

*unival*<sup>®</sup> group

Turnkey Integration of High-End Security Systems

## HEDD1<sup>®</sup> - Handheld Explosive Detection Device



**Intelligence**

# HEDD1® - Handheld Explosive Detection Device

## HEDD1® - Strategical Advantages

With HEDD1® the classification of objects and areas can be achieved immediately as the device is ready for use without any warm-up time. HEDD1® is maintenance-free and designed for continuous use in all climate conditions. Due to its long-range detection capabilities, HEDD1® is a great complementary tool for all existing explosive detection with K9 or vapor tracing methods, as strategic classification and proactive measures become possible for the first time within existing resources. Even weapons and ammunition will be detected, which makes HEDD1® also specially advantageous for any police and military applications whether stationary or mobile.

## HEDD1® - Technology

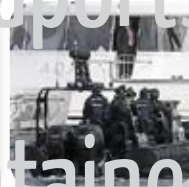
HEDD1® is setting new standards in handheld explosive detection based on its unique patented Magneto-Electrostatic Detection (MED) method. HEDD1® forms a modulated Magnetic Field (MMF) that allows detection of all types of commercial and military explosives (TNT, Dynamite, Ammonite & Diesel, PETN, RDX, Gunpowder, Semtex, C4 etc.) including liquid explosives (TATP etc.) within a distance between 2-100 meters behind and through all types of barriers (including concrete, steel etc.).

## HEDD1® - Technical Data

Length: 130 mm  
Height: 48 mm  
Width: 30 mm  
Weight: 276 g  
Operational temperature: -20°C – +55°C,  
Wind: up to 1m/s (the effect of wind can be reduced through special techniques, provided during the training).

## HEDD1® - Key Features

- Classify large areas quickly,
- Long-range explosive detection,
- Detection of all explosives in one search-round,
- Handheld device, easy to operate, 24/7,
- Save resources due to fast and efficient usage,
- Detection of liquid explosives such as TATP etc.,
- Works behind and penetrates barriers (e.g. concrete, steel, etc.), covert detection possible,
- Can also be applied for weapons, ammunition, landmines, etc.



## HEDD1® - Quality Standards

HEDD1® is manufactured in EUROPE under a quality management system according to EN ISO 9001:2000 standard and certified by Moody International registration number Q080514, valid until 18.06.2011. Full compliance to CE conformities for electromagnetic devices.

### CE conformity:

Directive for electromagnetic conformability (89/336/EEC) and BSS EN 55014 – 2:1997/A1: 2002 electromagnetic conformability. Requirements for electro devices, electro tools and similar devices. Part 2. Stability. Standard for a group of products /CISPR 14-2 AMD 1:2001)



The detection of CBRNE materials has become one of the highest priorities in the fight against global terrorism. For this reason unival® group has formed a new company called Hazard Detection Group based in Germany that is purely focussed on development and production of devices for detection of CBRNE materials. Based on the HEDD1® and the unique MED technology new devices for long-range detection of hazard materials are under development. First working prototypes are in testing process together with research institutes. Hazard Detection Group GmbH is also working as a international consultant for special detection applications and detection technology licensing.



# HEDD1®

Patrols K9 Seaports Police  
Cargo & Container Airports Border Security EOD  
Military

## Difference to „Reference Card“ based devices

HEDD1® and all previous generations of our handheld explosive detection devices are completely different from reference-card based devices. Other handheld devices are passive devices, HEDD1® is an active device. It creates a Modulated Magnetic Field (MMF).

Reference cards limits sensibility to one type of explosives. HEDD1® implements Magneto-Electrostatic Detection (MED) and simultaneously detects all types of commercial and military explosives, including liquid explosives. The only similarity between HEDD1® and reference card based devices is the antenna.

The antenna is often criticized for making HEDD1® a rather analogue device, it allows to keep the device handheld and independent from continuous power-supply, making real-time and stand-alone detection

of explosives possible.

In addition to HEDD1®, we have applied the MED method also to other devices and are currently testing prototypes for other CBRN materials. Serial production of HEDD1® is ISO 9001 certified and the device is in full compliance to CE regulations. In addition HEDD1® has been tested and approved from TUV in 2010.

We are also working in cooperation with some specialized research laboratories on sensor integration in order to digitalize the device.

A GPS based added module will be available in Q2 2010 and will allow to digitalize the reading and to transmit the coordinates in a mapping based solution for multi-device operations. A stationary version will be available end of 2010, which will contain communication interfaces allowing integrating it seamlessly into electronic access control scenarios.



## HEDD1® - Handheld Explosive Detection Device

### How does HEDD1® work?

The specifically modulated magnetic field around HEDD1®, interacting with the vertical component of the earth magnetic field creates the conditions for detection of chemical compounds, containing  $\text{-NO}_2$  /  $\text{-NO}_3$  and  $\text{O}^-$ .

The bond energy (“vibrational energy”) between Nitrogen and Oxyde is unique in explosives. The magnetic field that is modulated from HEDD1® is tuned for this “vibrational energy” and no other substances will be detected from the device.

The conductivity/ bi-polarity of the human body is needed to operate the device. When holding the device in the right hand objects on the left side are detected and vice versa. The detection of explosives is achieved with the cross bearing method.

The operator can apply different detection scenarios that will allow him to quickly reduce the area to a suspicious point or suspicious object that can either be confirmed by complementary methods or by another detection.

### HEDD1® - Training scenarios

Different scenarios are specially applicable:

- police and military use
- K9 units
- Bomb squads & EOD teams
- private security companies

HEDD1® requires basic training as:

General training takes 1 day, Specialized training takes 2 days, Individual detection scenarios like screening out of vehicles etc. can be trained as well.

### Integration of HEDD1® in existing security measures

HEDD1® is complementary to general security measures and allows immediate integration, the Focus is on long-range detection and classification of large areas that would usually require extensive resources. HEDD1® works most efficient, if used as pre-detection device for K9 and trace detector, Detection with HEDD1® can be part of covert detection prior to visual controls.



## Hazard Detection Group

unival® group has formed a new German company, Hazard Detection Group GmbH, which is specially focussing on detection of CBRN & hazardous materials. Together with international acknowledged institutes and universities we are working on conducting ongoing R&D and studies in this field.

Based on the unique technology of HEDD1®, the long-range detection of hazardous materials can be accomplished behind all barriers even on great distances.

First working prototypes are in testing process. Detection of CBRN has become the highest priority for all NATO states .

unival® group GmbH is also working as a international consultant for special detection applications and detection technology licensing.

## HEDD1® as part of blast protection concept/ unival® group

We have separated our blast protection technologies in three main fields.

**Intelligence** – Detection of Explosives (HEDD®1), Night Vision Equipment/Thermal Imaging/Tracking /Wideband

**Counter Measures** – Digital Jamming Systems (DWJ1®/ PWJ1®/ SWJ1®)

**Physical Protection** – Automotive, Personal and construction security.

Explosive detection with HEDD1® is part of a comprehensive security concept, intersection measures and technologies have to be added/ integrated for real protection.

Physical and blast protected security for stationary and mobile applications is needed, counter-measures to provide protection against RCIEDs such as digital jammers, unival group provides turn-key blast protection technologies made in Germany/ Europe.

*unival security*

*unival commercial*

*unival consulting*

*unival ecoprotect*

*unival® group of companies*  
*unival® group GmbH*

Am Hofgarten 4  
53113 Bonn  
Germany

tel + 49 228 92 68 58 - 0  
fax + 49 228 92 68 58 - 29

info@unival-group.com  
www.unival-group.com