MIRION
TECHNOLOGIES

Handheld Health Physics Probes and Instruments

The Mirion CSP™ (Mirion Canberra Smart Probes) family offers a fully integrated solution for handheld health physics.

Maximize Efficiency and Reduce Total Cost of Ownership

Mirion offers dose rate and survey meters for a wide range of users and probes to suit many applications. Generally, health physics users like to invest in one particular instrument so training and expertise can be maximized.

All Mirion CSP probes can be “hot-plugged” to any Mirion survey meter without the need to power down or re-calibrate the instrument. CSP probes are self-contained, encompassing all necessary measurement components (high voltage, amplifier, discriminator and signal processing). Therefore each probe is separately calibrated and set up to match a dedicated application, and all probes are compatible with any CSP survey meter without any further specific setup required.

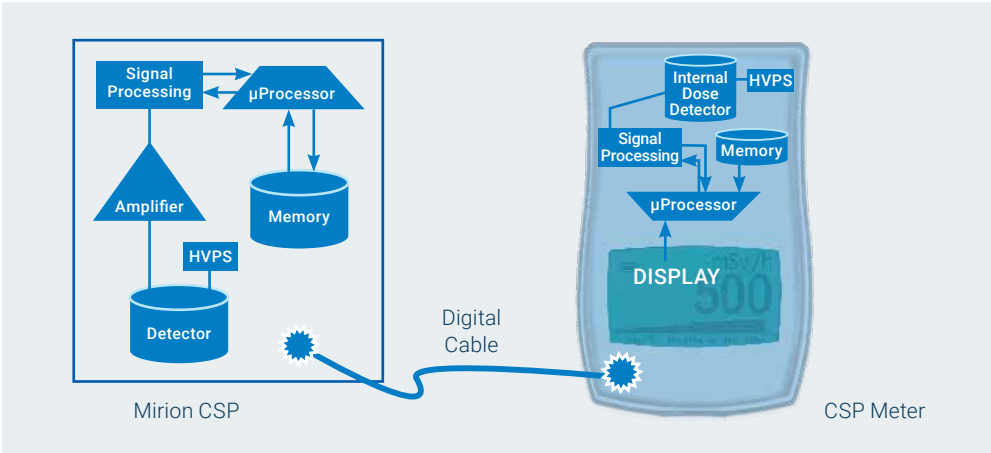
The innovative electronic design embedded within PMT based CSP probe drives extremely efficient power consumption that is approximately ten times lower than that of conventional probes. This design supports direct connection to a laptop USB port for daily checks and/or calibration, using CSP software which enables the host instrument to remain in use.

The CSP Family offers digital communication and therefore no critical measurement component relies on cable quality. CSP probes can easily be used in third party systems via the CSP-PL™ programming library that simplifies development and reduces time to its completion.

CSP and CSPS™ (Canberra Smart Probes Software) shown with the Colibri® and RDS-32™ survey meter

CSP meters and probes deliver significant benefits.

- More instruments are available in the field
- Considerably less calibration and setup time
- 100% compatibility with all CSP compatible instruments
- Reduced total cost of ownership and daily workload
- Reduced need for paper and log books
- Improved accuracy of data transcription



Mirion CSP probes and instruments: a smart approach!

Handheld Health Physics CSP Family

BACK AND FORTH

Mirion CSP Probes

- A complete range of self controlled smart probes
- A variety of versatile instruments, battery powered and easy to carry
- A choice of communication modules to suit a wide range of applications
- Calibration and setup software to manage probe and instrument quality

Real-time measurement display on meters and computers

Colibri® Meter

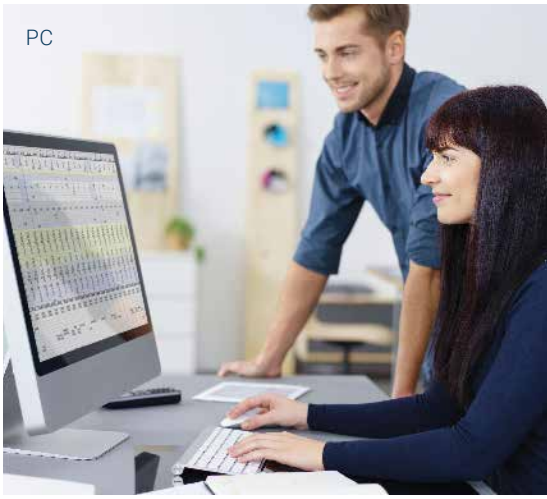
RDS-32WR™ Meter

AVIOR®-2 / MIP-2™ Meter

Optimized Application Support

with CSP-PL and CSP-COM™ modules

- CSP probe is a fully integrated sub-system taking and transmitting data in real time to the host instrument
- All key device components (high voltage, amplifier, discriminator and signal processing) are located in the probe
- Each probe stores all calibration related settings and all data-logging points
- Full interchangeability without recalibration enables increased uptime of instruments in the field, thereby maximizing the investment



PC

SMART COMMUNICATION

15 cm²

SABG-15+™ GM Pancake

Multi-purpose contamination probe

α β γ

SPAB-15™ PIPS® Detector

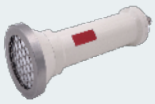
Alpha-Beta discrimination in high Gamma background

α/β

32 cm²

SA-32™ ZnS Scintillator

SB-32™ Plastic Scintillator



SAB-32™ Plastic/ZnS Phoswich

Personal Alpha or Beta contamination probe

α or β or α/β

Gamma Scintillator

SG-1R™ NaI(Tl) Scintillator 1" x 1"

Low dose-rate and Gamma contamination probe

γ

SG-2R™ NaI(Tl) Scintillator 2" x 2"

Very low dose-rate and Gamma contamination probe

γ

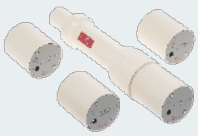
SX-2R™ NaI(Tl) Scintillator 1.5" x 3 mm

Low energy Gamma and Alpha contamination check in humid environment

α X γ

Custom application

CSP-PL



CSP-COM wired or wireless communication modules

100 cm²

SA-100™ ZnS Scintillator

Large area Alpha contamination check

α

SB-100™ Plastic Scintillator

Large area Beta contamination check

β

SAB(G)-100™ Plastic/ZnS Phoswich

Alpha/Beta discrimination on large contamination area and personal frisking

α/β (γ)

Neutron

SN-S™ Moderated Helium 3 Tube

Neutron presence detection

η rate

SN-D-2™ Moderated Helium 3 Tube

Neutron dose equivalent rate

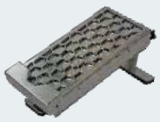
η dose

Large Area

SAB-250™ 250 cm² Plastic/ ZnS Phoswich

Large area Alpha Beta frisking or hand contamination check

SABP-525™ 525 cm² Plastic/ ZnS Phoswich



Alpha Beta contamination on foot

SABS-579™ 579 cm² Plastic/ ZnS Phoswich

Alpha Beta contamination on floor

α β

Dose Equivalent Rate

SVLD™ Energy Compensated CsI(Tl)

Very low H*(10) dose equivalent rate probe for public working area checks

STTC™ Energy compensated G-M Detector

Wide range H*(10) dose rate equivalent to ICRP-60

TELE-STTC-2™

SVHD™ Silicon diode

Very high dose rate probe for fuel control

γ

Dose-Rate and Survey Meters

Mirion offers handheld instruments for all levels of users, from the technician performing a specific task on-site to the highly knowledgeable health physicist. These instruments are focused on particular applications and can be used either as handheld, semi-fixed or fixed devices. With CSP Smart approach, the instrument is selected to match the situation specifics, taking into account that any CSP probe will always be compatible.

AVIOR®-2 and MIP-2™ Digital Desktop or wall mounted Frisker/Integrator

FEATURES

- Rugged and simple to use with dedicated buttons
- Scaler/timer to improve MDA (compatible with Easy-Count™ instrument)
- Back-up built-in rechargeable battery for up to 70 hours
- Dual probe inputs (MIP-2 unit is compatible with previous Nardeux probes with second connector)
- Dual Alpha/Beta display for each input (up to four channel displayed simultaneously)
- Manual or automatic background deduction
- Specific hand/foot mode with body detection

AVIOR®-2 / MIP-2™ Meter

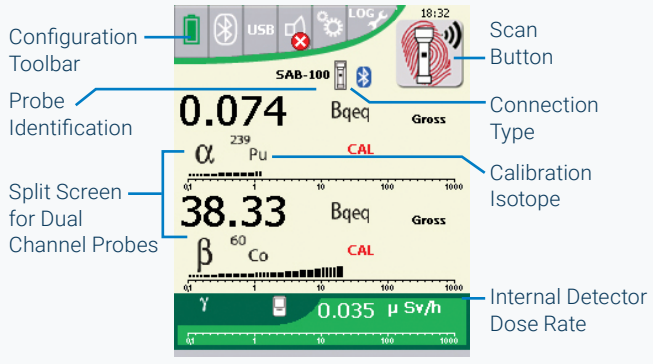
Colibri® Handheld Communication ALARA Platform

FEATURES

- Embedded dose detector: VLD for low dose-rate (Red) or TTC for wide range (Gray)
- Mapping application with GPS or barcode reader
- Wired and/or wireless connection for up to eight probes
- Dual simultaneous Alpha and Beta reading with SAB probes

Colibri-TTC Meter

Colibri-VLD Meter



These meters have an internal gamma dose rate measurement capability and do not require a probe to measure basic gamma dose rates. It displays clearly and simultaneously the internal dose rate and the measurements from the widest variety of dose rate, contamination, and search smart CSP probes (the meter detects the type of probe and there is nothing to configure on the meter). Easy enough for non-expert use while providing the highest productivity to specialists.

RDS-32™ Radiation Survey Meters

FEATURES

- H*(10) dose equivalent rate according to latest standards
- External alpha, beta, gamma and neutron probes for direct connection
- RDS-32WR meter for wider dose rate range
- iTx versions for wireless monitoring
- 4-way navigation keys, practical shortcuts
- Intuitive user interface
- Large graphic screen, configurable backlight
- Automatic display rotation with tilt sensor
- High impact durable case construction, IP67 immersion proof
- Internal memory allows versatile histogram functions and the ability to manually store measurements
- Configuration and firmware upgrade done through the CSW-32™ Software with a USB cable-link
- Complies with IEC 60846 standards, designed to meet ANSI 42.17A, 42.17C standards

RDS-32 | RDS-32 ITx | RDS-32WR | RDS-32ITxWR

RDS-32 Dedicated Probes

FEATURES

- Used for measuring alpha, beta, gamma and X-ray radiation
- Gamma probe with silicon diode for high dose rate measuring applications
- Gamma probe with GM Tube and silicon diode for wide dose rate measuring applications
- Underwater gamma probe with silicon diode for high dose rate measuring applications in water

GMP-25™ External Gamma Probe

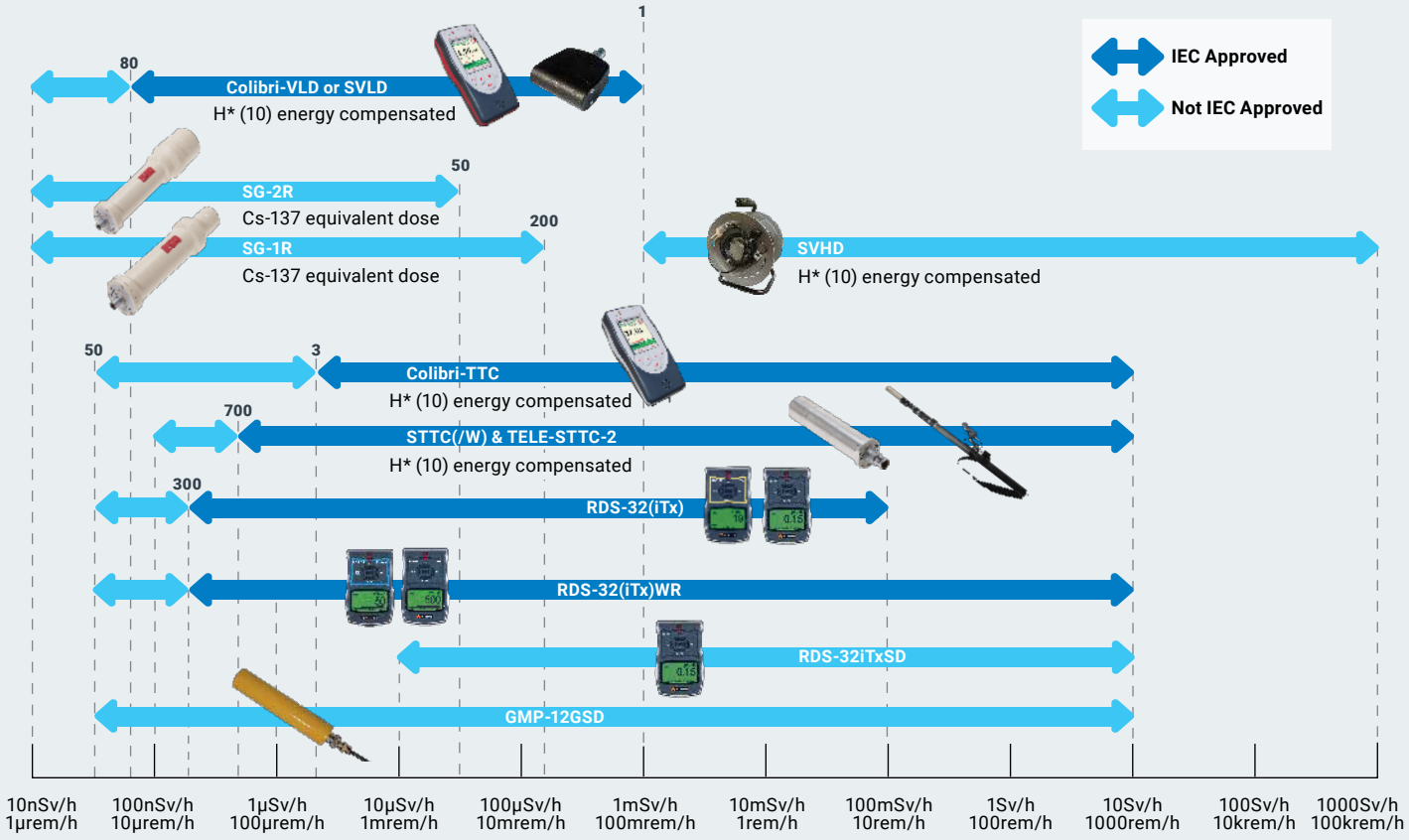
GMP-12SD™ External Gamma Probe

GMP-12GSD™ External Wide Range Gamma Probe

GMP-12UW™ External Gamma Probe

Dose-Rate and Survey Meters

Dose Rate Equivalent Measurement Ranges



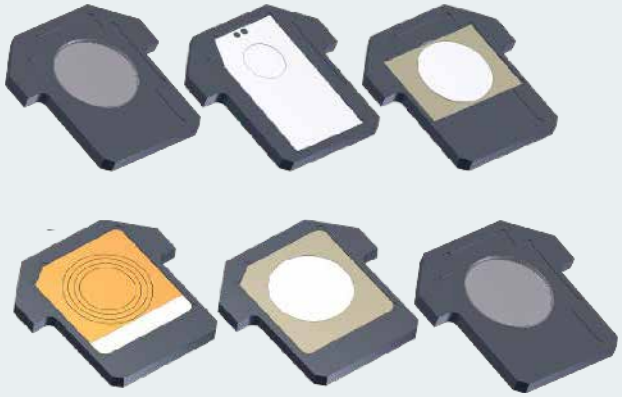
Sample Counter

Measuring samples in the field requires lightweight instruments with capability to improve MDA via background deduction and integration over time (scalertimer). CSP probe detectors and electronics become a sample holder with embedded smartness to making it a plug-and-play solution when connected to the CSP meter. Data management capabilities are therefore dependent on the instrument used. It can be the Colibri, the RDS-32, the AVIOR-2 unit or any PC with an application developed with the CSP-PL programing library.

Easy-Count™ Field Discrimination Alpha/Beta Smear/Filter Counter

FEATURES

- 17 cm^2 Silicon PIPS detector based counter with very good a/b discrimination
- Lightweight - no lead shielding
- Excellent MDA
- High efficiency with improved sample to detector distance
- Rotary drawer with reverso sample holder for various shapes and sizes
- Compatible with Colibri and RDS-32 meters (specific instrument holder)



Reverso sample holder with various filters/planchet

Easy-Count with Colibri units

Easy-Count with RDS-32 units

Contamination Probes

Each contamination probe has been designed for a specific measurement task. All probes are compatible with all CSP instruments using the same cable or communication module, without the need for any specific setup. Detection area and probe shape can vary to better support site specific configurations such as areas with difficult or complex access (glove boxes) or to improve frisking situations (personal and/or object).

SABG-15+™ Alpha/Beta/Gamma Frisking Probe

FEATURES

- 15 cm^2 Alpha, Beta, Gamma frisker probe
- Connects directly or via cable to CSP instrument
- Internal pancake GM detector can be changed out easily - not soldered in place

SABG-15+

SPAB-15™ Discrimination Alpha/Beta Probe

FEATURES

- 15 cm^2 PIPS detector Alpha/Beta discriminating contamination probe
- PIPS detector technology delivers minimal cross talk between Alpha and Beta and reduced Gamma background sensitivity
- Significantly better MDAs than similar probes on the market
- Ruggedized detector face appropriate for challenging environments

SPAB-15

SPAB-15

SABP-525™ Alpha/Beta Foot Probe

FEATURES

- Alpha/Beta surface SABP-525 contamination measurement on foot
- ZnS(Ag) 525 cm^2 Phoswitch detector
- Very small footprint
- Similar detector to whole body contamination monitors
- Robust protection grid for better durability in an industrial environment
- Dedicated mechanical structure to ensure proper foot positioning
- Embedded presence sensor to switch between background and personal measurement

SABP-525

SABS-579™ Alpha/Beta Floor Monitory Probe

FEATURES

- Alpha/Beta surface contamination measurement on floors
- ZnS(Ag) 579 cm^2 Phoswitch detector
- Excellent discrimination with minimized Alpha influence into Beta channel
- Very easy to move and carry
- Easy-to-change Mylar window protection on frame
- Adapts to Colibri, RDS-32 or Radiagem units with dedicated holder

SABS-579

Contamination Probes

SA-32™ and SA-100™ Alpha Only Probe

FEATURES

- 32 or 100 cm^2 ZnS scintillator
- Appropriate for most Alpha contamination situations from glove boxes to personal frisking
- Very low sensitivity to Gamma and Neutron background
- Easy-to-change Mylar window protection

SA-32

SA-100

SB-32™ and SB-100™ Beta Only Probe

FEATURES

- 32 or 100 cm^2 plastic scintillator
- Appropriate for most Beta contamination situations from small objects to personal frisking
- Mylar, Alpha transparent (SB-100/A probe) or aluminum
- Alpha stopper (SB-100/B probe) window material

SB-32

SB-100

SAB-32™, SAB-100™, SABG-100™ and SAB-250™ Alpha/Beta (Gamma) Probe

FEATURES

- 32, 100 or 250 cm^2 plastic/ZnS Phoswich, SABG-100 probe is more sensitive to Gamma
- One of the lowest crosstalk on the market minimizing the Beta influence to Alpha counting
- Supports simultaneous Alpha and Beta contamination check with single measurement

SAB-100

SABG-100

SAB-250

SAB-32

Contamination and Dose Equivalent Rate Probes

Each probe has a very specific design to match both the environmental parameters (fuel pool monitoring in water, remote dose-rate monitoring, public area monitoring) and the user protection requirement (distance from the measurement point). TTC-based probes feature the unique Mirion Time-To-Count design that offers a wide measurement range, a long detector lifetime and excellent measurement linearity with no fold over effect. CSP dose-rate probes cover very low to very high dose-rates with sufficient overlap. All dose probes utilize energy compensated detectors and meet the latest ICRP requirements.

Contamination Probes

SX-2R™ Low-energy X-ray Probe

FEATURES

- For low energies of 5 keV and above
- Able to detect Alpha contamination in high humidity conditions
- Energy button to reduce high energies influence
- Very directional probe to locate origin of contamination

SX-2R

SG-1R™ and SG-2R™ Gamma Probe

FEATURES

- 1" x 1" or 2" x 2" NaI(Tl) scintillator probe
- Displays either count rate or dose-rate equivalent to Cs-137
- Energy button to reduce low energies and confirm high energy presence

SG-1R

SG-2R

SN-D-2™ Neutron Detection Probe

FEATURES

- Neutron dose-rate measurement from Thermal (0.025 eV) neutron to 15 MeV
- Lightest neutron probe on the market
- Ready to use in the field with embedded handle and meter cradle
- Ideal instrument for both ambient dose rate measurements in reactor building and spent fuel transportation control prior to departure

SN-D-2

SN-S™ Neutron Detection Probe

FEATURES

- Lightweight neutron solution
- Compliant with IAEA and ANSI N42.34 neutron detection requirements
- No microphonics false reading
- Ideal for detection of fissile material smuggling

SN-S

Dose Equivalent Rate Probes

STTC and STTC-W Wide Range Probe

FEATURES

- Wide range Gamma dose rate from background up to 10 Sv/h (1000 R/h) with one detector only
- Time-to-Count technology delivers prolonged detector life
- STTC-W waterproof version with 20 meter (65 feet) cable on a reel

STTC-W

STTC

SVLD™ Very Low Dose Probe

FEATURES

- Offers maximum sensitivity in a compact size for quicker detection
- Accurately measures background level and does not saturate before 1 mSv/h (100 mrem/h)
- Ideal for public area control and smuggling detection
- Direct connection to CSP instrument meter (cable not mandatory), except with RDS-32

SVLD

TELE-STTC-2™ Wide Range Gamma Telescopic Probe

FEATURES

- Wide range Gamma dose rate from background up to 10 Sv/h (1000 R/h) with one detector only
- Time-to-Count technology delivers prolonged detector life
- All extension up to 4.09 meters with available cradles for Radiagem, RDS-32 or Colibri units
- Lightweight carbon fiber pole with variable segments locking mechanism

TELE-STTC-2 + RDS-32

SVHD™ Very High Dose Gamma Probe

FEATURES

- Dose-rate equivalent up to 1000 Sv/h (100 000 rem/h)
- Waterproof with 50 meter cable on a reel
- High cumulative dose capability up to 5 kSv with remote electronics
- Very small diameter probe (12 mm/0.47 in.) to fit D&D applications

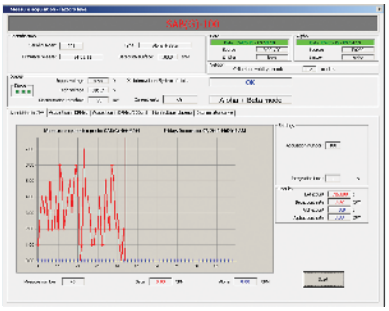
SVHD

CSP Accessories

CSP accessories have been developed to simplify daily Health Physics duties depending on application specifics. We have accessories ranging from a simple handle to support one-handed usage to a sophisticated wireless communication module to control acquisition from a remote and safe position. Some accessories are dedicated to a specific instrument and others are compatible across the entire range.

CSPS™ Calibration and Setup Software for CSP Probes and Instruments

FEATURES



- Checks all probes and instruments operational parameters with direct connection to computer
- Manages all logged data points in instruments and probes
- Upgrades firmware of CSP meters and probes
- Automatic calibration wizard can be tuned to match user's exisiting radioactive sources and proceed to CSP calibration

CSP-COM™ CSP Network Interfaces

FEATURES

- Enhances CSP probe connectivity by adding Bluetooth®, Ethernet, interfaces
- Allows unattended remote measurement and monitoring with CSP probes
- Models available for hardwired or wireless connections

CSP-COM digital wireless and wired versions shown

The Bluetooth word mark and logos are registered trademarks owned by Bluetooth SIG, Inc.

CSP-PL™ CSP Communication Software

FEATURES

- Windows based software development kit that allows for integration of CSP probes with a customer's own software application
- Combined with CSP-COM network interfaces, the CSP-PL Programming Libraries allow the user to create a network of CSP probes and to monitor their outputs via computer

CSP-PL Programming Libraries

CSP-HANDLE/RDS for RDS-32 and One CSP Probe

FEATURES

- Converts RDS-32 with one probe (S-100, SG, SN, S-32 unit) into a one hand operational measurement tool
- Very compact and durable

AVIOR-2 Hand and/or Foot Systems

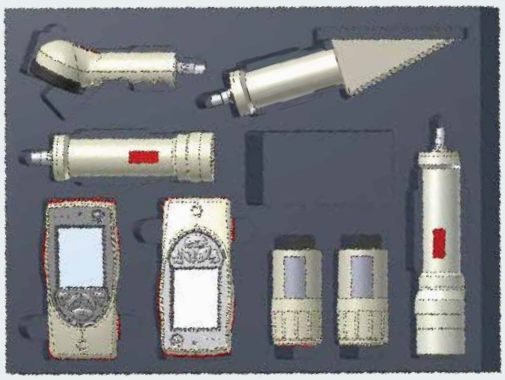
A specific Hand/Foot measurement mode offers the ability to control the Alpha and Beta contamination on hand and/or foot at the same time. It is an ergonomic and affordable solution when available footprint does not provide sufficient space for traditional Hand/ Foot bigger monitors. Various systems configuration are available to support site requirements (wall mounting, self-standing, etc.)

AVIOR-2H

AVIOR-2H/H-S

Carrying Cases

Mirion offers a variety of standard carrying cases (with foam cut to fit products) or carrying bags to cover most applications and probe/instrument configurations. Do not hesitate to contact us for any specific request.



Custom case configurations

Protect What's Next™

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