

Dosimetry Diode SRS Type 60018

Waterproof silicon detector
for dosimetry in 6 MV photon
beams up to field size
10 x 10 cm²

The 60018 Dosimetry Diode SRS is ideal for dose measurements in photon fields with a maximum field size of 10 x 10 cm² and with a maximum energy of 6 MV. The very high response of this detector allows to measure beam profiles with a very high resolution and very short dwell time. Typical use is beam profile measurement for stereotactic radio surgery (SRS).

- ▶ Designed for measurements in small photon fields with maximum 6 MV
- ▶ Excellent spatial resolution
- ▶ High response
- ▶ Very low noise
- ▶ Thin entrance window for measurements in the vicinity of surfaces and interfaces

Specifications

Type of product..... P-type silicon diode
 Measuring quantity..... Absorbed dose to water
 Reference radiation..... ⁶⁰Co
 Sensitive volume 0.03 mm³ (nominal)
 Design: Waterproof, disk-shaped sensitive volume perpendicular to detector axis
 Reference point On detector axis, 0.74 mm from detector tip
 Nominal response 175 nC/Gy
 Dose stability ≤ 0.8% / kGy at 6 MV
 Temp. response ≤ (0.1 ± 0.05)% / K
 Energy response At higher depths than d_{max}, the percentage depth dose curves match curves measured with ionization chambers within ±0.5%



Detector bias 0 V
 Signal polarity Negative
 Directional response ≤ ±0.5% for rotation around the response chamber axis,
 in water ≤ ±1% for tilting ≤ ±20°
 Leakage current ≤ ±50 fA
 Cable leakage ≤ ±1 pC/(Gy-cm)

Materials and measures

Entrance window 0.3 mm RW3
 Total window 0.27 mm epoxy
 area density 140 mg/cm²
 Water-equivalent 1.31 mm
 window thickness
 Sensitive volume 1 mm² circular
 250 μm thick
 Outer dimensions 7 mm diameter
 length 45.5 mm

Useful ranges

Radiation quality Co-60 to 6 MV photons
 Field size 1 x 1 to 10 x 10 cm²
 Temperature 10 to 40° C, 50 to 104° F
 Humidity 10 to 80%, max 20 g/m³