

Trusted Dosimetry Systems

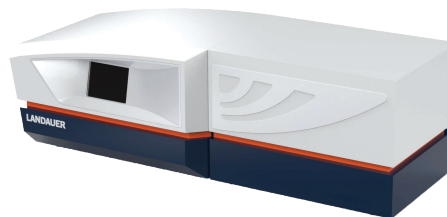
Our solution is comprehensive: Dosimeters, Readers, Annealers and Software for processing and data analysis

Join the more than 1.3 million workers in laboratory, industry and hospital settings around the world who rely on LANDAUER dosimetry systems



OSLR50 Automatic Reader

300 dosimeters / hour
1 magazine / 50 dosimeters
1011×452×352 mm / 39.8×17.8×13.9 inches
50 kg / 110 lbs



OSLR250 Automatic Reader

300 dosimeters / hour
Up to 5 magazines / 250 dosimeters
1100×452×352 mm / 43.3×17.8×13.9 inches
73 kg / 162 lbs



OSLR700 Automatic Reader

300 dosimeters / hour
Up to 14 magazines / 700 dosimeters
1186×452×352 mm / 46.7×17.8×13.9 inches
85 kg / 187 lbs

Impeccable service and the people we work with are outstanding. From our first encounter, we knew we were dealing with people who are knowledgeable of their product and very concerned with their customers' welfare. We highly recommend LANDAUER to anyone who is working with radiation.

LANCE STOKES, PhD
President, ECI Environmental Compliance

Equipment adapted to your environment and your needs

LANDAUER equipment is used for many applications:

- Occupational dosimetry
- Area monitoring
- Environmental monitoring
- On-site analysis
- Emergency response monitoring

InLight® dosimeters monitor X, gamma, beta and neutron radiation and together with OSLR readers report $H_p(10)$, $H_p(0,07)$ and $H^*(10)$ dose.

Our equipment can be adapted for any size organization including: nuclear power stations, laboratories and hospitals.

Compliance with standards

IEC 62387-1:2012 - We comply with passive integrating dosimetry systems for personal and environmental monitoring of photons and beta radiation for radiation protection instrumentation.

Many laboratories worldwide using LANDAUER dosimetry equipment are approved according to ISO/IEC 17025.

Simplified accreditation process

The system is scalable. It can be configured to complement your current dosimetry program, including maintaining your own in-house accredited dosimetry program.

The LANDAUER laboratory is accredited by the National Voluntary Accreditation Program for ionizing radiation dosimetry, NVLAP LAB CODE 100518-0.

OSL technology

LANDAUER technology is based on $Al_2O_3:C$, Optically Stimulated Luminescence (OSL) which is used exclusively worldwide for radiation monitoring. The detectors material is manufactured by LANDAUER according to the highest standard specifications.

OSL features and benefits are:

- **Fully optical, no heating:** the readout process uses a light-emitting diode (LED) to stimulate the detectors and the light emitted by the OSL material is detected and measured by a photomultiplier tube using a high-sensitivity photon counting system. The amount of light released during optical stimulation is directly proportional to the radiation dose and the intensity of stimulation light.
- **Dose algorithms meet several accreditation body requirements:** U.S. National Voluntary Laboratory Accreditation Program and U.S. Department of Energy Laboratory Accreditation Program.
- **High sensitivity minimizing the stimulation:** the optical stimulation keeps more than 99% of the information. The non-destructive readout process of OSL $Al_2O_3:C$ detector enables dosimeters to be archived and allows multiple reading in case of dose investigation. The detectors can be reused for several years.
- **Stable sensitivity over time:** OSL dosimeters remain stable under any environmental condition throughout time.
- **No calibration is required:** the sensitivity of InLight is determined during the manufacturing process by an ISO/IEC 17025 accredited laboratory. The sensitivity value engraved on the detector is automatically considered during the reading process.
- **No fading:** InLight dosimeters make extended wear periods possible. Archived dosimeters can be reread without corrections for fade.

Laboratory equipment “à la carte”

LANDAUER offers you a wide range of options to design a dosimetry program customized to your requirements.

For example, your organization can either choose to process its own dosimeters, or entrust all or part of the dosimetry process to LANDAUER. This includes lens-of-eye extremity and neutron dosimetry services.

OSLR readers

OSLR readers are designed for use with InLight dosimeters for whole body, environmental and emergency response monitoring.

All-in-one dosimeter reader

The OSLR reader works with the LANDAUER complete dosimetry system, a solution for onsite dosimetry using LANDAUER OSL technology. OSLR performs both reading and annealing process with very high throughput.

Quality, simply and with reliability

LANDAUER OSLR reader includes an external computer with menu-driven Integrated Research Application System (IRAS) software. The software automatically captures bar-coded dosimeter serial numbers, which facilitates chain of custody. The reader and the software provide control over reader setup, analysis and database maintenance.

Quality Control (QC) procedures and data recording, enable dosimeter readout, recording and the monitoring of reader performance. You receive rapid, accurate radiation

assessment that can help improve the efficiency and productivity of your program.

High-quality components are used for durability and to insure repetitive and long term performances. All important components are automatically and periodically checked with built in QC procedures.

Traditional techniques with internal radioactive sources or external irradiators are no longer required. OSLR readers use QC delivered samples, internal LED and photodiode to perform all QC tests.

Scalability

Select from three OLSR readers to monitor the number of workers in your lab.

Upgrading loader capacity during the product life time is designed to be simple.

For small laboratories, the microSTAR®ii reader is also available.

Feature	OSL Technology	TLD
Reanalysis capabilities	Yes <ul style="list-style-type: none"> • Validate unusual dose results • Archive for future reference • Can inter-calibrate with readers; uses same calibration and QC dosimeters on multiple readers for cross-calibration 	No Destructive readout
Pre-defined dosimeter sensitivities	Yes 2D engraved barcode identifies dosimeter sensitivity; no additional labor required to maintain sensitivities	No Must maintain Element Correction Factors (ECF); requires increased labor and time to maintain ECFs
Increase in efficiencies	Yes <ul style="list-style-type: none"> • Analytical process: 300 dosimeters / hour • Annealing: 200 dosimeters / hour 	No <ul style="list-style-type: none"> • Analytical process: 100 – 125 dosimeters / hour • Annealing: 100 dosimeters / hour
Simpler analytical process and reader maintenance	Yes <ul style="list-style-type: none"> • No heating parameters to maintain • No heat induced artifacts during readout • Eliminates heating requirements; leads to reduced photonics maintenance 	No <ul style="list-style-type: none"> • Must maintain heating parameters • Susceptible to heat induced artifacts for false positive • Must be cleaned more often
Low dose precision	Improved accuracy and dynamic energy range	-----
Fade	Minimal fade; <5% in a year, which enables longer wear frequencies	Must correct for fade
Environmental Integrity	Excellent – indestructible; very robust. <ul style="list-style-type: none"> • OSL in LANDAUER's RadWatch has passed First Article Testing for nuclear survivability 	<ul style="list-style-type: none"> • Susceptible to high temperatures and water immersion • Chips can crack and discolor

InLight dosimeters

InLight dosimeters are used for occupational, area/environmental and emergency response monitoring in any kind of facility. In addition they are:

- Robust, compact and lightweight
- Fully personalized and customizable
- Based on a new detector and a new generation of dose equivalent estimation algorithm. With InLight, you get a more accurate estimation of the dose equivalent at very low doses.
- High performing – InLight complies with all of the IEC 62387-1: 2012 standards. Its characterization by an independent laboratory (LNHB) shows metrological performances higher than the standard requirements.



Software and accessories

In addition to OSLR readers and annealers, LANDAUER provides software, accessories and support for organizations that require in-house service or other applications:

- Individual Monitoring Lab Software (IMLS)
- Barcode readers
- Manual and automatic pin cutters
- Training and support

General characteristics

Manufacturer	LANDAUER
Radiation measured	Photons (X- and gamma rays) and beta
Detector	New detector, GA or GN type
Materials	Aluminium oxide, doped with carbon, Al ₂ O ₃ :C
Filters	Open window, aluminium, titanium, tin
Dimensions without clip	35 mm × 74 mm × 10 mm
Weight	17 g
Dosimeter identification	1D / 2D barcode
Operational dose quantities	H _p (10), H _p (0.07), H*(10)

Environmental resistance characteristics

Operating and storage temperature	-10 °C to 40 °C
Humidity	0 % à 90 %
Light exposure	Tested up to 1,000 W/m ² - Compliant with the standard requirements.

Specifications

Type of measured radiation	Result of the InLight dosimeter	
	Photons	Beta
Personal dose equivalent	H _p (10) and H _p (0.07)	H _p (0.07)
Dose range	0.05 mSv to 10 Sv	
Linearity response	0.05 mSv to 10 Sv - Standard deviation < 5 %	
Measurement reproducibility	< 5 %	
Energy response (mean energy)	16 keV to 6 MeV (E _{max} = 18 MeV)	250 keV to 1 MeV (E _{max} = 2.2 MeV)
Energy dependency	Weak, < 11 % from 16 keV at 6 MeV	
Angular response (horizontal and vertical angles)	± 60° from 16 keV	± 45° from 250 keV
Angular dependency	Excellent - Average deviation < 6 %*	
Fading	< 1.5 % / month	
Neutrons detection	Insensitive to neutrons	