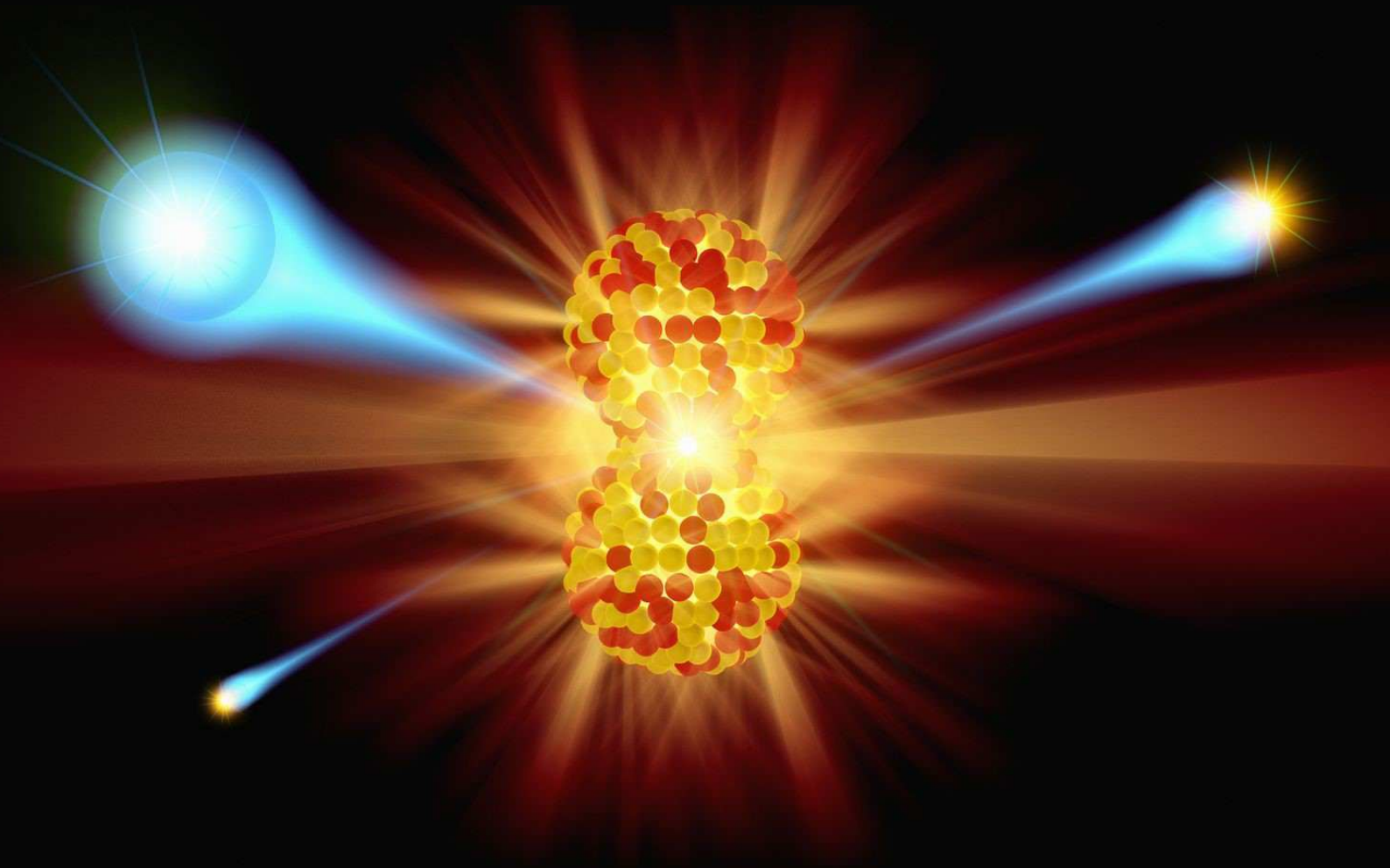


# Radiation Monitoring Devices



**Phoenix**  
*Dosimetry*  
*Ltd*

[www.phoenix-dosimetry.co.uk](http://www.phoenix-dosimetry.co.uk)

**Telephone: +44 (0)1252 871990**

Unit 8, Lakeside Business Park, Swan Lane, Sandhurst, Berkshire GU47 9DN

## **Radiation Monitoring Devices Product Contents:**

### **Portable Radiation Monitors - Pages 1, 2 & 3**

Thermo RadEye Range, FHT-40, Mini 900 Monitors, Scintillation Probes, Polimaster RIID Isotope Identifier, WENDI Neutron Detector, Lutetium Test Adaptors, Extension Poles for RadEyes, PHDS HpGe Gamma Ray Detector / Imager

### **Personal Dosimetry – Passive and Real-time solutions – Pages 4**

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### **Real Time Extremity Monitoring – Page 5**

JCS ED-3 Dual Probe Extremity Dosemeter for fingers and eye dose etc.

### **HEC+ Sample Counter / Installed Personnel Monitoring – Page 6**

HEC+ Sample Counter for Alpha, Beta / Gamma with electron capture mode 'EC'  
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### **Neutron Detectors – Page 7**

WENDI, RadEye SPRD-GN, RadEye NL

### **Radiation Gate / Security Monitoring – Page 8 & 9**

Thermo ASM-3000/6000 together with the FHT-1388 vehicle / train monitors,  
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### **TLD Readers and Materials – Page 10**

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Eljen Technology organic scintillation material including cast plastic scintillators and liquid scintillators

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Bench Repairs, Instrument Calibrations together with Field Service / Support

# Portable Radiation Detectors

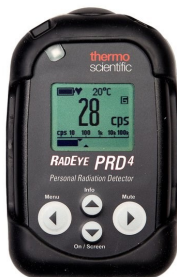
There is a RadEye monitor for almost every application.



**Mini 900 44A Probe**  
We offer the full range of Mini 900 units



**RadEye AB-100** with dual large area scintillator probe for alpha beta gamma, also has inbuilt discriminator



**RadEye PRD4** with large display CSI (TI) Scintillator for high sensitivity survey monitoring. 20 KeV 1-3 MeV with neutron indication



**RadEye B-20** Ideal for Nuclear Medicine Departments / Low energy detection. 17 KeV-3MeV. Gamma Filter for H(10)



**RadEye SPRD** for detection / identification of Radionuclides



**RadEye G-10** incorporates a different energy filter in order to achieve a Sievert response curve according to ambient dose rate H\*(10)



**RadEye G-20 10 and G20-ER10** X-ray and Gamma Survey Meters ideal for ambient equivalent dose and dose rate measurement.



**RadEye SX** Configurable to work with most popular scintillation and Geiger probes



A Range of Probes including the **DP6** Alpha / Beta version above



**WENDI** Wide Energy Neutron Detector



**FH40** Digital Survey Meters with wide range Geiger and option for external probes including Gamma, Beta and Teletector

## PHDS GeGi and Fulcrum Portable Gamma Radiation Detector

**GeGi:** characterises the surrounding radiological environment via multiple imaging modes. Automatic isotope detection, identification localisation and source activity quantification makes GeGi accessible to users of all levels in a variety of activities.

- Ideal for decommissioning, survey work and security application.
- Automatic Isotope identification
- Portable
- Large clear display
- 3 hour battery life

**GeGi**



**Fulcrum**



- HPGe Isotope Identification
- Compact Form Factor
- SNM Identification
- Fully Integrated turnkey HPGe

## Polimaster PM1401K-3P Multipurpose Hand-Held Radiation Monitor / Identifier

**Polimaster PM1401K-3P** Hand-Held Spectrum analyser / isotope identifier for the detection and localisation of radioactive materials for (gamma and Xray), alpha, beta and option for neutrons.



### Key Features

- Has 2 detectors, Geiger and LiF/ZnS
- Gamma radiation search energy range 0.033 – 3 MeV
- Gamma search, spectrometry and activity channel
- Spectrum storage capability
- Small hand held with optional holster

## Ancillary Devices for Radiation Monitors



### Area Monitor

The RadEye Area Monitor takes any standard RadEye and converts it into an Area Monitor with external relay for lights / alarm.

## Utilise your old Scintillator and Geiger Probes with the RadEye SX and GX

The RadEye SX and GX can be linked to more or less all existing Scintillation and Geiger detectors by means of a simple low cost cable, we'll even set them up for you free of charge in our workshop.



## Lutetium Test Adaptors



These are useful as check sources and fall outside the legal requirements for a radioactive source, hence they do not require any licenses. Due to the long half life, they would never need replacing. There would also be no significant disposal cost. Available for all types of monitor including Gate Monitors.

## Radeye SX - DP6 Survey Poles

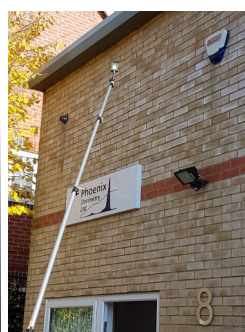


## PRD Monopole



## Stand alone Pole and Cables

We also offer stand alone poles and customised cables for Mini Monitors and Scintillation Detectors with robust protective sheaths.



# Personal Dosimetry



## Trudose EPD

- Beta / Gamma and Gamma versions available
- HP-10 and HP-0.07 Dose / Doserate
- IR Link to Radsight Software
- Neutron version coming soon

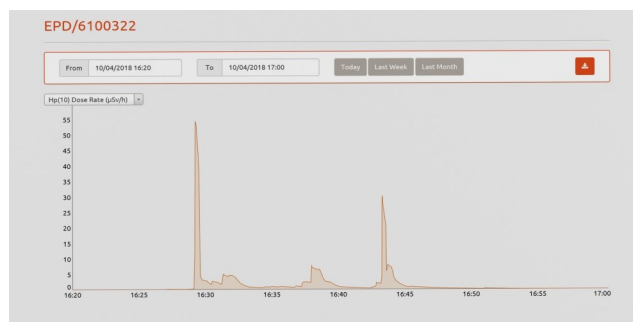


## Polimaster Radflash



- Small badge type with Dose and Doserate alarms
- Integrated BT for real time display with Link2 on large screen
- Dose and Doserate HP-10
- Wireless charging
- BT Dock integration to Radsight software for Issue / Return and data storage with dose profile information.

## RadSight Software for TruDose and EPD-MK2



- Integrates simultaneously with TruDose and EPD-MK2 also to Radflash via BT Dock
- Includes personnel database for dose records
- Issue and de-issue EPD with IR Reader or by manual assignment. Compatible with older EPDs) together with new Thermo TruDose IR readers
- Simple issue with drop down selection of users and activities – switches on EPD, zeroes dose and assigns to wearer in one step
- Easy and fast single step return - reads dose and switches dosimeter off

## Extremity Ring DXT-RAD



## TLD Cards with high sensitivity



Cu, Mg, LiF with choice of holders

Please note that we do not run a personal monitoring service however we highly recommend UKHSA at Didcot on 01235 831600 who have a state of the art Harshaw TLD System.

UK Health  
Security  
Agency

## Extremity Finger Tip EXT-RAD



# JCS ED3 Real Time Extremity Dosemeter

The monitoring of extremities is extremely important when handling radiopharmaceuticals as whole body dose badges will underestimate the real extremity dose, especially in high dose gradients. The ED3 is ideal for a range of applications including cardiology, oncology, Xray and general glove box work.

The ED3 Active Extremity Dosemeter allows for simple monitoring of Hp(0.07) for betas and gammas on the extremities with 3 types of probe available depending on the energy range to be covered, the D3 probe is for HP3 eye dosimetry.

The Probes come pre-calibrated and are inter-changeable on the ED3 electronics units.



## Applications:

- Interventional Radiology
- Radiation therapy
- Nuclear Medicine
- Glove Box
- High Dose Gradient Environments
- X-Ray

## Benefits:

- Real time monitoring with long battery life and data storage for post analysis / dose records
- Improved dose assessment in high dose gradients
- Simple to use and wear

Specification	
Energy Range photons	25 keV—1.2 MeV
Effective Dose Range	1.0 $\mu$ Sv — 999.9 mSv 0.1 mrem—99.99 mrem
Effective Dose Rate Range	0.0 to 99.9 mSv/h 0.0 to 9.99 rem/h
Size & Weight	99 x 60 x 35 mm — 245 g
Environmental	IP53
Display	16 x 2 character LCD
Battery Life (Rechargeable)	Over 60 hours per charge with normal use

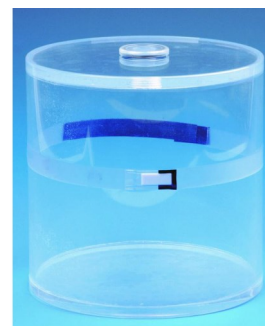
## Key Characteristics

- Real-time readout for 1 or 2 detectors
- Measures Hp(0.07) directly
- Detectors are detachable so ideal for decontamination or replacement
- Collected data can be analysed, stored and archived on a PC using the ED3 Manager software which is included with the ED3
- Can be utilised for Hp(3) Eye dosimetry by the addition of a 3mm filter and head band

HP3 Eye Probe



HP3 Head Phantom also available.



## Thermo HEC+ Alpha Beta Sample Counter

**Key Data of RadEye HEC+ (50 mm dia. Sources)**

4 Pi Efficiency	BA-Mode		EC-Mode	
	Beta	Alpha	"EC"	"BETA"
Ni-63	1,5%	0,0%	16%	1,1%
C-14	14%	0,0%	16%	14%
Co-60	23%	0,0%	12%	23%
Cs-137	33%	0,0%	1,6%	33%
CI-36	36%	0,0%	3,9%	36%
Sr/Y-90	35%	0,0%	4,4%	35%
Am-241	1,2%	39%	0,0%	42%
U-238	39%	38%	13%	47%
Pu-239	0,4%	41%	0,6%	42%
Fe-55	0,0%	0,0%	5%	0,0%
Mn-54	0,0%	0,0%	5%	0,0%
Back-ground	1	"0"	1	1



**RadEye Hec+** For air filter and swipe tests, in situ measurement of average beta energy and indication of tritium contamination

The **HEC+** Alpha/Beta Sample Counter provides:

- Simultaneous alpha/beta measurements in classic mode
- Special EC-Mode measures low energy beta emitters (e.g. Ni-63) and electron capture nuclides (e.g. Fe-55, Mn-54, Cr-51)
- Cost effective alternative to liquid scintillation counters for Ni-63 and H-3 samples
- 800 hours battery operation
- Customised library of up to 16 nuclides with automated half life correction
- Simple detector performance verification with 9g Lutetium Test Adapter

## Thermo Installed Personal Contamination Monitor

Both the **HM11-SC** hand detectors and the **HFM-11** Hand and Foot Monitor offer high performance monitoring.

They use an established technique for monitoring alpha and beta radiation simultaneously. They utilize spring loaded detectors clamped on both sides of the monitor.

Vertically mounted detectors minimise the risk of detector contamination, and the top-mounted occupancy sensors avoid blockages.

The Thermo Scientific™ **iPCM12** takes personnel contamination monitoring to a new level with improved sensitivity due to smaller detector size and excellent geometry for alpha and low energy beta detection.

**HM-11** Scintillation Hand monitor

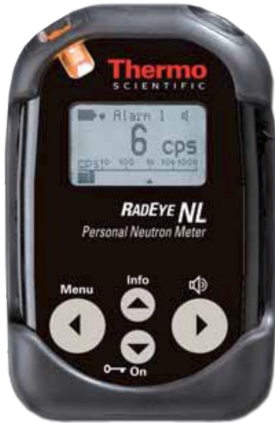


**HFM-11** Hand and Foot Monitor



**iPCM-12** Whole Body Contamination Monitor

# Portable Neutron Monitors



## RadEye NL

- Ideal for search and finding Neutrons.
- For Industrial Sources, Medical Accelerators and Radiation Protection staff/inspectors of Nuclear facilities
- Optional Moderator kit with handle



## PackEye

- Radiation Detection Backpack
- Gamma and Neutron
- 30 hour battery life
- Neutron 40cps per n/s/cm<sup>2</sup>
- Weight 16.5kg



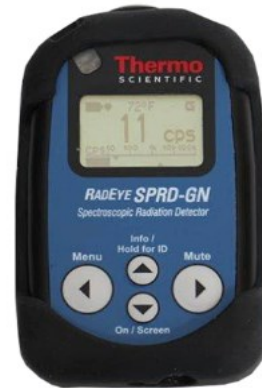
[www.phoenix-dosimetry.co.uk](http://www.phoenix-dosimetry.co.uk)



## FHT 762 WENDI-2

### (Wide Energy Neutron Detection Instrument)

- Energy range 25 meV to 5 GeV
- Weight 13.5kg
- Sensitivity 0.84cps/msv/h) CF-252



## RadEye SPRD-GN

- Gamma Neutron Detector
- Compact and rugged
- 10 nSv/h - 250 msv/h
- NBR — Natural Background Rejection
- Includes software for Configuring RadEye and Spectrum Download and analysis



## EPD-N2

- Gamma-Neutron Personal Dosimeter
- 20keV-10MeV photon. 0.025eV-15MeV neutron.
- Direct display-Standard AA or Lithium Battery
- Additional readers and software available

# Radiation Gate Monitors for Power Stations, Scrap Yards and Industrial Facilities

The Thermo Gate monitors are well established and ensure that they give you the best possible detection against any rogue sources entering or leaving sites.

The units incorporate large area plastic scintillation detectors. We offer the ASMIV and FHT-1388 units, both have intelligent algorithms to ensure excellent detectability but with minimal nuisance alarms. The FHT units also include NBR (natural background rejection).

We can offer lots of different configurations for any measurement situation.

## FHT1388 Detector Configurations



Horizontal Mounting

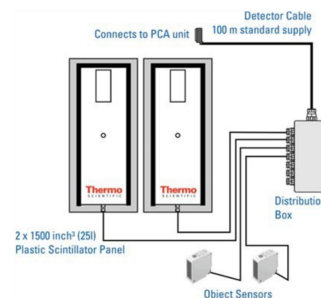


Vertical Mounting

## ASM 600 Gate Monitor



Gamma only detection systems can possibly miss orphan Alpha emitting sources such as Americium. The **FHT 1388S/SGS-2**: Neutron Module (shown below) can be added to existing systems to enable Neutron detection.



Ancillary equipment includes:

- RIIDEye XG
- RadEye SPRD
- Lutetium Test Adaptor

## Radiation Gate Monitors for Power Stations, Scrap Yards and Industrial Facilities

PM5000C-05M is a highly sensitive mobile system designed to prevent illicit trafficking of radioactive materials in vehicles and luggage as well as by pedestrians. The monitor transport set comprises three plastic, compact, lightweight hermetic cases. The system can be installed and put in operation in a short time period even in harsh environment and extreme climate conditions.

**PM5000C deployable monitor**



**5000P pedestrian single post, dual post & conveyor**

PM5000P Series Monitors are designed to monitor gamma or neutron for both gamma and neutron radiation in vehicles and luggage at various checkpoints. These monitors can be supplied with single-pillar or two-pillar configurations depending on site requirements; they can be installed both indoor or outdoor.

These units may be installed at vehicular, railway and pedestrian border crossings, also at customs checkpoints to prevent possible illicit trafficking of radioactive sources. They may also be used at the checkpoints of nuclear power plants (NPPs), nuclear industrial facilities, nuclear waste disposal storage sites, also check points in banks, offices etc.



**Single Pillar**



**Dual Pillar**



**Conveyor Monitor**

# Harshaw TLD Readers And Materials

We offer the full range of Harshaw TLD Readers and Materials together with accessories.

The range of Readers are ideal for various applications of Radiation Dose Monitoring including:

- Personal Dose Monitoring (whole body and Extremity)
- Diagnostic Surveys
- Patient Dosimetry
- Environmental Monitoring
- High Dose / Accident Dosimetry
- Food irradiation monitoring

## TLD Materials

We supply a complete range of TLD materials ranging from powder, loose chips, TLD cards, Dxt-Rad Extremity rings, Ext-Rads, Holders etc.



**Model 5500:** TLD Reader for the automated processing of up to 50 loose chips / pellets



Readers	
<b>Model 3500</b>	For manual processing of loose chips, pellets and powder
<b>Model 4500</b>	For manual processing of loose chips, pellets, powder and cards
<b>Model 5500</b>	For automated processing of loose chips, pellets and microrods / cubes
<b>Model 6600</b>	For automated processing of Cards and Extremity Dosimeters (200 / loading)
<b>Model 8800</b>	For high capacity automated processing of Cards and Extremity Dosimeters (1,400 / loading)
<b>TLD Irradiators</b>	We offer a stand alone Irradiator, also an integrated one for the M-6600 and M-8800 Readers
<b>Upgrades</b>	Please contact our sales office for information on mid life upgrades, together with updated WinRems windows versions

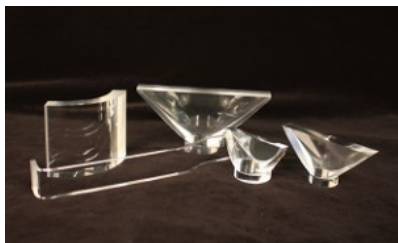
# Eljen Organic Scintillators

**Plastic Scintillators** are available in a wide variety of sizes and geometries, and are machined to customer specifications.

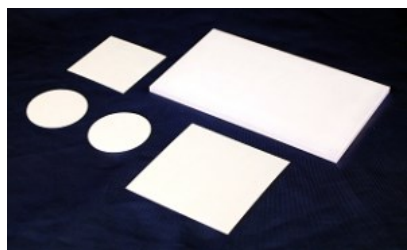
**Liquid Scintillators** Available in bottles or sealed in aluminium or glass cells.



**Light Guides and Acrylic Plastic** Used for uniform light collection from a scintillator.



**Zinc Sulphide Coated ZnS:Ag coated plastic sheets or plastic scintillator sheets designed for alpha or alpha/beta detection.**



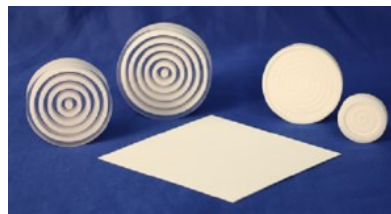
## Plastic Scintillators



**Wavelength Shifters** Available in sheet material or as paint for making thin films.



**Neutron Detectors** Specially designed scintillators for fast neutron or thermal neutron detection.



**Accessories** Products for detector assembly and photosensor coupling.



# Phoenix Dosimetry Technical Support, Training and Service

Optimal performance of your Dosimetry equipment relies on regular and efficient service support. Phoenix Dosimetry have excellent service facilities encompassing both bench repair and field service; we offer a range of Service Contracts tailored to meet individual customer requirements. Our staff have over 30 years of experience in supporting Radiation Monitoring Systems.

We hold a comprehensive inventory of parts for most systems at our workshop facilities in Sandhurst and are able to respond quickly to any emergency breakdowns.

The range covered includes all the Mini and legacy NE/Thermo equipment, the only limiting factor may be the availability of parts for some of the much older equipment but in most cases we can normally effect repairs.



## Bench Repairs

We charge £90.00 per hour for any repairs and there is no inspection charge so you can send your instruments to us and obtain a no obligation quotation for their repair



## Instrument / Calibration Checks

We now offer calibrations for:

- Mini and most radiation monitors
- Inhouse fast EPD-2 calibrations
- Inhouse fast JCS ED3 calibrations



Our test area is equipped with an x-ray machine capable of doing comparative tests against a calibrated ED3 unit and probes. This enables us to confirm if the unit is performing correctly.

To use this service simply email us at [support@phoenix-dosimetry.co.uk](mailto:support@phoenix-dosimetry.co.uk) and let us know how many and which type of instrument you require to send for test/calibration; we will then send you a quotation and returns label.

## Performance Testing / Calibration Testing for Thermo EPD's and JCS ED3 Real Time Dosimeters

We now offer, In partnership with John Caunt Scientific, an express annual performance test for the ED3 Extremity Electronic Dosimeter Probes.

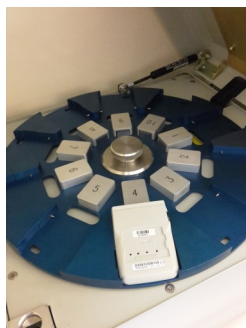


ED3 Detector Probes should be checked annually to ensure their response to radiation is within specification. For the D1 Probe angular response is also checked to confirm the integrity of the internal filters.

Phoenix Dosimetry offer an express calibration service for the Thermo EPD-2 Personal Electronic Dosimeters.

**ThermoFisher**  
SCIENTIFIC

Our laboratory is now fully equipped with the essential Thermo Fisher calibration and test equipment which is specifically designed for the EPD-2 units.



To use this service simply email us at [support@phoenix-dosimetry.co.uk](mailto:support@phoenix-dosimetry.co.uk) and let us know how many and which type of units you would like us to test / cross calibrate

**Phoenix Dosimetry Ltd**  
Unit 8, Lakeside Business Park, Swan Lane, Sandhurst, Berkshire, GU24 0BN

**Radiological Performance Certificate of Test No: 1000**

**Details of instrument and use:**  
Description: JCS ED3 with D1 Detector  
Serial No: 00062 018  
Unit: Measurement of X and Y radiation dose at and above 60 kVp

**Details of Test:**  
Date: 4<sup>th</sup> July 2017  
Type of Test in field: Test Before First Use  
Test Conditions: The instruments dose response was tested together with the polar response which was determined at 0° and 90° in the horizontal plane. All measurements were performed on an X-Ray set fitted with Targate Filter at 60 kVp. The Dosimeter was mounted lengthwise on the front face of an ISO PMMA rod phantom with a 25 mm diameter and 300 mm length.  
Test reference point: Front of phantom  
Orientation: Radiation beam normal to detector reference mark, unless angle to beam stated.  
Uncertainties: The uncertainties associated with this measurement are not expected to be above 2.25% at the 95% confidence level.  
Traceability: The measurements were performed against a reference ED-3 Dosimeter directly calibrated at the PH / UKAS facility.  
**Results of Test:** Satisfactory for measurements performed. See note.  
Compliance with the Ionising Radiation Regulations 1959: These results are typical of type and the instrument / detector is suitable for the use described in Section 8, under the terms of the Regulations and the associated Approved Code of Practice.  
Test Performed By: Ken Soley Signature: \_\_\_\_\_  
Date of Issue: 12<sup>th</sup> July 2017

Telephone: +44 (0)1252 871596 Website: www.phoenix-dosimetry.co.uk Email: sales@phoenix-dosimetry.co.uk  
Fax: 01252 871597

### Sample Test Certificate

**Phoenix Dosimetry Ltd** Certificate of Performance Verification

**Reference:** Report From: 01/01/2017 Report To: 31/03/2017

**Thermo Scientific Electronic Personal Dosimeters (EPD) Unit 2**  
Temperature: 20 °C Incident Dose Rate: 100  
Incident Source: Am-241 Cs-137 Source Activity: 27000/11000  
The Institute is not a UKAS accredited facility for the purpose of this certificate.

**Performance Verification Results for Unit 2:**  
Performance Verification Results for Unit 2: 100% of the reference dosimeter  
Performance Verification Results for Unit 2: 100% of the reference dosimeter

Unit No.	Temperature	Incident Dose Rate	Incident Source	Source Activity	Performance Verification Results	Unit No.
1	20 °C	100	Am-241 Cs-137	27000/11000	100% of the reference dosimeter	1
2	20 °C	100	Am-241 Cs-137	27000/11000	100% of the reference dosimeter	2
3	20 °C	100	Am-241 Cs-137	27000/11000	100% of the reference dosimeter	3
4	20 °C	100	Am-241 Cs-137	27000/11000	100% of the reference dosimeter	4
5	20 °C	100	Am-241 Cs-137	27000/11000	100% of the reference dosimeter	5
6	20 °C	100	Am-241 Cs-137	27000/11000	100% of the reference dosimeter	6
7	20 °C	100	Am-241 Cs-137	27000/11000	100% of the reference dosimeter	7
8	20 °C	100	Am-241 Cs-137	27000/11000	100% of the reference dosimeter	8
9	20 °C	100	Am-241 Cs-137	27000/11000	100% of the reference dosimeter	9
10	20 °C	100	Am-241 Cs-137	27000/11000	100% of the reference dosimeter	10

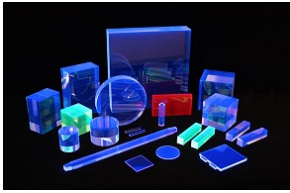


Turnaround times are typically 1 week.

Please email us now for any further details at

[support@phoenix-dosimetry.co.uk](mailto:support@phoenix-dosimetry.co.uk)

# Radiation Monitoring Solutions from Phoenix Dosimetry Ltd



## Scintillator Materials from Eljen Technology

**Plastic Scintillators** are available in a wide variety of sizes and geometries, and are machined to customer specifications



**TruDose Electronic Real Time Personal Dosimeter** Dose and Dose rate display / alarms for Hp10 and Hp0.07, use either stand alone with simple 2 button operation or with software for simple issue / return and dose reports.



**RadEye PRD4** Survey Meter with large display, CsI Scintillation based detector, NBR, and Neutron alert capability.



**RadEye B20** measures Alpha, Beta, Gamma surface contamination with optional H\*10 filter, B-20 then becomes a dose / dose rate meter.



**PHDS hand-held HPGe Isotope identifier** is probably the world's most sophisticated hand-held Gamma Ray Detector with imaging capabilities.



**Liquid Scintillators** are available in bottles or sealed in aluminium or glass cells



**Polimaster Radflash Personal Dosimeter** for X-ray and Gamma Radiation, small dimension, lightweight and interfaces with RadSight software.



## Polimaster PM1404K-3P

Hand-Held Spectrum analyser / isotope identifier.



**ED3 Active Extremity Dosimeter** Allows for simple monitoring of Hp(0.07) for betas and gammas on the extremities. Also HP3 Detector for lens of the eye.



**Fast Repair Service:** typically 1 -2 weeks for Mini and Legacy NE/Thermo Equipment. Free inspection service with no obligation quote.