COBHAM

Tactical Communications and Surveillance

Introduction to Cobham Tactical Communications and Surveillance

As a world-leader in its field, providing products and integrated surveillance solutions to law enforcement, military, national security and border patrol agencies, Cobham Tactical Communications & Surveillance offers innovative video, audio, tracking, locating, sensor, and covert surveillance solutions for government and civil agencies.

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Welcome to Cobham

The most important thing we build is trust.

Cobham Tactical Communications and Surveillance's comprehensive range of electronic products includes covert audio, video, and tracking surveillance equipment built and supported by the best brands in the industry. Our aim is to supply clients with advanced surveillance technology which significantly enhances their operational capability.

The increasing sophistication and finances of criminals and terrorists - and the increasing demands of modern-day society and environments - means that investment in research and development is essential for innovating new technologies to tackle tomorrow's challenges and developments. Cobham's investment is market-led and guided by the specialists it employs, such as former members of law enforcement, Special Forces, bomb disposal squads and government agencies.

Our success is based upon highly qualified and motivated technical staff pioneering the latest and most advanced technologies, an in-depth understanding of the surveillance market and a willingness to work closely with clients to meet their requirements. Every product we manufacture must pass a series of rigorous quality assurance tests before shipping to the client, ensuring consistent performance under the harshest of conditions.

We are proud to present to you with our annual product catalog which includes a comprehensive listing of the key products from each of the companies within our Tactical Communications and Surveillance division. Key features and a subset of product specifications are provided, though should not be considered comprehensive. Should you wish additional information on any particular product a Cobham TCS Account Manager would be happy to assist you.

Thank you for your interest in Cobham Tactical Communications and Surveillance.

Sincerely,

Chet Claudon

President and General Manager
Cobham Tactical Communications and Surveillance

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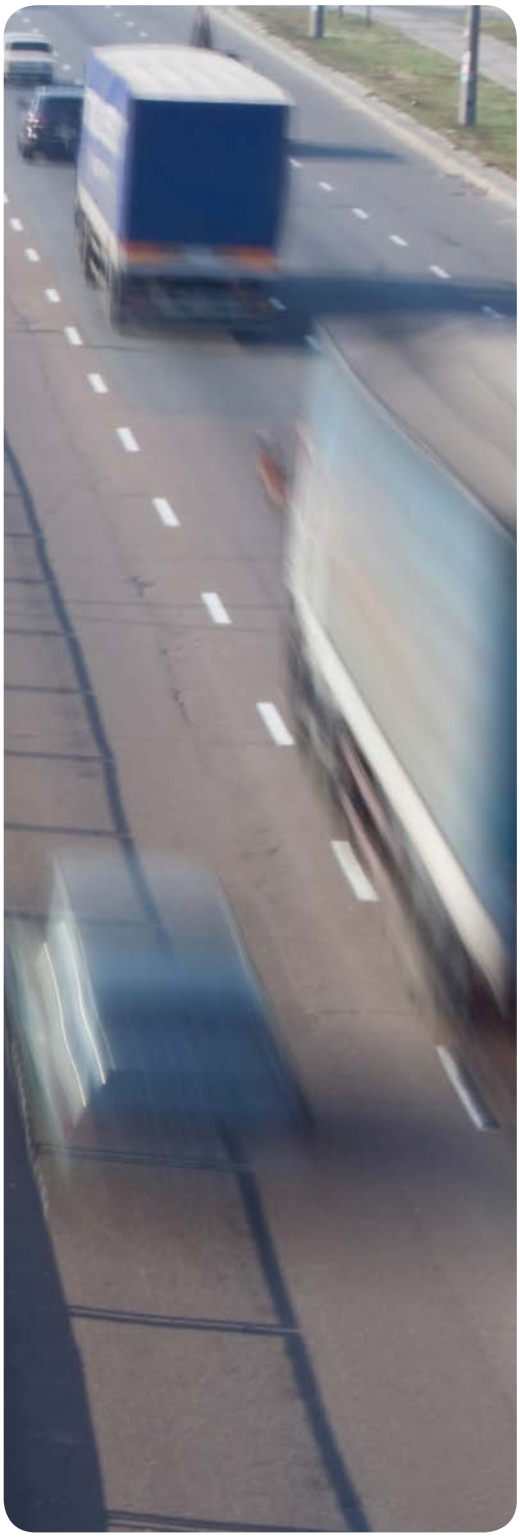
The most important think we build is trust.



Cobham plc

Divisions and Capabilities

1 Cobham TCS is the world leader in remote vehicle communication solutions.

Cobham plc

Cobham plc is an international company engaged in the development, delivery and support of advanced aerospace and defense systems for land, sea and air platforms - helping to enhance platform performance, to keep people safe and to improve communications.

Cobham's products and services have been at the heart of sophisticated military and civil systems for more than 70 years. The Group has tripled in size since 1997 and comprises four divisions with clients and partners in over 100 countries. These divisions employ more than ten thousand people on five continents, many of whom work within the market-leading companies brought together under the Cobham umbrella.

The customers that Cobham works with are diverse, including federal and local law enforcement, intelligence and Government agencies; ports and oil refineries; national defense agencies; and global names such as Boeing, Raytheon, Airbus, BAE Systems, Qantas and Rockwell Collins.

Cobham Avionics and Surveillance Division

Cobham Avionics and Surveillance Division designs, qualifies, manufactures, certifies and supports a complete range of electronic products for airborne, marine, land and special purpose applications. The division serves four principal markets: Avionics, Law Enforcement, National Security and Satellite Communications.

The Cobham TCS Strategic Business Unit forms part of this division.

Cobham Tactical Communications and Surveillance

As a world-leader in its field, Cobham TCS provides products and integrated surveillance solutions to law enforcement, government, and industrial/commercial markets.

This comprehensive range of electronic products includes innovative audio, video, tracking, locating, sensor, and covert surveillance solutions.

Cobham TCS's key capabilities cover: Tracking, Tagging and Locating; Video; Audio; Integrated Solutions; and IP Mesh.

We introduce you to the world-beating technology of Cobham TCS, which is pioneered and built to meet the unique operational needs of the surveillance market:

- **Video solutions offer high quality recording and sharing of images, to evidential standards**
- **Audio solutions for covert monitoring of target conversations**
- **Tracking, Tagging and Locating solutions, where tiny unique tags help follow or find people and assets, wherever they are**
- **Integrated Surveillance Solutions bring together the best of Cobham's products to deliver a complete solutions in some of the toughest locations in the world**

Cobham TCS - Worldwide Sales and Support

Cobham has a worldwide network of distributors to support customers. Please go to **www.cobham.com** for more information.

Staffed by highly experienced professionals around the world, Cobham TCS places great importance on through life support. In addition to help desks, it also offers extended support packages, delivering:

- In-country technical and operational training courses
- Integrated logistic support, tailored to each client
- Technical support help desk, available 24x7
- Through Life Cycle Management - with in-service upgrades, maintenance, technical advice and training

Video Products

COBHAM

Video Surveillance

Cobham Tactical Communications and Surveillance provides a large range of video solutions for a variety of clients - from turnkey video surveillance systems. for law enforcement, to equipment and support for military applications and the highly dynamic and demanding world of broadcast event coverage.

Covert and overt video surveillance systems play an important role in an all environments, allowing the monitoring and recording of critical video data through non-line of sight (NLOS) and line of sight (LOS) transmission systems. The quality offered by the solutions means that very high evidential standards can be reached in situations such as:

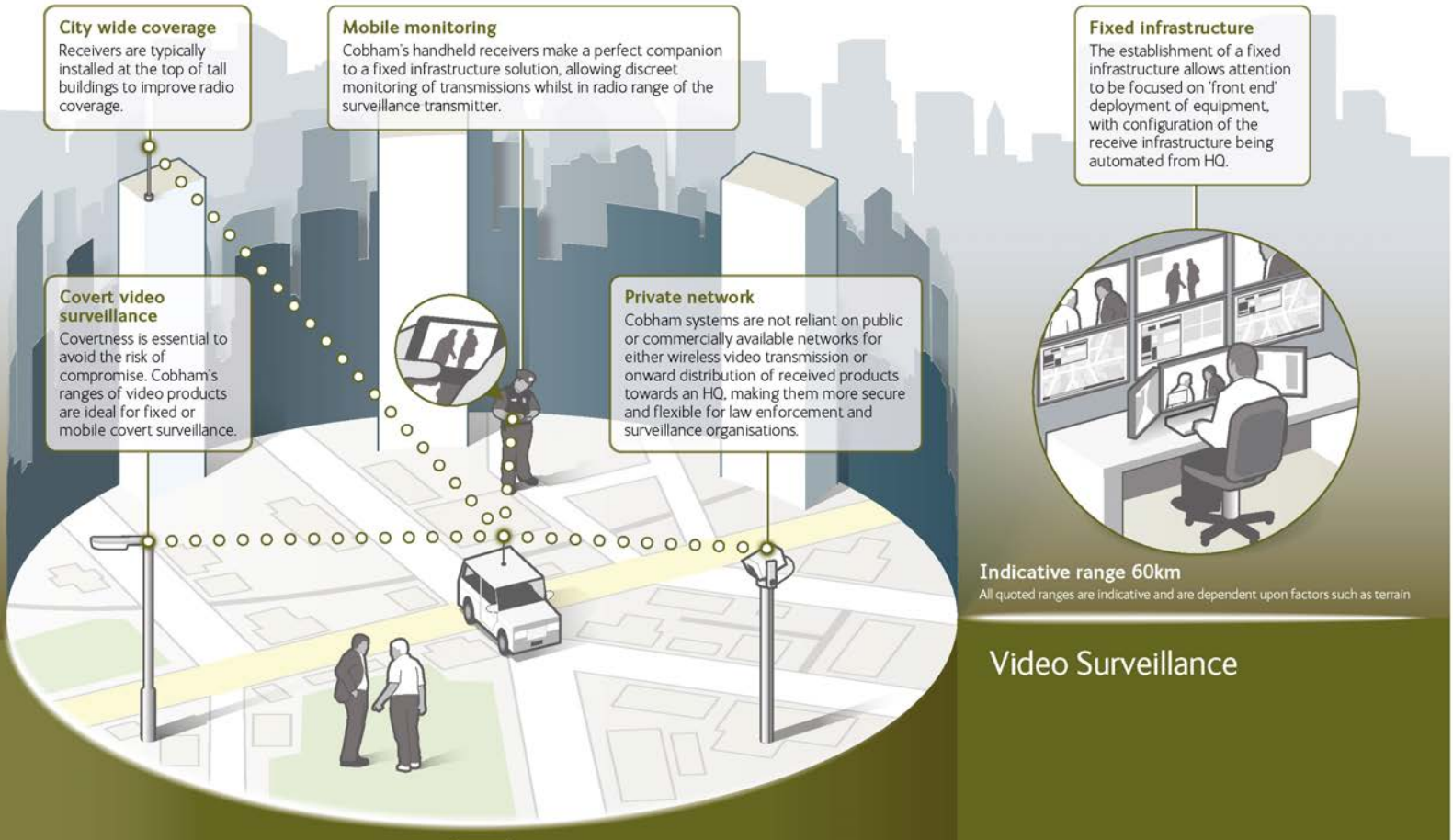
- Infrastructure protection
- Identification and monitoring of terrorist threats
- Monitoring of serious crime
- Public order policing
- Intelligence gathering and providing evidential material.

Cobham's video surveillance transmitter family allows agencies to deploy covert cameras inside a wide coverage area. This architecture is optimised to allow users to easily link back to the central receiver architecture and to simply and effectively manage the network. This system provides a high performance, cost effective, easily managed, scalable and yet very robust, non line of sight covert video network.

Law Enforcement

Cobham TCS's strength is in developing complex technologies into simple-to-operate, robust solutions. System components have been designed for ease of integration into robotic and airborne platforms, as well as more conventional personnel and ground vehicle based applications.

Our products are used by law enforcement and military clients worldwide, enabling them to combat major crime, terrorism and drug trafficking.



Covert Video Surveillance

COFDM Standard Transmitters

Cobham's offers a range of COFDM video transmitters which can operate in a variety of transmission bandwidths and frequencies allowing the user to trade off image quality against range. These products support narrowband (1.25MHz and 2.5MHz) and full DVB-T compliant (6, 7, or 8MHz) channelization.

DUAL HD Transmitters

Two Game-Changing Dual HD Telemetry Transmitters

Get ready for the most advanced COFDM video transmitters available, anywhere in the world!

Representing the latest generation of high performance digital video transmitters, the Cobham Dual HD Transmitters (SOL7HD2TX "Eastwood" and SOL8HD2TX) uses a COFDM pedigree spanning over 10 years; this iteration of Digital Video Microwave Transmitter has been designed to meet the demands of Law Enforcement Communities worldwide. It's feature rich, flexible, and yet easy to configure, while being highly physically optimized making it suitable for use in both concealments and as a "black box" transmitter for covert surveillance applications.

SOL7HD2TX "Eastwood"

The Eastwood is a dual HD telemetry transmitter that uses the same high performance video codec, which can be found in the SOL8HD2TX, but is further optimized for size and power consumption. With proven Cobham COFDM and H.264 encoder technology at its core, the exceptionally small size and ultra-low power consumption enables stunning high quality high definition images from the heart of the action, in situations never previously possible due to equipment size and battery run-time constraints.

The Eastwood and SOL8HD2TX support dual High definition HD-SDI inputs, in addition to 64GB of internal Flash video storage. An integral battery backed-up real time clock provides a time and date stamp. It also provides both USB and Ethernet I/O interfaces. The Ethernet interface supports IP streaming of video via multicast streaming compliant to ONVIF Profile S. This unit is effectively both an IP encoder and a COFDM TX in one box.

SOL8HD2TX

Simply put, nothing beats these radios:

- **Software Defined Radio** – Software upgrades add new features, capabilities and / or modes of operation.
- **DVB-T2 Capable** – Supports DVB-T2 (first ratified in 2008) which has many advantages over DVB-T (first ratified in 1997) including advanced FEC algorithms
- **True MIMO** – contains two independent RF front ends enabling it to utilize MIMO for enhanced throughput and range
- **In-Band & Crossband Telemetry** – supports unique in-band telemetry operational mode where the telemetry signals are transmitted on the exact same frequency the video stream is transmitted on thereby preserving precious operational spectrum - an industry first
- **COFDM IP Mesh Radio** – hardware platform capable of being either a "standard" microwave transmitter or to become a miniature NetNode – Cobham's COFDM IP Mesh Radio. This is accomplished through a simple check box on the configuration web page.

The Eastwood and SOL8HDTX are truly a leapfrog in technology, raising the covert microwave bar to a new, unprecedented level.

SOLO7 - HD Nano Transmitter

Features:

- Industry standard DVB-T modulation for full HD quality and compatibility with existing systems
- Cobham UMVL modulation for enhanced high speed operation (motorsports) and improved performance at high frequencies (6 & 7GHz)
- Cobham Narrowband (2.5 MHz), Ultra Narrowband (1.25 MHz) and Ultra-X (625 kHz) bandwidths. The narrowband modes allow users to share scarce spectrum allocation extremely efficiently.

Benefits:

The SOLO7 HD Nano transmitter is an ultra-miniature COFDM digital video transmitter from Cobham, designed specifically for covert video installations and body-worn applications

SOLO7 - Nano Transmitter

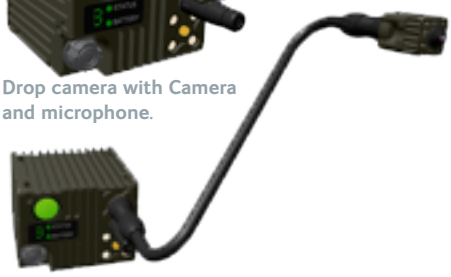
Features:

- Exceptionally small size and low power consumption (typically 3.7W)
- Tiny transmitter only 58mm x 36mm x 16.5mm
- Weighs only 60g
- Optional 128/256 encryption
- Ultra low latency high profile H.264 encoding
- Range of bandwidths available: 2.5MHz, 1.25MHz and 625kHz

Benefits:

The SOLO7 Nano transmitter is an ultra-miniature COFDM digital video transmitter from Cobham, designed specifically for covert video installations and body-worn applications.

Drop camera with Camera and microphone.



Drop Camera with camera on gooseneck

COFDM Drop Camera MK3 – SOLDCAMHD

Overview:

The SOLDCAMHD Mk3 is the third generation drop camera from Cobham. The fully featured SOLDCAMHD MK3 Transmitter includes a H.264 High definition video encoder, camera, microphone (detachable) with a complete range of transmission including COFDM and optional 3G and WIFI. The SOLDCAMHD supports an internal telemetry receiver for remote control of the camera, and remote On/Off.

The SOLDCAMHD even includes built in recording to SD Card, with maximum capacity of 64GB. The SOLDCAMHD has an internal battery pack offering 4 hours of operation for rapid deployment scenarios, or can be powered from 12V for longer events.

The DropCam Transmitter is housed in a rugged IP66 housing and is suitable for outdoor deployment. The integral battery pack provides upto 4 hours of power and can be recharged by connecting the AC adaptor lead.

The detachable camera supports interchangeable M12 lenses and has excellent low light properties. The detachable camera can be removed and abstracted from the SOLDCAMHD body using a gooseneck semi-rigid cable, or a flexible 2m cable.

The SOLDCAMHD is provided with a second video input for applications requiring two cameras.

Handheld Video Transmitter II (HVT-II)

Features:

- Unique camera head/laser point combination
- COFDM transmission for non-line of sight digital video transmission
- 16 programmable channels
- High resolution with low light capability
- Interchangeable lenses
- Weighs only 4.1lbs

Benefits:

The Handheld Video Transmitter is ideal for first responder and tactical video reconnaissance missions. Its LED tactical lantern provides a very flexible carry and illumination combination, making it essential for fire/rescue, government, military and law enforcement teams. A COFDM digital video transmitter, battery, camera and microphone are united in a robust chassis.

COFDM Drop Camera Transmitter

Features:

- Robust chassis with COFDM digital video transmitter, battery, camera and microphone
- Mounting camera 3.6mm lens
- Replacement 9 and 16mm lens
- AES 128/256 encryption
- Integral battery pack with up to 4 hours of power

Benefits:

This second generation drop camera is ideal for rapid deployment tactical scenarios, with video coverage across non-line of sight. Supplied with a high resolution low light camera to dock directly to the transmitter body or abstract using a 10-foot cable.

COFDM Drop Camera Transmitter 3G

Features:

- Robust chassis with COFDM digital video transmitter, 3G modem, battery and camera
- Housed in rugged IP66 housing suitable for outdoor deployment
- Replacement 9 and 16mm lens
- AES 128/256 encryption
- Temperature range = -4 to +140°F

Benefits:

The DropCam3G Transmitter offers unique dual modem capability, with a COFDM link for high quality video over short/medium ranges and a 3G link for observational quality video and camera control over ranges limited only by network coverage. Supplied with a high resolution low light camera to dock directly to the transmitter body or abstract using a 10ft cable.

Drop Camera Infrared Camera Head Option

Features:

- Infra red LED provides illumination to 16ft and some gain to 33ft
- Microphone incorporated in the camera head
- Field of view = 62 degrees

Benefits:

This camera head option incorporates an ultra low light camera sensitive to infra red and also a color camera, with an infra red LED. Low light conditions are detected automatically by a built in photo diode, and the low light camera is selected and the infra red LED is automatically switched on.

Cobham's COFDM Tactical Receivers are specifically designed to suit a number of tactical situations where video is needed. A number of variations are available including; on screen displays, briefcase and handheld designs.

NANOVUE HD RECEIVER

The Cobham Tactical Communications and Surveillance SOLO 7 NanoVue 'HD' Receiver is a fully portable digital diversity receiver. The enhanced faster microprocessor provides increased performance and responsiveness resulting in faster IP streaming. A NanoVue HD incorporates an extremely flexible decoding platform with low delay SD and HD H.264 decoding capability.

The NanoVue 'HD' receiver incorporates a high resolution daylight viewable video touch screen with digital diversity receiver, antennas with optional clip-on battery in a proven, durable and compact lightweight housing.

It is ideal for use as a confidence or monitoring receiver for tactical use, or for surveillance on the move, perimeter security and fire control.

Control is achieved through a touch screen interface or by connecting the unit to an IP network using the Ethernet interface provided. Rapid configuration in the field is supported via the Cobham Field Controller (FCON).

The product can be supplied with an optional external rechargeable battery pack for rapid interchange, which provides at least four hours continuous use battery life. It can also run from an external DC supply.

The product has comprehensive on screen display diagnostic capability to show link quality, enabling users to optimise transmission performance. The touch screen allows the user to switch channels and perform basic configuration like frequency selection without the need for connection to a PC. Recording to SD card is also controlled via the touch screen.

NanoVue HD is ideal for tactical mobile situations providing decision makers with real time video feedback.

- Small size: 5.11" x 3.14" x 1.25" (unit only)
- H.264, MPEG-4 ASP and MPEG-2 decoding in one unit
- Low power
- Fully featured 8/7/6/2.5/1.25*/0.625* MHz demodulation
- Maximum ratio combining antenna diversity
- IP video streaming (RTSP and UDP) *
- Internal recording to 32GB SD card *
- Ethernet control
- High Definition 5" display 800 x 480 res.
- Easy to use touch screen
- Optional clip-on night vision screen
- Optional clip-on 4 hour battery pack with internal charger circuit

MULTIVUE2 HD RECEIVER

The Cobham Tactical Communications and Surveillance MultiVue2 is a briefcase receiver package, with Cobham technology at its core, for team-based tactical video surveillance operations. It will simultaneously decode and display four separate SD or HD digital video channels, allowing its operator to observe activities in four different locations or four views of one location.

Typical applications include tactical surveillance teams and first responder and emergency teams. Equipped with dual diversity antennae inputs, the MultiVue2 ensures excellent video reception quality.

The MultiVue2 combines four Cobham SOLO Receivers with two diversity down-converters and two antennae into one rapidly deployable briefcase kit. A comprehensive touch screen interface is provided for user control.

A color Full HD monitor is mounted in the lid and can be user-controlled to display a quad image, or any one of the four individual images. Video and audio outputs are provided at the rear of the unit for recording, while local audio monitoring is provided via integral speakers or headphone outputs. The MultiVue2 capabilities can be extended with optional IP streaming. The unit can be AC or DC powered, an external AC/DC PSU is supplied and stored within the briefcase.

The narrow bandwidth modulation offers unprecedented spectrum efficiency, while also increasing the system sensitivity and, therefore, range.

The MultiVue2 has comprehensive On Screen Display diagnostic capability to show link quality and spectrum and is equipped with video, two voice and data channels.

- Four simultaneous SD/HD video reception and viewing
- Comprehensive demodulation 8/7/6/2.5 and 1.25MHz/625kHz (optional)
- Maximum ratio combining antenna diversity for fade and multipath elimination
- Lid mounted fold-out antennae
- Color Full HD monitor in lid with quad or individual viewing
- Tilting user touch screen control interface
- Optional IP streaming
- Optional 500GB SSD for recording
- Comprehensive On Screen Display (OSD) diagnostics for link analysis, including spectrum analyzer

Commander upgrade:

- Integral triple axis joystick for control of PTZ camera Telemetry 100mw Transmitter able to address multiple cameras
- Camera position pre-set storage
- Multiple PTZ protocols supported

NanoVue SD

Features:

- High resolution 4.3" display
- Easy to use touch screen
- Internal recording to SD card
- 4 hours battery life (via external pack)
- Compact weather-proof housing

Benefits:

A fully portable digital diversity receiver, the NanoVue incorporates a high resolution, daylight-viewable touch screen with receiver, antennae and clip-on batteries. Ideal for tactical use as a monitoring receiver or for mobile surveillance, it provides decision makers with real time video feedback.

NanoVue – Robust

Features:

- High resolution 4.3" display
- Single button operation
- Interchangeable battery pack
- Robust shock- and water-proof housing
- Supplied with antennae

Benefits:

This fully portable digital diversity receiver incorporates a high resolution video screen with receiver, antennae and clip-on batteries into a robust and compact lightweight housing. Ideal for use as a tactical receiver in demanding body-worn applications, it is programmed through a PC application, then controlled through a simple single button interface.

TacVue Receiver

Features:

- Small size: 5.70" x 3.74" x 1.96" (excl cables)
- Low power
- Fully featured 8/7/6/2.5/1.25*/0.625* MHz demodulation
- Maximum ratio combining antenna diversity
- IP video streaming (RTSP and UDP) *
- Internal recording to 32GB SD card *
- Ethernet control
- Wi-Fi streaming and control
- H.264 SD and HD Decoding
- MPEG-4 ASP and MPEG-2 SD Decoding

Benefits:

The TacVue receiver / controller solution is a fully portable digital diversity COFDM receiver solution. TacVue is specifically designed to enable video streaming to a tablet or laptop, via Wi-Fi or Ethernet connection. TacVue incorporates a high performance Dual Diversity COFDM receiver based on the SOL5RX product integrated with a Wi-Fi access point in lightweight aluminium housing.

MicroVue 2 Receiver

Features:

- 8.4" color monitor in lid
- 4.3" touch screen base in base for device configuration
- Optional 160GB hard disk recorder with playback on lid monitor
- Maximum ratio combining antenna diversity for fade and multipath elimination
- Internal AES128 or 256 encryption
- Now availible with optional:
- 500GB hard disk recorder with playback on lid monitor
- Streaming video over IP Streams out HD but can only view H.264 SD on unit
- PTZ camera control joystick

Benefits:

The MicroVue2 briefcase receiver/recorder package for tactical video surveillance operations can also be used as a remote video receiver for UAV and UGV applications. It combines a Cobham SOLO Receiver with two diversity down-converters and two antennae into one rapidly-deployable briefcase kit.

MultiVue Receive Case

Features:

- Four simultaneous video reception and viewing
- Color monitor in lid with quad or individual viewing
- User touch screen control interface
- Optional IP streaming and microwave relay
- Maximum ratio combining antenna diversity for fade and multipath elimination

Benefits:

This rapidly-deployable briefcase receiver package is ideal for team-based tactical video surveillance operations. It will decode and display four separate digital video channels, allows its operator to observe activities in four different locations or four views of one location. The MultiVue ensures excellent video reception quality and is often used by first responder and emergency teams.

Covert Video Surveillance

COFDM Standard Receivers

Cobham's COFDM Standard Receivers are feature-rich diversity input digital video receivers. Cobham's narrow bandwidth modulation offers unprecedented spectral efficiency, while also increasing the system sensitivity and, therefore, range. Receivers are available in different specifications to suit a range of situations. All receivers feature simple, or advanced AES encryption to prevent interception of the transmissions by unwanted persons.

SOLO5 Receiver

Features:

- MPEG2 and MPEG4 ASP video decoding
- Optional H264 Video Decoding Licence
- IP video streaming (RTSP and UDP)
- Battery pack provides more than 5 hours continuous use
- Maximum ratio combining antenna diversity
- Internal recording to 32GB SD card
- Selectable AES128/ 256 encryption (optional)

Benefits:

A compact digital diversity receiver in a robust, compact and lightweight housing, this can be used both remotely and in fixed location applications. An on-board MicroSD card makes local recording possible, while an Ethernet interface enables playback and downloading of recorded video.

SOLO5 Receiver IF (Intermediate Frequency)

Features:

- Low power
- Fully featured 8/7/6/2.5/1.25*/0.625* MHz demodulation
- Maximum ratio combining antenna diversity
- IP video streaming (RTSP and UDP) *
- Internal recording to 32GB SD card *
- Ethernet control
- Front Panel control
- USB control
- Frequency configurable via optional use of External Down Converters and Antennas from 250MHz to 8.9GHz
- AES128/256 selectable (optional)

Benefits:

A compact IF digital diversity receiver in a robust, compact and lightweight housing, this can be used both remotely and in fixed location applications. An on-board MicroSD card makes local recording possible, while The Wide version offers users the ability to configure the unit frequency via the addition of appropriate external Down Converter Barrels, Gain Selectable (DCBGS). These can be fitted directly by connecting CABRF to the RF input socket and the DCBGS, in an infrastructure receive station format using cables as shown. This product can be used both remotely and in fixed location applications. an Ethernet interface enables playback and downloading of recorded video.

Covert Video Surveillance

COFDM Robust Receivers

Cobham's COFDM Robust Receivers are feature-rich diversity input digital video receivers. Cobham's narrow bandwidth modulation offers unprecedented spectral efficiency, while also increasing the system sensitivity and, therefore, range. Receivers are available in different specifications and different resilience to harsh environments (splash proof compact units, to fully IP67 compliant units). All receivers feature simple, or advanced AES encryption to prevent interception of the transmissions by unwanted persons.

Miniature Robust Receiver

Features:

- Maximum ratio combining antenna diversity
- Internal recording to SD card
- Compact weather-proof housing to IP67
- Controllable via Field Programmer or Ethernet
- Low current drain, typically 8W

Benefits:

This fully portable COFDM digital diversity receiver uses the latest technology shared with the NanoVue unit. It is ideal for use as a confidence or monitoring receiver for tactical use, or for long term covert surveillance, perimeter security and fire control where permanent installations require weather-proof housing.

Cobham's COFDM Infrastructure Receivers offer the best in digital video decoding in permanent and temporary installations. COFDM Infrastructure Receivers are optimized for the reception of signals from the SOLO and Messenger Transmitter range, and for flexibility in interfacing to backbone networks. These receivers support 2, 4, 6 and 8 way Maximum Radio Combining allowing the use of many directional antennas to extend range.Remote microwave down-converters are also available to allow the antennas to be positioned remotely. Cobham's COFDM Infrastructure Receivers are designed with IP Interfaces for direct digital streaming over a backbone network to HQ.

PRORX – Receiver Decoder

Features:

- 2, 4, 6 or 8 way COFDM diversity
- Maximum ratio combining antenna diversity for fade and multipath elimination
- IP control and streaming video
- Comprehensive on-screen display (OSD) diagnostics for link analysis, including spectrum analyzer
- Very low delay video operation for real time applications

Benefits:

This feature-rich, multi-way diversity COFDM receiver incorporates a fully featured SD MPEG2 decoder, with composite and SDI video outputs as well as a Genlock video input. The PRORX can be controlled through its OLED front panel display, as well as on its RS232 or IP Ethernet browser control interfaces.

PRORX-B

Features:

- 2, 4, 6 or 8 way COFDM diversity
- DVB-T compliant 8/7/6MHz
- Maximum ratio combining antenna diversity for fade and multipath elimination
- Narrowband 2.5/1.25/0.625MHz option
- H.264 SD & HD decoding

Benefits:

The PRORXB is a feature rich multi-way diversity COFDM receiver designed to work with the next generation of H.264 wireless camera systems. Designed specifically for the demanding broadcast market, it is supplied in a 1/2 19" 2U high rack receiver chassis, where two units can be mounted together to occupy a 19" slot and uses standard broadcast connectors for signal interfaces.

Covert Video Surveillance

COFDM Kits

Cobham COFDM Kits are packaged solutions providing the customer with all the components needed for an easy deployment in any type of operation. Cobham kits include the main system plus all the associated accessories, to enable use in any type of video microwave transmission. The entire kit is housed in a rugged compact case for easy storage and deployment.

Drop and View Kit

Key Features:

DropCam COFDM Transmitter

- Robust chassis with COFDM digital video transmitter,
  battery, camera and microphone
- Mounting camera .14" lens
- Replacement .35" and .62" lens
- AES 128/256 encryption
- Integral battery pack with up to 3 hours of power

NanoVue Receiver

- High resolution 4.3" display
- Easy to use touch screen
- Internal recording to SD card
- 4 hours battery life (via external pack)
- Compact weather-proof housing
- Faster IP Streaming

Benefits:

Cobham Tactical Communications and Surveillance introduces a new twist on two established products within the surveillance community. When unexpected times arise, Cobham's new Drop and View Kit offers those rapidly deployable scenarios a DropCam transmitter, NanoVue receiver, camera, and microphone all within one weather-resistant shipping case.

SOLO7 - Transmitter Kit

Key Features:

- Exceptionally small size and low power consumption (typically 3.7W)
- Tiny transmitter only 58mm x 36mm x 16.5mm
- Weighs only 60g
- Optional 128/256 encryption
- Ultra low latency high profile H.264 encoding
- Range of bandwidths available: 2.5MHz, 1.25MHz and 625kHz

Benefits:

The Cobham SOLO7 Nano Transmitter is now offered as a complete Transmission system. The entire SOLO7 Nano

Transmission Kit (SOL7NTXK) is an off-the-shelf, ready to go kit, supplied with all components and delivered in a robust compact case.

Covert Video Surveillance

Video Concealments

Discreet design is the key word for any equipment used in covert operations. The less the appearance reflects the purpose of the equipment, the higher the odds that the target will not spot it and consequently, the higher the chances for a successful operation. Concealments that resemble everyday objects are an effective way to covertly monitor targets and gather vital information.

Cobham Tactical Communications and Surveillance can deliver a variety of standard or custom made concealments that incorporate concealed video or audio transmission, recorders or both. Below are just a few options when customizing your concealment. Concealment options vary, so discuss your requirements with your account manager.

SOL8/NetNode

The Cobham SOL8HDTX transmitter is the most advanced video transmitter available anywhere, and represents the latest generation of high performance digital video transmitters for covert surveillance applications.

With a COFDM pedigree spanning over 10 years, this iteration of Digital Video Microwave Transmitter has been designed to meet the demands of Law Enforcement Communities worldwide. The SOL8 is feature rich, flexible, and yet easy to configure while being highly physically optimized, making it suitable for use in both concealments and as a "black box" transmitter for generic surveillance applications

Advanced Groundbreaking Unique Features:

- Software Defined Radio – Software upgrades add new features, capabilities, or and / or modes of operation
- In-Band Telemetry – Has the ability to conduct telemetry operations within the video TX channel conserving spectrum
- COFDM IP Mesh Radio – The SOL8HDTX is a hardware platform capable of being either a "standard" microwave transmitter or to become a NetNode – Cobham's COFDM IP Mesh Radio. This is accomplished through a simple check box on the configuration web page.
- True MIMO – SOL8HDTX contains two independent RF front ends enabling it to utilize MIMO for enhanced throughput and range

COFDM

Cobham Tactical Communications and Surveillance has introduced a new family of COFDM (Coded Orthogonal Frequency Division Multiplexed) digital video products that support narrowband (1.25MHz and 2.5MHz), full DVB-T compliant (6, 7, or 8MHz) channelization, and HD video in non-line of site environments.

Cell and WIFI

Your choice of WiFi modem, either it be 802.11a, 802.11b, 802.11g, 802.11n, and 802.11ac and/or a 3G or 4G cellular modem allows wireless transmission of IP audio/video. An IP audio/video encoder module contains a stand-alone web server. Configuration and control of this IP module can be accessed remotely, from any PC, using a web browser. Stored audio/video files are simply retrieved via this web browser and can be copied onto a PC for later viewing.

Power-Line Communications (PLC)

PLC uses unique IP over power-line communications (PLC) for its data transmission. With this communication, there will be no detectable RF. By simply plugging this appliance into a wall socket, encrypted audio/video data can be streamed over a building's utility wiring. Receiving this data is performed by plugging the included PLC receiver into a wall socket and connecting a computer for viewing.

Power over Ethernet (PoE)

Power over Ethernet (PoE) allows a single cable to provide both data connection and electrical power to devices such as wireless access points or IP cameras. Unlike standards such as Universal Serial Bus, which also power devices over the data cables, PoE allows long cable lengths. Power may be carried on the same conductors as the data, or it may be carried on dedicated conductors in the same cable.

Audio/Microphones

Cobham's covert audio surveillance solutions provide the ability to switch the radio transmission on and off, locally and remotely, and non-verbally call for help should the need arise. Data compression capabilities also make it easier to store data on a large scale and make savings on bandwidth. In addition, our audio is simultaneously captured in digital or analog using as many high gain microphones that are needed, which offer very low inherent noise, low distortion for high sound pressure levels, and exceptionally high dynamic range.

Video/Cameras

Cobham's camera capability includes a wide selection of short range, covert or long-range electro-optic thermal imagery and Pan, Tilt and Zoom (PTZ) cameras. Our high end technologically-advanced, environmentally hardened video/camera products for extreme environments can be made part of any integrated concealment solution(s).

IP Mesh

Cobham fluid, self-forming, self-healing IP Mesh solutions offer true networked integration of video, audio and GPS with seamless transfer of digital data. Offering genuine non-line of sight coverage (COFDM), the system is truly mobile and therefore supplies a network with extended range - one which will deliver in environments too tough for other radio solutions to cope with.

Power

Numerous Battery and / or AC power options are available, depending on your needed runtime.

Fuel Cell

A 110-watt, self-contained ethanol fuel cell generator that is capable of accepting two fuel cartridges, thus providing up to 11.1 kWh / 920 Ah for silent operations with little need for operator intervention. This COTs fuel cell generator is one of the best in the market today by guaranteeing one of the longest run times available.

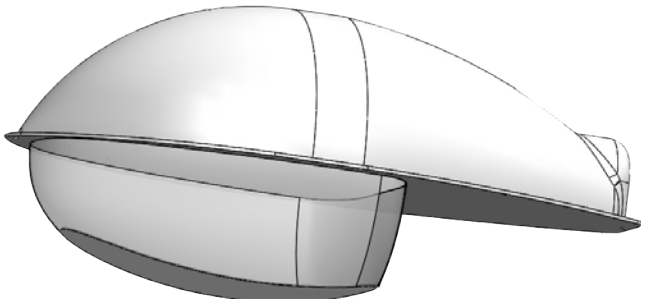
Covert Video Surveillance

Video Concealments

Clock Radio

Backpack

Splice Boot



Cobrahead LED Streetlight

iHOME

Phone / Utility Pedestal

Utility Phone Pedistal

Ground Pedestal

Einstein Communications Box

Outdoor Trash can

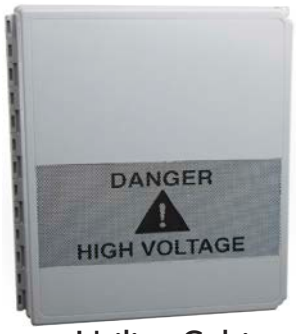
Wall Clock

Bird House

Smoke Detector

Streetlight w/ Diurnal

Bug Zapper



Utility Cabinet

Tar Bucket

Paint Bucket

Garden Reel

Roof Vent

Covert Video Surveillance

Video Capturing and Recording Systems

The Freja Digital Video Recorders' state of the art design, combined with numerous unique features, make them ideal for covert video and audio surveillance operations. The very small and lightweight digital video recorders are extremely suitable for close proximity operations and discreet installations. The video recorders are easily operated using only a single button for basic operation; but additional advanced functionality is provided, using the Advanced Multi-Cable Our low power digital mini cameras provide secure high resolution video (1280 x 1024 pixels) and audio recordings of the highest quality

Freja Video Recorder

Benefits:

The Freja Digital Video Recorder is a very small and leightweight 32GB solid state video recorder. With the integrated battery compartment for 2 AAA batteries, the Freja Video Recorder is extremely suitable for body-worn applications and short-term installations, as no external supply is required.

Freja Mini Video Recorder

Benefits:

The Freja Mini Digital Video Recorder is similar to the Freja Video Recorder, but comes without the internal battery compartment. By reducing the physical size, the Freja Mini is even more suitable for covert operations and long-term installations.

Freja Buttonhole Lens

Benefits:

The Freja Camera with Buttonhole lens is ideal for concealed body-worn applications, as the lens resembles a normal button. The camera is delivered with a selection of different buttons, providing you with the option to customize the camera to fit the clothes used for the operation. Furthermore the camera comes with a 1 meter / 3.3 feet Kevlar® 49 reinforced cable with military grade connector.

Freja Pinhole Lens

Benefits:

The Freja Camera with Pinhole lens is useful for concealed video surveillance. Requiring only a very small view hole, the camera is easily concealed in objects or behind surfaces. The camera comes with a 1 meter / 3.3 feet Kevlar® 49 reinforced cable with military grade connector.

Freja Fisheye Lens

Benefits:

The Freja Camera with Fisheye lens is suitable for surveillance operations requiring a broad view of the target area. The Low Light camera features an angle of view of 123° and the Ultra-Low Light 140°. The camera comes with a 1 meter / 3.3 feet Kevlar® 49 reinforced cable with military grade connector.

Freja Tele Lens

Benefits:

The Freja Camera with Tele lens is ideal for surveillance operations requiring a certain distance from the target. The lens provides the same enlargement as a 200mm zoom lens (35 mm equivalent), but is still small in size. The camera comes with a 1 meter / 3.3 feet Kevlar® 49 reinforced cable with military grade connector

Freja Ultra Low Light Camera Kit

Benefits:

The Freja Ultra Low Light Camera Kit includes a state of the art light sensitive camera with eight different interchangeable lenses. The lens types include Buttonhole, Pinhole, Fisheye and Tele.

Bifrost

Benefits:

Bifrost is a wireless high-speed USB modem for file downloading and remote control of the Cobham Freja digital video and audio recorder. The Bifrost modem is connected to the Freja recorder and is suitable for long-term surveillance applications, where direct access to the recorder for file downloading or changing of settings can be impossible.

Camera Extension Cable

Benefits:

The camera extension cable allows for installing cameras further away from the Freja Video Recorder, that with the attatched cable. The camera extension cable comes in two lenghts, either 1m / 3.2 feet or 2m / 6.6 feet.

Camera Cable Splitter

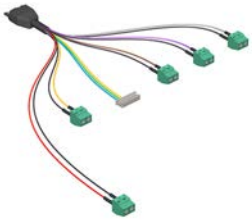
Benefits:

Kevlar reinforced camera splitter cable with military grade connectors.

Analogue Camera Adapter

Benefits:

The Analogue to Digital (A/D) Camera Adaptor is designed to allow users to use their existing inventory of analogue cameras with the Freja Digital Video Recorder.



Advanced Multi Cable

Benefits:

Provides a total of six cable sets for connecting various accessories that are available for the Freja Recorders from Cobham Tactical Communications and Surveillance and other third-party manufacturers.

Covert Video Surveillance

Video Capturing and Recording Systems

Power Cable

Benefits:

Provides a total of six cable sets for connecting various accessories that are available for the Freja Recorders from Cobham Tactical Communications and Surveillance and other third-party manufacturers.

Freja Camera IR Lamp

Benefits:

The Infra-Red (IR) Lamp is intended to illuminate environments with very low light when using the Ultra Low Light Camera.

Freja PIR Sensor

Benefits:

The Freja PIR sensor enables automatic on/off of a Freja video recorder, when motion is detected. The PIR sensor comes in 4 different configuration, either a standard, long range, slight motion or spot.

Freja Monitor

Benefits:

Active Matrix 5.6" Colour Monitor. The monitor allows for checking camera placement during the installation of the Freja Digital Video Recorder.

Freja Mini Jack / BNC Monitor Cable

Freja Mini Battery Kit

Benefits:

The Freje Mini battery kit consists of 3 different battery packs including charger and other needed accessories.

Freja Mini - Basic Kit

The Freja Basic Kit with Freja Mini Video Recorder consists of::

- 1 Freja Mini Recorder 32GB
- 1 Freja Camera*
- 1 Camera cable extension, 1 mtr. / 3.3 ft.
- 1 Power Cable
- 1 Multi Cable
- 1 Mini Jack / BNC Monitor Cable
- 1 MMM 12 VDC / 250 mA / 115 / 230 VAC
- 3 Microphones external (50 cm, 150 cm and 360 cm)
- 1 User Manual and Training CD
- 1 Transport Case

* Please specify camera when ordering

Freja Mini - Blue Complete Kit

The Freja Blue Complete Kit with Freja Mini recorder consists of:

- 1 Freja Mini Recorder 32GB
- 2 Freja Cameras*
- 2 Camera Cable Extensions, 1 mtr. / 3.3 ft.
- 2 Camera Cable Extensions, 2 mtr. / 6.6 ft.
- 1 Camera Cable Splitter
- 3 Microphones, External (50 cm, 150 cm and 360 cm)
- 1 Power Cable
- 1 Multi Cable
- 1 Analogue Camera Adapter
- 1 RC Module
- 1 Monitor
- 1 Mini Jack / BNC Monitor Cable
- 1 MMM 12 VDC / 250 mA / 115 / 230 VAC
- 1 X-IDER 4096 TX incl. Antenna and Battery
- 1 INCA GM Key Fob incl. Battery
- 1 User Manual and Training CD
- 1 Transport Case

* Please specify camera when ordering

Freja - Basic Kit

The Freja Basic Kit consists of:

- 1 Freja Recorder 32GB
- 1 Freja Camera*
- 1 Camera cable extension 1 mtr. / 3.3 ft.
- 1 Multi Cable
- 1 Mini Jack / BNC Monitor Cable
- 3 Microphones external (50 cm, 150 cm and 360 cm)
- 1 User Manual and Training CD
- 1 Transport Case

* Please specify camera when ordering

Freja - Standard Kit

The Freja Standard Kit consists of:

- 1 Freja Recorder 32GB
- 2 Freja Cameras*
- 2 Camera cable extensions, 1 mtr. / 3.3 ft.
- 2 Camera cable extensions, 2 mtr. / 6.6 ft.
- 1 Camera cable splitter
- 1 Multi Cable
- 1 Mini Jack / BNC Monitor Cable
- 3 Microphones external (50 cm, 150 cm and 360 cm)
- 1 User Manual and Training CD
- 1 Transport Case

* Please specify camera when ordering

Freja - Blue Complete Kit

The Freja Blue Complete Kit consists of:

- 1 Freja Recorder 32GB
- 2 Freja Cameras*
- 2 Camera cable extensions, 1 mtr. / 3.3 ft.
- 2 Camera cable extensions, 2 mtr. / 6.6 ft.
- 1 Camera cable splitter
- 3 Microphones external (50 cm, 150 cm and 360 cm)
- 1 Multi Cable
- 1 Analogue Camera Adapter
- 1 RC Module
- 1 Monitor
- 1 Mini Jack / BNC Monitor Cable
- 1 MMM 12 VDC / 250 mA / 115 / 230 VAC
- 1 X-IDER 4096 TX incl antenna incl. battery
- 1 INCA GM Key Fob incl battery
- 1 User Manual and Training CD
- 1 Transport Case

* Please specify camera when ordering

Band Pass and Channel Filters

Single Channel Cavity Filters from Cobham Surveillance provide high out of band rejection and low insertion loss. These filters are designed for rugged use and operate from -10 to +65˚C with up to 95% humidity (non-condensing).

Part No.	Frequency	Gain	Max FM Output Power
BPFCAVL2	1700-1850 MHz	10 MHz	<2.2dB
BPFCAVS1	2200-2400 MHz	10 MHz	<2.2dB
BPFCAVC2	4400-5000 MHz	10 MHz	<2.2dB
BPFCAVX5	8100-8500 MHz	20 MHz	<5dB

Block Downconverter Card (BDCC)

Cobham Surveillance offers a selection of Block Down Converters (BDCs) which are used in conjunction with COFDM Receivers to provide coverage from 1.435-7.2 GHz in bands. This product is available as a card that can be installed in the MSR, or as a stand-alone module.

Part No.	RF In Frequency	IF Out Frequency	Local Oscillator	Gain (Adjustable)
BDCCL8	1435-1535 MHz	705-805 MHz	2240 MHz	25-43 dB
BDCCL2	1700-1850 MHz	550-700 MHz	2400 MHz	25-39 dB
BDCCD1	1755-1850 MHz 2200-2400 MHz	700-795 MHz 150-300 MHz	2550 MHz	25-32 dB
BDCCS2	1990-2500 MHz	300-810 MHz	2800 MHz	25-39 dB
BDCCS3	2400-2700 MHz	500-800 MHz	3200 MHz	25-34 dB
BDCCC1	3100-3600 MHz	300-800 MHz	2800 MHz	25-39 dB
BDCCC2	4400-5000 MHz	200-800 MHz	5200 MHz	25-34 dB
BDCCF4	5500-5900 MHz	400-800 MHz	5100 MHz	25-32 dB
BDCCX7	6425-6525 MHz	695-795 MHz	5730 MHz	25-32 dB
BDCCX8	6875-7125 MHz	405-655 MHz	7530 MHz	25-32 dB

Block Downconverter Card (BDCC)

Barrel Down Converter

Square Down Converter

Cobham Barrel Down-converter
The Cobham barrel downconverter is designed for permanent outdoor installations on the base of the receive antenna. The down-converter will successfully drive 10m of cable with down-converted UHF signal with no loss of performance.

Cobham High Gain Barrel Down-converter
The Cobham high gain barrel down-converter is designed for permanent outdoor installations on the base of the receive antenna. The down-converter will successfully drive 50-100m of cable with down-converted UHF signal with no loss of performance.

Cobham Legacy Square Down-converter
The Cobham square downconverter is designed for permanent outdoor installations on the base of the receive antenna. The down-converter will successfully drive 10m of cable with down-converted UHF signal with no loss of performance. This square style of down converter is being phased out and replaced by the barrel style.

Cobham Legacy Square High Gain Down-converter
The Cobham square high gain down-converter is designed for permanent outdoor installations on the base of the receive antenna. The down-converter will successfully drive 50-100m of cable with down-converted UHF signal with no loss of performance. This square style of high gain down converter is being phased out and replaced by the barrel style.

Omni Directional Antenna Line
6dBi Flanged

Standard
These lightweight omni antennas are mounted directly via their SMA connector, making them a flexible solution for a variety of applications.

Part No.	Frequency	Polarization	Gain	Elevation (HPBW)
AOL2A02S360FG	1700-1850 MHz	Linear	2dBi	60˚
AOS2A02S360FG	1990-2500 MHz	Linear	2dBi	60˚
AOS2A04S360FG	Linear	4dBi	45˚	
AOCGA06S360FG	3100-3400 MHz	Linear	6dBi	30˚
AOC6A02S360FG	4000-6000 MHz	Linear	2dBi	60˚
AOX9A06S360FG	6000-8000 MHz	Linear	6dBi	30˚
AOX5A02S360FG	8100-8500 MHz	Linear	2dBi	60˚

Flanged Base
These rugged omni antennas feature a flanged mounting base, 30˚ elevation beamwidth, and 6dBi gain at the horizon, making them ideal for a variety of airborne and ground-based applications.

Part No.	Frequency	Polarization	Connector
AOL2A06N360XG	1700-1850 MHz	Linear	N
AOS5A06N360XG	1900-2300 MHz	Linear	N
AOS2R06N360XG	1900-2500 MHz	RHCP	N
AOS3A06N360XG	2200-2500 MHz	Linear	N
AOSCA06N360XG	2300-2700 MHz	Linear	N
AOCGA06S360XG	3100-3400 MHz	Linear	SMA
AOC6A06N360XG	4000-6000 MHz	Linear	N
AOX1R06S360XG	6400-7200 MHz	RHCP	SMA
AOX9A06S360XG	6000-8000 MHz	Linear	SMA
AOX5A06S360XG	8100-8500 MHz	Linear	SMA

Spring Base
These linearly polarized omni antennas feature 'N' connectors and a spring base, making them an excellent choice for mobile installations such as cameraback transmitters or hand-held receivers.

Part No.	Frequency	Polarization	Connector
AOL2A03N3609F	1700-1850 MHz	3dBi	45˚
AOLSA02N3609F	1700-2500 MHz	2dBi	60˚
AOS2A03N3609F	1900-2500 MHz	3dBi	45˚
AOSMA06N3609F	2200-2500 MHz	6dBi	30˚
AOC2A04N3609F	4400-5000 MHz	4dBi	45˚
AOC2A06N3609F		6dBi	30˚
AOF5A04N3609F	5250-5900 MHz	4dBi	45˚
AOF5A06N3609F		6dBi	30˚
AOX5A03N3609F	8100-8500 MHz	3dBi	45˚
AOX5A06N3609F		6dBi	30˚

Blade

Blade antennas from Cobham Surveillance are ideal for many airborne applications, especially UAS.

Part No.	Frequency
501-015	1710-1850 MHz
501-017	2200-2400 MHz
501-039	4500-5000 MHz
501-048	5250-5850 MHz

MAA

The MAA from Cobham Surveillance provides a reliable, cost effective alternative to conventional electro-mechanical Dual-Axis or Single-Axis Auto-Tracking Antenna Systems. When used with the MSR 6 input COFDM receiver, this linear-polarized, wide-bandwidth antenna array provides auto-tracking of one or more transmissions over a 360 degree pattern.

Part No.	Frequency	Gain	Elevation (HPBW)
MAA-LS	1700-2500 MHz	12dBi	30˚
MAA-S4	1900-2700 MHz	12dBi	30˚
MAA-C4	3000-3600 MHz	15dBi	20˚
MAA-CD	4400-5900 MHz	15dBi	15˚
MAA-XB	5900-7400 MHz	15dBi	20˚
MAA-X5	8100-8500 MHz	15dBi	20˚

CMAA

Part No.	Frequency	Gain
CMAA8	LS1700-2500	MHz12dBi
CMAA8	S41900-2700	MHz12dBi
CMAA8	C43000-3600	MHz12dBi
CMAA8	CD4400-5900	MHz15dBi
CMAA8	XB5900-7400	MHz15dBi
CMAA8	X58100-8500	MHz15dBi
CMAA6	LS1700-2500	MHz12dBi
CMAA6	S41900-2700	MHz12dBi
CMAA6	C43000-3600	MHz15dBi
CMAA6	CD4400-5900	MHz15dBi
CMAA6	XB5900-7400	MHz15dBi
CMAA6	X58100-8500	MHz15dBi

Conical Spiral
Conical spiral antennas from Cobham Surveillance provide a mush-room shaped pattern and circular polarization, making them ideal for airborne applications, especially when transmitting FM.

Part No.	Frequency	Polarization	Connector
ACLSR04S360XG	1700-2700 MHz	RHCP	SMA(f)
ACLSL04S360XG	1700-2700 MHz	LHCP	SMA(f)
ACC6R04S360XD	4000-6000 MHz	RHCP	SMA(f)
ACC6R04N360XD	4000-6000 MHz	RHCP	N(f)

Power Amplifiers - PA

Cobham Surveillance offers a selection of Power Amplifiers (PAs) that operate from 1.7-7.125 GHz in bands, and can deliver up to 40 Watts of power.

These miniature FM power amplifiers were specifically designed to mate with the NT transmitter, but they are well suited for a variety of uses.

VEPA Series Linear Power Amplifiers
VEPA amplifiers incorporate cutting-edge technology to provide advanced features and unsurpassed efficiency for both FM and COFDM applications.

Part No.	Frequency	Max Gain	Max FM Output Power	Max COFDM Output Power
VEPA-2W-LD	1400-1600 MHz	30dB	3W	2W
VEPA-2W-L2	1700-1850 MHz			
VEPA-2W-W7	1700-2400 MHz			
VEPA-2W-S1	2200-2400 MHz			
VEPA-10W-L2	1700-1850 MHz	45dB	20W	10W
VEPA-10W-S1	2200-2400 MHz			

Cobham offer a range of antennas and accessories, contact us to discuss your requirements

FCON - Field Controller

Features:

- In line standalone controller
- Or USB to RS232 converter
- Remote client for CryptoWizard
- Controls transmitters and receivers with domo technology at their core

Benefits:

A discrete and comprehensive portable device, the Field Controller avoids the need to take a PC into the field. It acts as a secure carriage mechanism for field management of encryption data. The Field Controller can also act as a remote agent for the Cobham CryptoWizard application when pre-loaded with encryption keys.

Down-converters

Features:

- In line standalone controller
- Supplied in selectable high/low gain or fixed high and low gain variants
- Excellent low noise performance
- Designed for permanent outdoor deployment
- Variety of mounting kits available

Bias-T Coaxial Power Inserters

Features:

- 1000 to 3000MHz frequency range
- Up to 20 amps of DC current
- Low insertion loss
- Low bandpass ripple
- Rugged construction

Antenna Switch Unit

Features:

- 8 UHF inputs in 4 banks of 2
- 16 UHF outputs in 4 banks of 4
- 9V / 12V DC / 'off' power feed to down converters
- Control over Ethernet using Mission Commander software

Benefits:

The Cobham ASU is a robust 19" rack mounted UHF switch unit for use with Cobham or 3rd party down converters.

SOLO 1W Amp

Features:

- Frequency bands: 300-450MHz, 1.00 to 2.5GHz, 3.00 to 3.50GHz and 3.4 to 3.70GHz
- Supplied with the following accessories:
  1 x RS232 Lemo-DSUB9 3m cable
  1 x Bodyworn 1W Amp Power/Control cable
  1 x Bodyworn 1W Amp RF Link cable

Benefits:

Compatible with Cobham video transmitters.

SOLO – 1W Booster Amplifier

Features:

- Frequency bands - 300 to 450MHz, 1.00 to 2.5GHz, 3.00 to 3.50GHz and 3.40 to 3.70GHz
- Dimensions - 3.7" (L), 2.75" (W), 1.3" (H)
- Power in - 100mW, power out - 1W
- Specifications may vary depending on frequency
- Accessories supplied - RS232 Cable Lemo-DSUB9 3m, Bodyworn 1W Amp Power/Control Cable and Bodyworn 1W Amp RF Link Cable

Benefits:

Compatible with SOLO video transmitters, with products extending across four frequency bands, the SOLO - 1W Amplifier weighs 350g and operates in temperatures ranging from -4 to +158 °F.

SOLO – 1W Vehicle Amplifier

Features:

- Frequency bands - 300 to 700 MHz, 3.10 to 3.40 GHz, 4.40 to 5.00 GHz and 5.70 to 5.90 GHz
- Dimensions - 263mm (L), 100mm (W), 64mm (H)
- Power in - 100mW, power out - 1W
- Specifications may vary depending on frequency
- Accessories supplied - RS232 Cable Lemo-DSUB9 10ft, Vehicle Amp Power/Control Cable and 1W/5W Amp 750mm long RF cable

Benefits:

Compatible with SOLO video transmitters, with products extending across four frequency bands, the SOLO - 1W Vehicle Amplifier weighs 2.2lbs and operates in temperatures ranging from -14 to +122°F.

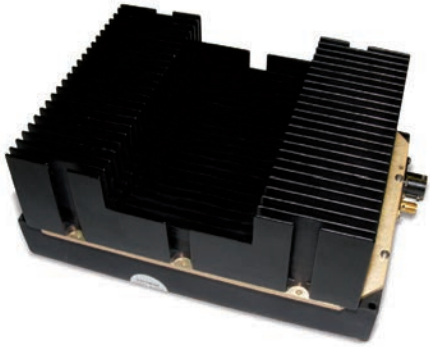
SOLAMP 500mW Booster

Features:

- Convenient small size
- Low power consumption
- Available for frequency ranges - 300-450MHz, 1.0-1.5, 1.5-2.0,2.0-2.5, 3.0-3.5 and 4.4-5.0GHz

Benefits:

A 500mW power amplifier designed specifically to partner the Cobham SOLMTX transmitter. The ideal power amplifier for applications where space is at a premium and when additional range may be required.



SOLAMP – Robust 5W Amplifier

Features:

- Ultra linear or saturated operation
- RF ports are open and short protected
- Operating gain - 17 dB typical
- Short circuit/over-voltage protection and reverse polarity protection
- 12 - 30 Vdc power supply range

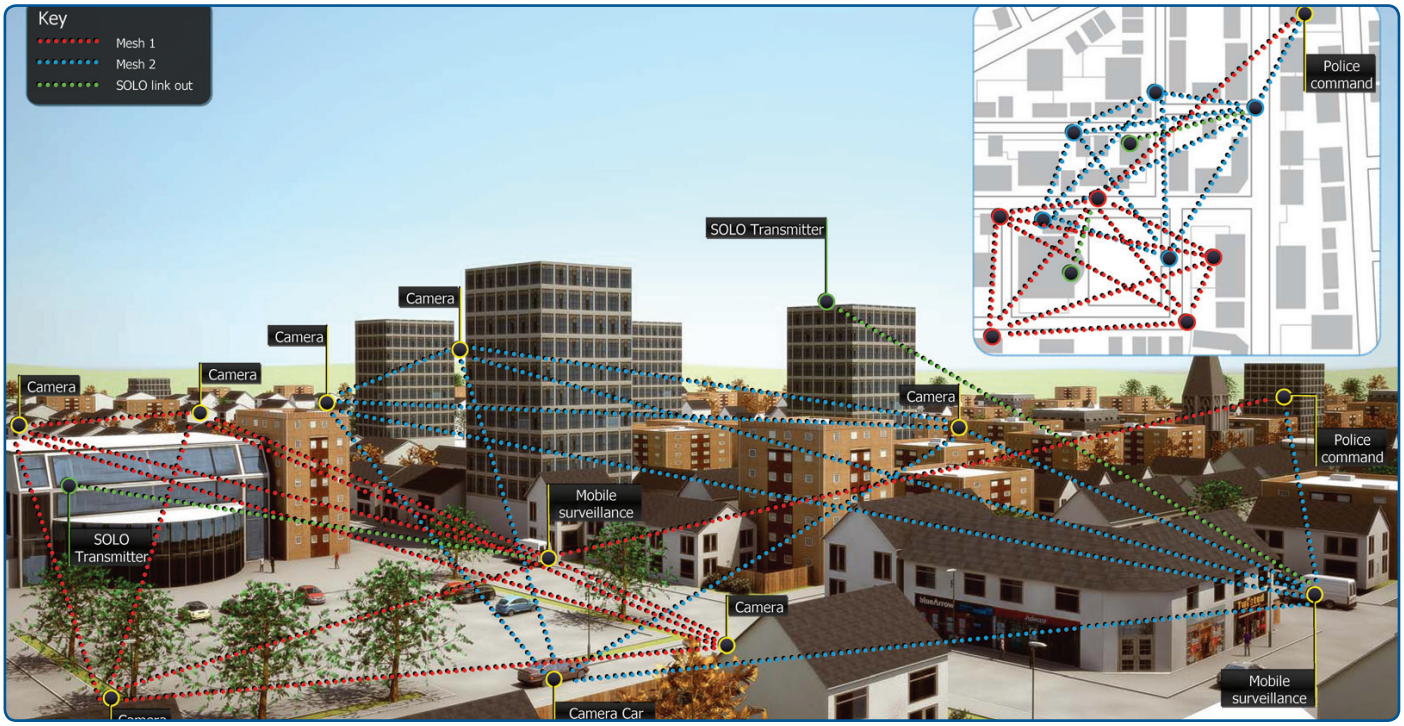
Benefits:

Bringing performance and reliability to microwave transmission of digitally modulated signals (COFDM, QPSK and BPSK), this amplifier minimizes distortion, providing superior signal quality for complex multi-carrier modulation while minimizing the DC power consumption. Optional small, fanned heat sink, automatic level control of RF output, water resistant enclosure, type N or TNC RF connectors (DB-9 for DC), and custom feed lines.

IP Mesh Products

COBHAM

IP Mesh Solutions



Key Features

- Single frequency fluid self-healing mesh, up to 16 nodes
- Immediate joining as additional nodes come within range
- Multiple interconnected meshes can be operated in the same area
- 2.5, 3, 3.5,5, 6MHz bandwidth, giving typically >5Mb/s network capacity
- IP interface as standard for easy connection of cameras, sensors and data
- GPS and/or RS232 interface and mapping software available
- Web browser control interface "Mission Commander"
- Web browser mapping interface (user loaded)
- RF Silent mode - listen only, transmit only when required
- Mesh allows range extension by making chains, or easy bi-directional relays

COFDM IP Mesh radios are the latest innovations in the expanding range of Cobham TCS solutions.

Up to 16 of the radios can be combined into a ground-breaking IP mesh network - Cobham's first fluid, self-forming, self-healing mesh. Offering genuine non-line of sight coverage (COFDM), the system is truly mobile and therefore supplies a network with extended range - one which will deliver in environments too tough for other radio solutions to cope with.

Wireless networks no longer need to be static. Unlike other wireless options, the COFDM IP Mesh constantly readjusts itself as nodes move, working out which are in range and finding the best route to send data between them. When one node can no longer operate, the rest of the nodes can still communicate with each other - directly or through one or more intermediate nodes.

The highly flexible mesh topology means that data can be exchanged between moving nodes in a point to point or point to multipoint fashion, and range can be extended by using nodes as repeaters. With a COFDM IP Mesh system, any shape of mesh network can be built.

With a COFDM IP Mesh system, any shape of mesh network can be built:

A chain network: Ideal for range extension, each node is placed at the outer range limit of the node before. These then chain together to feed information back. This network can be maintained mobile, with a linear chain of vehicles each acting as a node, and the central vehicle acting as a bi-directional relay point.

IP Mesh Solutions

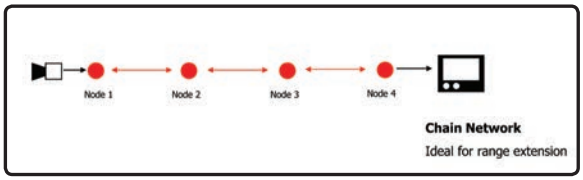
A star network: Good for urban coverage, a central node is situated at a high point to act as a relay and all other nodes feed information back via that one, enabling bi-directional communications.

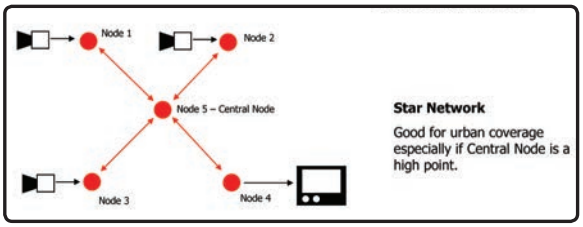
A random network: Evolves organically to any shape.

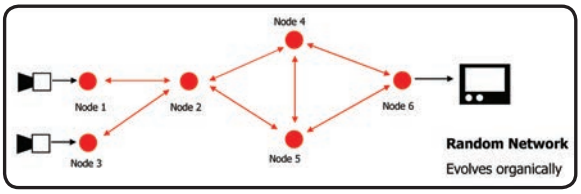
A combined network: Any of the above shapes can be linked if they are operating at different frequencies, they can be combined at the IP layer. COFDM IP Mesh from Cobham offers true networked integration of video, audio and GPS, with seamless transfer of MPEG4 video even when the mesh is reconfiguring to a different shape.

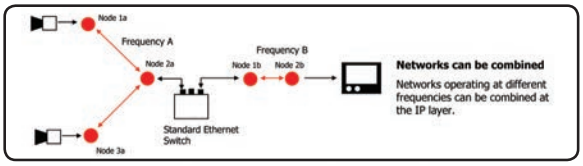
Technical Features

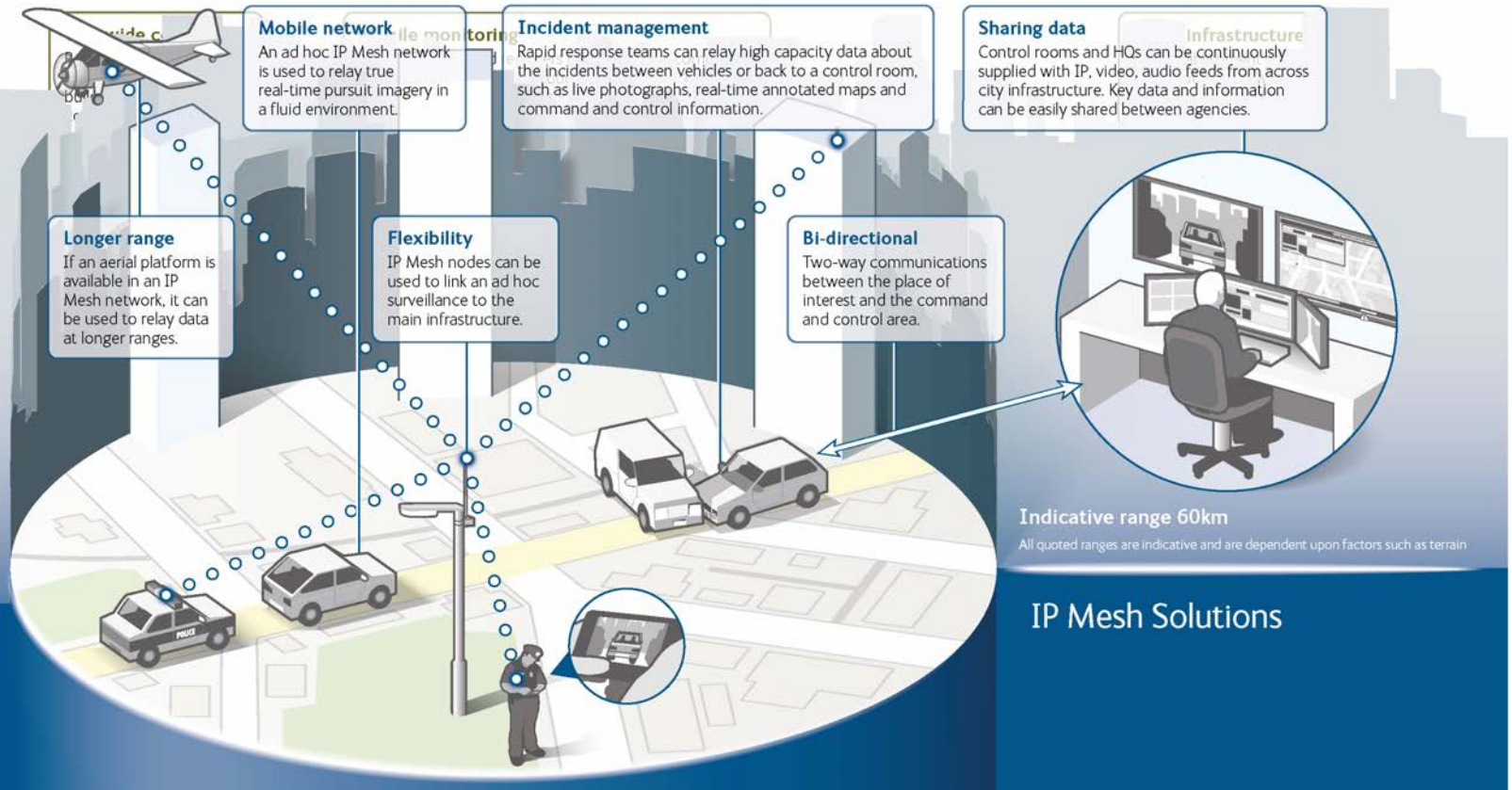
COFDM IP Mesh radios exchange data on a single frequency, simplifying frequency management. The entire mesh occupies just 2.5, 3, 3. 5,5, 6MHz of bandwidth. Far narrower than WiFi or WiMax bandwidth, this gives less noise in the channel, better sensitivity and increased spectrum for more users. Utilizing proprietary Cobham TCS narrowband video compression technology, very high quality video can be transmitted over the mesh network.











IP Mesh Solutions

Systems

NETNode IP Mesh - MIMO

Features:

- Up to 16 IP Mesh radios can be combined into a mobile network
- Excellent RF penetration and performance in presence of multipath
- Capable of over 16Mb/s of IP data (depending on mode, number of nodes and range between nodes)
- Occupies just 2.5MHz of bandwidth (3.0, 3.5, 5.0 and 6.0MHz also available)
- Optional AES128 or AES256 encryption

Benefits:

The Multiple Input/Multiple Output (MIMO) node is the latest breakthrough in mesh technology from Cobham, offering multiple transmit and receive antennas, transmitting extra data on the same frequency by overlaying two signals in the space of one. This technique can provide either a power, or diversity gain. This gain can be used to either increase the transmission range, or increase data throughput making this node ideal as an IP Back bone provider within the system, or simply to increase data capacity in the MIMO mesh network.

NETNode IP Mesh Phase 3 - Plain

Features:

- Up to 16 IP Mesh radios can be combined into a mobile network
- Excellent RF penetration and performance in presence of multipath
- Provides over 5.0 (6.0)Mb/s of IP data (depending on mode, number of nodes and range between nodes)
- Occupies just 2.5MHz of bandwidth (3.0, 3.5, 5.0 and 6.0MHz also available)
- Optional AES128 or AES256 encryption

Benefits:

The NETNode IP Mesh Radio Phase Three Plain is a smaller, lighter more power-efficient model with higher bandwidth capability. This enhances its use in mobile and rapid deployments and makes it an excellent solution in urban or challenging environments such as open cast mines or airports, where non-line of sight performance is key. Control is achieved using an inbuilt web browser or comprehensive Mission Commander PC application.

NETNode IP Mesh Phase 3 - Robust

Features:

- Up to 12 IP Mesh radios can be combined into a mobile network
- Robust case for tougher environments (IP66 sealing)
- Provides over 5.0 (6.0)Mb/s of IP data (depending on mode, number of nodes and range between nodes)
- Occupies just 2.5MHz of bandwidth (3.0, 3.5, 5.0 and 6.0MHz also available)
- Optional AES128 or AES256 encryption

Benefits:

The NETNode IP Mesh Radio Phase Three Robust is a smaller, lighter more power-efficient model with higher bandwidth capability. This enhances its use in mobile and rapid deployments and makes it an excellent solution in urban or challenging environments such as open cast mines or airports, where non-line of sight performance is key. Control of the NETNode IP Mesh Radio is achieved using an inbuilt web browser or comprehensive Mission Commander PC application. This robust solution is ideal for use in mobile surveillance applications, command and control or advanced robotics.

NETNode IP Mesh Radio Quad - Robust

Features:

- Up to 16 IP Mesh radios can be combined into a mobile network
- Occupies from just 2.5MHz of bandwidth (3.0, 3.5, 5.0 and 6.0MHz also available)
- Provides up to 8.5Mb/s of IP data (Phase 3 Mesh only)
- Not frequency specific
- Mission Commander PC application to configure and monitor mesh

Benefits:

The Quad Mesh Node provides four, individual diversity receive antennas and a dedicated single transmit antenna. The benefit of this system is that Quad diversity improves receive sensitivity by up to 3dB over dual diversity using Maximum Ratio Combining of all four channels. Yet further RX sensitivity will be achieved if the system is deployed with four sector antennas to give full 360 degrees coverage.

NETNode IP Mesh Radio Infrastructure Node

Features:

- Up to 16 IP Mesh radios can be combined into a mobile network
- Occupies from just 2.5MHz of bandwidth (3.0, 3.5, 5.0 and 6.0MHz also available)
- Provides up to 8.5Mb/s of IP data (Phase 3 Mesh only)
- Not frequency specific
- Allows up to 30 metres between the Node and the Receiving antennas
- Mission Commander PC application to configure and monitor mesh

Benefits:

The Infrastructure node allows a maximum of up to 30 meters between the Node and the Receiving antennas, making this ideally suited to city wide applications, or difficult deployments. The Quad Infrastructure Node accommodates four individual diversity receive antennas and a dedicated single transmit antenna. The benefit of this system is that Quad diversity improves receive sensitivity by up to 3dB over dual diversity using Maximum Ratio Combining of all four channels. Further RX sensitivity can be achieved if the system is deployed with four sector antennas, to give a full 360 degrees of coverage.

NETNode IP Mini Mesh - Plain

Features:

- Occupies just 2.5MHz of bandwidth (3.0, 3.5, 5.0 and 6.0MHz also available)
- Can be connected to third party IP cameras
- Designed for size-limited applications - weighs just 340g
- Controlled over inbuilt web browser or through Mission Commander PC application
- Optional AES128 or AES256 encryption

Benefits:

The NETNode IP Mini Mesh Radio -Plain can provide over 6.0Mb/s of IP data (depending on mode, number of nodes and range between nodes). With output power of 100mW, it also suits bodyworn applications, offering real-time IP connectivity. NETNode IP radios can be combined in a fluid self forming, self healing mesh containing up to twelve radios. What began in 2009 as a large box weighing some 2.5kg and using 20W of power, has been refined and redesigned to today's powerful solution, which weighs only 350g and uses half as much power. This enhances its use in mobile and rapid deployments and makes it an excellent solution in urban or challenging environments such as open cast mines or airports, where non-line of sight performance is key.

NETNode IP Mini Mesh - Robust

Features:

- Occupies just 2.5MHz of bandwidth (3.0, 3.5, 5.0 and 6.0MHz also available)
- Can be connected to third party IP cameras
- Meets IP67 environmental ingression standard
- Controlled over inbuilt web browser or through Mission Commander PC application
- Optional AES128 or AES256 encryption

Benefits:

The NETNode IP Mini Mesh Radio -Robust can provide up to 8.8Mb/s of IP data (depending on mode, number of nodes and range between nodes). NETNode IP radios can be combined in a fluid self forming, self healing mesh containing up to sixteen radios. What began in 2009 as a large box weighing some 2.5kg and using 20W of power, has been refined and redesigned to today's powerful solution, which uses half as much power. This enhances its use in mobile and rapid deployments and makes it an excellent solution in urban or challenging environments such as open cast mines or airports, where non-line of sight performance is key.

DUO IP Radio

Features:

- Ethernet and RS485 interfaces as standard
- Range in excess of 20km (with line of sight)
- Typical urban environment range of more than 1000m
- Rugged waterproof chassis designed for permanent mast mounting
- Can be upgraded with video and audio interfaces

Benefits:

The DUO IP Radios are a range of point-to-point bi-directional single frequency COFDM radios, ideal for control of remote unmanned vehicles, surveillance from remote cameras requiring Pan Tilt Zoom and mobile applications. DUO IP radios offer exceptional performance in mobile and urban environments and are available in a variety of frequency bands to suit all applications.

NETNode TCS – Tactical Camera System

Features:

- Robust weatherproof package
- Typically operates at a range of up to 1km in the 1W mode
- Supplied in a kit with a tripod for rapid deployment
- Optional AES128 or AES256 encryption
- Multiple camera mounting options

Benefits:

Cobham's NETNode Tactical Camera System is a rapid deployment IP MESH camera system, which incorporate a mesh radio, IP encoder and battery into a robust chassis, designed to meet IP66. Cobham IP Mesh nodes are fully compatible with the entire range of Cobham cameras, including HD. User friendly and compact, the systen are ideal for rapid deployment situations.

NETWorker 3G

Features:

- RM Cortex processor with Linux OS
- Micro-SD Slot (32GB Capacity)
- Ethernet 10/100/1000
- WLAN (2.4 & 5.8 GHz)
- Bluetooth 2.0
- USB 2.0 OTG
- Stereo Audio input & output
- 3G Option:
  - Penta-Band HSPA+
  - Quad-band EDGE
  - Quad-band GPRS
  - GPS
  - Dual SIM

Benefits:

The NETWorker is the next generation wireless IP interface module from Cobham. Its miniature design and a weight of just 90 grams make it perfect for covert installations and body-worn applications.

IP Mesh Solutions

Systems

NETWorker HUB

Features:

- ARM Cortex processor with Linux OS
- Micro-SD Slot (64GB Capacity +)
- Ethernet 10/100/1000
- WLAN (2.4 GHz)
- Bluetooth 2.0
- USB 2.0 OTG
- Stereo Audio input & output
- 3G Option
  - Penta-Band HSPA+
  - Quad-band EDGE
  - Quad-band GPRS
  - GPS
  - Dual SIM

Benefits:

The NETWorker-HUB is the next generation combined COFDM transmitter, video recorder and 3G Camera interface module. Its rugged design, compact dimensions and low weight make it perfect for covert installations and deployment in harsh environments.

IP Video Encoder

Benefits:

The IP Encoder from Cobham is a High Definition digital video encoder, ideal for live video streaming applications. Cobham has designed the Video IP Encoder to allow the secure transmission of video data across IP Networks. In addition it is easily connected to existing network infrastructure.

The increased compression and efficiency of the MPEG4 H.264 encoder in Cobham's SD and HD solution offers users additional bit rate savings with the added benefit of small size, low latency and low power consumption.

NETNode Amplifier - Mini Robust

Benefits:

The NETNodeAMP is a bolt-on amplifier is available depending on frequency as a 1W or 2W unit, which connects directly to a NETNode Mini Robust node.

The amplifier increases the power output from 100mW up to 2W (33dB) for greater range requirements.

The NETNodeAMP combined with the NETNode Mini Robust, provides a rugged non line-of-sight (NLOS) link of around 1km with non-directional antennas, and gives a line-of-sight (LOS) operation to several kilometres, whilst the sealed IP-66 aluminium enclosure allows the unit to be deployed in external environments for prolonged periods of time.

NetNode Battery

Benefits:

The NETBAT is for ideal longer deployments of Cobham's Video and IP products as it has a higher power density NetNode Battery.

Quad NETNode Antenna Array

Benefits:

COBHAM's Quad NetNode Antenna Array (QNAA) was designed to greatly extend the operating range of a NETNode ADHOC Mesh Network. One or more QNAA's can be positioned to cover a wide geographical area for any nodes that fall into the system's coverage area.

The QNAA combines a 2W Quad Phase 3 NETNode integrated into a single array housing with both high gain receive and transmit antennas. All that is needed to make use of this node in a Mesh Network is a single LAN cable. Power over Ethernet supplies power to this wireless ADHOC Mesh network node. The 2W transmit signal is transmitted through a 4 dB OMNI antenna and each of the 4 Maximal Ratio combining receive ports are connected

The NETNode mesh radios can provide up to 8.9Mb/s of IP data (data rate depends on mode, number of nodes and range between nodes). This available IP data rate can be used to exchange IP data traffic between nodes. The highly flexible mesh topology means that data can be exchanged between nodes in a point-to-point or multi-point fashion; range can be extended by using nodes as repeaters. The self-forming, self-healing mesh architecture makes the NETNode product ideal for use in mobile surveillance applications, command and control, or advanced robotics.

Portable Tactical NETNode Kit (VIP and Rugged)

Benefits:

The PTNK is a quick deployable self-con-tained, battery-operated, NETNode mesh networking wireless camera in a single, rugged carry case. The built-in wheels and handle in the case make the PTNK easy to transport.

The PTNK includes an internal rechargeable battery, a telescoping pole, two antennas, NetNode, IP encoder, and a hardened com-pact remote-controlled PTZ (Pan/Tilt/Zoom) day/night camera. The camera attaches to the telescoping pole, which raises the cam-era up to 90" high and mounts securely to the case. All items conveniently store within the case.

The Rvision SEE HP is a second generation hardened pan/tilt/zoom camera which offers improved performance with completely silent operation. In addition, the SEE HP offers continuous rotation and improved repeatability for preset and go-to targets. The rugged con-struction and nitrogen pressurized housing is designed to meet the demands of harsh environments expected with critical missions.

The PTNK utilizes Cobham's NETNode mesh networking technology. When connected to other NETNode IP Radios a private network is created. The video can be viewed and recorded by a PC connected to this network running the supplied application program. The PTNK provides tamper detection such as hooding or video loss plus an optional video motion detection capabil-ity NETNode IP radios can be combined in a fluid self forming, self healing mesh containing up to twelve radios. The NETNode radios within the mesh exchange data on a single frequency, simp

The VIP Security Solution PTNK is a self-contained, battery-operated, NETNode mesh networking wireless camera in a single, rugged carry case. The built-in wheels and handle in the case make the PTNK easy to transport.

Camera & Sensor Products

COBHAM

Cameras and Sensors

Cobham's Cameras and Sensors capability includes a wide selection of short range, covert or long range electro-optic thermal imagery and Pan, Tilt and Zoom (PTZ) cameras. Complementing Cobham cameras is a range of wireless trigger sensor and unattended ground sensor (UGS) solutions.

High end technologically-advanced, environmentally hardened video products and physical security solutions for extreme environments, as well as rapidly deployable smaller solutions are available both as standalone products and as part of more integrated solutions.

Cameras (Miniature, Packaged, RVision)

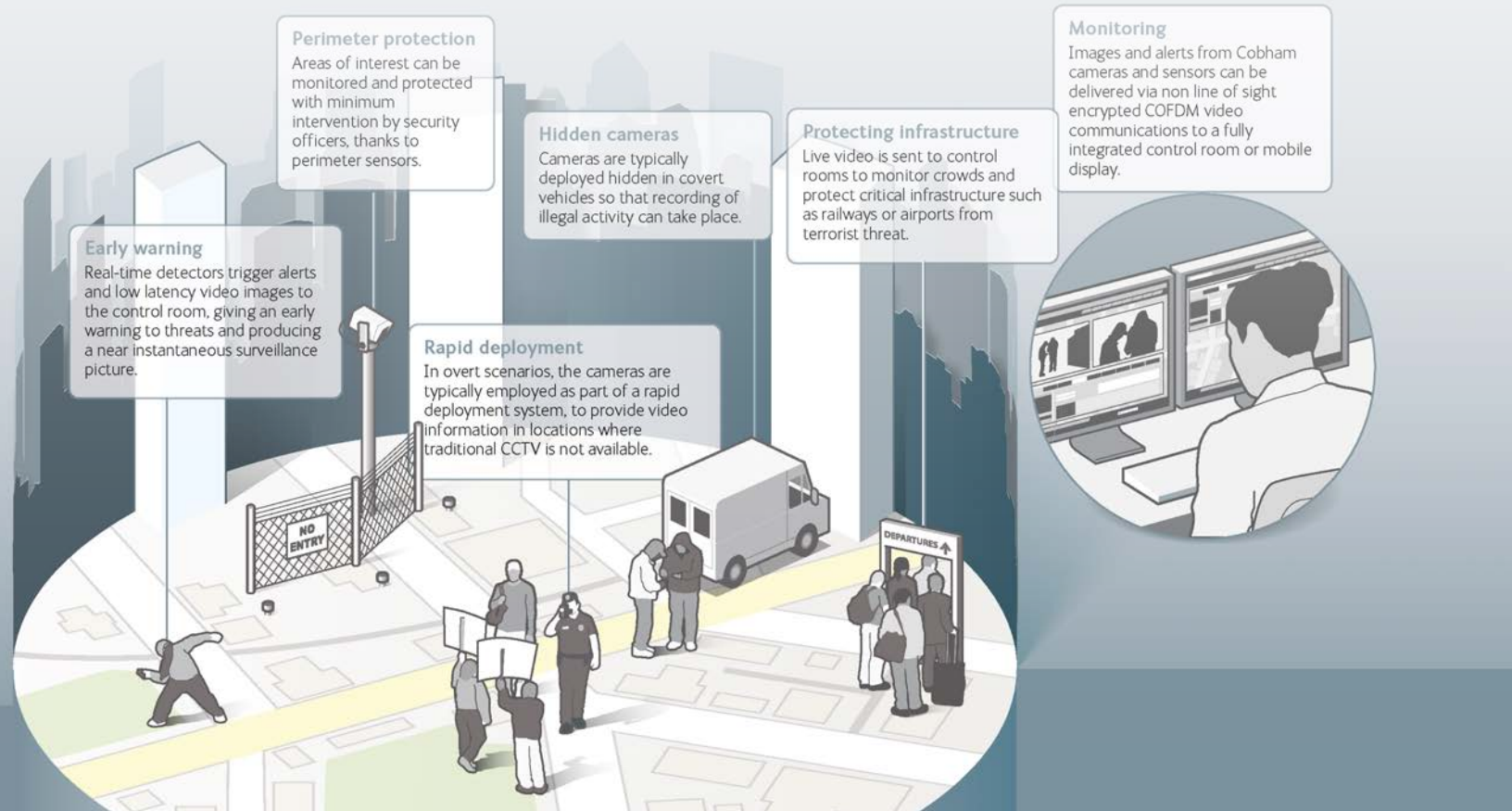
Cobham Miniature Cameras are designed specifically for near field surveillance where cameras are typically covert. The Cobham Miniature Camera range has several distinguishing features that make them ideal for both covert and overt surveillance.

Nugget Sensor Range

The Nugget Sensor range is a fully portable networked unattended ground sensor with five internal sensors built in. The Nugget sensor range is ideal for covert surveillance applications such as detection of people entering and exiting a building or asset protection. It operates in a long range MESH and allow users to protect an area of interest by deploying Nuggets in a wide perimeter.

Each Nugget contains a PIR, trip wire, vibration and light sensor and can be upgraded with other sensor interfaces if required.

The 4G option allows users to monitor the activity on a deployed Nugget MESH even more remotely using the public 3G/4G networks. This means a 4G enabled Nugget could monitor a deployed Nugget sensor network anywhere in the world.



Cobham Miniature Cameras are designed specifically for near field surveillance where cameras are typically covert.

Close Range Miniature Cameras from Cobham have a variety of features including the ability to be concealed 'in room' typically in furniture or walls. They have been designed to work alongside the COFDM Video Transmitter solutions.

Micro Size Forward Centre Pan Tilt

Features:

- Pan, tilt and zoom operation around a 1mm pin hole
- Compact size greatly increases the options for concealment.
- +/-30 degree pan and tilt
- Excellent low light performance 0.002 LUX
- Virtually silent operation
- No zoom

Benefits:

This micro size forward centre pin-hole camera is ideal for in room surveillance. This system allows the camera to rotate around a point in space centred on the pinhole lens focal point.

Cylinder Camera

Features:

- Effective pixels - EIA - 768 (H) x 494 (V), CCIR - 752 (H) x 582 (V), resolution - 550TV lines
- Operating current - 200mA w / regulated 12VC in, video output - 1.0Vp-p composite, 75 Ohms
- Supplied with an interfacing cable suitable for direct connection to Cobham transmitters
- S/N ratio more than 48 dB (AGC off)
- Operates in temperatures ranging from -10 to +50 degrees Celsius, within 90% relative humidity.
- Minimum illumination 0.01 Lux at F2.0
- Measure 19mm (D) x 68mm (L)
- Automatic white balance and gain control

Benefits:

This range consists of four camera products incorporating good quality miniature PAL and NTSC cylinder cameras with a standard 3.6mm lens, in both Micro and Standard TX options.

Cameras and Sensors

Medium Range Miniature Cameras

Cobham's Medium Range Miniature Cameras are designed specifically for near field surveillance, where cameras are typically covert.

Medium Range Miniature Cameras from Cobham are typically concealed in locations such as in street furniture and lights. They have been designed to work alongside the COFDM Video Transmitter solutions.

Switched Zoom

Features:

- Four separate lenses for switched zoom
- Effective 10x zoom
- Continuous pan, 270 degree tilt
- 0.004 Lux low light performance
- Rugged but lightweight sealed Delrin construction for IP66 rating

Benefits:

The Switched Zoom camera forms part of the line of highly integrated surveillance products developed by Cobham. Based around Cobham's micro camera technology, the SWZ provides a step zoom, pan and tilt camera in a 55mm diameter package.

The pan and tilt carries four VE micro cameras, each with a different focal length lens. Issuing a zoom command to the unit instructs it to flip the video output from camera to camera. As standard the four lens focal lengths are 8, 12, 16 and 35mm giving a very useable zoom range up to 10 times. Other than the obvious size advantage, using prime lenses over a varifocal or zoom lens provides a faster lens (hence better low light performance) as well as eliminating the small low torque drives often found in zoom lenses which have a tendency to vibrate on vehicle applications, causing picture degradation.

The unit is mounted in an environmentally sealed, CNC machined housing, with full integrated control over pan, tilt and zoom via standard VE controllers, or other available Sony VISCA control sources.

Cobham's Long Range Miniature Cameras are designed specifically for near field surveillance, where cameras are typically covert.

Long Range Miniature Cameras from Cobham are usually employed in overt and covert scenarios including concealed in street furniture, covert vehicles and CCTV. They have been designed to work alongside the COFDM Video Transmitter solutions.

SD Pan Tilt Zoom

Features:

- Full PTZ functionality
- 360 degree slip ring horizontal rotation and 250 degree vertical rotation
- 26x zoom - 3.5 to 91mm
- Low light capability - 0.5 Lux

Benefits:

This comprehensive camera capability offered by the SD Pan Tilt Zoom, coupled with its rugged weather-proof construction, enables its use in a range of surveillance scenarios. The SD Pan Tilt Zoom could be used as an overt street camera solution or as a covert device.

HD Pan Tilt Zoom

Features:

- HD-SDI output
- Continuous Pan and 270 degree tilt
- Preset control
- Rugged but lightweight sealed Delrin construction for IP67 rating
- Virtually silent

Benefits:

Future proofed with the option to upgrade the camera block, and also HD image processing. Ideal for overt safety applications, or covert in street furniture and vehicles. With standard VISCA control, it is compatible with both Cobham hand control and telemetry control.

CAMVASZPT - Vertical Array Switched Zoom Pan Tilt Camera

Benefits:

Based around Cobham's micro camera technology, the CAMVASZPT provides a step zoom, pan and tilt camera in a 35mm diameter package. The pan and tilt carries four micro cameras, each with a different focal length lens. Issuing a zoom command to the unit instructs it to flip the video output from camera to camera. As standard the four lens focal lengths are 4, 8, 16 and 35mm giving a very useable range of zoom angles.

Other than the obvious size advantage, using prime lenses over a varifocal or zoom lens provides a faster lens (hence better low light performance). The particular arrangement of the cameras in the CAMVASZPT allows simple integration into tubular concealments down to 38mm (1.5") in diameter. The tilt action is controlled with one motor, all four camera tilt axes being mechanically slaved together. This allows the user to switch easily from camera to camera to select the most useful field of view.

Slip rings are used at the top and bottom of the assembly. Other than allowing for continuous pan these two slip rings also provide a path for existing cabling that may be present in concealment. Each core is rated 240V AC / 2A.

PCS - Pole Camera System

Benefits:

The PCS system mounts the MKIIID camera onto a 5m carbon fibre extendable pole. The pole can be hand carried (typically extended to 3m) for mobile scenarios (such as public order scenarios), or deployed permanently on integrated tripod at any height up to 5m.

The MKIIID camera has a 36X zoom capability, enabling target recognition at 100m. It is supplied with built in IR LEDs for operation at night. The MKIIID has full 360 degree continuous pan and 270 degree tilt enabling it to look almost straight down from the pole if required. The system has built in microphone for situational awareness.

The PCS system is supplied with a built in battery that can power the system for up to 10 hours continuous operation (IR off). The PCS systems has a portable video monitor (Commanders RX) with built in telemetry for camera control. This sophisticated microwave transmission system is built around the latest COFDM transmission technology and allows commanders to view video, hear audio and control the PCS from ranges of typically 300m. Providing commanders with a remote monitoring device. The portable video monitor has built in recording.

Canine Collar Camera System

Benefits:

A digital video camera transmission system for surveillance, bomb detection and rescue dogs. Integrating a low light camera, IR illumination, microphone, speaker, transmission and battery into a rugged system that can hang from most dog collars.

The COLLCAM system integrates camera, IR, microphone and speaker, with a robust digital video transmission and battery for a complete canine video transmission system.

The stabilised wide angle chest camera is vertically adjustable so that the camera is pointing appropriately when the dog is in a sit, or if images are required when the dog is mobile.

This facility makes COLLCAM ideal for bomb detection and search and rescue dogs. The ability to support a separate head camera input makes COLLCAM ideal for surveillance dogs also.

The low light camera is supplemented with infrared LEDs providing illumination in no light scenarios out to a range of 5-10m.

The IR is automatically switched according to ambient light levels to save battery life (the battery is replaceable).

The COLLCAM is equipped with state of the art COFDM microwave transmission, giving excellent image quality even when the dog is moving at speed in non line of sight environments.

Self Righting Camera System

Features:

- Rugged, throwable design
- Self-righting
- Remote control or autonomous
- 10X zoom capability
- COFDM video transmission
- Silent operation
- Continuous pan & 60˚ tilt
- 940nm IR illumination

Benefits:

The camera is a complete deployable PTZ platform, housed within a shock resistant ball. Powered from internal lithium ion cells, the SRTC is capable of standalone remote surveillance for up to two hours.

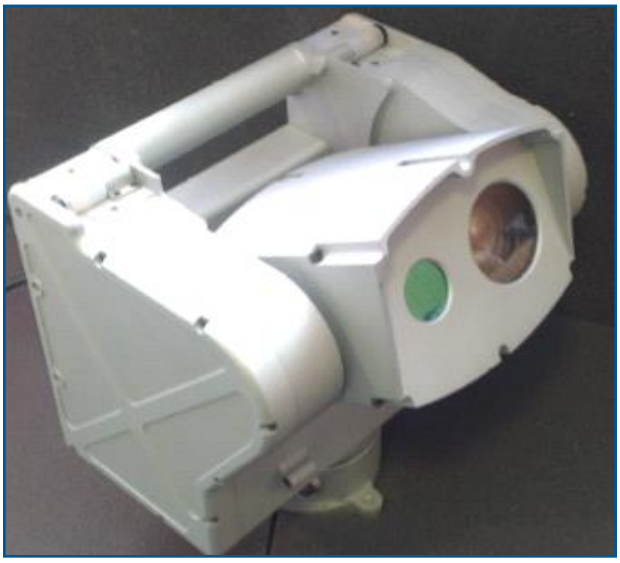
Copperhead Micro HD Camera System

Features:

- Miniature HD camera
- HDSDI Output
- 1920 x 1080 p30 resolution
- M12 lens fitting
- 0.1 Lux
- Head just 17x17x16.5mm
- Auto day / night mode
- MMCX interfac

Benefits:

The 'Copperhead HD' is a range of micro HD cameras and camera interfaces. The Copperhead HD camera is a miniature 2Mega Pixel HD remote head camera with an M12 lens interface. The head itself is just 17 x 17 x 16.5mm including the lens. Offering full 1920 x 1080p30 resolution and good 0.1Lux low light performance, the Copperhead HD is a very fully featured camera. The camera can be powered in two ways. It can be powered direct from the HDSDI coax cable, or via DC power inserter module.



Dual Thermal & Optical PTZ Camera - w/ integrated COFDM

Benefits:

The CAMDMH is one of a line of highly integrated surveillance products developed by Cobham. The device provides fully sealed integration of a complete, all weather, day / night / thermal PTZ, married to an optional dual stream COFDM video link, UHF encrypted telemetry. It is a standalone surveillance system.

The CAMDMH is designed to carry a range of thermal imagers, standard issue is the Thermoteknix MicroCam640, 640x480 imager. This unit is outfitted with a 25mm lens, providing NATO target detection out to 1610m.

The optical payload as standard is the Sony FCB-1020D 36x optical zoom block camera. This camera exceeds 520 TVL resolution and operates under several low light modes.

The video outputs of both cameras can be transmitted simultaneously via optional dual stream COFDM transmitter. This outputs one RF channel, with two separate program streams, one for each camera. COFDM video and UHF telemetry antennas are incorporated into the unit's housing, as two fold up blades, these can be safely stowed for transport and installation.

DIURNAL

Benefits:

The DIURNAL product is a concealment of pan tilt zoom cameras, IP encoder and a 3G / 4G modem into a fully functional diurnal.

The DIURNAL draws power from the lamp head, transmitting images directly to users across the public telecommunications infrastructure. The DIURNAL accommodates a revolutionary rotating switch zoom camera system. Providing users with an effective 10 times zoom while maintaining excellent low light performance. The machined housing accommodates a neutral density class ring enabling cameras to look out while appearing solid from the outside.

The DIURNAL has continuous 360 degree pan action and tilt action of 0 to -30 degrees. This whole is supported with a 4 step optical zoom to a maximum of 10 times zoom. The internal H.264 encoder ensures excellent image compression to suite all available network bandwidths.

Options for internal digital video recording (DVR) are available. Recording takes place to SD card, and can be triggered by motion sensors. Recordings can be retrieved remotely over the 3G/4G link. The encoder and camera can be controlled remotely over the 3G/4G link. The transmission is protected by AES128 or 256 encryption.

Cameras and Sensors

Miniature Camera Toolkits

Cobham's Miniature Toolkit cameras are fixed cameras for rapid deployment applications. Cobham's Miniature Toolkit cameras have been specifically designed to suit the most difficult situations for video to be obtained. Popular features include a flexible rigid shaft and excellent low light performance.

Micro Pinhole Camera

Features:

- Excellent low light performance at 0.008 Lux
- Aperture size - f2
- Field of view - 62 degrees
- Size 21 x 12 x 12mm, plus lens

Benefits:

The micro pinhole camera device incorporates a miniature system on a chip sensor in a weather-proof package. A rugged, miniature camera that can be connected directly to any Cobham deployable transmitter or used stand alone.

15-70mm Pinhole Camera Kit

Features:

- 15mm, 30mm, 45mm, and 70mm pre-focussed pin hole cameras
- All also available individually
- Ideal for quick deployment in room surveillance
- Excellent low light performance 0.002 Lux

Benefits:

The 15-70mm Pinhole Camera kit enables operators can simply and quickly install the size required, without having to focus the lens. This range of pinhole cameras is available singly or as a kit. Camera quality is not compromised by the size and devices are supplied in a weather-proof package.

Cobham's Miniature Camera Controllers are the best way to control the Cobham Miniature range of cameras. Cobham's Miniature Camera Controllers complement the Cobham range of bespoke cameras. Free software is available for all of the camera controllers.

Handle Controller

Features:

- PTZ and Preset controls
- Can be connected direct to Cobham cameras
- Outputs Visca (other camera languages available)
- Free software controller available as download
- Internal telemetry transmitter upgrade gives 'remote wireless control' at ranges of up to 500m

Benefits:

This unique controller can control Cobham cameras directly, giving Pan Tilt and Zoom operation as well as Preset control. Combined with its durability and weatherproofing, this makes it the ideal tool for field operatives.

Telemetry Receiver for Camera Control

Features:

- Can be used to control PTZ cameras
- Acts as receive half of solutions such as Nanovue or MicroVue II
- Temperature range of -10°C to +50°C
- Free software application available for controlling Cobham cameras

Benefits:

This telemetry receiver can be connected to and used to control the Cobham range of cameras. Typically connected to a Cobham DropCam, it provides an RF reverse channel for controlling cameras connected to the DropCam, but can also be used standalone.`

H264 IP Encoder for Cameras

Features:

- Power efficient
- Bi-directional audio
- PTZ control
- Direct connection via IE

Benefits:

The H264 IP Encoder for Cameras allows our wide range of cameras to be directly connected to IP network infrastructure.

Cameras and Sensors

Miniature Camera Controllers

MultiMeter Controller

Features:

- 3.5" LCD screen for video monitoring
- Front panel buttons for control of PTZ and iris control
- BNC Connector for video out
- Full test kit that can be hidden in plain sight

Benefits:

The MultiMeter controller is designed to allow remote operation of our range of PTZ cameras, it also provides local monitoring, and is capable of powering the remote camera.

SEE PTZ

Features:

- Color camera with silent operation, NTSC or PAL
- Continuous rotation
- 120º per second
- -40ºF to +158ºF
- Cast aluminum

Benefits:

This hardened pan/tilt/zoom camera features a new style of motor which offers improved performance. The rugged construction delivers long life performance in harsh environments, while a choice of mountings provides true Mil-Spec connections.

F50Z Thermal PTZ

Features:

- Choice of optical configurations, 320 x 240 or 640 x 480
- 26x or 36x optical zoom on color camera
- 140º per second
- -4ºF to +130ºF
- Can be hot-swapped from fixed location to mobile unit

Benefits:

This camera combines CCTV and thermal camera technology for maximum scene awareness, day or night. Capable of detecting a man-sized target to 1.5 miles with its day optic package and IR detection of human activity to 2100ft, this is the ideal short to mid-range solution for critical infrastructure security.

SEE Thermal Fixed Position w/zoom

Features:

- Multiple lens options available
- 26x or 36x zoom option available
- NTSC or PAL options
- Thermal options available

Benefits:

This versatile camera housing can be fitted with color or thermal cameras, utilizing fixed or continuous zoom lenses. The SEE fv is ideal for staring situations.

Mini HP PTZ

Features:

- 26x or 36x optical day camera
- Image stabilization optional
- Auto focus
- Long life performance in harsh environments such as continuous salt water spray
- 180º per second
- Also available with thermal options

Benefits:

Affordable, reliable, pan tilt system in a very small package,weighing less than 5lbs. The Mini HP is nitrogen pressurized and can be mounted virtually anywhere.

Cameras and Sensors

Electro-Optical Cameras – Carbide

Carbide C16

Features:

- Temperature range of -40 to +158°F
- 640 x 480 uncooled thermal with continuous zoom choices up to 150mm
- Doubler available on 36x optical zoom day camera
- Silent operation
- Main body weighs 10.5lbs, fully loaded weight of less than 22lbs

Benefits:

The Carbide 16 is the most advanced mid-size surveillance platform available today. It can be configured with many different cooled and uncooled thermal imagers, as well as a variety of laser pointers/designators. Several color camera options are also available.

Carbide C50-TEC

Features:

- ThermoElectric Cooler
- Slip ring for 360° continuous rotation
- Ready to accept color and thermal cameras
- Operating temperature = -4°F to +185°F
- 40° per second

Benefits:

A high-resolution pan and tilt for driving medium to long-range optics. The ThermoElectric Cooler has been added for refrigeration and closed loop cooling without gases or compressors, to increase the ability to perform in extreme weather conditions. Solutions such as colour cameras, thermal cameras and laser range finders can be added.

Carbide C75

Features:

- 365° pan angle range
- 90° tilt angle range
- Maximum tilt and pan speeds of 25°/s
- Cast aluminum housing
- Operating temperature = -40°F to +167°F

Benefits:

A slightly larger version of the C50, the C75 can carry a 65lb payload. This means optional laser range finders, laser designators and bore sighting devices can be added. Its pedestal has three Mil-Spec ports to allow sensors to connect to command and control.

Carbide C150

Features:

- Carries a total payload of 150lbs
- Bore-sight adjustment mechanisms are integrated for highly accurate alignment of all sensors
- Temperature range = -40°F to +167°F
- 0.0045° resolution
- Ideal for both maritime and land-based operations

Benefits:

This Numeric Positioner is a high-resolution pan/tilt for driving super long-range optics. It can be used for unique configurations of sensors, such as laser range finders, xenon spotlights, defensive acoustic arrays, laser designators and long range CCD and thermal camera systems.

Carbide C16-CM

Features:

- Continuous zoom
- 17 - 217mm, f/3.25
- Cooled 640 x 480, ITAR restricted
- MCT microbolometer
- 25° x 2° field of view
- 3.4 - 5.1µm spectral response
- Dual streaming video
- RS232 or RS422

Benefits:

The Carbide 16-CM is available with the various options described within the C16 and C16-C versions however the C16-CM is designed for Maritime use. With a tiger drylac paint and wiper option, the C16-CM is the most sophisticated Pan Tilt Zoom on the market for short and mid-range solutions. When combined with our MAESTRO stabilization modules the C16-CM offers superior performance at a reasonable price in all maritime environments.

C16 Aurora

Features:

- Removable lamp moves to Aurora Battery Stick
- Military proven high intensity white light
- Optional NIR filter
- 360° continuous pan rotation
- 190° tilt rotation
- 120° per second max speed
- 12-30 VDC operation

Benefits:

The C16 Aurora camera system enhances mobility, survivability and lethality providing increased surveillance collection capability. C16 Aurora (Automated Rapid Optical Reconnaissance Apparatus) increases illumination range aiming capabilities with increased standoff. A unique disconnect feature allows the user to remove the lamp and connect it to the Aurora Battery Stick for hand held use.

Carbide C50 - 26TX

Features:

- 36x optical zoom colour camera
- Various thermal options available
- 360° rotation
- 40° per second

Benefits:

Carbide 50 Color/Thermal Positioner Pan Tilt Zoom with Thermal (C50-26XT) is a high-resolution pan and tilt for driving medium to long-range optics. Standard color camera option is 36x optical zoom.

A 2x doubler also available. Both cooled and uncooled thermal imagers can be added with lenses up to 500mm in size.

Raven

Features:

- Flexible folding solar panel
- Optional integrated battery system
- Frequency adjustable COFDM mesh radio
- Non-line of sight transmission possible
- Low-latency MPEG4 video
- Weatherproof radio enclosure

Benefits:

The Raven (Remote Articulated Vision Enhancement Node) is a lightweight tactical surveillance system utilizing a high-precision, low-power tactical pan/tilt system for electro-optics positioning. The color camera provides colour and NIR vision with 36x optical zoom, while a thermal camera provides an uncooled 640x480 17µm sensor with a fixed 60mm lens. Both optics are housed in nitrogen filled, IP-67 housings. A sealed NEMA-4X rated video transmission box provides full-resolution MPEG-4 video and transmission over a frequency-adjustable, COFDM mesh radio. Options include a variety of lens configurations - both cooled and uncooled thermal sensors, and tactical laser modules for illumination or targeting.

Cameras and Sensors

Marine Cameras

Carbide HP Marine

Features:

- Dual streaming video (internal video switch optional)
- Multiple thermal lens offerings
- RS232 or RS422
- 120° per second
- Uncooled 640 x 480 vanadium oxide FPA

Benefits:

The CARBIDE HP Marine is Cobham's top-of-the-line, high-performance system with an ultra long-range thermal imager, daylight/lowlight HD TV camera, and with multi sensor options available. A top-of-the-range, high-performance system with varying thermal lenses, daylight/lowlight HD TV camera and multi sensor options available. It is ideally suited for Piracy Stand-off Protection, Port Security, Navy and Coastguard applications.

Dual HP Marine

Features:

- Simultaneous colour and thermal video streams
- 14° horizontal field of view
- 180° per second
- RS232 or RS422
- Long life in harsh environments such as continuous salt water spray

Benefits:

The DUAL HP Marine provides a low-cost multi-sensor marine camera system. It features a small foot print for an installation on the bridge of a yacht, cruise ship, merchant ship, or port and harbour security vessel.

Mini HP Marine

Features:

- 36x optical day camera
- Image stabilisation optional
- Auto focus
- Long life performance in harsh environments
- 180° per second
- Also available with thermal options

Benefits:

Cobham's Mini HP Marine is an affordable, reliable, high performance, uncooled thermal imaging system that is available in a static or pan and tilt configuration. This system is ideally suited for navigation, collision avoidance, man overboard recovery, and crew and passenger protection.

SEE Marine CCTV

Features:

- Hardened pan/tilt/zoom colour camera
- Auto focus
- 36x optical zoom
- 120° per second
- RS232 or RS422

Benefits:

Cobham's SEE Marine CCTV Camera System provides reliable operational use in support of maritime security needs. The SEE Marine is built on the same MIL-Spec standard used in support of military and homeland security professionals around the world. It is an ideal solution for detecting targets on the water during day use, or switching over to near IR mode for low light conditions at dusk; helpful when navigating a port or harbour or identifying a buoy marker at range.

Dual HP

Features:

- Simultaneous colour and thermal video streams
- 50mm thermal lens – man size target detection to 580m
- 36x optical zoom on color camera – man size target detection to 2.4km

Benefits:

The Dual HP is an upgraded version of Cobham's hardened pan/tilt/zoom camera known as the Dual i50. New motors driving the pan/tilt functions offer considerably improved performance with completely silent operation. In addition, the Dual HP offers continuous rotation and improved repeatability for preset and go-to targets. The rugged Dual HP delivers long life in harsh environments such as continuous salt water spray or blowing sand.

Dual HP vs Pan Tilt Zoom Thermal/Color

Features:

- 36x colour camera
- Thermal camera
- Uncooled 320 x 240 VOx Microbolometer
- 23° x 7°° field of view
- 7.5- 13.5µm
- Internal video switch
- RS232 or RS422
- Enhanced Visca or Pelco D
- 170° per second

Benefits:

The Dual HP vs Pan Tilt Zoom Thermal /Color camera has a video switch within the camera which can be activated remotely. The Dual HP vs Pan Tilt Zoom Thermal /Colour camera offers the user the option to view either colour or thermal images. The internal video switch is necessary when only one coaxial video cable is present.

MAESTRO Stabilization Module

Features:

- 3 axis inertial measurement unit
- 93.5% input disturbance rejection
- Works with most cameras to provide stabilization

Benefits:

A rugged and compact aluminum enclosure housing stabilization components, complete with mounting 'shoe' on the lid to allow RVision camera systems to be attached. A circular mil P1 connector is mounted on the side wall for power and data. This in-line module can be controlled by any device issuing Pelco D commands.

Look Controller

Features:

- 6.5" TFT display
- 960 x 234 format
- 9-36 VDC input
- 3 axis joystick twist to zoom
- Proportional pan/tilt
- 2.5mm power input
- 2 RCA outputs for audio/video
- 15 pin hi def input

M8022 RGS System

Features:

- Portable area/perimeter surveillance system
- Covert, rugged and designed for quick deployment
- Supports a wide range of sensors
- Trigger output for video systems and alarm event logging
- Very low-power devices deployed for weeks/months on a single 9V battery

Benefits:

Widely used by military and elite police forces worldwide in critical areas where long-term observation by personnel is not practical, this solution consists of:
a Passive Infra Red Sensor, Seismic Geophone Sensor, Magnetic Sensor, Make/Break or Trip Wire Sensor, RGS Sensor Processor and Transmitter, Handheld Receiver, Field Programmer Unit, 5W RGS Relay and GSM Buried Relay.

M7209 RGS Transmitter

Features:

- Low power device, typically deployed for up to 25 days
- Configured by RS232
- Lightweight – just 0.5lb
- Rugged, coping with temperatures between -14°F to +131°F

Benefits:

This sensor processor and transmitter can transmit alarms up to 3km to a relay unit or handheld receiver. It is part of the Cobham Remote Ground Sensor (RGS) system which is widely used by military and elite police forces worldwide.

M7232 Magnetic Sensor

Features:

- Detects movement of metal objects within range (e.g. doors, field gates)
- Interfaces with alarm transmitter and other 'make to alarm' systems
- Adjustable sensitivity
- Rugged compact unit with integral battery
- Resistant to power line interface

Benefits:

Part of the Cobham Remote Ground Sensor System, the M7232 is designed to monitor the magnetic field within its range, detect disturbances and send alarms. It can be used to detect opening doors, container movement, vehicles, field gates or even soldiers with large handheld weapons and body armor.

M7311 Handheld Receiver

Features:

- Up to 64 transmitters monitored with one receiver
- Compatible with ground sensor equipment
- Alarm event logging
- Exceptionally low error rate
- Can be linked to GSM or satellite communications network

Benefits:

This handheld unit provides discreet visual and aural indication of alarm and confidence signals. Monitoring multiple sensors, it provides a comprehensive, sophisticated perimeter surveillance system.
A serial interface allows communications with devices such as PCs or printers and, when linked to other Cobham solutions, operating ranges in excess of 1.85 miles can be achieved.

M7618 Field Programmer

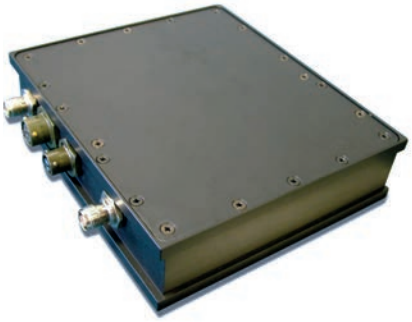
Features:

- Field configuration for Cobham remote ground sensors
- Allows RGS unit settings to be downloaded/confirmed
- Simple to use menu-driven interface
- Auto power-on and power-off to conserve battery power
- Compact, rugged, waterproof design

Benefits:

Designed as a generic programming device, the M7618 provides the ability to configure equipment in the field in a rapid, clear and reliable manner. The programmer reads current settings on a device and allows them to be verified and modified to fit changes in requirements, then logs and stores changes.

M7433 5W RGS Relay



Features:

- Extends the operational range and coverage of the Cobham RGS system
- Rugged IP 67 rated housing for buried deployments
- Trigger outputs to other assets such as video capture
- Internal movement tamper trigger
- System configuration and monitor software included

Benefits:

Designed for use as an unmanned repeater or relay, this solution has an integral wireless alarm receiver and 5W transmitter, and includes coding to allow relay units to be deployed in a 'daisy chain' format for longer range. Optional specialised antennas can be used for receive and transmit functions.

M7432 Merlin GSM Relay

Features:

- Integral RGS alarm receiver and dual band GSM modem
- Sends RGS alarms via SMS and/or GSM data call
- Remote configuration
- Logging of alarm events and trigger outputs for other assets (e.g. video recording)
- Internal movement tamper alarm

Benefits:

The M7432 MERLIN GSM Relay is part of the Cobham Remote Ground Sensor System. It will automatically send a text message or data via a GSM network on receipt of an alarm from an unattended RGS sensor. Up to three nominated GSM handsets will be sent the transmitter identity, time, date and alarm type information.

M8008 Geophone

Features:

- Typical range of 32 to 66ft
- No signal emitted, helping reduce likelihood of detection
- Very low current – powered from M7209 processor
- Interfaces with Cobham RGS transmitter

Benefits:

The Geophone is designed for the detection and classification of vibration in the ground generated by personnel or vehicles, using seismic signature analysis. It is stuck into the ground and operates by reception of very low level seismic activity.

M8007 Break Wire

Features:

- High reliability 'single shot'
- Bifilar wire on spool
- No signal emitted, helping reduce likelihood of detection
- No power required
- Interfaces with Cobham RGS transmitter

Benefits:

A very fine 'trip wire', which provides a high reliability detection of anything which causes the wire to break. This is useful for protection of doorways and other openings, detecting and reporting the movement of people and objects in critical areas.

M8040 Passive Infra Red Sensor

Features:

- Choice of passive sensor units
- Low probability of detection
- Very low current
- Interface with Cobham RGS transmitter/processor

Benefits:

These passive detection devices monitor, detect and report the movement of people and objects in critical areas. The sensor range includes Passive Infra Red, which detects heat from people or vehicles; Geophone, which detects vibration in the ground; and Break wire, which trips an alarm if anything causes the wire to break.

M11405 Compact Camera Interface

Features:

- Integrated trigger and telemetry receiver with video transmitter
- Extended deployed battery life
- The transmit power is 100mW and a range of 1640ft in the urban environment is normally achieved
- Rugged and sealed
- AES encryption on images

Benefits:

This COFDM interface provides remote video capability for long-term unattended deployments. With exceptional spectral efficiency, its multi-carrier modulation scheme has the ability to cope with severe channel interference, making it ideal for urban surveillance operations. Once triggered it can provide wireless pan, tilt and zoom control of a composite video camera. A 1W amplifier block can be attached.

Nugget Wireless Sensor Network Node

Features:

- Multihop mesh capability
- Re-configurable transceiver frequency within the band
- Sensors – internal PIR, internal tamper/seismic, ambient light, break (trip)
- GPS location receiver
- External sensor interface to add further sensors as required
- Removable battery pack with up to 30 days' continuous use life

Benefits:

A fully portable surveillance sensor system, this is capable of detecting the presence of an intruder via sensors and sending an alarm to a central receiving node. Ideal for covert surveillance, nodes can be configured before deployment and then individual units can be configured wirelessly to reflect changes required.

3G Nugget Interface

Features:

- Ability to monitor a deployed Nugget sensor network anywhere in the world that has a 2G/3G link
- 3G/2G interface to the Cobham range of Nugget sensors
- Can be deployed alongside Nugget sensors on long duration missions
- Interfaces to any Nugget in the MESH using a dedicated cable
- Data fully encoded

Benefits:

The Nugget sensor range, operates in a long range MESH, allowing users to protect an area by deploying Nuggets in a wide perimeter. Each Nugget contains a PIR, trip wire, vibration and light sensor and can be upgraded with other sensor interfaces. The system typically provides up to 0.62 mile wireless range between Nuggets.The NUG3G allows even more remote monitoring of activity on a deployed Nugget MESH using public 3G/2G networks.

Nugget – Remote Ground Sensor Interface

Features:

- Simple connection to Nugget via single cable
- Enables use of existing Remote Ground Sensors within the Nugget mesh system
- Compact and rugged
- Weatherproof housing compliant to IP67
- Automatic detection of sensor type
- All configuration carried out with Mission Commander GUI software

Benefits:

Cobham's RGS Interface is compatible with the Wireless Sensor Network Node (Nugget) and connected to it by a single NUGBUS cable. There are no external switches, indicators or controls. Power is applied when connected to the Nugget. It adds the capability to connect one of a number of existing RGS Sensors to the Nugget, such as Long Range PIR, Seismic/ Geophone, Magnetic and Break Wire, all available from Cobham.

Nugget – External Switched Output Interface

Features:

- 4 I/O channels configurable to either an input or an output
- Compact and rugged, with weatherproof housing compliant to IP67
- Automatic switching of equipment on trigger input
- Remote switching of equipment
- All configuration carried out with Mission Commander GUI software
- No external switches, indicators or controls

Benefits:

Cobham's External Switched Output interface is compatible with the Wireless Sensor Network Node and connected to it by a single NUGBUS cable. It can connect a number of additional COTS sensors and/or equipment (such as cameras) that require remote switching, to reduce power consumption, and increase battery life. I/O can be configured to be an input or output. As input, open/closed contact to ground is detected as an alarm. As an output, open-drain FETs provide switched path to ground capable of switching up to 2A at 36V.

Audio Products

COBHAM

Audio Surveillance

For much of the last few decades Cobham Tactical Communication and Surveillance companies have been dedicated to serving law enforcement, the intelligence community and military special operations forces throughout the world by providing high-quality covert audio and video surveillance solutions. At present, we are considered one of the top developers and manufacturers in the industry.

Cobham TCS is a market leader in the development and production of complete radio transmission systems, and is at the forefront of technology innovation in the fields of digital wireless, video, audio, telemetry and IP.

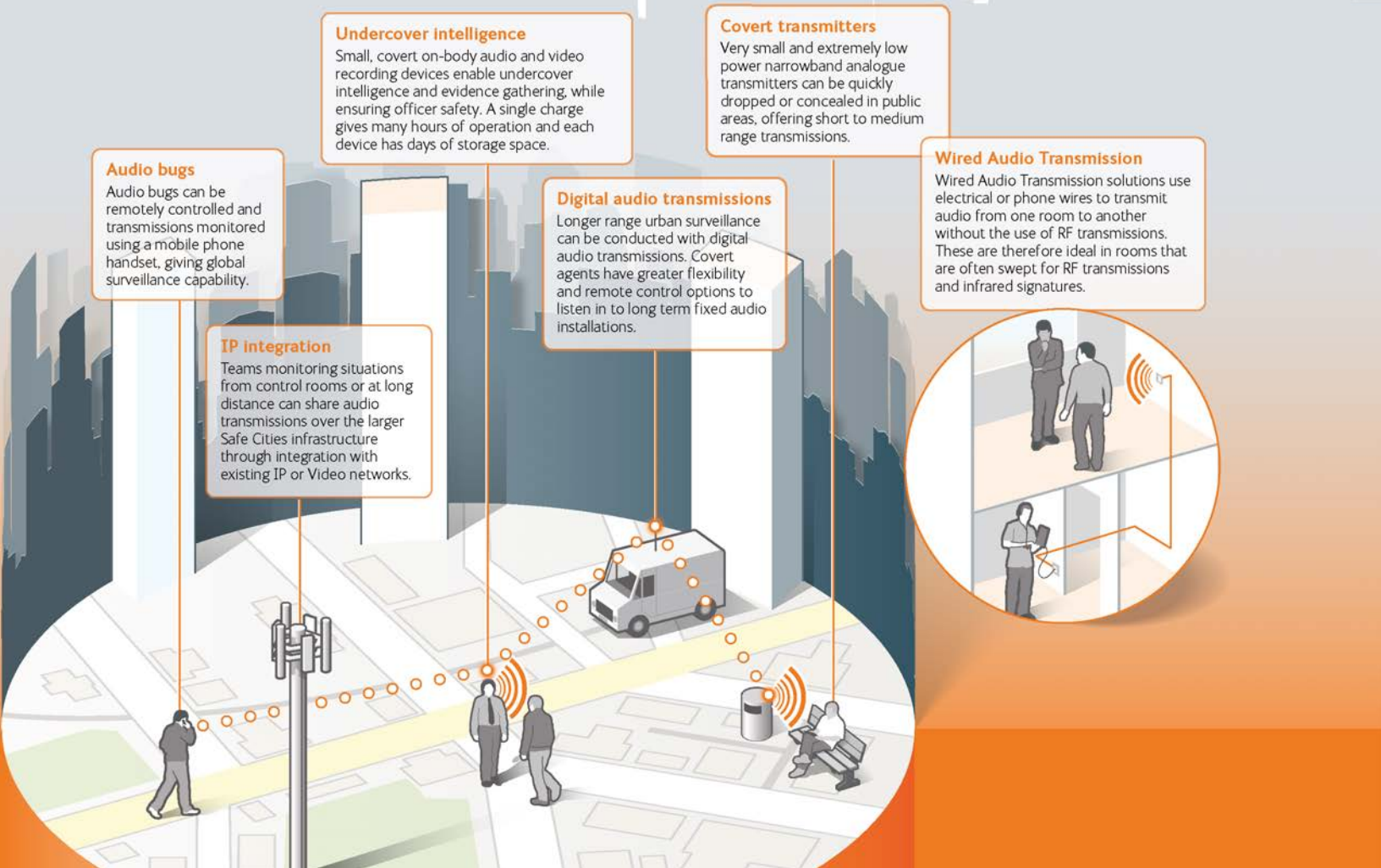
Its life-critical wireless communication systems and technical surveillance solutions are a powerful weapon in the war on terror for law enforcement, military and intelligence communities. They provide superior agent protection, with unique capabilities which ensure multi-agency interoperability, as well as secure digital encrypted transmissions.

Our broad range of services and high-quality products cover all requirements from the smallest body transmitter to high quality audio surveillance systems.

It is our mission to deliver reliable products and solutions to those people who risk their lives in their efforts to make our everyday life more secure.

You Get the Freedom of Choice

As one of the largest providers in today's market, Cobham TCS owns the intellectual property to virtually every mission critical component in our solutions. Not being reliant on third party suppliers allows us to offer you secure solutions tailored to meet your exact requirements – and to promptly react to any operational changes you might encounter.



Audio Surveillance

Wireless Digital Audio Surveillance System

Handheld Thor receivers

Thor Mini

The Thor Mini receiver is a full-featured, easy to use, portable digital audio system for use in surveillance operations. The system provides 10 RF channels and also features 2 RF repeater channels.

Thor Mini TRACK

The Thor Mini TRACK provides the same features as the Thor Mini, but also contains a built-in 16GB Solid State Audio Recorder, which allows for up to 110 hours of audio recordings.

Thor receiver

The Thor receiver collects, records (8 GB) and plays audio from all Thor transmitters. It controls transmitter functions and settings and the range is increased when used as a signal repeater and fitted with the repeater filter.

Thor rack receiver

Thor rack receiver

The Thor rack receiver is a special version of the Thor Mini TRACK fitted into a standard 19" rack mountable unit. The Thor rack receiver can be ordered with one, two or three audio receivers.

Thor communication links

InterCom

The Thor surveillance system is 100% compatible with the InterCom that enables control of both receiver and transmitter settings from a PC anywhere in the world, via the internet. The InterCom allows the user to monitor and record (1TB) from the installed receiver.

Universal GSM module

The universal GSM module can be used in conjunction with the Thor surveillance system to control a Thor receiver via the GSM network. By connecting a receiver via the line-in option, the receiver can be controlled by sending DTMF tones to the universal GSM module.

Thor flying lead transmitters

Thor flying lead transmitter

The combination of small size, various power adapters and remote-controlled functions makes the transmitter perfect for installation into almost any location or concealment.

Thor flying lead transmitter with SSR

The Thor flying lead transmitter with Solid State Recorder (SSR) is an extended version of the flying lead transmitter with a built-in 16GB audio recorder.

Thor body transmitters

Thor body transmitter

The body transmitter is suitable for body-worn operation as well as extended operation with an external power supply.

Thor body transmitter with SSR

The Thor body transmitter with 16GB Solid State Recorder (SSR) is designed for body-worn applications. The built-in recorder allows for audio recording without a monitoring team, and provides a backup document in case of transmission failure.

Thor battery packs

AA-cell battery pack

The AA-Cell battery pack can hold six AA-cell batteries. The battery pack can be used with the Thor receiver and Thor body transmitters, the latter by use of the body transmitter power adapter.

Thor accessories

Thor GM keyfob

The Thor GM keyfob is a short range remote control that can be used to toggle Thor transmitters between live and sleep modes, and to send a panic alert to the listening receiver.

Thor repeater filter

The Thor repeater filter can be used in conjunction with the Thor receiver to set up a repeater post, and thereby increase the operational range of all Thor transmitters.

D-cell battery pack

The D-cell battery pack holds eight D-cell batteries, and can be used to power e.g. a Thor receiver.

Thor kits

Thor kits

The Thor wireless digital audio surveillance system can be delivered in a variety of kit configurations. All our Thor kits are delivered in ruggedized cases with custom cut foam, to provide the best protection during transport, and make it easy to find the right components when needed.

Thor Red kit

The Thor digital audio surveillance system can be delivered in a variety of kit configurations, designed for specific deployment scenarios. Among these is the Thor Red kit - a complete solution with transmitters, receivers, repeater, remote controls, GSM module and all needed accessories.

Audio Surveillance

Wireless Digital Audio Surveillance System

The Loke wireless digital audio surveillance system combines a range of different functions into one single handheld and portable system, which ensures easy operation in a wide range of surveillance applications. The Loke III receiver provides easy transmitter control via the push buttons.

Loke receivers

Loke II Mini

The small Loke II Mini is a five channel standalone digital monitoring system. The Loke II Mini is a receiver only. Compatible with all Loke transmitters.

Loke II Mini TRACK

The Loke II Mini TRACK is a receiver with built-in 2GB recorder. It functions as a listening and recording device and is compatible with all Loke transmitters.

Loke III

The Loke III is a digital stereo audio receiver , with remote control functions for controlling all Loke transmitters. Now available with frequency bands for use in Australia and the United Kingdom.

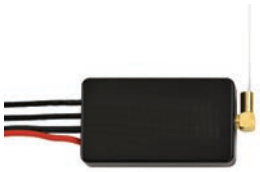
Loke TRACK III

The Loke TRACK III is a digital stereo audio receiver with built-in 32GB recorder, which supplies tamper proof recordings. Remote control functions for controlling all Loke transmitters. Now available with frequency bands for use in Australia and the United Kingdom.

Loke link module receiver

The Loke link module is a single channel stand-alone digital audio receiver designed for monitoring audio from Loke transmitters. Its simplistic design, consisting of power leads, antenna and standard RCA audio connectors, make the device easy to setup and deploy.

Loke transmitters



Loke III transmitter

The Loke III transmitter introduces a new and smaller form factor with excellent performance. The transmitter can be powered from any power source between 3.6 to 18 VDC, including car batteries.

Loke Nano RC transmitter

Due to its small size the Loke Nano RC transmitter is ideal for use in concealments. It is remote controllable via Loke receivers and is delivered with external microphones for stereo audio.

Loke Nano transmitter

The extremely small size of the Loke Nano transmitter makes it perfectly suitable for use in custom-made concealments. The transmitter is available both with internal and external microphones.

Audio Surveillance

Wireless Digital Audio Surveillance System

Loke transmitters

Loke III bubblegum

The Loke III bubblegum is an extremely flexible, easy-to-use transmitter with one internal rechargeable lithium battery, allowing for up to 16 hours of operating time.

Loke III body transmitter

The Loke body transmitter is a standard transmitter cased in aluminium housing for body worn operations. The hassle-free design with integrated connection wires and batteries makes this unit easy to hide in any environment.

Loke II high-power transmitter

The Loke II 2.5W high-power transmitter can either function as a normal target transmitter or as part of a repeater function for increased range. The high output power makes it ideal in operations, where extended penetration is crucial.

Loke communication links

NEW VERSION!

InterCom

The Loke surveillance system can be used in conjunction with the InterCom via a line-in option, which allows users to monitor, record and live stream from the receiver from anywhere in the world via the internet. The new version enables employment of Freja video recorders.

Universal GSM module

The universal GSM Module can be used in conjunction with the Loke surveillance system, to control a Loke receiver via the GSM network. By connecting a receiver via the line-in option, the receiver can be controlled by sending DTMF tones to the universal GSM module.

Wavecom GSM Supreme modem

The Wavecom GSM Supreme modem provides long-distance monitoring via the GSM network. The modem can be used in conjunction with all Loke receivers supplied with line-out functionality, and are available in the GSM 900 / 1800 bands or in the GSM 850 / 1900 bands.

Loke accessories

Loke repeater module kit

The Loke repeater module kit contains filters and antennas for setting up a repeater module. The Loke repeater module kit requires two Loke receivers, one Loke III transmitter and one Loke II high-power transmitter.

Loke kits

Loke kits

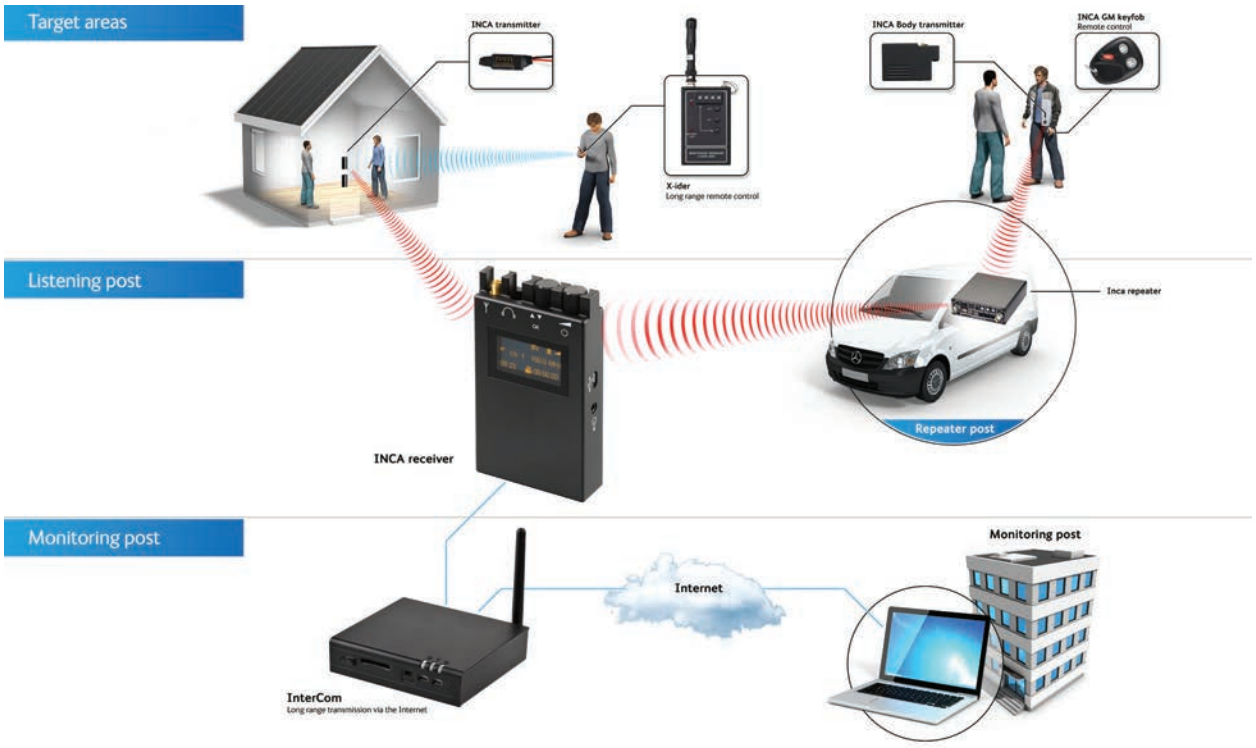
The Loke wireless digital audio surveillance system can be delivered in a variety of kit configurations, including a complete repeater configuration. All our Loke kits are delivered in ruggedized cases with custom-cut foam, to provide the best protection during transport, and make it easy to find the right components when needed.

Loke Orange kit

The Loke Orange kit is a complete solution that includes everything needed to perform a wide range of surveillance operations, where high audio quality and long range is imperative. A combination of two receivers, a selection of transmitters and accessories gives the user a high degree of flexibility in any given operation.

The INCA family forms the platform of the most flexible, expandable and advanced wireless analogue audio monitoring system available on the market today. It consists of highly advanced receivers and micro-sized transmitters that can be controlled remotely.

With the INCA system, you get a fully modular system that assures you maximum flexibility. It is designed for applications that range from single target operations to large scale multi-target operations, and incorporates the required number of modular INCA receivers and transmitters in order to fulfil your operational needs.



Audio Surveillance

Wireless Analogue Audio Surveillance System

INCA receivers

INCA Streetfighter III

Small and handy tactical eight channel receiver that is easily concealed in a pocket. Receives audio from all INCA transmitters.

INCA Streetfighter TRACK III

Small and handy tactical eight channel receiver with integrated 16GB recorder that allows for up to 138 hours of recording time. Receives and records audio from all INCA transmitters.

INCA repeater options

FCC APPROVED

INCA repeater

The INCA repeater is a four channel repeater with four different output levels ranging from 320 mW up to 5 W. It can repeat a signal from an INCA transmitter to an INCA receiver, or it can act as a high power standalone receiver or transmitter. The INCA repeater is FCC approved.

INCA repeater duplexer

The INCA repeater duplexer is a filter that, in conjunction with the INCA repeater, enables the use of a single antenna to transmit and receive instead of the usual two separate antennas.

INCA battery pack

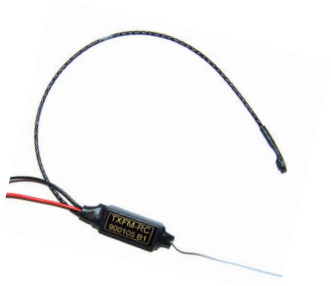
INCA repeater battery pack

11.1V 10 Ah Li-Po battery pack for use with the INCA repeater. When used in conjunction with a INCA repeater and duplexer, it can be fitted into a small bag, providing the user with a mobile hand-carried repeater post.

INCA TXFM miniature audio transmitters

TXFM II

The INCA TXFM II is an extremely small audio transmitter. The small size makes it perfectly suitable for use in custom-made concealments. The transmitter is available both with internal and external microphone.



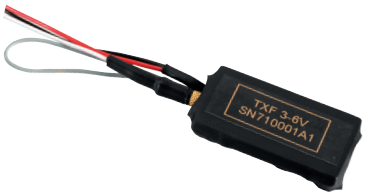
TXFM-RC

The INCA TXFM-RC is our smallest remote controlled transmitter to date. The transmitter is available both with internal and external microphones.

TXFM II bubblegum

The INCA TXFM II bubblegum is an easy to use, compact miniature transmitter with one internal 120 mAh rechargeable battery, which allows up to 2.5 hours operating time.

INCA TXF transmitters



INCA TXF

The INCA TXF audio transmitter is designed for use in highly sensitive, mission-critical applications. The transmitter is available both with internal and external microphone.

INCA TXF-RC

The INCA TXF-RC is a four channel remote controlled version of the standard INCA TXF transmitter. This allows for transmitter settings to be controlled via the X-IDER 4096 remote control. The transmitter is available both with internal and external microphone.

INCA TXF-RC PSTN

The INCA TXF-RC PSTN is a four channel wireless, remote controlled transmitter designed for tapping of standard phone lines. The PSTN transmitter is connected in parallel to a standard analogue telephone line.

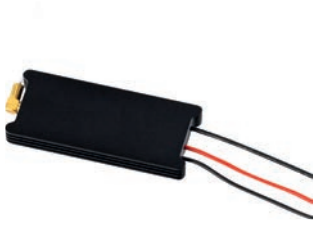
INCA TXF-RC board

The INCA TXF-RC board transmitter is designed for use in highly sensitive, mission-critical applications. The hassle-free design with integrated connection wires, antenna and batteries makes this unit easy to hide in any environment. Settings are controlled via the X-IDER 4096 remote control.

INCA TXF bubblegum

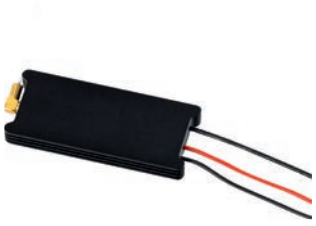
The pocket-sized design with integrated connection wires and batteries, makes the INCA TXF bubblegum transmitter an easily deployable “drop and walk” solution for covert operations. Simply remove the pin at the top and the transmitter starts to transmit.

INCA TXFH high-power audio transmitters



INCA TXFH

The INCA TXFH is a high-power audio transmitter. The high output power makes it ideal in operations, where extended range or penetration is crucial. The transmitter is available both with internal and external microphone.



INCA TXFH-RC

The INCA TXFH-RC is a four channel remote controllable version of the INCA TXFH transmitter. Each of the four channels can easily be selected via the X-IDER 4096 remote control, giving you freedom to choose the frequency with the optimum receiving condition.

INCA TXFH-L

The INCA TXFH-L is a board version of the INCA TXFH. By replacing the aluminium housing with a heat-shrink tube and lowering the output power, the size has been reduced considerably.

Audio Surveillance

Wireless Analogue Audio Surveillance System

INCA TXFH body

The INCA TXFH body transmitter family is designed for applications where body concealment, high output power and long range is required.

INCA TXFH-RC body

The INCA TXFH-RC body transmitter is a remote controllable version of the INCA TXFH body transmitter. This allows for transmitter settings to be controlled via the X-IDER 4096 remote control.

INCA TXFH bubblegum

The INCA TXFH bubblegum is a compact, high-power transmitter with one integrated, rechargeable battery. The pocket-sized design with all connection wires and battery integrated, makes the transmitter an easy deployable "drop and walk" solution for covert operations.

INCA TXFH-RC bubblegum

The INCA TXFH-RC bubblegum is a four channel remote controllable version of the standard TXFH bubblegum transmitter. The transmitter can be controlled via the X-IDER 4096 remote control.

INCA Hybrid II TXFH

The INCA Hybrid II TXFH is a combined high-power, body-worn transmitter with built-in 16GB Solid State Stereo Recorder. It is designed for applications, where high output power, long range and high quality stereo recordings are of utmost importance.

INCA Hybrid II TXFH-RC

The INCA Hybrid II TXFH-RC is a remote controllable version of the Hybrid II TXFH. To provide the ultimate officer safety, this model has built-in remote control of the transmitter, and can be switched on or off either via the GM keyfob or X-IDER 4096 remote control.

Beowulf II TXFH bubblegum

The Beowulf II TXFH bubblegum is a compact, high-power "drop and walk" transmitter with a integrated, rechargeable battery and a 16GB Solid State Recorder.

Beowulf II TXFH-RC bubblegum

The Beowulf II TXFH-RC bubblegum is a four channel remote controllable version of the Beowulf II TXFH bubblegum transmitter, which can be controlled via the X-IDER 4096 remote control.

INCA accessories

INCA GM keyfob

The INCA GM keyfob is a short range remote control that can be used to switch remote controllable INCA transmitters on or off. Furthermore an officer safety alarm is built-in.

X-IDER 4096

The X-IDER 4096 is a powerful, professional remote control system that can be used in conjunction with remote controllable INCA transmitters. Available as a standard and high power version.

INCA COM TRIBAND

The INCA COM TRIBAND is a miniature programming device for changing various settings in a wide range of INCA transmitters and the INCA GM keyfob remote control.

INCA kits

INCA kits

The INCA wireless analogue audio surveillance system can be delivered in a variety of kit configurations. These include an INCA Streetfighter receiver, transmitters, battery compartments and accessories to form a complete, quick deployable, surveillance solution.

INCA Green kit

The INCA Green kit is a complete solution, specially designed to solve a multitude of covert operations. All our kits are delivered in ruggedized cases with custom cut foam, to provide the best protection during transport, and make it easy to find the right components when needed.

Audio Surveillance

Audio recorders

The Beowulf II 16GB high-quality digital audio recorders are easy to use and engineered for specific deployment scenarios. The seven different models, and a wide range of accessories and power options, make the Beowulf II family suitable for almost all surveillance operations. The software enables you to use an extensive amount of trigger options, and specify your own settings for the given operation.

Beowulf enclosed audio recorders

Beowulf II Standard

The Beowulf II Standard features an extra AAA cell for extended battery life time in addition to the internal rechargeable Lithium battery, allowing for up to 16 hours of operation when recording in 24 kHz stereo. The Beowulf II Standard is available in both black and white.

Beowulf II Miniature

The Beowulf II Miniature is a 16GB Solid State Audio Recorder with an internal Lithium battery. The very small, lightweight recorder intercept all audio making it extremely suitable for close proximity operations.

Beowulf II Standard LEMO

The Beowulf II Standard LEMO features, as the Beowulf II Standard, an extra AAA cell and two internal microphones, but in addition to this, also a programmable input for external microphones or line in level recording.

Beowulf II LEMO Extended

The Beowulf II LEMO Extended contains the same features as the Beowulf II Standard LEMO, but provides more than twice the operational time with a AA battery installed, allowing for up to 30 hours of continuous operation when recording in 24 kHz stereo.

Beowulf audio recorders

Beowulf II

The Beowulf II is a standalone recording device. The hassle-free design, with battery and microphone wires, pre-configured and the small size, make the recorder easy to conceal in any environment.

Beowulf II board

The Beowulf II board is an audio recording device especially engineered and designed for easy integration into numerous custom-made concealments.

Beowulf II bubblegum

The Beowulf II bubblegum is a compact, easily deployable "drop and walk" recording device with an internal, rechargeable battery. The Beowulf II bubblegum is operated easily. Simply remove the USB plug and it starts to record.

Beowulf accessories

Slide switch

The slide switch can be used in conjunction with the Beowulf II and Beowulf II board to remotely start and stop audio recordings.

External microphones

The external microphones can be used in conjunction with the Beowulf II Standard LEMO and Beowulf II LEMO Extended to obtain better audio quality in e.g. body-worn applications. Different lengths are available.

Battery options

Three different battery options (420 mAh, 210 mAh or 130 mAh) are available for the Beowulf II and Beowulf II board, which both require external power. This allows for an operation time of 3.5-20 hours, dependant on settings.

Beowulf kits

Beowulf kits

The Beowulf digital audio surveillance system can be delivered in a variety of kit configurations, designed for specific deployment scenarios. All our Beowulf kits are delivered in ruggedized cases with custom-cut foam, to provide the best protection during transport, and make it easy to find the right components when needed.

Beowulf II Yellow kit

The Beowulf II Yellow kit is a complete recorder solution specially designed to solve a multitude of covert operations. The kit enables the user to select the correct combination of equipment for any given operation.

Beowulf II Yellow mini kit

The Beowulf II Yellow mini kit is a smaller version of the Yellow kit without the INCA Streetfighter and transmitter. The kit is a recorder-only version and contains one Beowulf II Miniature, one Beowulf II Standard LEMO and all needed accessories.

Audio Surveillance

Wired Audio Surveillance System

The Heimdal wired room monitoring system is a highly professional system designed for remote monitoring where full transmitter control via standard PSTN lines is needed. Heimdal is designed to allow the user to install up to eight transmitters using a combination of active phone lines or spare wires and mains lines. The individual transmitters can be switched on and off remotely. The modular Heimdal system consists of transmitters, receiver module, PSTN module and of control software for PC.

Heimdal receivers

Heimdal receiver

The Heimdal receiver module is a small, flat and compact cabinet. One module handles two transmitters simultaneously and is powered from an external low voltage source and delivered with a mains adapter.

Heimdal PSTN module

The Heimdal PSTN module provides a link from the listening post to the monitoring site. One PSTN module is needed at the monitoring site and one at the listening post.

Heimdal transmitters

Heimdal HCC transmitter

The Heimdal Carrier Current transmitter is intended for use on active mains lines.

Heimdal kits

Heimdal kits

The Heimdal wired audio surveillance system can be delivered in a variety of kit configurations. All our Heimdal kits are delivered in ruggedized cases with custom-cut foam, to provide the best protection during transport, and make it easy to find the right components when needed.

Heimdal Silver kit

The Heimdal Silver kit is a complete multi-line monitoring solution, ideal for simultaneous monitoring of multiple locations via mains lines, phone lines and spare wires. The kit comes with all needed accessories in a ruggedized case.

Heimdal HWM transmitter

The Heimdal Wired Monitoring transmitter is intended for use on active phone lines or spare wires.

Audio Surveillance

Over-the-horizon monitoring

Our communication links are designed to enable users to monitor and control our covert surveillance equipment from practically anywhere in the world. Depending on the installed equipment and the connected communication link, users are able to monitor and control the equipment either via a PC or a telephone.

IP communication link

NEW VERSION!

InterCom

The InterCom is a comprehensive internet streaming, monitoring and recording system, that enables the user to monitor and control compatible surveillance equipment from a PC anywhere in the world. The new version enables employment of Freja video recorders.

NEW!

InterCom microphone

The InterCom microphone cable enables recording, streaming and monitoring directly via line-in. Cable lengths of 2 or 10 meters enable separation of the two microphones for a distance of up to 20 meters, allowing, for example, installation in different rooms. Audio control is supported by our Valhal software.

Wireless communication links

NEW VERSION!

Bifrost

Bifrost is a wireless high-speed USB modem for file downloading and remote control of Freja digital video recorders. The Bifrost modem is connected to the Freja recorder and designed for surveillance applications where direct access to the recorder can be impossible. The new version offers a multi-channel receiver.

GSM communication links

Universal GSM module

The universal GSM module is a multi-function DTMF remote-controlled surveillance device for repeating of audio signals and perimeter control over the GSM network. The universal GSM Module can be dialled up from any telephone on the public telephone network.

Wavecom GSM Supreme modem

The Wavecom GSM Supreme modem provides long distance monitoring via the GSM network. The modem can be used in conjunction with all receivers supplied with line-out functionality, and are available in the GSM 900 / 1800 bands or in the GSM 850 / 1900 bands.

Accessories

Raven XE 3G modem for InterCom

The Raven XE 3G modem enables users to deploy the InterCom in locations where no other internet access is available, and thereby provides livestreaming and monitoring via internet.

Microphone Pre-Amplifier (MPA-2)

Microphone pre-amplifier for use with the universal GSM module. The pre-amplifier comes with external microphone attached.

MPA-2 for Wavecom GSM

Microphone pre-amplifier for use with the Wavecom GSM supreme modem. The pre-amplifier comes with external microphone attached.

Audio Surveillance

Remote Control Products

Our range of easy-to-use remote control products is designed to deploy stealthy on/off control for our surveillance equipment with remote control functionality. Furthermore the remote controls can be used in combination with the remote control module which can be connected to compatible products, e.g. the Freja video recorders or Micro Mains Modules.

Remote controls

GM keyfob

The GM keyfob is a short-range remote control that can be used to switch remote controllable transmitters on or off. The keyfob is available for the INCA, Thor, and Freja surveillance systems.

X-IDER 4096 2.5W

The X-IDER 4096 is a powerful, professional remote control system for multi-purpose remote control tasks of Cobham covert audio and video equipment. It runs on a normal 9 V battery and is very simple to operate.

X-IDER 4096 high power 5W

The X-IDER 4096 high-power remote control, allows for a greater operational distance to the installed remote controllable equipment than the standard X-IDER 4096 remote control.

Remote Control Module (RCM)

The Remote Control Module is designed for controlling our Micro Mains Modules, AC and DC relays and for switching power on and off to transmitters by means of the X-IDER 4096, X-IDER 4096 high-power or GM keyfob.

Car kill switch kit

The car kill switch kit is a complete solution, specially designed to deploy stealthy on / off remote control of any vehicle. Containing all the components required, remote control, relay, batteries, and connection cables, the kit provides a complete package for undercover agents and covert operations.

RF control kit

The RF control kit is a complete solution specially designed to deploy stealthy on / off remote control of a wide range of electrical devices. Containing all the components required, remote controls, relays, power supplies and wiring accessories, the kit provides the complete package for covert operations.

Our range of accessories is designed for custom installations and enhanced usage of our covert audio and video surveillance solutions.

Antennas

½ wave covert antenna

The ½ wave covert antenna with magnetic mount will not attract unnecessary attention since it looks exactly like many of the very popular GPS antennas which are sold in thousands around the world. Use with Loke, Thor and INCA products.

¼ wave magmount antenna

The ¼ wave magmount antenna comes with a magnetic base, able to hook on to metal surfaces e.g. a car roof. The antenna can be used when increased operational distance between receiver and transmitter is required, or as part of a repeater setup. Use with Loke, Thor and INCA products.

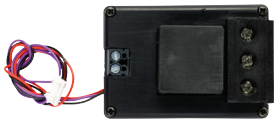
½ wave magmount antenna

The ½ wave magmount antenna comes with a magnetic base, able to hook on to metal surfaces e.g. a car roof. The antenna can be used when increased operational distance between receiver and transmitter is required, or as part of a repeater setup. Use with Loke, Thor and INCA products.

RCM accessories

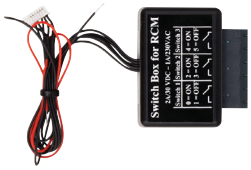
ACR relay for RCM

The ACR relay switches AC devices drawing up to 8 A / 240 VAC. The relay has three screw terminals for normally open or normally closed connection of an AC device.



DCR relay for RCM

The DCR relay controls high-current 5 to 24 VDC devices. The DCR has three screw terminals for normally open or normally closed connection of a DC device.



Switch box for RCM

The switch box for RCM provides three individually controlled SPST latch relays for control of electrical devices. Each relay can switch up to 2 A / 30 VDC or 1 A / 230 VAC.

Audio Surveillance

Micro Mains Modules (MMM), battery compartments and accessories

The MMM family is a series of micro-size power supplies functioning as alternative power sources to batteries in surveillance installations. They are designed for long term installations and the small physical size and modular shape makes them easy to conceal into almost any light sources or other electrical appliances.

Our battery compartments and battery packs can be used for more short term installations, and enables the user to quickly deploy transmitters at the target location.

Micro Mains Modules

MMM 4 VDC / 150 mA

The small 4 V 150 mA MMM provides 0.6 W of power, and can be used for fixed installation of the INCA TXFM transmitters.

MMM 5 VDC / 500 mA

The 5 V MMM provides 2.5 W of power, and is ideal for use with INCA and Thor transmitters and Beowulf and Freja devices which can be powered via the USB port.

MMM 6 VDC / 150 mA

Delivering 0.9W of power, the 6 V 150 mA MMM can be used in conjunction with the INCA TXF transmitters, the Loke III and the Loke Nano transmitters.

MMM 6 VDC / 400 mA

Delivering 2.4 W of power, the 6 V 400 mA MMM can be used for the INCA TXF and TXFH transmitters, the Loke III and the Loke Nano transmitters and the Thor flying lead transmitter.

MMM 12 VDC / 250 mA

The 12 V, 250 mA MMM delivers 3 W of power, and comes with an input for the RC Module. This MMM is suitable for use with the INCA TXFH, Loke III and Thor transmitters and Freja I devices.

Battery compartments

3 V battery compartment DC plug

The 3 V battery compartment holds one CR123A battery, and is intended for use with the INCA TXFM transmitter family.

6 V battery compartment DC plug

The 6 V battery compartment can hold two CR123A batteries, and is intended for use with INCA TXF and TXHF transmitter families, along with the Loke Nano and Loke III transmitters.

6 V battery compartment LEMO

The 6 V battery compartment with LEMO connector is intended for use with the Thor flying lead transmitters.

Battery packs

AA-cell battery pack

The AA-cell battery pack can hold six AA-cell batteries. The battery pack can be used with the Thor receiver and Thor body transmitters, the latter by use of the body transmitter power adapter.

D-cell battery pack

The D-cell battery pack holds eight D-cell batteries, and can be used to power e.g. a Thor receiver or INCA repeater setup.

INCA repeater battery pack

11.1V 10 Ah Li-Po battery pack for use with the INCA repeater. When used in conjunction with a INCA repeater and duplexer, it can be fitted into a small bag, providing the user with a mobile hand-carried repeater post.

Power accessories

Body transmitter power adapter

The body power kit is a complete power supply solution that includes everything needed to obtain extended operation on Thor and INCA body transmitters. Simply insert the power adaptor in the transmitter battery compartment and connect an external 4 to 48 VDC power source such as car battery or a battery pack.

Double LEMO DC cable

The double LEMO DC cable can be used to connect two or more D-cell battery packs, to provide an even longer operational time for connected equipment.

INCA Concealments

The INCA Family forms the platform of the most flexible, expandable and advanced wireless audio monitoring system available on the market today. It consists of highly advanced receivers and micro-size transmitters that can be remotely controlled.

With the INCA system, you get a fully modular system that assures you maximum flexibility. It is designed for applications, which range from single target operations to large scale multi-target operations and incorporates the required number of modular INCA receivers and transmitters in order to fulfil your operational needs.

Belt

The INCA Belt contains a concealed remote controlled transmitter with internal rechargeable batteries and microphone.

Keyfob

The INCA GM Keyfob contains a miniature analogue low power audio transmitter. The lock and unlock buttons are used for turning the transmitter on/off. The red button functions as an officer safety alarm.

Car Charger

The INCA Car Charger has a built-in analogue high power audio transmitter and comes with and without remote control. The charger functions on its own as a transmitter concealment, but can also be used with the Freja GPS to turn video recordings on/off. The car charger has two USB plugs making it possible to charge other equipment.

Travel Mug

The INCA Travel Mug contains a miniature analogue low power audio transmitter and a rechargeable battery. The concealment is suitable for close proximity operations where 'real life' concealments are needed.

CD Cover

The INCA CD Cover contains a miniature analogue low power audio transmitter and a rechargeable battery. The concealment is suitable for close proximity operations where 'real life' concealments are needed.

Freja Concealments

Freja is ideal for covert video and audio surveillance operations. The low power digital mini cameras secure high resolution video and audio recordings of the highest quality. Freja is capable of recording video feeds from either one or two cameras (digital or analogue) or a combination of one digital and one analogue camera.

GPS

The Freja GPS is a fully functional GPS unit with a Freja Video Recorder, two black/white pinhole cameras and an IR lamp built-in. The cameras and their position makes it possible to record both the driver and the passenger in complete darkness.

The Freja GPS is also available with a car charger with built-in analogue high power audio transmitter adding remote control for the video recorder.

Ladies Handbag

The The Freja Handbag contains a Freja Video Recorder, two cameras and a Remote control module. The cameras are positioned in each side to expand the usability of the handbag. The remote control module makes it possible for the user to turn the recorder of/off to save memory and battery life.

Beowulf Concealments

The Beowulf recorders are high performance, standalone solid state digital audio recorders with storage capacity from 46 hours in highest audio quality to 737 hours in lowest audio quality.

Keyfob

The Beowulf II Keyfob contains a miniature audio recorder and a rechargeable battery. The device has a built-in vibrator so the agent can ensure that the recorder is turned on when entering a target location.

Pocket Knife

The Beowulf II pocket knife is a fully functional knife and contains a miniature audio recorder with an internal rechargeable battery. The on/off button and USB plug are concealed. The knife functions as a standard pocket knife.

Shirt Collar

The Beowulf II shirt collar contains a miniature audio recorder and has two rechargeable batteries. The shirt collar concealment is designed to fit into the collar of a shirt and is very suitable for close proximity operations where high audio quality is needed and obtained by perfect microphone position.

USB Key

The Beowulf USB Key contains a concealed miniature digital audio recorder with an internal rechargeable battery. The USB key has dual functions: works either as audio recorder or as an ordinary USB key.

Lighter

The Beowulf II Lighter contains a concealed miniature digital audio recorder with an internal rechargeable battery. The Lighter has a built-in gas container and functions as an ordinary lighter.

Belt

The Beowulf II Belt contains a concealed digital audio recorder with an internal rechargeable battery and an AAA cell.

GPS

The Beowulf II / INCA transmitter GPS is a fully functional GPS with built-in audio recorder and analogue audio transmitter. The GPS is available in two versions – with and without remote control.

Thor Concealments

The Thor Digital Surveillance System is a full-featured, easy to use, portable digital audio listening and recording system for use by law enforcement and intelligence. Digital audio signal encryption, built-in recorder, antenna diversity, autoscan function that scans for transmitters in range, various repeater options, remote control and small size transmitters are just some of the features that make the Thor system an outstanding solution in a multitude of surveillance operations.

Belt

The Thor Belt transmitter with solid state recorder is a fully functional self-contained, remote controlled transmitter with stereo microphones.

Loke Concealments

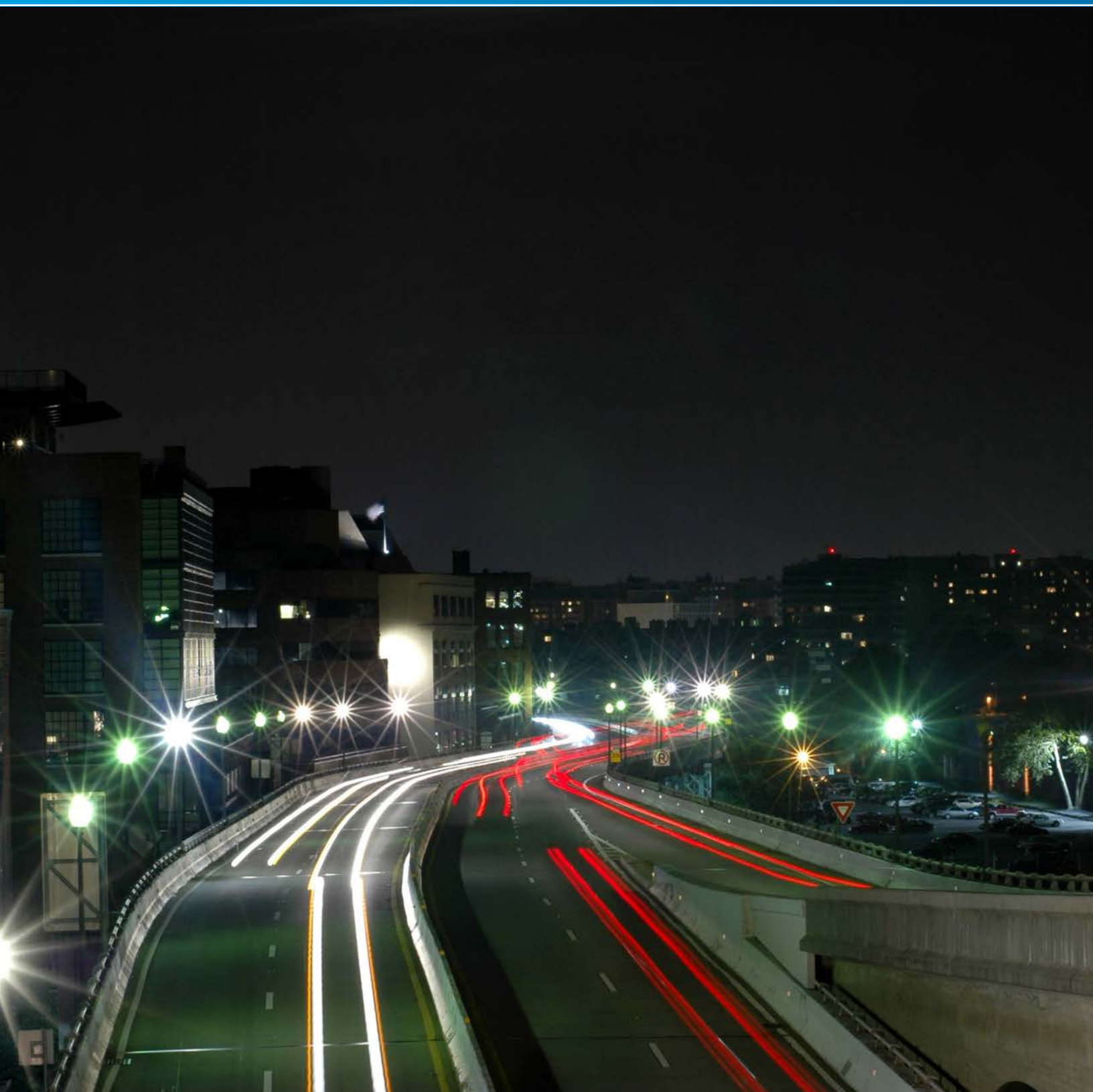
Digital stereo receiver / recorder system. Combines a range of different functions into one single handheld and portable system that ensures easy operation in a wide range of surveillance applications.

Belt

The Loke Belt contains a concealed, remote controlled Loke audio transmitter with stereo microphones.

Tagging, Tracking & Locating Products

COBHAM



Tagging, Tracking and Locating

Tagging, Tracking and Locating (TTL) systems allow an operator to maintain surveillance on a subject at some distance and over long periods of time, tracking the exact position of anything in the world, from any location. Remotely monitoring subjects saves manpower costs, increases the safety of operators and reduces the risk of compromise. Solutions are typically used for:

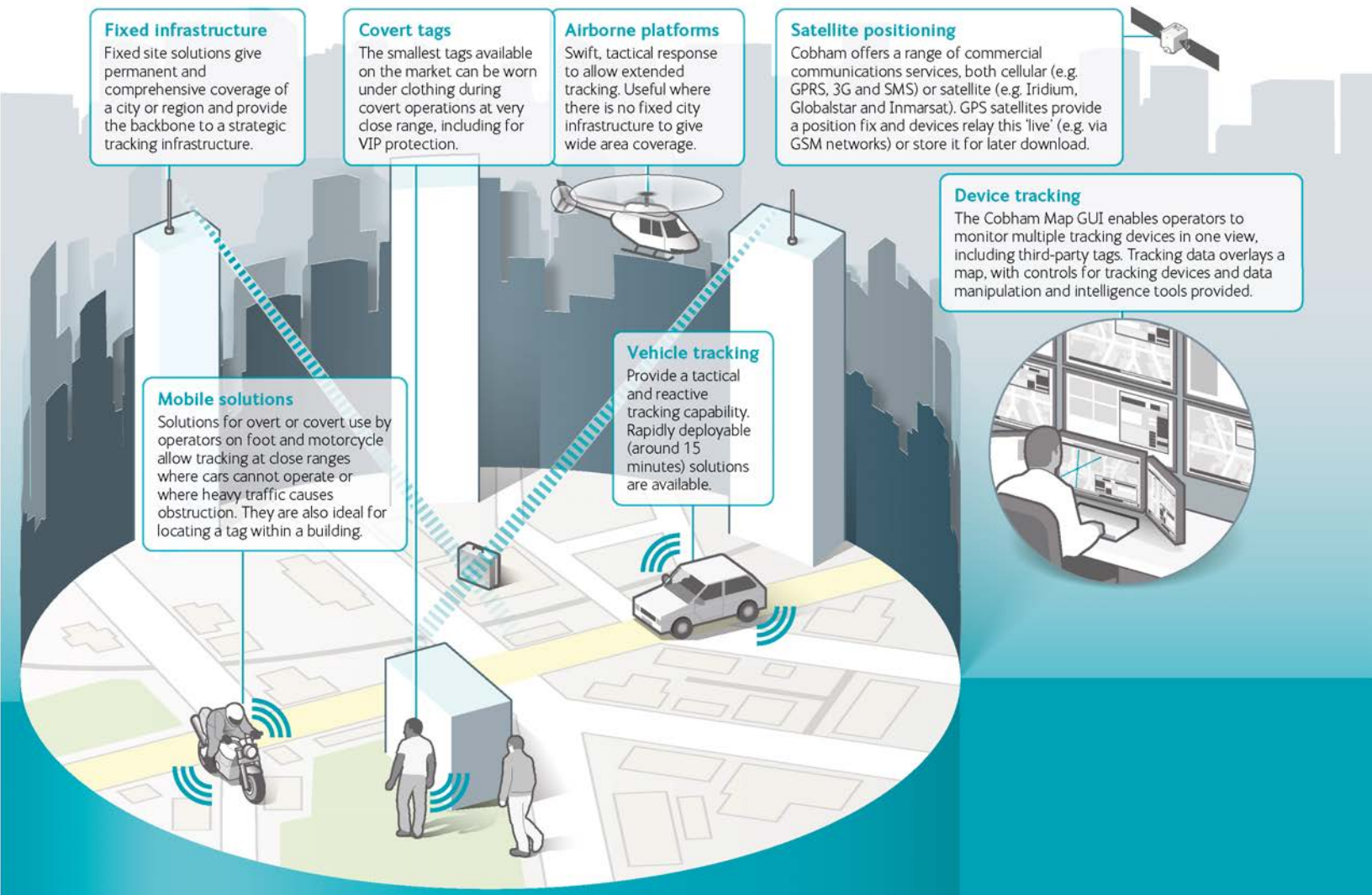
- Package tracking
- Asset tracking
- Personal tracking

Very long battery life means that devices will last for extended periods of time. These low power levels, together with narrowband frequency operation and short data burst cycles greatly reduce the chances of interception.

GPS based tracking devices are suitable for vehicle and personnel tracking applications. Adaptable for the various phases of a surveillance mission, these solutions give valuable intelligence as to the 'pattern of life' of subjects, as well as being used for live tracking, location and apprehension of criminals.

Radio Direction Finding (RDF) uses tags which provide the smallest size and the longest endurance. Useful for more challenging subjects and difficult environments, they do not rely on third party infrastructure, such as GSM or GPS. A selection of specialised transmitter tags are suitable for vehicle, package and personnel tracking.

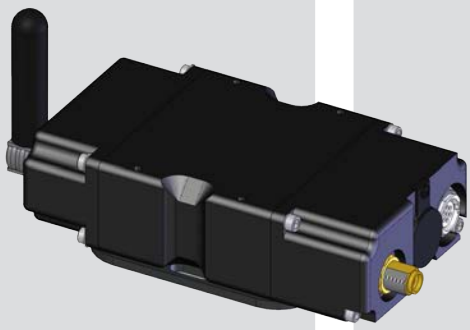
Combined solutions of RDF and GPS are provided to give enhanced and fully comprehensive operational capability.



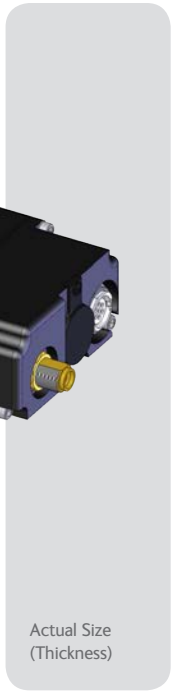
Hawk-i

GPS Tracking

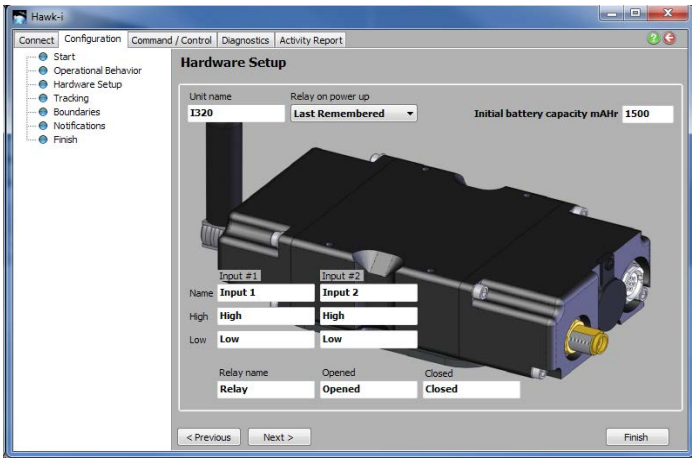
The most important thing we build is trust



Actual Size
(Footprint)



Actual Size
(Thickness)



Specifications

Hawk-I is an advanced GPS tracking solution suitable for elite customers who perform hostile forces tracking missions on a global scale at a moments notice.

Rugged and reliable:
Based on our proven legacy of tracking technology, Hawk-i has the same level or ruggedness and reliability our users have grown to love. An IP67 enclosure, ESD protection on all IO, fully automotive load-dump protected and reverse power protected, Hawk-I users can have confidence the unit will be ready when they need it most.

Covert and quick to install:
We understand the level of risks users take when installing tracking equipment on hostile targets. That's why the Hawk-I was designed to keep time on target to an absolute minimum. This while still providing users the confidence equipment is operational prior to leaving a target.

- Internal GPS and RF antenna to reduce wiring and installation time
- Dual mode external GPS/Iridium antenna for improved GPS and Iridium coverage
- RF-only mode for applications where counter surveillance is a threat.
- RF installation test to quickly confirm successful installs prior to leaving a target

Multiple communications; global operations:
Hawk-I seamlessly combines two bi-directional communications path for command, control and monitoring. Iridium communications for remote (over the horizon) monitoring, and RF for local download, output control and diagnostics.

Advanced pattern of life:
Hawk-i includes storage for 200,000 records and provides a high-resolution target tracking with positions logged at up to 2S intervals. This allows operators to understand target behavior and detect interesting behaviors.

Open software for third party integration:
Hawk-I has been integrated into Cobham Target Manager software. Target Manager is a desktop application used to manage devices like Hawk-i in the field. Because not all our customers have the same tracking software, Target Manager has been designed to make interfacing into third party systems as quick and easy as possible. Whether the customer choose to use their own proprietary tracking system, use Google Earth or have invested in Cobham Unitrac, Target Manager is an integral part of the complete tracking solution.

Physical:	Rugged IP67 enclosure for deployment in harsh environment
Size:	3.33" x 1.85" x .85" (85 x 47 x 22 mm)
Weight:	5.15 oz (146 g)
Temperature Range:	-30 to +70C (-22 to 158 F)
Attachment:	Magnetic plate and tie-wrap slots
Communications:	
	Iridium L-Band (1616 to 1626.5 MHz)
	RF-LOS (868 MHz)
GPS:	Ublox
Software:	Target Manager (Command & Control)
ELECTRONICS	
Motion Sensor	3 axis accelerometer
GPS	Ublox 6
Communications	Dual-Mode: - Iridium SBD - RF-LOS USB
Inputs	2 independent **Digital input detection** (grounded/ungrounded)
Outputs	Output Relay
Antenna options	Internal GPS

The ST826 and ST825 Guardians raise the bar for premium tracking. With it's advanced tracking technology - H series for GSM and C series for CDMA - both devices include the latest in cellular communications and GPS technology:

- ST825H & ST826H: 2G/3G GSM
- ST825C & ST826C: 1xRTT

The ST825 Guardian provides users with a true"slap-and-go" solution, while the ST826 Guardian offers deep installs.

Extended Mission Life

Designed to last. Everything about the ST826 and ST825 have been designed with the goal of balancing the needs for long mission life and real time situational awareness.

- Synchronization modes
- Efficient power supply
- Low power electronics
- Smart server software

All-in-one (Slap and Go)

The ST825 Guardian has been optimized for covert "slap-and-go" installs. As an integrated device, both are designed to enable investigators to "tag" a target as quickly as possible. **Rapid-deployments** mean officers stay safe!

Key Features of the ST826 and ST825 Guardians

- Ease of Use
- Extended Mission Life
- Global Coverage
- Advanced GPS Receiver
- Assisted GPS
- Visual Configuration
- Real Time Tracking
- Status Dashboard
- Record Management
- Full Diagnostics
- Battery Life Calculator
- Event Log

Visual Configuration

Hardware and software configuration made easier. View and easily understand the hardware configuration options, as you set the device operating parameters within the UniVue software.

Advanced Antenna Design

Most trackers have antennas that "detune" when they are placed near metal. The ST826 and ST825 Guardian's internal antennas are specifically designed and tuned for use in the automotive environment. This means that it uses less power and has **better sensitivity underneath a vehicle**, where it matters most.

Data Storage and Security

The combination of AES encrypted communications, automatic data-synchronization and database storage means users no longer have to worry about losing or managing important GPS tracking data.

Global Coverage

The ST82X-H includes a dual-mode cell modem to provide coverage on more than 200 cell networks worldwide.

- 2G: GPRS/EDGE (850/900/1800/1900 MHz)
- 3G: UMTS/HSPA (850/1900/2100 MHz)

The ST82X-C includes a CDMA data modem and is certified for operation on the Verizon network in the US.

- 1xRTT (850/1900 MHz)

Location Aware

The ST825 Guardian employs the latest GPS technology, which, in combination with Assisted GPS, provides **maximum sensitivity** even under cold start conditions.

Multiple and Flexible End Cap Options

Looking for a deeper install or a longer mission? Choose the **Power/Antenna end cap** which enables external power with a broad input range of 7-30V.

ST825-H Guardian

Internet (2G/3G GSM) Based Tracking System

GPS Tracking

The most important thing we build is trust

Actual Size
(Footprint)

Actual Size
(Thickness)

Key Features

- All in one slap and go tracker:
- New synchronizations modes - longer mission life (greater than 30 days)
- Internal antenna and power for quick and easy installations
- Mission Launch / Diagnostic Button
- Optimized for SkyWeb Premium

Specifications

Physical:

Ruggedized IP67 enclosure for deployment in harsh automotive environment	
Size	4.3" x 2.1" x 1.1" (110 x 54 x 28.5 mm)
Construction	Extruded aluminum and Radome
Temperature	-20^{O} C to + 60^{O} C (-4^{O} F to + 140^{O} F)
Attachment	Magnetic Plate and Tie-Wrap slots

Electronics:

Designed with state of the art electronics optimized for long missions (low power)	
Motion Sensor	3 axis accelerometer
GPS	6th generation, 50 channel (Low Power, High Sensitivity)
Communications	Cell: GPRS/EDGE/UMTS/HSPA Direct: microUSB
Input Circuit	Rising/Falling Edge Triggered
Output Switch	Optional 5 A or 40 A relay box
SIM Card	User replaceable
Antenna	5-Band (850 / 900 / 1800 / 1900 / 2100 MHz)
External Device Support	External accessory support through IO bus
Security	AES128 encryption (all communications)

Data Management:

Capacity	Up to 500,000 records onboard storage
Type	Flash
Position Storage Interval:	Configurable (2 s to 15 min)
Real Time Tracking	2 s to 60 s interval

Power:

Operating Voltage	6.5-28V	
Startup Voltage	7.5V	
Internal Capacity	18 Wh (4 x CR123)	
Deep Sleep (no motion detect)	0.8 mW	
Deep Sleep (Motion Detect)	1.4 mW	
Cell Standby, GPS Off	19 mW	
Cell Standby, GPS On	34 mW	(5 minute Fixes)
IP Connected, GPS OFF	42 mW	
IP Connection active, GPS On	1.7 W	4 bars/Open Sky

Notifications:

Configure e-mail and SMS contacts to notify users of critical events	
Start & Stop Motion	Input state change
Return to Cell Coverage	Boundary enter/exit
Deadzone enter/exit	Low Battery Voltage
Temperature Threshold crossing	Lost external power
Button Push (Tamper Detection)	

ST825-C Guardian

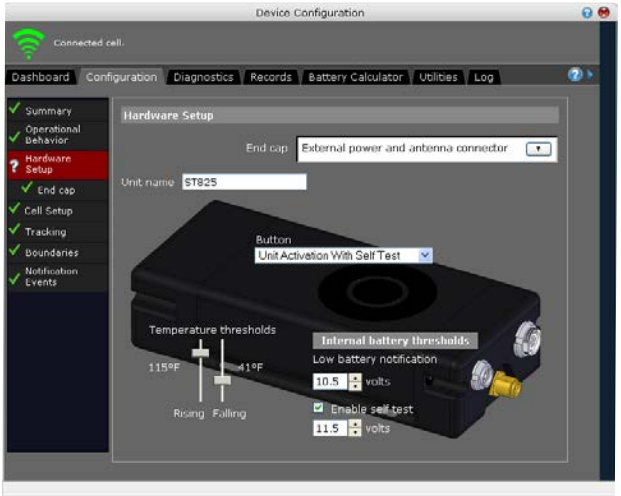
Internet (Verizon CDMA) Based Tracking System

GPS Tracking

The most important thing we build is trust

Actual Size
(Footprint)

Actual Size
(Thickness)



Specifications

Physical

Ruggedized IP67 enclosure for deployment in harsh automotive environment

Size	4.3" x 2.1" x 1.1" (110 x 54 x 28.5 mm)
Construction	Extruded aluminum and Radome
Temperature	-4° F to + 140° F (-20° C to + 60° C)
Attachment	Magnetic Plate and Tie-Wrap slots

Electronics

Designed with state of the art electronics optimized for long missions (low power)

Motion Sensor	3 axis accelerometer
GPS	6th generation, 50 channel (Low Power, High Sensitivity)
Communications Cell:	Verizon 1xRTT CDMA 5-Band (850 / 900 / 1800 / 1900 / 2100 MHz) Direct: microUSB
Input Circuit	Rising/Falling Edge Triggered
Output Switch	Optional 5 A or 40 A relay box
Antenna	Dual-Band (850 / 1900 MHz)
External Device Support	External accessory support through IO bus
Security	AES128 encryption (all communications)

Data Management

Capacity	Up to 500,000 records onboard storage
Type	Flash
Position Storage Interval	Configurable (2 s to 15 min)
Real Time Tracking	2 s to 60 s interval

Power

Operating Voltage	6.5-28V	
Startup Voltage	7.5V	
Internal Capacity	18 Wh	(4 x CR123)
Deep Sleep (no Motion Detect)	0.8 mW	(825C only – not 826C)
Deep Sleep (Motion Detect)	1.1 mW	
Cell Standby, GPS Off	38 mW	
Cell Standby, GPS On	44 mW	(5 minute Fixes)
IP Connected, GPS OFF	64.6 mW	
IP Connection active, GPS On	1.1 W	4 bars/Open Sky

Notifications

Configure e-mail and SMS contacts to notify users of critical events

Start & Stop Motion	Input state change
Return to Cell Coverage	Boundary enter/exit
Deadzone enter/exit	Low Battery Voltage
Temperature Threshold crossing	Lost external power
Button Push (Tamper Detection)	

Mission Modes

Four selectable mission modes enable users to tailor device behavior to mission requirements

Mode	Description	Duration
Live Track	Cell: On, constantly reporting data to server; GPS: On Motion	5 days
Standby (always available)	Cell: Standby(no IP) with daily download; GPS: On Motion	15 days
Synchronization	Cell: Reporting data every 15 min during motion; GPS: On Motion	30 days
Data Logger	Cell: Off with scheduled daily reporting to server; GPS: On Motion	75 days

Duration based on use of 4 x CR123A batteries, 3hr motion per day, good coverage,1 minute fix interval

Software

UniVue, Mapping; Tracking and Data-analysis all from a single application

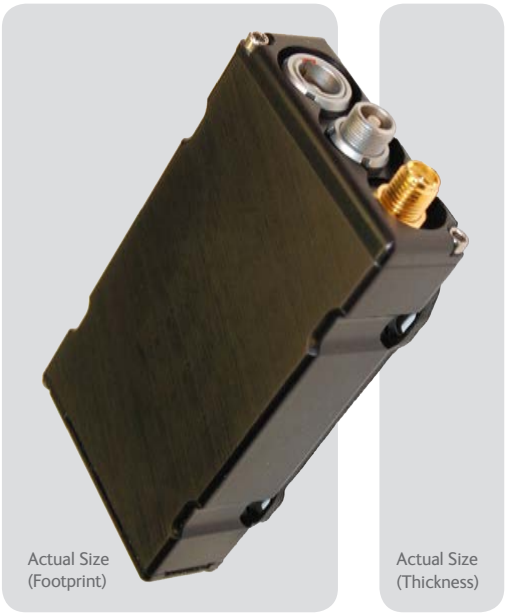
Platform	UniVue
Dashboard	Connection Status
	Health Summary
	Activity Log
	Configuration Status

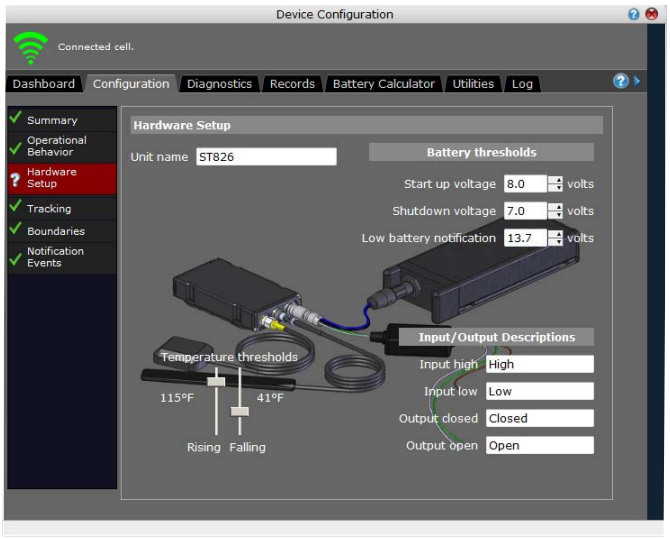
ST826-H Guardian

Internet (2G/3G GSM) Based Tracking System

GPS Tracking

The most important thing we build is trust





Key Features

- Small and slim configuration optimized for deep installs
- Synchronized modes for automated reporting
- Full integration into UniVue

Specifications

Physical

Ruggedized IP67 enclosure for deployment in harsh automotive environment

Size	3.17" x 1.75" x 0.65" (80 x 44 x 17 mm)
Construction	Extruded aluminum
Temperature	-4° F to + 140° F (-20° C to + 60° C)
Attachment	Magnetic Plate and Tie-Wrap slots

Electronics

Designed with state of the art electronics optimized for long missions (low power)

Motion Sensor	3 axis accelerometer
GPS	6th generation, 50 channel (Low Power, High Sensitivity)
Communications	Cell: GPRS/EDGE/UMTS/HSPA 5-Band (850 / 900 / 1800 / 1900 / 2100 MHz) Direct: microUSB
Input Circuit	Rising/Falling Edge Triggered
Output Switch	Optional 5 A or 40 A relay box
SIM Card	User replaceable
External Device Support	External accessory support through IO bus
Security	AES128 encryption (all communications)

Data Management

Capacity	Up to 500,000 records onboard storage
Type	Flash
Position Storage Interval	Configurable (2 s to 15 min)
Real Time Tracking	2 s to 60 s interval

Power

Operating Voltage	6.5-28V	
Startup Voltage	7.5V	
Deep Sleep (Motion Detect)	1.4 mW	
Cell Standby, GPS Off	19 mW	
Cell Standby, GPS On	34 mW	(5 minute Fixes)
IP Connected, GPS OFF	42 mW	
IP Connection active, GPS On	1.7 W	4 bars/Open Sky

Notifications

Configure e-mail and SMS contacts to notify users of critical events

Start & Stop Motion	Input state change
Return to Cell Coverage	Boundary enter/exit
Deadzone enter/exit	Low Battery Voltage
Temperature Threshold crossing	

Mission Modes

Four selectable mission modes enable users to tailor device behavior to mission requirements

Mode	Description	Duration
Live Track	Cell: On, constantly reporting data to server; GPS: On Motion	5 days
Standby (always available)	Cell: Standby(no IP) with daily download; GPS: On Motion	12 days
Synchronization	Cell: Reporting data every 15 min during motion; GPS: On Motion	30 days
Data Logger	Cell: Off with scheduled daily reporting to server; GPS: On Motion	75 days

Duration based on use of 4 x CR123A batteries, 3hr motion per day, good coverage,1 minute fix interval

Software

UniVue, Mapping: Tracking and Data-analysis all from a single application

Platform	UniVue
Dashboard	Connection Status
	Health Summary
	Activity Log
	Configuration Status

ST826-C Guardian

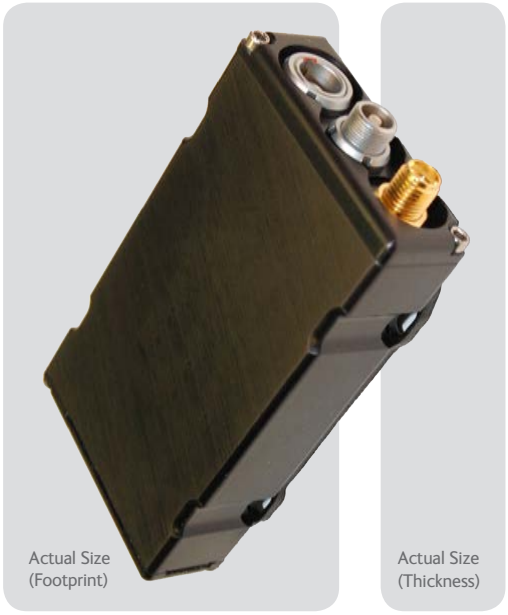
Internet (Verizon CDMA) Based Tracking System

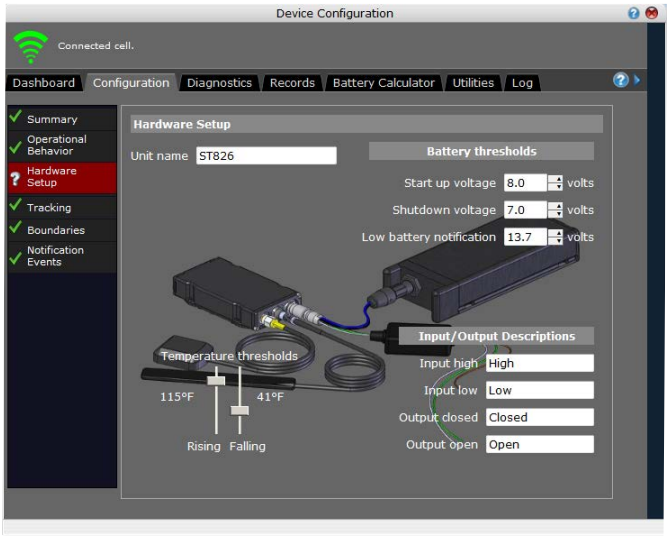
GPS Tracking

The most important thing we build is trust

Worldwide real time tracking system

- Small and slim configuration optimized for deep installs
- Synchronized modes for automated reporting
- Full integration into UniVue





Specifications

Physical

Ruggedized IP67 enclosure for deployment in harsh automotive environment

Size	3.17" x 1.75" x 0.65" (80 x 44 x 17 mm)
Construction	Extruded aluminum
Temperature	-4˚ F to + 140˚ F (-20˚ C to + 60˚ C)
Attachment	Magnetic Plate and Tie-Wrap slots

Electronics

Designed with state of the art electronics optimized for long missions (low power)

Motion Sensor	3 axis accelerometer
GPS	6th generation, 50 channel (Low Power, High Sensitivity)
CommunicationsCell:	Verizon 1xRTT CDMA
Direct:	microUSB
Input Circuit	Rising/Falling Edge Triggered
Output Switch	Optional 5 A or 40 A relay box
External Device Support	External accessory support through IO bus
Security	AES128 encryption (all communications)

Data Management

Capacity	Up to 500,000 records onboard storage
Type	Flash
Position Storage Interval	Configurable (2 s to 15 min)
Real Time Tracking	2 s to 60 s interval

Power

Operating Voltage	6.5-28V	
Startup Voltage	7.5V	
Deep Sleep (Motion Detect)	1.4 mW	
Cell Standby, GPS Off	19 mW	
Cell Standby, GPS On	34 mW	(5 minute Fixes)
IP Connected, GPS OFF	42 mW	
IP Connection active, GPS On	1.7 W	4 bars/Open Sky

Notifications

Configure e-mail and SMS contacts to notify users of critical events

Start & Stop Motion	Input state change
Return to Cell Coverage	Boundary enter/exit
Deadzone enter/exit	Low Battery Voltage
Temperature Threshold crossing	

Mission Modes

Four selectable mission modes enable users to tailor device behavior to mission requirements

Mode	Description	Duration
Live Track	Cell: On, constantly reporting data to server; GPS: On Motion	5 days
Standby (always available)	Cell: Standby(no IP) with daily download; GPS: On Motion	12 days
Synchronization	Cell: Reporting data every 15 min during motion; GPS: On Motion	30 days
Data Logger	Cell: Off with scheduled daily reporting to server; GPS: On Motion	75 days

Duration based on use of 4 x CR123A batteries, 3hr motion per day, good coverage,1 minute fix interval

Software

UniVue, Mapping; Tracking and Data-analysis all from a single application

Platform	UniVue
Dashboard	Connection Status
	Health Summary
	Activity Log
	Configuration Status

ST826C-HS Guardian

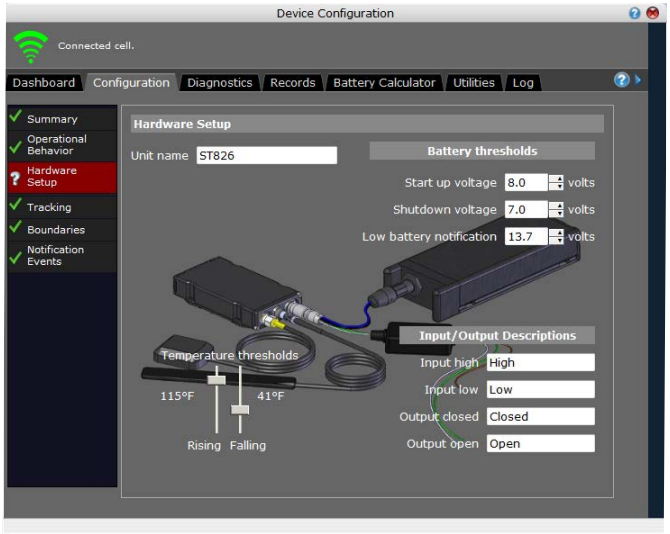
Internet (Verizon CDMA) Based Tracking System

GPS Tracking

The most important thing we build is trust

Actual Size (Footprint)

Actual Size (Thickness)



Key Features

- Small and slim configuration optimized for covert installation
- Synchronized modes for automated reporting
- Full integration into UniVue
- SMS Live Track mode

Specifications

The ST826C-HS Guardian is a small heat shrink enveloped device, that requires an external power source, but can be also be used with a battery pack. The ST826C-HS Guardian is a CDMA-based tracking solution with the superior coverage available on the Verizon Wireless network. Once configured and installed, the ST826C-HS Guardian covert tracker can be tracked and remotely controlled, using the ST826 Guardian software functionality within UniVue.

Physical

Bare board ST826C Guardian + antenna board packaged in heatshrink for easy concealment

Size	2.95" x 1.65" x 0.62" (75 x 42 x 16 mm)
Weight	60 g, excluding battery pack
Temperature	-4° F to + 140° F (-20° C to + 60° C)

Electronics

Designed with state of the art electronics optimized for long missions (low power)

Motion Sensor	3 axis accelerometer
GPS	6th generation, 50 channel (Low Power, High Sensitivity)
Communications	Verizon 1xRTT CDMA
Direct:	microUSB
Input Circuit	Rising/Falling Edge Triggered; can be configured with light sensor or breakwire
Output Switch	Optional 5 A or 40 A relay box
External Device Support	External accessory support through IO bus
Security	AES128 encryption (all communications)

Data Management

Capacity	Up to 500,000 records onboard storage
Type	Flash
Position Storage Interval	Configurable (2 s to 15 min)
Real Time Tracking	2 s to 60 s interval

Power

Operating Voltage	6.5-28V	
Startup Voltage	7.5V	
Deep Sleep (Motion Detect)	1.4 mW	
Cell Standby, GPS Off	38 mW	
Cell Standby, GPS On	44 mW	(5 minute Fixes)
IP Connected, GPS OFF	64.6 mW	
IP Connection active, GPS On	1.1 W	4 bars/Open Sky

Notifications

Configure email and SMS contacts to notify users of critical events

Start & Stop Motion	Input state change
Return to Cell Coverage	Boundary enter/exit
Deadzone enter/exit	Low Battery Voltage
Temperature Threshold crossing	

Mission Modes

Four selectable mission modes enable users to tailor device behavior to mission requirements

Mode	Description	Duration
Live Track	Cell: On, constantly reporting data to server; GPS: On Motion	5 days
Standby	Cell: Standby(no IP) with daily download; GPS: On Motion (always available)	15 days
Synchronization	Cell: Reporting data every 15 min during motion; GPS: On Motion	30 days
Data Logger	Cell: Off with scheduled daily reporting to server; GPS: On Motion	75 days

Duration based on use of 4 x CR123A batteries, 3hr motion per day, good coverage,1 minute fix interval

Software

UniVue, Mapping; Tracking and Data-analysis all from a single application

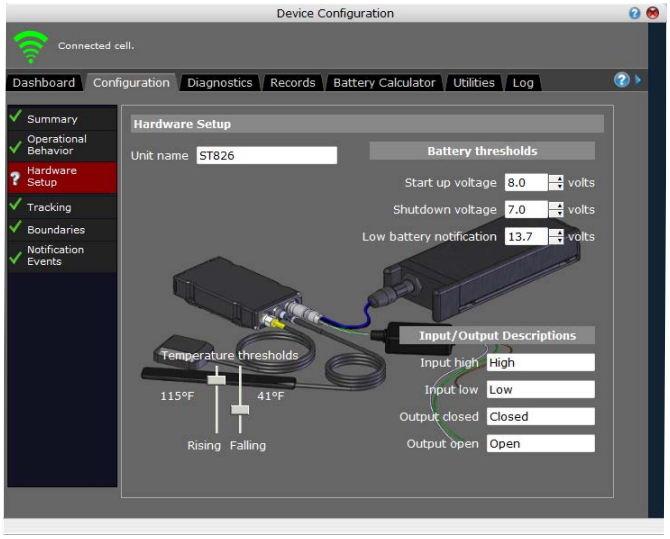
Platform	UniVue
Dashboard	Connection Status
	Health Summary
	Activity Log
	Configuration Status

ST826H-HS Guardian

Internet (2G/3G GSM) Based Tracking System

GPS Tracking

The most important thing we build is trust



Key Features

- Small and slim configuration optimized for covert installation
- Synchronized modes for automated reporting
- Full integration into UniVue
- SMS Track Mode

Specifications

The ST826C-HS Guardian is a small heat shrink enveloped GSM (Global System for Mobile Communications) device with worldwide coverage. It requires an external power source, and can be also be used with a battery pack. The ST826C-HS Guardian is a cellular-based GPS tracking solution that operates on both the 2G (GPRS/EDGE) and 3G (UMTS/HSPA) cellular networks. Once configured and installed, the ST826C-HS Guardian covert tracker can be tracked and remotely controlled, using the ST826 Guardian software functionality within UniVue.

Physical

Bare board ST826H Guardian + antenna board packaged in heatshrink for easy concealment

Size	2.95" x 1.65" x 0.62" (75 x 42 x 16 mm)
Weight	60 g, excluding battery pack
Temperature	-4° F to + 140° F (-20° C to + 60° C)

Electronics

Designed with state of the art electronics optimized for long missions (low power)

Motion Sensor	3 axis accelerometer
GPS	6th generation, 50 channel (Low Power, High Sensitivity)
Communications	Cell: GPRS/EDGE/UMTS/HSPA 5-Band (850 / 900 / 1800 / 1900 / 2100 MHz) Direct: microUSB
Input Circuit	Rising/Falling Edge Triggered; can be configured with light sensor or breakwire
Output Switch	Optional 5 A or 40 A relay box
SIM Card	User replaceable
External Device Support	External accessory support through IO bus
Security	AES128 encryption (all communications)

Data Management

Capacity	Up to 500,000 records onboard storage
Type	Flash
Position Storage Interval	Configurable (2 s to 15 min)
Real Time Tracking	2 s to 60 s interval

Power

Operating Voltage	6.5-28V	
Startup Voltage	7.5V	
Deep Sleep (Motion Detect)	1.4 mW	
Cell Standby, GPS Off	19 mW	
Cell Standby, GPS On	34 mW	(5 minute Fixes)
IP Connected, GPS OFF	42 mW	
IP Connection active, GPS On	1.7 W	4 bars/Open Sky

Notifications

Configure e-mail and SMS contacts to notify users of critical events

Start & Stop Motion	Input state change
Return to Cell Coverage	Boundary enter/exit
Deadzone enter/exit	Low Battery Voltage
Temperature Threshold crossing	

Mission Modes

Four selectable mission modes enable users to tailor device behavior to mission requirements

Mode	Description	Duration
Live Track	Cell: On, constantly reporting data to server; GPS: On Motion	5 days
Standby	Cell: Standby(no IP) with daily download; GPS: On Motion (always available)	12 days
Synchronization	Cell: Reporting data every 15 min during motion; GPS: On Motion	30 days
Data Logger	Cell: Off with scheduled daily reporting to server; GPS: On Motion	75 days

Duration based on use of 4 x CR123A batteries, 3 hr motion per day, good coverage,1 minute fix interval

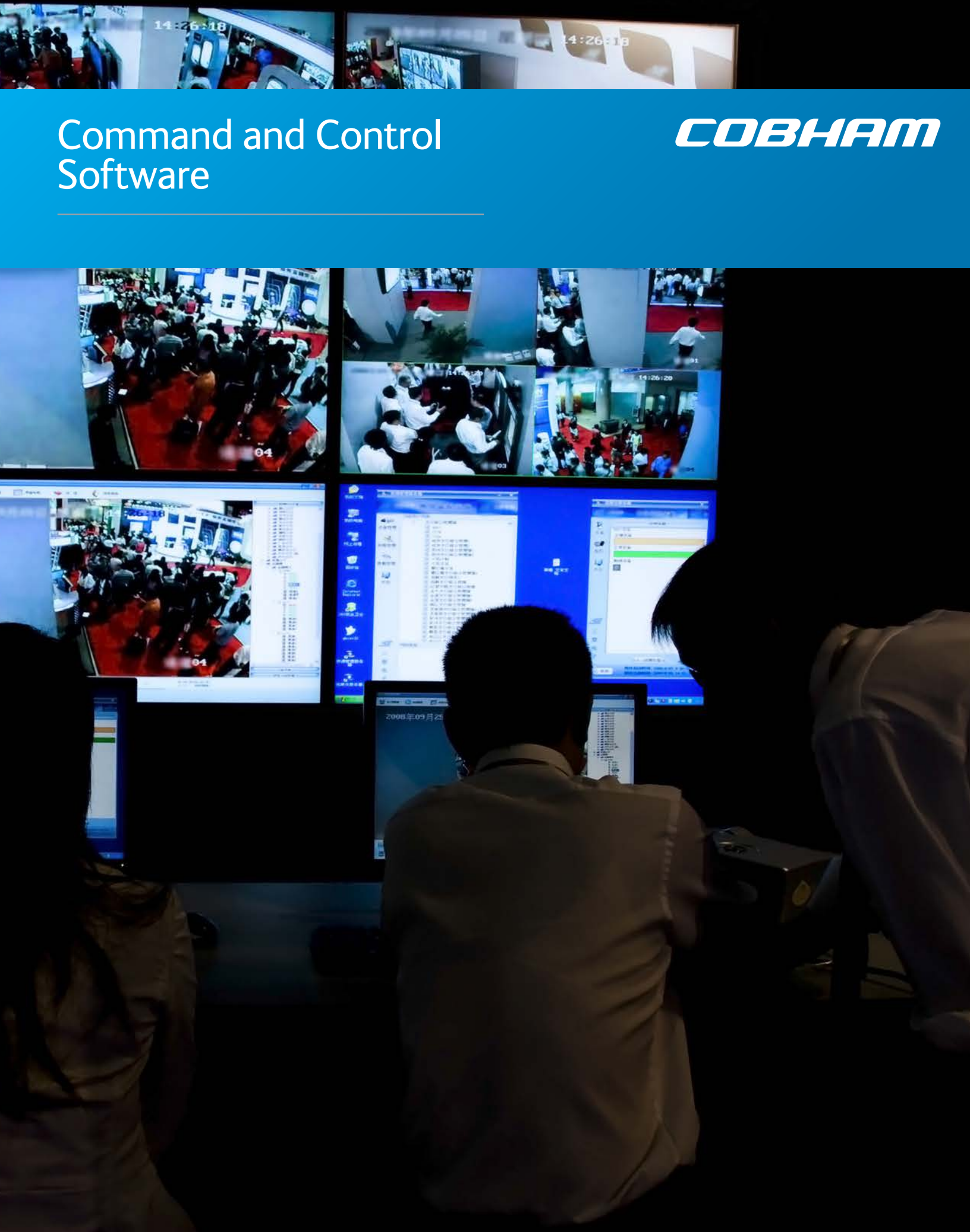
Software

UniVue, Mapping; Tracking and Data-analysis all from a single application

Platform	UniVue
Dashboard	Connection Status Health Summary Activity Log Configuration Status

Command and Control Software

COBHAM



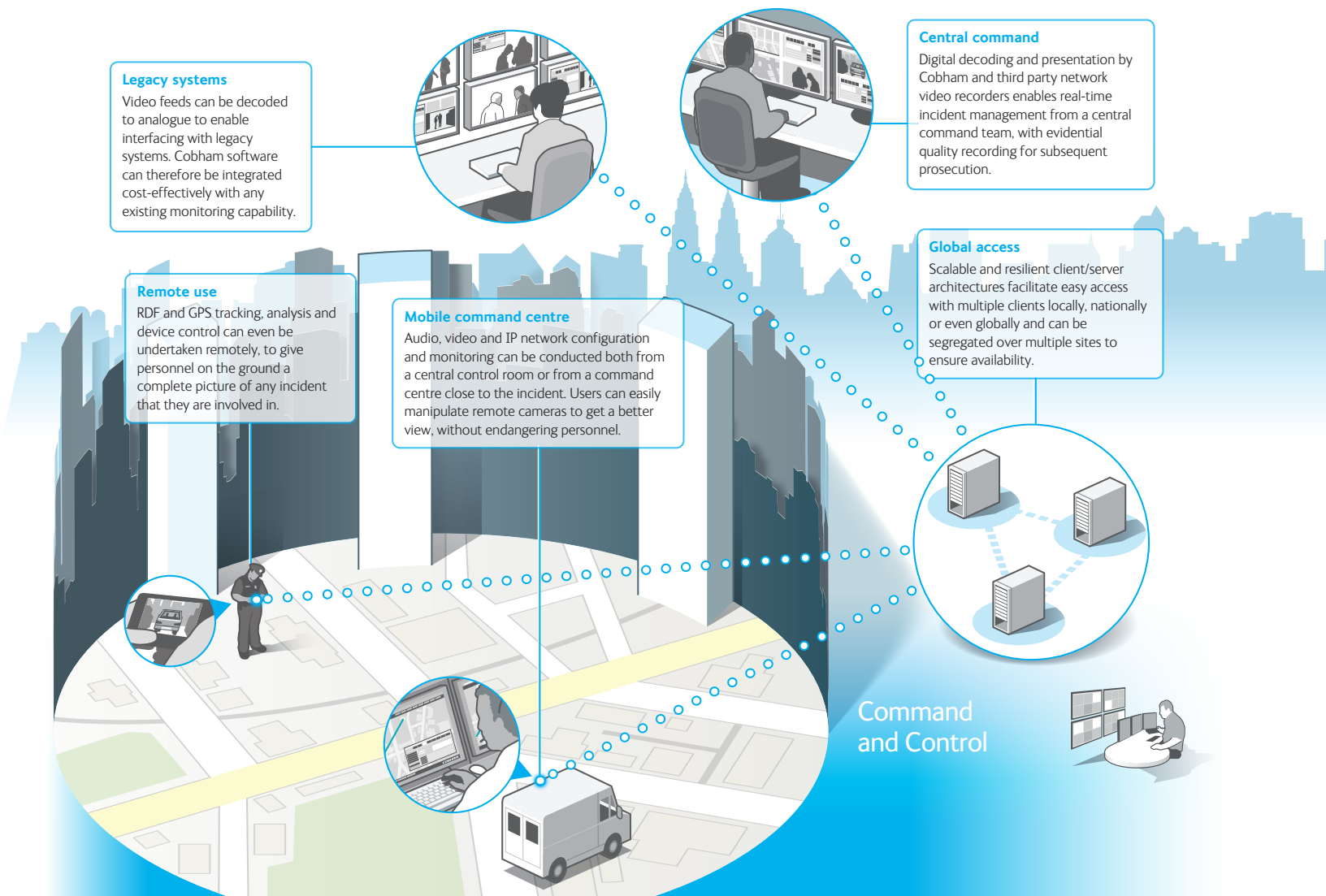
Command and Control

Cobham Command and Control software packages remove the underlying complexity of surveillance technologies and bring clarity to any operation.

Our solutions provide map-based visualisations of tagging, tracking and locating, IP Mesh and audio/video surveillance networks. These solutions also complement Cobham's local device controllers, such as those used for cellular surveillance equipment.
Map visualisations enable rapid network configuration, monitoring of network usage and availability and help ensure cost-effective use of precious radio spectrum and physical surveillance devices.

Integrated software works with both Radio Direction Finding (RDF) and GPS devices in tagging, tracking and locating operations - and being device agnostic, it can be used with devices from Cobham and other manufacturers. Device location, pattern of life analysis and control can be undertaken directly from Command and Control centres or remotely, via secure internet connections.

Specialist software allows video surveillance and IP Mesh networks to be managed to ensure optimum performance from these flexible radio networks. Frequency allocations, encryption keys, exact operating configurations and PTZ camera controls are handled and presented to users simply, facilitating quick deployment and configuration, thus minimising risk of compromise.

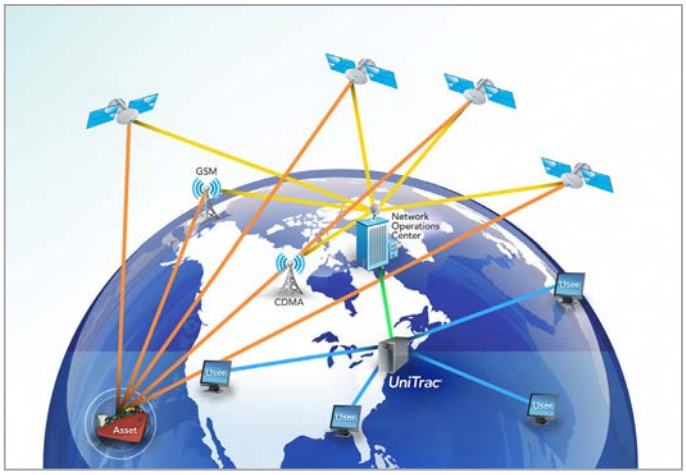


UniTrac

Tracking Software

Tracking Management Solution

The most important thing we build is trust



Incredible Flexibility to Track to Your Specifications

UniTrac is Cobham TCS's proprietary software that allows two-way communication between multiple satellite, cellular and radio frequency providers. UniTrac has over forty different types of tracking communications links, allowing customers the ability to utilize multiple tracking devices, all integrated under a single UniTrac architecture. Because no single communications link or satellite can meet every need, UniTrac gives our clients tremendous flexibility in choosing the right device to best suit the task at hand. UniTrac can interface with legacy systems to enable fast and effective implementation of asset visibility anywhere in the world.

UniTrac is a unified scalable system that allows seamless integration using satellite and terrestrial communications and an extensive variety of tracking devices, including all the devices you may currently employ. Cobham TCS developed UniTrac, our Windows based server software as a way to mine tracking and sensor data, store that data on a server and deliver a visual and strategic picture onto any stationary or mobile computer with automated, simultaneous and immediate notifications of alerts via e-mail, pager and voice dialer.

The ability to utilize worldwide two way communication between multiple satellite, cellular and radio frequency providers allows UniTrac to use over forty (40) different types of tracking communication links which provides the ability to utilize multiple tracking devices all integrated and managed within one unified networking system.

The flexibility and scalability of using existing legacy hardware tracking devices already being deployed within a current environment allows for the use of an existing secure infrastructure to operate seamlessly with the ability to integrate with satellite partners and cellular networks.

Specifications

Share Information – Achieve Desired Results

A process known as "UniTrac to UniTrac data sharing" is the method used by multiple government agencies to share real time tracking information between organizations. Using a secure authorization process policy the tracking data is able to be distributed and shared allowing agencies to interact on high profile projects. The ability to share information across agencies has proven to be an integral part of joint operations. Agencies are able to access information that protects, defends, locates and informs every individual and organization connected to the network

A Wealth of Tracking and Reporting Options

Real time tracking offers the ideal solution when it is imperative to know the location of an asset immediately without delay. A combination of vehicles, people, and high valued shipments and other assets that travel by land, sea or air are subject to interruption, piracy and other situations that might be mitigated or avoided with the right information immediately in hand. The ability to utilize real time tracking in a covert surveillance situation can also lead to the recovery of key personnel who are vital to an operation.

Data tracking, sensor tracking, messaging and notifications all converge and reside on the UniTrac server, linking with cellular and satellite partners. The earth stations transmit to their respective satellite locations around the globe, sending information down to earth bound devices located in trucks, cars, boats, planes and hand held devices. UniTrac allows any number of links to feed multiple displays simultaneously.

Return communications such as, GPS locations, alerts, and boundary violations that reach UniTrac are instantly distributed to the computers, cell phones, or other hand held devices that the user designates.

Security is Paramount

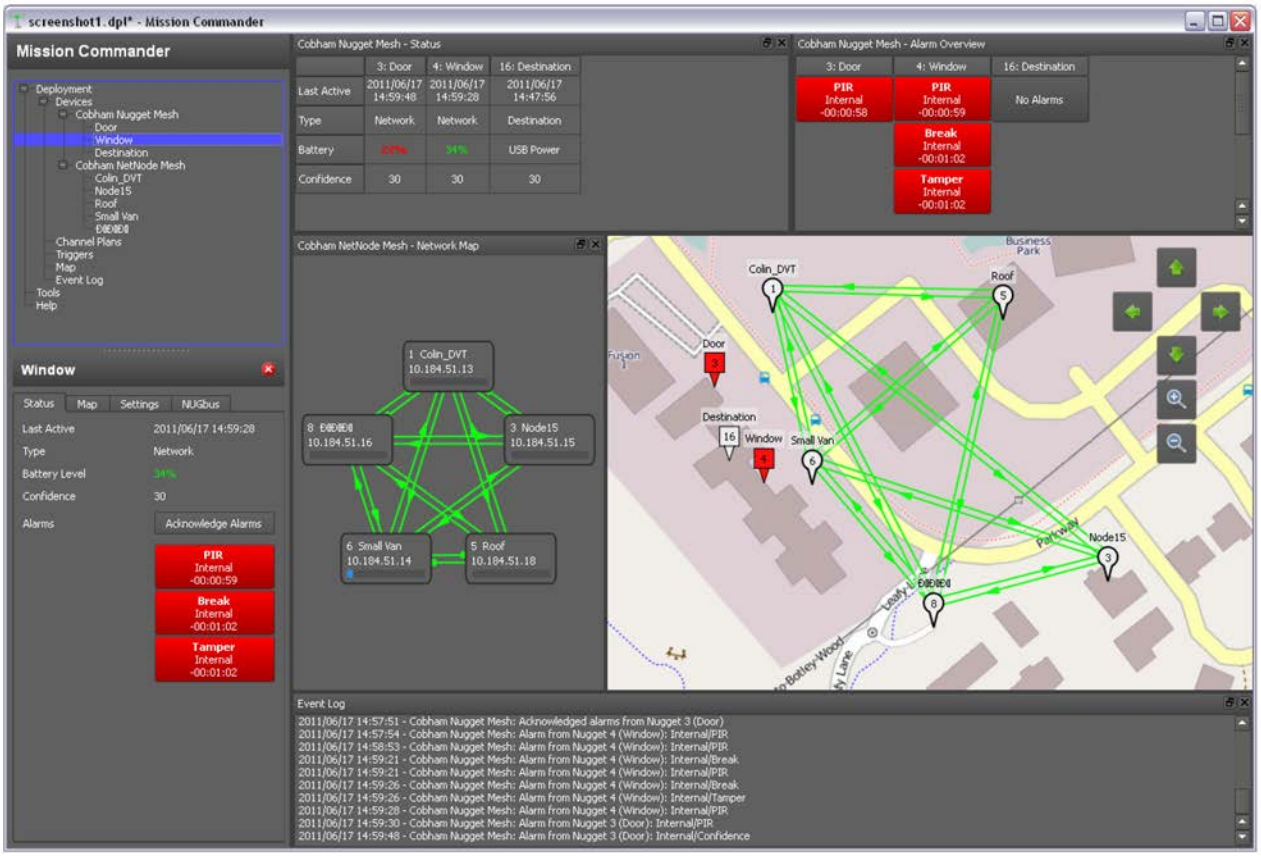
Protecting and securing your data is a crucial priority. UniTrac architecture allows for a central data control point which gives our clients an added weapon in protecting their important tracking information. The UniTrac notification feature will greatly enhance the time spent responding to data breaches or unit breaches by alerting you by e-mail, pager and voice dialer.

Mission Commander

Advanced Software Suite

Network Control Software

The most important thing we build is trust



Key Features

- Intelligent management of COFDM video and IP transmission systems
- Tactical and strategic deployments
- Works with both online and offline maps
- Advanced sensor event handling
- Integrates with public & private networks
- Automated video wall management *
- Frequency and channel mapping
- Integrates with third-party network tools such as IP cameras and web apps

Mission Commander is an advanced software suite that runs on your desktop or tablet computer. It allows manual and automated configuration, management and integration of Cobham video and IP transmission equipments and networked intelligent sensors.

Mission Commander will display and manage the geographical deployment of your equipment, whether deployed for short missions or as part of a citywide surveillance infrastructure. It provides the vital information required to make informed realtime decisions.

The software can configure, monitor and automatically manage IP MESH systems, Nugget ground sensor networks, audio, video and data transmitters, central and tactical receivers, networked video streams and large video walls. It allows an operator to setup automatic actions as responses to trigger events in the sensor network.

Cobham Device Configuration

Mission Commander can be used to configure devices directly connected to the PC via a serial or USB cable. These include the Field Controller (device management tool), SOLO6TX and Nugget destination nodes.

UniVue

An evolution in tagging, tracking and locating

Tracking Software

The most important thing we build is trust

UniVue combines features from Cobham's entire TTL software portfolio into a single platform by simultaneously meeting the needs of strategic, operational and tactical mission requirements from one screen, with one view and multiple capabilities.

UniVue provides a full tracking surveillance solution consisting of control of GPS devices from multiple vendors, one-click plotting of live or historic track data on a single map surface, real-time notifications based on a range of target activities, correlation of tracks with external data, and advanced target routine analytics. The integrated platform enables all data to be collected in a single repository and users to access the system using a standard web browser.

The solution can be seamlessly used from virtually any desktop, laptop or mobile PC with internet access, without the need for client based software installation. UniVue enables users to visualise geo-referenced tracking data on detailed maps in real time from a web browser.

Designed for the needs of a varied user community, UniVue is a web-based surveillance platform that integrates data from multiple sources onto a single screen, utilising telemetry methods such as cell, satellite and RF. More than 70 different tracking devices can appear, making it the most advanced and capable system available today.

UniVue can be run on Mozilla Firefox, Microsoft Internet Explorer and Google Chrome. Designed to make multi-vehicle tracking easier than ever, an integrated map-in-map feature enables multiple targets to be tracked in their own window, while Google Earth and Google Streetview provide additional location information and actual terrain analysis.

- Historical activity (including historical position reports)
- Viewing history trails of vehicles with playback
- Vehicle stop reports (data and time)
- Vehicle speed reports
- Proximity reports to highlight where one or more targets have intersected
- Vehicle location and status (position reports)
- Frequency reports to plot a target's common routes and deviations from it
- User drawn objects (regions, circles and fences)
- Communicating with a vehicle (2 way messaging)
- Real-time alerts sent via text or email
- Ability to link to other web resources, including IP cameras, audio and video files
- POI integration to import and share historic track files and landmarks
- Live tracking of multiple targets
- Wealth of one-click reports
- Superior analytics
- Map in map/Google Earth
- Video Wall
- Street View

Cell Intercept

COBHAM

Cellular Surveillance

Using Cobham technologies it is possible to covertly analyze a cellular telecom network and remotely monitor cellular equipment connecting to that network.

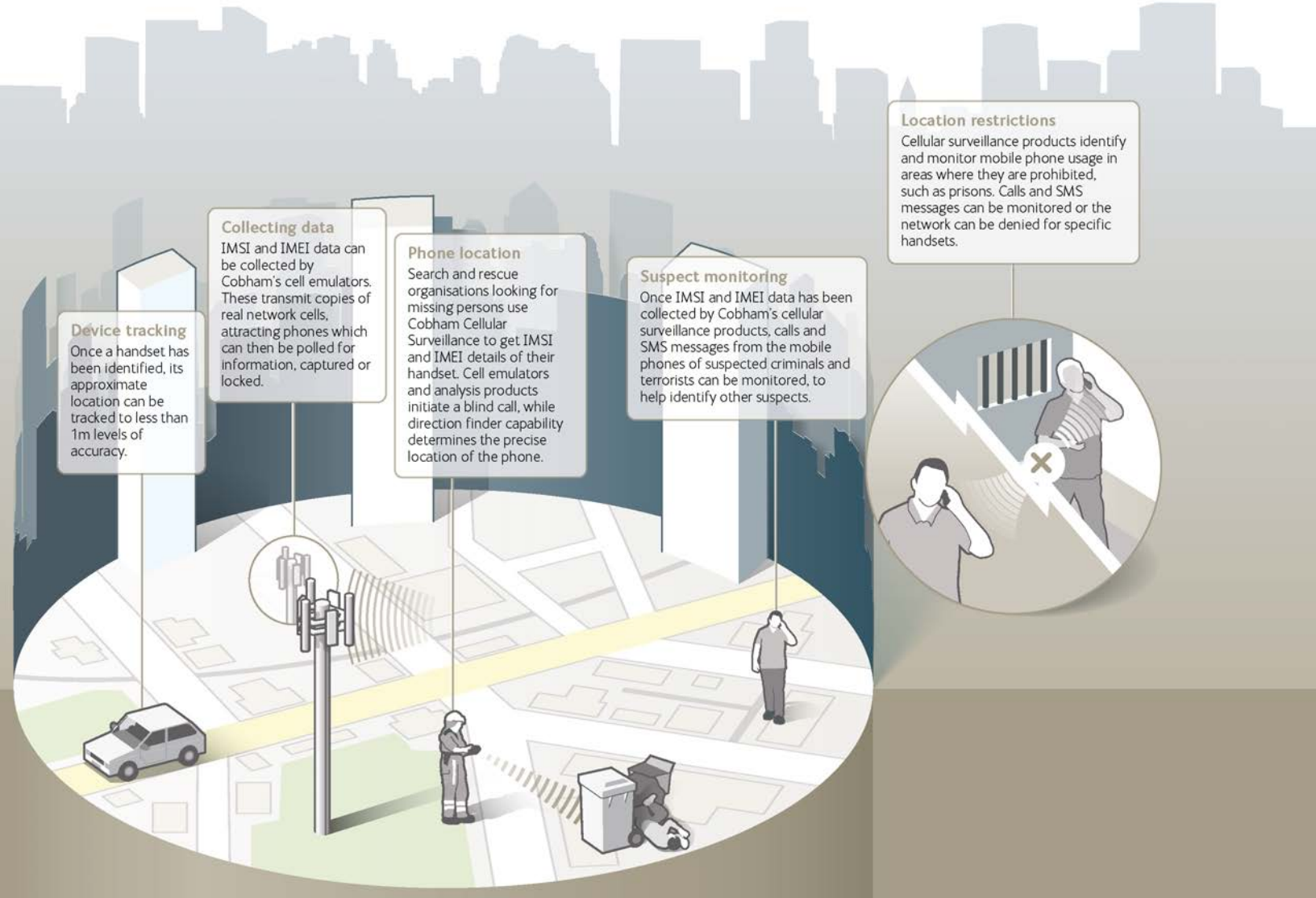
Cobham designs and manufactures Active Cellular Surveillance Systems. These are designed for tactical operations in short to medium range missions and provide the user with intelligence to help identify and monitor criminal activities, criminals and terrorists. They can also be employed for humanitarian operations.

Solutions are typically used for:

- Counter terrorism and organized crime operations, identifying and monitoring suspects, exploring target contact details and intercepting outgoing voice calls and SMS messages.

- Situational control, enabling identification and network denial of cellular devices through 'intelligent' jamming, including creating controlled areas of coverage.

- Suspect geo-locating capabilities. Cell emulators, direction finders and coverage analysis provide ideal applications for: suspect identification, exploration of target's contact networks, suspect monitoring and search and rescue. In-country support contracts are available to ensure effective maintenance and support of the cellular technologies.



Network Survey Tool (NST)

Cellular Surveillance Technologies

Cellular Analysis Tools

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Specifications

Featuring the latest receiver technology, the NST is a standalone system designed to capture measurements from network cells whilst also logging against positional data.

Data captured by the NST can be used to create a graphical cell coverage display within the new Evolve4 Mapplication software feature. It can also be used to provide conventional cell analysis.

The NST can perform scans on GSM and UMTS and is also LTE-ready for future applications.

Function:	Scan all channels in specified GSM and UMTS frequency bands.
Frequency bands:	850/900/1800/1900/2100 MHz
Frequency Accuracy:	+/- 1 ppb (GPS calibrated)
Sampling Rate:	9.75e6 samples/second
Antenna Connector:	SMA female (RF) BNC female (GPS)
Supply Voltage:	12 VDC
Power Consumption:	0.6A max imum
Receiver Unit:	60mm (H) x 180mm (W) x 150mm (D)
Operating Temperature:	0˚C to + 55˚C
Display Device:	Lenovo x100e Thinkpad or equivalent
Equivalent Interfaces:	RJ45 Ethernet USB 2.0

Key Features

- Simultaneous scanning of multiple radio access technologies
- Flexible data can be used with multiple analysis tools
- Frequency agile solution
- GPS enabled for precise location tracking
- SIM free operation
- Extensible platform capable of meeting future requirements

3G-N

Multi-Channel 3G/UMTS Tactical Active Intercept

Cell Emulators

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COBHAM

Specifications

The 3G-N is a state-of-the-art multi-channel 3G / UMTS (WCDMA) tactical active interception solution. The 3G-N is currently used in conjunction with the GSM-XPZ range. Control is streamlined to a single interface where users can simultaneously acquire the identities of GSM and UMTS phones.

For geo-locating and tracking purposes the UMTS target phone is 'pushed' onto the GSM-XPZ cell and then placed into blind call mode.

Physcial	
Size:	W 324mm x H 180mm x D 398mm
Weight:	16.5Kg (20Kg including carry case)

Technical	
Function:	• Acquire the identify parameters (IMSI, IMEI & TMSI) of UMTS cell phones off-air from two different UMTS networks simultaneously • 'Push' target cell phones to GSM in a controlled manner for geo-locating • Correctly interact with non-target cell phones to preserve 3G network service in the operational zone
Channels:	Two (2)
Channel Range:	UMTS Band 1 (2110-2170MHz)
RF Output Power:	2 x 5W max or 1 x 20W max
RF Output Connector:	3 x N Type

Power	
Power Supply:	12Vdc - 24Vdc
Power Consumption:	16A, 400W maximum

Environmental	
Operating Temperature:	-5°C to +45°C
Storage Temperature:	-10°C to +70°C

Key Features

- UMTS Identify grabbing using protocol message exchanges rather than 'Jamming'
- Emulation of any UMTS network
- Single combined realtime database
- Identification whether mobile phone is caught on 2G or 3G
- UMTS Band 1 (2100MHz) operation
- Transmits 2 x 3GPP configured UMTS cells simultaneously to a maximum of 5W each
- Adjustable Node B transmission power, ranging from 1mW to a maximum of 20W on a single Node B
- Integrated Antenna Switch for up to 3 antennas

Evolve4-Nimbus

Cellular Surveillance Technologies

Cell Emulators

The most important thing we build is trust

Key Features

- UMTS Identify grabbing using protocol message exchanges rather than 'Jamming'
- Geolocate targets using UMTS or GSM blind call.
- Fast UMTS cell configuration using optional Network Survey Tool (NST)
- Hexaband UMTS operation
- GSM and LTE functionality to be introduced to the platform in subsequent development phases.
- Integrated 2G/3G system operation when connected to a GSM-XPZ system
- Adjustable transmission power, ranging from 1mW to a maximum of 20W
- Integrated Antenna Switch for up to 6 antennas
- User friendly Graphical User Interface (GUI)
- Powerful database search facility for quick target identification

Specifications

The new Evolve4-Nimbus from Cobham is a state of the-art multi-channel tactical active interception solution.

The Evolve4-Nimbus is frequency and protocol agile. Frequency agility across 6 common frequency bands allows maximal operational flexibility.

Protocol agility allows a variety of protocols to be supported. UMTS capability will be provided at launch, with GSM and LTE to follow subsequently.

The Evolve4-Nimbus is rugged by design and suitable for deployment across a wide range of operational environments.

The Evolve4-Nimbus is compatible with the GSM-XPZ product range. Control is streamlined to a single interface where users can simultaneously acquire the identities of GSM and UMTS phones.

For geo-locating and tracking purposes, UMTS target phones can be held in native UMTS(3G) blind call or 'pushed' onto a GSM-XPZ cell and then placed into GSM blind call.

Acquire the identify parameters (IMSI, IMEI & TMSI) of cell phones off-air from up to four different networks simultaneously.

Hold targets in native UMTS (3G) blind call or 'Push' to GSM in a controlled manner for GEO-Locating.

Correctly interact with non-target cell phones to preserve network service in the operational zone.

Channels	Four (4)
Channel Range	UMTS Bands I, II, III, IV, V, VIII
RF Output Power	4 x 20W max
Power Supply	18-36 VDC
Power Consumption	1300W (maximum)
Size (mm)	453(L) x 417(W) x 232(H)
Weight	Circa 27kg
Operating Temperature	-10°C to 49°C

GSM-XPZ HP Plus

Active Interception Solutions

Cell Emulators

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Key Features

- Covertly identify the unique identity (IMSI/ IMEI/TMSI) of GSM cell phones
- Locate known targets using their GSM mobiles (in conjunction with DF equipment)
- Take control of target phones for the purpose of denying GSM service
- Create exclusion zone to deny GSM network coverage (subject to export license approval)
- Intercept SMS messages sent by a target
- Multiple BTS system allowing up to 2 BCCH on 1 network or 2 BCCH on 2 different networks
- Blind/Silent call up to 7 target cell phones per BTS

Specifications

The GSM-XPZ family of active interception solutions provides a tactical tool for law enforcement, government and military agencies.

Utilising commercial base-station technology and operating independently of the GSM network providers, the GSM-XPZ family of vehicle and portable products provide the capability to clone and simultaneously transmit multiple fake GSM networks to interact with the GSM Cell Phones.

Physcial	
Size:	W 280mm x H 70mm x D 290mm,
Weight	4.43Kg
Interface Connections:	Antenna Ports: 1 x Combined Tx, 1 x Combined Rx, 1 x WiFi

Technical	
Channels:	2 Channels 1 x 900 + 1 x 1800 or 1 x 850 + 1 x 1900
Channel Range:	Euro: E-GSM, GSM, DCS US: 850, PCS
Channel Bandwidth:	200KHz
Output Power:	1mW to 2W (max) per channel
Data:	Interface via secure Ethernet or WiFi

Environmenal	
Operating Temperature:	-5˚C to +45˚C
Storage Temperature:	-10˚C to +70˚C

Power	
Power Consumption (Max):	70W
Power Supply:	12Vdc

GSM-XPZ PV

Active Interception Solutions

Cell Emulators

The most important thing we build is trust

Key Features

- Take control of target phones for the purpose of denying GSM service
- Create exclusion zone to deny GSM network coverage (subject to export license approval)
- Intercept outgoing calls and SMS messages
- Rugged form factor for in-vehicle use
- Multiple BTS system allowing up to 4 BCCH on 1 network or 4 BCCH on 4 different networks
- High transmit output power - up to 50 Watts
- Blind/Silent call up to 7 target cell phones per BTS
- Simultaneous intercept of up to 4 outgoing voice calls

Specifications

The GSM-XPZ family of active interception solutions provides a tactical tool for law enforcement, government and military agencies.

Utilizing commercial base-station technology and operating independently of the GSM network providers, the GSM-XPZ family of vehicle and portable products provide the capability to clone and simultaneously transmit multiple fake GSM networks to interact with GSM cell phones.

Physcial	
Size:	W 500mm x H 200mm x D 580mm
Weight	28Kg
Interface Connections:	Antenna Ports: Directional: 2 x Low Band, 2 x High Band Omni: 2 x Combined Data/Audio: Interface via secure Ethernet

Technical	
Channels:	4 Channels 2 x 900 + 2 x 1800 or 2 x 850 + 2 x 1900 or 1 x 850 + 1 x 900 + 1 x 1800 + 1 x 1900 (Quad)
Channel Range:	Euro: E-GSM, GSM, DCS US: 850, PCS Quad: 850, E-GSM, GSM, DCS, PCS
Channel Bandwidth:	200 KHz
Output Power:	1mW to 50W (max) per band

Power	
Power Consumption (Max):	600W
Power Supply:	24 Vdc

Environmenal	
Operating Temperature:	-5˚C to + 45˚C
Storage Temperature:	-10˚C to +70˚C

Evolve4-Hand Held Direction Finder

Cellular Direction Finders

The most important thing we build is trust

Key Features

- Allows direction finding of UMTS and GSM devices
- Resolves target location to within a few metres
- Direction Finding Unit (DFU) is controlled by smart phone over Bluetooth (wireless)
- Choice of multiple feedback mechanisms
- Can DF on BTSs and Node Bs, in addition to target mobile devices.
- Covert body-worn antenna pack included
- Compatible with multiple antennas for different scenarios
- Audio feedback mode allows for covert operation
- DFU protocol and frequency configuration is software adjustable to user requirements

Specifications

The Evolve4 Hand Held Direction Finder (Evolve4-HHDF) is a light-weight, portable, state of the art device for tracking and geo-locating cell phones.

The Evolve4-HHDF works with the 3GN's 3G Blind Call feature to allow tracking of UMTS devices. It is also backwards compatible with GSM.

The Evolve4-HHDF is controlled by a smart phone connected to the unit over a Bluetooth link. This makes the unit easy to configure and use without attracting attention.

The Evolve4-HHDF features multiple feedback mechanisms to cater for a variety of mission scenarios. Choose from visual or audio feedback depending on the operational requirement.

Function:	Provides RF signal strength indication on a selectable UARFCN/ARFCN
Frequency Range (MHz)	
GSM	**UMTS**
850 Band	Bands I
900 Band (inc E-GSM)	II
1800 Band	III
1900 Band	IV
	V
	VIII
Size (mm)	DFU: 120(l) x 65(w) x 28(d) High band antenna: 78(l) x 78(w) x 18(d) Low band antenna: 120(l) x 120(w) x 17(d)
Weight (grams)	DFU: 140g High band antenna: 230/460 (element/array) Low band antenna: 550/1100 (element/array)
Power	3 x AA batteries
Battery Life (DFU)	Circa 3 hours (typical usage)
Antenna	4 x patch antennas in configurable array
Interfaces	On/Off, Status LED, Smart phone interface

GSM-Vehicle Direction Finder

Cellular Direction Finders

The most important thing we build is trust

Key Features

- DF simultaneously in Azimuth and Elevation
- Robust, low profile, lightweight antenna unit
- A dual band digital receiver featuring 8 self calibrating phase synchronous digital receiver branches
- 8 element spatially diverse omni-directional antenna array for highly accurate target resolution
- Integrated GPS and electronic compass for non-moving Line of Bearing (LoB) resolution
- Integrated GIS mapping engine, using MXD format map files

Specifications

The GSM Vehicle Direction Finder (VDF) is a lightweight, portable and state of the art digital direction finder for tracking and geolocating GSM cell phones. It features the latest Super Resolution Direction Finding (DF) processing algorithms.

The VDF is designed to be deployed quickly in any vehicle allowing maximum flexibility in vehicle choice, thus maintaining a covert deployment model. The VDF is a standalone system designed to work with any GSM manipulation

Physical	
VDF Receiver:	W 448mm x H 135mm x D 348mm
Weight	7.2kg
VDF Antenna:	W 270mm x H 60mm
Weight	1.3kg

Technical	
Function:	Provides RF signal strength indication on a selectable ARFCN and GSM timeslot
Channel Range:	European variant VDF: GSM 900/1800
	US variant VDF: GSM 850/1900
Direction Finding Axis:	Simultaneous in Azimuth and Elevation
Resolution:	Better than 5˚
Accuracy:	Better than 5˚
Sensitivity:	Typically -120dBm
DF Algorithms:	Super resolution DF with self calibration

GPS Datum:	WGS-84
Magnetic Compass:	2 Axis tilt compensated digital compass
Antenna (rooftop):	Azimuth: 360˚ Elevation: 80˚
Antenna (in-vehicle):	Azimuth: 360˚, Elevation: As per vehicle aperture
Mapping Formats:	MxD files supported Further information available on request
Power	
Power Supply:	12Vdc, 7.5A, 90W(Rubidium reference cold) 12Vdc, 4.5A, 54W(Rubidium reference warm)

Mapplication

Cellular Software

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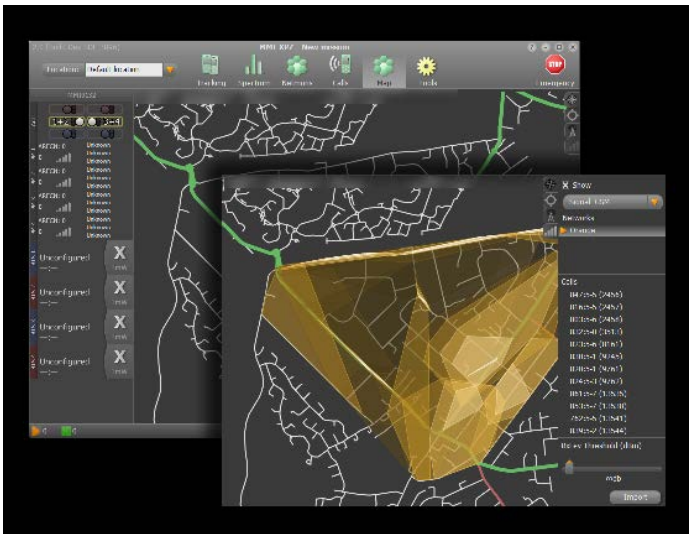


Specifications

The XPZ & 3GN range of equipment generate a large amount of data for customers to analyze, often during live missions.

Mapplication represents a new dimension in real-time data analysis, allowing users to add geospatial processing to routine tasks on both the XPZ and 3GN platforms.

Users can track their unit across the operational zone in real time, record the path taken, see the likely range the active intercept systems can achieve, and view graphical coverage maps of real network cells in the area.

Mapplication Option Includes:
Free software upgrade to V2.0 of the XPZ/3GN Analyser (mandatory for Mapplication usage)

SiRF Star III GPS puck

MMI preformatted vector street mapping of customer's home country (map quality as per Navteq standard)

Mapplication may require an XPZ or 3GN hardware upgrade, for which a separate fee is payable. Please consult your account manager for further information.

Key Features

- Mapplication allows users to better visualise their operations
- Addresses growing trend of geo-tagged mission critical data
- Implementation of MapInfo runtime engine allows growth of geospatial features offering on the V2.0 software platform
- Delivered with basic Navteq vector street map data for customer's country (subject to availability). Map data preformatted to optimise for Mapplication display
- The first release allows only usage of Navteq preformatted data

Integrated Solutions

COBHAM

Making cities safer with integrated Cobham technology

The fast-moving and ever-evolving nature of a modern city presents a wide range of challenges.

The Cobham Safe Cities solution provides law enforcement and government agencies with advanced technologies to effectively predict and respond to a range of common city threats. The solution offers a private and secure network of scalable surveillance and communications capabilities - to help protect cities and keep citizens safe.

This integrated surveillance and communications network offers fast, reliable access to real-time visual, audio, location-based information and evidential material, whether city-wide or in defined areas.

The impact of major incidents can also be reduced by enabling access to a fully-informed single or multi-agency network that is not reliant upon public infrastructure. Comprehensive situational awareness enables better and faster decision making and cross-agency collaboration, with robust and flexible surveillance solutions offering peace of mind.

A private and secure network with multiple capabilities

Whether it's to see, hear, track, intercept, locate, monitor or interrogate assets within a city environment, Cobham has leading technology to provide this. Unique IP Mesh technology creates a city-wide infrastructure and builds a fluid, self-forming, self-healing dynamic network which adjusts even in rapidly changing communications and mobile situations. A scalable approach is integral to the ability to add layers of capabilities to the expandable Safe Cities framework. The infrastructure is flexible and provides full integration with any of the other Cobham surveillance capability layers, or third party products. This enables further solutions to be added to the existing infrastructure, extending and enhancing the system as the changing situation dictates.

Command and Control (C^2) resources are provided as part of an overall solution. Specific requirements can range from full control room capabilities, through to small mobile monitoring stations, consoles and hand-held devices.

A proven supplier and integrator of leading solutions in city environments

Cobham is a world leader in the provision of critical technologies for successful operations in demanding environments.

These solutions are proven and have been successfully installed for many cities with varying requirements, thanks to a flexible and scalable approach which suits a range of end user needs. All of the capabilities and technologies within a Safe Cities solution are supplied, installed and integrated by Cobham.

Safe Cities

Integrated Solutions

The most important thing we build is trust

Building a safe city is about more than just deploying CCTV. That is why Cobham is the only partner to offer a truly integrated Safe Cities solution, bringing together a wide range of proven Cobham proprietary products and ensuring they work together seamlessly.

Specifications

Many other suppliers can offer video surveillance or sensors, but Cobham offers a choice of scalable modules that can be selected and tailored according to each unique city requirement. Solutions such as tagging, tracking, cellular surveillance and audio can all be built on to an underlying network, resulting in a complete, bespoke solution.

Cobham expertise

Cobham understands the issues and security difficulties within cities, having built Safe Cities solutions in over 100 different locations across the globe. Due to the scalable approach of these market leading technologies, they can be brought together in any combination, with a complete infrastructure providing a comprehensive ability to react effectively and rapidly to a range of threats.

The Cobham Safe Cities solution does not rely on public networks, although it can make use of both private and public networks. The solution retains the flexibility and mobility to integrate third party products and new capabilities as the security and surveillance needs of the city change.

Every aspect of the Safe Cities solution is handled by Cobham, including integration, installation, support and maintenance, ensuring a consistent level of quality and expertise across the entire solution.

Modular options

- **IP Mesh** - private, bidirectional network carrying information securely to command and control locations.
- **Audio** - advanced covert equipment for close range tactical surveillance and recording.
- **Video** - rapidly deployable range of COFDM transmitters and receivers sharing video over very long ranges.
- **Cellular** - mobile communications identification, monitoring intercept and integrated geo-location solutions.
- **Tagging, Tracking and Locating** - tracking the smallest tags at the longest ranges, both GPS and non-GPS, on a single platform.
- **Cameras and Sensors** - electro-optical, infrared and PTZ imaging systems and a range of wireless trigger sensors and unattended remote ground sensors.
- **Command and Control** - seamless integration into existing control rooms or complete turnkey solutions, plus hand-held mobile devices for real-time monitoring and response.

MEDUSA II

COBHAM

Integrated Solutions

The most important thing we build is trust

Surveillance in the field

MEDUSA II has been specifically designed for persistent continuous monitoring of critical areas, providing surveillance, VIP and asset protection and security. Simple to configure and operate, secure and designed for tough environments, it uses a range of Unattended Ground Sensors to monitor and protect crucial assets and areas. To save power, Sensors remain in sleep mode until activated either by an event or by a bi-directional signal from one of the Command Nodes. They can then notify Trigger Nuggets to start covert combined electro-optical and thermal image cameras recording.

These Trigger Nuggets can simultaneously record and use the IP Mesh network to stream video to the Static and Mobile Command Nodes.

Self-healing and self-forming, the IP Mesh offers excellent non line of sight and line of sight communications, with extremely low latency encrypted transmission of video data.

This eliminates the need to deploy relays in most range conditions, using less equipment and increasing the speed of deployment and retrieval. This speed, together with system reliability and ease of configuration, means fewer security personnel are needed, with subsequent reduction in risk.

Mobile Node

Following intelligence about a disused warehouse being a meeting place for potential terrorists, nodes and sensors have been deployed around it for monitoring purposes. Because they are outside the Mesh, a plain clothes officer with a handheld tablet parks up nearby to download stored content on recent activities in the area and take it back to HQ to analyse. Mobile nodes have the same command and control abilities as a Static Node.

Features

- Based on Cobham proprietary, self-forming, self-healing IP Mesh technology
- Limited use of battery power makes it ideal for persistent surveillance
- Single or multiple Unattended Ground Sensors can be deployed
- Primary or secondary sensor nodes are triggered to survey critical areas
- Designed to handle a range of environments
- Secure, simple to operate, easy to configure and deploy
- Able to incorporate a wide range of Cobham sensors and integrate any third party camera

MEDUSA II

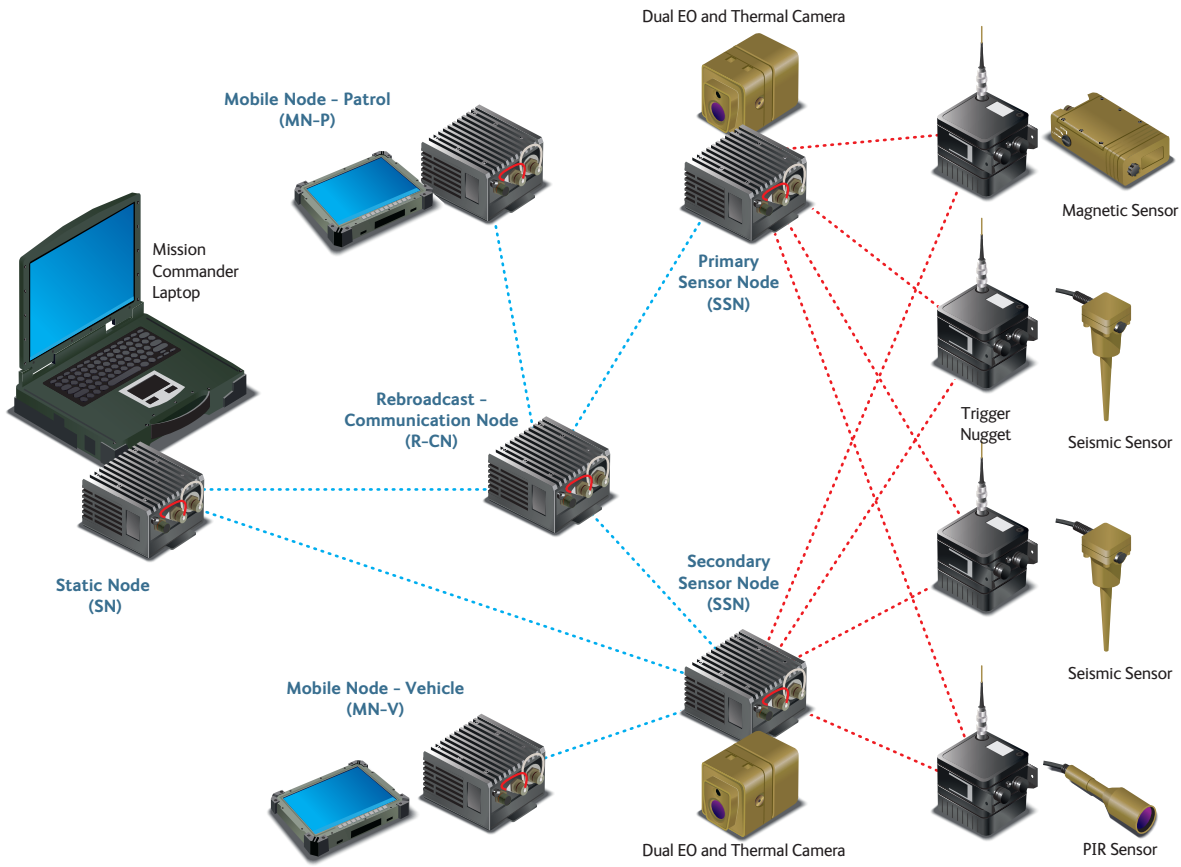
COBHAM

Integrated Solutions

The most important thing we build is trust

System Overview

MEDUSA II enables single or multiple Unattended Ground Sensors to trigger Primary or Secondary Sensor Nodes to survey the target area. The Primary Sensor Node camera solution features a lux-level switchable dual lens camera which incorporates a low lux Electro Optic camera and a thermal core for medium range coverage. The Secondary Sensor Node camera solution is scalable to suit a wide range of deployment options at shorter range. Cobham has the expertise and capacity to integrate any third party cameras in order to further enhance the solution.



For more information on our products and services please contact:

(800) 233 8639

Or visit our website at:

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