CBRN Reconnaissance
Vehicle Solutions

- Vehicle chassis independent
- Turnkey solution from single supplier
- 24/7 CBRN preparedness

Environics
For your SAFETY
CBRN Reconnaissance Vehicle Solutions

Environics’ chassis independent CBRN Reconnaissance Vehicle System provides a complete solution for mobile CBRN detection, sampling and analysis.

CBRN Reconnaissance vehicles maintain and support capabilities for 24/7 CBRN preparedness. Environics’ vehicle solution integrates CBRN threat detection and identification as well as environmental sample collection. It also initiates CBRN countermeasures on the threat scenes and gathers situational awareness to support commanders in threat event management.

KEY FEATURES

- Complete CBRN detection system
- Chassis independent
- Turnkey integration solution available for civil vehicles
- 24/7 CBRN preparedness
- CBRN monitoring software for situational awareness and reporting

APPLICATIONS

- Hazmat
- VIP protection
- Battlefield detection & monitoring
- Mass events
- Law enforcement agencies
From CBRN Detectors to Complete Turnkey Solutions

Environics’ CBRN reconnaissance vehicle concept is chassis independent and provides scalable solutions according to customers requirements. Environics can act as an integrator or as a CBRN detector supplier or both in CBRN Reconnaissance vehicle projects. To date, Environics has implemented CBRN detection systems for wheeled armored combat vehicles and Mercedes Benz Sprinter and Vario based chassis.

Key Components

ChemProDM with Add-On Modules

The proven multisensor technology of the hand-held ChemPro100i is applied in the robust ChemProDM chemical detector designed for demanding mobile applications. It provides industry leading sensitivity for CWA and TIC detection from indoor and outdoor air samples and heated ground samples collected e.g. with a double wheel sampling systems of CBRN reconnaissance vehicles. The ChemProDM contains wide variety of chemical compounds in the selection of gas libraries for different missions.

The standard ChemProDM can be supplemented add-on modules and accessories. The ChemPro RAU acts a small remote alarm unit with basic ChemProDM user interface operations. The ChemProDM Radiation Module (RDM) expands the device capabilities to cover gamma and x-ray detection. It indicates current dose rate, accumulated dose readings and radiation alarms on the display of the remote alarm unit or in the EnviScreen CBRN monitoring software.

The ChemProDM is compatible with variety of DC power supplies and rechargeable batteries, and serial communication enables integration to Environics’ EnviScreen and other monitoring systems. The rugged device is featured with low life cycle costs due to the minimized need for regular consumables.

* The ChemProDM is based on ChemProPD, which has been tested against these standards by independent and Environics’ test laboratories during the product development process.

Solutions for CBRN Monitoring and Identification

CBRN reconnaissance vehicle solutions are based on Environics’ own core sensor technology and CBRN dedicated monitoring software supplemented with required third party detectors and analyzers.

Key Features / ChemProDM

- Industry leading sensitivity in CWA and TIC detection
- Small size and weight, rugged design
- Low life cycle costs with minimized need for maintenance
- Power source: 9 – 36 VDC vehicle power
- Communication: 2 x RS-232/RS-485 ports
- Waterproof and MIL-STD-461E and -810E compliant as applicable*
- Flexibility and upgradeability
- Built in GPS locationing (optional)

Key Features / ChemPro RDM

- Detection of gamma and x-ray radiation
- Detection method: Geiger-Müller tube
- Dose rate: from 50keV to 1.3 MeV
- Measurement range: from 0.04 μSv/h to 100 mSv/h
- Response time: Fast mode 2.5 s; Normal mode 3 min at ambient radiation levels
- Powered by ChemProDM
**Key Components**

**ENVI BioScout**
ENVI BioScout is featured with reduced footprint and ruggedized design for detection of harmful bioaerosols in CBRN vehicles.

It combines three functions in a single device: it monitors continuously ambient air, triggers early-warning for detected potential airborne biological threats including bacterial, viral and rickettsial agents and toxins and initiates automatic air sample collection, when a biological alarm is issued. The collected air sample is retrievable with a rinsing protocol and suitable for provisional BWA identification with rapid methods like immunoassays or real-time PCR.

The ENVI BioScout™ has been designed to meet military standards for a range of environmental requirements as applicable. Short-time replacements and preventive maintenance can be performed with basic tools and minimum efforts by end-user’s service personnel.

**KEY FEATURES**
- 3-in-1: Continuous bioaerosol monitoring without consumables — alarms to issue early-warning — sample collection for further BWA analysis
- Robust design for use in demanding environmental conditions
- Ease of continuous use and ease of maintenance — low lifecycle costs
- High sensitivity and fast response

**ChemPro Reader Module & ENVI Assay System**
The ENVI Assay System Gold biodefence tests provide a fast, simple and reliable solution for provisional BWA identification from environmental samples. The rapid tests are built on handy and compact immunoassay format in which BWA specific gold-labeled antibodies are utilized in capturing the BWA of interest from the sample. When operated with handheld ChemPro® Reader Module either as an optional accessory to ChemPro100i or as a PC-UIP connected device, the test results can be stored and recalled whenever needed.

The ENVI Assay System Gold offers disposable, separate assays for seven biothreat agents: ricin toxin, botulinum toxin, SEB, Bacillus anthracis, pox viruses, Yersinia pestis and Francisella tularensis.
**Key Components**

**Rugged Master Module**
A ruggedized military grade Master Module with versatile sensor support is available for novel networking solutions and reliable data communication in the vehicle monitoring systems. In the center of the system, the Master Module operates as a sensor gateway and data processing unit with several options for integration to the upper level of the control station software like 3rd party Battle Management Systems. The diverse data collected from the integrated measuring devices of the CBRN vehicle and displayed in the EnviScreen Operix user interface is harmonized and adapted into TCP/IP network by the Master Module in order to optimize the data transfer in the communication network. Moreover, the Master Module enables sensor management on-line and fine-tuning of the sensor performance according to expected threat scenarios.

**EnviScreen Operix**
The vehicle command and control stations are built upon Environics’ EnviScreen CBRN Monitoring software and hardware solutions.

The interactive GIS user interface of the EnviScreen Operix software provides the vehicle operators with a clear and illustrative situational overview of the sensor events (alarms, failures, info) and of the measurement data on a map in real time, with emergency instructions and capabilities for ATP-45 compatible reporting and hazard area plotting. In addition, EnviScreen Simulation Tool can be utilized for training and maintaining the user competence and situation management skills by providing sensor and threat scenario simulations.

The EnviScreen based vehicle detection systems enable cost-effective hardware, protocol and application level integration. They provide versatile sensor support with compatibility with tens of different kinds of devices ranging from Environics and 3rd party CBRN detectors to weather sensors and camera and video servers.

**KEY FEATURES**
- Interface designed by usability specialists and behaviour scientists
- Interactive training and simulation tools for competence and situation management skills
- NATO ATP-45 reporting and AEP-45 procedures for display of CBRN hazard information (Supports NBC1-, NBC3-, NBC4-, CDR and BWR-reporting)
- Provides secured, reliable and fast communication methods for wired and wireless solutions by utilizing most common encryption methods
Additional Vehicle Modules
As additional modules, Environics provides a vehicle dedicated air sampling system that collects representative air samples to the integrated chemical and biological detectors and to instrumentation related to chemical analysis. The air sampling system also protects the devices and sampling lines from dust and humidity condensation. Environics has also developed a heated probe solution that enables chemical detection and identification from ground samples taken by e.g. a double wheel sampling system.

Other Features
The integrated collective protection with NBC filtration and overpressure system is realized with 3rd party solutions in Environics’ CBRN reconnaissance vehicles. Devices and tools for chemical and biological analysis are usually provided as options in the Environics’ CBRN reconnaissance vehicle solutions. For instance, CG-MS based 3rd party solutions are often implemented for the chemical identification. In addition to ENVI Assay System Gold and ChemPro Reader Module, provisional BWA identification can be performed with real-time PCR methods from environmental samples. A glove box provides protection to the CBRN operators and the environment against hazardous biological agents and chemicals with an isolated working space for analysis steps in the CBRN vehicles. The glove box contains an integrated material lock for delivering samples by foot patrols from outside of the vehicle.

Environics offers also an integrated marking system including marking flags and a dropping system to indicate contaminated areas found during a mission. Other assisting systems like camera surveillance, meteorological measurement, intercom system, decontamination instrumentation etc. can be integrated as a part of reconnaissance vehicle solutions by Environics.
Case 1. – CBRN Detector Supplier

Environics delivers complete CBRN Reconnaissance System including CBRN detection system and identification capabilities for Turkish manufacture FNSS Savunma Sistemleri A.S. The system will be integrated to FNSS Special Purpose Wheeled vehicle, PARS 8x8, chassis.

The vehicle is designed for quick detection of a possible CBRN attack or accident and to define the boundaries of the confirmed contamination. The vehicle also facilitates sampling of CBRN samples for further analyses in a suitable laboratory.

Case 2. – System Integrations

Environics integrated two CBRN reconnaissance vehicles to Indonesian Army, delivered January 2015.

Complete CBRN reconnaissance system including Environics’ core sensor technology, 3rd party analyzers and personal decontamination showers are integrated to MB Sprinter chassis. Vehicles are also equipped with a glove box for safe sampling and analysis and with a marking system for contaminated area marking.

The vehicles will provide regional 24/7 CBRN preparedness for first responders, conduct hazardous material reconnaissance tasks and pre-inspections for special targets, areas and routes. The vehicle is designed to work as on-site level tactical command center and measurement results are monitored through EnviScreen Operix monitoring software.

Scan the QR code and view our CBRN Reconnaissance video or go to bit.ly/1CecDIh
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