of detectors | Vented plane-parallel ionization chambers |
| ▶ Polarizing voltage | 1000 V |
| ▶ Detector layout | 141 measuring points T-G, 138 measuring points L-R, 190 measuring points on each diagonal, 48 measuring points for field size |
| ▶ Detector spacing (center-to-center) | 3 mm along profiles and diagonals ¹⁾ |
| ▶ Scanning lengths | 40 cm along principal axes, 56.5 cm along diagonals |
| ▶ Size of detectors | Sensitive volume 0.053 cm ³ , electrode spacing 3 mm |
| ▶ Reference point | 8 mm below surface |
| ▶ Field sizes | 10 cm x 10 cm, 20 cm x 20 cm, 30 cm x 30 cm, 40 cm x 40 cm |
| ▶ Outer dimensions | 465 mm x 740 mm x 30 mm |
| ▶ Housing material | GRP |
| ▶ Weight | approx. 13 kg |

¹⁾ Spacing of the three center detectors is 6 mm (L-R profile) and 13 mm (diagonals) respectively