

# Electronic Personal Dosimeter

direct-reading dosimetry of Hp(10) for photon radiation



The MS-EPD4 is a direct-reading electronic personal dosimeter designed for measurement of personal dose equivalent Hp(10) and personal dose equivalent rate. It is intended for individual monitoring of occupational exposure to photon radiation at nuclear power plants, nuclear fuel cycle facilities and other workplaces with ionizing radiation.



The dosimeter employs a tissue-equivalent, lead-doped polystyrene scintillator with an energy-compensated response from 40 keV to 7 MeV. A sealed IP67 housing, 1.5 m drop resistance and a service life of at least 15 years make the MS-EPD4 suitable for daily issue in demanding industrial environments.

The MS-EPD4 is designed for group charging and readout at nuclear power plants: dosimeters are configured, read out and archived via the MS-EPD4 Reader over USB or RS-485, with two configurable alarm thresholds per measured quantity and non-volatile memory for at least 2,000 events.

## FUNCTIONAL HIGHLIGHTS

- Tissue-equivalent Pb-doped plastic scintillator detector
- Dose equivalent rate range 0.1  $\mu\text{Sv/h}$  to 10 Sv/h
- Dose equivalent range 1  $\mu\text{Sv}$  to 20 Sv
- Energy range 40 keV to 7 MeV
- Audible, visual and vibration alarms
- Typically 3,000 h operation from one AA battery
- IP67, drop resistant to 1.5 m
- Designed for group charging and readout at NPPs

## COMPLIANCE

- IEC 61526:2024
- ANSI N42.20
- IEC 61000-6-2 (EMC)
- IEC 60529, IEC 60068 series

## TYPICAL APPLICATIONS

- NPP personnel dosimetry
- Nuclear fuel cycle industry
- Industrial radiography and NDT
- Medical and research facilities



## Specifications

### Radiological

|                                        |                                                                   |
|----------------------------------------|-------------------------------------------------------------------|
| Detector type                          | Pb-doped polystyrene scintillator                                 |
| Measured quantities, photon radiation  | Personal dose equivalent Hp(10) and personal dose equivalent rate |
| Dose equivalent rate display range     | 0.01 $\mu$ Sv/h to 20 Sv/h                                        |
| Dose equivalent rate measurement range | 0.1 $\mu$ Sv/h to 10 Sv/h                                         |
| Dose equivalent rate accuracy          | $\leq \pm 20\%$                                                   |
| Dose equivalent display range          | 0.01 $\mu$ Sv to 100 Sv                                           |
| Dose equivalent measurement range      | 1 $\mu$ Sv to 20 Sv                                               |
| Dose equivalent accuracy               | $\leq \pm 15\%$                                                   |
| Energy range, photon                   | 40 keV to 7 MeV                                                   |
| Energy response (relative to Cs-137)   | $\leq \pm 30\%$                                                   |

### Alarms

|                                  |                                             |
|----------------------------------|---------------------------------------------|
| Dose equivalent alarm range      | 1 $\mu$ Sv to 20 Sv                         |
| Dose equivalent rate alarm range | 1.0 $\mu$ Sv/h to 10.0 Sv/h                 |
| Thresholds                       | two per quantity, configurable via software |
| Alarm types                      | audible, visual (LED), vibration            |

### Operational

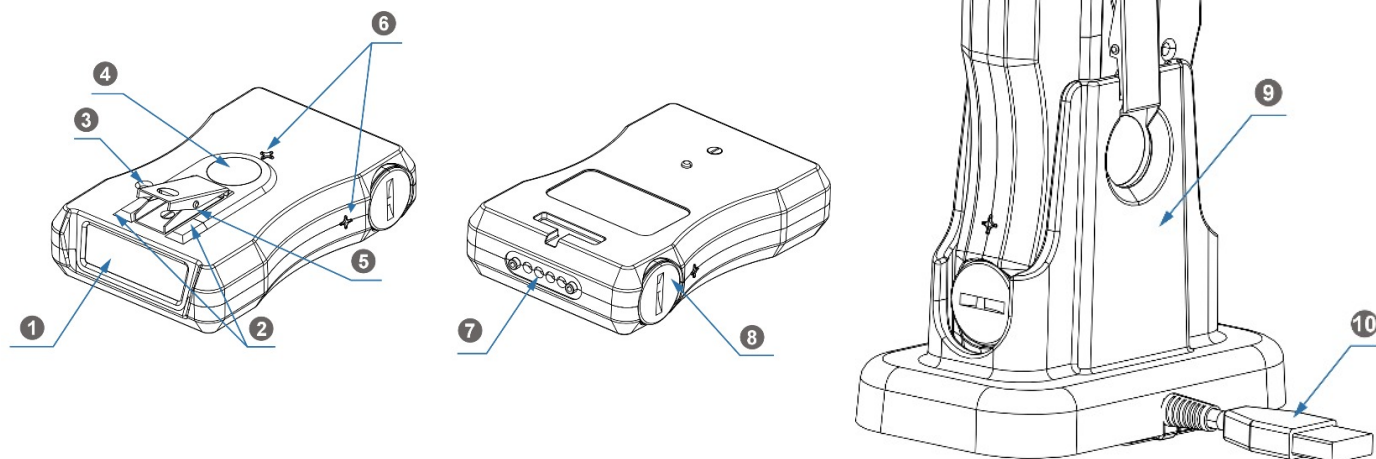
|                     |                                       |
|---------------------|---------------------------------------|
| Display             | segmented LCD with backlight          |
| Display units       | $\mu$ Sv, mSv, Sv — automatic ranging |
| Data interfaces     | USB or RS-485 via MS-EPD4 Reader      |
| Non-volatile memory | $\geq 2,000$ events                   |

### Physical and environmental

|                                    |                                        |
|------------------------------------|----------------------------------------|
| Dimensions (without clip)          | 23 × 63 × 91 mm                        |
| Weight (without clip and battery)  | $\leq 85$ g                            |
| Power supply                       | 1 × AA battery (FR6, LR6 or NiMH)      |
| Battery life, continuous operation | typically 3,000 h ( $\approx 90$ days) |
| Operating temperature              | -20 to +50 °C                          |
| Humidity                           | up to 95% at +40 °C                    |
| Atmospheric pressure               | 84.0 to 106.7 kPa                      |
| Ingress protection                 | IP67                                   |
| Drop resistance                    | 1.5 m onto concrete                    |

### Reliability

|              |                 |
|--------------|-----------------|
| MTBF         | $\geq 30,000$ h |
| MTTR         | $\leq 60$ min   |
| Service life | $\geq 15$ years |



MS-EPD4 external elements and MS-EPD4 Reader (group charging and readout)

Specifications are subject to change without notice.  
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