



# DIS-1

Direct Ion Storage Dosimeter



Nuclear  
Power



Homeland  
Security  
& Defense



Industrial and  
Manufacturing



Healthcare



Labs and  
Education

## OVERVIEW

The RADOS DIS-1 personal dosimeter is based on an ionization chamber combined with a modern electronic Direct Ion Storage (DIS) memory cell. The Ion Chamber is widely used as a reference detector in radiation detection and is now available in everyday dosimetry applications.

The DIS-1 dosimeter could be described as a passive electronic TLD or Film badge, which can be read instantly and non-destructively without any loss of dose information. This unique feature allows the user of the DIS-1 to read his/her accumulated doses whenever necessary.

The DIS-1 dosimeter has a small, lightweight, rugged and watertight construction, which makes the DIS-1 dosimeter reliable and easy to use.

The radiological range of the DIS-1 covers the entire Hp(10) and Hp(0.07) photon and beta energies without any compromises.

## KEY FEATURES

- Direct measurement of Hp(10) and Hp(0.07) over the entire energy range
- Instant readout
- Extremely easy readout process
- Passive operation
- Not sensitive to EM and RF interferences
- Operation at high dose rates
- Operation at pulsed fields
- Complies with: IEC 61066, 62387:2012, 17025:2005, PTB

Health Physics

## PHYSICAL CHARACTERISTICS

- Detector type: three <sup>TM</sup>DIS (Direct Ion Storage) detectors and two MOSFET detectors
- Sensitive to gamma, X-ray and beta radiation
- Insensitive to neutrons (<5 %)

	Hp(10)	Hp(0.07)
<b>Calibration accuracy</b>		
	±5 % at 1 mSv <sup>137</sup> Cs	±10 % at 10 mSv <sup>137</sup> Cs
<b>Instant readout of ICRU dose equivalents</b>		
	1 μSv to 40 Sv (0.1 mrem to 4000 rem) <sup>1)</sup>	Hp(0.07) 10 μSv to 40 Sv (1 mrem to 4000 rem) <sup>1)</sup>
<b>Energy response in the dose range up to 1 Sv / Photons</b>		
	±30 % from 15 keV to 9 MeV <sup>2)</sup>	±30 % from 6 keV and higher (to 9 MeV)
<b>Energy response in the dose range up to 1 Sv / Beta</b>		
		(0.07) -20...+35% from 0.24 MeV to 0.80 MeV ( $E_{mean}$ )
<b>Angular response for photons</b>		
	±20 % up to 60° at 65 keV	±20 % up to 60° at 65 keV

- 1) When calibrated after every 10 Sv of accumulated dose  
 2) PTB approved up to 7 MeV

## FUNCTIONAL CHARACTERISTICS

- Recording of official Hp(10) and Hp(0.07) doses
- Memory:
  - Calibration date
  - Dose reset dates
  - User identification

## MECHANICAL CHARACTERISTICS

- Size: 41 x 44 x 12 mm, with holder 47 (95 with strap) x 49 x 13 mm (1.61 x 1.73 x 0.47 in , with holder 1.85 (3.74 with strap) x 1.93 x 0.51 in)
- Weight: 25 g (0.88 oz) , with holder 43 g (1.52 oz)
- Beta window: aluminized PI (app. 7 mg/cm<sup>2</sup>)
- Holder: anodized aluminum

## ENVIRONMENTAL CHARACTERISTICS

- Temperature range from - 10°C to +50°C (14°F to 122°F)
- Enclosure class: IP 67 (waterproof)



DIS Dosimetry System

The wide dose and energy range, the ability to operate in pulsed fields and the performance at high dose rates make DIS-1 an ideal device for all kinds of radiation dosimetry applications. The DIS-1 allows for the detection of heavy, high-energy ions and its immunity to any external interference is unequalled. There are no deviations in the dose readings even at very high EM or RF fields. The DBR-1 and DBR-2 Readers are designed to read DIS-1 Dosimeters assembled in the DDH Snap-in Dosimeter Holders. To obtain the most recent dose value, the user simply plugs the dosimeter into the reader and the dose values are displayed in a few seconds.

### > CHINA - SHANGHAI

T: +86 21 6180 6920 | E: info-cn@mirion.com

### > FINLAND - TURKU

T: +358 2 4684 600 | E: info-fi@mirion.com

### > FRANCE - LAMANON

T: +33 (0) 90 595959 | E: info-fr@mirion.com

### > GERMANY - HAMBURG

T: +49 40 85193 0 | E: info-de@mirion.com

### > USA - SMYRNA, GEORGIA

T: +1 770 432 2744 | E: info-us@mirion.com

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