



RAID-S2

- Stationary Rapid Alarm and Identification Device

General Specification

Proved IMS technology

The RAID-S2 is a gas trace detector for the detection of chemical warfare agents (CWA) and toxic industrial chemicals (TIC). It is based on proven ion mobility spectrometry technology. The RAID-S2 is specifically designed for long-term operations in a 24/7 environment with maintenance required only approx. once a year (depending on operation hours). Due to automatic polarity switching, the RAID-S2 continuously detects and identifies all relevant chemical warfare agents. The built-in microprocessor evaluates the recorded ion mobility spectra. The identified agents and calculated concentrations can be shown at the remote control unit or via the NC monitoring software. Sophisticated detection algorithms and the new ammonia based dopant significantly reduce interferences.

Long term operation and different libraries

The device can be operated with two different libraries for the detection of CWA or TIC. Both applications provide protection against overloading. All applications can be used under field conditions as well as on vehicles, ships and in shelters and without interference. The RAID-S2 has been designed for low consumption of consumables, e.g. filter and dopant. This can easily be exchanged at low maintenance level. The instrument is specially designed for long-term operations and can be used under various environmental conditions. The instrument can either be operated stand alone or it can be integrated into a network containing several instruments. The data set of the RAID-S2 is not limited to chemicals listed in the specification. Both data sets are not limited to the implemented CWA and TIC as specified. New data of hazardous compounds can easily be downloaded once recorded and evaluated via special software (XIMS NT). Non-toxic simulants,

suitable for training even under battlefield conditions are already implemented in the data sets.

Key features

- High interference rejection
- Radioactive source (Ni-63) with a considerable low activity of <100 MBq
- Ethernet and RS422 interface
- Ruggedized design
- Maintenance at operator level, easy exchangeable filters
- Heated gas inlet for improved measuring performance
- State-of-the-art quick connect sampling probe tubes
- Operation possible via NC Monitoring software

Accessories

Various accessories are available for the RAID-S2. Depending on the application the instrument can be used with a Remote Control Unit and different types of sampling probe systems.

Typical applications

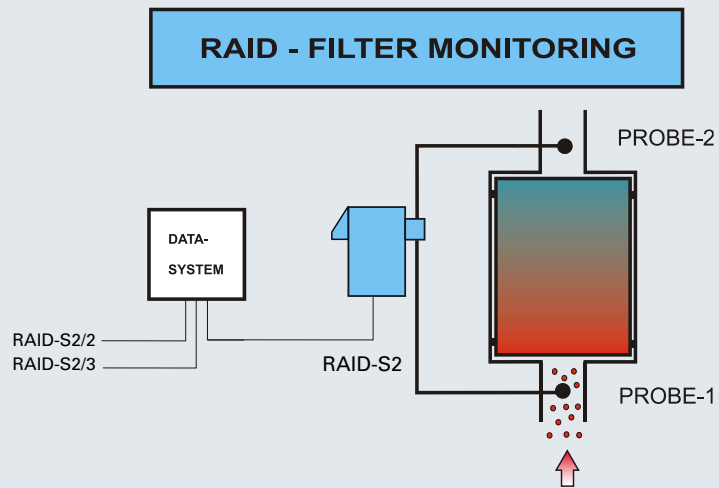
- Detection of CWA onboard of vehicles, ships or airplanes while on motion
- Long term monitoring of ambient air for the presence of hazardous compounds in shelters or bunkers
- Integration into naval and military monitoring applications
- Monitoring of ambient outside air or air filtered by the NBC protection filters (break-through surveillance) for naval, vehicle or shelter applications



Remote control unit with ethernet communication

● Filter Monitoring

RAID – S2 applications



RAID-S2 will be installed at the Fox vehicle for filter monitoring

Filter monitoring

In stationary facilities such as shelters, bunkers or within shipboard or vehicle chemical detection systems, the release of hazardous gas into the environment or the contamination of the interior can be prevented using NBC filter systems. For the protection of personnel, the filter function and the quality of both outdoor and filtered air should be monitored. This can be done with a RAID-S2 installed close to the NBC filter. It checks the passing air stream at two sampling points.

● Shipboard Nuclear and Chemical Detection Systems

As part of shipboard detection systems, the RAID-S2 and other Bruker components can be integrated into complete CBRN detection networks.

Shipboard chemical detection systems (SCDS)

For ship borne use, the following configurations are available:

- RAID detectors as stand-alone devices
- RAID detectors with up to 5 remote control units (Ethernet)
- Several stationary RAID detectors with data system and NC Monitoring software

The instruments can be installed inboard the ship citadels, or near NBC filter stations if filter monitoring is required. The integration of hand-held ion mobility spectrometers (RAID-M 100, RAID-XP) is also possible.

Nuclear and chemical detection systems (NCDS)

The Radiation meter SVG2 upgrades the C-detection system to a Nuclear and Chemical Detection System (NCDS). All NCDS components are monitored by the NC Monitoring software. Furthermore the instruments can be integrated into a shipboard control and managing system on any type of ship.



RAID-S instruments are operating on board of the German Coast Guard Ship "Neuwerk"

RAID-series product line



RAID-XP
Innovative mobile nuclear and chemical detector



RAID-M 100
Hand-held chemical agent monitor



RAID-AFM (NC version)
Automated Facility Monitor for critical infrastructure protection



Photo: HDW AG

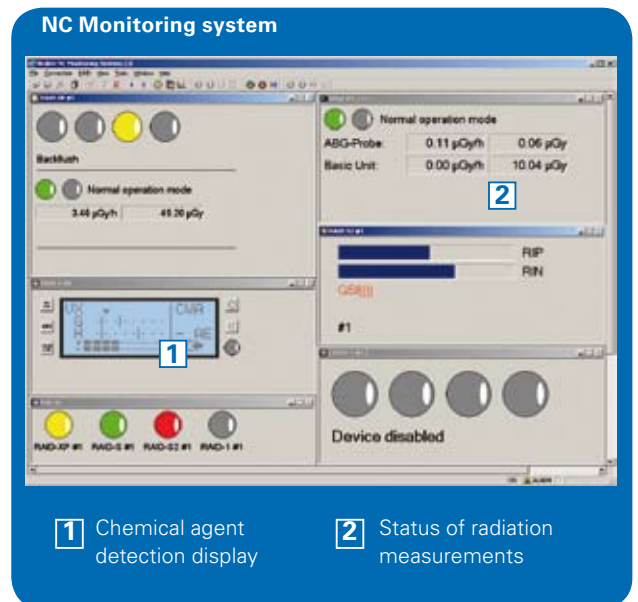
NC detection system operating on submarines such as the U31

New Generation of NC Monitoring Software

The improved version of the NC Monitoring Software allows several RAID (Rapid Alarm Identification Device) gas trace detectors and Bruker SVG2 radiation meters to be integrated in an operational monitoring system.

Features of the NC Monitoring System:

- Remote control of RAID and SVG2 devices via standard serial interfaces
- Display of the detector states in various views, depending on the field of application
- Long time monitoring and, simultaneously, data recording of all instruments
- Configurable summary reports, using the collected device data
- Visual and acoustic alarm information
- Integration into other monitoring systems via software interface
- Support of English and German user interface languages
- Integrated support documentation



Monitoring system consisting of different RAID-instruments and one SVG2

Our product line for chemical, biological, radiological and nuclear detection

Nuclear & Radiation Detection	SVG 2 The new generation of nuclear radiation detectors
	RAID-XP, RAID-AFM (NC version) Innovative and flexible instruments for NC detection
Biological Agent Detection	VeroTect Real-time generic biodetector
	pTD Automated on-site detection of toxins
	M-BL Automated on-site detection of bacterial and viral pathogens
	MALDI Biotyper Software tool for reliable identification of unknown microorganisms (BWA)
Chemical Warfare Agent Detection	MM 2 Mobile Mass Spectrometer for reconnaissance vehicles
	RAID series Rapid Alarm and Identification Devices based on proven IMS technology
	RAPID FT-IR Stand-off detector for atmospheric pollutants
Personal Chemical Agent Detector	µRAID The compact, flexible and reliable personal detector
Chemical Emergencies & Demilitarisation	E²M Enhanced Environmental Mass Spectrometer for mobile on-site analysis
	Mobile-IR Portable FT-IR Spectrometer
	NIGAS System for non-invasive identification of explosives and CWA

Technical Specifications

RAID-S2 Detector module

Length x Width x Height

460 x 450 x 110 mm

Weight

14,5 kg

Power requirement

18 ... 30 V DC

Power consumption

24 V, start up 2A / operation 0,5 A

Data interfaces

Ethernet, RS422, Floating contacts for system status (Alarm/Error)

Activity of Ni-63 source

< 100 MBq

Temperature range

-20°C to +52°C (operation and storage)

Environmental

- Temperature tested according MIL-STD 810F
- Shock and vibration tested according MIL-STD 810F
- EMC tested according MIL-STD 461E

Humidity

tested according MIL-810F up to 95 %

Drying filter lifetime

approx. 9000 hrs of operation

MTBF

> 1000 hours

MTTR

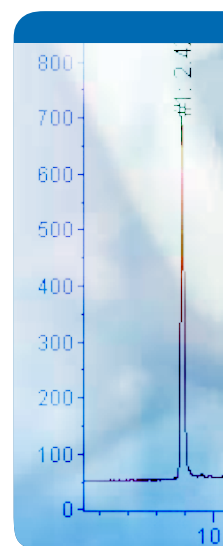
< 10 minutes (Operator level)
< 45 minutes (Direct Support)

Substances detectable

- Compounds with proton or electron affinity
- Detection limits in the ppb and ppm concentration range
- CWA: GA, GB, GD, VX, HD, HN, L
- Test substances: MSAL, DPM
- TIC's: Standard compounds: sulfur dioxide, hydrogen cyanide, chlorine, volatile chlorinated hydrocarbons
- Other compounds on request

IP degree of protection

- IP65



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