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## **Catalogue 2024**



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## SECURITY

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# HANDSCANNER EB 610 C-2



## HANDSCANNER EB 610 C-2

NSN 6695-12-347-0977

The cloverleaf handheld detector applies the EB damping system. The search coil is part of an oscillator circuit, which transmits a weak, alternating, electromagnetic field.

Metal objects coming within the range of this field will cause a drain of energy. This is due to the eddy current effect and causes a change of the oscillator amplitude. The detector electronic processes this change in amplitude and converts it into an audio and visual alarm signal.

A red LED signalizes the visual alarm while the detector gives an simultaneously an audio alarm, which increases in frequency upon approach of a metal object.

The detector does not affect health, heart pacemakers or magnetic recording material. The cloverleaf hand scanner has an internal adjuster to adapt the detection sensitivity. On request the hand-held detector can be supplied with a cylindrical probe. This permits the precise localization of very small metal object. The Z-version has proved itself in particular for detailed checks at prisons.

The cloverleaf detector is of compact shape and consists of two very strong, glassball filled polyamid shells, which form the detector search head and the handle. Search head and handgrip form one unit.

The operation fascia and the label with short instructions are placed countersunk into the handle. The handle incorporates the electronics circuitry and the battery compartment.

The unit's well-designed shape and low weight allows easy handling over extended periods of time. The rocker switch has 3 settings and is placed next to the operators finger tip. The detector is switched off when the rocker switch is in its mid-position.

The device can be switched to give an audio or an vibration alarm. In both modes the visual indication (red LED) is operative. With the switch in upper position towards to search head audio alarm mode is selected, when in its lower position the rocker switch activates the vibration alarm mode. The optic alarm (red LED) remains activated in both operation modes. The green LED monitors battery.



### TECHNICAL DATA

Power supply: Battery 9 V E-Block (6 LR)  
or rechargeable battery NiMH

Operating time with audio alarm  
Battery : approx. 50 h,  
Rechargeable battery : approx. 20 h

Operating time with vibration alarm  
Battery : approx. 35 h,  
Rechargeable battery : approx. 15 h

Dimensions:  
Overall length: approx. 400 mm  
Electronics housing: approx. Ø 35 mm  
Search head: approx. Ø 145 mm  
Cylinder-type sensor: approx. Ø 34 mm x 100 mm  
Transport case: approx. 420 x 325 x 85 mm

Weight:  
Detector with probe : approx. 400 g  
Handheld detector with case : approx. 1800 g

Optional accessories:  
- Transport bag  
- Rechargeable battery  
- Plug-In charger  
- Transport and storage case  
- Car charger



# HANDSCANNER EB 607-2

- Robust metal design
- Simple to operate, easy to handle
- High detection sensitivity
- Automatic calibration
- Loud audio signal
- LED indication for control functions
- Vibration alarm





## HANDSCANNER EB 607-2

NSN 6695-12-319-1068

The handheld metal detector EB 607-2 is characterized by its robust metal design and has proved itself internationally in security checks and in particular in penal institutions. The forerunner of 607 is widespread by the thousands having performed many years of daily service. They are common at passenger airports, with the police, in prisons, in courts and in the military.

The EB 607-2 handheld can detect items of ferrous and non-ferrous metals as well as alloys. It consists of a tubular aluminum handle with built-in electronics, battery compartment and controls. The handle is flanged to a halo shaped ring coil of 145 mm diameter.

EB 607-2 is powered by a 9 Volt block dry battery (IEC no. 6LR22) or a rechargeable NiMH battery (PP3) of same dimensions. The ring coil version is applied wherever metal objects of some size have to be found, such as in example dangerous knives, knuckle-dusters or parts from weapons and similar.



The ergonomically shaped handheld detector is easy to use. The rocker switch for ON/OFF and operation mode is placed next to the operators fingers when he holds the device in operation. It has two settings: with the switch in upper position the audio alarm mode is selected, when in its lower position the rocker switch activates the vibration alarm mode.

The preferred detection sensitivity can be set by a flush-mounted adjuster inside the battery compartment while the device is operational. The optical alarm (red LED) remains the same in both operation modes.

On request the handheld detector can be supplied with a cylindrical probe (Ø 22 mm) to assist in pinpointing very small metal objects. This Z-version has proven its particular worth in detailed checks at prisons where very precise and detailed security checks are inalienable. This probe type is also a useful tool to inspect letters, flat parcels and jail cells for illegal or dangerous metal items.



### TECHNICAL DATA

Power supply: Battery 9 V E-block (6 LR) or rechargeable battery NiMH

Operating time:

Battery: approx. 40 - 60 h

Rechargeable battery: approx. 20 - 25 h

Dimensions:

Overall length: approx. 400 mm

Electronics housing: approx. Ø 35 mm

Search head: approx. Ø 145 mm

Cylinder-type probe: approx. Ø 34 x 100 mm

Transport case: approx. 420 x 325 x 85 mm

Weight:

Hand-held detector: approx. 470 g

Cylinder-type sensor: approx. 400 g

Hand-held with case: approx. 1.800 g

Z-Version with case: approx. 1.730 g

# WALKTHROUGH DETECTOR SC-900



## WALKTHROUGH DETECTOR SC-900



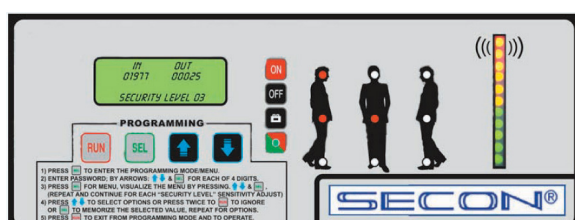
The SC 900 is a simple to operate microprocessor based digitally controlled, pulse induction walk through metal detector using VLF Technology. The electronics is microprocessor based and digitally controlled to provide a sensitive metal detection and discrimination.

SC 900 is a versatile and easy to install. It provides a high throughput level and detection level. SC 900 has an enlarged and homogenous detection field that comprises several horizontal and vertical zones to allow a discrimination of metal objects in 9 different scanning zones of the walk through detector : left, right, high, low or centre of the body. This improves the throughput rate by revealing the exact location of which requires further inspection.

The operation fascia is located at the overhead cross section of the SC 900. A bright, highly visible LED display provides a visual indication of the level of metal detected within the field of detection. This information is supported by an audio alarm. Traffic is counted inwards and outwards. A LCD monitor with backlight illumination provides operational information during programming of the device. The access to control functions is tamper proof by a clear cover with mechanical lock and a four-digit access code. SC 900 incorporates a UPS back up battery for 4h of operation.

SC 900 is compliant with international norms (NILECJ-0601 L1-5/IP44/EN60950 Class1) and in conformity with CE European Union Norms and produced under ISO 9001: 2008 QMS.

### Control panel



### TECHNICAL DATA

- 9 multi detection zones
- 10 sensitivity levels including NILEC -0601 L1
- Emergency battery for 4 h operation
- Simple to program
- English programme menu
- RS 232 interface
- Weight: 52 Kg
- Gross weight: 65 Kg
- Operating voltage: 70 VAC to 270 VAC at 50 Hz to 60 Hz
- Power: 10W at standby- 20W at alarm
- Package Dimensions (W x H x L):
  - Box 1: 560 x 260 x 2260 mm
  - Box 2: 220 x 210 x 1050 mm
- Ambient temperature: -20°C to +70° C



# INSPECTION MIRRORS

## EFIS S

## EFIS 1



## INSPECTION MIRROR EFIS S

The EFIS® S is the basic version within the EBINGER range of inspection mirrors for police and military. It's intended use is the support of an inspection of vehicles at checkpoints and to search boats, aircrafts, trains and parts of buildings, etc.

Although of small size when collapsed (pocket version) it can be extended to reach into cavities and voids. EFIS® S can be used in engine bays and next to electrical wiring as the surface of the device comes with a protective isolation to avoid sparks or short circuits.

EFIS® S is supplied with two mirrors of different size which are very easy to exchange. The telescopic handle can be extended between 30 and 50 cm and carries a powerful LED placed next to the mirror. The device can operate for up to 90 hours on commercial disposable dry cells (AA) or from rechargeable NiMH cells.



### TECHNICAL DATA

Mirror small : approx. Ø 50 mm  
 Mirror big : approx. Ø 75 mm  
 Telescope : approx. 290 - 490 mm  
 Illumination : by LED  
 Power consumption : approx. 50 mA  
 Power supply : 3 AA micro cells (LR6)  
 Weight : approx. 390 g  
 Operation time : approx. 90 h continuous use

## INSPECTION MIRROR EFIS 1

NSN 5120-12-349-3304



LED for operation in low light conditions.

The pivoting mirror is slightly convex to enlarge the view. Different sizes of mirror heads can be supplied upon demand.

The EFIS® inspection mirrors were designed to support a fast inspection of vehicles and parts of buildings which are difficult to access. There are various fields of application: vehicle undersides, baggage racks, areas over or under furniture, hollows and space in between as well as difficult to access building parts can be inspected rapidly.

This assists the police, customs, military and security companies to carry out a substantial accurate and thorough inspection as well as a quick handling at the inspection points.

The lightweight and rugged design of the handheld EFIS® 1 and its stepless adjustment make it easy to use in different working conditions. The telescopic handle is fitted with clamps to carry a torch with a high performance

### TECHNICAL DATA

Mirror's dimensions : 135 x 185 mm, 135° pivotable  
 Telescopic rod : 1100 to 2000 mm  
 Lamp : 1W high performance led, splash waterproof  
 Weight : 1,4 kg approx.  
 Batteries : 2x LR 20 batteries  
 Operating time : 10 h with alkaline batteries



# INSPECTION MIRROR EFIS 4





## INSPECTION MIRROR EFIS 4

NSN 5120-12-368-3342

The wheeled search and inspection mirror EFIS® 4 is an efficient and simple to use tool for a fast inspection of vehicles.

The large, swivel mounted mirror head is available as a standard glass or a special stainless steel version. The metal version has proven its worth when used in harsh conditions and in continuous operations. The device is equipped with 10 splash waterproof LEDs of low power consumption.



The construction is ergonomic and the telescopic handle can be adjusted to suit tall and short operators. It can be extended to reach under large vehicles. It is equipped with remote mechanical adjustment of the mirror angle.

The EFIS® 4 incorporates a battery compartment for three commercial 1,5 V C-cell batteries (type LR 14) which provide the power for the LEDs. Batteries are easy and fast to change. Upon request rechargeable NiMH batteries and a robust battery charger are available as accessories.

Upon request it can be delivered as a very robust special version of polished stainless steel. A 200 x 400 mm sized mirror head is available as option.

### TECHNICAL DATA

Chassis : approx. 410 x 424 x 173 mm  
 Mirror : approx. 300 x 200 mm  
 Telescope : approx. 1,030 - 1,290 mm  
 Illumination : 10 x special LEDs  
 Power consumption : approx. 500 mA  
 Power supply : 3 x 1,5 V C-cell (LR 14) or 3 x rechargeable 1,2 V C-cell NiMH battery  
 Weight : approx. 4,000 g  
 Operation time : approx. 20 h with alkaline batteries, approx. 9 h with rech. batteries



## TELESCOPIC CAMERA EFIS-5

NSN 5836-12-370-5030

The EFIS®5 videoscope completes the EBINGER range of viewing tools. Different to the optic mirrors, EFIS®5 applies a miniature CCD camera and a colour monitor.

Due to the small size of the video head and the wide extension of the telescopic handle (extendable up to 3m) even very difficult to access areas can be inspected easily.

EFIS®5 is also used for inspection of wheel wells of aircrafts. The device is widespread in use with police, customs, prison service and commercial security companies.

The simplicity of use, the large extension range of the telescopic handle and the high image quality of the TFT screen make the EFIS®5 a well liked and versatile tool in everyday work. The camera can be moved in various directions and tilted by a remote control knob in the handgrip. For work in low light conditions or during nighttime the



camera can come with an LED infrared illumination.

The camera is available as a black & white or a colour version. Power is supplied from 8 disposable 1,5 V C cell batteries or from a compact rechargeable Ni-MH battery pack.

The EFIS®5 is also available with video recording.

### TECHNICAL DATA

Camera-module : CCD-chip 1/3" (colour) or 1/3" (b&w)  
 Camera resolution : 380 x 290 Pixel, 330 TV-lines (colour) or 500 x 552 Pixel, 400 TV-lines (b&w)  
 Lens : F = 2,0 / f = 3,6 mm  
 Light sensitivity : 0,1 Lux (colour) or 0,1 Lux (b&w)  
 Auto-Shutter : 1/50 + 1/100000s (colour) or – to 1/10000s (b&w)  
 Operation temperature : -10 to + 50°C (camera) or to +40°C (screen)  
 Screen : TFT - active matrix 17,8 cm (7")  
 Resolution : 960 x 234 Pixel  
 Length : 1250 - 3000 mm  
 Power consumption : 750 - 1250 mA (without/with remote control)  
 Weight : approx. 4,000 g  
 Battery capacity : 3,8 Ah rechargeable Ni-MH  
 Operation time : 8 h with 3,8 Ah rechargeable batteries NiMH





## LETTERBOMB DETECTOR MAILEX 10

The letterbomb detector **MAILEX 10** was designed for checking suspicious mail like letters and small parcels. The MAILEX 10 is designed as a chute and a built-in electronics which is very easy to operate. Mail slips down the chute and can be separated as suspicious or unsuspicious, according to the alarms.

The device detects all kind of metal and alloys, and even very small components of improvised bombs or incendiary devices. Alarm is given as audio and optic alarm. The audio alarm can be switched off.

The device can operate in two modes : static or dynamic. In mode static, the alarm depends of an adjustable trigger threshold and has to be reset by hand. In mode dynamic, the alarm signal depends completely on the targets characteristics. This allows the cross-checking and determination of the targets size and position, when a letter was separated due to an alarm.



The sensitivity of MAILEX 10 is very high. It can be adjusted according to the required value and it is possible to suppress the indication of staples, clips or unwanted metal objects.

MAILEX 10 can handle a very large number of

letters or small parcels in short time. Letters and parcels which have to be checked by X-ray equipment will be reduced to a small number.

MAILEX 10 is cost cutting, as X-ray checks on most letters and parcels become redundant.



### TECHNICAL DATA

Alarm : optical alarm and switchable audio alarm  
 Dynamic mode : intermittent alarm with automatic reset  
 Static mode : continuous alarm with manual reset by push button  
 Power supply : built-in NiCd battery  
 Operating time : approx. 18 h with NiCd battery  
 Battery control : by flashing led  
 Dimensions : 380 x 280 x 65 mm collapsed  
 380 x 280 x 215 mm in operation

# BIOMETRIC JUMP KIT GUARDIAN-200



## BIOMETRIC JUMP KIT GUARDIAN-200



Computer Getac B300



Fingerprint scanner Guardian-200



Iris scanner I-scan 3.0



Camera EOS Rebel T6

### DESCRIPTION

The Guardian-200 Biometric Jump Kit is a compact, highly mobile solution for capturing and transmitting forensic-grade fingerprints, iris images, photographs and demographic data for your management needs identities.

The Guardian-200 Jump Kit is ideally suited for remote or autonomous enrollment applications. Completely self-contained, the kit includes a rugged fingerprint scanner, an iris scanner, a camera, a rugged laptop including a global positioning system (GPS) to provide the exact location of enrollment.

The Jump Kit can be delivered fully configured and ready to operate right from its ruggedized case. The ruggedized nature of the kit's components and case and plug-and-play set up make it an ideal solution for use in difficult conditions.

The Guardian-200 Jump Kit provides a rapidly deployable identification and verification solution in one highly mobile, easily transportable case.

With this Jump Kit, law enforcement, homeland security and military personnel, can quickly and simply check an individual against a pre-established and loaded watchlist or transmit to a remote server for matching, providing real-time identity information.

### SOFTWARE

MOBS (Mission Oriented Biometric Software) - Easy-to-use software enabling automated capture of fingerprints, face and iris in hostile environments where biometric processing speed is a determining factor in operator safety.

### COMPONENTS

Iris capture : I-scan 3.0 iris capture scanner

Fingerprints : Guardian-200 Handheld Fingerprint Scanner

Camera : Canon EOS Rebel T6 digital camera

Computer : Getac B300

Case : Pelicase Air 1555 suitcase, watertight and airtight, containing all components

GPS : Integrated into the computer

MOBS software

The jump kit can be customized by the customer to ensure mission requirements are met.





## MINE CLEARANCE

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# METAL DETECTOR TREX 210 MG

Handy and sturdy design  
High detection sensitivity  
High electrical stability  
Effective ground compensation (GEB)



## METAL DETECTOR TREX 210 MG

The TREX® 210 MG is a new detector with lightweight and ergonomic design of compact shape and very low power consumption for humanitarian Mine Action carried out by indigenous deminers in third world conditions. It combines the handiness and ease of operation of the thousand fold proven EB 420 with the latest technology of ground compensation.

The hand held, battery operated eddy current metal detector is intended to locate objects containing large or minimum amounts of ferrous or non-ferrous metal which are buried in the top layer of the ground. It can be tuned to disregard unwanted signals from so-called non-cooperative ground within wide limits. Target acquisition is indicated by an audio alarm, which changes in intensity depending on the size and distance of the detected object. Due to its electronic design the detector is particularly efficient on small metal objects or objects with low conductivity but therefore not suitable for operation in saltwater or on saltwater impregnated ground.

TREX® 210 MG is a useful tool to support search for minimum amounts of metal such as in archaeology, forensic police work or Mine Action due to its good detection range and resolution of metal objects buried close to each other. The TREX® 210 MG operates on a so-called 'dynamic search mode' that eases operations on non-cooperative ground or in parallel to fences, pipes, rails etc. if the search head is carried at an even distance and in parallel alongside the obstacle.

The TREX® 210 MG applies a new active TR-eddy current technique with an effective ground compensation (GEB) which, different to the PI technique, does not suffer from a detection range reduction on mineralised soils. Due to the high operation frequency, which is particularly sensitive to small metal objects the device is not suitable for use in saltwater or on saltwater impregnated ground. During the design attention was paid to a low power consumption which extends battery life. The detector operates with a rechargeable Li-Ion battery pack.



### TECHNICAL DATA

Power supply : Li-Ion Battery Pack - 4400 mAh

Operation time (at 20°C) : approx. 85 h

Temperature range

Storage : -40° to + 70 °C

Operation : -15° to + 55 °C

Dimensions

Short : approx. 800 mm,

Extended : approx. 1430 mm

Oval search head : approx. 220 x 170 mm

Sensitivity calibration : 3 ranges (low, medium, high)

Weight : approx. 2300 g

The device transmits an AC electromagnetic field by the oval search head inducing eddy currents into conductive objects. These counteract to the detector and are picked up by the search head.



# MINE DETECTOR EBEX 422 GC





## MINE DETECTOR EBEX 422 GC

NSN 6665-12-372-8248

The **EBEX 422 GC** can be used on non cooperative ground where other technology may fail. The index GC stands for "Ground Compensation" which refers to the rejection of interference from volcanic soil or laterite. This equipment is therefore suitable for use throughout the world.

In many areas throughout the world, mine detectors can be influenced by a mixture of soils such as laterite, magnetic rock and by soil conductivity due to monsoon rain. The wide band compensation of EBEX 422 GC meets such environmental working conditions and also rejects interference from saltwater due to its pulse induction operating principle.

Three decades of experience and close cooperation with international users led to this compact modular design. Components subject to wear and tear can easily be exchanged without further calibration work. This eases fault definition and significantly improves equipment availability in the field.

The rugged design and constructional features, coupled with available accessories, makes the EBEX 422 GC a very versatile equipment which can be used under almost all working conditions. It suits operating in the lying, kneeling, or standing position.

The EBEX 422 GC consists of :

- a Ø 230 mm circular search head
- a extension rod
- an electronic module with adjuster
- a loudspeaker with sleeve
- a battery container (or battery pack)
- a hand grip / arm rest kit
- a test piece
- a satchel
- an operation manual

The EBEX 422 GC can also be delivered with optional enlarged search head 420 x 280 mm.



### TECHNICAL DATA

#### Power supply :

8 alkaline batteries 1,5 V type LR 14 (operating time 20 h)  
or 8 rech. batteries NIMH 1,2 V - 4,5 Ah (operating time 15 h)  
or battery pack 9,6 V - 3,8 Ah (operating time 12 h)

Temperature range : from - 25°C to + 55°C approx.

#### Dimensions :

Circular search head Ø 230 mm  
Optional search head : 420 x 280 mm

Electronic cylinder : 35 x 460 mm

Extension rod : 25 x 600 mm

Battery container : 36 x 360 mm

#### Lengths and weights :

Short version : approx. 1000 mm and 2,1 Kg

Long version : approx. 1700 mm and 2,4 Kg

Complete in transit case : approx. 8,5 Kg





## DEMINING VEST

This fragment proof protective vest is designed for mine clearance operations in hot and humid climates.

Its protects the throat, the front, the shoulders, the sides, and the lower part of the body. The groin protection can be folded up for more comfort, when walking. The back part is ventilated (no protection) for more comfort.

The demining vest exists in one size, it can be adjusted by large velcro strips.



### TECHNICAL DATA

Protection against fragments : V50 = 450 m/s

Testing standard STANAG 2920

Weight : 2,5 kg approx.

Colour : NATO green or Navy blue

Options : steel insert plate (V50 > 700 m/s)  
or ceramic insert plate (V50 > 900 m/s)



## DEMINING SUIT “HOT COUNTRIES” VERSION



This suit is designed for deminers and specialists in the armed forces and the police who search and locate mines and explosives.

The suit consists of a fragment proof overall, an improved ballistic vest and fragment proof detachable sleeves as an option. It is light weight and allows good mobility, which is essential when searching mines in difficult locations.

The overall and vest are opened in the back (no protection) for better adaptation to hot climates.

It protects the torso, the arms (if worn with the sleeves), the lower part of the body and the legs. The tactical vest can also be worn separately, in other assignments.



### TECHNICAL DATA

Protection against fragments :  $V50 = 450 \text{ m/s}$   
Options : metallic insert plate ( $V50 > 700 \text{ m/s}$ )  
                  ceramic insert plate ( $V50 > 900 \text{ m/s}$ )  
Testing standard STANAG 2920  
Testing standard NIJ-STD-0101.03 for vest  
Weight : 5,5 kg approx.

# TACTICAL SEARCH SUIT MK2





## MK2 TACTICAL SEARCH SUIT



The HFS MK2 tactical search suit is designed as a modular light weight search suit system, that can apply to mine clearance, search, route clearance...

It consists of : trousers, jacket, sleeves, helmet and visor.

The MK2 suit offers full 360 degree blast and fragmentation protection. Further shielding is provided by composite blast-plates which provide high levels enhanced frontal blast resistance.

The upper torso has increased NIJ level II protection front and back. With the modular capability, the Jacket can be worn separately as body armour with the option to insert up-armour plates both front and back to increase protection further to NIJ level III.

The trousers feature adjustable braces to correct length, using Velcro adjustment.

The MK2 tactical suit helmet and visor has a high fragmentation resistance to match that of the MK2 tactical search suit. The helmet comes with a four point adjustable suspension system and is wireless communications system ready.



The radio fits in the pocket on the right sleeve. It is held secured by a velcro strap.

The headset cable has clip which attaches to the middle of the insider collar. This prevents the cable from snagging.

The headset fits around the back of the neck. It fits over both ears for optimum stability.

### TECHNICAL DATA

#### Search Suit

##### Components

Jacket

Arms

Trousers

##### Materials

Outer shell : Fire Retardent Viscose

Protective inserts : Aramid

##### Protections Ratings

Jacket : V50 = 550m/s & NIJ Level II

Arms and Trousers : V50 = 450 m/s

Jacket in conjunction with Up-Armour Plates : NIJ Level III

##### Weight

Suit : 13 kg

Blast Plate : 3.8 kg

#### Helmet and visor

##### Materials

Helmet shell : Moulded GRP

Helmet core : Elastomeric Aramid laminate

Visor : Polycarbonate Acrylic fusion

##### Protection Ratings

Helmet V50 = 450 m/s

Visor V50 = 450 m/s

##### Weight

Helmet and Visor : 2.6 kg

#### Total System

Weight :19.4 kg

# EOD SUIT HFS SERIES III



## EOD SUIT HFS SERIES III

### EOD suit HFS SERIES III

The HFS SERIES III is our workhorse in the EOD/IEDD suit range; it combines an ergonomic design while still providing the user with the best possible protection. The SERIES III is considered to be light and comfortable, providing a high degree of mobility.

The suit comprises of:

- Trousers
- Smock (jacket)
- Integrated Groin Protector
- Hand protectors and overshoes
- External composite blast plates

### Communication System

The duplex communication system is designed to work in conjunction with the HFS SERIES III EOD Suit. It is made up of a base station and hardware reel with 125m of cable. This allows the operator in the suit to be deployed and to stay in communication with his command station. It is designed specifically to be basic, rugged, reliable and simple to operate.

### Helmet HFS SERIES III



The HFS SERIES III EOD Helmet improves on its predecessor in a number of ways. Firstly there is a high-tech ventilation fan that still delivers superior airflow in to the helmet but greatly reduces vibration and noise levels. The Series III Helmet comes standard with a Kermel® comfort liner and spare with built in communications. This provides excellent comfort and cushioning for the head. The helmet has a 4-point adjustable suspension system. The

HFS SERIES III Helmet also comes standard with a higher protection level for the visor. The Series III Helmet has ambient sound amplification with high-level noise cut out.

### Cooling suit with pump

The HFS Cooling Suit has revolutionized the EOD operators effective working time in an EOD/IEDD suit. The suit which is worn underneath the EOD suit circulates iced water around the entire body and head keeping the body from over heating too quickly. The water is circulated by means of a 12v battery operated pump worn externally on the EOD suit.

### TECHNICAL DATA

#### EOD suit

Materials :  
Outer cover – Nomex®  
Inner material – Aramid  
Blast plates- Composite matrix  
V50 Ratings :  
Suit front – V50 600 + m/s  
Suit rear – V50 450m/s  
Suit with Blast plates – V0 +1800m/s  
Weight : Complete suit with blast plates – 26kg  
Colors : Navy Blue, Olive Drab and Black

#### HELMET

Materials :  
Outer shell - moulded GRP  
Outer Cover – Nomex®  
Inner – Aramid laminate  
Ballistic Visor - Acrylic Polycarbonate laminate  
V50 Ratings :  
Helmet 630m/s  
Visor 800m/s  
Weight : 4.6kg  
Colors : Navy Blue, Olive Drab, Black and Desert Sand

#### COOLING SUIT

Materials :  
Kermel® (heat and flash fire resistant)  
Integrated medical grade silicone tubing  
Weight : 2.7kg with pump assembly  
Colors : Navy Blue





# EOD SUIT

## HFS SERIES III +

The HFS Series3+ EOD/IEDD Suit is the next generation in bomb suit development. Essentially an upgrade on the HFS Series3, with the core focus on improving the critical systems whilst still using the original solid HFS Series 3 platform. We have also addressed the requirements in the NIJ 0117.01 Bomb Suit Standard including the Blast and Fragmentation required performances.

Suit components : trousers, smock, blast plate, spine protector, helmet, overshoes and groin protector.

- Improved Suit integrity during blast exposure with enhanced over pressure attenuation layers
- New front facing Double Skin Outer Shell, with improved blast resistance and flame retardant
- Double locking blast plate mounting system
- IP 67 Electronics upgrade
- Lithium Ion power source
- Dual grab handle



Complete suit



Cooling suit

## EOD SUIT HFS SERIES III+

### Helmet upgraded aspects

- Advanced helmet liner with combined attenuation layer and ergonomic comfort layer
- Quick release helmet buckle
- NBC mask accommodation
- Powerful and silent ventilation (220 liters / min)
- New four point helmet stabilizing retention system
- Increased downward and periphery visibility



### Power Supply

The Series 3+ has an upgraded Lithium Ion Power pack which provides 8800 mAh. This system is capable of running both the Helmet Electronics System and the Cooling Suit System for more than 2 hrs. The Battery Pack is located in a pouch on the right hand hip of the suit. It is encased in sealed custom aluminium box where there are chassis mounted plug points to connect power to both the Suit Controller and the Cooling Suit Pump Controller. The entire electronics package is now set up to be IP67 compliant.

### Cooling Suit

The cooling suit, worn underneath the EOD bomb suit, helps to prevent heatstroke associated with thermo-stress, reduce fatigue and add comfort to responders.

These effects are achieved by circulating ice water throughout the body and head.

The water is circulated by means of a 12v battery operated pump worn externally on the EOD suit.

### Communication System

The base station is housed in a robust aluminium case which also contains its own 12V DC power supply which can be charged directly from 110/220 V or a 12 V car charger cable. The operation combines a built-in speaker and a headset with microphone.

The robust reel contains 120 m of shielded cable. It is equipped with a rotating contact which allows the operator to be in communication constant during cable deployment and recovery.

Wireless communication : certain models of wireless radio can be accommodated

Optional digital sound recorder.



### TECHNICAL DATA

#### Materials :

Cooling suit : Fire Resistant Kermel®/Nomex®  
Outer cover of the suit : Nomex® / Kermel®  
Inner material of the suit : Aramid Kevlar® / Twaron®  
Helmet : Outer cover : Nomex®  
Outer shell : moulded GRP  
Ballistic Visor : Hardened Acrylic/Polycarbonate  
Blast plate : Composite matrix

#### Fragmentation performance 0.22 Cal 17 grain FSP :

Smock front : V<sub>50</sub>=645 m/s  
Blast plate : V<sub>0</sub>=1800 m/s  
Sleeves : V<sub>50</sub>=600 m/s  
Trousers Thigh : V<sub>50</sub>=690 m/s  
Helmet : V<sub>50</sub>=650 m/s  
Visor : V<sub>50</sub>=790 m/s

#### Weights :

Cooling suit : 4 kg  
Complete suit size L : 34 kg  
Helmet and visor : 4.7 kg

#### Cooling :

Cold source : Ice cubes and water (2 liters)  
Heat removal rate : 270 watts  
Endurance : 45 minutes at 35°C (95°F).

Colors : navy blue, olive green, black.

## HELMET AND VISOR



The composite Combat Helmet is designed to give the best possible ballistic protection for the user, against various projectiles in various combat situations. Compared to a standard steel helmet, the composite Combat Helmet gives a much higher level of protection against fragments and bullets. High energy absorption capacity, extremely high strength and minimal protrusion (i.e. trauma) caused by a projectile hit, ensure unique protection. The novel inner lining with firm cotton straps, with an easy-to-use and safe lock, guarantee excellent mounting and comfort use.

The helmet has been developed in close collaboration with field operators to meet the requirements of demanding customers. The helmet design, production technology and materials used are a result of extensive research and development work. The ballistic and others properties are verified by numerous tests and trials.

The 8 mm ballistic visor fastening system enables to mount it on regular helmets of PASGT type, in a simple short and safe method. Its adjustable rear buckle fits various helmets sizes.

The polycarbonate visor is designed to protect the operator against fragments. The visor has two possible positions: fully down covering the face or up above the helmet's centre of gravity

This quick fastening system allows the user to enjoy the benefits of the full face protection for the time period when he really chooses to have this protection while having the ability to take off the extra weight of the ballistic visor and still have the protection of the helmet.



The quick simple and strong attachment of the ballistic visor to regular helmets of PASGT type is a tactical and logistic benefit.

### TECHNICAL DATA

#### Helmet K-96 :

Material: high quality Aramid fiber  
Protection area: 1300 cm<sup>2</sup> (size M)  
Fragment endurance: STANAG 2920 (MIL-STD-662E) V50 value > 610 m/s  
Colour: NATO green (others colours available on request)  
Inner liner: leather and cotton with size adjustment  
Weight: < 1350 g (size M 56-62 cm)  
Others characteristics on request

#### Polycarbonate visor:

Material: high quality polycarbonate  
Thickness: 8 mm  
Weight: 1300 g  
Level protection :  
Steel fragment 1,1 g – V50 x 280 m/s  
If the visor gets any kind of visual fracture or breakage, it has to be remove immediately.



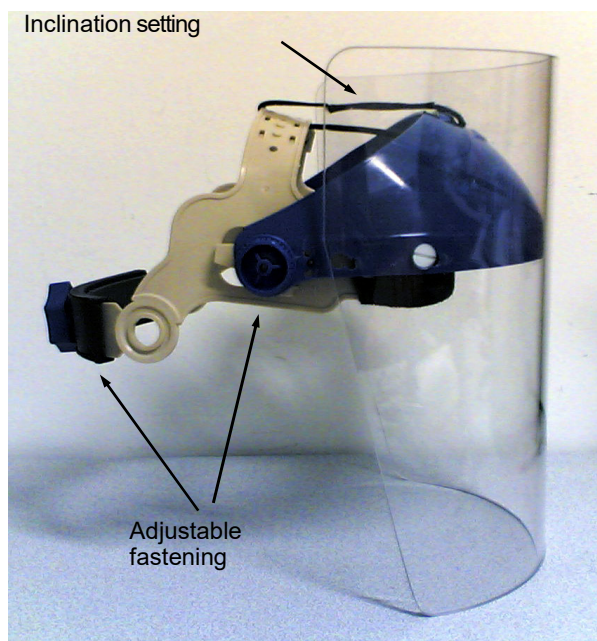
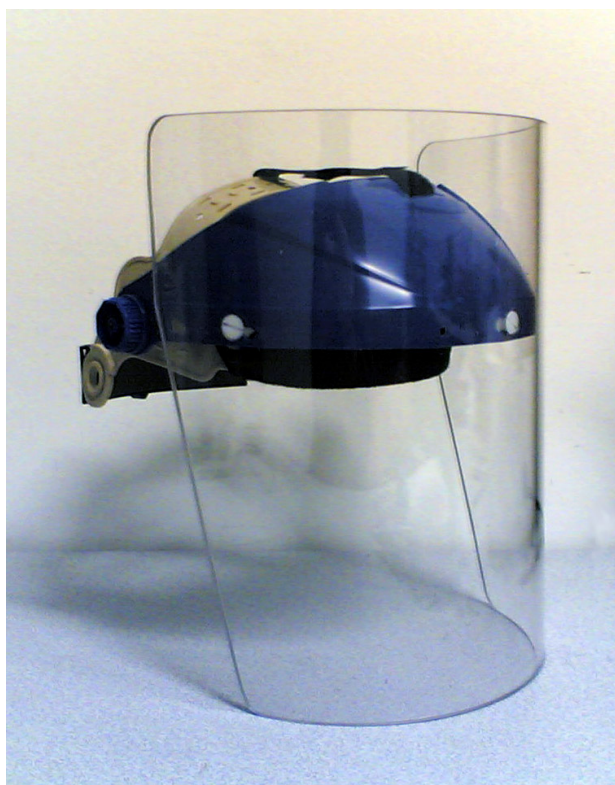


## POLYCARBONATE VISOR

This lightweight and durable polycarbonate visor provides effective facial protection against fragments and other flying debris resulting of plastic anti-personnel mines explosion.

It is fitted on a half-helmet which can be adjusted in depth, width, and inclination of the visor.

Its design allows to protect the neck, the face and the upper part of the skull, and to be worn over or under the collar of the demining vest.

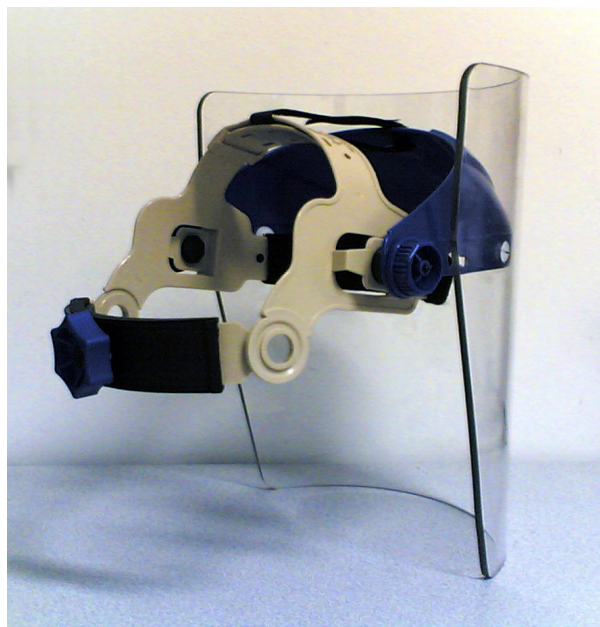


It is protected against scratching, thus increasing its lifetime.

### Warning :

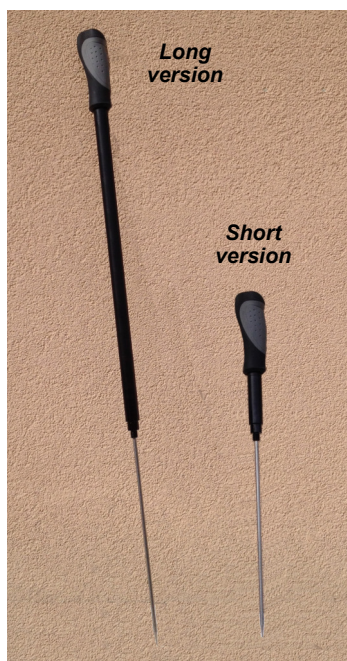
A polycarbonate visor, deeply scratched or cracked, has imperatively to be changed.

The ballistic level of this visor is not sufficient in the case of the explosion of a fragmentation mine or a mine with high amount of explosives.



### TECHNICAL DATA

Weight : 800 g  
Thickness : 5 mm  
Material : polycarbonate  
Height : 290 mm  
Width : 220 mm  
Protection V50 : 250 m/s (STANAG 2920)



## NON MAGNETIC PROBE NMP-95

The mine probe, non-magnetic **NMP-95** is designed for use in manually locating mines, buried at depths of up to 250 mm. The mine probe is lightweight, robust and easy to assemble.

It consists of three main components (handle, extension tube, probe) and can be assembled in two operational versions :

- a short version, for use when operating in the kneeling position
- a long version for use when in upright position.

### TECHNICAL DATA

Length :  
Long version 95 cm  
Short version 54 cm  
Weight : 420 g  
Materials :  
Body in black anodised aluminium  
Needle in non magnetic stainless steel

## DANGER MINES" SIGNS

These mine signs are available in different languages (English, French, Yugoslavian, Cambodian, Portuguese...), shapes and sizes.



### TECHNICAL DATA

Material : Akylux (alveolar polypropylene)  
Dimension : 250 x 250 mm approx.  
Colors : white writing on a red background.



## LEATHERMAN SUPER TOOL 300 EOD BLACK

The **Super Tool 300 EOD** is a workhorse of a multi-tool with beefy features and added EOD-specific tools. It incorporates the following tools : needlenose pliers, stranded-wire cutters, 154CM replaceable fuse-wire cutters, military performance cap crimper, electrical crimper, wire stripper, 420HC combo knife, saw, replaceable t-shank metal saw, replaceable C4 punch, #8-32 cleaning rod/brush adapter, awl w/ thread loop, ruler (22 cm), can opener, bottle opener, Phillips screwdriver, large screwdriver, medium screwdriver, small screwdriver.

### TECHNICAL DATA

Length : 11,43 cm  
Weight : 272 g





## PNEUMATIC SHOES

The pneumatic shoes were designed for the protection against anti-personnel mines. This particular type of mine is designed to explode when the pressure exerted upon it is above a threshold in the range of 0,1 to 0,2 daN / cm<sup>2</sup>. This threshold is lower than the pressure on the ground exerted by an average adult walking across a mine field.

The pneumatic shoes concept is based on drastically increasing the surface area of the terrain where the body weight will be applied, to attain pressure on the ground significantly below triggering threshold.

The principle of the pneumatic shoes linked air-cushions ensures that the pressure is kept constant throughout all parts of the cushion. Thanks to an air flow between the linked cushions, the pneumatic shoes conform to the configuration of the ground, while continuing to maintain uniform pressure.



The sandal is made from a reinforced plastic surface. The plastic surface is attached to a canvas and nylon fabric envelope. This flexible envelope contains 5 compartments, each of which contains one air cushion. These cushions are connected to each other via a connecting tube and a flexible manifold. The upper part of the plastic surface is equipped with special straps that harness the shoe to the sandal. In addition, it has a rubber tube with an oral inflation valve and an emergency inflation

mechanism made of a manual inflator grip attached to a compact CO2 cylinder (as an option).

The pneumatic shoes can be used in all types of terrain without loss of efficiency. They maintain maximum safety and reliability on various surfaces from sand to rocky terrain and from mud to vegetated areas.

The pneumatic shoes are supplied with individual carrying bag.

### TECHNICAL DATA

Size: 35 x 70 x 13 cm

Weight: 2,5 Kg

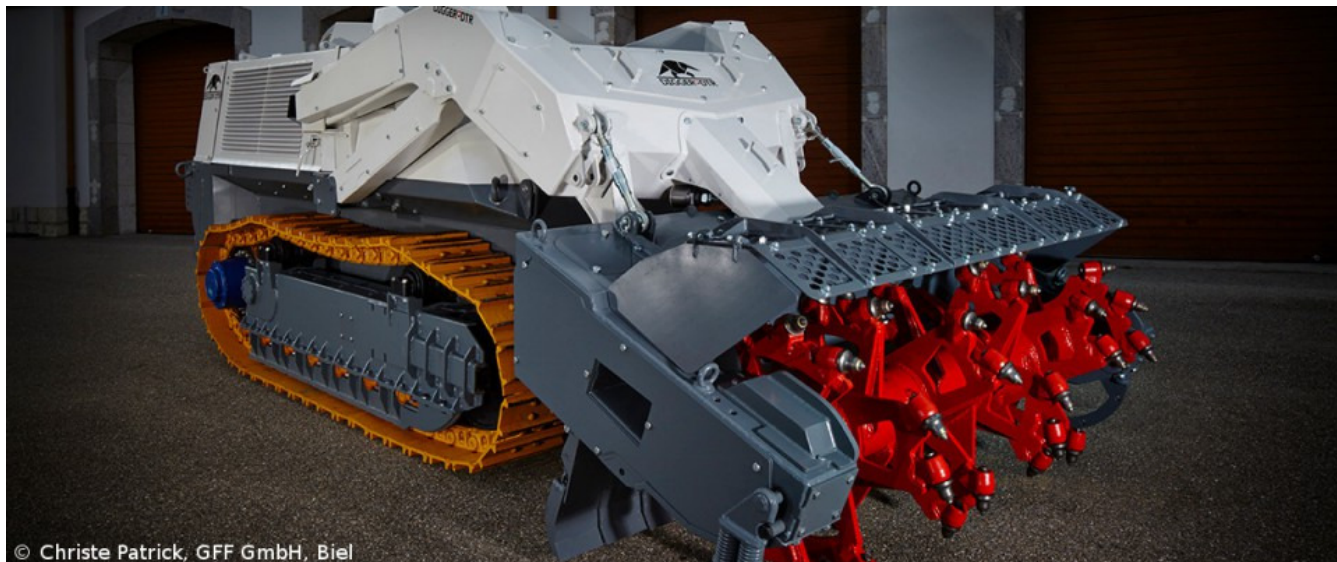
Designed to carry up to 150 kg (333 pounds) on each sandal

CO 2 cartridge: 38 gr (option)

Pressure relief valve: 1,8 PSI



# VEHICLE FOR MECHANICAL MINE CLEARANCE DIGGER D-250





## VEHICLE FOR MECHANICAL MINE CLEARANCE DIGGER D-250

More powerful, with more performing tracks, the DIGGER D-250 is based on the experience gained over three generations of previous machines. It is the result of ten years of field feedbacks integration giving high efficiency even under extreme environmental conditions.

Equipped with a 250 hp engine, weighting less than 12 tonnes, it can be transported by 6x6 truck (without trailer). Relatively small in size in regards of its high power, it fits in a 20 feet ISO shipping container, without disassembling tools.

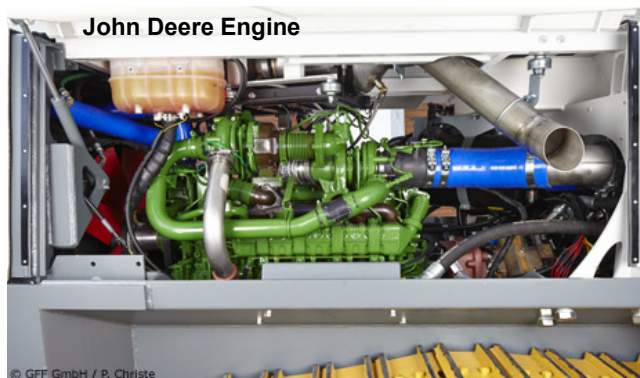
The DIGGER D-250 is first of all a multi-purpose machine designed to respond to deminers' needs. Equipped with quick front and rear couplers, it is compatible with various specific tools (flail and tiller) or Caterpillar® standards (bucket, fork, ...) easily interchangeable. Like so, it can be used in different types of operations such as ground preparation, vegetation clearance, reduced land and demining itself, storage or disposal of dangerous items, etc.

360° armoured, easy to maintain, it is equipped with over-dimensioned hydraulic and cooling systems to withstand the harshest operational conditions. The DIGGER D-250 is designed for a fast handling, even by an inexperienced pilot, in order to ensure an immediate engagement on the ground.

Several equipments are offered in option, such as ultra-high precision GPS (<2cm) with interface designed for humanitarian demining and IMSMA compatible, camera, digging depth control sensors, flow reversal cooling system for self-cleaning of air intake grids, diesel engine EURO-2 or EURO-3b compatible.



© GFF GmbH / P. Christie



John Deere Engine

© GFF GmbH / P. Christie



Anti-Tank mine 8 kg TNT

### TECHNICAL DATA

#### Dimensional Data

Overall length, with tool : 5755 mm  
Overall width, vehicle : 1690 mm  
Overall width, tool : 2320 mm  
Working width : 1895 mm  
Height : 2041 mm  
Mass, total (with Tiller, fuel & lubricant) : 11910 kg

#### Driving Specification

Ground pressure : 0.43 kg/cm<sup>2</sup>  
Ground clearance (base to body) : 0.3 m  
Max. climbing ability : 35°  
Max. slide slope : 30°  
Max. forward & backward speed : 6 km/h

#### Remote Control

Max. operating distance : 500 m  
Transmitter battery autonomy : > 20 h

#### Engine Specifications

Engine type : John Deere, 6 cylinder  
Displacement : 6800 cm<sup>3</sup>  
Engine max. power : 250 hp @ 2200 RPM  
Fuel consumption (average in works) : 30 - 35 L/h  
Fuel capacity : 285 L  
Emission : Euromot 3 Stage II or Euromot 3 Stage IIb  
Max. ambient temp. @ full power without derating : 50°C

#### Armouring

Hull & undercarriage frame : 10 mm Hardox™ 450  
Tool frame : 8 & 10 mm Hardox™ 450  
Roof & arms : 4, 8 & 10 mm Hardox™ 450

#### Front Tools

Quick coupler type : Caterpillar™





## UXO DETECTION

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UXO detector .....	58 - 59
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Active detection system for borehole and surface .....	66 - 67
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# MAGNETOMETER MINIMAG

Robust built - Lightweight

Precise location - High sensitivity

Low power consumption – up to 80 h operating time with lithium battery

Dynamic / static detection modes

Data output

Advantageous price / performance ration





## MAGNETOMETER MINIMAG

EBINGER is a leading manufacturer of gradiometer probes, which after more than half a century in explosive ordnance clearance have proven themselves in bomb and munitions searches.

Early probes were thick and heavy, but today new technologies enable the production of robust yet lightweight search devices.

A prime example of these new technologies is the EBINGER MINIMAG, designed mainly for rapid deployment. Weighting in at 1,480 g or 1,550 g (depending on power supply), it is extremely lightweight and manoeuvrable.

With quick localisation and precise guides, the probe reduces the time factor in search work. The operator is not encumbered by a heavy device.

### TECHNICAL DATA

#### Power Supply :

6 C cells  
or Lithium rechargeable battery  
or NiMH rechargeable battery

#### Operating Time :

approx. 130 h with C cells  
approx. 80 h with Lithium battery  
approx. 43 h with NiMH battery

#### Temperature Range : -20°C to +55°C

#### Sensitivity Levels:

Level 1 dynamic 150 nT  
Level 2 static 150 nT  
Level 3 static 50 nT

#### Operating Weight :

1920 g with battery tube and C cells  
1480 g with Li-Ion battery pack  
1550 g with NiMH battery pack

#### Case Dimensions: ca. 850 x 350 x 150 mm

#### Total length :

950 mm with battery tube  
780 mm with Li-Ion battery pack  
780 mm with NiMH battery pack

#### Probe Length: 510 mm

#### Base Distance: 480 mm



# MAGNETOMETER MAGNEX 120 L-2





## MAGNETOMETER MAGNEX 120 L-2

The brand new MAGNEX® 120 L-2 locator is used in geophysical surveys and applied for the detection of magnetic anomalies such as caused by ferromagnetic objects buried underground. The locating of UXO, pipes & pipelines, concealed weapon caches or archeological traces are typical tasks for this anomaly magnetic detector. The limit of the detection depth is determined by the size and position as well as the magnetic signature of the ferrous parts to be detected.

The very light weight, the ergonomics and the well outbalanced design of the MAGNEX® 120 L-2 help to strongly reduce operator fatigue improving the quality of work. The controls such as the sensitivity stepping switch and the compensation adjuster can be operated by the guide hand. The need for parallelization by the users is eliminated due to a new sensor technology.

In general the search device is designed as a differential saturation magnetometer applying two inductors which are sensitive to magnetism. This arrangement suppresses the indication of the natural magnetic field. The sensors (inductors) are placed at a set distance inside the probe and placed in coaxial position. As soon as the probe is carried into magnetic anomaly interference the inductors will start to provide different electric values e.g. an alternating tension which is indicated by an audio signal and a galvanometer reading after processing and amplification.

The MAGNEX® 120 L-2 is a lightweight, handheld, battery operated magnetometer for operation under adverse working conditions. It consists of a compact dismountable unit.

The operation fascia shows the following adjuster and sockets: volume adjuster knob (VOL.), test push button for sensitivity test (TEST.), LED-battery control (BAT.), socket for datalogging / loudspeaker.

The components are delivered in a transit case protected against impacts. By taking the probe from the case and fitting the battery container to the carrying rod the MAGNEX® 120 L-2 is immediately operational.



### TECHNICAL DATA

Power supply: 6 D-cell batteries 1,5V or a rechargeable Li-ion battery pack

Operation time : approx. 50 h type (D-cells), approx. 22 h with Li-Ion batt.

Temperature range : approx. - 20°C to +55°C

Sensitivity ranges: Range 1 approx. 3000 nT  
Range 2 approx. 1000 nT  
Range 3 approx. 300 nT  
Range 4 approx. 100 nT  
Range 5 approx. 30 nT  
Range 6 approx. 10 nT

Operation weight: approx. 3200 g with D-cells, approx. 2400 g with rech batt.

Carrier case: approx. 850 x 350 x 150 mm





# MAGNETOMETER MAGNEX 120 LW





## MAGNETOMETER MAGNEX 120 LW

NSN 6695-12-349-1502

### APPLICATION

The **MAGNEX 120 LW** is used to locate ferromagnetic objects buried underground. UXO and pipes are typical search objects for the Magnetic Anomaly Detector, which is preferably used in the field of post-conflict battle area clearance.

Size position and magnetic intensity of the search object determine the possible detection range. Large ferrous objects can be located as far as up 6 meters buried underground.

The ergonomic well balanced design ensure an easy handling. The sensitivity stepping switch and the compensation knob can be operated with the same hand the detector is held with. The essential operation as well as batteries and electronics circuitry are integrated into the carrying. External battery container or electronic boxes interfering to the operator during search are now a thing of the past.

### OPERATION PRINCIPLE

The MAGNEX 120 LW is a saturation magnetometer working as differentiating field strength meter. The design is based on two inductors, which are sensitive to magnetism and placed inside the probe. They indicate magnetic anomalies in the natural field. Both inductors are connected as differential bridge to suppress the homogenous terrestrial field. Magnetic anomalies coming within the range of the probe will generate an electric difference which is transformed into a positive resp. negative reading corresponding to the magnetic signature of the detected object. This indication, is also converted into a threshold-less audio signal. Indication starts by single signal pulses, which increase in frequency when approaching an object.

### CONSTRUCTION

The MAGNEX 120 LW is a battery operated magnetometer designed for use in adverse conditions. It is designed as a compact unit, which consists of : the probe, the galvanometer, the control section with stepping switch and compensation button and the battery rod with closure.

The probe can be dismantled for immersion under water or in bore holes. A 25 meters immersion cable and non magnetic ballast can be supplied as options.



#### TECHNICAL DATA

Power supply : 6 batteries 1,5 V, type LR20  
 Operating time : 40 h to +20°C approx.  
 Sensitivity level : 3000-1000-300-100-30-10 nT approx.  
 Test rod indication : 20 parts of scale in range 5  
 Temperature range : from -20°C to + 50°C  
 Weight of the device : 4,3 kg approx.  
 Weight of transit case : 8 kg approx.  
 Dimensions : total length 1260 mm  
                   total height 760 mm  
                   probe height 600 mm  
 ABS transit case : 820 x 370 x 170 mm



# MAGNETOMETER SC 100 UN

Robust and handy  
Lightweight  
Simple to use  
Audio coding of field polarity  
Dynamic / static detection steps





## MAGNETOMETER SC 100 UN

### Application

The SC 100 UN is a handy iron locator in longterm stable and innovative differential probe technology.

It detects magnetic anomalies in the normal magnetic field of the earth, as caused by buried ferromagnetic objects.

The detection range of the locator depends on the size, position and magnetic signature of the objects to be detected.

### Mode of operation

The probe is moved in wide sweeping movements over the ground. As soon as the locator's probe is moved into the vicinity of a ferromagnetic object, the local field distortion is converted into an audible alarm. The audio coding of the field polarity (pulsating/continuous) indicates the magnetic polarity (North or South pole) of the object to be detected.



Two dynamic detection steps are foreseen allow for fast subsurface localization of ferromagnetic parts. In this mode continuous magnetic interferences e.g. mineralized soil or fences can be suppressed to certain limits.

In the static mode the indication of deep buried ferromagnetic objects is provided by an audible signal, which rises in intensity as the detector approaches the target.

### Constructional features

The SC 100 UN is a bar-type device containing sensors which are connected in differential mode, an electronics and the battery compartment. The locator is put into operation by switching the rotary adjuster into one of the 3 sensitivity steps.

The detection signals are transmitted by a built-in piezo loudspeaker, which indicates the detected magnetic field by a continuous or pulsating increasing audio signal informing about the detected intensity and polarity.

### Delivery content and optional accessories

- Locator SC 100 UN with 9 V battery
- Test stick (*optional*)
- Rechargeable LiPo battery (6F22) (*optional*)
- Charger (*optional*)
- Soft bag (*optional*)
- Handgrip and armrest (*optional*)

#### TECHNICAL DATA

Power supply :  
Battery 9 V (IEC) 6LR61  
or rechargeable battery NiMH (9V / 250 mAh)  
or rechargeable battery LiPo (9V / 550mA)

Autonomy:  
14 h approx with alkaline battery  
7 h approx. with NiMH battery

Temperature range : -20°C to +55°C

Sensitivity : 100 nT  
Audio resolution : approx. 15 nT in step 3

Audio frequency : between 1Hz and 1,5 KHz

Weight : approx. 850g with battery

Total length : approx. 1100 mm

# PORTABLE MAGNETOMETER SYSTEM MAGWALK



## Features

- Autarkic system with 2 sensors, GPS, accelerometer and battery
- 1,600g carrying weight
- 8GB internal memory card
- 250 Hz recording rate
- 2 Hz live data output
- USB interface
- Data processing tool



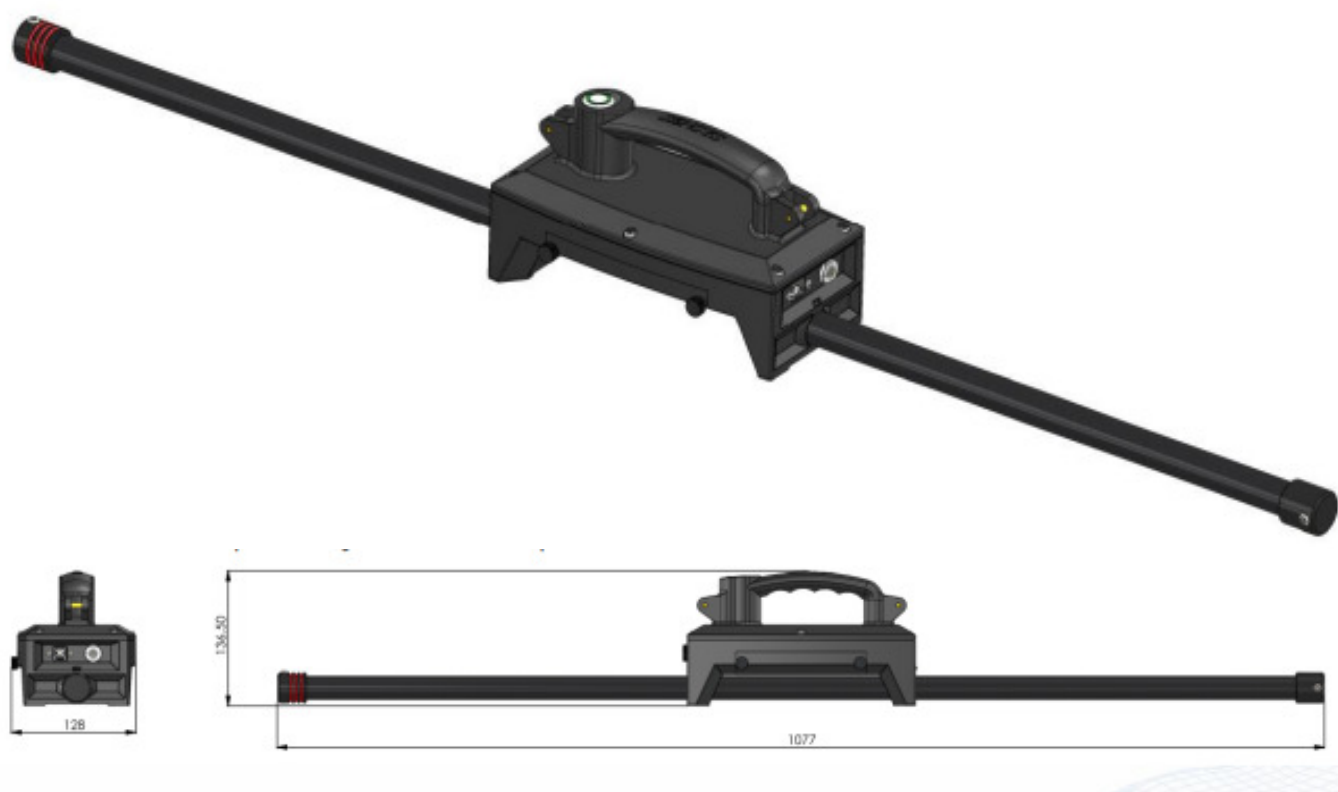
## PORTABLE MAGNETOMETER SYSTEM MAGWALK

The MagWalk is an ultra lightweight portable magnetometer survey kit to be carried by one person by holding it transversely, longitudinal or upright aside the body.

The kit consists of a two built-in 3-axis fluxgates, a 1-button data logger with internal SD card, rechargeable batteries, an integrated or external GPS, as well as a serial live data output. The MagWalk device is made for small and mid size field surveys.

Combining the MagWalk with the SENSYS Remote Smartphone App allows 2 Hz live readings of all single axes of the sensors as well showing absolute values and graphs for insitu trials / investigations.

The MagDrone DataTool can be used to download and convert the raw data into various formats to make a follow up processing with SENSYS MAGNETO, MATLAB, GIS or other software as easy as possible.



### TECHNICAL DATA

#### General Technical Data

Power Supply : 11.1 V; 1,950 mAh Li-Ion rechargeable  
Operating Temperature : -20°C to +50°C  
Weight / with Li-Ion battery : 1,470g / 1,600g  
Overall power consumption : 500 mA  
Sensor tube dimensions (W x D x H) : 1,070 x 24 mm

#### FGM3D/100 Fluxgate

Sensors : 2 pieces, laid horizontal, parallel  
Specified measurement range :  $\pm 100,000$  nT  
Number of sensor axis : 3  
Distance between sensor centre points : 1,000 mm  
Noise level : @1Hz [pT/ (Hz)] :  
10 pT < sensor M1 < 50 pT  
10 pT < sensor M2 < 30 pT

#### Datalogger

Power : 50 mA  
Sensor input : Internal wired  
User Interface : On/Off + Start/Stop button; status LED  
Survey mode : Recording when start/stop pressed  
Sampling rate : 250 Hz (500Hz/1000Hz available on request)  
Live data output : 2 Hz (via Bluetooth 3.1)  
Internal memory : 8 GB  
Datalogger dimensions : 230 x 128 x 43/73 mm  
External GPS input via serial cable

# MULTI CHANNEL MAGNETOMETER SYSTEM MAGNEX 120 / EPAD / EPAS





## EPAD / EPAS MAGNETOMETER MULTI CHANNEL SYSTEMS

New light weight Lithium Ion battery technology  
 One man operation  
 From 3- to 5-channel expandable in just two steps  
 Flexible probe distance (variable track width)  
 Probe height adjustable over ground  
 Rugged design, for use in difficult terrain  
 Various wheels  
 Expendable with GPS system  
 Ergonomic, lightweight design

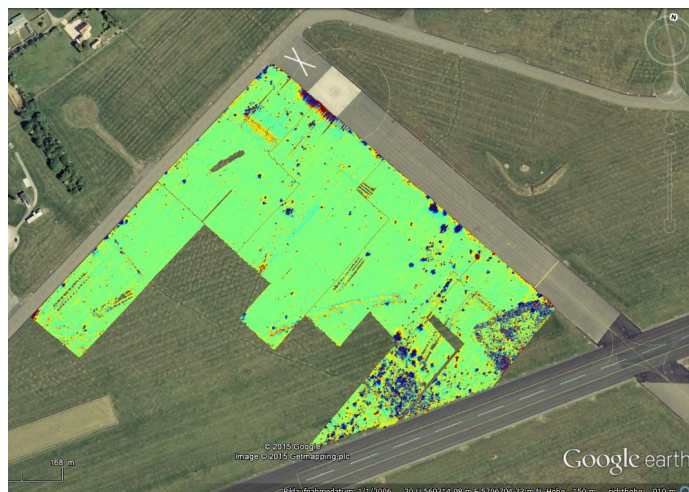
The **EPAD® / EPAS®** magnetometer's multi-channel systems uses the gradiometric principle to detect magnetic anomalies: A ferromagnetic object interacts with the magnetic field in its vicinity, the intensity and field direction (polarity) are evaluated as detection information for localizing the position of the object. It is used for the finding of ferromagnetic objects which are buried underground.

The **EPAD®** data logger and the **EPAS®** software are perfectly matched to one another and form the system for recording, processing, visualizing and evaluating digital data for explosive ordnance disposal work. The **EPAD®** data logger can be used in the field as a single channel or multi-channel system (up to 6 channels). GPS positioning as option.



Typically, the MAGNEX/EPAD data recording systems are linked to global positioning systems (GPS) to accurately record the location of detected anomalies. Subsequently, the data are processed to provide an anomaly location map, target anomaly list, and the measured geophysical signal amplitude for each anomaly. These results are then used by UXO specialists to locate, investigate, and remove the metallic anomaly.

The **EPAS® software** carries out the complex data processing and evaluating steps automatically in the background. It is characterized in particular by the simplicity of use as well as by its multilingualism. The **EPAS®** software presents the detection data as two-dimensional colour-coded maps and/or as ISO line charts. The detection data visualization can be superimposed on geographical maps. **EPAS®** software facilitates interpreting of the objects that have been localized in respect of their horizontal position, approximate depth and orientation. All object data are summarized in tabular form, this information assisting at the excavating of target objects.





# MULTI CHANNEL MAGNETOMETER SYSTEM MX-PDA

1 to 5 probes  
Rugged PDA  
Robust carrier  
GPS positioning  
Data processing software





## MX-PDA MULTI CHANNEL MAGNETOMETER SYSTEM

The **MX-PDA** system is a measurement data recording system which applies in the detection of magnetic anomalies underground. It is intended for the detection and location of all ferromagnetic objects buried underground, and especially ammunitions on battlefield areas.

The D-GPS device, connected to the **MX-PDA**, allows real time GPS positioning of the measurements. The navigation window on the PDA screen informs the user in real time about the covered areas.

After measurement, the data can be transferred to a PC computer with the supplied cable.

The data acquisition system consists of :

- 3 or 5 magnetometer probes
- 1 carrier with amagnetic wheels
- 1 electronic box with 5 channels inputs
- 1 rugged PDA JUNIPER MESA
- 1 power supply kit : batteries 12V / 7 Ah with charger
- 1 set of cables
- 1 differential GPS system



### TECHNICAL DATA

#### Electronic box

Dimensions : 155 x 170 x 70 mm  
 Weight : 1350 g  
 Material : aluminium  
 Temperature range : -20°C to +60°C  
 Supply voltage : 10 to 14 VDC  
 Power consumption : 4.2 W max. (without GPS)  
 Resolution of ADC : 24 bits  
 Sampling frequency : 20 Hz  
 5 analogical inputs : 1 to 5 probes can be connected

#### Rugged PDA JUNIPER MESA

Dimensions : 136 x 200 x 51 mm  
 Weight : 998 g with 2 batteries  
 Temperature range : -20°C to +60°C  
 Standard : MIL-STD-810F and IP67  
 Processor : PXA320 (806 MHz)  
 System : Windows Mobile 6  
 Screen : LCD colour 5.7", resolution 640 x 480  
 Memory : 256 Mo RAM, 4 Go flash  
 Memory card : 2 Go (area > 100 ha)  
 Power supply : battery Li-Ion 7.4 V capacity 2550 mAh  
 Operating time : 16 h with one battery set, 32 h with the 2 sets  
 Charging time : 4 hours max.

**DLMGPS** and **MAGNETO** software allow to process the data, to create a colour coded map of the measured area, to locate the detected objects and to determine their characteristics.



Navigation windows : the blue color represents the measured area

# GEO REFERENCED MAGNETOMETER SURVEY SYSTEM MX-V3

Up to 16 probes  
Towed or pushed  
High resolution 24 bits  
Sampling 200 Hz





## GPS REFERENCED SURVEY SYSTEM MX-V3

The MAGNETO® **MX-V3** is a large area magnetometer survey system. It can host up to 16 fluxgate gradiometers on a trailer having a width of 3.85m. This allows a rapid non-invasive cartography on land in order to search for UXO or archaeological structures as well as doing large scale soil evaluations.

One of the unique features is the modular trailer that can be set up in various configurations to be carried, pushed or pulled. The survey width can be adjusted from 1m to 4m.

Furthermore, the compact data acquisition unit offers high sampling rates, 24 bit digitizing of all measurement data and an Ethernet interface to output the data. Thus, the survey system is very flexible to interconnect with third party components and systems. A wireless option is



available. At the maximum survey speed, the system is capturing the data every 20 mm.

In order to reach a positioning accuracy of  $\pm 1$  cm for every measurement point, the MX V3 is equipped with a RTK DGPS. The GPS rover station is mounted to the car while the GPS base station (reference point) is set next to the measurement area.

### TECHNICAL DATA

#### General Technical Data

Power Supply : 12 V battery pack (lead gel)

#### Dimension of Carrier

Length : min 1.2 m (pushed), max 4.50 m (towed)

Width : min 1.25, max 3.85 m

Height (incl. GPS antenna) : approx. 1.3 m

Weight (net) : 45 kg

#### Data acquisition

Analog input : 16 channel max

Output : Proprietary MonMX protocol

Position accuracy :  $\pm 1$  cm (with RTK DGPS)

PC interface : LAN, 100 Mbit/s

#### Measurement configuration

Distance between probes : 0.25m min

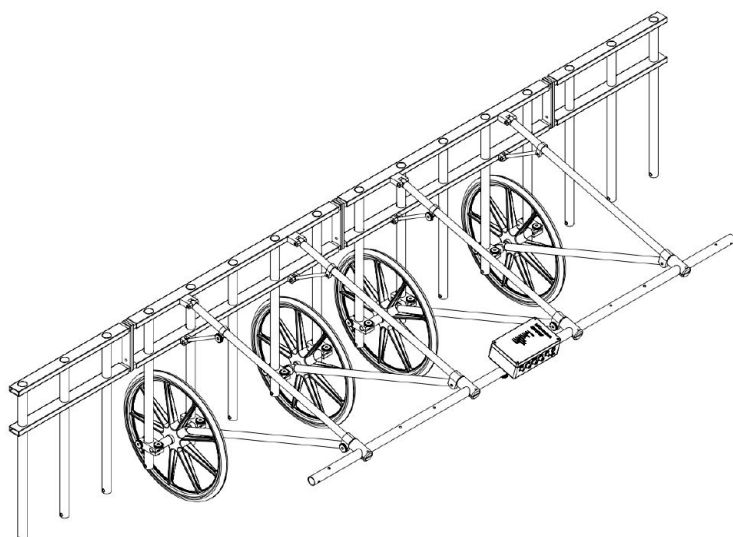
Sensor above ground level : 0.1m to 0.4 m

Maximum survey speed : 15 km/h; 9 mph

Data density (y) at max survey speed : 20 mm

#### Area coverage

Maximum daily coverage : 20 ha





# UXO DETECTOR UXO PIDD® 2



Robust and handy

One knob operation

Large detection range

Static/dynamic search mode

Programmable delay steps

Non-cooperative soil suppress.

Interchangeable search heads

Adjustable length



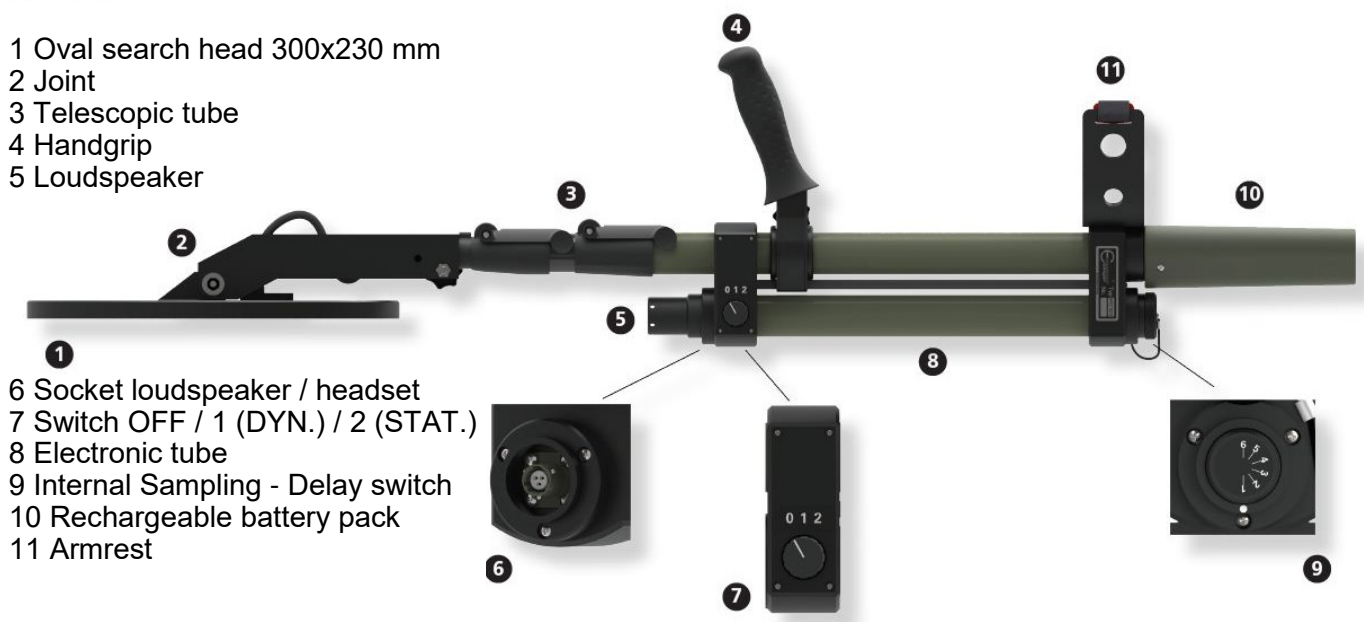
## UXO DETECTOR PIDD® 2

EBINGER is the first manufacturer of pulse induction detectors in Germany, known also as TDEM systems. These are so-called time-controlled pulse detectors, like handheld mine detectors and PI large loops for example.

Conventional mine detectors are due to their extreme detection sensitivity for small metal parts inefficient for the UXO detection. The PIDD 2 system has been especially developed by EBINGER for UXO detection. It suppresses within wide limits not only ground magnetic interfering effects but also metal fragments to a pre-programmable size. The user can adjust the small objects' suppression by using the delay switch.

The UXO PIDD 2 offers two operation modes: step 1 dynamic, step 2 static, as well as ground adaption for interfering soil. Dynamic mode allows quick search of UXOs and objects buried shallowly. Static mode provides increased detection distance. Indication is given by a clear acoustic signal, that is modulated near the object as a tremolo effect, extension of display dynamics.

UXO PIDD 2 is a compact metal detector with a telescopic tube. The oval, watertight search head with



adjustable joint connection can be found at the lower end of telescopic tube. Power supply is given by rechargeable battery packs screwed onto the upper guide tube. The electronics are located in the lower module tube. Frontally there is the detachable loudspeaker resp. connection socket for the optional headset that can be delivered as accessories. At the rear of the electronic tube there is the switch for the delay times, which is accessible after removal of screw cap.



### TECHNICAL DATA

Power supply :	Li-ion battery pack 11.1 V, 4.4 Ah Or NiMH rechargeable battery 9.6 V, 2.1 Ah
Operating time :	approx. 35 to 40 h with Li-ion batt, approx. 20 h with NiMH
Search speed approx. :	0,2 to 1 m/s
Delay times :	approx. 20 to 120 µs
Temperature range :	approx. - 20 to + 65 ° C
<b>Dimensions</b>	
Search head :	300 x 230 mm standard
Length :	folded approx. 950 mm, extended approx. 1.750 mm
Transport case	840 x 350 x 150 mm (w x d x h)
<b>Weight</b>	
Complete with batt.	approx. 2.6 kg (Ni MH rech battery)
Complete in transport case	approx. 7,1 kg

# LARGE LOOP UPEX 740 M

New version : improved efficiency  
Very easy to use  
High productivity





## LARGE LOOP UPEX 740 M

NSN 6695-12-349-1503

The **UPEX 740 M** large loop technology enables low skilled personnel to locate air delivered ordnance buried at depth. It is introduced into battle area clearance where large areas have to be inspected and cleared of munitions in short time. It is ideal for road clearance of UXO and A/T mine traps.



The UPEX 740 M applies the eddy current pulse induction principle. It detects all metals, ferrous and non ferrous.

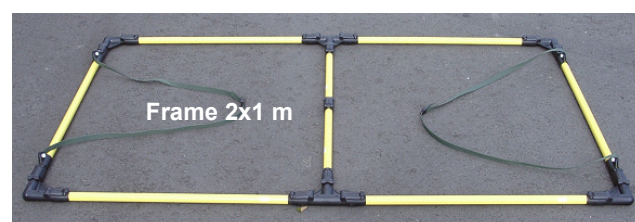
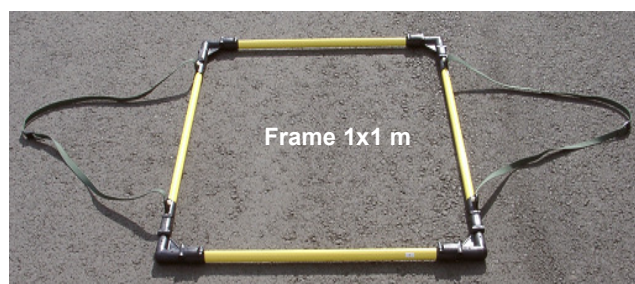
The equipment consists in an electronics box, a battery container, a large loop diameter 2600 mm with search frame. A ring coil diameter 260 mm is available as an option.

The modular frame can be assembled several ways, which enables to obtain frames from different sizes (1 x 1 m, 1 x 2 m or 1,5 x 2,5 m), according to the searched targets and the burying depth.

The ring coil (option), working with the same electronics, is used for pin-point location, after detection with the large loop.

The UPEX 740 M is as easy to use as a conventional mine detector. Detection signals are easy to interpret and no advanced training is required for operation. The unit is splash-waterproof and of sturdy design. The target acquisition is indicated by audio alarm and on a galvanometer.

The delay setting allows to suppress the indication of small metal fragments located at the surface while detecting bigger objects buried deeply. This way it is made possible to detect efficiently bombs or big shells buried in depth, with presence of surface clutter.



### TECHNICAL DATA

Power supply : 8 dry batteries 1,5 V type LR 14 or rechargeable batteries

Operating time : 55 h in pos. low / 25 h in pos. high (LR14)

Dimensions : Electronics box : 270 x 90 x 70 mm  
Battery pack : 290 x 105 x 50 mm  
Search loop : Ø 2550 mm

Weights : Frame : 2,5 kg  
Electronics box : 0,9 kg  
Battery pack : 1,1 kg

Detection range (in air) : Mine T57 at approx. 1,6 m  
Bomb MK82 at approx. 3 m



Adapted frame for specific search



# PULSE INDUCTION DETECTION SYSTEM UPEX 740 MF-3

3 sensitivity levels  
10 sampling delay levels  
Analogue output  
Reduced in-motion noise  
Visual / acoustic signal

Simple operation  
No equipment on main body  
Extendable UXO detector  
Good resolution capacity  
Dismantled for transport





## PULSE INDUCTION DETECTION SYSTEM UPEX 740 MF-3

Search system MF-3 is based on the EBINGER [pulse induction system](#) UPEX 740 M, which can be described as an electromagnetic echo procedure. Via its search head, the PI detector emits magnetic pulses with a specific repetition frequency that induces eddy currents in search objects. An electromagnetic reaction is created, which is then picked up in the pulse pauses and electronically indicated on the display.

UPEX 740 MF-3 is equipped with an analogue output for [data recording with the EBINGER EPAD](#) data logger. This device records the values measured during the survey for later processing, analysis and conversion into digital anomaly maps. [Optional geo-referencing](#) allows for a longer time delay between detection work, interpretation and object recovery. In conventional analogue detection, the object had to be excavated directly after surveying in order to minimise the loss of coordinates.

UPEX 740 MF-3 thus offers visual / acoustic search as a purely digital recording or a combination of the two.

### Components of UPEX 740 MF-3

- 1 Search head 1 x 1 m (1 m<sup>2</sup>)
- 2 Electronics unit including mounting equipment
- 3 Frame with wheel set
- 4 Rechargeable battery pack including charger

### Special Accessories

- 5 EPAD – PDA including Bluetooth unit (data logger), transport case, charging technology and mount
- 6 EPAS – software for data analysis/ mapping
- 7 GPS – system
- 8 GPS – antenna rod and catch strap



### TECHNICAL DATA

Power Supply : detachable Li-Ion battery pack: 11.1 V, 4.4 Ah

Operating Time: Li-Ion battery pack approx. 12h

Temperature Range: - 20 °C to + 55 °C

Dimensions :

Search head frame approx. 1 m<sup>2</sup>

Wheel diameter approx. 600 mm

Special wheels upon request

Electronics box 305 x 145 x 150 mm

Weight :

Electronics box 1400 g without battery

Li-Ion battery 380 g

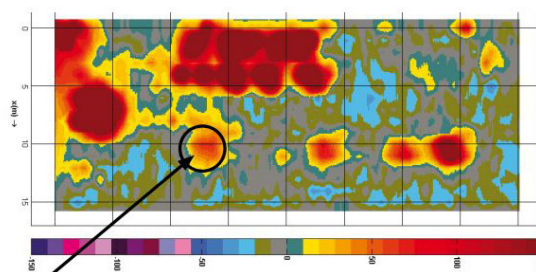
PDA 600 g

PDA mount 466 g

1 m<sup>2</sup> search head 1500 g

Detection frame assembled 11,40 kg

Complete system with PDA and 1 m<sup>2</sup> search head 15,75 kg



*MK82 at approx 3.2 m depth at level MEDIUM*

# ADVANCED PULSE INDUCTION SYSTEM UPEX 745 DF

Increased detection depth  
Geometric separation of the receiver coils  
8 measurement channels  
5 delays





## ADVANCED PULSE INDUCTION SYSTEM UPEX 745 DF

### General

The UPEX® 745 DF is a deep active search system, based on the electromagnetic pulse induction principle designed and produced by us in Germany. The system is used to detect ferromagnetic and non-ferrous metal objects, primarily in unexploded ordnance clearance and subsurface geophysical surveys. With the UPEX® 745 DF, Ebinger completes its traditional range of pulse induction-biased measuring systems as far as resolution and detection depth are concerned. "German innovation from the Ebinger ideas laboratory".

### Constructional Features

The circular coil arrangement substantially better the signal-noise ratio (S/N) up to 50 % and thus allowing a significant increase in detection depth. The 5 time gates and a decoupling of the receiver coils substantially ameliorate detection and resolution. The dimensioning and the geometric arrangement of the inner receiver coils in conjunction with an early measurement also contribute to the enhanced performance and boost the resolution of small, near surface objects. The size and arrangement of the external receiver coils are adapted to the detection of larger and deeper buried targets. The geometric dimensioning of the system implies a significant increase in productivity due to the large scan area covered.

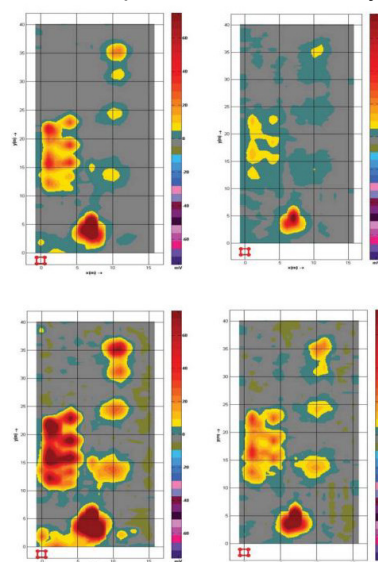
- High detection range
- Signal-noise (S/N) ratio improved by up to 80%
- 8 measuring channels / 5 time gates
- Substantially improved resolution
- Geometric separation of the receiver coils



### TECHNICAL DATA

Measurement principle : Time domain Transient electromagnetics (TDEM)  
 Time window : 8 measuring channels/ 5 time gates  
 Transmitter signal : unipolar rectangular  
 EM transmitter : vertical dipoles, decoupled coil, Ø 1400 mm  
 EM receiver : 4 decoupled coils  
     2 decoupled coils, Ø 1300 mm  
     2 decoupled coils, Ø 700 mm  
 Vertical spacing of receiver coils : 800 mm  
 Transmitter current :  $\geq 22$  A  
 Transmit moment :  $\geq 400$  Am<sup>2</sup>  
 Measurement range :  $\pm (0.1-5000)$  mV  
 Dynamic range :  $\geq 16$  bits  
 Measurement frequency : 90-130 Herz, selectable  
 Signal evaluation : Individually or at any difference required  
 Power supply : System-integrated or external  
     Internal lithium battery 24 V (2 x 4 h operating time)  
     Charging time approx. 4 h for the internal batteries  
     External power supply 24 V (e.g. car battery)  
 Electronic/control unit : System-integrated or separable  
 Startup time : approx. 5 min

### Color maps with different delays





# ACTIVE METAL DETECTION SYSTEM SURFACE AND BOREHOLE UPEX 745 P2I





## ACTIVE METAL DETECTION SYSTEM UPEX 745 P2I

The new UPEX® 745 P2I system offers substantial advantages in subsurface search due to its flexibility and the wide choice of transmitter and receiver components. The UPEX® 745 P2I can be optimized for different tasks and operations. It suits for standard on surface usage as well as for borehole inspection.

Due to an improved decoupling from the inspected medium the typical interference from soil magnetic effects (i.e. basalt rock) can be suppressed. Therefore unwanted signals from small scraps can be eliminated. In comparison to conventional magnetic surveys it allows much larger grids with substantially fewer boreholes. This reduces cost, improves revenue even when submitting very competitive offers.

### Borehole inspection

For active borehole inspection a transmission coil of 20 m x 20 m or 40 m x 40 m – if necessary even larger – is laid out over the borehole field. The receiver probe resembles the known differential magnetometer probes in shape and size and is used in a very similar way as in magnetic borehole inspection. The active borehole inspection devices have a superior lateral detection range allowing to increase the distance of the boreholes. This reduces their number and the related expense for the contractor substantially.

The trials and measurements of the UPEX® 745 P2I could proof a higher sensitivity when compared to the conventional magnetic borehole inspection method.

### Surface detection

For active from-surface inspection two different transmitter configurations are available :

1. a static transmitter loop covering a grid area of 20 m x 20 m or 40 m x 40 m. A handheld receiver probe is carried within this grid
2. an integrated detection system consisting of a 1 m x 1 m handheld transmitter which is combined with the mobile receiver unit

Receivers, probes and loops of various sizes are available (260 mm, 450 mm, 1 m x 1 m, 2 m x 1 m).

The choice of components allows to optimise the system for different detection tasks. The equipment cost is low when compared to the increase in productivity, the long life cycle and versatility of the detection system.



### TECHNICAL DATA

#### Power supply :

Rechargeable battery 2x 12V/ 7,2 Ah operation time approx. 2.5 h

#### Dimensions :

Transmitter loop, 20 m x 20 m, on 1 reel approx. 500 mm x 380 mm x 300 mm

Transmitter loop, 40 m x 40 m on 2 reels of: approx. 500 mm x 380 mm x 300 mm

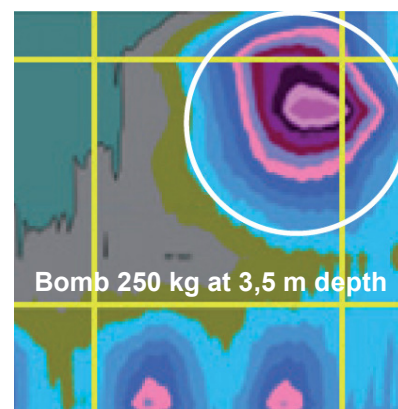
Standard borehole probe approx. 800 mm x 40 mm

#### Weight :

Transmitter loop, 20 m x 20 m, on 1 reel approx. 18.5 kg

Transmitter loop, 40 m x 40 m, on 2 reels approx. 18.5 kg (each)

Standard borehole probe approx. 1.3 kg



# VERSATILE METAL DETECTOR EBEX 410

Multi-component system for diverse detection applications  
Very high detection sensitivity  
Dynamic operation mode  
Simple handling: single-button operation  
Acoustic battery and activation control  
Comprehensive range of accessories





## METAL DETECTOR EBEX 410

NSN 6695-99-860-5121

The **EBEX 410** equipment permits a particularly versatile range of applications, since the various equipment components make more than 50 individual combinations possible. It is particularly suitable for crime-related investigation purpose as well as for precise, sophisticated detection work. The EBEX 410 indicates all metals by an audible signal. It is possible to draw conclusions as to the size and distance of the located metal object from the different types of signals.

The different coils enable good adjustment to the detection task in question. According to the size of the metal object, the large or the small search coil is applied. The cylindrical probe permits pinpoint location of very small metal objects. Operating of the unit is very simple : the only rotary button enables to switch the unit ON/OFF and to adjust the sensitivity.

The EBEX 410 consists of the following equipment components : one electronic cylinder, two extension rods, one search coil Ø 145 mm, one search coil Ø 260 mm, one cylindrical probe, one extension cable, one headphone, one piezo buzzer, one rechargeable battery with charger.



### TECHNICAL DATA

Power supply : 1 dry battery 9 V or NiMH rech. battery  
 Operating time : approx. 20 - 25 h with dry alkaline battery  
 Temperature range : -10 to +50 °C approx.  
 Operating weight : depending upon version 0,8 to 1,2 kg  
 Weight with case : 6,8 kg  
 Coil diameter : 22, 145 and 260 mm  
 Detection range in the air with the 260 mm coil : 1 € coin at approx. 30 cm, US hand grenade at approx. 60 cm.

# DRONE MAGNETOMETER SURVEY KIT MAGDRONE



## **Applications**

Survey & Surveillance

Underground mine exploration at flexible heights

UXO detection on unreachable, flooded or mined areas

## **Features**

Dismountable system with 5 Fluxgate sensors

Attachable to any UAV with 1.5+ kg payload

Made for DJI M300

8 GB internal memory

200 Hz recording rate

Data loss prevention

WLAN interface

Data processing tool



## DRONE MAGNETOMETER SURVEY KIT MAGDRONE

The MagDrone R4 is an ultra light weight magnetometer survey kit with 5 triaxial Fluxgates to be attached to any UAV with a 1,500 g payload.

Its dismountable sensor tube allows for sensor spacing of either 25cm or 50cm providing a 2.5m swath width. With 200Hz sampling rate, the R4 can easily filter out noise from infrastructure, net frequencies or UAV motors. Hence, it can be directly installed on UAV's landing gear for a very compact setup.

The MagDrone R4 can be used for i.e. magnetic cartographies, mine exploration (iron ore mines), area scanning for bombs and ammunition (UXO), preventive check and surveillance of areas against vehicles' intrusion.

The MagDrone Data Tool identifies flown tracks, cut, filter, compensate the raw data, generates a preview and exports into various formats to further process the recorded values, i.e. with our MAGNETO® software.

### TECHNICAL DATA

#### General Technical Data

Power Supply : 12-32 V

Operating Temperature : -20°C to +50°C

Weight : 1,500 g

Overall power consumption : 10 W

Sensor tube dimensions (L x D) : 2,074 x 29 mm

#### FGM3D/75 Fluxgate

Sensors : 5 sensors, laid horizontal, parallel

Specified measurement range :  $\pm 75,000$  nT

Number of sensor axis : 3

Distance between sensors : 500 mm

Noise level @1Hz [pT/ (Hz)] : 10 pT<all sensors M1-M5<20 pT

#### Datalogger

Power : 50 mA

Sensor input : Hard wired, 75cm sensor cable

User Interface : Start/Stop button; Webserver

Survey mode : Continuous recording while airborne

Sampling rate : 200 Hz (higher rates available on request)

Internal memory : 8 GB (approx. 120h recording)

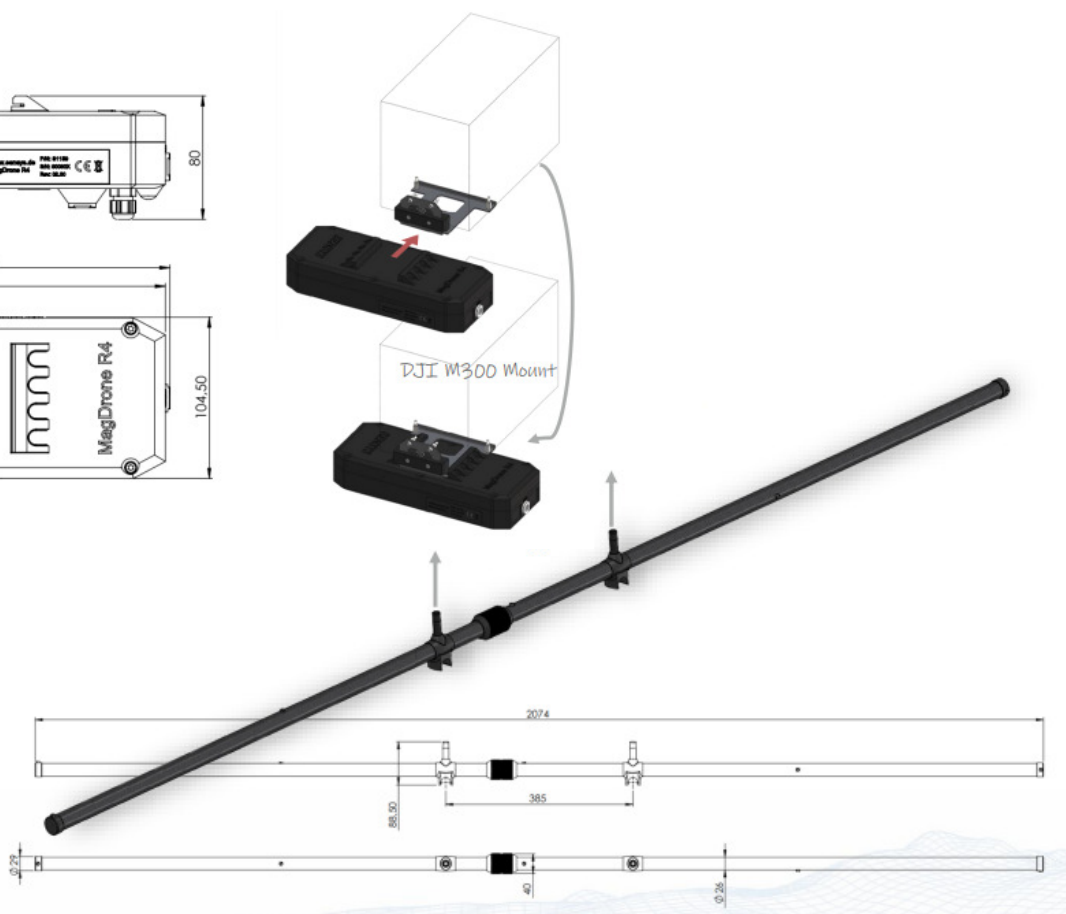
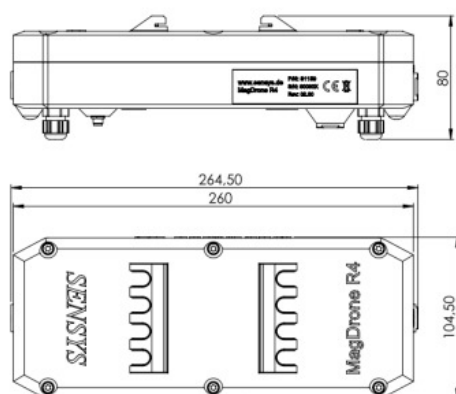
Datalogger dimensions : 264,5 x 104,5 x 80 mm

#### Data Processing

MagDrone DataTool (included) : Raw data filtering, track & flight direction detection, noise compensation, MagBase or GPS referencing, export, preview

MAGNETO® Software : Data interpretation, visualization, object calculation, etc.

Live output Via Webserver



# BOREHOLE SYSTEM BM-2



## Features

- Universal electronic to be used with various probes
- PDA for project planning, surveying and data export
- 24 Bit digitization
- 200 Hz data acquisition
- Wireless connection between borehole box and PDA
- To be used with cable lengths from 5 to 150m
- Connection of cable length counter via integrated extension port



## BOREHOLE SYSTEM BM-2

The universal borehole system MAGNETO® BM2 can be used with various SENSYS borehole probes : 3-axis (FGM3AS), DISTLOG and vertical gradiometer (FGM650/10).

By using the integrated extension port, additional equipment like the SENSYS KWE (cable length counter) can be connected to the system.

The borehole box is connected via Bluetooth to a PDA which serves for planning and surveying. The borehole box as well as the systems power supply, which consists of a 12V battery, are placed in a special carrying belt.

When being used with the 3-axis sensor probe, this system is the perfect solution for standard and special tasks due to the fact that the measured values from two triaxial sensors and one acceleration sensor are stored separately.

These values can thus be evaluated for each project in MAGNETO software either individually or as gradients. Special systems features such as calibration for noise reduction, measurement range of  $\pm 250\mu\text{T}$  and data acquisition at 200Hz allow for surveys closed to steel pilings or in urban areas.



### TECHNICAL DATA

#### General Technical Data

Power Supply : Led Gel Battery 12V 7Ah  
Current Consumption : approx. 390 mA

#### Borehole Box

Digitalization / Data Acquisition : 24 Bit / 200 Hz  
Connectors : 1x analogue, 1x 3axis, 1x power supply, 1x extension port, 1x Bluetooth

#### Data Acquisition

User device : Windows Mobile Rugged Bluetooth PDA  
Functions : Planning / Surveying / Data Storage / Data Export

#### Sensor Probe FGM650/101

Dynamic Range (per sensor and axis) :  $\pm 75,000 \text{ nT}$   
Measurement Range (per sensor and axis) :  $\pm 10,000 \text{ nT}$   
Sensor Separation : 650 mm  
Declination :  $\pm 5 \text{ nT}$   
Resolution :  $< 0.2 \text{ nT}$   
Noise @ 1Hz per axis :  $< 40 \text{ pT rms } \sqrt{\text{Hz}}$   
Cut off frequency : 20 Hz (DC...20 Hz)  
Temperature Drift :  $< 0.3 \text{ nT/K}$

#### Offset

Relative error of measurement : 1%  
Stability :  $< 1 \text{ nT}$   
Linearity :  $< 0.1\%$   
IP Protection : IP68





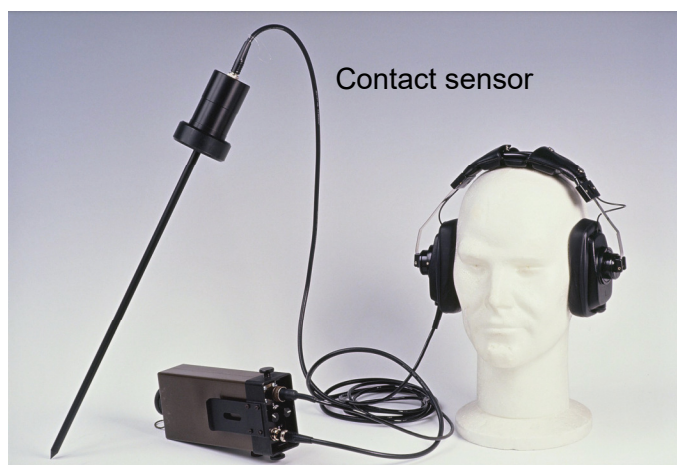


## IED INSPECTION

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# ELECTRONIC STEHOSCOPE EBEX-2001 C/K

Versatile search system  
Highly sensitive contact search head  
High frequency non-contact search head  
Unique non contact MPS sensor  
Stepless filter/gain controls  
Sturdy construction





## ELECTRONIC STETHOSCOPE EBEX 2001 C/K

NSN 1385-12-319-0402

The electronic stethoscope **EBEX 2001 C/K** is designed to monitor air delivered ordnance during render safe procedures and to search for IEDs. It allows the detection of timing devices, from close to several meters, depending on the position and local conditions of the timing device.

The EBEX 2001 C/K consists of : a very sensitive impact sound sensor (contact sensor), a high frequency search head (HF sensor), an amplifier and a headset. A magnetic sensor is available as an option. The sensors can detect mechanical movements or certain electronic components which are often used in timing devices. Signals received by a sensor are fed to the amplifier with stepless adjustable filters which make the signals audible in the headset.

The contact sensor can be used in EOD missions, for detection of timers in bombs during render safe operations. It also can be applied for the detection of mechanical timing devices or clocks which may be present in parcels or mail suspected to contain improvised explosive devices.

The contact-less search head uses a high frequency field to check mechanical noises coming from timers. This field penetrates a large range of materials and is only

stopped if the target is enclosed into a sealed metallic box. The contact-less search head is not affected by loud ambient airborne noise and so enables search operations in noisy places such as public buildings. It is also well adapted for searching IEDs in walls or when suspicious objects must not be touched. The contact-less search head can also intercept sub-harmonic signals coming from electronic circuits, thus allowing to detect electronic timing circuits.

The magnetic sensor is a passive sensor designed for the reception of magnetic pulses coming from timers, and also of signals generated by local receivers' oscillators.

The EBEX 2001 C/K is supplied in an aluminium transit case, with all its accessories.

### TECHNICAL DATA

Power supply :  
Amplifier : 1 alkaline batt. 9 V type 6LR61 - operating time 20 h  
HF search head : built-in batt. 12 V / 600 mA - operating time 6 h

Dimensions :  
Amplifier : 205 mm x 115 mm  
Impact sound transducer : 85 mm x Ø 45 mm  
Contact-less search head : 240 x 95 mm  
Magnetic sensor (option) : 297 mm x Ø 24 mm  
Aluminium transit case : 630 x 350 x 175 mm

Weights :  
Amplifier : approx. 580 g  
Impact sound transducer : approx. 270 g  
Contact-less search head : approx. 850 g  
Magnetic sensor : approx. 245 g  
Headset : approx. 250 g  
Complete device in transit case : approx. 6 kg

Band pass of the amplifier : 300 Hz - 6 kHz

Amplification : more than 700 000

Temperature range : -15 to +55 °C



# WIRE LOCATOR EBEX 420 DR

Active / passive detection mode  
Simple operation  
High sensitivity  
Finds wires and active transmitters  
Good pinpointing





## WIRE LOCATOR EBEX 420 DR

NSN 6695-99-796-3873

The hand held electronic **EBEX® 420 DR** wire locator is a battery-operated device for locating camouflaged or near-surface buried wires of booby traps. It works as a high frequency receiver which detects HF radio frequency signals surrounding wires and pipes concealed at shallow depth in the ground. The locator itself operates on a passive operation principle.

In areas where the ambient HF level is low or nil and where cables and wires cannot develop a sufficient signal strength for the locator, the nature of this operation principle allows to use the detector in combination with a signal generator which increases or creates the ambient HF. This signal generator is provided by the mobile transmitter module 420TXV5.

The EBEX® 420 DR wire locator consists in a foldable search head with two-parts telescopic handle, the electronic box with connection sockets for battery pack and loudspeaker, adjustable arm rest and hand grip with operation and indication elements. The 420TXV5 transmitter module consists in a transmitter coil, a battery compartment, and a short pole.

The EBEX® 420 DR locator is a patent protected differential high frequency system, which detects the secondary background radiation of oscillating wires and converts this information into an audio alarm. It is in the nature of the operation principle that wires of fairly short length can be detected as long as their frequency range falls within the spectrum of the locator.

The EBEX® 420DR operates on a completely static basis. Therefore, no relative movement of the search coil over the wire is required. The locator will give a clear detection signal (incl. LED) when the search head center bar is held parallel over the wire.



### TECHNICAL DATA

#### Batteries :

Detector : Rechargeable battery pack Li-Ion type, 11.1V 4400 mAh (including battery charger) or 1x 9 Volt E-Block IEC 6LR 61  
Transmitter : 1x 9 Volt E-Block IEC 6LR 61

#### Operating time :

Detector : approx. 100 h (Li-Ion pack) at +20°C  
Transmitter : approx. 20 h at +20°C

Temperature range : approx. -25 to +55 °C

#### Dimensions :

Detector length : extended 1430 mm  
Detector search head : 200 mm diameter  
Transmitter search head : 260 x 260 mm  
Military hard case : 860 x 550 x 180mm

#### Weight :

Detector : approx. 2,5 kg  
Complete in transit case : approx. 9,7 kg

# VIDEOSCOPE VTECH-X



The VTec X videoscope from KARL STORZ NDTEC has been designed to meet the specific demands of rough industrial use.

Razor-sharp images, easy handling, mobility and an unbeatable price-equipment ratio make the VTec X an all-rounder for multiple inspections.

KARL STORZ NDTEC combines the expertise of two leading companies: KARL STORZ, a global leader in the field of medical endoscopy and NDTEC, an experienced specialist in non-destructive testing. First-class technology that has proven its worth in the medical field is used for the industrial sector and further developed in an innovative way.



## VIDEOSCOPE VTECH-X

Reference nr of model	Diameter(mm)	Length (m)	Bending(°)	Direction of view DOV(°)	Depth of filed DOF (mm)	Field of view FOV(°)	Resolu°(px)
VTec XC310FN	2,8	1	130 ±10	0	3 - 50	120	624 x 624
VTec XC315FN	2,8	1,5	120 ±10	0	3 - 50	120	624 x 624
VTec XC320FN	2,8	2	110 ±10	0	3 - 50	120	624 x 624
VTec XC410FM	3,9	1	170 ±10	0	7 - 80	90	1280 x 960
VTec XC415FM	3,9	1,5	170 ±10	0	7 - 80	90	1280 x 960
VTec XC420FM	3,9	2	150 ±10	0	7 - 80	90	1280 x 960
VTec XC430FM	3,9	3	120 ±10	0	7 - 80	90	1280 x 960
VTec XC450FM	3,9	5	100 ±10	0	7 - 80	90	1280 x 960
VTec XC610FM	6,1	1	170 ±10	0	7 - 80	90	1280 x 960
VTec XC615FM	6,1	1,5	170 ±10	0	7 - 80	90	1280 x 960
VTec XC620FM	6,1	2	150 ±10	0	7 - 80	90	1280 x 960
VTec XC630FM	6,1	3	130 ±10	0	7 - 80	90	1280 x 960
VTec XC650FM	6,1	5	120 ±10	0	7 - 80	90	1280 x 960

### HANDS-FREE: PRACTICAL BACKPACK

For unrestricted freedom of movement. Ideal for applications where a case cannot be transported.



### OPTIONAL ACCESSORIES

- Backpack
- GTR (Guide Tube Rigid) with handle
- Dekabon tubing (semiflexible guide tube)
- Centering aid (for centering video probes in tubes)
- „Magic Arm“ (large or small holder)
- Magnetic stand
- Wireless SD card (WLAN), SD USB reader
- Li-ion rechargeable batteries 18650-protected

### TECHNICAL DATA

Camera sensor	CMOS
Light source	LED white light, infrared, ultraviolet
Screen	5,5" 16:9, Full HD
Power supply	4 rechargeable batteries, type: 18650-protected 3.6/3.7 V
White balance	Automatic/manual
Image storage	
Photo	.bmp
Video	.avi
Medium	SD card, SDHC class 2, max. 128 GB
Data transmission	SD card, USB 2.0, wireless (optional)
Articulation	
Range	360°
Control	4-way motorized with joystick
Sensitivity	lock, incremental, normal
Connections	
Voltage	3.6 V, DC
Data transmission	Micro USB 2.0
Image transmission	HDMI 2.1
Base Unit	
Protection class	Handset IP54, probe IP65
Ambient temperature	Handset -10°C to +50°C, probe -20°C to +70°C



## X-RAY GENERATORS

### TECHNICAL DATA

Size : 231 x 103 x 77 mm  
 Weight : 2.13 kg  
 Power supply : rechargeable batteries Li-ion 12 V  
 Battery life : 5100 pulses approx.  
 Maximum energy : 150 kVp  
 Charging time : 40 minutes with fast charger  
 Sortie : 1 milliroentgens per pulse at 30 cm from source  
 Pulse rate : 12 pulses / s  
 Source size : 3 mm  
 Pulse length : 20 nanosecondes  
 Exposure control : can be set from 0 to 999  
 Time delay : selectable

### XR 150



### XR 200



### TECHNICAL DATA

Size : 271 x 148 x 108 mm  
 Weight : 4.8 kg  
 Power supply : rechargeable batteries Li-ion 18-20 V  
 Battery life : 6000 pulses approx.  
 Maximum energy : 150 kVp  
 Beam angle : 40°  
 Output : 2,6 milliroentgens per pulse at 30 cm from source  
 Pulse rate : 10 pulses / s  
 Source size : 3 mm  
 Pulse length : 50 nanosecondes  
 Exposure control : can be set from 1 to 999  
 Time delay : selectable

### TECHNICAL DATA

Size : 361 x 148 x 109 mm  
 Weight : 5,3 kg  
 Power supply : rechargeable batteries Li-ion 18-20 V  
 Battery life : 5500 pulses approx.  
 Maximum energy : 270 kVp  
 Beam angle : 40°  
 Output : 2.6 milliroentgens per pulse at 30 cm from source  
 Pulse rate : 15 pulses / s  
 Source size : 3 mm  
 Pulse length : 25 nanosecondes  
 Exposure control : can be set from 1 to 999  
 Time delay : selectable

### XRS 3





## X-RAY SYSTEM STRATOS

The STRÁTOS is a rugged multi-application imager built with advanced CR technology. The STRÁTOS with True Flat Scan Path (TFSP) is the perfect solution for evaluation of unknown, sensitive, or potentially explosive items needing evaluation. The STRÁTOS is easy to load and unload using either ridged cassettes or flexible plate readers. The STRÁTOS has a reliable, simple drive mechanism and an in-line, solid state LED eraser. The patented TFSP technology keeps image plates from bending, therefore prolonging the life of the image plates.



The scanner outputs 16-bit grayscale resolution (65,536 levels of gray) providing a high level of contrast. The software-driven settings make it easy to manage different materials and jobs by quickly optimizing exposure times and cycle times. The STRÁTOS delivers high quality, high-resolution results at an affordable price.

The versatile STRÁTOS allows users choice of either rigid cassette or flexible imaging plates. This scanner has potentially unlimited settings for a variety of applications or techniques. Using the patented TFSP technology, image plates do not bend, meaning the quality images do not degrade over time. And the in-line, solid state eraser provides effortless plate cleaning. The contact free scanning method protects the image plates and scanner against damage from dust or debris during processing. The user-friendly STRÁTOS delivers years of low maintenance functionality.

Designed with a sturdy frame and minimal fragile parts allows the STRÁTOS to be used in any lab or onsite facility. Certified with drop and vibration testing the STRÁTOS is rugged and dependable. The True Flat Scan Path technology guarantees that the plates do not bend, and that the quality of the images does not degrade. The phosphor screen never leaves its protective cassette, preserving the image quality and preventing any damage during image acquisition.

### TECHNICAL DATA

Height : 7.3" - 18.5 cm
Width : 17.9" - 45.4 cm
Length : 30.7" - 77.9 cm
Weight : 47 lb - 21.3 kg
Voltage : 110-240 AC
Image Plate Sizes : 14" x 17", 10" x 12" 35 x 43 cm, 25 x 30 cm
Interface : USB 2.0
Pixel Pitch : 100 µm
Scanning Process : True Flat Scan Path Magnetic Drive Belt
Grayscale Resolution : 16 bits/pixel source file 65,536 shades of gray
Throughput : 46 IP plates per hour
Operating Conditions Temperature : 0 to 40C/32 to 105F
Temperature Change : 0.5C/min
Humidity : 15%-95% RH
Magnetic Fields : max 1260 µT
(in conformance with EN 61000-4-8: level 3)

# X-RAY SYSTEM SOSTÓS

- IP67 and glass-free
- 3 mm bottom and side border
- Lightest weight
- AED mode with no on-site connection needed
- Flat panel 28 x 28 cm

Logos Imaging's SOSTÓS complements the range of our newest, and most rugged small format DR imaging systems.

Logos Imaging was the first to introduce a glass-free DR imager to the security market, and the SOSTÓS system with the 2626N panel continues Logos Imaging's commitment to the leading edge of DR imaging design.

The system is no different to its bigger counterparts, and like the XIRÓS and STENÓS it also offers the advantages of built in wireless communications and a removable battery that provides three hours of operation for situations where ultra-portability and up to 275 m\* wireless communications are desirable.





## X-RAY SYSTEM SOSTOS

The SOSTÓS 2626N panel's glass-free design allows for the smallest borders on the market at just 3 mm on two sides, and minimal dead space on the remaining sides, making 83% of the imager surface an active area.

This design, coupled with IP67 rated enclosure, provides users an undeniable advantage over competitive systems regardless of where the job site is located.

Ideally suited for dismounted SOF operations, the SOSTÓS full wireless system in a backpack configuration weights just under 11 lb (5 kg).

With internal wireless communication, the SOSTÓS is perfect for users that want to quickly assess an item.



At 2.6 lb (1.2 kg) and only 0.6 in (15 mm) thin, the SOSTÓS panel can be easily transported on target with minimal effort.

In environments where wireless communication is acceptable, the entire imaging system consists of only a flat panel detector, an operating PC, LIA Security software, carrying case, wireless control device, and a Golden Engineering Source.

If desired by the user, the AED mode (Automatic Exposure Detection) allows to capture the X-ray images directly on the panel, which does not need any kind of connection, with the X-ray being fired manually from the generator. The panel shows a visible image count reflecting how many images are already stored - with the space for up to 300 images, we hope its potential to trully fill the gap.

The two batteries included in the system allow for a total of up to six hours of operation on a single battery charge, in almost any environment.

With the removable handle and antenna, this is a perfect solution when all one needs is to grab some X-ray images for further inspection off-site.

\* Line of Sight

### TECHNICAL DATA

Panel :  
 Technology : Amorphous Silicon with TFT  
 Scintillator : Gadox DRZ Plus  
 Pixel area : 258 x 258 mm  
 Pixel matrix : 1536 x 1536 pixels  
 Pixel size : 168 µm  
 Limiting resolution : 2,98 lp / mm  
 AD conversion : 16 bits  
 Dimensions : 280 x 283 x 15 mm  
 Border : 3 mm  
 Protection : IP 67  
 Weight : with battery 1,2 kg  
 Power supply : rechargeable battery - 3 h autonomy

Communication interface :  
 Wifi IEEE 802.11ac  
 Or LAN filaire

Communications range :  
 Wifi 275 m with standard antenna  
 Wired option 15 m à 200 m.

Minimal required specifications for the PC :  
 Processor : Core i7  
 RAM : 4 Go  
 Hard disk : 500 Go  
 Screen : 14"  
 Resolution : 1600 x 900  
 System : Windows 7 Professionnel

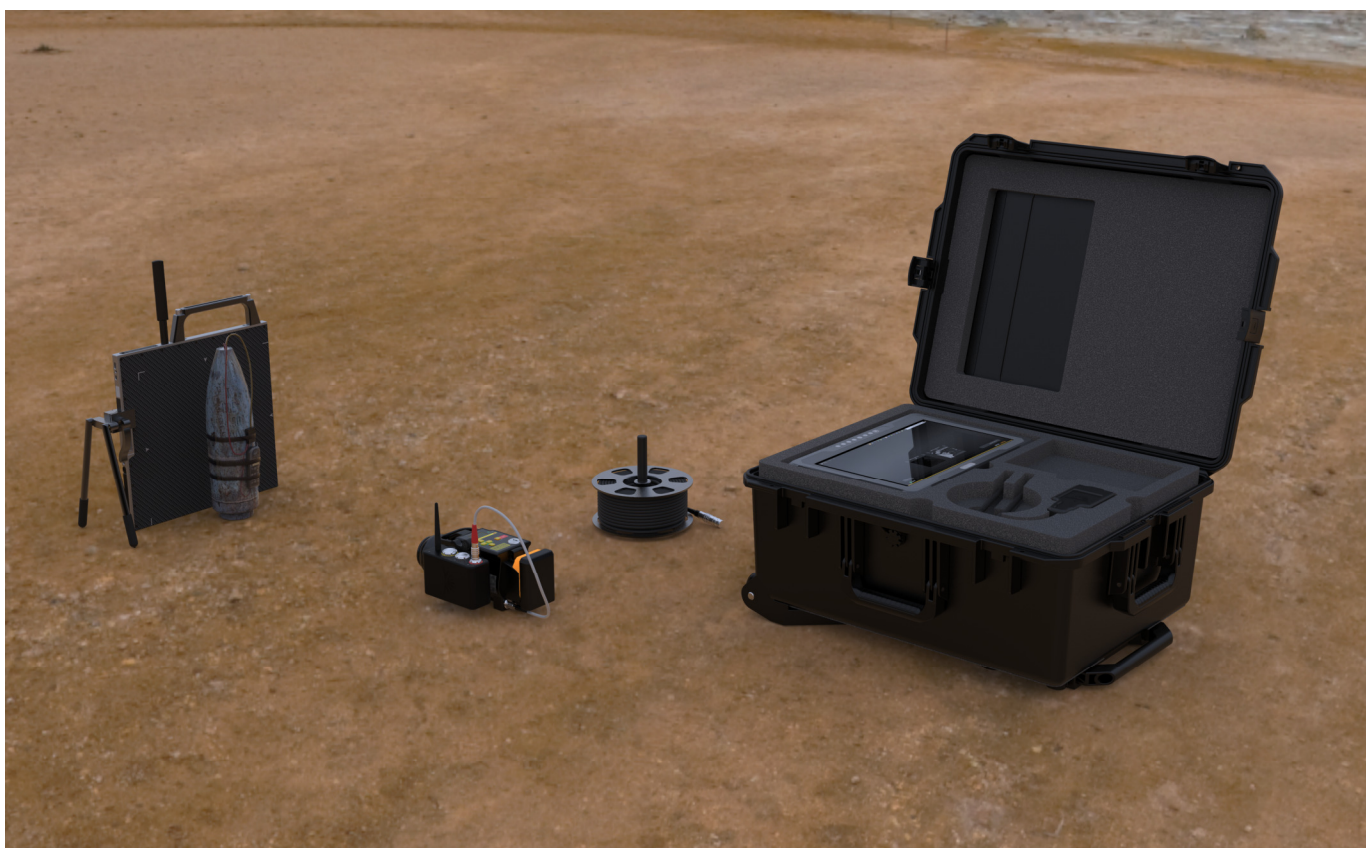
# X-RAY SYSTEM XIROS

- IP67
- 3 mm Bottom Border
- High Resolution and Sensitivity, 140  $\mu\text{m}$  Pixel Size, 3.5 lp/mm
- Glass-Free
- Flat Panel 33 x 33 cm

Logos Imaging's XIRÓS is our newest, and most rugged small format DR imaging system.

We were the first to introduce a glass-free DR imager to the security market with the PRÓTOS, and the XIRÓS system with the 2929N panel continues Logos Imaging's commitment to the leading edge of DR imaging design.

The system also offers the advantages of built-in wireless communications and a removable battery that provides eight hours of operation for situations where ultra-portability and up to 400 m wireless communications are desirable.





## X-RAY SYSTEM XIROS

The XIRÓS 2929N panel's glass-free design allows for the smallest borders on the market at just 3 mm.

Coupled with the IP67 rated enclosure, this feature allows the XIRÓS 2929N panel to stand apart from the competition in durability.

This design provides users an undeniable advantage over competitive systems regardless of where the job site is located.

Ideally suited for dismantled EOD operations, the XIRÓS full wireless system in a backpack configuration weights under 20 lb (9 kg). With internal wireless communication, the XIRÓS is perfect for users that want to quickly assess an item.

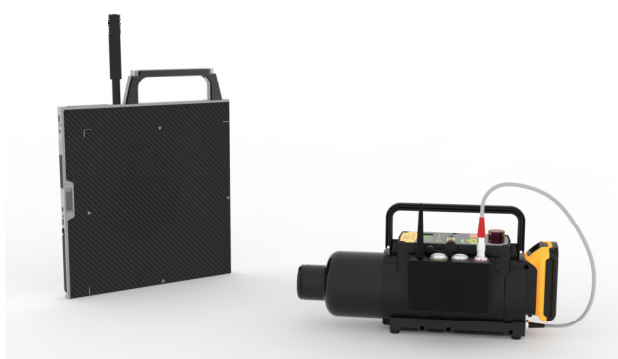
At 5.7 lb (2.6 kg) and only 15 mm thin, the XIRÓS 2929N panel can be easily transported on target with minimal effort.

In environments where wireless communication is acceptable, the entire imaging system consists of only a flat panel detector, an operating PC, LIA Security software, carrying case, wireless control device, and a Golden Engineering Source.

In full wireless mode, the XIRÓS can operate for up to eight hours on a single battery charge. The system includes two batteries for a total of up to sixteen hours of operation on a single battery charge (additional batteries can be purchased to extend run time).

With a wireless range of 400 m\* users can work safely in almost any environment.

*\* Line of Sight and dependent on antenna used*



### TECHNICAL DATA

Panel :  
 Technology : Amorphous Silicon with TFT  
 Scintillator : Gadax  
 Pixel area : 287 x 287 mm  
 Pixel matrix : 2048 x 2048 pixels  
 Pixel size : 140 µm  
 Limiting resolution : 3,5 lp / mm  
 AD conversion : 16 bits  
 Dimensions : 331,5 x 331,5 x 15 mm  
 Border : 3 mm  
 Certification : IP 67  
 Weight : without battery 2,2 kg, with battery 2,6 kg  
 Power supply : rechargeable battery - 8h autonomy

Communications interface :  
 Wifi IEEE 802.11ac  
 Or wired LAN

Communications range :  
 Wifi 275 m with standard antenna  
 Wifi up to 400 m available as an option  
 Wired option 15 m to 200 m.

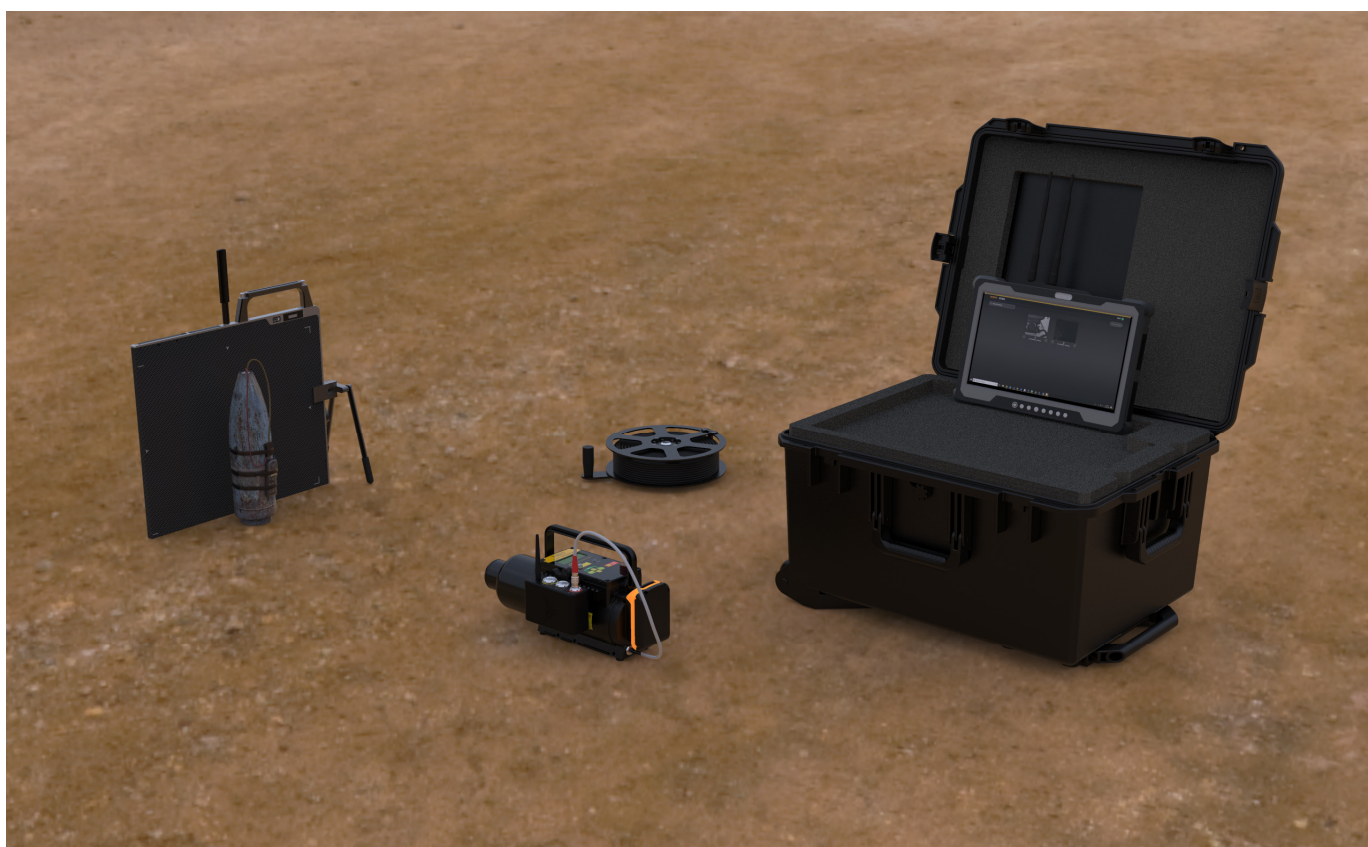
Minimal required specifications for the PC :  
 Processor : Core i7  
 RAM : 4 Go  
 HDD : 500 Go  
 Screen : 14" - 1600 x 900  
 System : Windows 7 Professionnel

# X-RAY SYSTEM STENOS

- IP67
- 3 mm Bottom Border
- High Resolution and Sensitivity, 140  $\mu\text{m}$  Pixel Size, 3.5 lp/mm
- Glass-Free
- Flat Panel 40 x 46 cm

Logos Imaging's STENÓS is our lightest, and most rugged large format DR imaging system. We were the first to introduce a glass-free DR imager to the security market with the 6"x8" PRÓTOS, we followed with the 12"x12" XIRÓS, and now the 14"x17" STENÓS with the 3543N panel further continues Logos Imaging's commitment to the leading edge of DR imaging design.

The panel also offers the advantages of built in wireless communications and a removable battery that provides six hours of operation for situations where ultra-portability and up to 400 m wireless communications are desirable.





## X-RAY SYSTEM STENOS

The STENÓS 3543N panel glass-free design allows for the smallest borders of any 14x17 DR imager in the market at just 3 mm on one side.

Coupled with the IP67 rated enclosure, this allows the STENÓS 3543N panel to stand apart from the 14"x17" competition in durability.

This design provides users an undeniable advantage over competitive systems by providing a solution that stands up to the environmental challenges faced in real-world scenarios and by allowing nearly ground level imaging to be sure the threats are visible.

In full wireless configuration, the STENÓS system in a backpack weights under 22 lb (10 kg). In this configuration, users can quickly assess items using the panel's internal wireless communication and a MAKRINÓS wireless X-ray trigger.



In environments where wireless communication is acceptable, the entire imaging system consists of only a flat panel detector, an operating PC, LIA Security software, carrying case, wireless control device, and a Golden Engineering Source.

In full wireless mode, the STENÓS can operate for up to six hours on a single battery charge. The system includes two batteries for a total of up to twelve hours of operation on a single battery charge (additional batteries can be purchased to extend run time).

With a wireless range of up to 400 m\* users can work safely in almost any environment.

*\* Line of Sight and dependent on antenna used*



### TECHNICAL DATA

Panel  
Technology : Amorphous Silicon with TFT  
Scintillator : Gadax  
Pixel area : 350 x 427 mm  
Pixel matrix : 2560 x 3072 pixels  
Pixel size : 140 µm  
Limiting resolution : 3,5 lp / mm  
AD Conversion : 16 bits  
Dimensions : 402,5 x 460,0 x 15 mm  
Bottom border : 3 mm  
Protection : IP 67  
Power supply : rechargeable battery - 6 h autonomy  
Weight : without battery 3,5 kg, with battery 3,9 kg

Communication interface :  
Wifi IEEE 802.11ac  
or LAN filaire

Communications range :  
Wifi 275 m with standard antenna  
Wifi 400 m as an option  
Wired option 15 m to 200 m

Minimal required specifications for the PC :  
Processor : Core i7  
RAM : 4 Go  
Hard drive : 500 Go  
Screen : 14 "  
Resolution : 1600 x 900  
System : Windows 7 Professionnel

# EXPLOSIVES DETECTION COLORIMETRIC TEST KITS E.L.I.T.E





## E.L.I.T.E EXPLOSIVES DETECTION AND IDENTIFICATION KITS

The ELITE<sup>®</sup> explosives detection and identification kits are simple, reliable, robust and unique in their detection and identification of commercial, military and home-made explosives (HME):

- Model EL100-BX - a box of ten EL100 detection cards. Each disposable card can detect dozens of nitrogen-based explosives as well as bromate mixtures. It can also identify chlorate and perchlorate mixtures and HME precursors.

The EL100 is currently in use with US and other NATO forces as well as police and security agencies around the world. It is known for its ease of use, long shelf life in all operating and storage conditions, robustness, sensitivity and very low false positive rate.



- Model EL240-BX - a box of ten EL240 detection/identifications pens for the peroxide-based explosives (HME) such as TATP, HMTD and MEKP. The EL240 distinguishes the peroxides from chlorates by a color differentiation; orange for peroxides and blue for chlorates. The EL240 is the only disposable kit that can detect and identify solids as well as liquids (MEKP and hydrogen peroxide solutions).

The pen-like design provides protection against static and friction-sensitive HME. The EL240 also has a very long shelf life, is robust and has a very low false positive rate.



The ELITE<sup>®</sup> detection kits are designed to be used in a variety of conditions and by users of different skill and knowledge levels.

Currently the ELITE<sup>®</sup> is used by forensics specialists in post-blast investigations, law enforcement and military groups in attack-the-network (ATK) operations, and by security guards screening personnel, passengers, and vehicles for evidence of explosives.

The ELITE<sup>®</sup> detection kits are available in a variety of field kits complete with ancillary devices, field guides and heating methods.

# EXPLOSIVES DETECTION KITS

## EL-100

NETRO AROMATICS	SWAB	EXP	TEST	+
1. Nitrobenzene (DNB)				
2. 2,4-Dinitrobenzene (DNB)				
3. 2,6-Dinitrobenzene (DNB)				
4. 2,4,6-Trinitrobenzene (DNB)				
5. 2,4-Dinitrophenol (DNB)				
6. 2,6-Dinitrophenol (DNB)				
7. 2,4,6-Trinitrophenol (DNB)				
8. 2,4-Dinitroanisole (DNB)				
9. 2,6-Dinitroanisole (DNB)				
10. 2,4,6-Trinitroanisole (DNB)				
11. 2,4-Dinitrofluorobenzene (DNB)				
12. 2,6-Dinitrofluorobenzene (DNB)				
13. 2,4,6-Trinitrofluorobenzene (DNB)				
14. 2,4-Dinitrochlorobenzene (DNB)				
15. 2,6-Dinitrochlorobenzene (DNB)				
16. 2,4,6-Trinitrochlorobenzene (DNB)				
17. 2,4-Dinitroiodobenzene (DNB)				
18. 2,6-Dinitroiodobenzene (DNB)				
19. 2,4,6-Trinitroiodobenzene (DNB)				
20. 2,4-Dinitroethylbenzene (DNB)				
21. 2,6-Dinitroethylbenzene (DNB)				
22. 2,4,6-Trinitroethylbenzene (DNB)				
23. 2,4-Dinitropropylbenzene (DNB)				
24. 2,6-Dinitropropylbenzene (DNB)				
25. 2,4,6-Trinitropropylbenzene (DNB)				
26. 2,4-Dinitrobutylbenzene (DNB)				
27. 2,6-Dinitrobutylbenzene (DNB)				
28. 2,4,6-Trinitrobutylbenzene (DNB)				
29. 2,4-Dinitropentylbenzene (DNB)				
30. 2,6-Dinitropentylbenzene (DNB)				
31. 2,4,6-Trinitropentylbenzene (DNB)				
32. 2,4-Dinitrohexylbenzene (DNB)				
33. 2,6-Dinitrohexylbenzene (DNB)				
34. 2,4,6-Trinitrohexylbenzene (DNB)				
35. 2,4-Dinitroheptylbenzene (DNB)				
36. 2,6-Dinitroheptylbenzene (DNB)				
37. 2,4,6-Trinitroheptylbenzene (DNB)				
38. 2,4-Dinitrooctylbenzene (DNB)				
39. 2,6-Dinitrooctylbenzene (DNB)				
40. 2,4,6-Trinitrooctylbenzene (DNB)				
41. 2,4-Dinitrodecylbenzene (DNB)				
42. 2,6-Dinitrodecylbenzene (DNB)				
43. 2,4,6-Trinitrodecylbenzene (DNB)				
44. 2,4-Dinitrododecylbenzene (DNB)				
45. 2,6-Dinitrododecylbenzene (DNB)				
46. 2,4,6-Trinitrododecylbenzene (DNB)				
47. 2,4-Dinitrotridecylbenzene (DNB)				
48. 2,6-Dinitrotridecylbenzene (DNB)				
49. 2,4,6-Trinitrotridecylbenzene (DNB)				
50. 2,4-Dinitrohexadecylbenzene (DNB)				
51. 2,6-Dinitrohexadecylbenzene (DNB)				
52. 2,4,6-Trinitrohexadecylbenzene (DNB)				
53. 2,4-Dinitroheptadecylbenzene (DNB)				
54. 2,6-Dinitroheptadecylbenzene (DNB)				
55. 2,4,6-Trinitroheptadecylbenzene (DNB)				
56. 2,4-Dinitrooctadecylbenzene (DNB)				
57. 2,6-Dinitrooctadecylbenzene (DNB)				
58. 2,4,6-Trinitrooctadecylbenzene (DNB)				
59. 2,4-Dinitrodocosylbenzene (DNB)				
60. 2,6-Dinitrodocosylbenzene (DNB)				
61. 2,4,6-Trinitrodocosylbenzene (DNB)				
62. 2,4-Dinitrotricosylbenzene (DNB)				
63. 2,6-Dinitrotricosylbenzene (DNB)				
64. 2,4,6-Trinitrotricosylbenzene (DNB)				
65. 2,4-Dinitrotetracosylbenzene (DNB)				
66. 2,6-Dinitrotetracosylbenzene (DNB)				
67. 2,4,6-Trinitrotetracosylbenzene (DNB)				
68. 2,4-Dinitroheptacosylbenzene (DNB)				
69. 2,6-Dinitroheptacosylbenzene (DNB)				
70. 2,4,6-Trinitroheptacosylbenzene (DNB)				
71. 2,4-Dinitrotriacontylbenzene (DNB)				
72. 2,6-Dinitrotriacontylbenzene (DNB)				
73. 2,4,6-Trinitrotriacontylbenzene (DNB)				
74. 2,4-Dinitroheptacosylbenzene (DNB)				
75. 2,6-Dinitroheptacosylbenzene (DNB)				
76. 2,4,6-Trinitroheptacosylbenzene (DNB)				
77. 2,4-Dinitrotriacontylbenzene (DNB)				
78. 2,6-Dinitrotriacontylbenzene (DNB)				
79. 2,4,6-Trinitrotriacontylbenzene (DNB)				
80. 2,4-Dinitroheptacosylbenzene (DNB)				
81. 2,6-Dinitroheptacosylbenzene (DNB)				
82. 2,4,6-Trinitroheptacosylbenzene (DNB)				
83. 2,4-Dinitrotriacontylbenzene (DNB)				
84. 2,6-Dinitrotriacontylbenzene (DNB)				
85. 2,4,6-Trinitrotriacontylbenzene (DNB)				
86. 2,4-Dinitroheptacosylbenzene (DNB)				
87. 2,6-Dinitroheptacosylbenzene (DNB)				
88. 2,4,6-Trinitroheptacosylbenzene (DNB)				
89. 2,4-Dinitrotriacontylbenzene (DNB)				
90. 2,6-Dinitrotriacontylbenzene (DNB)				
91. 2,4,6-Trinitrotriacontylbenzene (DNB)				
92. 2,4-Dinitroheptacosylbenzene (DNB)				
93. 2,6-Dinitroheptacosylbenzene (DNB)				
94. 2,4,6-Trinitroheptacosylbenzene (DNB)				
95. 2,4-Dinitrotriacontylbenzene (DNB)				
96. 2,6-Dinitrotriacontylbenzene (DNB)				
97. 2,4,6-Trinitrotriacontylbenzene (DNB)				
98. 2,4-Dinitroheptacosylbenzene (DNB)				
99. 2,6-Dinitroheptacosylbenzene (DNB)				
100. 2,4,6-Trinitroheptacosylbenzene (DNB)				





## E.L.I.T.E EL-100 EXPLOSIVES DETECTION

NSN 6665-01-591-1607

The E.L.I.T.E.™ **Model EL100 Explosives Detection Kit** takes reliable explosives detection to the next level. The EL100 exceeds existing kits in:

- 1) **Detection Capability:** detects 50% more types of explosives
- 2) **Sensitivity:** is up to 10000% more sensitive
- 3) **Reliability:** has at least twice the shelf life of many existing kits
- 4) **Ease of Use:** there are no bottles or vials

The E.L.I.T.E.™ EL100 reliably detects the presence of explosives and propellants. It is self-contained, requiring only a small auxiliary heating system such as a butane lighter or battery powered heater.

To collect a sample, rub the EL100 swab on the suspect area, object or person and then place the swab back into the card for testing.

Several categories of explosives can be tested with one EL100, including nitro aromatics, aliphatics, inorganics, bromates, chlorates and perchlorates. Very bright color changes indicate the presence of a broad range of military, commercial and inorganic explosives and propellants. The entire test takes less than two minutes. Some examples of positives for TNT, Tetryl, 2,6 DNT, RDX and ANFO (left to right):



### Model EL100-BPH

**Battery Powered Heater** – portable heating device for EL100. The portable heater operates on NiMH rechargeable batteries and is designed to operate for an eight-hour shift of normal, intermittent usage. It extends the range of the EL100 and improves sensitivity.



### Model EL100-BLH

**Heating Jig** – the heating jig is designed for use with an open flame such as a cigarette lighter of some sort. The jig folds on itself for easy storage. It extends the range of the EL100 and improves sensitivity.

# EXPLOSIVES IDENTIFIERS IDEX





## IDEX EXPLOSIVES IDENTIFIERS

Individual disposable testers that identify visible amounts of unknown substances:

Model IDEX-001: nitro-aromatics (e.g. TNT, tetryl, tri-nitro benzene)  
 Model IDEX-002: AN (ammonium nitrate)  
 Model IDEX-003: UN (urea nitrate)  
 Model IDEX-004: CHL (chlorates)  
 Model IDEX-005: PCHL (perchlorates)  
 Model IDEX-006: NIT (nitrates)  
 Model IDEX-007: PH (phosphates)  
 Model IDEX-008: AA (acetic anhydride)  
 Model IDEX-009: PX (peroxides: TATP, HMTD, MEKP, H<sub>2</sub>O<sub>2</sub>)  
 Model IDEX-010: U (urea)  
 Model IDEX-011: Al (aluminum)  
 Model IDEX-012: Mg (magnesium)  
 Model IDEX-013: Fe (iron/iron oxide)

The IDEX™ Series of explosives identifiers each identify only one category of explosive or precursor instead of testing for a broad range of explosives. The IDEX™ Series are designed to identify visible amounts of explosives through a color change on a sampler tip - detecting/identifying bulk explosives rather than trace amounts of explosives.

Models in the IDEX™ Series would generally be used to:

- Test found substances, visible to the naked eye, when particular explosives/precursors are of concern
- Back-up sniffer or bench-top instruments to clear or verify alarms
- Back-up screening kits such as E.L.I.T.E.™ series of colorimetric detection kits

Every IDEX™ tester is packaged in a convenient, disposable (and recyclable) plastic tube that's durable yet easy to open and is easily carried in a pant or shirt pocket - in fact several can fit into a pants pocket and ten or more into a cargo pocket. Each tester is a stand-alone, disposable, colorimetric test kit that uses chemical reagents - no ancillary equipment is required for operation. Reagents are fully contained inside each tester and the user is not exposed to any of the chemical reagents during operation. The operators can use the outer package of the IDEX™ to take a forensic sample of found material. Each IDEX™ includes a forensics label on which operators can record data such as GPS location, data, time, etc.

Here's a summary of IDEX™ Series' features:

- Portable and rugged packaging - no sharp edges to dig into skin
- Small but easy to handle. Package is cylindrical less than 3" long and less ~ 3/4" diameter
- Reagents are fully contained - no exposure to the operator
- Operator training in 15 minutes or less
- Each kit is completely disposable
- Kits contain no electronics and no ancillary equipment is required
- Field test for each type of explosive or substance as marked on each kit
- Each kit contains usage instructions and color guide as well as a forensics label
- Shelf-life of 2 years



Each IDEX™ tester is packaged inside a rugged plastic tube. - no sharp edges, rugged, durable.



IDEX™ Testers are easy to carry.



Tester being removed from outer package.



Example of chlorate positive, sampler tip turns from white to dark blue.

# EXPLOSIVES TRACE DETECTOR E3500

- Delivers laboratory-grade accuracy to the field
- Rapid, accurate and easy to read results in seconds
- Detects nitrogen-, ammonia- and peroxide-based explosive compounds
- Battery powered for true portability



## APPLICATIONS

- Force Protection
- Customs
- VIP Screening
- Embassies and Consulates
- Royal and Diplomatic Protection
- Critical Infrastructure
- High Security Events



## EXPLOSIVES TRACE DETECTOR E3500

The rugged E3500 explosives trace detector uses Chemilux to detect homemade, military and commercial explosives, including ICAO taggants, plastics, ammonium nitrate, black powder, other nitrates and peroxide-based explosives such as TATP and HMTD.

Build to withstand rough handling and tough environments, the E3500 packs potent detection capability into a lightweight, durable thermoplastic housing. The handheld E3500 analyzes both particulates and vapors in seconds, without the need for radioactive isotopes or carrier gases. This product delivers unsurpassed accuracy, speed and reliability for detecting the most dangerous and cleverly concealed threats.

It is ideal for security checks, law enforcement, fight against terrorism because it allows a discreet search of luggage, mails, vehicles, documents and containers, even individuals who could have handle explosive substances.

The E3500 detector uses two detection modes: the mode "particles" and the mode "vapors". The vapors are directly sniffed by the nose of the device. The collection of particles is done by passing the hand on the areas of the suspect object. The samples are then transferred to a reusable grid to insert into the device for analysis. This duality allows the operator to choose the most appropriate sampling method. The results are read in a few seconds on the LCD screen of the device. A volume sound signal adjustable is issued in case of alarm.



### TECHNICAL DATA

Detector: Chemilux

Analysis Time: 16 seconds

Detects: Military, commercial and homemade explosives: C4, TNT, NG, dynamite, black powder, PETN, Semtex, RDX, ANFO, ICAO taggants (DMNB, EGDN, o-MNT, p-MNT), ammonium and urea nitrates, TATP and peroxides

Detection Level: Nanogram sensitivity

Sample Collection: Particulates and vapors

Warm-up Time: None, after one minute start

Alarms: LED indicator lights, large LCD display for status messages, audible alarm

Power Supply: 12 volt DC rechargeable six hour battery pack, 12 volt AC adapter

Voltage: 90-264 VAC, 47-63 Hz universal switching

Unit Weight: 2.7 kg (5.9 lb)

Unit Dimensions: 50 x 14 x 11 cm (20 x 5.5 x 4.3 in)

Shipping Weight: 14 kg (31 lb)

Shipping Dimensions: 52 x 26 x 39 cm (22 x 10 x 14 in) (L x W x H)

Operating Temperature : 0 to 55°C (32 to 131°F)

Storage Temperature: -5 to 65°C (23 to 149°F)

Communication: RS-232 serial output port

Data Storage: 1000 retrievable data records

Options: Earphone





## DESTRUCTION

Hard wired exploder .....	100 - 105
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# WIRED EXPLODER ATLAS 300

Compact and robust  
Single lithium battery  
Versatile sockets





## EXPLODER ATLAS 300

**ATLAS 300** is an electronic capacitor exploder, very compact sized and sturdy, designed for firing electric detonators.

This device is very easy to use : pressing the CH button charges the capacitors; when the capacitors are charged, the firing can be triggered by pressing simultaneously the F button. If more power is needed, the capacitors can be charged to a higher voltage by keeping the CH button pressed for 3 more seconds.

The exploder **ATLAS 300** is supplied by a single lithium photo battery (cheap and widespread). A bicolour led indicates the state of the battery.

It is integrated in robust aluminium box, equipped with polyester control panel integrating the buttons and the lights. The leds' luminosity level can be selected by the user and thus adapted to the work conditions (day / night).



Made in France



The **ATLAS 300** exploder is equipped with versatile sockets, allowing to directly clamp the leads or to connect any type of 4 mm banana plugs.

It features one firing output, equipped with safety sockets, in order to avoid that the user can be in contact with the dangerous output voltage.

**ATLAS 300** exploder feature many security levels : permanent shunt on the firing output, battery voltage monitoring, automatic discharge of the capacitors when the charge button is released, permanent measurement of the capacitors voltage, to fire 2 buttons must be pressed simultaneously, firing is allowed only when the capacitors are charged enough, safety sockets and plugs, monitoring by micro-controller, self-test of the control panel lights.



Dimensions of ATLAS-300 :  
150 x 60 x 35 mm

### TECHNICAL DATA

Box	aluminium IP65
Dimensions	150 x 60 x 35 mm
Weight	approx. 200 g
Power supply	CR2 lithium battery
Continuity test	integrated
Security levels	listed above
Compatibility F3 detonator	yes
Firing output	1
Charging voltage	320 V mini - 395 V maxi
Energy	5 J mini - 7.5 J maxi
Charging time	5 s
Autonomy	200 firings at 20°C
Shunt on the outputs	internal shunt

# WIRED EXPLODER ATLAS 350

Compact and robust  
Security key  
Single lithium battery  
Certification Ineris EMF14MA4002





## WIRED EXPLODER ATLAS 350

**ATLAS 350** is an electronic capacitor exploder, very compact sized and sturdy, designed for firing electric detonators.

This device is very easy to use : pressing the CH button charges the capacitors; when the capacitors are charged, the firing can be triggered by pressing simultaneously the F button. If more power is needed, the capacitors can be charged to a higher voltage by keeping the CH button pressed for 3 more seconds.

The exploder **ATLAS 350** is supplied by a single lithium photo battery CR 123 (cheap and widespread). A bicolour led indicates the state of the battery.

It is integrated in robust aluminium box, equipped with polyester control panel integrating the buttons and the lights. The leds' luminosity level can be selected by the user and thus adapted to the work conditions (day / night).

It features one firing output, equipped with safety sockets, in order to avoid that the user can be in contact with the dangerous output voltage.



**ATLAS 350** exploder feature many security levels :

security key, permanent shunt on the firing output, battery voltage monitoring, automatic discharge of the capacitors when the charge button is released, permanent measurement of the capacitors voltage, to fire 2 buttons must be pressed simultaneously, firing is allowed only when the capacitors are charged enough, safety sockets and plugs, monitoring by micro-controller, self-test of the control panel lights.

### TECHNICAL DATA

Box	aluminium IP65
Dimensions	120 x 85 x 35 mm
Weight	approx. 300 g
Power supply	CR123 lithium battery
Continuity test	integrated
Security levels	listed above
Compatibility F3 detonator	yes
Firing output	1
Charging voltage	300 V mini - 395 V maxi
Energy	9 J mini - 15 J maxi
Charging time	5 s
Autonomy	200 firings at 20°C
Shunt on the outputs	internal shunt



# WIRED EXPLODER ATLAS 450



Made in  
France

Very easy to use

Powerful : 440 V - 22 J

Rugged

Watertight IP67

Solid state

Galvanic isolation

Conformity to MIL-STD 810 G

Certification INERIS  
EMF19MA4002  
of Conformity to the French  
ordinance of Dec 11, 1992





## WIRED EXPLODER ATLAS 450

**ATLAS-450** is a hard wired electronic exploder, designed for firing of electric detonators. It is a compact, robust and powerful equipment, especially designed for missions of engineering battalions or EOD teams, needing an important security distance.

This device is very easy to use : pressing the CH button charges the capacitors; when the capacitors are charged, the firing can be triggered by pressing simultaneously the F button.

Two charging levels are available. The first level is reached quickly and is suitable for most applications. A second step, offering more power, is reached with extended charging, thus allowing to store more energy into the capacitors.

**ATLAS 450** exploder features many security levels :

- security key
- automatic discharge of the capacitors when the charge button is released
- permanent measurement of the capacitors voltage
- to fire 2 buttons must be pressed simultaneously
- firing is allowed only when the capacitors are charged enough
- permanent shunt on the firing output
- battery voltage monitoring
- safety sockets and plugs
- monitoring by micro-controller
- self-test of the control panel lights
- redundancy of certain functions



This exploder controls one firing line and integrate a line-continuity test. It is equipped with versatile sockets, allowing to directly clamp the leads or to connect any type of 4 mm banana plugs.

The rugged aluminium box is waterproof IP 67, Nato green color, and equipped with a polyester control panel, which integrates the buttons and the lights. The leds' luminosity level can be selected by the user and thus adapted to the work conditions (day / night).



The exploder **ATLAS 450** is power supplied by three CR 123 lithium photo batteries (cheap and widespread). A bicolour led indicates continuously the state of the batteries.

An optional maintenance dashboard software can be used to display the exploder's parameters, to test the main functions and diagnose any anomalies.

### TECHNICAL DATA

Aluminium enclosure IP 67  
Dimensions : 200 x 80 x 45 mm  
Weight : 580 g  
Power supply : 3 lithium CR 123 batteries  
Autonomy : > 300 firings at 20°C  
1 firing output with line continuity test  
Charging voltage : 450 V maximum  
Energy : 22 J maximum  
Charging time : 6 s approx. for the first step, 10 s approx. for the second step  
Operating temperature : -20°C to +55°C

#### Standards :

MIL-STD 810 G, method 516 procedure II (shocks)  
MIL-STD 810 G, method 516 procedure IV (drops)  
MIL-STD 810 G, method 501 procedure II (temp. 55°C)  
MIL-STD 810 G, method 502 procedure II (temp. -20°C)  
MIL-STD 810 G, method 512 procedure I (1m immersion)  
Conformity to the French ordinance of December 11th, 1992 (INERIS certificate)

# REMOTE CONTROLLED EXPLODER ATLAS 150 RC



Made in  
France



Five receiver units

Lithium batteries CR 123

Rugged design IP 67

Very compact



## COMPACT REMOTE CONTROLLED EXPLODER ATLAS 150 RC

The **ATLAS 150 RC** is a radio-controlled electronic exploder, designed for remote firing of electric detonators. It is a compact equipment, especially designed for explosive method of entry and other missions requiring low firing line lengths.

It consists of a control unit and 5 receiver units (paired at the factory), packaged in a foamed carrying case.

The housings are extremely rugged aluminium, IP 67 waterproof, dark colors, with dominant black and grey. They are particularly well adapted to harsh environments.



The receiver units control each one firing line and integrate a line-continuity test. They are equipped with versatile sockets, allowing to directly clamp the leads or to connect any type of 4 mm banana plugs. They are powered by two cheap and widespread photo lithium batteries, model CR 123.

The control unit allows to remotely control the receiver units individually (only one receiver unit) simultaneously (all receiver units) or by group (several receiver units, chosen by the user). Its control panel indicates information from the receiver units : the battery voltage, the state of the radio communication, the level of capacitors' charge, the faults.

This system incorporates many levels of security : a secure encrypted communication protocol, a safety delay, a multistep firing sequence, the presence of a shunt on the line, an automatic capacitors discharge, a permanent control of the capacitors' voltage, the need to simultaneously press 2 buttons to trigger firing, the firing is made only when the capacitors are fully charged, safety terminals, an operation supervision by a microcontroller, the redundancy of certain functions.

Another control unit, less compact, with improved ergonomics and advanced features is also available as an option (the version name is ATLAS 150 RC-2).



### TECHNICAL DATA

#### Receiver Unit

IP 67 aluminium housing  
Dimensions: 90 x 80 x 45 mm, 145 x 80 x 45 overall  
Weight: 450 g  
Power supply: 2 lithium batteries CR 123  
Battery life: 150 hours (6 days) minimum at 20 ° C, in sleep  
1 firing output with integrated continuity tester  
Output voltage: 30 V approximately  
Stored energy: 2 J approximately  
Charging time : about 4 s  
Radio frequency: 869 MHz  
Radio Power: < 0.5W  
Radio channel: 5 channels are available (factory)  
Scope: >2500 m line of sight at 20°C with 1/2 wave antennas  
Temperature: -20 ° C to + 55 ° C

#### Control Unit

IP 67 aluminium housing  
Dimensions: 90 x 80 x 45 mm, 145 x 80 x 45 overall  
Weight: 450 g  
Power supply: 2 lithium batteries CR 123  
Battery life: minimum 10 h at 20 ° C  
Controls up to 5 receiver units  
Radio frequency: 869 MHz  
Radio Power: < 0.5W  
Radio channel: 5 channels are available (factory)  
Scope: >2500 m line of sight at 20°C with 1/2 wave antennas  
Temperature: -20 ° C to + 55 ° C

# REMOTE CONTROLLED EXPLODER ATLAS 250 RC



Made in  
France



Very easy to use  
Powerful : 390 V - 14 J  
Rugged design  
Watertight IP67  
Solid state  
Encrypted communication  
Galvanic isolation  
Autonomy 6 days in sleep mode



## REMOTE CONTROLLED EXPLODER ATLAS 250 RC

**ATLAS 250 RC** is a radio-controlled electronic exploder, designed for remote firing of electric detonators. It is a compact, robust and powerful equipment, especially designed for missions of engineering battalions or EOD teams, needing an important security distance.

It consists of a control unit and 5 receiver units (paired at the factory), packaged in a foamed carrying case.

The housings are made of extremely rugged aluminium, IP 67 waterproof, painted in Nato green color. They are powered by cheap and widespread lithium batteries CR 123.

The receiver units control each one firing line and integrate a line-continuity test. They are equipped with versatile sockets, allowing to directly clamp the leads or to connect any type of 4 mm banana plugs.

The control unit allows to remotely control the receiver units individually (only one receiver unit) simultaneously (all receiver units) or by group (several receiver units, chosen by the user). Its control panel indicates in real time the important information from the receiver units : the battery voltage, the status of the radio communication, the step in the firing sequence (receiver not armed, receiver armed, capacitors charging, fully charged), and the faults.



The operation of the exploder **ATLAS 250**

**RC** is very easy and intuitive. The firing sequence consists in several steps, in order to strictly prevent non intentional firing and thus ensure the user's safety : safety delay, arming of the receiver units, capacitor's charging and finally firing.

This system incorporates the following levels of security : an encoded safety key, a secure encrypted communication protocol, a safety delay, a multi-step firing sequence, the presence of a shunt on the firing output, an automatic capacitors' discharge, a permanent control of the capacitors' voltage, the need to simultaneously press 2 buttons to trigger the firing, the firing is made only when the capacitors are fully charged, the safety terminals, the operation supervision by a micro-controller, and the redundancy of certain functions.



### TECHNICAL DATA

#### Receiver Unit

IP 67 aluminium housing  
Dimensions: 200 x 80 x 45  
Weight: 580 g  
Power supply: 3 lithium batteries CR 123  
Battery life: 150 hours (6 days) min at 20°C, in sleep mode  
1 firing output with integrated continuity tester  
Output voltage: 390 V approximately  
Stored energy: 14 J approximately  
Charging time : about 5 s  
Radio frequency: 869 MHz  
Radio Power: < 0.5W  
Radio channel: 5 channels are available (factory)  
Scope: > 2500 m LOS at 20°C with 1/2 wave antennas  
Temperature: -20 ° C to + 55 ° C

#### Control Unit

IP 67 aluminium housing  
Dimensions: 175 x 80 x 45 mm  
Weight: 490 g  
Power supply: 2 lithium batteries CR 123  
Battery life: minimum 10 h at 20 ° C  
Controls up to 5 receiver units  
Radio frequency: 869 MHz  
Radio Power: < 0.5W  
Radio channel: 5 channels are available (factory)  
Scope: > 2500 m LOS at 20°C with 1/2 wave antennas  
Temperature: -20 ° C to + 55 ° C

#### Waterproof transit case

Dimensions : 46.2 x 34 x 17 cm - Weight : 6.3 kg

# REMOTE CONTROLLED EXPLODER ATLAS 160 RC



**7" tablet with user-friendly software**

**20 receiver units**

**Rugged design**

**Very compact**



## COMPACT REMOTE CONTROLLED EXPLODER ATLAS 160 RC

The **ATLAS 160 RC** is a radio-controlled electronic exploder, designed for remote firing of electric detonators. It is a compact equipment, especially designed for explosive method of entry and other missions requiring low firing line lengths.

It consists of a 7" tablet-based control unit and 20 receiver units (paired at the factory), packaged in foamed carrying cases.

The receiver unit's housings are extremely rugged aluminium, IP 67 waterproof, dark colors, with dominant black and grey. They are particularly well adapted to harsh environments.

The receiver units feature each one firing line and integrate a line-continuity test. They are equipped with versatile sockets, allowing to directly clamp the leads or to connect any type of 4 mm banana plugs. They are powered by two cheap and widespread photo lithium batteries, model CR 123.

The tablet-based control unit allows to remotely control the receiver units individually (only one receiver unit) simultaneously (all receiver units) or by group (several receiver units, chosen by the user). It indicates real time information from the receiver units : the status of the receiver units, the batteries' voltage, the state of the radio communication, the level of capacitors' charge, the faults.



This system incorporates many security levels :

- a secure encrypted communication protocol
- a safety delay
- multistep firing sequence
- presence of a shunt on the line
- automatic capacitors discharge
- permanent control of the capacitors' voltage,
- need to sequentially press 2 buttons to trigger firing
- firing made only when capacitors fully charged
- safety terminals
- operation supervision by a microcontroller
- redundancy of certain functions

A user-friendly software allows an easy and safe control of the receiver units. It consists in several tabs that give a clear view of the available information. The user can customize the software by choosing his display settings and can import a aerial picture of the operation's area where the receiver units can be located. This gives a global view of the receiver unit's location and status.

### TECHNICAL DATA

#### Receiver Unit

IP 67 aluminium housing  
Dimensions: 90 x 80 x 45 mm, 145 x 80 x 45 overall  
Weight: 450 g  
Power supply: 2 lithium batteries CR 123  
Battery life: 150 hours (6 days) minimum at 20 ° C, in sleep  
1 firing output with integrated continuity tester  
Output voltage: 30 V approximately  
Stored energy: 2 J approximately  
Charging time : about 4 s  
Radio frequency: 869 MHz - Radio Power: < 0.5 W  
Radio channel: 5 channels are available (factory)  
Scope: >2500 m line of sight at 20°C with 1/2 wave antennas  
Temperature: -20° C to + 55° C

#### Control Unit

Rugged tablet (IP65, MILSTD-810G) & USB transmitter unit  
Screen : 7" - resolution 1280 x 800 px - brightness 1000 nits  
OS : Win10  
Dimensions: Tablet : 220 x 135 x 21 mm  
Transmitter unit : 84 x 36 x 20 mm  
Weight: 720 g  
Power supply: lithium-ion rechargeable battery  
Battery life: 6 h at 20 ° C  
Controls up to 20 receiver units  
Radio frequency: 869 MHz - Radio Power: < 0.5 W  
Radio channel: 5 channels are available (factory)  
Temperature: -10° C to + 50° C

# FIRING LINES

## LT-100, LT-200 et LT-350



- Very robust
- Twisted cable NSN 6145-99-017-3378
- Safety sockets
- Shunt
- Brake
- Three sizes : 100 m, 200 m, 350 m



## FIRING LINES MOUNTED ON DRUMS

The firing lines consist of :

- twisted firing cable, colour black / brown, section 2 x 0,75 mm<sup>2</sup>, **NSN 6145-99-017-3378**
- a drum made of butyl rubber, very robust, black colour

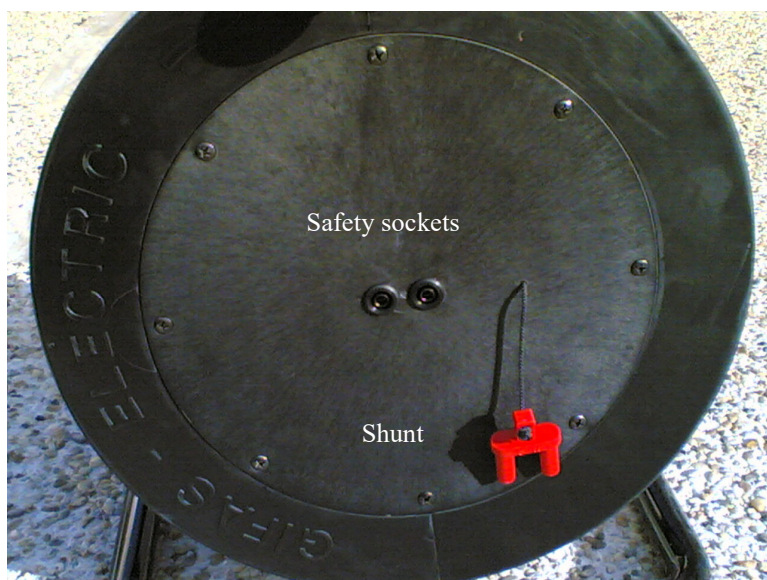
These firing lines exist in 3 different lengths :

Reference	Length	Diam. of drum
LT-100	100 m	24 cm
LT-200	200 m	30 cm
LT-350	350 m	35 cm

### Front of the drum :

The front of the drum is fitted with two safety sockets (4 mm female) for connection of the exploder.

Two clip on lead safety plugs are also supplied for the connection on the two safety sockets.



A shunt is also supplied with the drum and can be connected on the sockets, if the user wishes.



### Back of the drum :

The black knob located in the back of the drum is used to tighten the drum's brake.

Turning in the clockwise direction tightens the brake, while turning in the anti-clockwise direction releases the brake.

Warning : make sure that the brake is not tightened before to roll or unroll the firing line.



# LIGHTWEIGHT FIRING LINES

## 50 m and 100 m





## LIGHTWEIGHT FIRING LINES

Designed for teams that need to fire disrupters, de-armers or detonators with firing cable.

Suitable for use with a wide range of initiation devices.

Used for demining, conventional disposal and lightweight dismantled C-IED roles.

Available in lengths of 50m or 100m.

The lightweight and compact aluminium reel makes transport easy.

Equipped with standard 0.75mm<sup>2</sup> black and brown twisted cable



### TECHNICAL DATA

#### Materials:

Main body: aluminium  
Axles: Polyacetal  
Fittings: Stainless  
Strap: Fabric

#### Construction:

Reel: Aluminium and acetal construction. Fitted with winding handle and hand strap, and connectors.

#### Cable:

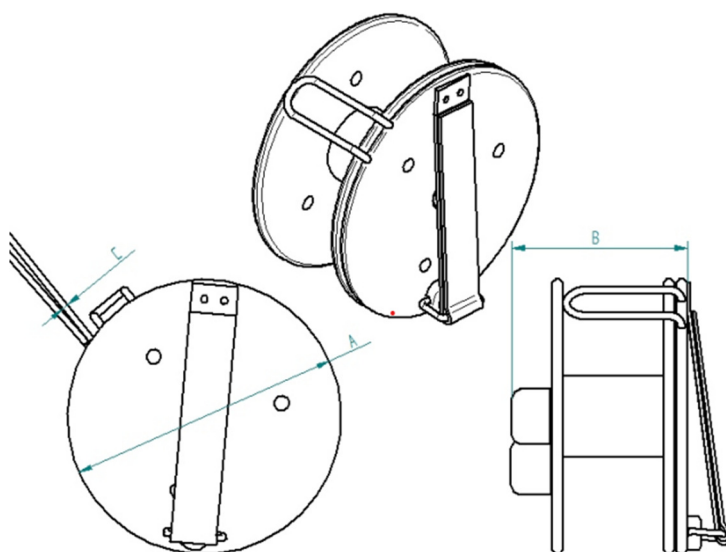
Detonator firing circuit cable. Twisted Brown/Black PVC Insulated cores specially designed for strength, electrical conductivity and concealment. Standard 0.75 mm<sup>2</sup> plain annealed copper conductor cores, insulated with PVC  
Voltage rating: 300/500V  
No of strands: 24  
Strand diam: 0.2mm  
Nom insulation thickness: 0.65mm  
Nom diam: 2.44mm  
Nom diam over sheath: 4.88mm  
Conductor DC Resistance @ 20degC: 26ohm / km

#### Defence Standards:

61-12 PT 17/1  
NSN 6145-99-017-3378

#### Dimensions:

Reel diameter : 150mm  
Reel width :  
101mm for 50 m reel  
180mm for 100 m reel  
Weight (reel and cable):  
1.6kg for 50 m reel  
4.0kg for 100 m reel



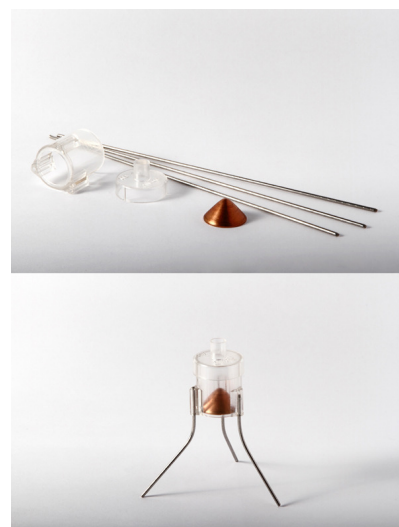
## PENETRATING SHAPED CHARGE ITS-2101

The 25 mm penetrating shaped charge **ITS-2101** (NSN 1375 14 486 6741) is in the form of a transparent cup provided at its base with three receptacles for receiving three support legs.

A cover pierced by a central hole is used as a fuse holder, allowing the nominal operation of the shaped charge. It closes the upper part of the shaped charge.

A copper cone is inserted inside the housing to form the shaped charge. It is removable to facilitate the preparation of the charge and the explosive loading of the latter.

The shaped charge consists of : 1 body, 1 cover, 1 copper cone and 3 feet.



## CUTTING SHAPED CHARGES ITS-2102, ITS-2103, ITS-2104

The cutting shaped charge is in the form of a transparent U-shaped vessel equipped at its base with four supporting legs. Two end blades enable the association, if necessary, of several cutting charges, placed end to end, in order to form an elongated charge.

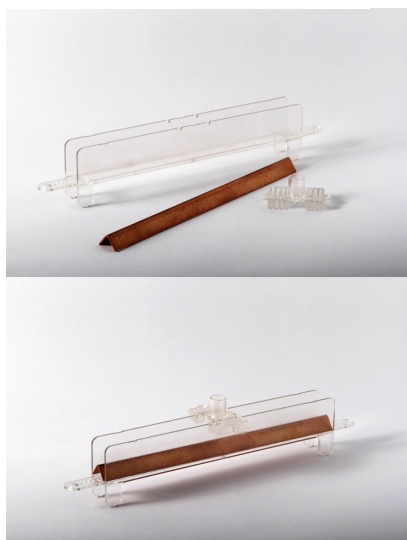
A cover pierced by a central hole is used as a fuse holder. The latter may be positioned at the center of the charge or at one of its ends, as a function of the desired effect.

A copper wedge is inserted inside the housing to form the shaped charge. Thereof is removable to facilitate the preparation of the load, improving the adhesion of the explosive on copper and facilitate the loading of the explosive.

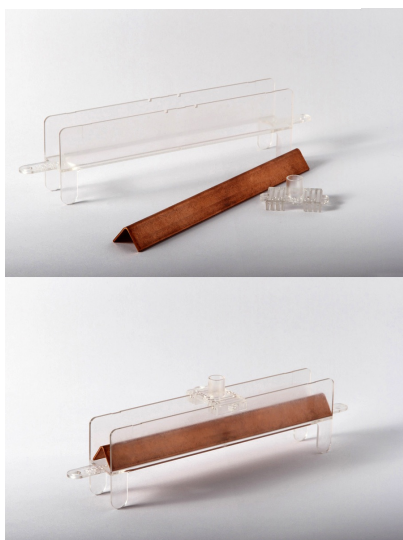
The shaped charge consists of: 1 body, 1 cover and 1 copper dihedral.



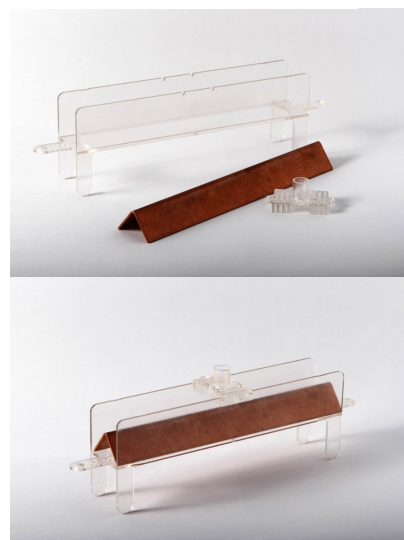
**ITS-2102** : 15 x 150 mm  
NSN : 1375 14 486 6742



**ITS-2103** : 20 x 150 mm  
NSN : 1375 14 486 6743



**ITS-2104** : 25 x 150 mm  
NSN : 1375 14 486 6744





## WINDOW BREAKER PT1042A

NSN 1385-99-766-4569



The PT1042A Window Breaker is a single shot cartridge designed to break vehicle windows to provide access to IEDs. Each batch of cartridges are ballistically tested to ensure consistent performance.

The PT1042A Window Breaker is capable of breaking toughened/hardened glass. It meets UK MoD DOSG requirements.

Window Breaker may be deployed in conjunction with a disruptor so that render safe procedures may be carried out following vehicle entry. It can be used with disruptors such as Pigstick, Hotrod, ABL2000 and ABL3000. It can also be mounted and fired separately without the use of a disruptor if necessary.

## TECHNICAL DATA

## GENERAL

Body: Plastic

Weight: 30g

Caliber: 22mm

Case Length: 78mm

Shelf Life: 5 years under controlled temperature (+5°C to +30°C)

## CLASSIFICATIONS

Hazard Class: 1.4S

UN Number: 0323

## PACKAGING

Size (LxWxH): 310 x 190 x 160mm

Quantity per container: 18 x Cartridges

This cartridge contains an explosive content and is to be used by trained and authorised personnel only. Do not fire at persons or in areas with easily flammable materials. Incorrect handling may cause injury.

# DETONATOR BAG PROTECTION SYSTEM



The detonator bag is designed to protect soldiers when carrying electrical detonators/primary explosives for triggering explosive devices. If an accident occurs and one detonator explodes, the specially designed system makes sure that the other detonators do not ignite due to chainreaction. The explosion stays in the shell/bag and thereby completely eliminates the risk to the operator/soldier. This option makes it possible to transport detonators and explosives on the same vehicle, helicopter or boat.

The multi strap system provides functionality and quick fastening of the ballistic unit to the existing equipment system of the personnel. The multi strap system can be customized for any type of equipment and the fabric can be chosen for any type of military uniform colour. The configuration of the bag is always the same when ordering the bag with the Nato stock number, but the appearance of the bag can afterwards be changed if so needed.

The bag is developed and tested in cooperation with the Danish Army and is used by Danish Armed Forces stationed abroad.



## DETONATOR BAG PROTECTION SYSTEM



Ballistic protected inner compartment equipped with velcro for fast and easy fixation of the small ballistic protected detonator shell. The detonator block contains 4 detonators.



The 4 detonators are secured in the ballistic protective detonator block. The portable detonator storage unit is designed from high performance aramide and a special rubber in a sealed urea envelope.



The three components (bag, shell and detonator block) can separately be replaced if a damage has occurred on one of the components.



Both the fabric as well as the multi strap system can be customized for any type of equipment.

### TECHNICAL DATA

Material: 100% Polyamide 6.6 Cordura with a PU-coating.

Ballistic Protection: Polyethylene and aramid high performance fibre.

Dimensions: Outer bag approx.: 220 x 180 x 70 mm - Inner bag approx.: 120 x 120 x 50 mm.

Weight: Approx. 1.0 kg.

Nato Stock Number: 5140226255201



## BALLISTIC SHIELD

The main function of mine sweeping shield is to improve user's protection against fragments moving on high speed in various mine sweeping assignments. Shield's structure is based on high performance material that has good kinetic energy absorption properties combined in light weight. Shield can be used by two persons at the same time if necessary.

Shield's functioning is based on a ballistic panel that provides ballistic protection and gives shield its structural strength. Combining those characters above in same structure is usually problematic because improving mechanical properties reduces ballistic properties and similarly optimising ballistic properties

Shield is provided with two aluminium telescopic legs which are easily replaceable and makes holding the shield up possible. Two spare legs is included and they are placed inside the bag. There are four hinges for fastening the legs. One in each corner that makes it possible to use shield in different positions. There is also two spare hinges in a pocket inside the bag. Legs are wear resistant and their length is adjustable. Grip on ground is improved by spikes whose length is optional. During transportation and storing legs can be fastened with clipses inside the shield.



Handle is rigid, made of polyurethane elastomer and reinforced with a steel insert. It is fastened with screws on the backside of shield.

The shield is supplied with its storing and transportation bag, made of wear resistant material.

decreases strength. High performance aramid fibre has been used as reinforcement in the shield. Aramid weaved layers are laminated to each other by modified phenolic resin. This is optimal structure to combine structural strength and stiffness, ballistic performance and lightness.

Shield is provided with two hatches which can be blocked with two transparent shutters made of laminated anti-scratching material. Hatches with shutters makes it possible to work behind the shield still protected against fragments. Shutters are provided with mechanical fastening and using mechanism and they can be locked on two positions, open and closed.

Soft Velcro tape fastened fabric cover reduces scratching during transportation and storing.



### TECHNICAL DATA

Height : 1300 mm  
Width 730 mm  
Colour : dark green AN11 or customer defined  
Protective area 0,97 m<sup>2</sup>  
Hatches : 140 x 140 mm

Weight :  
Ballistic panel : 9,4 kg/m<sup>2</sup> approx.  
Fully equipped shield : 15 kg approx.

V50-value : over 600 m/s, including shutters  
(tested according to Stanag 2920)

Tested against .44 Magnum and 9 mm FMJ bullets  
(according to NIJ IIIA).  
Panel does fulfil the norm, shutters not.



## BALLISTIC PAW

The **Ballistic Paw** is a self-fill device using a non-explosive flammable liquid, classified HAZMAT Class 3, mixed with a small quantity of sensitizer immediately before use. At this point the device becomes an explosive unit. It is supplied in a rugged Peli case holding 40 devices, less detonators.

Immediate advantages over conventional 1.1 explosives: security, transportation, compatibility and shipping / product costs.



### TECHNICAL DATA

UN Class 3 Flammable Liquid (Air/Land/Sea/Rail) for movement  
27% greater power than TNT equivalent.

VOD approx 6800 m/s.

1620 Pelicase packaging (27 kg total weight) 40 units

2400 Peli "Storm" Case packaging (7 kg total weight) 6 units

Device all up weight : 350 g

Takes any military/civilian detonator as well as det cord booster  
EOD uses for all munitions ranging from (AP) to large metal cased munitions (can be used in tandem on larger targets employing the vent and burn technique)

Directional – point focal

Steel Plate > 30 mm penetration

Simple tripod / 45 degree attack angle – can be fired on all axis planes

No tools required, simple to use and minimal training required

Rapid deployment times / stand down times (det removed, liquid poured out immediately making device safe).



### Ballistic Paw demonstration



# DISRUPTOR PIGSTICK

The Pigstick Disruptor is an established 'general purpose' disruptor suitable for render safe procedures on IEDs such as those in parcels and briefcases.





## DISRUPTOR PIGSTICK

Pigstick has been in active service for over 30 years with many bomb disposal teams worldwide and has proven to be an extremely reliable method of disruption.

The Pigstick disruptor is a multi-shot device capable of many firings and requires minimal maintenance. Training may be carried out using the equipment without detriment to its service performance.

Pigstick may be deployed using the supplied anti roll clamp, an optional lightweight or telescopic stand or by mounting to a Remotely Operated Vehicle (ROV).

Preparation of the disruptor is straightforward and quick to achieve and may be carried out remotely from the target to enhance operator safety.

Pigstick is constructed from non corroding stainless steel parts. Prior to release each equipment is subjected to an over pressure test and flaw detection.



### EQUIPMENT

Carry Case L22A1-BAG

Disruptor Assembly (incl clamp) TX-52GA

Loading Tool TX-1454

Split Sleeve Adaptor TX-2267

Contents Card 3320-001

Screwdriver Large 3320-002

Screwdriver Small 3320-003

Pigstick Handbook 3320-005

Brush Handle 3320-008

1 ltr Bottle with Cap ABL1000-19

Brush



### CARTRIDGES

Pigstick is operated by a bespoke cartridge. Each batch of cartridges are ballistically tested to ensure correct and consistent performance. The cartridges are supplied in multiples of 40 packaged within an M2A1 container complete with all required consumable parts.



### TECHNICAL DATA

#### DISRUPTOR

Weight: 2.95kg

Length: 485mm

Main Body Diameter: Ø 37mm

Rear Body Diameter: Ø 50mm

#### HOLDALL

Weight: 4kg

Length: 500mm

Width: 300mm

Height: 200mm

# DISPOSABLE DISRUPTOR MANTIS





## DISPOSABLE DISRUPTOR MANTIS

NSN: 1385-99-724-7514



The **Mantis** is a general purpose, lightweight, disposable disruptor capable of carrying out render safe procedures on IEDs packaged in containers such as parcels, briefcases or small items.

Mantis has been developed specifically to offer a lightweight disruptor capability having equivalent performance to ABP's other general purpose disruptors.

The Mantis has been tested using impact measurement, radiography, high speed photography & simulated targets to positively verify absolute and comparative performance.

The Mantis is particularly suited to applications such as Special Forces operations where equipment weight and ease of deployment are paramount. The Mantis is also suited for use on small ROV's with limited payload carrying capability or to allow multiple weapons to be carried by a single ROV. Conventional deployment either manually or by ROV is of course possible.

The Mantis is a single shot device, which is supplied piston in place with a closure cap and breech. It is therefore self contained with no cleaning or ancillary equipment required and no armoury / maintenance required.

### KEY DETAILS

- The Barrel is chemically inert and stable over normal EOD operating temperatures.
- Preparation is straightforward and miss-assembly is precluded due to 'piston in place' delivery
- Operates using the 3476-0301 cartridge available from ABP
- Mantis is operated by a bespoke cartridge. Each batch of cartridges are ballistically tested to ensure correct and consistent performance.
- The cartridges are supplied in multiples of 40 packaged within an M2A1 container complete with all required consumable parts.



### TECHNICAL DATA

Weight: 850g  
 Length 442mm  
 Main Body Diameter: Ø 48mm  
 Rear Body Diameter: Ø 73mm  
 Calibre: 26.5mm  
 Water Charge: 140ml  
 Barrel Material: Thermostat Elastomer  
 Breech Material: HDPE

# RECOILLESS DISRUPTOR AND DE-ARMER ABL-1000



- Completely recoilless operation
- Optimal disruptive effect
- Simple to operate
- Can be assembled quickly and easily





## RECOILLESS DISRUPTOR AND DEARMER ABL-1000

The ABL-1000 Recoilless disruptor/de-arder has been developed as a dual role equipment to defeat the threat posed by both IEDs and UXO.

When used as a Disruptor, the ABL-1000, equipped with the supplied disruption barrel, will project a high pressure water slug into the suspect device disrupting the firing circuit and providing a high probability of avoiding detonation.



### TECHNICAL DATA

#### Disruptor

Weight: 5,5kg  
Length: 527mm  
Diameter: Ø 35.7mm

#### De-Armers

Weight: 4,52kg  
Length: 295mm  
Diameter: Ø 35.8mm

#### Holdall:

Weight: 34kg  
Length: 1011mm  
Width: 419mm  
Height: 170mm

#### Equipment

Bottle, Synthetic oil 150 ml  
ABL1000 Handbook  
Barrel Disruptor  
Barrel De-Armer  
Breech Body  
Breech plug (2)  
Tommy Bar  
Piston Compensator (42)  
Loading Tool Assembly  
Recoil Compensator  
Slug Fork Assembly (2)  
Slug Chisel (3)  
Slug Plain (3)  
Shaft Blade (3)  
Cap Closure (10)  
De-Armer Stand Assembly  
Blade-Assy (3)  
Plug Tube End (42)  
Instruction Card  
Brush Large  
Brush Small  
IM3100 Case Foam  
Over Presuer Test Certificate  
1Ltr Bottle with Cap  
Resealable Polythene bag, 57x57mm  
'O' Ring Seal Kit  
Pelicase IM3100  
IM3100 Lid Foam  
MSDS for Young's 303 Oil  
'O' Ring-Body (2)

When used as a de-Armer, fitted with the supplied de-arder barrel, it is able to fire a selection of steel slug chisels or forks to remove or neutralise the fuses of air dropped ordnance and some land service ammunition. In de-arder mode the ABL-1000 may also be used to neutralise IEDs such as pipe bombs and other metal cased devices.

The ABL-1000 is completely recoilless in operation and as such ensures minimal collateral damage in operation and enhances the safety of the operator.

The disruptor/de-Armer is a multi-shot device capable of many firings and requires minimum maintenance. Training may be carried out using the equipment without detriment to its service performance.



0.5 inch cartridge

ABL-1000 may be deployed manually by placing on a suitable surface such as a car seat or sandbag or mounted using the supplied lightweight stand.

Preparation of the disruptor is straightforward and quick to achieve and may be carried out remotely from the target to enhance operator safety.

The ABL-1000 is constructed from corrosion resistant materials. Prior to release each unit is subjected to overpressure and flaw detection tests.

# RECOILLESS DISRUPTOR ABL-2000



- Completely recoilless operation
- Optimal Disruptive effect
- Simple to operate
- Can be assembled quickly and easily
- Exists in titanium lightweight version (ABL-2000L)





## RECOILLESS DISRUPTOR ABL-2000

The ABL-2000 has been subject to a series of formal tests against representative targets, sensitive explosives and pressure measuring systems. These ensure a reliable and consistent disruptive performance with complete recoilless operation and minimum collateral damage as well as maximum operator safety.

The ABL-2000 has been developed to have enhanced capabilities. With a simple substitution of the front barrel assembly and use of the correct projectile, the ABL-2000 can operate as a de-armer capable of firing a range of solid projectiles such as Chisels, Slugs and Forks.



26.5 mm cartridge



### TECHNICAL DATA

#### Disruptor

Weight: 5,44kg  
Length: 550mm  
Width: 260mm  
Height: 130mm

#### Pouch

Weight: 5,44kg  
Length: 550mm  
Width: 260mm  
Height: 130mm

#### Equipment

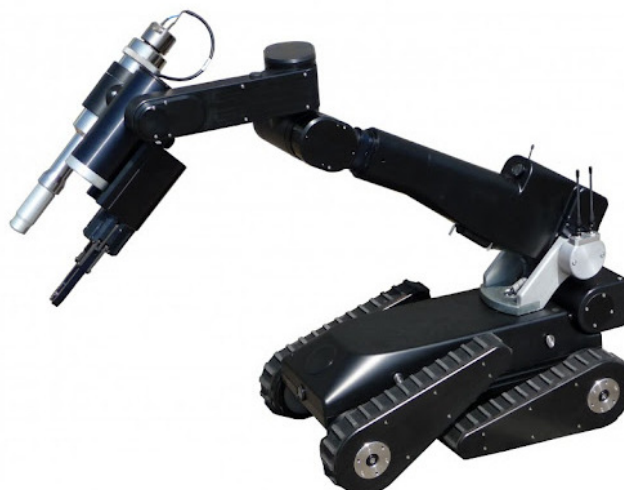
Recoil Piston Removal Tool (2)  
Recoilless Disruptor ABL-2000  
Loading Tool  
Load/Unload Tool  
Carry Case  
Tool Rol  
Laminated Contents Card  
Handbook  
Brush Handle (390 Long)  
Brush (Ø60x120 Long)  
Brush (Ø32x125 Long)  
Brush (Ø14x120 Long)  
Screwdriver Small  
Allen Key 4mm  
Chamois Leather  
100ml Lubricant

The simple changeover of the front barrel assembly provides existing equipment users with a cost effective route to enhanced capability. Other additional accessories are available such as laser aiming systems.

The ABL-2000 Disruptor is a multi-shot device capable of many firings and requires minimal maintenance. Training may be carried out using the equipment without detriment to its service performance. Construction is from corrosion resistant stainless steel and aluminium parts. Prior to release each equipment is subjected to an overpressure test and flaw detection.

Our kits are available in a variety of combinations to suit a range of needs and ensure you're provided with a complete solution which is best for you

Also exists a complete version (disruptor / dearmer) delivered with a case, all the accesories and 15 projectiles.



# RECOILESS DISRUPTOR ABL-3000



- Completely recoilless operation
- Optimal Disruptive effect
- Simple to operate
- Can be assembled quickly and easily
- Exists in titanium lightweight version (ABL-3000L)





## RECOILESS DISRUPTOR ABL-3000

The ABL-3000 is a 'High Power' Recoilless Disruptor designed as a dual role equipment to render safe IED's found in larger or better protected containers.

The ABL-3000 Disruptor has been subject to a series of formal tests against representative targets, sensitive explosives and pressure measuring systems. These tests ensure a reliable and consistent disruptive performance with complete recoilless operation, minimum collateral damage and maximum operator safety.



### TECHNICAL DATA

#### Disruptor

Weight: 5,34kg  
Length: 465mm  
Main Body Diameter: Ø 98mm  
Rear Body Diameter: Ø 68mm

#### Pouch

Weight: 6,5kg  
Length: 550mm  
Width: 330mm  
Height: 120mm

#### Equipment

Load / Unload Tool Front  
Tool roll  
Brush (18 x 36 x 120 long)  
Loading tool  
Recoil piston removal tool (2)  
Chamois leather  
Recoilless disruptor  
Carry case  
Laminated contents card  
Brush (85 x 140 long)  
Brush (60 x 140 long)  
Handbook  
Screwdriver small  
100ml lubricant  
Allen key 4mm  
Brush handle (390 lon)



The disruptor's enhanced capabilities can be unlocked with a simple substitution of the front barrel assembly and use of the correct projectile. This enables the ABL-3000 to operate as a de-armorer capable of firing a range of solid projectiles such as chisels, slugs and forks.

The ABL-3000 is a multi-shot device capable of many firings and requires minimum maintenance. Training may be carried out using the equipment without detriment to its service performance.

The disruptor is constructed from corrosion resistant stainless steel and aluminium parts. Prior to release each unit is subjected to an overpressure test and flaw detection.

Also exists a complete version (disruptor / dearmor) delivered with a case, all the accessories and 15 projectiles.

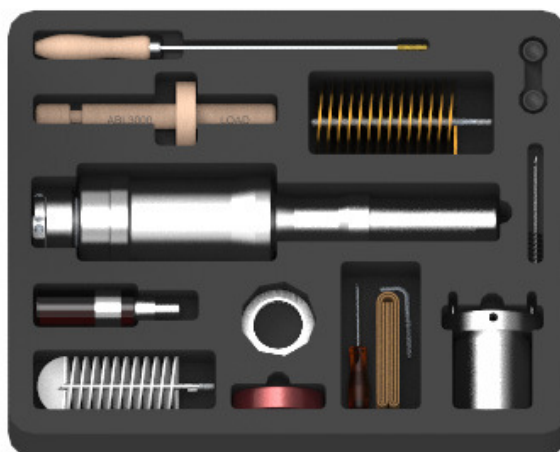


39 mm cartridge

# COMPLETE KIT DISRUPTOR & DE-ARMER ABL-2000, ABL-3000



- Completely recoilless operation
- Optimal Disruptive effect
- Simple to operate
- Can be assembled quickly and easily
- Exists in titanium lightweight version (ABL-2000 L / ABL-3000 L)
- Can be used as a disruptor and a de-armor





## RECOILLESS DISRUPTOR AND DE-ARMER ABL-2000



The kit is delivered in a transit case with all the parts needed for both the disruptor and de-armer configurations, as well as the accessories such as maintenance or cleaning tools.

The kit also comes with 15 projectiles of 3 different shapes for the de-armer.

The barrels can be easily swapped between each other, which provides a good flexibility.

### TECHNICAL DATA

Recoil piston removal tool ( 2 )  
 ABL2000, recoilless disruptor  
 ABL2000, disruptor charging cap  
 ABL2000, rear loading tool  
 ABL2000, front loading tool  
 ABL2000 Complete Kit, ident label  
 ABL2000 Complete Kit, case assy  
 ABL2000 Complete Kit , content card  
 ABL2000 Disruptor / DeArmer, handbook  
 Green laser sight (2)  
 ABL2000, front barrel DeArmer  
 Slug assy, chisel (5)  
 Slug assy, plain (5)  
 Splat Round, packaged, single (5)  
 ABL2000, mount assy  
 Brush (Ø14x120 Long)  
 Chamois leather  
 Lubrucant, spay bottle, 100ml  
 Bag of 20 O-Rings (20.29 I/D x Ø2.62)  
 ABL2000, dual laser mount  
 Brush handle (390 long)  
 Brush, fan end, Ø60x120 (180Lg)  
 Brush Ø32x125 (175Lg)  
 Hex key 4mm  
 Screwdriver, flat, 2.5 x 63mm

## RECOILLESS DISRUPTOR AND DE-ARMER ABL-3000



The kit is delivered in a transit case with all the parts needed for both the disruptor and de-armer configurations, as well as the accessories such as maintenance or cleaning tools.

The kit also comes with 15 projectiles of 3 different shapes for the de-armer.

The barrels can be easily swapped between each other, which provides a good flexibility.

### TECHNICAL DATA

ABL-3000, front loading tool  
 ABL-3000, rear loading tool  
 Recoil piston removal tool (2)  
 ABL-3000, recoilless disruptor  
 ABL-3000, disruptor charging cap  
 ABL-3000 Complete Kit, ident label  
 ABL-3000 Complete Kit, Case Assy  
 ABL-3000 Complete Kit, content card  
 ABL-3000 Disruptor / DeArmer, handbook  
 Green laser sight (2)  
 ABL3000, front barrel DeArmer  
 Recoil disk (5)  
 Splat round , packaged, single (5)  
 Slug Assy, chisel (5)  
 Slug Assy, plain ( 5 )  
 ABL-3000, mount assy  
 Brush (Ø14x120 Long)  
 Brush (Ø85 x 140 x 175lg)  
 Chamois leather  
 Lubricant, spray bottle, 100ml  
 Bag of 10 O-Rings (47.29 I/D x Ø2.62)  
 Bag of 20 O-Rings (20.29 I/D x Ø2.62)  
 ABL-3000, dual laser mount  
 Brush handle (390 long)  
 Brush, fan end, Ø60x120 (180Lg)  
 Hex key 4mm  
 Screwdriver, flat, 2.5 x 63 mm

# ROCKET WRENCH

The ABP Rocket Wrench allows the user to render safe unexploded munitions which incorporate a 'screw-in' fuze assembly attached by either a left or right hand thread.





## ROCKET WRENCH

The Rocket Wrench is firmly attached to the fuze by means of Jaw Clamps and is set to rotation by means of two eccentrically mounted, electrically initiated 0.5" cartridges and as such is operated remotely, keeping the operator at a safe distance.

The Rocket Wrench is designed to be used by Military, Police and other security forces for rendering safe conventional unexploded bombs etc, or Improvised Explosive Devices (IEDs) housed in containers such as fire extinguishers or household gas canisters where the fuze is of a screw-in type.



### EQUIPMENT

Bungee Shock Cord, 2 Hooks 3389-013  
 Brush with Handle, Short 3389-017  
 Ground Spike 3389-019  
 Jaw Grip (2) 3431-002  
 Rocket Wrench Assembly 3431-010  
 Tommy Bar, 6D 160L 3431-041  
 Casing, Rocket Wrench 3431-103  
 Contents Card, Rocket Wrench 3431-105  
 Handbook, Rocket Wrench 3431-106  
 Brush Ø18 x 120LG 3495-0012  
 Lubricant, Spray Bottle, 100ml 3495-0151  
 Spring Pin, SS 302, 2.5x24 (4) DOSP-0041  
 Allen Key, Short Arm, Hex, 8.0mm AF TOOL-0004  
 Spanner, Single End, 15mm TOOL-0005  
 Spanner, Single End, 36mm TOOL-0006



### CARTRIDGES

The Rocket Wrench is operated by a bespoke cartridge. Each batch of cartridges are ballistically tested to ensure correct and consistent performance. The cartridges are supplied in multiples of 50 packaged within an M2A1 container.



### TECHNICAL DATA

#### ROCKET WRENCH

Weight: 5.4kg  
 Length: 260mm  
 Width: 220mm (clamps together) 280mm (clamps apart)  
 Height: 40mm

#### COMPLETE KIT

Weight: 11kg  
 Length: 495mm  
 Width: 395mm  
 Height: 195mm





## TOOLS - HOOK & LINES

Amagnetic tools .....	138
Tripods .....	139
Demining and EOD tool kits .....	140 - 141
Hook & line kits .....	142 - 149
Telescopic manipulator .....	150 - 151

## NON MAGNETIC TOOL KIT 36 PIECES

- 1 Tweezers
- 1 Double end scribe
- 2 Knives
- 1 Scissors
- 1 Hacksaw
- 1 Blade for hacksaw
- 1 Wire brush
- 5 Screwdrivers flat
- 3 Screwdrivers offset
- 4 Screwdrivers crosspoint
- 7 Pliers (cutting, flat nose, round nose)
- 2 Adjustable wrench
- 1 Adjustable pipe wrench
- 1 Hammer ball point
- 1 Hammer sledge german type
- 2 Chisel flat
- 2 Bars lever
- 1 Transit case



## NON MAGNETIC TOOL KIT 85 PIECES

- In addition to the 36 pieces above :
- 24 Socket wrench (12 metric, 12 in inch)
  - 20 Allen keys (10 metric, 10 in inch)
  - 1 Ratchet
  - 1 Sliding T bar
  - 2 Extension bar
  - 1 Universal joint
  - 1 Transit case





## LIGHTWEIGHT TRIPOD

NSN 3950-99-668-0573



A lightweight tripod used in conjunction with other hook & line equipment, offering the ability to lift and manoeuvre objects up to 75 kg.

Your weight burden is reduced by the carbon fibre design which maximises strength whilst minimising weight. The total weight of the tripod (without carrying bag & ancillaries) is just a mere 4.5kg, but it extends to a maximum height of 2.2m.

The legs may be extended to different lengths and the feet swivel, to assist when working on uneven ground and may also be anchored with ground pins. A webbing strap can be connected to the feet to prevent the unit collapsing under load.

The tripod can be deployed by a single operator quickly and easily and comes complete with a range of pulleys to offer multiple solutions.

## EOD TRIPOD

NSN 3950-99-666-7375

A strong tripod, specifically designed for EOD applications. The head is extruded for strength, and the unit is fitted with an integral pulley. Fitted with snap out legs for quick and positive deployment.

The legs may be extended to different lengths to cope with sloping ground. The feet swivel, again assisting when working on uneven ground and may also be anchored with ground pegs (supplied).

A webbing strap is also provided, which may be passed around the feet to prevent the unit collapsing under load. The feet are fitted with eyes, so that an extra pulley may be positioned to improve loading.

Supplied in a cordura carrying bag.





# TOOL KITS

## EOD & DEMINING TOOL KITS





## DEMINING & EOD TOOL KIT EOD-009989



### TECHNICAL DATA

Mine extraction kit prod  
V shape mine probe  
Hand trowel non-metallic  
Mine extraction kit trip wire finder metal  
Magnet with handle  
Edge digger  
2" paint brush  
4" paint brush  
Anvil loppers  
Bush hedge shears  
Power anvil shears  
Bow saw & spare blade  
2kg fibreglass shaft club hammer  
Rigger gloves large  
5m tape measure  
Knee pads  
200mm hand file  
Backpack for all items

- Designed for teams carrying out demining activities.
- Contains investigation tools such as prod, trip wire feeler and brushes.
- Contains vegetation clearing tools such as secateurs, bow saws and shears.
- Contains basic protection gear such as knee pads and gloves.
- Supplied in a fabric bag.

## EOD TOOL KIT TK-2400



### TECHNICAL DATA

Precision wire stripper  
6in straight forceps (insulated)  
6in curved forceps (insulated)  
Soldering iron & gas torch  
ESD safe tweezer set—3pcs  
4-Pronged parts grabber  
Inspection mirror—32mm round  
Probe set 4pcs  
Spudger  
All purpose snips  
Channel lock plier  
Needle nose plier  
Diagonal cutting plier  
Screw driver set 6 pc  
Ceramic folding blade knife  
Ceramic scissors  
Ceramic utility knife  
Ceramic precision knife  
Mini pry bar  
Micro grappling hook  
MOLLE pouch  
Larry light  
Sharpie marker  
Magnifier 3x  
3mm 8plait polyester rope 15m  
Black electrical tape  
LED fixable light  
Inspection mirror LED, 65x42mm  
Leatherman SUPER TOOL 300 EOD

A compact, multi purpose tool kit to assist in EOD operations, and support other EOD equipment.

Packed in a small pouch with Velcro and elastic straps to hold all tools securely.

## DELTA LIGHTWEIGHT HOOK AND LINE KIT

NSN 1385-99-551-7759

This very light kit is designed for **EOD & search operators** working in combat zones. A minimalist kit, with only the **essential tools** for basic hook and line procedures. It is small & light weight, & the thigh pouch storage makes it the perfect solution for rapid response.

Thigh pouch	1
Small reel for 50m 3.5 mm rope	1
Hook and line small suction pad	2
150 mm self locking plier with eye	2
Karabiner with roller	4
Light weight pulling handle	1
Hook, medium double plain	2
Hook, medium double barbed	2
Hook large single plain	2
25 mm eye	2
Piton chisel small	2
Piton chisel large	2
Karabiner (alloy) small screwgate	2
Screw eye self tap	10
Light weight spring grip	2
Sticky eye	4



## TITANIUM DELTA LIGHTWEIGHT HOOK AND LINE KIT

This **very light kit** is designed for **EOD & search operators** working in combat zones. A minimalist kit, with only the essential tools for basic hook and line procedures. It is small & light weight, & the thigh pouch storage makes it the perfect solution for rapid response. Refined from the Delta kit, this kit is **further reduced in weight**. The hooks and pitons are a specialist titanium design, which significantly reduce weight and packing volume.

Thigh pouch	1
Titanium chisel piton	2
Light weight spring grip	1
Small self grip pliers	2
Self grip forceps	1
Titanium hook	6
Sticky eye	4
Wire sling 1.5 mm diameter x 2 m	1
Rope sling 3 mm diameter x 2 m	2
Karabiner with roller	4
Light weight pulling handle	1
Kevlar rope 3.5 mm x 50 m	1





## EPSILON HOOK AND LINE KIT

NSN 1385-99-151-4889



This kit is the basic, standard hook and line kit. It has all the essential tools to carry out complete basic hook and line procedures. Supplied in a rigid carrying case.

Reel: all steel construction with tubular frame, reel diameter 300mm, fitted with brake device and spring loaded clutch mechanism to prevent reel overrun during winding out.

Rope: 5.5mm diameter, Kevlar core with polyester over braid. 120m long, fitted with snap hook, 1% max stretch at full load.

Rigid case	1	Wire sling, 2.0mm dia x 2m long	2
Hook, small single barb	2	Wire sling, 3.0mm dia x 2m long	2
Hook, large single barb	2	Shock cord, 10mm dia x 2m long, soft eye	1
Hook, medium single barb	2	Shock cord, 10mm dia x 1m long, soft eye	2
Reel, white kevlar for hook & line kit	1	Shock cord, 12mm dia x 2m long, soft eye	1
Hook triple barbed with keyring	2	Shock cord, 12mm dia x 1m long, soft eye	2
Snatch block	2	Piton spearpoint small	1
Hook, small single plain	2	Piton spearpoint large	1
Hook, medium single plain	2	Piton chisel small	1
Hook, medium double plain	2	Piton chisel large	1
Hook, medium double barbed	2	Single suction pad with anchor point	2
Hook large single plain	2	Cantilever clamp	1
25mm eye	4	Self grip forceps	2
Rope sling, 3mm dia x 2m long	2	Self grip pliers with eye	1
Rope sling, 4mm dia x 2m long	2	Karabiner (alloy) small screwgate	4
Rope sling, 5mm dia x 2m long	2	Pulling handle	1
Wire sling, 1.5mm dia x 2m long	2	Belt sling	1

## HEAVY DUTY HOOK AND LINE KIT

NSN 1385-99-464-1274



A heavy-duty kit for moving vehicles or heavy suspect objects. The kit contains a range of rated slings and heavy duty snatch blocks. Supplied in a rigid carrying case.

150m reel, with white 10 mm line	1
Webbing sling, 50 mm wide x 2m	2
Webbing sling, 50 mm wide x 6m	2
Round sling, 1m diameter	2
Round sling, 2m diameter	2
Round sling, 4m diameter	2
Stake, short	2
Stake, medium	2
Stake, long	2
D shaped shackle	4
Snatch block	4
Large heavy duty hook, with eye	2
Case	1

# HOOK AND LINE KIT SIGMA





## SIGMA HOOK AND LINE KIT

NSN 1385-99-179-5408

NIC Instruments has developed an extensive range of hook and line equipment to ensure that the explosive ordnance disposal (EOD) operator is able to safely, quickly and efficiently conduct semi-remote actions whilst on operations.

The hook and line kit Sigma is a very high capability kit for pulling and extracting dangerous or suspicious objects. It is the most complete hook and line system.

Twin reels of line give the option of a 2 line pull, and many of the additional tools are designed for working in urban areas, which grant this kit a large versatility. When used with a kit from the Alpha range, the system is able to deal with all hook and line tasks.

It is supplied with a rigid case that ease transport and storage.



### TECHNICAL DATA

Rigid case	1	Piton chisel small	1
Hook, small single barb	2	Piton chisel large	1
Hook, large single barb	2	Single suction pad with anchor point	2
Hook, medium single barb	2	Cantilever clamp	1
Reel, white kevlar for hook & line kit	1	Self grip forceps	2
Reel, black kevlar for hook & line kit	1	Self grip pliers with eye	1
Hook triple barbed with keyring	2	Karabiner (alloy) small screwgate	4
Snatch block	2	Pulley with jammer cleat	1
Hook, small single plain	2	Shackle D shape 13mm gate	1
Hook, medium single plain	2	Screw eye self tap	10
Hook, medium double plain	2	Sliding bar clamp system	1
Hook, medium double barbed	2	Door stop plastic wedge	4
Hook large single plain	2	Pulling handle	1
25mm eye	4	Rope eye	1
Rope sling, 3mm dia x 2m long	2	Telescopic pole for 3 hooks	1
Rope sling, 4mm dia x 2m long,	2	Hook spring gate 15mm	1
Rope sling, 5mm dia x 2m long,	2	Hook spring gate 50mm	1
Wire sling, 1.5mm dia x 2m long,	2	Light weight spring grip	2
Wire sling, 2.0mm dia x 2m long,	2	Belt sling	1
Wire sling, 3.0mm dia x 2m long,	2	Automatic opening snatch block	4
Shock cord, 10mm dia x 2m long, soft eye	1	Torpedo release for 5.5 mm rope	2
Shock cord, 10mm dia x 1m long, soft eye	2	Sticky eye	10
Shock cord, 12mm dia x 2m long, soft eye	1	Gangway brace	2
Shock cord, 12mm dia x 1m long, soft eye	2	Idd skid pan (sledge)	1
Piton spearpoint small	1	Spring gate hook mount for tele pole	1
Piton spearpoint large	1	Triple barb hook mount for tele pole	1

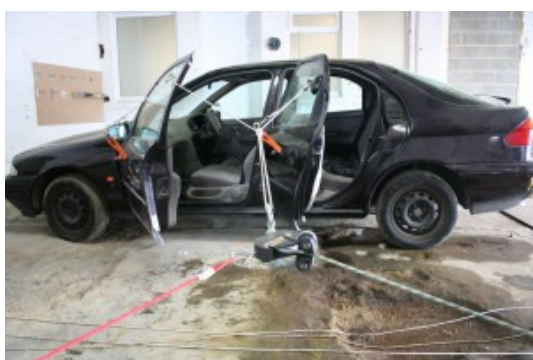
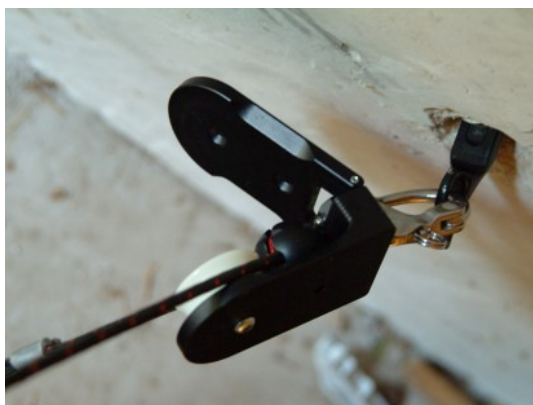
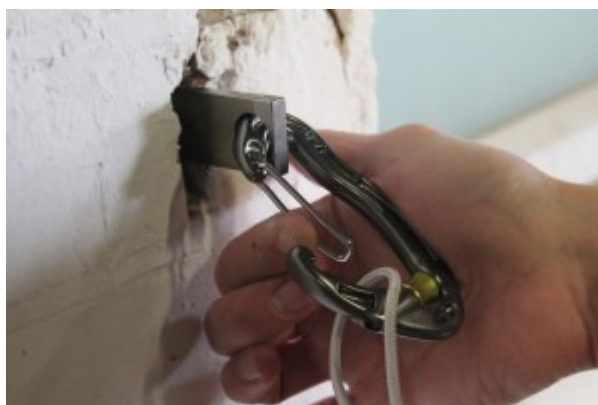


# HOOK AND LINE KITS

**ALPHA 4** for buildings and vehicles

**ALPHA 5** for buildings

**ALPHA 6** for vehicles





## ALPHA 4 HOOK AND LINE KIT

NSN 1385-99-979-2427



Karabiner with roller	4
Button pusher handle attachment	1
Finger pull handle opener attachment	1

Building door lever handle turner clamp	1
Building door knob turner clamp	1
Short screw assembly for clamps	1
Diamond tipped window breaker	1
Self grip handle lifter	1
Button pusher with suction pad	1
Key turner	1
Recessed handle lifter	1
Tyre clamp	1
Over hinge eye	2
Under door eye	2
Cavity wall eye	2
Door pusher attachment	1
Cavity wall eye fitting kit	1
Hood/bonnet a frame	1
Rigid case for hI007100	1
Duck tape 50mm x 50m	1
Self grip pliers with eye	1
Pulley with jammer cleat	1
Sticky eye	10
Gangway brace	1

## ALPHA 5 HOOK AND LINE KIT

NSN 1385-99-184-6338

Karabiner with roller	4
Building door lever handle turner clamp	1
Building door knob turner clamp	1
Key turner	1
Over hinge eye	2
Under door eye	2
Cavity wall eye	2
Door pusher attachment	1
Cavity wall eye fitting kit	1
Rigid case for hI007200	1
Duck tape 50mm x 50m	1
Pulley with jammer cleat	1
Sticky eye	10
Gangway brace	1



## ALPHA 6 HOOK AND LINE KIT

NSN 1385-99-213-3989

Karabiner with roller	4
Button pusher handle attachment	1
Finger pull handle opener attachment	1
Short screw assembly for clamps	1
Diamond tipped window breaker	1
Self grip handle lifter	1
Button pusher with suction pad	1
Key turner	1
Recessed handle lifter	1
Tyre clamp	1
Hood/bonnet a frame	1
Rigid case for hI007300	1
Duck tape 50mm x 50m	1
Sticky eye	10



# HOOK AND LINE KIT GAMMA BACKPACK





## GAMMA B BACKPACK HOOK AND LINE KIT

NSN 1385-99-361-2864

This comprehensive kit brings together much of the functionality of the entire NIC range. Mounted in a backpack, instruments are stored in clear and net pouches. These pouches may be easily detached and exchanged via the Velcro fastenings. The backpack comes with detachable side pouches, which may be used to go forward to specific tasks.

The kit includes 120m of high strength Kevlar rope, a range of hooks, anchoring devices and attachment tools, and the advanced NIC automatic pulley opening system. This system allows suspect devices to be negotiated along complex routes, without the operator having to return to the hazardous area. The kit also includes a selection of search mirrors and telescopic arms from the NIC search equipment range.



### TECHNICAL DATA

Wall stopper small	1	Wire sling 3.0 mm dia x 2m long,	1
Wall stopper large	1	Shock cord 10 mm dia x 2m long, soft eye	1
Self grip 'C' plier with eye	1	Shock cord 10 mm dia x 1m long, soft eye	1
Set of tools in roll up holder	1	Piton chisel large	2
Backpack for hook and line kit	1	Single suction pad with anchor point	2
Box for backpack h&l & 1 reel	1	Cantilever clamp	2
Safe-c security mirror	1	Self grip forceps	1
SM140SS 140 mm diam unbreakable stud mirror	1	Self grip pliers with eye	1
Anchor line	1	Karabiner (alloy) small screwgate	4
Extension rod	2	Karabiner (alloy) large screwgate	2
Reel, white kevlar for hook & line kit	1	Shackle D shape 13 mm gate	2
Hook triple barbed with keyring	1	Screw eye self tap	6
Snatch block	2	Door stop plastic wedge	2
Hook, small single plain	1	Hook spring gate 15 mm	1
Hook, medium single plain	1	Hook spring gate 50 mm	1
Hook, medium double plain	2	Light weight spring grip	1
Hook large single plain	1	Automatic opening snatch block	2
25 mm eye	4	Torpedo release for 5.5 mm rope	2
Rope sling 3 mm dia x 2m long	2	Sticky eye	15
Rope sling 4 mm dia x 2m long,	2	Wedge it black	2
Rope sling 5 mm dia x 2m long,	2	Spring gate hook mount for tele pole	1
Wire sling 1.5 mm dia x 2m long,	1	Triple barb hook mount for tele pole	1
Wire sling 2.0 mm dia x 2m long,	1	Telescopic inspection arm with h&l mount	1



# TELESCOPIC MANIPULATOR AXIS-2





## ROBOTIC HEAD TELESCOPIC MANIPULATOR AXIS-2 NSN : 1385 99 905 0766

The **AXIS-2** robotic telescopic manipulator has been developed with leading EOD operators in the British Army.

The manipulator offers the following advantages:

- Operators may carry out tasks at a 3 meter stand off, offering increased levels of safety.
- Ability to place disrupters, X ray equipment and a host of other tools used in device disposal and investigation.
- Jaws open/close and rotate under powered control. The angle of the jaws is achieved by manual adjustment.
- Adjustable counterweight for perfect balance.
- Telescopic tube sections, that simply plug together.
- Transport case (1700 Pelican).
- Rechargeable battery (charger included).
- Twice the rigidity of other telescopic manipulators.



The claw is positioned at the end of a 3 metre telescopic arm. This standoff distance significantly increases operator safety, in the event of an unplanned detonation. The manipulator also hosts a frangible section. In the event of an unplanned detonation, this section will fail first, significantly reducing the force transferred along the manipulator to the operator.



The extendable counterweight at the rear allows balance to be maintained when working. The counterweight may be preset, so that once a suspect device is lifted, perfect balance is obtained, thus making handling easier for the operator. Fine adjustment of balance may be achieved by moving the manipulator forwards or backwards on the shoulder strap.



The robotic claw is able to manipulate disrupters, X-ray equipment and a host of other tools used in disposal or investigation techniques. The ability to grasp, and rotate objects in the claw also offers the options of moving devices into containment vessels, or to reposition them in.

Once a device is held in the jaws, the ability to rotate the jaws ensures that the device may be moved in the safest orientation for the operator.

### TECHNICAL DATA

Distance of operator to claw : 3 meters  
 Maximal length : 5,1 meters  
 Maximum weight that can be lifted : 15 kg  
 Maximum gripping force : 20 kg  
 Manipulator weight, assembled, ready to use : 14 kg  
 Manipulator weight, collapsed down, in transit case : 21,5 kg  
 Claw maximum opening : 200 mm  
 Claw rotation : 360 degrees continuous  
 Power supply : rechargeable battery 12V 3Ah Ni-MH  
 Operating time : manipulator used in a typical EOD operation : +/- 18 h

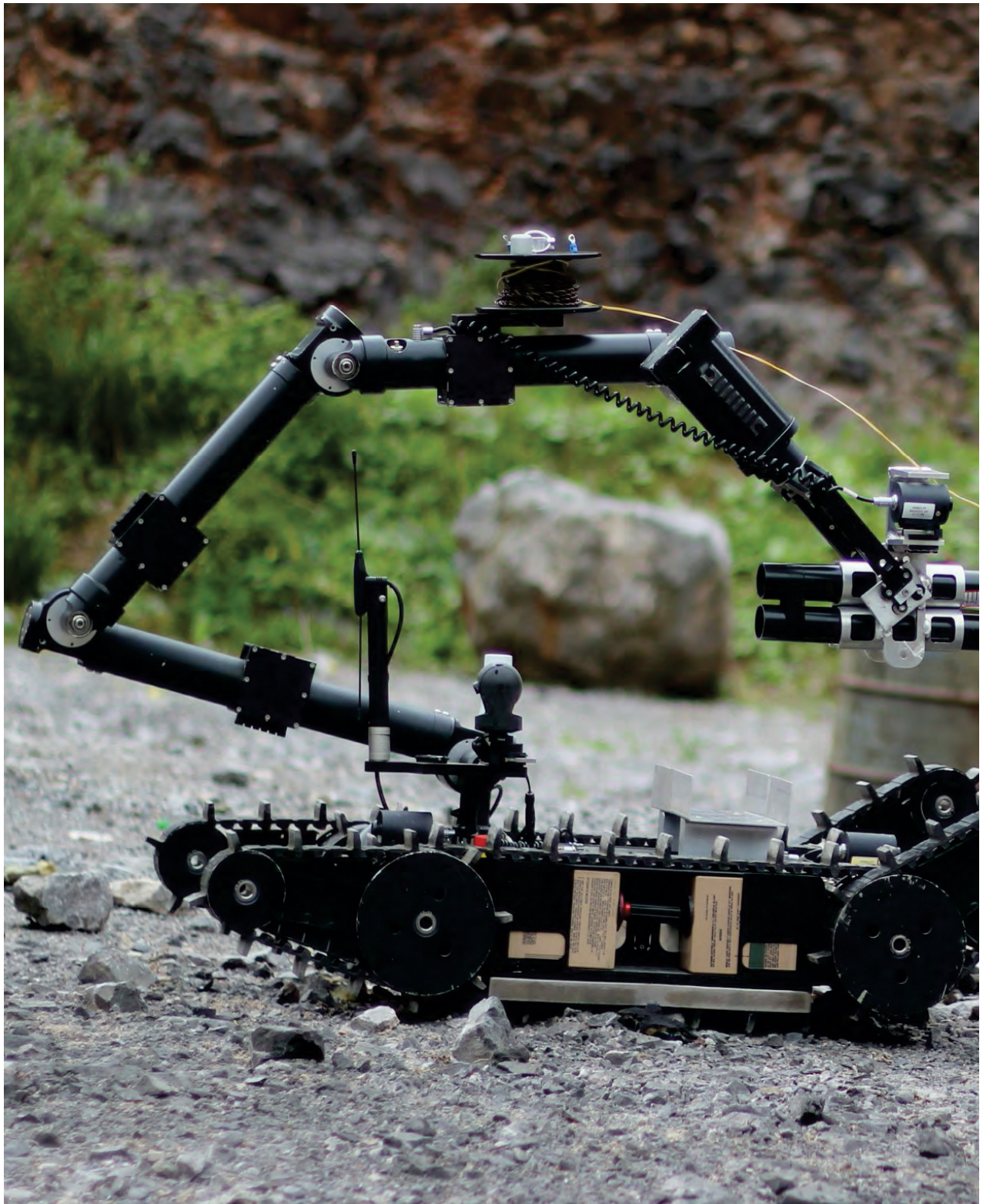




## ROBOTS

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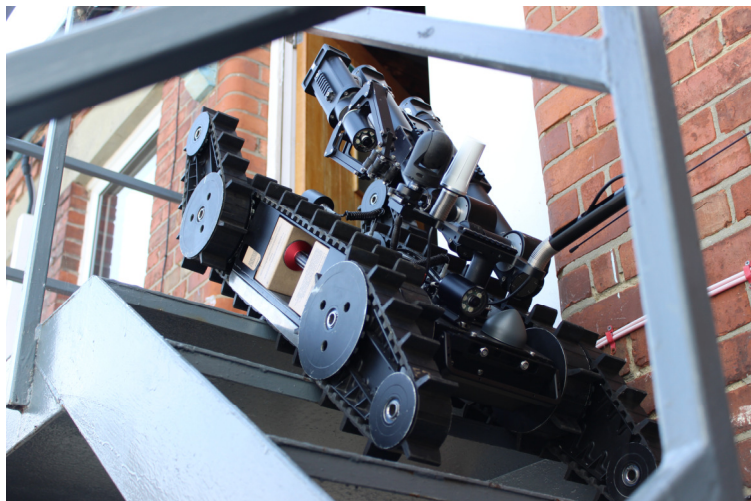
# REMOTE OPERATED VEHICLE ZEUS





## REMOTE OPERATED VEHICLE ZEUS

**Zeus** has been designed for the EOD and SWAT community to deal with a range of scenarios from simple reconnaissance to full scale EOD render safe procedures. The highly modular design allows the ROV to be configured from a lightweight simple ROV to a fully capable EOD ROV.



This ability to configure 'in field' gives maximum capability with minimum equipment. No longer will teams use multiple ROVs, now all those roles can be fulfilled with 1 platform. Now they have the strength and capability of heavier ROV, but with all the advantages of a lightweight ROV.

The modular design also allows operators to repair 'in field'. Should part of the ROV be damaged in action, there is no longer any need to send the entire unit back to a workshop for repair. By simply replacing the damaged part via the quick release modular construction, the ROV can be back up and running in minutes.

### MANIPULATOR

Through claw camera view  
Ability to mount additional tools on side of manipulator  
Quick release  
360° rotation

### MAIN CHASSIS

Aluminium, stainless steel & titanium construction  
Interfaces for 12v, 24v, RS232, camera & tether  
Kevlar track with extreme climb ability  
Waterproof & dustproof

### CAMERAS

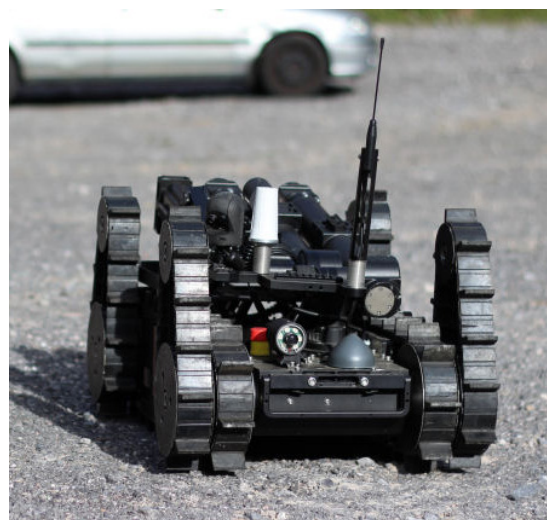
Up to 5 cameras : through claw, front view, rear view, pan tilt, nomad 'go anywhere'  
Single camera design throughout ROV  
Low light capability  
High resolution  
Infra red capability  
Integrated white & infra red illuminators  
Quick release mounting system

### ARTICULATING TRACK SYSTEMS

Long for stability e.g. on stairs, short for manoeuvrability inside tight spaces  
Quick release articulating track module

### ARTICULATED ARM

Options for 1, 2, 3 and 4 section arm  
Turret  
No external wiring  
Quick release  
External Interfaces  
Aluminium, stainless steel and titanium construction, reducing weight and centre of gravity



### TECHNICAL DATA

Total assembled weight : 43 kg  
Max speed (in any configuration) : 3 km/h  
Payload : Up to 30 kg on flat surface  
Drag capability : 50 kg on medium friction surface  
Arm lift capability : retracted 21 kg, extended 7 kg  
Operator Control Unit : Pelicase 1520, dimensions 485 x 392 x 192 mm, weight 10 kg

# REMOTE OPERATED VEHICLE GUARDIAN



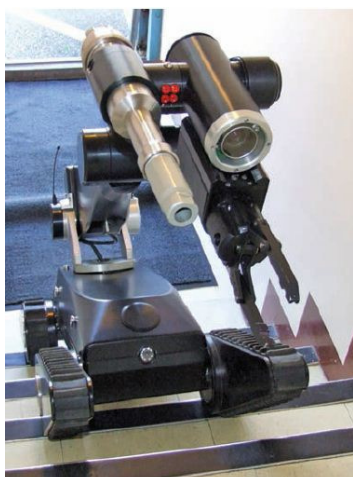


## REMOTE OPERATED VEHICLE GUARDIAN

NSN 1385-99-173-8187

It's unique combination of size, payload capacity, reach, dexterity, manoeuvrability, operability and ability to negotiate a wide variety of urban and rural terrain combined with its "future proof" modular / open architecture construction, eclipse the capabilities of current competitors.

The GUARDIAN'S hybrid extending / folding arm has been designed to be strong and robust allowing deployment of significant payloads with the arm extended and up to 30 kg with the arm retracted. The arm extension capability avoids deployment difficulties in confined spaces often encountered with unfolding arm systems. The elbow joint provides "reach over" and "reach in" capability as required when deploying equipment into such areas as aircraft overhead lockers and car boots.



The GUARDIAN chassis has been developed to offer a highly stable and manoeuvrable platform. Track modules are able to move continuously through 360 degrees as independent front and rear pairs, ensuring great versatility in positioning, which in turn provides class leading obstacle negotiation capability and extremely stable stair climbing.



The GUARDIAN control station is housed in an attaché style case and has been developed to offer the operator maximum situational awareness with minimum operator workload and intuitive control. Video images from the four vehicle cameras are displayed on a dedicated 17" (430mm) high brightness TFT display. Picture in picture capability allows display of multiple camera images in a variety of configurations. GPS is also included as standard to provide additional positional data. Communication between the vehicle and base station can be by either radio or fibre optic cable. The fibre optic cable can be deployed from either a passive or active "intelligent" spooler.



### TECHNICAL DATA

#### Size & weight

Weight : (without payload or accessories) 70.5 kg (inc. battery)  
Width : 417 mm max  
Length : 810 mm max (in stowed configuration)  
Height : 530 mm max (in stowed configuration)  
Control station : 475 x 600 x 289 mm - 26.8 kg

#### Manoeuvrability & Speed

Gap crossing capability : 500 mm  
Speed : 2.8 kph max

#### Extending Arm

Max. vertical reach : "tiptoe" mode 2.6m, drive mode 2.1m  
Maximum horizontal reach : 2.1m (from mast axis)  
Turntable  $\pm 185^\circ$  (from centre axis)

#### Lifting capacity

Maximum payload : 10 kg (arm extended), 30 kg (arm retracted)

#### Camera system

Four colour cameras as standard: forward facing drive camera, rearward facing drive camera, forward facing awareness camera and pan & tilt camera

# REMOTE OPERATED VEHICLE SENTINEL





## REMOTE OPERATED VEHICLE SENTINEL

The **Sentinel** is an advanced, reliable and robust explosive ordnance disposal robot with applications extending to CBRN.

It has electronically driven actuators controlling the 6 degrees of freedom arm. The manipulator arm has a lifting capacity of 75 kg retracted and 30 kg extended. It has six independent wheel motors which allow for travel over the most difficult of terrains. The Sentinel has an extended radio range of up to 1 km in a built-up area and line of sight is >2 km using Military Frequency Hopping Spread Spectrum and COFDM Video.



### TECHNICAL DATA

Power :	12V Lead Acid batteries x 2
Radio Control :	COFDM
Video :	1.2 GHz to 1.4 GHz
Data :	400 MHz to 450 MHz
Operating Range :	1 km in a built-up area, >2 km line of sight
Cable Control :	150m
Drive :	6 motor electric drive
Speed :	Variable, max speed 5 mph
Terrain :	Rough terrains including road, sand, marsh, rocky
Weight :	270 kg
Arm Movement :	Electric
Reach :	2.4m Vertical Reach - 1.2m Horizontal Reach
Lift Capacity :	75 kg arm retracted - 30 kg arm extended
Turret Rotation :	+/- 220°
Claw Rotation :	Continuous in both directions
Claw Opening :	300 mm
Turret and Claw :	Electrical Rotation Actuator Control
Wrist Rotation :	+20°, - 90°
Turning Circle :	Neutral
Climbing Ability :	35° incline on stairs - 40° incline on slope Rear drop axel for improved climbing ability
Stow Dimensions :	1.55 m x 0.72 m x 1 m

### Command Console

1. Rugged case is hard-wearing and weather resistant
2. 19" high resolution flat screen for video display
3. 2 x 3 axis Joystick including twist-to-zoom
4. Intuitive Arm, Turret and Claw movement
5. Advanced TFT touchscreen works in direct sunlight and while wearing gloves
6. Key-activated weapons screen with self-test and diagnostic feedback







## UNDERWATER DETECTORS

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# UNDERWATER METAL DETECTOR UWEX 722 C





## UNDERWATER METAL DETECTOR UWEX 722 C

NSN 6695-12-319-4209

The **UWEX® 722 C** is a highly sensitive metal detector for underwater and normal land use. It is pressure tested up to 60 m water depth and can be used in short or long version, according to the job.

The UWEX® 722 C detects all metals, also small parts of precious metals. The earphone is pressure waterproof and gives a clearly audible signal with large frequency deviation. Therefore it is easy to pinpoint the target. The operation principle suppresses conductivity effects of saltwater or difficult grounds.

The UWEX® 722 C consists of a search head with joint, which is flanged to the detector handle containing the detector electronics. For normal land use or for working in underwater vegetation an extension rod can be added at the end of the handle.

The detector is switched on by rotating the handle by 180° in a clockwise direction. The ear shell can be removed from the waterproof headset for use with a dry diving suit.



The sensitivity adjuster ring, easily accessible, even in the obscurity, permits tuning of the audio threshold. An internal adjuster allows the suppression of small-sized objects like nails, scraps and short wires. This speeds up underwater operations.

Due to sophisticated electronics, the device achieves a good performance at a low power consumption. It can be operated by a commercial 9V PP3 dry battery or rechargeable NiMH battery.

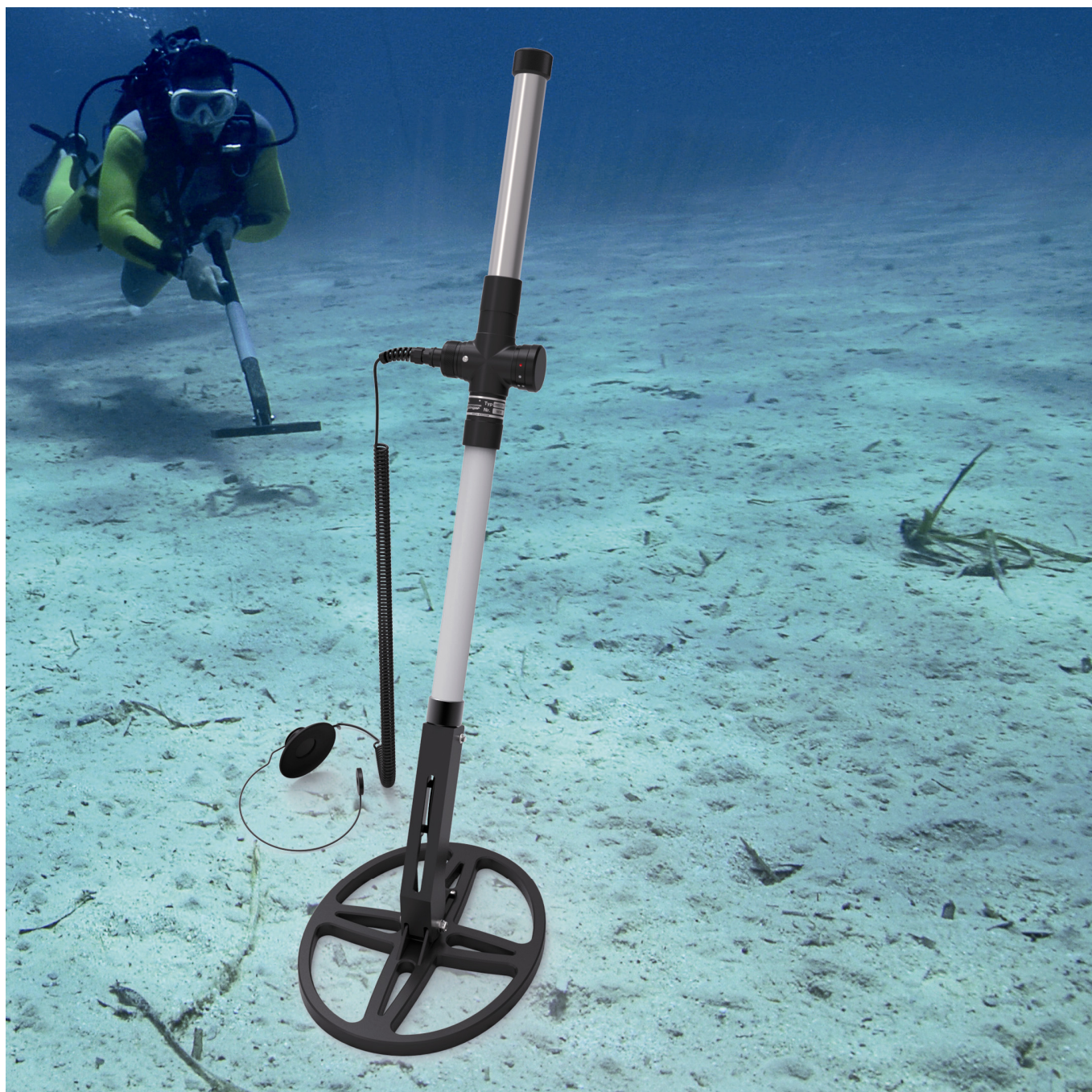


### TECHNICAL DATA

Power supply :	1 dry battery 9 V type 6LR61 or rechargeable NiMH battery
Operating time :	20 - 25 h with alkaline battery 5 - 6 h with rechargeable battery
Temperature range :	-10 to +55 °C
Electronic cylinder	Ø 40 x 535 mm
Search coil :	Ø 200 mm
Length overall :	640 mm in short version
Extension rod :	580 mm
Weight :	approx. 1,2 to 1,4 kg
Pressure test :	7 bars (60 m)



# UNDERWATER METAL DETECTOR UWEX 725 D





## UNDERWATER METAL DETECTOR UWEX 725 D

EBINGER search devices are used worldwide to reduce the potential hazard from unexploded ordnance remnant of the world wars. UWEX®725 D is the latest design for underwater use, it relieves the scuba diver from equipment operation improving the efficiency of his work.

Due to the simplicity in operation and handling of the UWEX® 725 D, the diver is allowed to fully concentrate on his work.

The underwater metal detector can be programmed to fade out interfering signals from non-cooperative soil, magnetic rock and small pieces of scrap metal, which reduces the time factor significantly. The identification of metallic objects is facilitated by the modulation of the audio signal upon approaching the target.

The UWEX® 725 D is a compact underwater detector. It consists of a foldable oval probe with flanged joint connection, the handle with built-in PI electronics. On the control section there is the stepping switch for the operation mode dynamic/static as well as the pressure tight headset socket.

The ear pad and the headband can be dismantled to be worn under the headgear.



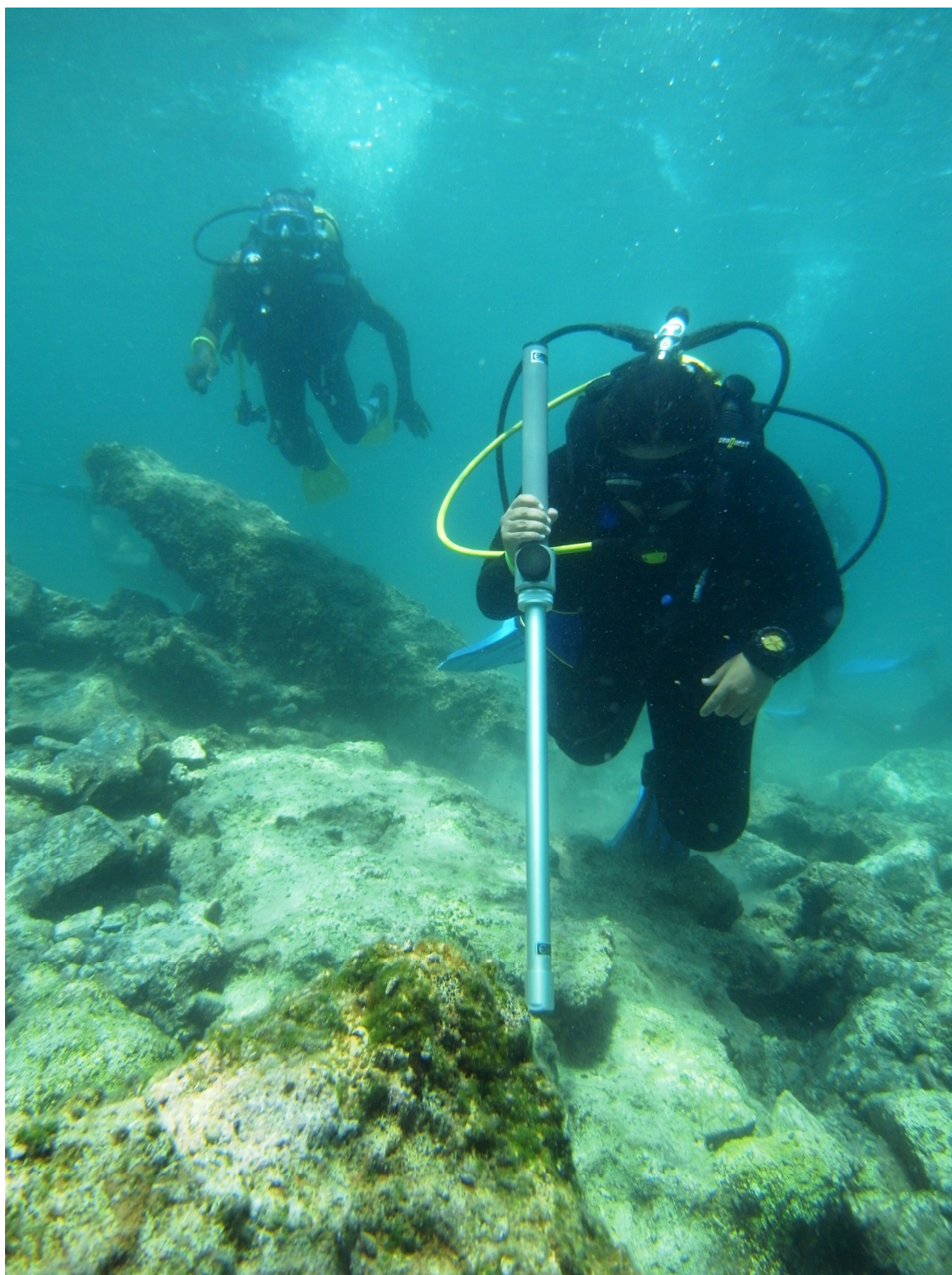
A vibration signal transmitter is available as additional accessory that can be acoustical perceivable under water.

The flanged battery tube accommodates 6 C-cell dry batteries or rechargeable batteries.

### TECHNICAL DATA

Power supply :	6 x 1,5V LR14 batteries or 6 x rechargeable NiMH LR14 batteries
Operating time :	25 h with alkaline batteries 16 h with rechargeable batteries
Temperature range :	-10 to +55 °C
Search coil :	circular
Length overall :	930 mm
Weight :	approx. 1,9 kg
Pressure test :	7 bars (60 m)

# UNDERWATER MAGNETOMETER MAGNEX 130 B





## UNDERWATER MAGNETOMETER MAGNEX 130

The MAGNEX® 130 B is a high sensitive magnetometer designed for underwater operation. It is used for detection of ferromagnetic targets and is suitable for the detection of explosive devices such as bombs, sea mines, ordnance and other targets like wrecks or parts of ships.

The MAGNEX® 130 B is very easy to handle and also simple to operate : one single rotary switch with 3 sensitivity levels. The target detection is indicated by audio alarm which varies in frequency and volume with the distance and the size of the target. When the polarity of the magnetic field inverts, the alarm's type changes (continuous sound or intermittent sound).



The magnetometer has three detection stages with different ranges of sensitivity.

In the first and least sensitive stage the device functions dynamically and - in the vicinity of ferrous metal objects - adjusts itself continuously to the background noise/interference.

In the second stage the device works in quasi-static mode. Here the adjusting to and suppressing of the external and undesired noise is carried out slowly. Thanks to the automatic adjustments carried out in these two detection stages the diver does not have to carry out adjustments on the device which naturally simplifies his work.

In the third stage the device works in static mode. In this stage the MAGNEX® 130 B possesses its maximum detection sensitivity. Naturally the range within which a particular ferro-magnetic object can be detected depends on the magnetic field strength of the latter.



### TECHNICAL DATA

Power supply : battery 9 V type 6LR61 or lithium U9VL  
 Operating time : approx. 20 h  
 3 Sensitivity steps : 1000 nT - 300 nT - 50 nT  
 Maximal resolution : 5 nT  
 Audio signal : 0 to 4 kHz intermittent / continuous  
 Temperature range : approx. -15 to +50 °C  
 Dimension : total length approx. 1 m  
 Weight : approx. 1,35 kg  
 Pressure proof : up to 7 bar



# UNDERWATER METAL DETECTOR UWEX 725 K





## UNDERWATER METAL DETECTOR UWEX 725 K

NSN 6695-12-360-1620

The **UWEX 725 K** is a high sensitivity eddy current metal detector for underwater and normal land use.

The detector transmits an electromagnetic field of low intensity and bipolar character improving safety against magnetic influence fuses. It can be operated in a "silent mode", without headset, indicating target acquisition by a LED, in order to avoid the triggering of acoustic sensors.

The short detector length and the one-knob operation makes it a handy and easy to use for divers and for underwater EOD. In normal land use it can be applied in extended version.

The search device is waterproof to a depth of 90 m. The UWEX 725 K detects ferrous and non-ferrous metals and alloys. It transmits detection signals either by audio indication in the headset or by a visual indication through LED.

A large loop of 80 cm x 80 cm, working with the same electronics, is also available as an option.



### TECHNICAL DATA

Power supply : 1 lithium battery 9V (amagnetic)

Operating time : approx. 10 h at +20° C

Temperature range : - 20°C to + 60° C

Search coil : Ø 230 mm

Large loop : Ø 800 mm

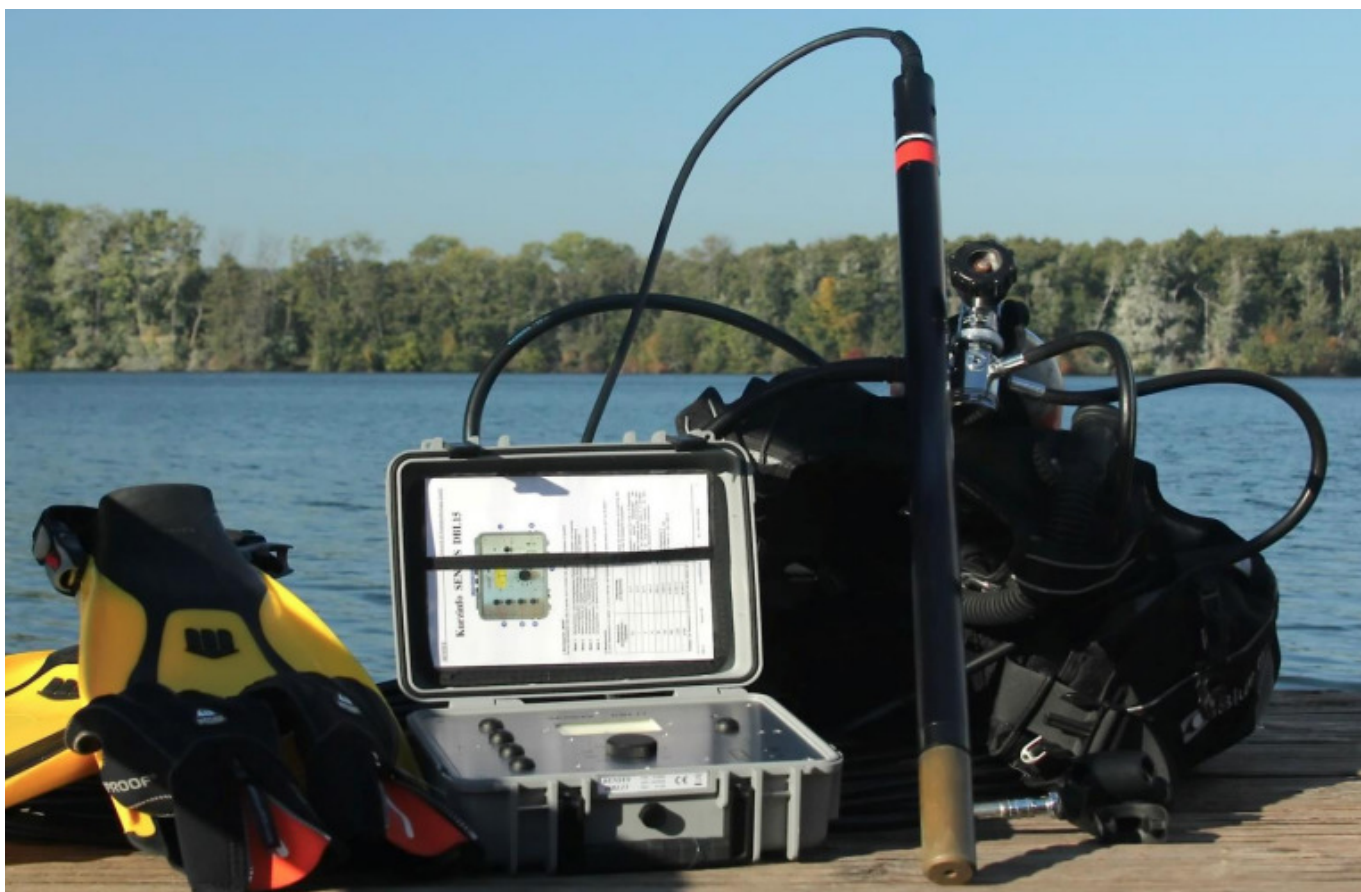
Electronic cylinder : Ø 30 x 535 mm

Extension rod : Ø 30 x 580 mm

Weight : approx. 1,5 kg

Control pressure : 7 bars

# DIVER MAGNETOMETER SYSTEM DBL-15



## Features

- Survey unit for divers to connect and operate FGM400/38 probe
- Simple and intuitive handling
- 3 operation modes, test and compensation feature
- Intelligent power management
- Probe cable with sealing cap and lengths up to 150 meter
- Increased audio level for output to diver's phone
- Optional data recording with rugged PDA
- Power supply: battery or mains power
- All components safely stored in rugged case



## DIVER MAGNETOMETER SYSTEM DBL-15

The DBL15 is a robust but very compact survey unit in an IP67 case to connect and operate an FGM400/38 probe for diver's underwater bomb search.

The IP67 case contains the main electronics to operate and acquire signals from the FGM400/38 probe. The total measurement range of the DBL15 is  $\pm 30,000$  nT. With a sensor cable of up to 150 meter, customer can realize typical offshore projects from big vessels where divers backing off the vessel several meters and dive down to 30 or 40 meters.

In addition an internal battery with around 40 hours operation time ensures an autarkic operation from the vessels environment.

The intuitive user interface offers all the known functions. These include the probe testing, compensation, choice of modes and sensitivity, audio level and power supply indication.

A rugged Windows Mobile PDA can be used via cable or radio connection to record the measurement values from the probe. Afterwards the data can be downloaded to a PC and processed using the SENSYS software MAGNETO®. All components can be stored safely in a rugged case with handle and wheels.



### TECHNICAL DATA

#### General Technical Data

Power Supply (internal) : Li-Ion battery  
with approx. 40 h operating time  
Operating Temperature : -20°C to +50°C  
Operating Weight (without casing) : 1.7 kg  
Dimensions (L x W x H) when folded : 215 x 275 x 110 mm

#### Measurement Configuration

Maximum measurement range :  $\pm 30,000$  nT  
Sensitivity levels : 9  
Display : Analogue pointer with  $\pm 10$  scale division  
Resolution : 0.075 nT at 3 nT measurement range

#### FGM400/38

Maximum ambient field :  $\pm 75,000$  nT  
Specified measurement range :  $\pm 38,460$  nT  
Sensor Element Spacing : 400 mm  
Declination :  $\pm 3$  nT  
Resolution : 0.2 nT  
Cut off frequency (Bandwidth) : 20 Hz

Temperature drift :  $< 0.3$  nT/K  
Uncertainty of measurement : 1%  
Stability :  $< 1$  nT  
Probe Diameter : 35 mm  
IP code : IP68

#### Standard accessories

Rugged case (empty weight) : 1150 x 335 x 155 mm 8.5 kg  
Probe connector cable : 100 m length (others on request)  
Peripherals : Audio cable (chinch), power plug  
Documentation : Certificate, manual, quick guide

#### Optional accessories

External battery : 12V led gel battery  
Audio cable (jack plug) : Optional w/ increased audio level  
Rugged PDA (optional with Bluetooth dongle) : For borehole and single channel measurements  
Head phone : Customizable cable length  
MAGNETO® Software : For data processing





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# MAGNETOMETER MAGNEX 100 B





## MAGNETOMETER MAGNEX 100 B

The **MAGNEX® 100 B** is a handy iron locator in longterm stable and innovative differential probe technology.

It detects magnetic anomalies in the normal magnetic field of the earth as caused by buried ferromagnetic objects. The detection range of the MAGNEX® locator depends on the size, position and magnetic signature of the objects to be detected.

The probe is moved in wide sweeping movements over the ground. As soon as the locator's probe is moved into the vicinity of a ferromagnetic object, the local field distortion is converted into an audible alarm. The audio coding of the field polarity (pulsating/continuous) indicates the magnetic polarity (north or south pole) of the object to be detected.

Two dynamic detection steps are foreseen for fast subsurface localization of ferromagnetic parts. In this mode continuous magnetic interferences e.g. mineralized soil or fences can be suppressed to certain limits.

In the static mode the indication of deep buried ferromagnetic objects is provided by an audible signal, which rises in intensity as the detector approaches the target.

Constructional features :

The **MAGNEX® 100 B** is a bar-type device containing sensors which are connected in differential mode, an electronics and the battery compartment.

The locator is put into operation by switching the rotary adjuster into one of the 3 sensitivity steps. The compensation knob allows a compensation of magnetic signatures and the device adjustment.

The detection signals are transmitted by a built-in piezo loudspeaker, which indicates the detected magnetic field by a continuous or pulsating increasing audio signal informing about the detected intensity and polarity.



### TECHNICAL DATA

**Power supply :** 9V battery IEC Nr. 6LR61 or rechargeable NiMH battery 9V / 250mAh

**Operation time :** approx. 14 h continuous operation with alkaline battery  
approx. 7 h with NI-MH battery

**Sensitivity :** approx. 500 nT for maximum audio signal (approx. 1kHz)

**Audio signal :** continuous or pulsed, approx. 0...1 kHz

**Temperature range :** approx. -10° C to + 55°C

**Sensitivity threshold :** sensitivity threshold approx. 50 nT (Step 3, static mode)

**Weight :** approx. 800 g with battery

**Dimension Overall Length :** approx. 110 cm

## UNDERGROUND MARKING SYSTEM EBEX 300



This locator can pinpoint the position of subsurface markers. The great advantage of the system consists in an object-selective location.

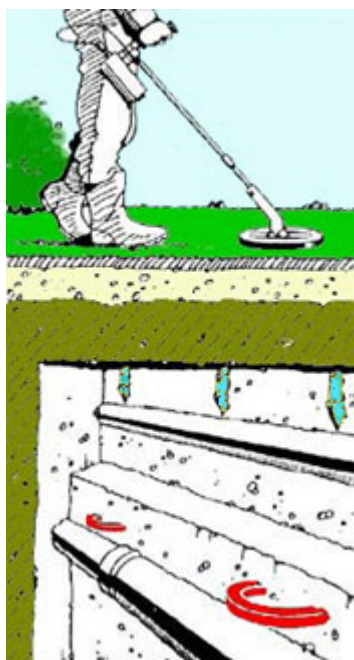
Thus, for example, the position of different pipe and cable lines concealed in the ground can be marked precisely and for an indefinite time. The different frequencies of these permit differentiation between several lines.

Scrap metal as well as the mineralization and ground conductivity have almost no effect on the location result. The subsurface markers can be detected even in the proximity of large masses of metal.

Since 40 years EBINGER passive subsurface markers are installed underground. With its robust design the EBEX® 300 locator is built for longtime use in adverse conditions.

### Subsurface markers :

Passive, electromagnetic subsurface markers  
Ring shaped or cylindrical  
For different marking applications  
4 standard response frequencies  
Optional customer-specific frequencies upon request  
Watertight and resistant to weathering



In accordance with their intended use as durable markers, they are resistant to weathering and cannot rot.

In addition to the 4 standard natural resonance frequencies, they can also be supplied with customer-specific ones.

The subsurface markers do not require any maintenance, have no batteries and are designed as a purely passive devices.

The markers are excited by the low-frequency transmission signal of the **EBEX® 300** locator which forces them to emit an own natural resonance signal which is of higher frequency. This feedback is received selectively by the locator which converts it into an audio indication signal. The markers laid in the ground are frequency-coded for characterizing the line or point they are marking.



## METAL FRAGMENT DETECTOR EB 450 S



The fragment detector **EB 450 S** was designed especially for the forestry and timber industry. Its design is tubular and modular : all components of the device are integrated in a tube, which suppresses the need of cable links, thus improving product reliability. The battery compartment can be unscrewed to ease the transport.

The EB 450 S works on a sinus technology developed since more than 30 years for mine clearance applications. The main features of the EB 450 S are the high sensitivity, the suppression of interferences in a great extend, and a large detection range. The detector can be operated under adverse climatic conditions (rain, snow, frost, heat). The search head is waterproof and rugged.



This device detects all conductive objects, ferrous and non ferrous metals, including small fragment or thin metal sheets. An audio alarm is given by an integrated piezo buzzer. A single rotary button is used to turn the device ON/OFF and to set the sensitivity.

### TECHNICAL DATA

Power supply : 6 batteries 1,5 V type LR 14

Operating time : 100 h approx. at 20 °C

Temperature range : -15 °C to +55 °C

Length : 1030 mm approx.

Diameter of search head : 260 mm approx.

Weight : 1,5 kg



## TERMS OF SALES

### I. COMMANDES

Toute remise de commande à la société CODETEL implique l'adhésion sans réserve de l'acheteur aux présentes conditions générales de vente.

### II. PRIX

Nos prix s'entendent hors taxes, départ usine. Les frais d'expédition viennent en sus. Nos prix sont valables un mois, sauf spécifications particulières. Pour le matériel importé, nous nous réservons le droit de modifier nos prix en fonction des variations de la parité de la monnaie du pays d'origine et des droits de douane, ceci en conformité avec la réglementation en vigueur. Notre minimum de commande est de 100 Euros.

### III. DELAIS DE LIVRAISON

Les délais de livraison sont donnés par la société CODETEL à titre indicatif. Les retards ne peuvent pas justifier l'annulation de la commande. L'acceptation éventuelle par la société CODETEL de pénalités de retard doit figurer sur l'accusé de réception. Celles-ci ne pourront en aucun cas dépasser 5 % du montant de la commande.

### IV. TRANSFERT DE RESPONSABILITE

Les risques passent de la société CODETEL au client lorsque la fourniture est mise à sa disposition et que le bordereau de livraison est expédié. Des indications telles que "franco" ne sont que des concessions sur les prix sans déplacement de responsabilité.

### V. RESERVE DE PROPRIETE

La société CODETEL conserve la propriété de la marchandise jusqu'au paiement intégral de celle-ci. Jusqu'à ce moment et dès la livraison du matériel, le client aura la charge d'assurer celle-ci contre tous les risques qu'il peut courir. A défaut de paiement intégral du prix, le client s'engage à restituer la marchandise à la société CODETEL sur simple demande écrite de cette dernière. Le client ne pourra ni donner la marchandise en gage, ni en transférer la propriété à titre de garantie. En cas de saisie opérée par les tiers sur cette marchandise, le client sera tenu d'en informer la société CODETEL. Dans tous les cas où la société CODETEL sera amenée à faire jouer la réserve de propriété, les acomptes versés par le client resteront acquis à titre d'indemnité forfaitaire.

### VI. TRANSPORT

Les marchandises voyagent aux risques et périls du destinataire, quel que soit le mode de paiement du transport. Le client doit procéder à une inspection du matériel à l'arrivée et, en cas d'avarie ou de manquant, mentionner par écrit les réserves sur le récépissé du livreur et adresser ses réclamations au transporteur dans les 48 heures suivant la livraison.

### VII. PROPRIETE INTELLECTUELLE

Les documentations, plans, modèles et outillages réalisés par la société CODETEL restent son entière propriété même s'il l'ont été à la demande du client ou si une participation aux frais a été facturée au client. Ils ne peuvent être communiqués à des tiers, reproduits ou utilisés sans notre autorisation écrite. La société CODETEL se réserve le droit d'apporter toute modification à ses produits par rapport aux renseignements portés sur les documentations et qui n'ont qu'une valeur indicative. Les matériels de la société CODETEL ne peuvent être vendus que sous les marques ou dénominations apposées par la société. Toute autre mention et tout changement de leur présentation et conditionnement doivent avoir reçu l'accord préalable de la société CODETEL.

### VIII. CONDITIONS DE PAIEMENT

Les factures de la société sont payables nettes et sans escompte à notre siège social par traite à 30 jours fin de mois, sauf mention particulière. Tout marché peut être considéré par la société CODETEL comme annulé de plein droit, faute de paiement intégral dans les délais convenus, sans autre formalité qu'une simple mise en demeure par lettre recommandée avec accusé de réception à l'acheteur restée sans effet sous huit jours. L'annulation du marché entraînera la reprise de la fourniture par la société CODETEL et les acomptes reçus resteront acquis à la société CODETEL à titre d'indemnité forfaitaire. Si l'expédition des matériels ou de la fourniture se trouve retardée du fait de l'acheteur, la société CODETEL pourra établir une facture de mise à disposition payable dans les mêmes délais que si l'expédition avait eu lieu à la date prévue.

En cas de non paiement à l'échéance, la totalité de la créance devient exigible. La société CODETEL se réserve le droit d'appliquer des pénalités de retard (taux égal à 1,5 fois le taux légal courant de plein droit à compter du premier jour suivant l'échéance), de suspendre l'exécution et la livraison des commandes en carnet et de faire jouer la réserve de propriété.

En cas de changement grave intervenu dans la situation de l'acheteur (décès, incapacité, dissolution ou modification des sociétés, hypothèque de ses immeubles, mise en nantissement de ses fonds de commerce, soumission à une procédure collective de redressement ou de liquidation), la société CODETEL se réserve le droit d'exiger des garanties ou d'annuler le solde des commandes en carnet au nom de l'acheteur.

### IX. GARANTIES

Le délai de garantie est de 12 mois à compter du jour de livraison, sauf indication particulière. Le client, sous peine de déchéance de garantie, est tenu de signaler à la société CODETEL :

- les vices apparents dans un délai de 10 jours suivant la livraison,
- les vices cachés dans un délai de 10 jours suivant leur découverte.

La garantie s'applique à toutes les pièces reconnues défectueuses par la société CODETEL. Cette garantie se traduit par la remise en état ou par le remplacement de la pièce défectueuse, à l'exclusion de tous autres frais. La garantie ne s'applique pas à l'usure normale des pièces ou aux détériorations provenant d'une utilisation non conforme aux caractéristiques du matériel, d'un défaut d'entretien, d'un non respect des normes et règles de l'art, d'un défaut de stockage. Le remplacement de pièces pendant la période de garantie ou autres interventions sur le matériel ne peut avoir pour conséquence de prolonger la garantie de celui-ci. Les réparations ou autres interventions effectuées sur le matériel sans l'accord préalable de la société CODETEL entraînent la perte du droit à la garantie. Aucun matériel ne sera réexpédié à la société CODETEL sans son accord préalable.

### X. REPRISE DE MATERIEL

Toute reprise de matériel doit avoir été négociée au préalable avec la société CODETEL. Aucun matériel hors standard ne sera repris. Les produits standards, n'ayant jamais été montés ou utilisés, ne pourront être repris, selon le cas, que s'ils ont été livrés depuis moins d'un an et après examen par la société CODETEL de l'état de ces produits. Les produits voyageront aux frais du client et seront achetés avec un abattement de 30 % sur le prix facturé.

### XI. ASSURANCES ET RESPONSABILITES

L'acheteur accepte la limitation du montant des garanties couvrant la responsabilité civile de la société CODETEL. Il reconnaît avoir connaissance du montant de ces garanties. Au cas où un sinistre viendrait à dépasser le montant desdites assurances, l'acheteur accepte expressément de rester son propre assureur pour la couverture de l'excédant. Cette renonciation à recours à l'encontre de la société CODETEL est opposable à tous les mandataires de l'acheteur qui a la charge de les informer le cas échéant.

### XII. JURIDICTION

Pour toute contestation les tribunaux d'Avignon (84) seront seuls compétents. La loi du contrat est la loi française.







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