

# Monitoring and Analytical Equipment

Nuclear and Industrial Applications



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## Radhound Multi-purpose Digital Radiation Meter

A multi-purpose digital radiation survey meter suitable for all your contamination monitoring and radiation protection requirements, the Radhound is a cost effective, feature packed digital radiation monitor that is simple and easy to use.

Count rate is displayed in large clear numbers and also on a bar scale. Our smart averaging software means a steady display that can be read with confidence, yet provides a fast response.

For source finding, one button push changes the display to a histogram plot. Alpha and Beta/Gamma counts can be displayed separately or on the same screen.

For surveying operations the Radhound also has an integrator mode.

- Clear digital LCD display with backlight.
- GM and scintillation detector options.
- Scaler timer function.
- Ergonomic tilt stand.
- Wall mountable.
- Fully adjustable alarm levels.





# Radiation Monitoring

## Radhound X/E and X/I

The Radhound X/E is an advanced hand-held general purpose radiation monitor, suitable for a wide range of probes. The X/I is a Radhound X with an internal dose rate detector.

This feature-packed instrument boasts some unique features, such as the ability to switch between probes via the menu allowing, for example, a dose rate probe and a contamination probe to be configured for use with one instrument. This flexibility allows any standard probe to be used (300 - 1200 V).

- Clear digital LCD display with backlight.
- GM and scintillation detector options.
- Fully adjustable alarm levels.
- Scaler timer function.
- Multiple probe library/configuration.
- Peak mode.
- Over range.



## Radhound Alarm

A low cost digital area monitor available with a range of probe options for all your contamination monitoring and radiation protection requirements.

The Radhound Alarm has a large digital display, the option for mains or battery operation and can be easily wall mounted. The easy to use password protected configuration menu enables a choice of probe and alarm thresholds to be setup.

Alarm output is provided by remotely mounted audio sounder and visual beacon.

- Simple to operate.
- Programmable alarm threshold.
- Audible count rate (with on/off switch).

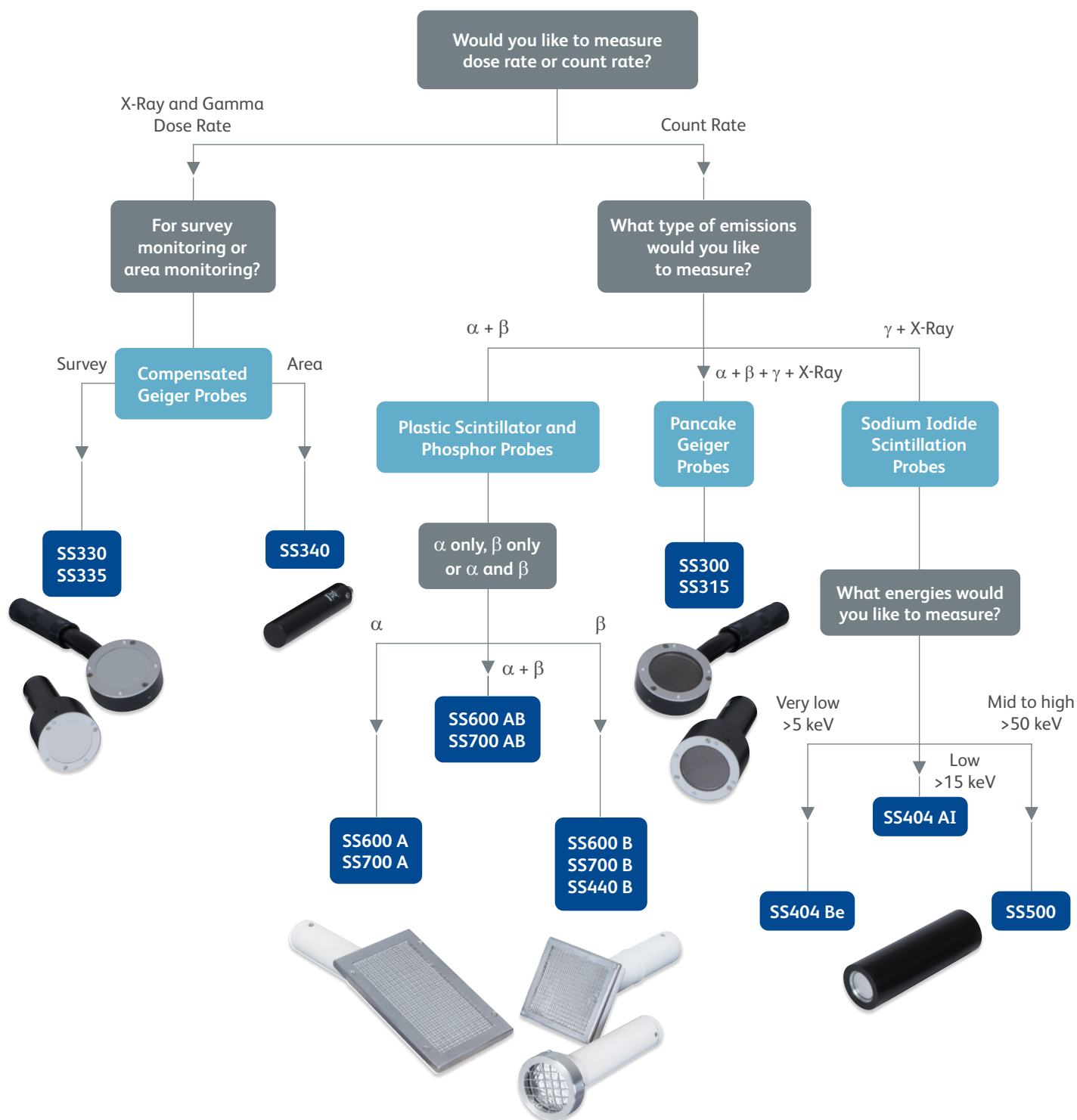




## Radhound Probe Guide

All Radhound monitors are compatible with a range of probes to meet your detection requirements.

Southern Scientific supply a selection of probes with a variety of different detectors. Use the guide below to determine which probe (or probes) is best for you, or call to speak with one of our product specialists.



We have other styles of radiation monitor available.

# Radiation Monitoring

## Automess 6150 AD Series

An easy to use survey meter, the Automess 6150 AD can be used as a stand-alone survey meter or with a wide range of smart probes to cover a number of applications.

- Built-in compensated GM counter.
- Automatically recognises and calibrates to any smart probe in the Automess range.
- Displays both dose and dose rate.
- Programmable dose and dose rate alarm.
- Non-volatile dose memory (data is not lost if switched off).
- Display range and units adjusted automatically.
- Battery life: 1,000 service hours approx.
- PTB and GSF approved (recognised by HPA).
- Sturdy, waterproof aluminium die cast housing.
- Intrinsically safe available.
- Connects to PC for real time transfer of measurements.



Model	Dose Rate Range
6150 AD 5	2 µSv/hr - 10 mSv/hr, 45 keV - 2.6 MeV
6150 AD 6	200 µSv/hr - 1 Sv/hr, 60 keV - 1.3 MeV

### Automess 18-Ex Low Dose Rate Probe

- Complies with ATEX 100A directive.
- Wide dose rate range.
- Easy to use.
- Suitable for the oil and gas industry.



### Automess AD-15 and 18 Probes

High and low dose rate gamma probes.

- GM tubes.
- Water resistant.
- Intrinsically safe version available.
- Energy range: 65 keV - 1.3 MeV

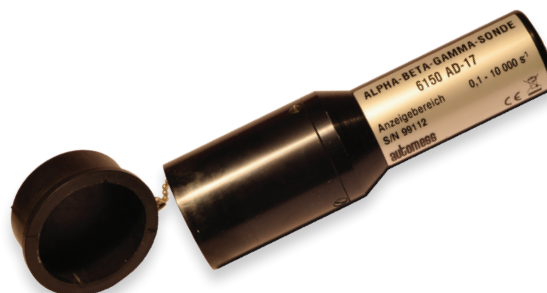


Model	Dose Rate Range
6150 AD-15	1 mSv/hr - 10 Sv/hr
6150 AD-18	2 µSv/hr - 10 mSv/hr

### Automess AD-17 Probe

For alpha, beta and gamma contamination measurement.

- End window GM.
- Suitable for low intensity X-ray or gamma radiation.



## Automess 6150 AD-B Probe

A high sensitivity dose rate scintillation probe.

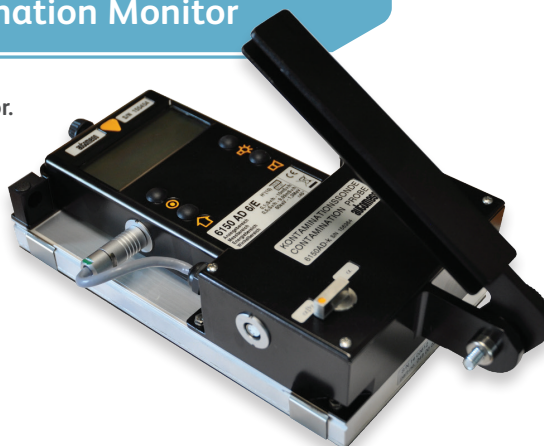
- High sensitivity, down to 5 nSv/hr.
- $\varnothing$  7.62 x 7.62 cm (3" x 3") plastic scintillator.
- Wide energy range: 23 keV - 7 MeV.



## Automess 6150 AD-K Surface Contamination Monitor

A compact, light and manoeuvrable surface and floor monitor.

- 100 cm<sup>2</sup> active area.
- Switch for alpha, beta and gamma counting.
- Alpha and alpha/beta gamma discrimination.
- Microprocessor controlled compensation of detector.
- Automatic range switching.
- View count rate, average count rate, max. count rate or accumulated number of pulses.
- Settable alarm thresholds.



## Automess 6150 AD-t

The Teletector Probe 6150AD-t is a portable probe for the Dose Rate Meter 6150AD to measure photon radiation (gamma and X-radiation).

Two GM counting tubes placed at the telescope's end serve as detectors covering a very wide dose rate range. The low range tube is placed behind the window in the front of the tube housing and can also detect beta radiation.

The stainless steel telescope can be continuously extended up to approximately four metres. This allows the distance to the radiation source to be increased and the exposure to be reduced accordingly. Furthermore it helps to measure at places difficult to reach.



## Automess 6112M Teletector

A stand-alone telescopic detector with built-in digital analogue display.

- Gamma and beta detection.
- Automatically switches between 2 GM tubes to cover wide dose range of 2  $\mu$ Sv/hr - 10 Sv/hr (up to 10 mSv/hr (beta)).
- Extends to 4.12 m.





# Radiation Monitoring



## T401 Contamination Monitor

Designed to meet the challenge of combining operational reliability with excellent sensitivity the T401 offers a range of features including direct surface, peak and background readings. It can be used one-handed, or detach the probe for two-handed operation.

The T401 can be supplied with an extension pole kit to securely deploy the detector probe during monitoring operations.

- Dual bar graph meter display 0 - 1000 cps.
- Digital numeric display with automatic direct translation to Bq/cm<sup>2</sup> for 14+ pre-programmed nuclides (natural and man-made) including C-14, P-32, Cs-137.
- Optional extension arm.
- Detachable probe.
- Background reading and storage.
- Audible response with adjustable alarm thresholds.



## T402 and T406 Dose Rate and X-ray Monitors

The T402 and T406 are lightweight, yet robust and comfortable to use over extended periods.

- T402 detects gamma and X-rays from 60 keV - 1.33 MeV.
- T406 detects gamma and X-rays from 17 keV - 1.33 MeV.
- T402HR – extended range for high dose rates.
- Digital bar graph display: 0.1 - 1000  $\mu$ Sv/h.
- Digital dose rate indication: 0 - 10,000  $\mu$ Sv/h.
- Peak dose rate memory – allows maximum exposure levels to be recorded.
- Accumulated dose rate memory – for risk assessment and total exposure.
- Audible response with adjustable alarm thresholds.
- Water-resistant so easy to clean and decontaminate.
- Shock and drop tested so highly durable.



## Personal Electronic Dosimeter (PED)

Ideal for users who are not specially trained to measure radiation exposure, the PED family have been specially designed to be easy to use and understand. Encased in weather, shock and drop proof housings each PED features a smooth clean design and simple to use DoseVision™ software.

- Detects X-rays and gamma rays from 33 keV - 1.33 MeV.
- One touch operation.
- Easy to read large Amoled display screen displaying dose rate, accumulated dose and animated silhouette indicating dose received.
- Multiple languages.
- Multiple users.
- Waterproof up to 1 m.

### PED-IS

This intrinsically safe PED is perfect for both radiation specialists and those who do not work with radiation every day. Robust and reliable, it is safe to use in potentially explosive areas, making it ideal for challenging environments.

### PED Blue

This is the non-intrinsically safe version of the PED-IS. Lighter, it retains the same high quality design and features a direct micro USB connection.

### PED+

An advanced version of the PED Blue, it can be used as both a PED and a hand held dose rate survey meter. The PED+ has a number of added features, such as Bluetooth, GPS and pop-up message alarms.



### PED-ER

The PED-ER's extended dose rate range of 1 Sv/h (100 R/h) and an energy range of 48 KeV to 3 MeV, provides perfect radiation dosimetry for nuclear medicine environments.

### PED ER+

Featuring an extended dose rate range of 1 Sv/h (100 R/h) and an energy range of 48 KeV to 3 MeV, the PED ER+ allows the user to measure radioisotopes which could not have been measured previously. Lightweight, waterproof and compact, the PED ER+ provides the perfect radiation monitoring solution for those working in challenging environments.

## NORM Monitor-IS

The ultimate tool for obtaining accurate NORM measurements in hazardous areas, the NORM Monitor-IS is ATEX approved with dual probe capabilities; Geiger Müller and scintillator.

- Large, easy to read LCD screen with bar graph and back light.
- One-touch integrate function that allows detection of very low activities for increased measurement accuracy.
- Live background subtraction and several measurement modes.
- Adjustable alarm thresholds for improved safety.
- Easy to clean and decontaminate.



# Radiation Monitoring

## RDS-30 Dose Rate Meter

**The RDS-30 is a Digital Handheld Dose Rate Meter designed for a wide range of applications involving a possibility for abnormal radiation levels.**

Compact, lightweight, waterproof, its performance and its friendly user interface make the RDS-30 perfectly suited to radiation survey in field conditions, in nuclear industry and for protection against radiological hazards by personnel, who may be exposed to gamma and / or X-ray radiation in their work.

- Measurement and display in  $\mu\text{Sv/h}$  or  $\text{mrem/h}$ .
- Dose measurement indication.
- High battery life time (>1 year).
- Compliant to IEC 60846.

- Dose rate follow-up by audible signal with frequency proportional to dose rate.
- Visual and audible alarm: user settable for dose and dose rate over the whole measurement range.
- Histogram capability of up to 480 dose rate values with user settable logging interval.
- Backlit display with six large digits.
- Display in either  $\mu\text{Sv/h}$  or in  $\text{mrem/h}$ .
- Built-in self-diagnostics complies with ANSI.
- N42.33 and IEC 60846 standards.



## RDS-31 Multi-purpose Survey Meter

**The RDS-31 is a small handheld, battery operated survey instrument using an energy compensated GM-tube as primary detector. Due to its versatile functions and durability it is suited for a wide range of applications in civil defense, industrial and laboratory use etc.**

- $H^*(10)$  ambient dose equivalent dose and dose rate.
- Wide range of external alpha, beta and gamma probes for direct connection with RDS-31.
- Large graphic screen, configurable backlight with automatic illumination control.
- High impact durable case construction, IP-67 immersion proof.

- Internal memory to store measurements.
- Flexible histogram functions.
- Firmware of instrument upgradable through cable link.
- Configurable shortcut functions.
- Complies with ANSI N42.33 and IEC 60846 standards.



## DMC 3000 / DMC 3000 Personal Electronic Radiation Dosimeter

**The DMC 3000 Personal Electronic Radiation Dosimeter features superior gamma and X-ray energy response, programmable alarms with visual LED, audible, and vibrating alarm indicators, simple 2-button navigation, and the ability to be fitted with external modules for expanded capabilities.**

The DMC 3000 has a complete line of attachable modules that expand the detection and communications capabilities of the dosimeter these are: DMC 3000 Beta Module, DMC 3000 Neutron Module and DMC 3000 Telemetry Module.

- Designed for ruggedness and durability.
- Loud audible alarms, coupled with ultrabright LEDs and vibration capability.
- Simple 2-button operation and navigation of display options.
- Meets or exceeds applicable IEC and ANSI standards.
- Operates for up to 9 months on a single standard AAA battery.

The add-on PRD Module attaches to the DMC 3000 dosimeter and provides radiation counting information for source and hot spot location assessment, while providing dosimetry protection to the operator. It is powered by the DMC 3000 for over 1000 hours of use.





## Tritium Condenser

**An innovative tritium sampler which produces results in less than 40 minutes.**

The H3R7000 collects vapour form tritium by cryogenic condensation. The sample obtained can be measured down to a detection limit of 0.01 Bq/m<sup>3</sup> by liquid scintillation counting.

- 100% trapping of tritium vapour.
- Fast trapping allows close to real time monitoring.
- Transportable and easy to use.



## Tritium and C-14 Sampler

**A sampling device for Tritium or C-14.**

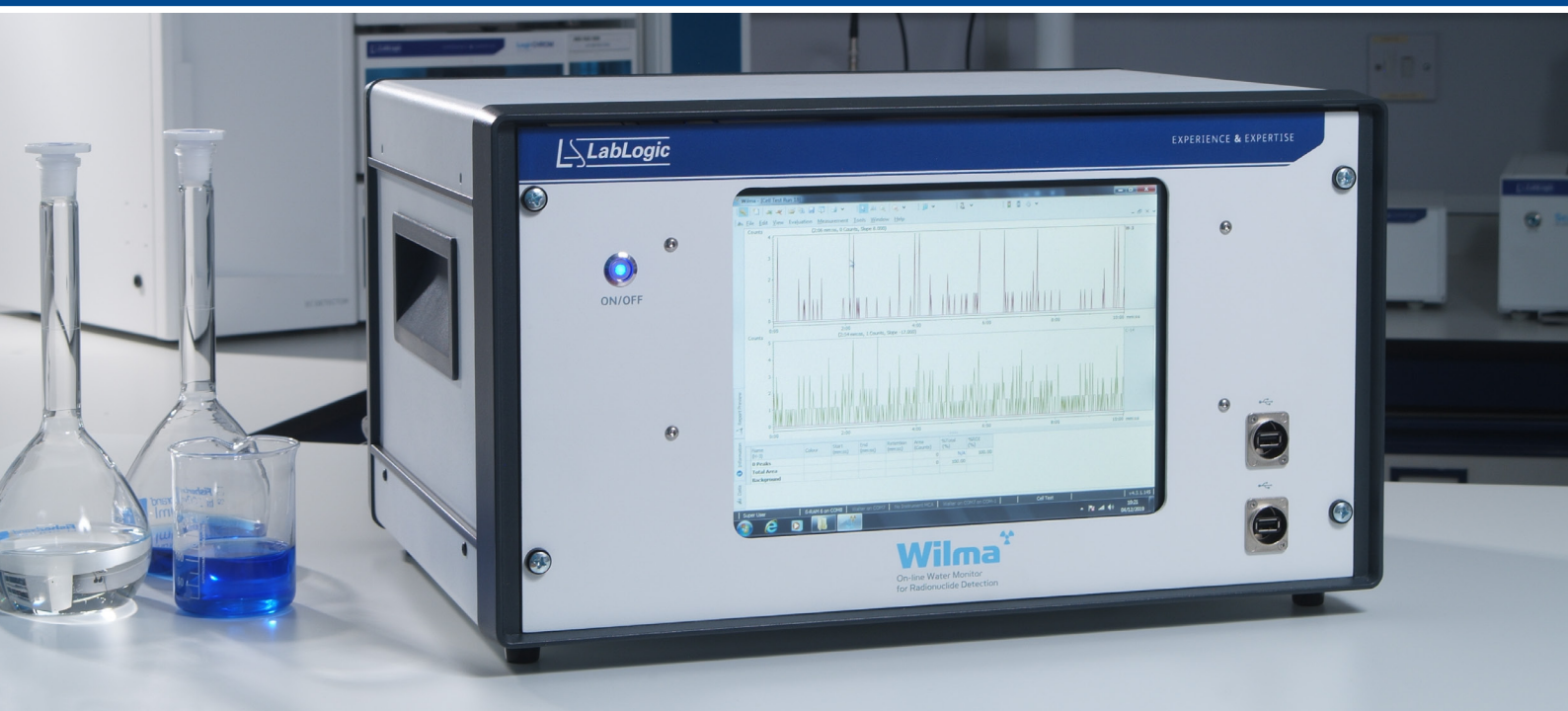
The MARC 7000 is designed to measure low level of tritium in air. it collects tritium vapour from the air stream by bubbling in water in the first 2 vials, then the gaseous tritium is oxidised in a catalytic oven and trapped by bubbling in the last 2 vials.

The HAGUE 7000 is designed to collect the gaseous and organic form of C-14. Similarly to the MARC 7000 the CO<sub>2</sub> is trapped in a sodium hydroxide solution, then CO and organic carbon is oxidised in the catalytic oven and collected in a second set of vials. The sample can then be analysed to determine C-14 concentration.

- Excellent trapping efficiency (close to 99%).
- MARC 7000: Oxidation of gaseous tritium using catalytic oven.  
HAGUE 7000: Oxidation of CO and organic carbon using catalytic oven.
- Cooling system to reduce sample evaporation.
- Connectable to all sampling lines for stack or hood monitoring.



# Radiation Monitoring



## Wilma On-Line Water Radioactivity Monitor

**Wilma is a fully automated, on-line water monitoring system for the detection of radioactivity**

The instrument utilises a novel approach to streamline the time consuming process of sample collection and preparation traditionally required for detecting alpha and beta contamination in water via liquid scintillation counting.

Wilma is ideal for simplifying a range of applications which require routine sampling, including:

- Ground water contamination monitoring.
- Monitoring tritium levels in cooling water.
- Quasi real-time monitoring of drinking water.

### Tritium in Air Monitoring System

The Wilma Tritium in Air Monitoring System utilises the configurable Wilma fluid handling and LSC detector to automate the operation of a tritium bubbler. The customised software includes cycles to sample water in the bottles, as well as emptying, washing and refilling them as part of the standard operating procedure. This application allows long-term, remote monitoring of tritium in air levels down to less than 10 Bq/m<sup>3</sup>, ideal for monitoring in isolated locations or areas where access is difficult.

### Ground Water Monitoring System

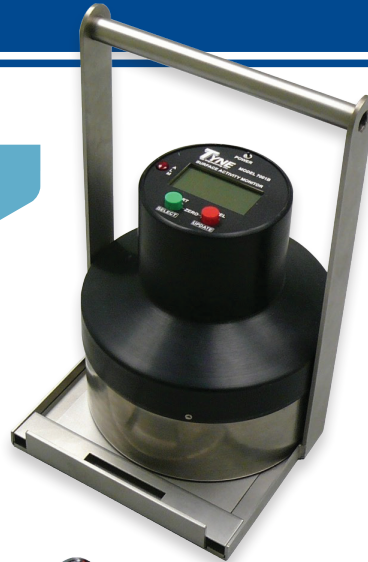
The Wilma Ground Water Monitoring System combines the proven Wilma fluid handling and LSC modules with additional pumping and sensing capabilities to manage the extraction and characterisation of ground water samples at the source. The system can be configured for remote measurements and transmit data via a secure wireless network. Ideal for campaign-based measurements, the system is mounted inside a rugged IP65-rated enclosure for all-weather protection.



## Surface Activity Monitor – 7001-SAM-001

A portable, no waste producing instrument that quickly, conveniently and directly measures fixed and removable tritium activity on all flat conducting surfaces.

- Measures removable tritium on smear paper.
- Optional calibrated source is available.
- No P10 gas required.



## Portable Tritium-in-Air Monitor – 7043

This easy to use monitor, is a robust, portable instrument that uses all the latest technology.

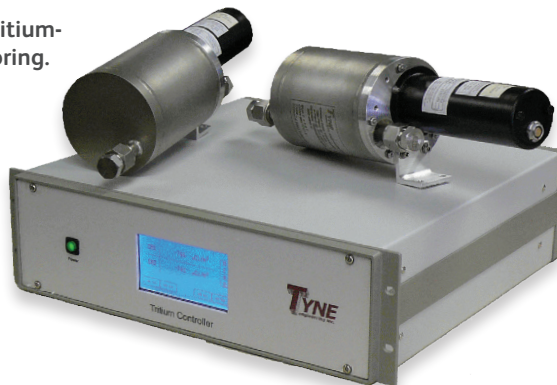
All signals pass through the ADC converter, and the micro-processor calculates and displays the tritium value. To cover high ranges of tritium a separate small ion chamber is used. Measurements such as flow from the solid-state flowmeter and chamber temperature are monitored by the micro-processor.



## Installed Tritium-in-Air Monitor

The Tyne TAM is an installed, dual ion chamber, tritium-in-air monitoring system for stack or plant monitoring.

- Measures total tritium (including tritium oxide).
- User settable visual and audible alarms.
- Automatically compensates for gamma, environmental effects and plate out.
- Bakeable, washable ion chambers.
- Easily accessible dust filter.
- Long life pump for minimal maintenance.
- Total sampling volume of 2 litres.



## Hidex Triathler Liquid Scintillation and Gamma Counter

Triathler is a compact and portable single-well instrument that provides instant results for both liquid scintillation and gamma counting.

The Triathler has preset keys for H-3, C-14, I-125, Cs-137, Rn-222 and many others. The on-board memory allows for data storage and export when not connected to a PC. The Triathler's software allows for advanced spectrum analysis, report generation, remote operation, and is Windows 8 compatible.

- Easy to use keypad and LCD readout.
- In-field operation via battery pack or vehicle power adapter.
- Alpha/Beta separation capability.
- Optional external NaI well detector.





# Radiation Monitoring

## Hidex 300 SL Liquid Scintillation Counter

The Hidex 300 SL is the most advanced and user-friendly liquid scintillation counter available.

Employing Triple to Double Coincidence Ratio (TDCR) counting, the 300 SL provides instant DPM results without the need for any internal or external standards.

It is completely controlled from an external PC with the easy to use yet sophisticated MikroWin program, where you can store unlimited number of protocols and have automatic data export to Excel or other LIMS. The software also provides options for 21 CFR Part 11 compliance and extensive data reduction features such as quench curve analysis, IC/EC 50 value calculations etc.

- Alpha/Beta separation capability.



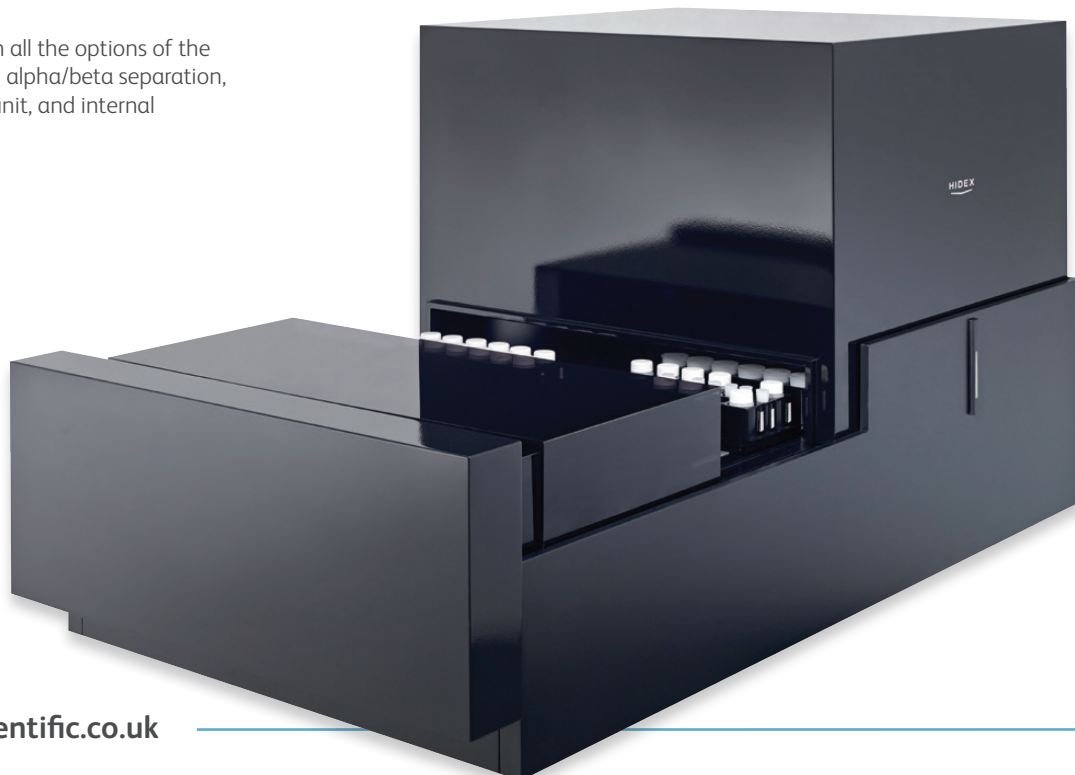
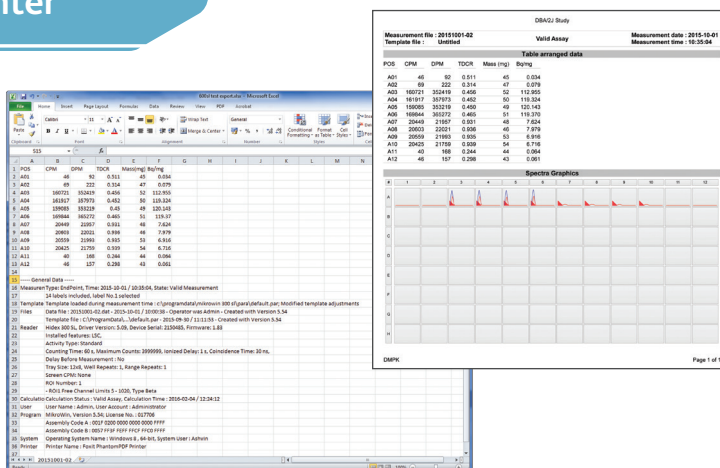
## Hidex 600 SL Liquid Scintillation Counter

Designed to meet the needs of laboratories processing large quantities of samples, the Hidex 600 SL is a high throughput automatic TDCR liquid scintillation counter.

The Hidex 600 SL uses the robust and unique triple-to-double coincidence ratio (TDCR) counting technology from the successful 300 SL series. Coupled with added sample capacity for up to 500 small vials (or 210 large vials), the 600 SL can process samples at a rate which will satisfy even the most demanding laboratories.

The instrument's software allows the user to work with an unlimited number of method files. Methods are barcode identified for automatic processing. Data files can be automatically exported in Excel®, csv or text for integration into LIM systems.

The Hidex 600 SL is available with all the options of the standard model, such as powerful alpha/beta separation, low level PMT detectors, cooling unit, and internal Eu-152 reference source.



## KWD 2222A Neutron Monitor

The 2222A is intended as a general purpose instrument for radiation protection purposes as well as for continuous monitoring of levels of neutron radiation in locations where permanent dose monitoring is required.

- Measures both dose rate and dose, displayed in digital and bar-graph form on LCD.
- He-3 neutron counter meeting IATA transport regulations.
- External pulse output.
- Fulfils IEC61005.
- Battery operated.
- Internal data memory, RS-232 for communication.
- Win Pig software for Windows PC.



## Whole Body Contamination Monitor

The CORAPI whole body contamination monitor achieves the best possible performances in Alpha, Beta and Gamma radiation detection with current technologies.

- Control in 2 steps with optimised measuring time.
- Compliant to IEC61098 standard.
- Very large Alpha/Beta multi-cell detectors reducing drastically the 'dead' zones (4 detectors 100 x 40 cm<sup>2</sup> for the body and 1 40 x 21 cm<sup>2</sup> for each foot).
- Very low gas consumption (>0.2l/h) through tight Alpha/Beta detectors.
- Detection of any loss of tightness of an Alpha/Beta detector.
- Optimised ergonomics for user with vocal and visual guidance.
- Optimised ergonomics for technical people with access to 95% of the parts from outside the controlled area.
- High robustness (realised with more than 90% stainless steel).
- Beta detection as a standard.
- Optional Alpha detection.
- Optional high-performance Gamma detection, using 4 plastic scintillators covering a detection area of 210 x 70 cm and a new algorithm insensitive to background attenuation differences between people.
- Optional dosimetry interface.







## Vehicle Portal Monitors

**Designed for the steel, aluminium and scrap metal industries, and nuclear power plants, to monitor all vehicles entering or exiting a controlled area.**

- High sensitivity.
- Operate at speeds up to 20 mph (30 kph).
- Customisable configuration to suit any sensitivity or budgetary requirement.
- Gamma and/or neutron sensitive.
- NORM discrimination.
- Very low false alarm rate (1:15,000).
- Highly effective detection algorithms and patented Threat Matrix.
- Source location profile.
- Clear, user-friendly interface.
- Robust and rugged modular construction.
- Complete date logging.
- Optional ANPR (Automatic Number Plate Recognition).
- Remote monitoring for reach back and maintenance.
- Battery backup > 3 hrs (optional).

## Pedestrian Portal Monitor

**For the efficient screening of personnel.**

- Operates at walking speeds up to 5 mph (8 kph).
- Gamma and neutron sensitive.
- Very low false alarm rate (1:50,000).
- Remote monitoring capability.
- Windows based software.
- Minimises nuisance alarms from medical patients.
- Multiple portals monitored on a single PC.
- Battery backup > 3 hours (optional).
- Overview camera and video of alarms (optional).
- Isotope identification (optional).





## identiFINDER R200®

A rugged, pager-sized Spectroscopic Personal Radiation Detector (SPRD), the R200 provides full ANSI N42.32 Personal Radiation Detector (PRD) compliance and features next-generation solid state detector read-out technology that delivers ANSI N42.48 SPRD compliance with nuclide identification.

- Pager-sized and wearable.
- SiPM technology with CsI provides  $\leq 7.5\%$  resolution.
- Single-hand operation with three-button control.
- $\geq 36$ -hour battery life, plus additional 18-hour replaceable battery.
- Internal web server for easy data retrieval.
- OneTouch Reachback.



## identiFINDER R300

The mobile phone sized identiFINDER R300 uses high quality ZT crystals to locate and characterise a nuclear threat. Secured in an IP63 rated rubberised housing this instrument provides rugged and reliable performance.

- Reliable identification – significantly higher resolution than NaI(Tl) and LaBr<sub>3</sub> < 3.5% at 662 keV.
- Intrinsically stable technology – no temperature stabilisation required.
- Reachback technology – transmit spectra from the field for remote analysis and advice.
- Up to 24 hours use between battery charges.



## identiFINDER R400

The R400 is able to rapidly detect, quickly locate, accurately measure and precisely identify gamma emitting radionuclides.

- LED stabilised TFT LCD 64k colour display.
- 12 channel, SIRM III GPS.
- Reachback via Bluetooth® connected to DUN capable cell phone.
- ANSI N42.42 output format.
- Web interface for monitoring and configuring instrument.
- Original three button operation.
- 1GB event data storage.
- Visible, audible and tactile alarm annunciators.
- Embedded windows CE operating system.
- Meets ANSI N42.34 shock conditions.
- R400 T2 available for uranium enrichment analysis.



## identiFINDER R425

The R425 uses the same algorithms that have proved themselves in the R400, whilst building and expanding upon its advantages. This new device raises the standard of the modern RIID, and should be at the forefront of a responder's arsenal.

This device comes packed with innovative features, including:

- **2 x 2 NaI Detector** – The R425 is 3.5 x more sensitive than other all-purpose RIIDs, whilst including up to 10% superior resolution.
- **Sourceless Stabilisation** – Automatic stabilisation reduces false positives when taking measurements in the field, improving data collection and decision making.
- **IP67-Rated** – The R425 is protected from total dust ingress and water immersion, up to 1 meter in depth for 30 minutes. This covers you for rain, splashing and accidental submersion of the device.
- **Rugged Construction** – Built to survive rigorous use, the device is drop tested to 1 meter and has a fully enclosed crystal. Fully meeting the ANSI N42.34 standard.
- **360° Easyfinder Mode** – Easily navigate and respond to threats. The 360° Easyfinder mode collects and interprets data, pinpointing the exact location of a source.
- **Wireless Communications** – This in-built feature enhances interagency standardisation, improving response options.



## identiFINDER R440

The identiFINDER R440 is a next generation instrument which also uses the same algorithms that have proved themselves in the R400.

This device comes with all the innovative features of the R425, including:

- **2 x 2 NaI Detector** – The R440 is 3.5 x more sensitive than other all-purpose RIIDs, whilst including up to 10% superior resolution.
- **Sourceless Stabilisation** – Automatic stabilisation reduces false positives when taking measurements in the field, improving data collection and decision making.
- **IP67-Rated** – The R440 is protected from total dust ingress and water immersion, up to 1 meter in depth for 30 minutes. This covers you for rain, splashing and accidental submersion of the device.
- **Rugged Construction** – Built to survive rigorous use, the device is drop tested to 1 meter and has a fully enclosed crystal. Fully meeting the ANSI N42.34 standard.
- **360° Easyfinder Mode** – Easily navigate and respond to threats. The 360° Easyfinder mode collects and interprets data, pinpointing the exact location of a source.
- **Wireless Communications** – This in-built feature enhances interagency standardisation, improving response options.





## identiFINDER R500

The identiFINDER R500 is an extremely sensitive and accurate digital hand-held gamma radionuclide identification device (RIID).

Available in two configurations (NaI and LaBr), the R500 is able to quickly detect, rapidly locate, accurately measure and precisely identify sources of contamination from their gamma radiation signature.

- Rapidly determine the primary location of the radiation.
- Determine the nuclide identification in as little as a few seconds.
- Alarms on doserate changes above background.
- Continually stabilises for temperature and other conditional changes.
- Real time visual, audible and tactile alarm annunciators.
- Reach-back via Bluetooth with event data.
- Easy operation with hazmat gloves.
- Radionuclides are labelled as NORM, industrial, medical or SNM.
- Expert mode.
- Gamma spectrometer functions.
- Change settings and operational parameters.







## A400 Handheld Radiation Identifier

The H3D® A400 is the new standard in radioisotope identification devices (RIIDs).

- Practical high-performance gamma-ray spectrometer.
- Compact and portable.
- Designed to exceed ANSI N42.34.
- Real-time 360° isotope-specific directionality.
- Industry-leading efficiency with over 19 cm<sup>3</sup> pixelated CZT
- No cryogenic cooling required.
- Real-time isotope detection and identification.
- Embedded user interface with one-handed operation.
- Storage case included.
- Removable battery.
- Wireless connectivity.
- Network webpage interface for mobile devices.

Model	A100	A400
Resolution (% FWHM @662 keV)	< 1.0	< 1.0
Spectrometer Range (keV)	50 - 3000	50 - 3000
Imaging Range (keV)	Localisation 100 - 3000	Localisation 100 - 3000
Collimator (" Tungsten)	N/A	N/A
CZT Volume (cm <sup>3</sup> )	> 4.5	> 9
Weight (lbs)	49	50
Battery Life (Hrs)	8	8
IP Rating	IP66	IP66
Temperature Rating (°F)	-4 to 122	-4 to 122
Start Up Time (Minutes)	< 1.5	< 1.5
User Interface	Embedded Screen	Embedded Screen



## Custom Integrable Detector Module

Containing the most advanced room-temperature semiconductor technology to achieve high-resolution spectroscopic performance competitive with cryogenically cooled detectors, this detector module offers:

- Compact and light-weight size, with quick start up.
- Large operational temperature range.

## GeGI

Designed for fast and accurate location, identification and quantification, the PHDS GeGI features a wide-angle optical camera combined with a gamma-ray imaging spectrometer which captures the nuclear environment quickly and accurately.

- Standoff location detection identification distance range 10 cm - 50 + metres.
- Automatically specifies SNM, NORM, IND, MED.
- Germanium gamma-ray spectroscopy (16k ch).
- Full 360° standoff visualisation (Compton), 235-U (186 keV), 239-Pu (375 keV, 414 keV).
- User-friendly single-button glove-touch operation.
- Hot swappable battery operation.
- Full session save and reload capability.
- Full data-stream availability.
- Wireless capable/wireless option can be disabled.
- Twist-lock mil-spec power connector.
- Long-lived internal cooler (5 years +).
- Reachback file: ANSI N42.42 format.
- Remote operation.

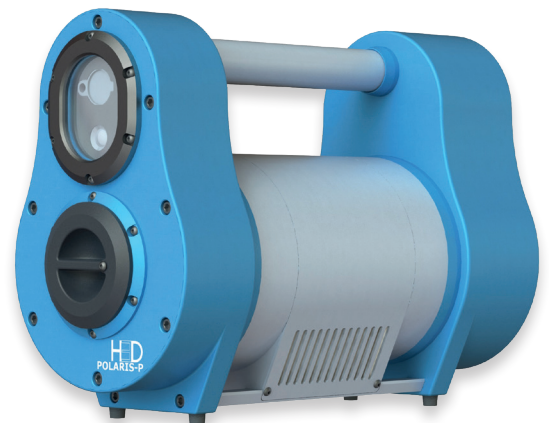


## P100 Directional Imaging Spectrometer

The H3D® P100 provides identification and quantification of strong gamma-ray sources.

- Sensing and imaging over collimated directions using an embedded tungsten collimator.
- Isotopic quantification of gamma-ray sources.
- Real-time spectroscopy, ID, and imaging.
- No cryogenic cooling required.
- Rangefinder for detector-to-source distance estimation.
- Wireless or wired tablet operation.
- Air/water tight for easy decontamination.
- Precision overlay of gamma-ray and optical images.
- Images both point and distributed sources.
- Easily exchangeable tungsten plug.
- Operates at high dose rates.
- Tripod mount.

Model	P100	P100S
Resolution (% FWHM @662 keV)	< 1.1	< 1.1
Spectrometer Range (keV)	50 - 3000	50 - 3000
Imaging Range (keV)	250 - 3000	N/A
Collimator (" Tungsten)	1	1
CZT Volume (cm³)	< 4.5	< 4.5
Weight (lbs)	35	35
Battery Life (Hrs)	> 10	> 10
IP Rating	IP65	IP65
Temperature Rating (°F)	-4 to 122	-4 to 122
Start Up Time (Minutes)	> 2	> 2
User Interface	Tablet	Tablet/Webpage







## H420 Gamma-Ray Imaging Spectrometer

The H3D® H420 is a fast, portable, and easy to use imaging spectrometer optimised for identification and localisation of gamma-ray sources.

- Rapidly identifies and locates primary source terms.
- Precision overlay of gamma-ray and optical images.
- Images both point and distributed sources.
- Discrimination between background and sources of interest in less than 20 seconds.
- Air/water tight for easy decontamination.
- Dose-range gauge.
- Automatic report generation.
- Annual recalibration and software updates included.



Model	H100	H400	H420
Resolution (% FWHM @662 keV)	< 1.1	< 1.1	< 1.1
Spectrometer Range (keV)	50 - 3000	50 - 3000	50 - 3000
Imaging Range (keV)	250 - 3000	250 - 3000	50 - 3000
Collimator (" Tungsten)	N/A	N/A	N/A
CZT Volume (cm <sup>3</sup> )	6	19	19
Weight (lbs)	7.3	7.8	7.8
Battery Life (Hrs)	> 7	> 6	> 6
IP Rating	IP65	IP65	IP65
Temperature Rating (°F)	-4 to 122	-4 to 122	-4 to 122
Start Up Time (Minutes)	> 1.5	> 1.5	> 1.5
User Interface	Tablet	Tablet	Tablet



## Air Sampler Systems

### Portable, maintenance free, high volume brushless air samplers from Hi-Q.

Available in three models, 1001 (60 - 230 LPM), 1002 (250 - 800 LPM), and 1003 (400 - 1400 LPM), the CF 1000 series offers variable speed operation for continuous or intermittent sampling.

- Maintenance free brushless motors.
- Weighs less than 5 kg.
- Adjustable flow rate.
- Digital display of flow rate and total volume, as well as minimum and maximum flow.
- Elapsed, resettable electronic timer.
- 230 V AC or 115 V AC options.



## Mobile Air Sampling System

### Hi-Q's continuous duty, constant flow, air sampling system.

- 196 LPM maximum flow rate.
- Telescopic 'gooseneck' for breathing zone sampling.
- Automatic flow control valve.
- Elapsed, resettable electronic timer.
- Dual vacuum gauges for measuring across filter media.
- Sturdy frame.
- Weatherproof housing available.



## High Volume Air Sampler

### The Hi-Q CF 900 Series High Volume Air Sampler is ideal for radio-iodine, particulate and continuous duty air sampling.

Available in three models, 901 (60 - 340 LPM), 902 (150 - 1000 LPM), and 903 (300 - 1400 LPM).

- Manually adjustable flow rate.
- Weighs less than 5 kg.
- Rugged housing.
- Range of filter holders.
- Digital option for flow rate and total volume.
- 230 V AC or 115 V AC options.



Various sizes of filter paper and cartridge holders are available for the Hi-Q air samplers, as well as kinetic impactor heads, hoses, tripods and calibrators.

## BAB-A7

The BAB-A7 mobile aerosol beacon is used in nuclear facilities for a continuous control of atmospheric air contamination by dust exposed to natural Radon and Thoron radioactivity and ambient gamma radiation.

It is specially designed for work station monitoring during maintenance operations or in dismantling work sites, where man-made noise immunity is highly recommended.

It includes a recording function for a better measurement traceability, and a local graphic display of volume activities.

For external irradiation radiological monitoring, an ambient gamma dose rate measurement deported probe (optional) can be coupled to the beacon.



## Gamma Tracer

With the autonomous radiation monitoring probe **GammaTRACER** the gamma radiation dose is continually registered in the chosen time sequence.

Available types – BASIC, WIDE, HIGH and XL differ mainly for the counter tubes. They cover a broad range of applications, are lightweight and therefore ideally suited for both, mobile and stationary tasks.

GammaTRACER XL incorporates a high-volume GM-tube, which qualifies it for applications requiring high sensitivity.

Energy-saving chip technology allow maintenance-free non-stop operation of the GammaTRACER probe of typically five years, with extended battery pack up to ten years!

Hermetically closed, it is designed to endure the harshest environments.

Equipped with a radio module, the probes can be used with SkyLINK and ShortLINK systems to offer a new dimension in wireless data collection.

- Low power electronics allows operation from battery power for up to 10 years, removing the need for mains supply.
- Can transmit via wired connection, UHF radio, GSM, GPRS or ISDN.





# Air and Environmental Monitoring Systems

## Shortlink / Skylink

**ShortLINK/SkyLINK systems allow the wireless transfer of measured data across distances of between 5 and 100 km via UHF radio transmission.**

They are used worldwide as part of emergency and routine radiological monitoring networks.

- Probes deployed or installed in the field, such as the Gamma TRACER, collect and transmit readings in real time. The ShortLINK or SkyLINK receiver assimilates this data and passes it to a central monitoring terminal.
- The wireless transmission is unidirectional and highly reliable, and has been proven to have a high tolerance to electromagnetic interference. It offers a flexible, convenient and simple way to monitor over long distances with no cabling.



## Data Expert

**DataEXPERT is an advanced data logging, visualisation and analysis software package that forms the backbone of Saphymo monitoring networks.**

It displays and plots the real time readings from all probes in the network, maps the probe positions and flags up any alarms. It can export readings as necessary and is able to interface with SQL databases for maximum flexibility.





# Radon Monitoring

## AlphaGUARD Radon Monitor

AlphaGUARD is a portable, battery- or net-operated high storage capacity radon monitor.

- High sensitivity and fast linear response at 2 to 2,000,000 Bq/m<sup>3</sup>, 5 cpm to 100 Bq/m<sup>3</sup>, 0.05 to 54,000 pCi/l, 5 cpm at 3 pCi/l.
- Multi-parameter features.
- Long term stable calibration.
- Maintenance-free operation.
- Direct RS232 or USB interface to DataEXPERT, options for remote transmission.



## AlphaE

The AlphaE is an ultra-small continuous radon monitor for fast time-resolved radon monitoring in buildings, outdoors, as well as in mines.

- Time resolved measurement for the exact determination of radon.
- Measurement from 20 Bq/m<sup>3</sup> to 10 MBq/m<sup>3</sup> (0.54 pCi/l to 270 nCi/l).
- Up to 6 months battery life.
- Acoustic alert for radon concentration and dose.
- Lightweight.



Order Code	Product
P000534	AlphaE
P0003852	Suitcase for AlphaE
P0002987	Transport and Protection Case (5 units)
P0000193	Belt Pouch (AlphaE)
P0001105	Holder for Wall Mounting
P0002000	Tyvek Bag (for dust protection)
P0004679	Radon Permeable Silicon Bag

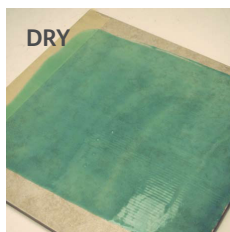
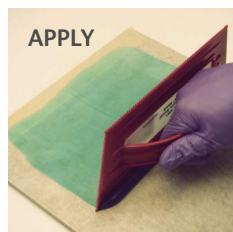
## Decontamination Gel

A range of easily peelable decontamination gels to suit all applications. Effective on a vast range of smooth and porous surfaces, encapsulating and removing up to 99% of loose and fixed contamination.

- In addition to industrial decontamination, the gels can be used to fix contamination or to form a protective barrier.
- Extensively used to recommission contaminated instruments and glove boxes.
- Film can be analysed in a laboratory afterwards by HPGe or LSC.
- Cleaner, more effective and safer than alternative decontamination methods.
- Minimises contaminated waste output.

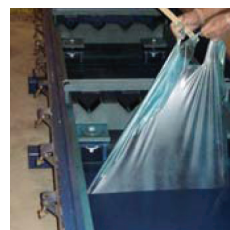


### Type 1101, 1108 and 1102



DeconGel 1101 is the 'work-horse' of the family of products highly efficient for porous surfaces. The 1120 is the 'sprayable' version of the 1101. While the sprayable feature can be an advantage, the fact that it contains more water may delay the drying time if conditions are cool and damp.

### Type 1120, 1121 and 1128





## Service and Support

Southern Scientific has a team of fully qualified service engineers, who support customers spanning the length and breadth of the UK. We can provide factory or on-site service as required, based on single visits, planned maintenance or full support under contract. We maintain a high level of spare parts, ensuring lifetime support capability.

Our systems group can offer its service for the larger installed equipment, from initial planning to installation, completion and training. We can provide expert knowledge and experience, gained through involvement in a number of large-scale projects throughout the years.



## ISO Certified

Southern Scientific Ltd is certified to ISO9001 and ISO 13485 representing the high level of quality assurance and management that we provide at every stage of the supply process, whether a product is distributed on behalf of our trusted manufacturers or constructed in our UK workshop. This accreditation means that our customers can place an order knowing that the delivered product will be suitable for its intended use, fully compliant with EU legislation and in full working order.

All our products are CE marked.



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