



SAFETY & SECURITY

# Chemical/Radiological Threat Detection

Combined NC Detection: Bruker **RAID-XP Series**

Innovation with Integrity

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# Choose Innovation – Choose Bruker

Bruker is recognised as the leading authority on the use of detection and identification technologies to mitigate the threat from the accidental or deliberate release of toxic gases, explosives and radioactive materials that could kill and injure civilians.

We offer the world's most comprehensive range of threat detection and identification solutions and can help you to assess how these can be best employed to protect people and property.

We develop, manufacture and supply technology worldwide for a range of customers and end users that need to protect people and property.

These include, but are not limited to governments, commercial enterprises and multi-national corporations who need to protect their employees and clients from the ever-increasing threat from terrorism.

Bruker is strongly committed to meeting its customers' needs by continuing to revolutionise the design, manufacture and distribution of detection tools based on our core technologies; by providing solutions that are regarded as the 'Gold Standard' by threat mitigation experts.



# Combined NC Detection: RAID-XP Series

Security personnel across the world have long acknowledged the existence of asymmetric threats and recognise that an innovative capability is required to mitigate these increased risks. The construct of the dirty bomb has been shown to be viable, and if such a device were to be detonated, the dissemination of fallout over a wide area could make that region inaccessible for a significant time. Recent reports also describe the potential to use explosives to disseminate both chemical warfare agents and radiation.

To mitigate the combined threats from both chemical warfare agents (CWA) and/or radiation, Bruker has developed the innovative RAID-XP Series. The RAID-XP combines chemical and radiological threat detection into a single system, and provide the enhancement of also detecting toxic industrial chemicals (TIC). This series of detectors is extremely flexible and has been developed for military use, especially perimeter monitoring, for naval and littoral locations, counter-terrorism and civil defence applications.

The RAID-XP Series provides dual chemical and nuclear detection capabilities in a lightweight, man-portable platform. The detection systems combine the principle of ion mobility spectrometry, the de-facto standard for CWA/TIC detection, and PiN diodes are used to detect gamma radiation, displaying dose rate and accumulated dose. Individual displays indicate the respective threats from CWA/TIC and gamma radiation. Two versions are offered. The RAID-XP uses a standard  $^{63}\text{Ni}$  source, whereas the new RAID-XP<sub>NR</sub> uses a High Energy Photoionisation (HEPI) source. The RAID-P uses the same form factor but is lower in cost than the RAID-XP and is dedicated to CWA/TIC detection/identification only\*. Both the standard  $^{63}\text{Ni}$  source and the High Energy Photoionisation (HEPI) source versions can be selected.



## Why specify RAID-XP?

- IMS technology for CWA/TIC detection  
For superior sensitivity - the de-facto standard
- Semiconductor-based radiation detection  
Sensitive and reliable gamma detection
- Bruker interference rejection algorithms  
For confidence in the CWA/TIC detection
- Independent displays of threat types (RAID-XP only)  
See detection events at a glance
- $^{63}\text{Ni}$  and HEPI source availability  
Both offer identical detection performance
- Reduced ownership costs  
Consumables changed at operator level; no RTB
- No calibration; ever!  
Factory calibrated, no field calibration is required
- Vehicle mounting options  
Installs to many mobile platforms
- Battery, mains or vehicle power and GPS input  
Maximum installation flexibility
- Integrated data logger; events and spectra  
Recall and analyse post-mission detection events

\*RAID-P cannot be upgraded to RAID-XP post-purchase.

# RAID-XP Series: Mobile Platform Integration





## **SEAMLESS SYSTEMS INTEGRATION**

RAID-XP Series are ideal for installing to mobile platforms such as ships, reconnaissance vehicles, mobile laboratories, and civilian and police emergency response vehicles. For these installations, the RAID-XP Series can be operated from their own rechargeable battery or connected to vehicle power.

For the majority of mobile platform systems, Bruker proprietary accessories simplify installation. These provide the necessary gas-tight connections that allow the instrument to draw an air sample from outside the vehicle and include external sample probes. The sampled air is analysed and then, using an identical series of gas tight connectors, this same air is returned to the outside of the vehicle. For maintenance purposes, these connectors can be disconnected readily and the instrument dismantled in a matter of seconds. Measured data can be transferred to the vehicle's hazard warning software over RS-232, with RS-422 as an option.

## **SEE NUCLEAR AND CHEMICAL THREATS AT A GLANCE**

In the RAID-XP, a twin display concept provides a clear and unambiguous indication of the NC threat assessment, and a warning is given by both audible and visual alarms. The system has an internal memory for the results of the N and C sensors in combination with time and geographic location, the latter being supported by an input port for a GPS receiver.

For the detection and quantification of gamma radiation, the actual gamma dose rate and the accumulated gamma dose are displayed, and warning thresholds can be set by the user for the gamma dose rate, and the accumulated gamma dose.

## **CHEMICAL THREATS**

For chemical detection, the RAID-XP Series identify, classify, quantify, and continuously monitor threat concentration levels. The identity of substances detected is displayed by its standard threat code, its appropriate abbreviation or its classification for certain TIC. Levels are shown by an incremental bar display. The backflush mode, a Bruker exclusive, provides an automated switchover to an internal clean air supply in the event of a detector overload. In this way, this unique Bruker feature aids recovery times for highly concentrated agents by clearing the measurement system of chemical agent.

# RAID-XP Series



Ask  
about our  
**HEPI**  
(non-radioactive)  
source  
option



## PRODUCT OVERVIEW

Designed to help mitigate the threats from both from chemical agents (CWA and TIC) and radiation, the innovative RAID-XP combines chemical and radiological detection into a single system. With two separate, dedicated displays, the operator can see at a glance the nature of the threat. The IMS-based chemical detection system not only detects and quantifies the level of threat it also identifies the substances detected. This is shown by its standard threat code, its appropriate abbreviation or its classification for certain TIC. In the RAID-XP, PiN diodes detect gamma radiation, with the gamma dose rate and the accumulated gamma dose displayed.

The chemical detector of the RAID-XP Series is offered with a choice of ionisation sources. The lower cost versions incorporate  $^{63}\text{Ni}$  sources, and a HEPI (High Energy Photolonisation) source is offered as an option. For advance purchases, which may result in the product being stored for extensive periods prior to deployment, tests have shown that these source types are the preferred choice. Irrespective of source type, both versions have the identical chemical detection capabilities, the same detection limits and use identical long-life consumables. Therefore, having both sources in the same fleet does not increase the logistics requirements.

## KEY FEATURES

- Combined chemical and nuclear detection (RAID-XP only)
- Gamma dose and accumulated dose (RAID-XP only)
- Lower cost chemical detection only option (RAID-P)
- Dual display as standard
- Effective threat substance detection and identification
- 'Gold Standard' interference rejection
- Sensitive to low ppm/ppb chemical threats
- Unique backflush feature maintains uptime
- Life time calibration-free operation
- Consumables exchanged at the operator level; no RTB
- Readily integrates with mobile platforms

# Global Resources – Local Focus



Bruker has support centres of technical expertise in every major area of the world providing sales, applications and engineering support for our complete product range. With more than 6,000 employees at 90 locations worldwide you can be confident that the support team fronts a uniquely integrated global resource. Research and development specialists, applications professionals and highly trained engineers in every field are dedicated to your investment in our equipment.

### Superior Detector Performance

For highly sensitive detection, identification and quantification of chemical, biological, explosive and radiation threats. Superior performance and high reliability comes as standard.

### Applications Support

Systems are configured to meet your needs and result from our detailed evaluation of your requirements.

### Standards & Compliance

All our systems are manufactured in ISO9001 compliant factories; so you can be assured of superior quality and performance.

### Software & Data Systems

Designed to industry standards on the Microsoft® platform, our software can be integrated with your security management software.

### Training

User Training and User-Level Maintenance is part of our standard Scope of Supply. Our goal is simple; to minimise your cost of ownership.

### Low Maintenance

All our systems are designed for extended maintenance periods and reduce the through-life-costs of your investment.

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**Bruker Optics is ISO 9001, ISO 13485,  
ISO 14001 and ISO 50001 certified.**

Find us on



Online information  
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