MIRION Connect 25

Annual Users' Conference

INNOVATION AT WORK

Connecting Visionaries in Radiation Safety, Science and Industry

Conrad Orlando Resort, FL –July 28th – August 1st

MIRION TECHNOLOGIES

Mirion Survey Meters News

Product update and New products

Kip Kelley, Kris Bauer & Frédéric Meyer

Sales, Application Support and Product Line MANAGER^3

Mirion Connect | Annual Users' Conference 2025

Orlando, Florida

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Summary

- RDS-32 FW update
- RDS-32 App update
- LightLink Technology
- CSPevo New product
- SVHD New CSP product
- GMP-15S Heads-up
- TELE-GMP (with VOC)

RDS-32 Firmware Update

Kris

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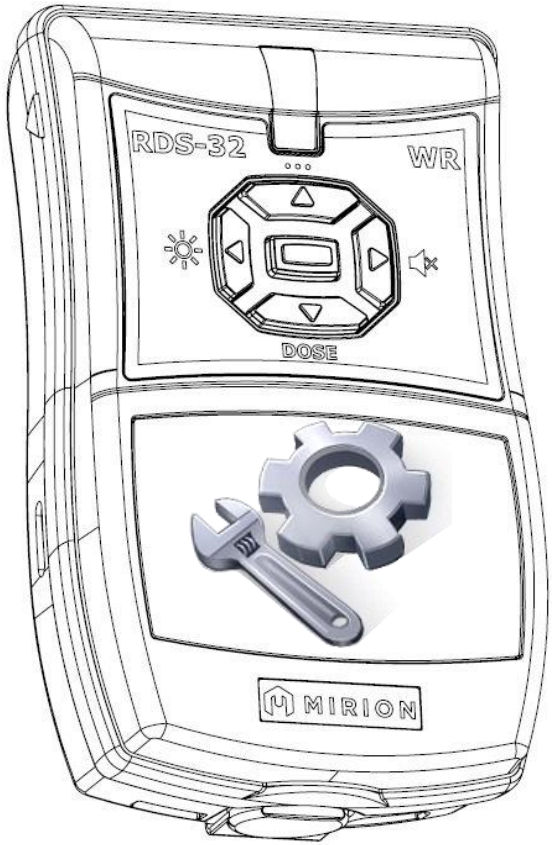
RDS-32 Firmware

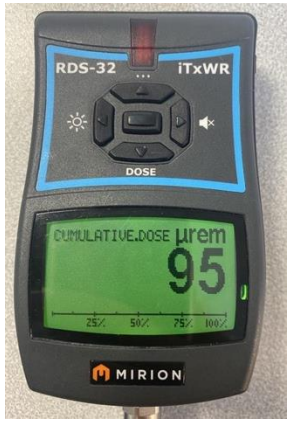
- Firmware Release Plan:
  - 1 – 2 released per year
    - Depending on user's feedback
    - Product range roadmap
- The latest firmware version is available on the Mirion website
  - Mirion RDS-32 Page
- Developing a registry page to get an email to stay up to date when new firmware is released!

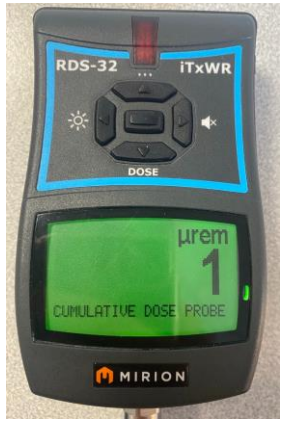


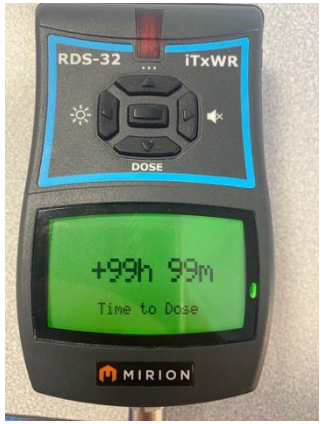
* Recommeded to upgrade to firmware V4.05.20 or newer to reduce the chance to power on issues.

RDS-32 Firmware – New Major Features

- Added cumulative dose display for CSP dose rate probes
  - RDS-32 shows cumulative dose for CSP dose rate probe after internal CSP dose rate probes cumulative dose from Dose button. Cumulative dose for probe is from integrated from Probe Connection.
- CSP algorithm updated to improve response time
- Source finder function refresh rate increased
  - The display for Source Finder now updates every 250ms for better response







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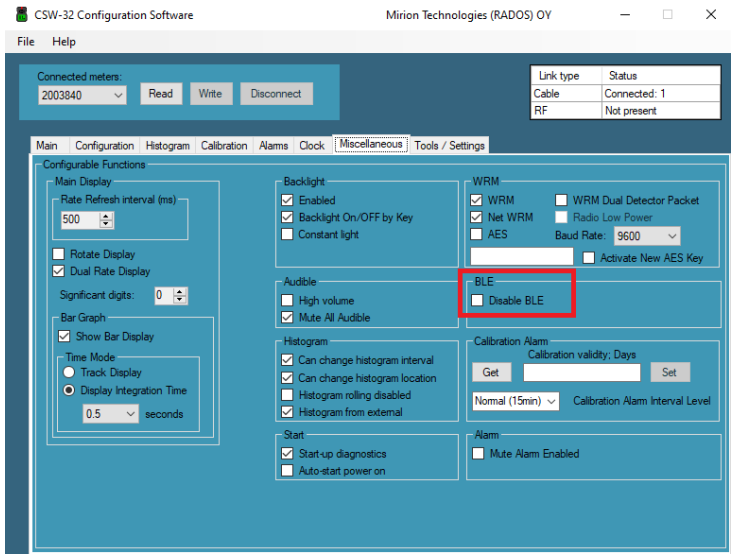
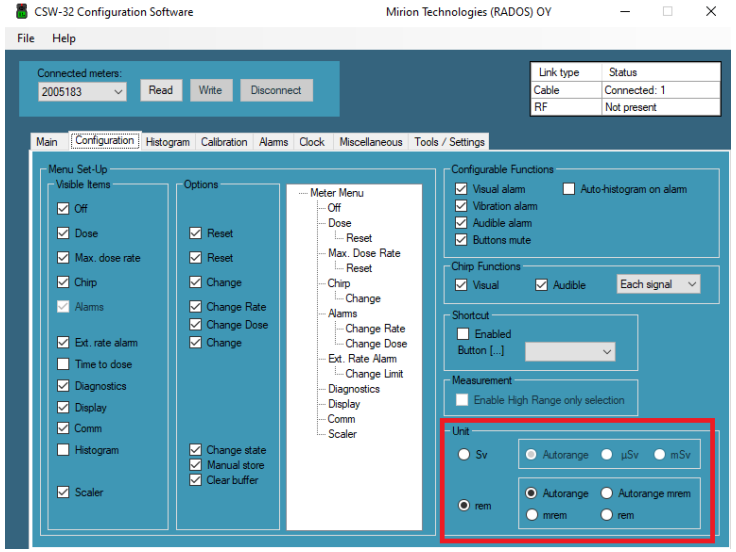
RDS-32 Firmware – New Major Features

- BLE can be removed from menu with CSW-32 and BLE chip will be powered off
- Retry selection added to default probe list
  - Added possibility to retry probe handshake from default probe list. When CSW probe is last probe used, the retry selection is an automatic selection after timeout.
- Auto range mrem/h precision increased to 3 digits





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RDS-32 App Update

Kris

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RDS-32 SmartPhone App

Download on the App Store

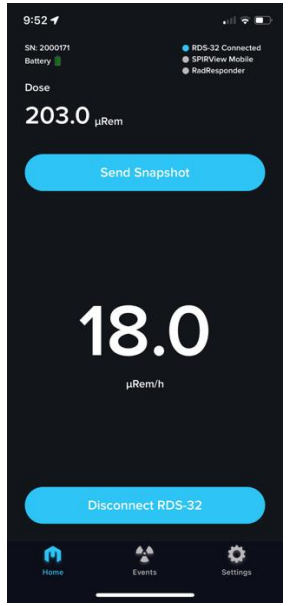
GET IT ON Google Play

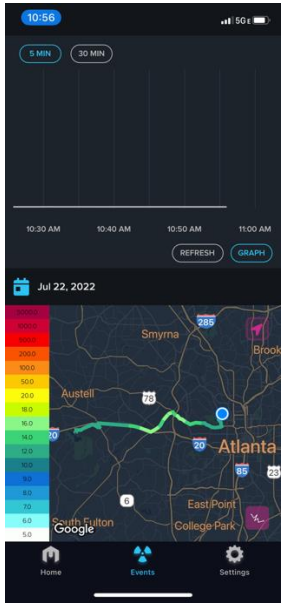
Mapping and Reachback

- **Status:**
  - RDS-32 Connected
    - Including its serial number and Battery level
  - Connected to Spirview mobile
  - Connected to Radresponder
- **Radiological display**
  - Current dose
  - Current dose rate
- **Action buttons**
  - Send Snapshot
    - to Radresponder
    - to a Reachback Contact
- **Events screen**
  - Trend graph of the dose-rate
  - Plot of location in a color gradient map
  - Marker for current location

- **APP – Track, Store and Replay**

***RDS-32 firmware version V4.05.20 or later recommended for smartphone app use.**





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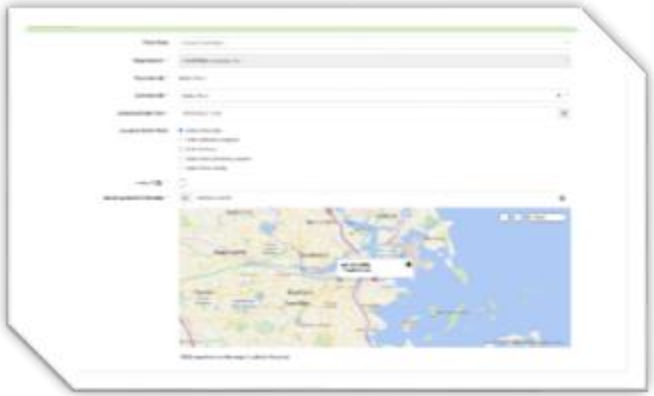
RDS-32 App Update

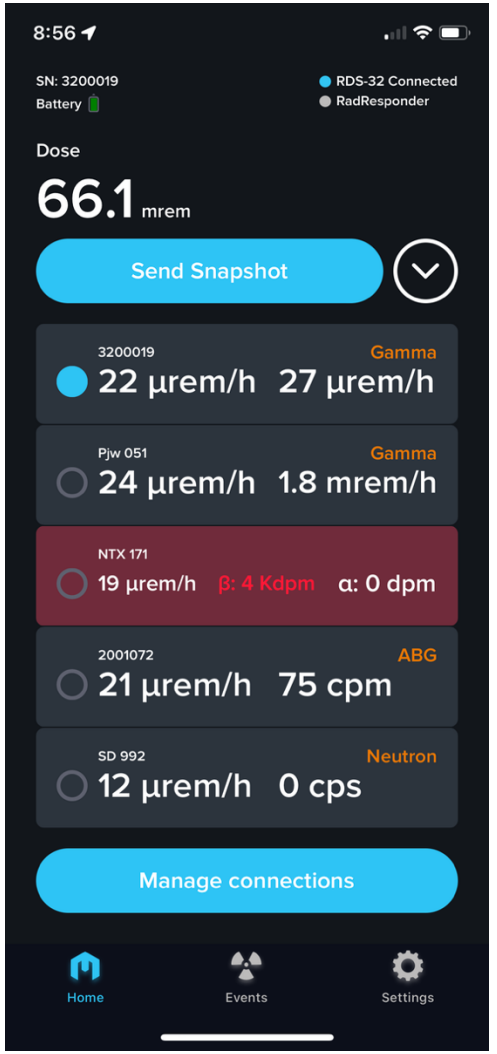


- RDS-32 App was initially developed for Rad Responder and SPIRView
- It is easier/quicker to use than a computer
  - Can change setting in the RDS-32
    - Now it is password protected
- So, we added more features
  - Connect up to 5 devices, including full management
  - Display both Internal dose detector and external probe readings
    - Alpha, Beta, Gamma and Neutron
  - Save your RDS-32 settings and send to other users
    - Standardize all your RDS-32 on site with same settings
  - Save your mission data

* Projected Release Q4 2025

Multiple Devices Display

- Each channel displays Internal RDS-32 dose-rate and external probe reading
  - SVLD, GMP-12: Gamma Dose-rate - **Gamma**
  - SAB-100: Beta and Alpha contamination - α β - **Beta in High alarm**
  - GMP-25: Alpha/Beta/Gamma cumulative reading - **ABG**
  - SN-S: Neutron count-rate - **Neutron**



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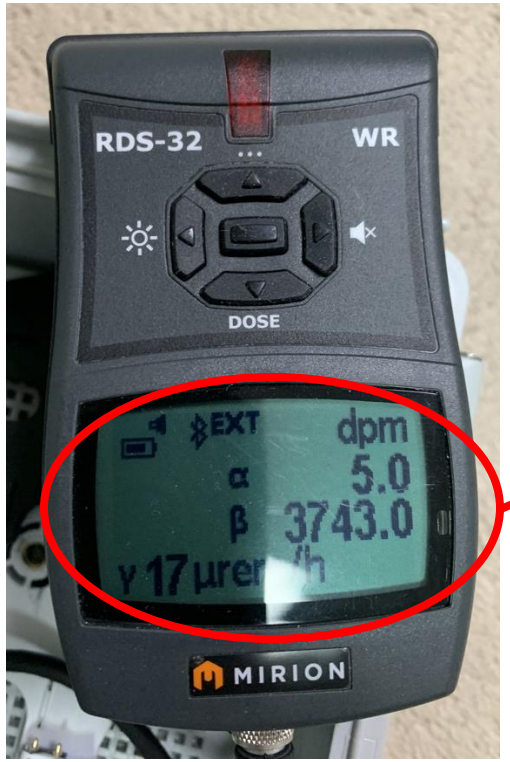
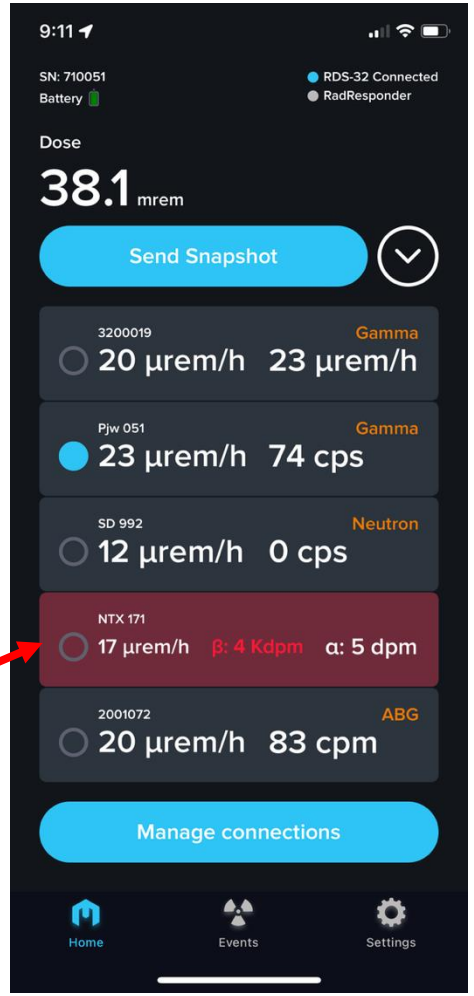
SAB-100 Alarm Example

- The App can have specific local alarm setpoint
  - Different from those in RDS-32
  - **Warning** and **Alarm**





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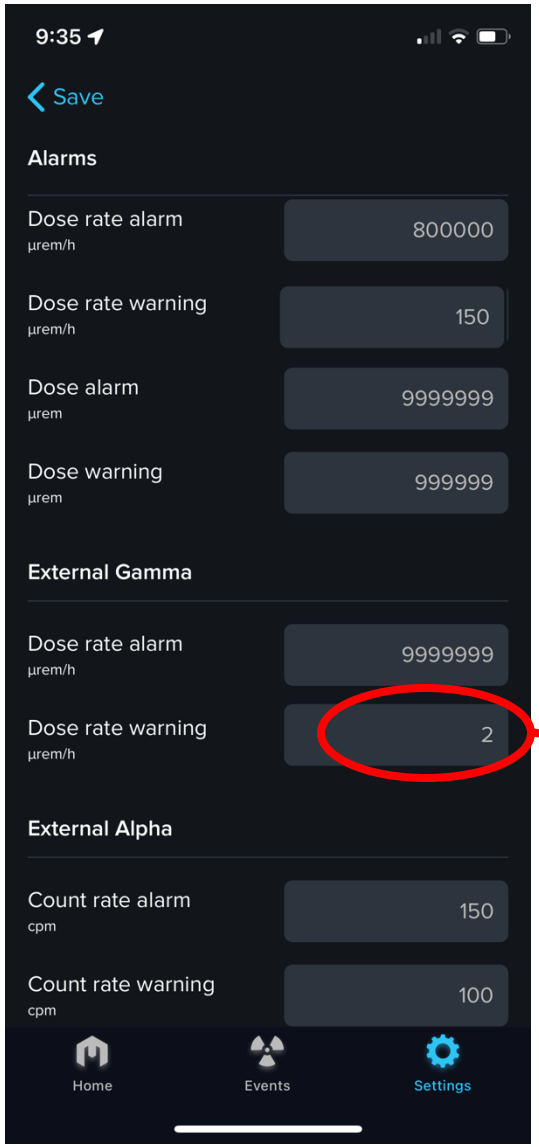
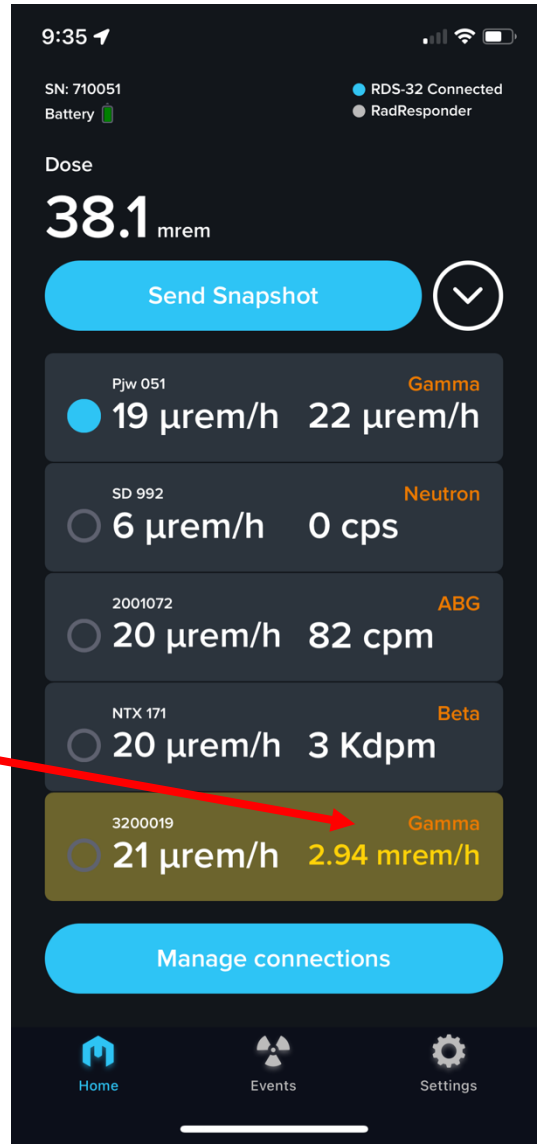
Warning and Alarm





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CSPevo
A problem Solving Approach

Frederic

LightLink® Technology

POWERED BY LightLink®

- Next-Generation Core Technology*
- Reliable & Robust
- Hyper Accurate
- Easily Integrated

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(*) Patent pending

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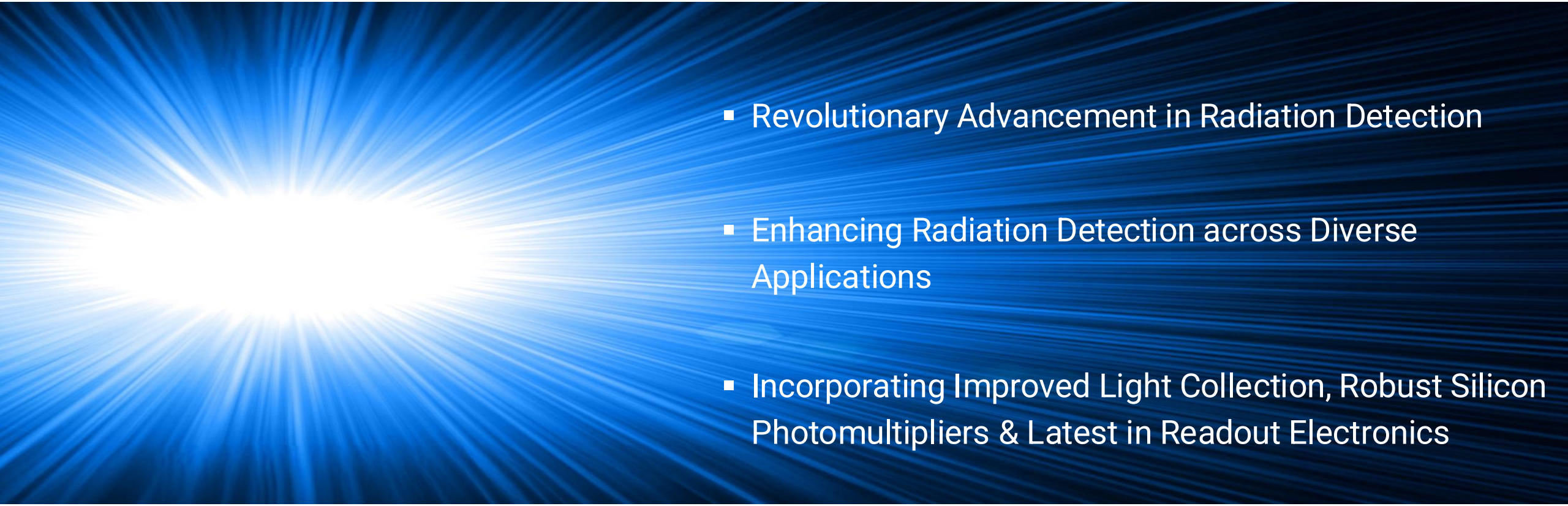
Overview

COMBINING EXPERTISE & NEW TECHNOLOGY



- Revolutionary Advancement in Radiation Detection
- Enhancing Radiation Detection across Diverse Applications
- Incorporating Improved Light Collection, Robust Silicon Photomultipliers & Latest in Readout Electronics

Enhancing Radiation Detection

- More Compact Detector assembly
- Robust Silicon Photomultipliers
- Removal of High Voltage Components
- Elimination of Light Decay
- Superior Light Collection Efficiency

Enhanced Ergonomics

Greater Robustness & Longevity

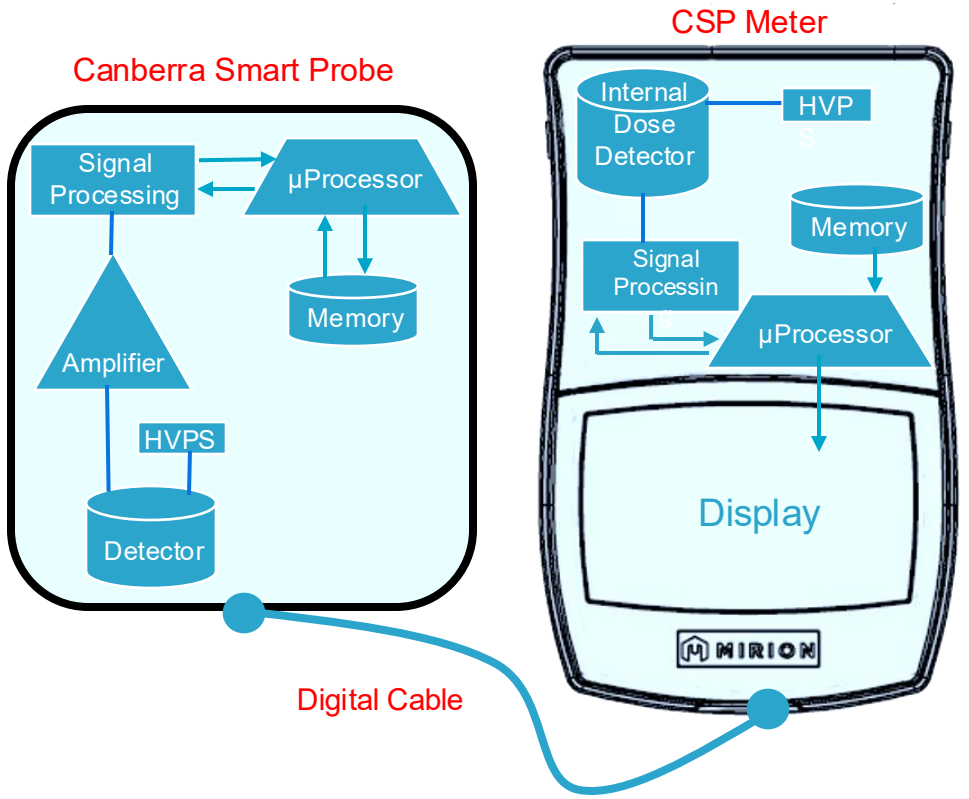
Extended In-Use Time

Reduced Down-Time

Hyper-Accurate & Sensitive

THE SMART APPROACH

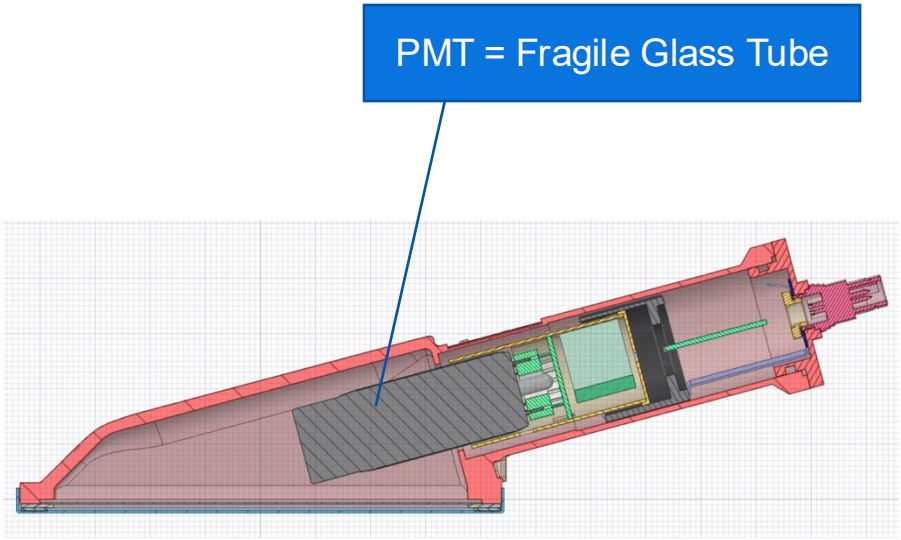
- Fully integrated solution for hand-held health physics
- Maximize efficiency and reduce Total Cost of Ownership
  - Wide range of dose rate and contamination probes
    - Solutions to suit many applications
  - Multipurpose meter with scalable features
    - Maximize training and expertise
  - Plug any Canberra Smart Probe (CSP) to any CSP compatible survey meter
    - No further setup required, no need to re-calibrate the instrument
    - Each probe is self-contained and separately calibrated with computer
  - Extremely efficient power consumption
    - Supports direct connection to a laptop USB port via Canberra Smart Probe Software (CSPS)
      - Perform daily checks and/or calibration
      - Enables the host instrument to remain in use
  - Digital communication – minimizes cable quality issues
  - Easily use CSP probes in third party systems with CSP-PL programming library
    - Speeds and simplifies custom developments



Key Benefits – A problem solving approach

Many contamination probes use PMT*

- Problem with PMT*
  - ✗ Breaks when Shocked
  - ✗ Requires earth magnetic protection (adding weight)
  - ✗ Light collection
    - Big enclosure
    - Mediocre surface detection homogeneity
  - ✗ Waiting time after entrance window replacement
    - Light decay to avoid burning the PMT – up to few hours
  - ✗ Microphonics
  - ✗ Drives handle use (no real choice!)
  - ✗ Difficult to integrate in systems
    - Mechanical arrangement
    - Shielding



(*) PhotoMultiplier Tube

MIRION Solution: CSPevo

POWERED BY LightLink®

- Integration of LighLink® in replacement to PMT*
  - ✔ More durable in the field (Drop Proof)
  - ✔ No additional protection material needed
  - ✔ More efficient light collection
    - flat enclosure
    - Improved surface detection homogeneity
  - ✔ Entrance window replacement does not require more than 10 min before going back to operation
    - Quicker available in the field
  - ✔ No microphonics
  - ✔ Handle is designed with no constraint other than ergonomics
  - ✔ Detection module is easy to integrate into system
    - Mosaic arrangement with minimal dead area
    - Optimized shielding volume

(*) PhotoMultiplier Tube

Probe details

POWERED BY LightLink®

CSPevo introduction

- A New Alpha/Beta 100 cm² detection Module
  - Fragile PMT is replaced by LightLink®
    - Detection area homogeneity is improved up to 85%
    - Minimized dead area with protection grid
    - Reduced overall Weight and Volume
    - Drop proof from One meter height on concrete
  - Detector alone can be used into third party system
    - USB-C connection
      - ✓ Data transfer to host system
      - ✓ Calibration with CSPS
- A set of handles to adapt to meter usage and leverage installed base
  - CSPevo is 100% compatible with CSP meter already in the field
    - No need to upgrade meter firmware – exception to RDS-32 - **R4.05.20**
  - RDS-32 based one hand configuration
    - No cable needed

Various Handles to Match Environment Constraints

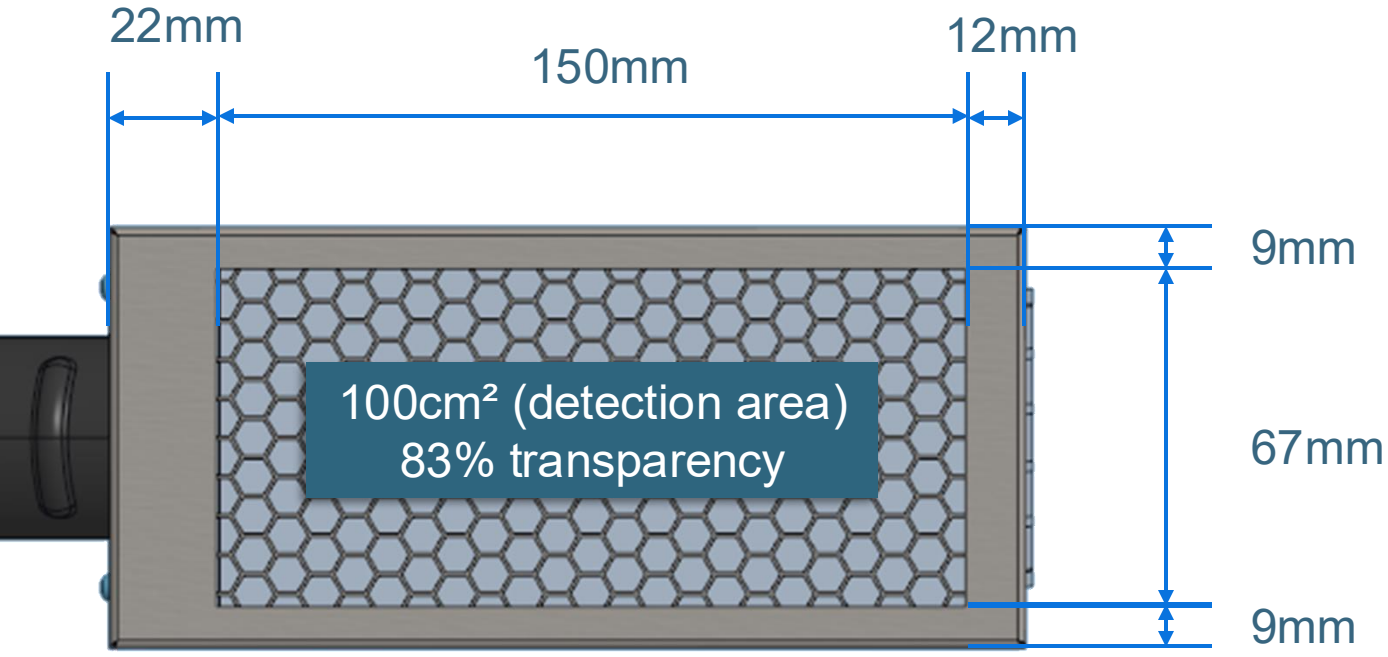
USB CONNECTIVITY

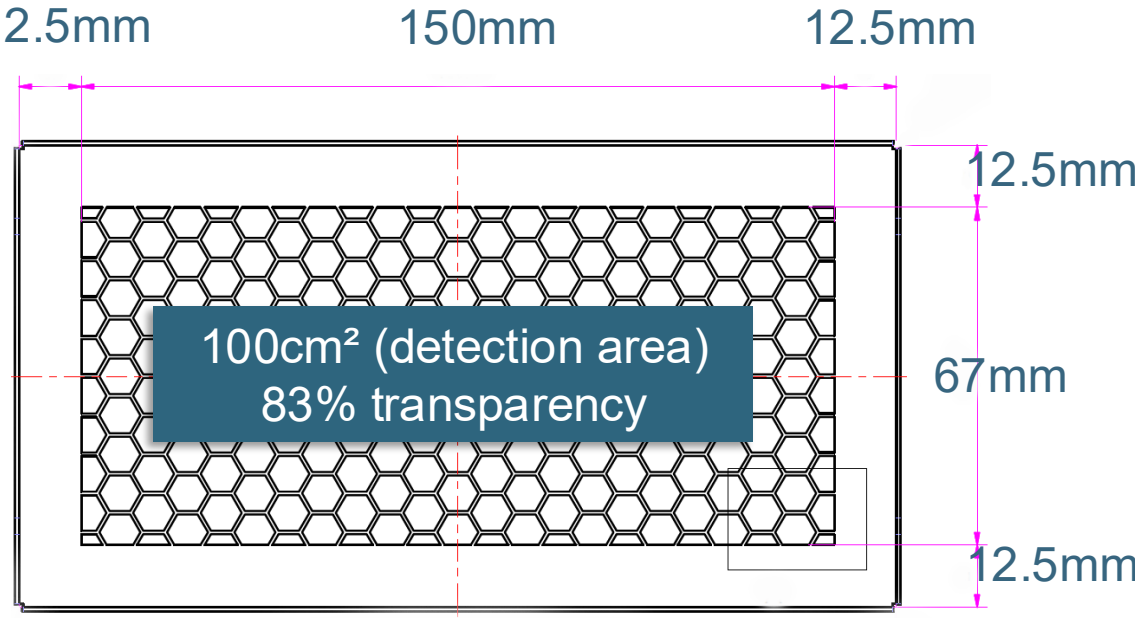
- USB-C connector
  - COTS cable
  - Handle to Detector connection
  - Detector to PC
    - Calibration and setup with CSPS software
  - Integration into third party systems

Detection Area Homogeneity

- Improved Beta detection homogeneity
  - Better than 85%
    - Referenced to IEC 60325 method
      - ✓ Minimum requirement >50%
  - More consistent measurements in the field
    - Frisking measurement
      - ✓ Less than 15% error regardless of position
    - Smear measurement
      - ✓ Less than 5% error on top of probe

PROTECTION GRID





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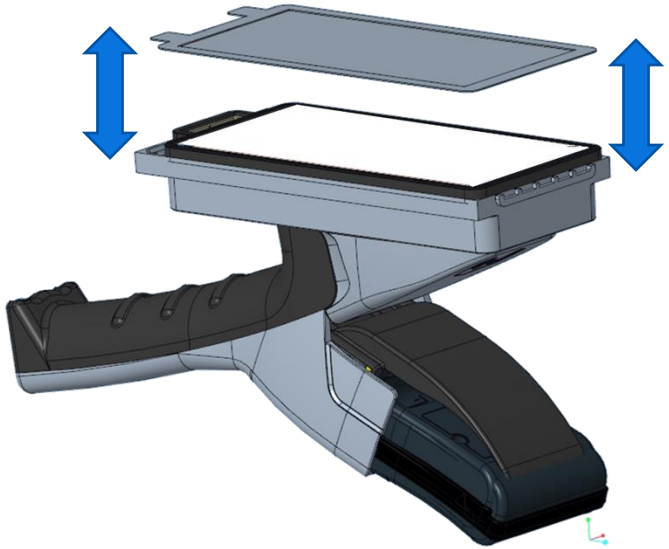
PROTECTION GRID AND MYLAR

1 : Remove both screws

2 : Remove the grid

3 : Remove the mylar window



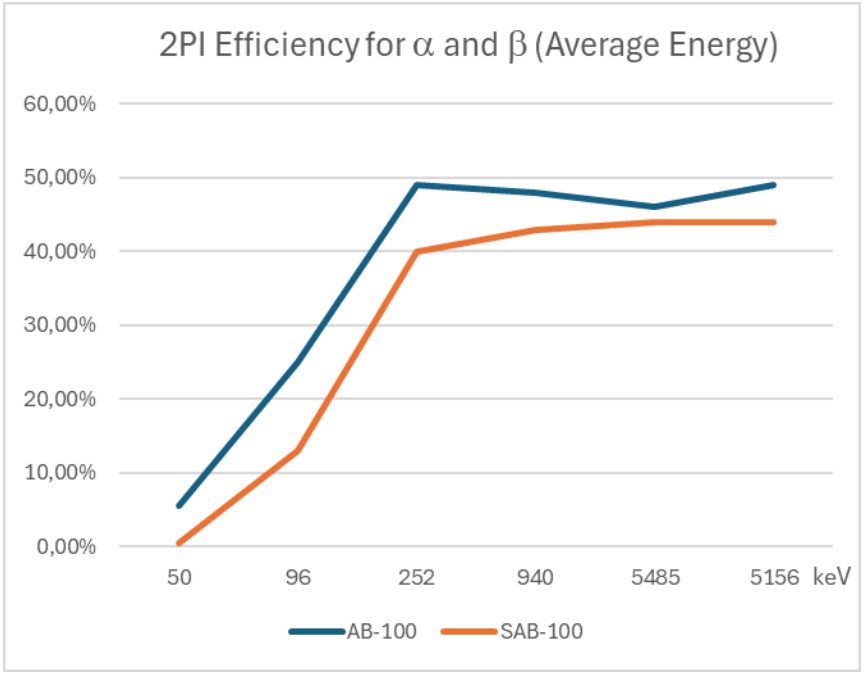
- Mylar on frame
  - No tool needed

✅ Wait 10 minutes only after mylar replacement before going back to operation.

❌ Hours were required with PMT

AB-100 vs SAB-100

	AB-100 + RDS-I HANDLE	SAB-100
Weight	560 g (20 oz)	710 g (25 oz)
Beta Detection Homogeneity	> 85%	>50%
Alpha Detection Homogeneity	> 85%	>70%
Alpha Max Count-rate	10 KCPS - 600 KCPM	10 KCPS -600 KCPM
Beta Max Count-rate	100 KCPS - 6,000 KPM	
C-14 Efficiency (50 kev)	5,50%	0,50%
Co-60 efficiency (96 keV)	25%	13%
Cl-36 Efficiency (252 keV)	49%	40%
Sr/Y-90 (940 keV)	48%	43%
Am-241	46%	44%
Pu-239	49%	44%
Beta to Alpha Crosstalk	<0.1%	
Alpha to Beta Crosstalk	<5%	
Battery Life with RDS-32	180 hours	65 hours
Ingress Protection	IP53	IP20
Operational Voltage	+ 5V and +3.3V	+5V
Operating Temperature	-20°C to +50°C (-4 °F to 122 °F)	



SVHD New CSP Probe

Frederic

SVHD(/W)

SVHD

SVHD/W

- The SVHD(/W) probe delivers exceptional dose rate measurement capabilities — optimized for safe, precise navigation through challenging environments, ensuring reliable performance in nuclear decommissioning with SVHD or underwater applications with SVHD/W

SVHD(/W): Common Features

- Dose-rate range
  - 1mSv/h (100 mrem/h) to 1,000 Sv/h (100 krem/h)
- Response time
  - < 2 sec with 10x increase above 1 mSv/h (100 mrem/h)
  - < 4 sec with 10x increase above 0.1 mSv/h (10 mrem/h)
- Smart CSP probe for CSP compatible Meters (RDS-32, AVIOR-2,…) and third party systems
- Dose lifespan > 5 kSv (500 krem)
- Detector head with limited components
- CSP sensitive smart electronic remote from radiation area
- 50 meters (264 ft) cable on a reel

SVHD: Two Variations

SVHD

- D&D applications
  - Small Diameter of 11 mm (0.43 in.)
  - Easy navigation through shield plugs and S-shaped shield crossings
  - IP64

SVHD/W

- Spent Fuel Under Water Inspection
  - IP68 - Waterproof to 8 atm
  - Operates in borated water
  - Ballast for water submersion

Features	SVHD	SVHD/W
Dose-rate range	1 mSv/h-1000 Sv/h	1 mSv/h-1000 Sv/h
Dose lifespan	5 kSv	5 kSv
Detector housing diameter	11 mm (0.43 in)	17 mm (0.67 in)
Detector housing length	101 mm (4 in)	117 mm (4.6 in)
Ingress protection	IP64	IP68 to 8 atm
CSP protocol	Yes	
CSP-PL compatible	Yes	
CSP-COM compatible	Yes	

GMP-15S
New snap-on RDS-32 probe

Kip

GMP-15S

- Snap-on RDS-32 and RDS-Med
- 15 cm² pancake detector
- One hand operational unit
- Small form factor
- Leverage GMP-25 electronic design
  - Smart probe with embedded High Voltage and calibration coefficients
  - Plug and Play
  - Quickly interchangeable

Innovation at Work

GMP-15S

- Cable-free design
- Allows connection with no tool
- Probe is secured in place with side locks
- Drop proof from 1 meter on concrete

RDS-32

- Dual display
  - Contamination in selected unit
    - ➢ CPM, DPM
  - Dose-rate at user position
    - ➢ Can be disabled via CSW-32 setup sw
- Automatic screen rotation
  - GMP-15S recognition

Product availability

- First delivery: Q4-2025
- Operational 3D printed samples
  - Available in Demo room

TELE-GMP New Pole
For RDS-32 and GMP-12 series

Kip

TELE-GMP

- The TELE-GMP Telescopic Pole (for GMP-12 probes) is an advanced telescopic radiation survey tool designed to enhance radiation detection capabilities in various high-risk environments
- It complements TELE-STTC-2 (non detachable detector)
- It replaces former RDS-31 Telepole

VOC inputs

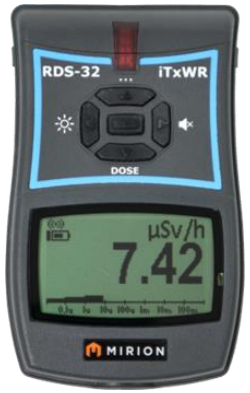
Feedback about former RDS-31 Telepole

- Move to carbon fiber to save weight
- Make sure user can quickly remove the detector for Calibration in limited space calibrators (Connect probe to RDS-32 via standard cable)
- Detector with pole shall not exceed 1.70 inch for cal-check
- Move strap hook to allow carrying on the shoulder
- Limit the number of parts that can get lost in containment (Detector clamp from GMP-12)

TELE-GMP Features

- Detachable detector provides ease of maintenance and calibration, including a daily calibration check. Detector/pole diameter is less than 1.7 inches.

- GMP-12 detector locking ring stay on the pole – no need to unscrew entirely to remove probe
- Provides extended reach while maintaining lightweight handling and superior durability in demanding environments.
- Easy to carry on shoulder: The strap is positioned to allow comfortable shoulder carrying with minimal risk of probe damage.
- Light weight: thanks to carbon fiber pole
- TELE-GMP pole can also be utilized by customers who have GMP-12 probes and wish to use their current equipment for additional application coverage



TELE-GMP Features

- Pole Dimensions
  - Fully retracted pole with probe – 4.2 feet long
  - Fully extended pole with probe – 14.5 feet long

- Pole Weight
  - Pole with RDS-32 and GMP-12GSD – 4.96 lb

- GMP-12 Probe Options Comparison:

	GMP-12GSD	GMP-12SD	GMP-12UW
Detector Type	GM/Silicon PIN diode	Silicon PIN diode	Silicon PIN diode
Dose rate measurement Range	5 µrem/h to 1000 rem/h	3 mrem/h to 1000 rem/h	3 mrem/h to 1000 rem/h
Energy Response	-20% … +30% over energy range 60 keV - 3 MeV	-20% … +30% over energy range 60 keV - 3 MeV	-20% … +30% over energy range 60 keV - 3 MeV
Enclosure Class	IP67 (short term)	IP67 (short term)	IP68

TELE-GMP Ordering references

- There are two ordering references: TELE-GMP (1233-353) and TELE-GMP/L (1233-354) versions.
- TELE-GMP version includes an add-on molded ring for each pole segment to ensure the user cannot unscrew entirely the locking ring and get all parts loose.

- TELE-GMP/L version does not include an add-on ring. Therefore, users can entirely unscrew each ring and get the pole segment detached

TELE-GMP Questionnaire

Kip

User Feedback

- We received feedback from first customers
  - RDS-32 mount should be improved
    - ➢ Less complex
    - ➢ Less Bolts and Screws
    - ➢ Less prone to expensive servicing

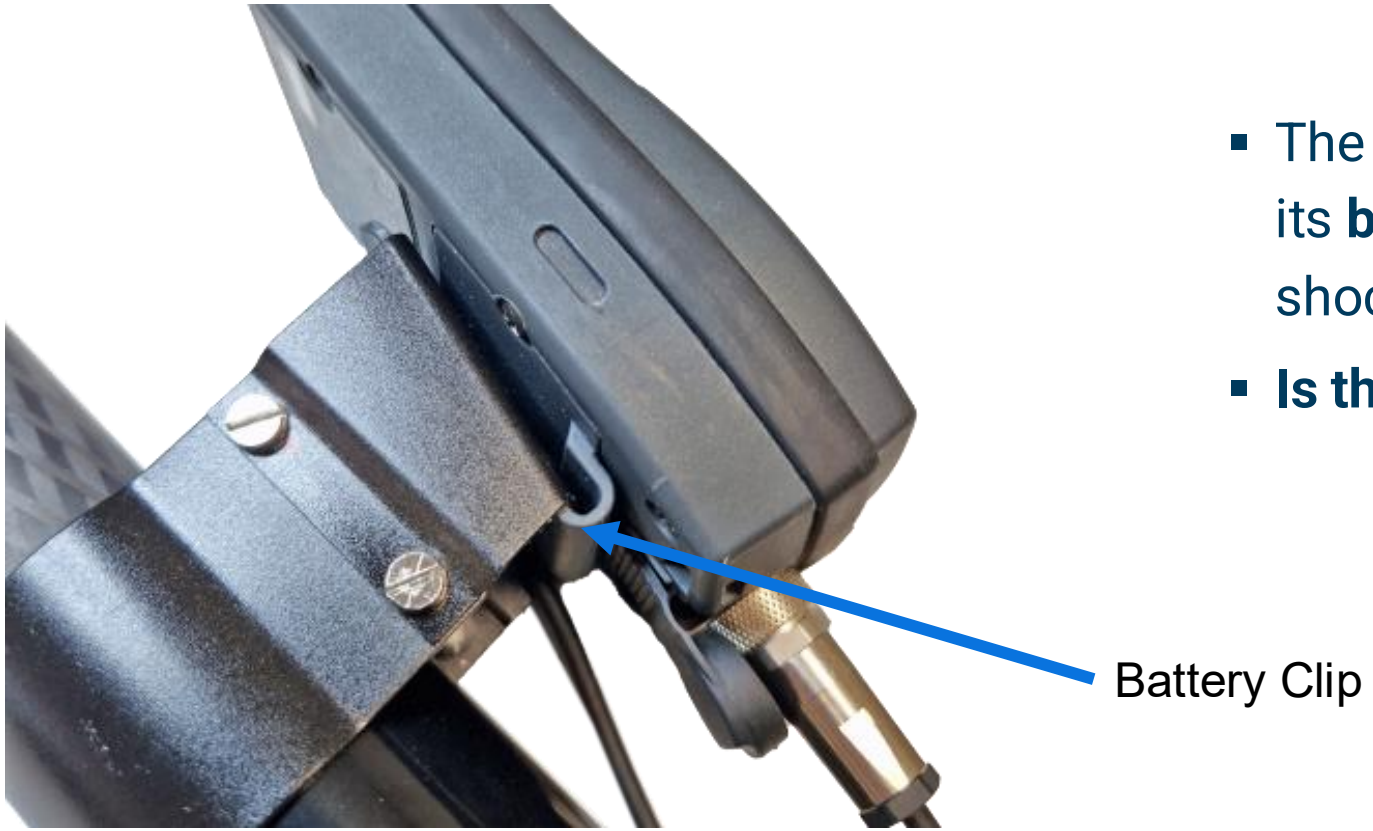
Question 1

- **Is the RDS-32™ display position/elevation appropriate for the pole area?**

Question 2&3

- Is the fixed display angle of 15° relative to the pole axis on the RDS-32 unit considered acceptable?
- If you answered "no" to question 2, do you prefer another fixed angle or adjustable angle?

Question 4



- The RDS-32 meter is secured to the pole with its **battery clip**, which may break under shock and require a low-cost replacement.
- **Is this acceptable?**

Question 5

- **Does the small loop in the cable connected to the RDS-32 unit pose a potential issue?**

Question 6

- **Do you prefer the current TELE-GMP mount?**

Question 7

- **Are you satisfied with the GMP-12 detector lock?**

Thank you