

37-720

Dual-Diode Dosimeter Patient Dose Monitor



Excessive radiation exposure (misadministration) to the patient is always a matter of concern in radiation therapy. The Dual-Diode Dosimeter eliminates this concern by providing a dosimetry system specifically designed to verify the amount of radiation received by the patient during treatment.

Measurements are presented on a large digital display with a range of 0 to 2000 Rad or Rad/minute. The electrometer accepts either one or two diode detectors, which are selected using a front-panel switch. Calibration and zero adjustments, as well as dose or dose rate selection, are all readily accessible on the front panel. While the Dual-Diode Dosimeter is not intended as a primary calibration device, it can also be used to accurately determine therapy machine output.

Key features

- Provides instant patient data on radiation exposure to sensitive organs and rapid checks of equipment output
- Prevents the potential for misadministration
- Battery operated
- Provides instantaneous readings on the radiation dose being delivered to the patient
- Designed for use with positive polarity diodes only

Specifications

Accuracy	± 5 %
Reproducibility	± 5 %
Range	0 to 2000 Rad or Rad/minute
Readout	0.5 inch high digits on display
Front controls	On/Off, Dose/Rate, Detector A/Detector B, reset, Trimpots for Zero, and Calibration for Detectors A and B
Rear connections	Detector A and B input
Power requirements	9 V battery or equivalent
Dimensions (WxDxH)	15.24 cm x 16.51 cm x 7 cm (6 in x 6.5 in x 2.75 in)
Weight	0.9 kg (2 lb)

Optional accessories

30-492 Diode Detector Holder; 7 in x 7 in x 0.5 in thick clear acrylic plate routed to hold six diodes in a level, reproducible position during field measurements

Ordering information

37-720 Dual-Diode Dosimeter Patient Dose Monitor

30-471

VeriDose® Solid-State Diode Detectors



Using the VeriDose Patient Dose Monitor Quality Control (PDMQC) System or the VeriDose V Patient Dose Monitor in conjunction with VeriDose Solid-State Diode Detectors, you can verify the given dose quickly and accurately during treatment, thus



avoiding potential misadministration of radiation.

VeriDose Solid-State Diode Detectors are silicon-based radiation detectors that utilize a p-n junction. These rugged diodes are encased within a biocompatible polystyrene material. A low-noise coaxial cable with BNC connectors connects the diode to an electrometer. When attached to an electrometer, these diodes provide enhanced sensitivity and instantaneous response time.

- Optimized for use with all Fluke Biomedical Patient Dose Monitors and high-quality medical-grade ionization chamber electrometers
- All diodes are supplied with a noncrimp repairable cable with a coax BNC connector

Key features

- Designed to provide superior response, reliability, and performance
- Long-lifetime diodes. Tested to 2×10^6 cGy in a high-energy electron beam, the most damaging radiation
- Very low dose rate and temperature dependence
- Hemispherical shape improves isotropic response and reduces angular and field-size dependencies
- Waterproof design with appropriate buildup for all clinical photon and electron energies
- Flat bottom permits secure, easy placement on the patient
- Dose rate independent
- Responds to photons and electrons
- Responds to dose rates of 1.0 to 1000 cGy/min
- Can be used on continuous (^{60}Co) x-ray beams, pulsed (linear-accelerator) x-ray beams, and electron beams

Specifications

Photon and electron diode detectors	
Nominal sensitivity	1.5 nC/cGy
Sensitivity volume	0.25 mm ³
Output polarity	Positive/Negative
Linearity	< 0.1 % for dose ranges from 0.01 to 10 Gy; < 0.1 % for dose rates 3 to 5 Gy/min
Reproducibility	0.2 %
Angular dependence	< 2 % ± 60° for lower energy diodes (30-471 and 30-472); < 2 % ± 10°; < 5 % ± 60° (for higher energy photon diodes and electron diodes)
Sensitivity loss at 10 kGy	< 15 %
Cable length	3 m (10 ft)
Dimensions	8 mm Ø
Weight	42 gm

Model	Range	Polarity/Color	Buildup	Buildup (g/cm ²)	Electrometer
30-471	1 mV to 4 mV	Positive/Blue	Cu	0.732	37-720
30-471-8000	1 mV to 4 mV	Negative/Blue			37-705
30-472	5 mV to 11 mV	Positive/Yellow	Cu	1.359	37-720
30-472-8000	5 mV to 11 mV	Negative/Yellow			37-705
30-473	12 mV to 17 mV	Positive/Red	W	2.606	37-720
30-473-8000	12 mV to 17 mV	Negative/Red			37-705
30-474	18 mV to 25 mV	Positive/Green	W	3.574	37-720
30-474-8000	18 mV to 25 mV	Negative/Green			37-705
30-475	5 mV to 25 MeV	Positive/Grey		0.284	37-720
30-475-8000	5 mV to 25 MeV	Negative/Grey			37-705

Optional accessories

- 88-490 Diode Extension Cable, 9 m (30 ft)
- 88-490-1000 Diode Extension Cable, 3 m (10 ft)

Ordering information

- 30-471 VeriDose Diode, 1-4 mV Photons, Positive Polarity, Blue
- 30-471-8000 VeriDose Diode, 1-4 mV Photons, Negative Polarity, Blue
- 30-472 VeriDose Diode, 5-11 mV Photons, Positive Polarity, Yellow
- 30-472-8000 VeriDose Diode, 5-11 mV Photons, Negative Polarity, Yellow
- 30-473 VeriDose Diode, 12-17 mV Photons, Positive Polarity, Red
- 30-473-8000 VeriDose Diode, 12-17 mV Photons, Negative Polarity, Red
- 30-474 VeriDose Diode, 18-25 mV Photons, Positive Polarity, Green
- 30-474-8000 VeriDose Diode, 18-25 mV Photons, Negative Polarity, Green
- 30-475 VeriDose Diode, 5-25 MeV Electrons, Positive Polarity, Grey
- 30-475 VeriDose Diode, 5-25 MeV Electrons, Negative Polarity, Grey