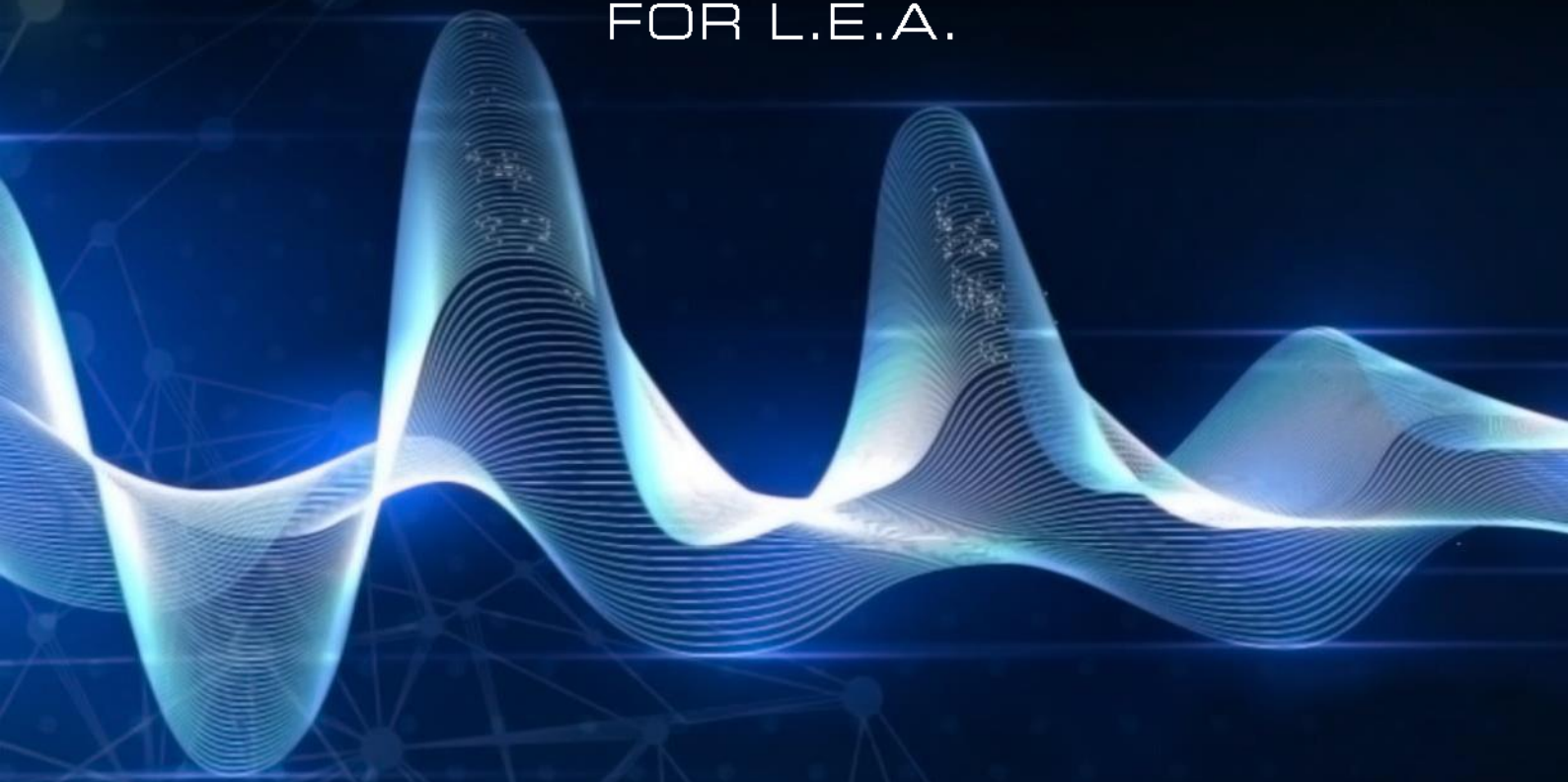
ARGUS SOT
Sicherheit- und Ortungstechnik
A company of the ARGUS Security Group

DEM SOLUTIONS

[PROFESSIONAL SYSTEMS]
FOR L.E.A.



4G/3G Store and Forward A&V

RF Audio Monitoring Systems

Wired Microphone

Recording

[COMPANY PROFILE]

DEM SOLUTIONS has been founded in 2013, by founders with 20 years of experience in the field.

Our company projects, develops and manufactures high-tech systems inside its own laboratory, using the latest available technologies in the field of microelectronics and telecommunication.

We can supply products for different solutions, based on 4G, 3G, GPS, or Radio Frequency. Moreover, we are available to develop customized products.

Our staff is composed by high skilled technicians, and a large Network of Professional dealers and resellers covering large part of the World.

Our systems can be also used with your remote servers via wireless and Ethernet connection.

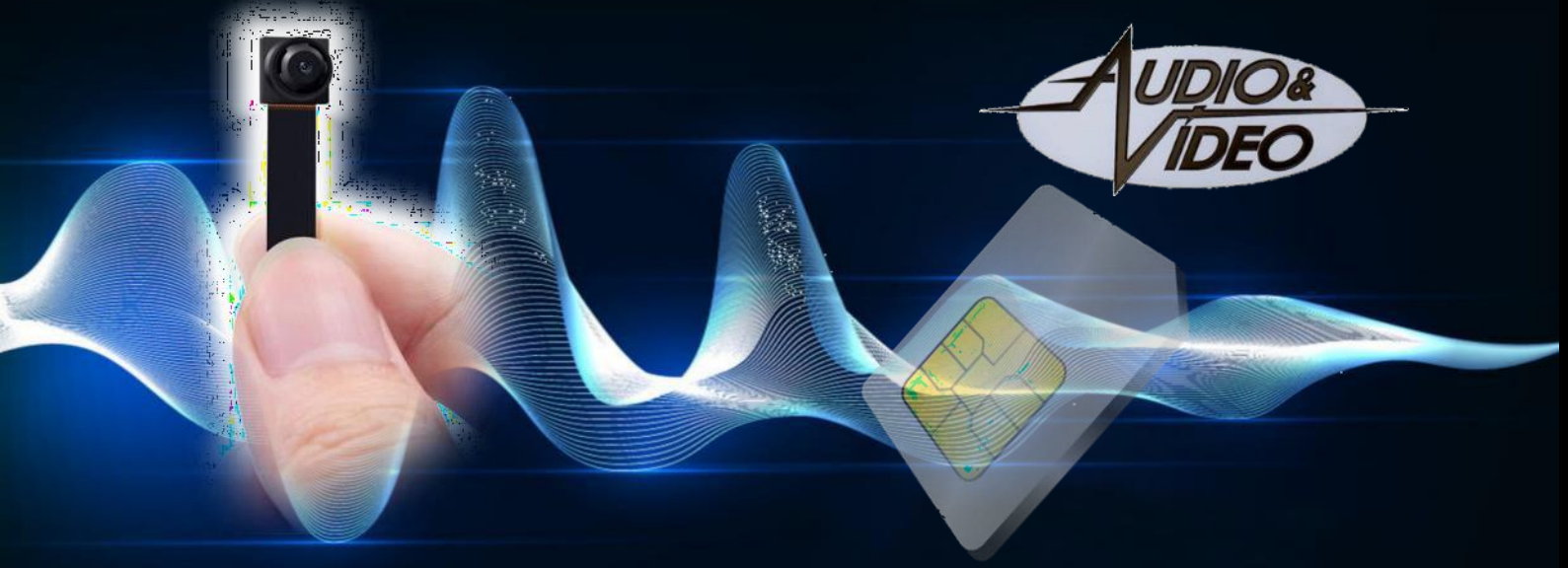
4G LTE STORE AND FORWARD

DEM SOLUTIONS

WAVE 4G

PROFESSIONAL SYSTEMS

STORE & FORWARD



AUDIO & VIDEO

5MP

Day/Night

IR

STEREO

4G LTE WIRELESS NETWORK

WiFi

GPS

[4G STORE AND FORWARD AUDIO/VIDEO/GPS "WAVE 4G"]

Over our "WAVE" 4G STORE AND FORWARD you can not only audio and video recording but also, thanks to the integrated 4G MODEM or 3G, audio and video live streaming over mobile networks.
Recorded files can be locally stored, listened in streaming and forwarded to your PC or via FTP. Data are locally stored and you can download them overnight or in a second moment, just need to have an internet connection. The download is very fast, depending on the selected modes and network speed.
Our device has an internal battery which allows a continuous use (recording and downloading) for more hours or days.
If you want to increase the battery life, you can set the internal clock and a schedule for recording. The unit, in this way, is not detectable by scanners.
Magnetic plates for fast deployment.

MICRO CAMERAS INTERCHANGEABLE

- *Standard included: 5Mpx 60° 1mt cable*
- *Flat Camera : 5Mpx - flexible cable 30 cm*
- *IR FLAT Camera: 5Mpix - flexible cable 30 cm*

WAVE 4G AUDIO & VIDEO STORE AND FORWARD

Wave4G is a Video&Audio store&forward unit, stereo, miniaturized and has been developed for covert surveillance.
This unit is able to perform video surveillance in streaming mode, as well as recording video at high resolution, thanks to interchangeable microcameras, 5Mpixel, allowing to optimise the video surveillance operations.
The audio features allow the live listening in streaming and the stereo recording at high quality, thanks to ADC 24bit with sampling rate up to 48Khz, low noise and high dynamics.
The GPS feature enables to check the position of the unit Wave4G, so to detect the unit when installed on a vehicle, and/or combine the GPS position with the video-audio surveillance document survey.
The Live streaming mode connection and the download of the files Video/Audio/GPS are possible connecting to the mobile networks 4G-LTE and 3G-UMTS, using a Micro SIM Card enabled for data traffic (SIM card not supplied).
It's possible to manage the rec quality from the live streaming quality, in order to reduce the band use, and obtaining a smooth video.
Besides, it is available the connection through Wi-Fi band 2.4Ghz, so to use the unit Wave4G on a Wi-Fi existing net and, in case, manage and relaunch live data and recording through a Ddns service, set by an own Router.

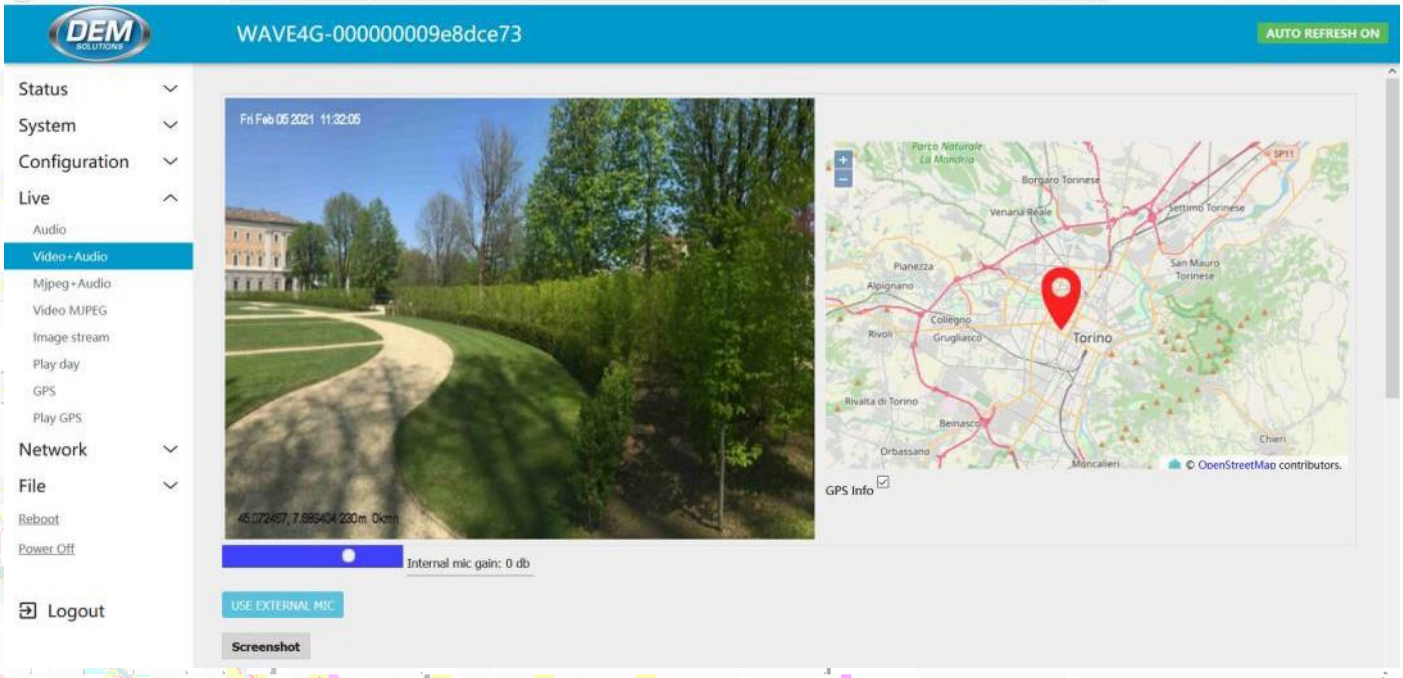
Wave4G can be powered in the following ways:

- *By an internal battery, rechargeable LI-PO 3,7 battery 2000mAH .*
- *By an external battery (SLIM) or by external source, 3-16V input for vehicle installation.*
- *By USB 5vcc, as LI-PO battery recharge*
- *If you do not have the power supply available or you need a battery of smaller size, you can connect the unit to a battery of your choice and size, thus prolonging its autonomy.*

Technical specs:

- *Dimension - 4 different versions:*
- *"SLIM" 57x63x15mm with aluminum case, external battery*
- *"CUBE" 57x63x31mm with aluminum case, internal battery*
- *"PLANAR" 76X63X23mm with aluminum case, internal battery*
- *"HEAT SHRINK" 53x59x8mm in black Heat Shrink enclosure, without battery*
- *Enrcryption AES -128, or "data scramble" proprietary.*
- *Consumption Battery Life: Although they can vary from version and configuration, on average the consumption is as follows: with all services on, including GPS, recording and streaming consumption is about 500mA. During the audio registration phase the consumption is 150mA.*
- *Audio and Video recording on internal memory up to 128GB - up to 48 KHz audio and video res. 5MPixel 2560x1960 in rec mode and snapshot, sample: 60 hours at Full HD 1920x1080 @20 fps.*
- *Live Stream video high quality Mpeg4 H264 1280x960, 30 fps.*
- *Live Stream audio stereo AAC 48Khz, codec formats supported: Wav /OggVorbis / OPUS /Mp3.*
- *RTSP audio/video for latency less than 1,5 sec.*
- *Motion sensor for video*
- *Web Server Interface to set, manage, and audio&video live streaming of the unit Wave4G.*
- *IPSEC protocol and/or OpenVPN*
- *Data connection through 4G/LTE network, with transfer speed up to 50Mbps (cat4) on remote server with static IP**
- *Wi-Fi, to manage live audio & video and file transfer.*
- *Bluetooth allows the connection to a Bluetooth microphone.*
- *Setting also through SMS for remote and HW reset.*
- *GNSS/GPS with tracking position through satellites GPS, Galileo and Glonass.*
- *Download of the recording through server FPT*
- *Storing capability: internal memory 128Gb, expandible with external USB Mass Storage up TERA.*

WAVE 4G WEBSERVER



The environmental video and audio monitoring, as well as system management, are possible by remotely thanks to the interactive application accessible via webserver, every where you are through a secure IP connection.

The connection is encrypted and takes place directly by connecting the system to your server with fixed IP installed at your headquarters. Through the webserver application you can manage all settings of the device, see the streaming, the GPS, the audio, record, download the tracks, set a schedule in order to program the system according to your needs and more features.

The Wave 4G as a relaunch for our Radio Frequency System

WAVE4G can be used to record and relaunch the audio signal of our RF products allowing the listening and downloading directly from your site. Most of these functions are also possible via SMS commands from your mobile phone.

NEW MAIN FEATURES

- RTSP live audio video multiflux stream
- 1,5 sec . latency
- optimized live audio/video preview from 25Kbit/s to 500Kbit/s
- video motion detection
- download file speed improved

DEM SOLUTIONS

SURVEILLANCE SYSTEM

WAVE 4G AUDIO

PROFESSIONAL STORE & FORWARD

GPS

48 KHz STEREO

WiFi

"WAVE 4G AUDIO" is a audio surveillance system based on 4G technology equipped with audio recording functions and live audio streaming via mobile phone IP network.

"Live streaming" audio allows the listening in real-time through a remote connection, that can be reproduced in real time at the local listening location.

The data connection is made via 4G network to a remote server installed at the management center directly in the police headquarters, where is present a fixed public IP, reachable from anywhere.

The Wave 4G S&F device is managed via a **Web Server** software contained in the device.

The information is displayed via WEB pages in HTML format, using a common display browser via multimedia devices connected to the remote server.

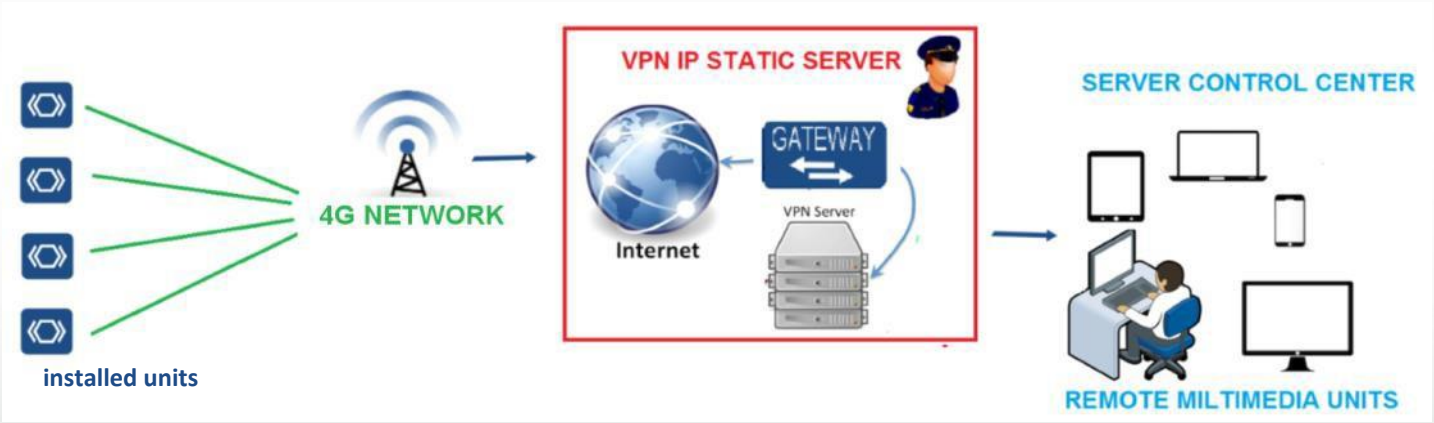
To ensure the security of the data connection, this system uses a Gateway to create a private encrypted data network using the public Internet network.

It allows hosts to authenticate with each other via shared private keys, digital certificates or user credentials / passwords.

OPTIONAL

EXTERNAL STEREO

MICROPHONE



Technical specs:

- EXTERNAL CONNECTIONS: 4G/3G—BLUETOOTH — WI-FI — GPS
- Live Stream audio stereo AAC 48Khz, codec formats supported recording mode: AAC/FLAC/MP3
- Storing capability: internal memory 128Gb, expandable with external USB Mass Storage up Tera*
- Encryption AES-128
- Connection direct to static IP direct to Police headquarter Server via Open VPN or IPSEC data encrypted tunnelling
- Web Server Interface to set, manage and audio live streaming of the unit
- Data connection through 4G/LTE Global band network, with transfer speed up to 50Mbps (LTE-CAT4) on remote server with static IP installed in customer headquarter.
- RTSP audio for latency less than 1,5 sec.
- VOX audio graphic setting with threshold and send possibility to SMS alarm if the audio captured is up to the select level
- Voice call directly to the phone number placed in the unit; in this case the call is protected via DTMF
- Wi-Fi 2.4Ghz, to manage live audio and file transfer
- GNSS/GPS with tracking position through satellites GPS, Galileo and Glonass.
- Internal stereo Microphone high sensitivity
- Optional external stereo microphone cable cord, water-proof version available
- Setting also through function and program via SMS and remote and HW reset.
- Accelerometer sensor with alarm via SMS *
- GPS area alarm inside and outside *
- Download of the recording through server FTP *
- Wi-Fi embedded, to manage live audio & video and file transfer
- Bluetooth embedded, for connecting external wireless microphone *
- Play Day function for streaming the recording file directly in the screen, select the time and data and see the video record file on demand *
- GPS Play data historic tracking in the section with multimedia preview stored in the GPS track
- Battery low level alarm vis SMS and automatic Power OFF for preserving the file in safe mode
- Ethernet LAN Port optional to connect to network 10/100Mbps
- Car DC/DC 12V to 5V adapter optional for car use installation, is available the power cord
- Consumption Battery Life: although they can vary from version and configuration, on average the consumption is as follows: with all services on, including GPS, recording and streaming consumption is about 500mA. During the registration phase the consumption is 200mA

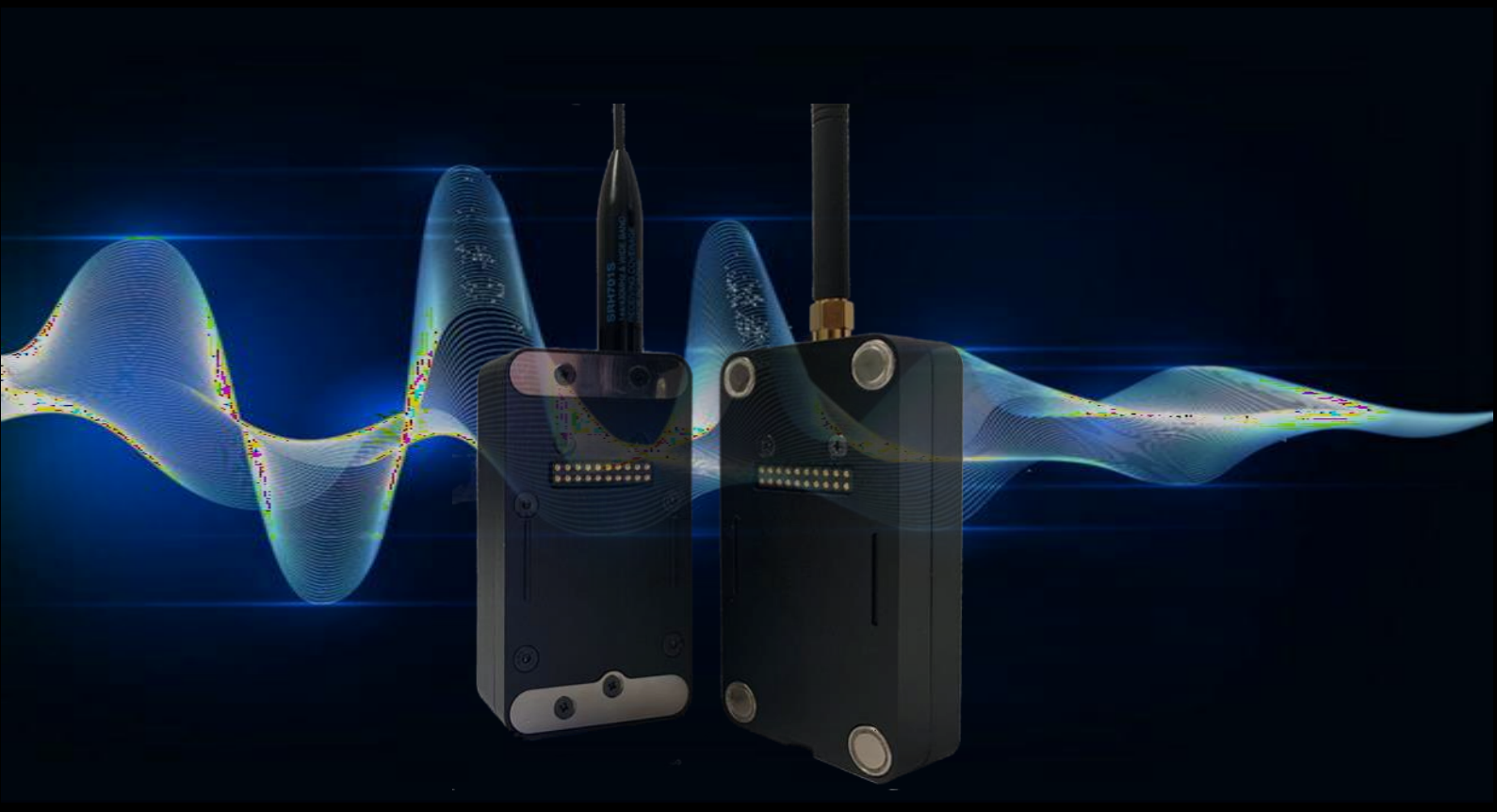
NOTE: *Software Function is Under development, the functions marked with an asterisk will be made available free of charge with subsequent software updates.

DEM SOLUTIONS

SURVEILLANCE SYSTEM

CONNECT 4G AUDIO

PROFESSIONAL STORE & FORWARD



"CONNECT 4G AUDIO "is a audio surveillance system based on 4G technology equipped with audio recording functions and live audio streaming via mobile phone IP network.

"Live streaming" audio allows the listening in real-time through a remote connection, that can be reproduced in real time at the local listening location.

The data connection is made via 4G network to a remote server installed at the management center directly in the police headquarters, where is present a fixed public IP, reachable from anywhere.

The Wave 4G S&F device is managed via a Web Server software contained in the device.

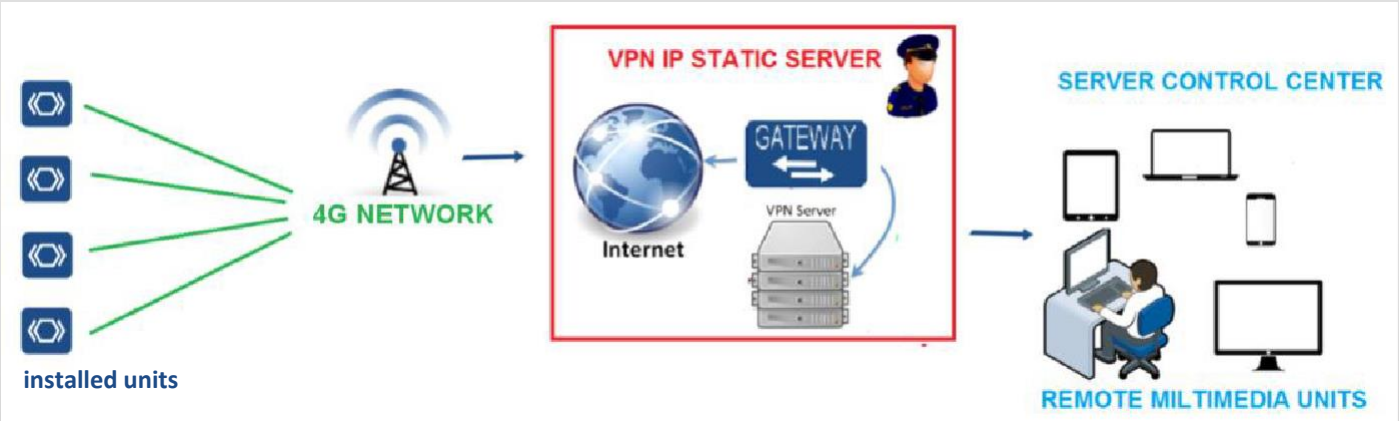
The information is displayed via WEB pages in HTML format, using a common display browser via multimedia devices connected to the remote server.

To ensure the security of the data connection, this system uses a Gateway to create a private encrypted data network using the public Internet network.

It allows hosts to authenticate with each other via shared private keys, digital certificates or user credentials / passwords. The numbers of the units managed can be, in theory, unlimited.

The connection to the units can be made also by Wi-fi.

The system is crypto AES128 or data scramble.



"CONNECT 4G" **is a special version of "Wave 4G Audio", allowing the connection beetween two different technologies, infacts** can be used stand alone or also to store and forward the audio signal sent by our other audio systems, for example the Puma Plus RF, system based on radio frequency.

The connection is made through a contact connector not needing the use of cables. The anchoring between the two systems is guaranteed by a magnetic system.

With this solutions we can totally manage the RF product, record and relaunch, or download the track or listen in streaming, directly from station, without problem of distance.

DEM SOLUTIONS

[DIGITAL SPREAD]

Our Digital Spread system is based on a new advanced technology, spread spectrum. Thanks to this advanced technique, we have achieved some important targets:

- *Ultra – low power consumption, less than 8mA@200mW RF for several weeks of continuous listening, powered by battery*
- *the TX case does not release heat*
- *large spectrum on spectrum analyser*
- *due to the low power consumption and the low heat release it is the best option to make concealments*

Digital Spread system is composed by one Receiver which can manage up to 4 Transmitters. Some transmitters like DS-ALL version have a built-in trigger for remote control, therefore you can easily manage the Bug from considerable distance. Normally, the covered range is 200-300 meters (200mW version of TX) and up to 500 meters in urban context for the 800mW version of Transmitter.
With the new 3.7V TX we have doubled battery life, the battery size is half size than before, we ensure 0.075W power consumption with an RF Output Power of 200mW. The heat release is even lower than for other models @200mW and there is a back-up rechargeable battery in case of black out when connected to mains power. The transmitter has the integrated charger for the back-up battery.
We also provide special miniaturized AC/DC noiseless Power Supplies. The system can be integrated with 4G WAVE Audio-Video

[DIGITAL SPREAD]

TECHNICAL FEATURES

The ultra low consumption, the essential features of the Digital Spread transmitters make the system unique. This feature allows to use the Digital Spread transmitter powered by a battery, that guarantees the operation activity for several weeks of continuous RF listening.
The security and confidentiality of audio transmission are guaranteed by digital encryption modulation owned by Dem Solutions

- *The case is not releasing heat, only 1 up to 2°C more than normal environmental temperature*
- *Small, depending on the model, the average size is: 32*18*5.5mm*

- *Different Transmitters available:*
  - ⇒ *200mW "ALL" from 8mA @12Vcc with built in remote controller and added function*
  - ⇒ *200mW, consumption from 8mA @ 12Vcc (can be used with optional remote controller)*
  - ⇒ *200mW, 3.7 Volt from 20mA ,back-up Li-Po rechargeable battery and built in microphone capsule option (can be used with optional remote controller)*
  - ⇒ *800mW from 20mA @12Vcc (can be used with optional remote controller)*

- *With optional ACT868 we can manage the transmitter and add the function VOX, MIC GAIN and Power on/off. The TX200 "All" version have ACT868 built in.*
- *They can be connected to our Store and Forward Device and also to external Digital Encrypted AES128 recorders.*

[DIGITAL SPREAD]

SPECIAL SOLUTIONS

Since we are developing our solutions not only for our customers but together with them, we got some ideas from the field and we have achieved our target to be able to provide some special and advanced solutions.

Several time special forces produces their own concealed devices, but sometimes - due to the lack of time - they may need a quick and professional support. There we are.

[LIGHT BULB]

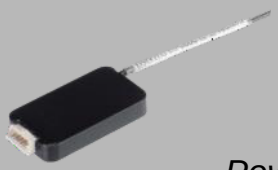
- *Based on Digital Spread ultra Low Power consumption system*
- *Light Bulb: 50 hours autonomy in continuous listening. When the light is switched off, it recharges again due to the built-in rechargeable battery. In case the light is switched off, this does not affect the Light Bulb self, this keeps on working.*
- *With Built-in 200mW DS-ALL Transmitter and RF remote controller, and can be remotely managed via Digital Spread Receiver, and can cover a range of around 200meter (depending on RF Environment)*

[EASY CASE]

- *Based on Digital Spread ultra Low Power consumption system 30 or 50 hours autonomy in continuous listening (depending on the TX version)*
- *The Easy Case is small (like a cigarette pack), easy to use and it is conceived for an immediate deployment. It can be remotely managed or not, depending on the internal Transmitter (200mW ALL or others), it can cover a range of 200 up to 500meters (depending on RF Environment)*
- *You can easily recharge it in your car, thanks to the special battery charger.*

"DIGITAL SPREAD" IS REALLY LOW CONSUMPTION? SOME SAMPLE...

TESTED IN NORMAL QUALITY MODE



65Hrs or >2 Days

Digital Spread 200mW 12V

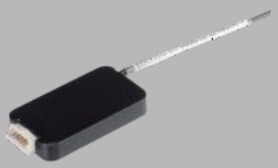
Powered by 9V 500mA Alkaline batt @ 9Vcc.

150Hrs or >6 Days

Digital Spread 200mW 3,7V

Powered by 2X 1200mA LiPo batt @ 3,7Vcc.

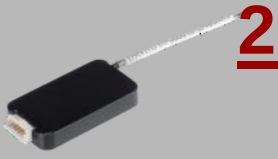
TESTED IN HIGH QUALITY MODE



850Hrs or 35 Days

Digital Spread 200mW 3,7V

Powered by only 1 Saft 17A primary batt @ 3,6Vcc.



2550Hrs or 106 Days

Digital Spread 200mW 3,7V

Powered by 3 parallel Saft 17A primary batt @ 3,6Vcc.

680Hrs or 28 Days

Digital Spread 800mW 12V

Powered by 3 series Saft 17A primary batt @ 10,8Vcc.

[PUMA PLUS]

This system is based on radio frequency, it is digital and it is based on FSK transmission protocol. Thanks to the embedded remote controller, you can remotely manage all setting and functions of the transmitter. The receiver has internal re-chargeable batteries to allow an immediate and local listening. It is also possible to remotely manage functions and setting of both receiver and transmitter, by connecting the receiver through a serial port. The PUMA PLUS SYSTEM features a high quality dynamic audio compressor which allows, together with the audio expander in the receiver, to achieve 80db of audio dynamic with a response frequency between 100 and 10KHz.
To ensure protection, all transmitted data are protected by a proprietary digital encryption key.

The Puma Plus Transmitter is equipped with an external alarm input that can be used both as a "Panic Button", with any kind of switches or with PIR sensors as a detector of a warm body moving around. In this way, you can activate the transmission only in case of People presence in the environment even without activating the VOX mode.
Different Transmitters available (100mW, 200W and 800mW version), which respectively feature 65mA, 120mA and 250mA Power Consumption.
Through an embedded RF remote control can be managed : Transmission channel, RF power from 10mW to 800mW, microphonic level gain, Vox , RF on/off.

[PUMA PLUS + CONNECT 4G]

TECHNICAL FEATURES

- *In the above photos you can see (starting from the left) our Puma Plus Receivers with Oled Display.*
- *Our cases are rugged and studied to reduce heat release.*
- *Small, compact, easy to use. Average size depends on the chosen model of TX and it is around 16x37x5mm @100/200mW and 14x19.5x7mm @800mW*

- *Different Transmitters available:*

⇒*PUMA100 Transmitter with built in remote controller, 100mW*

⇒*PUMA200 Transmitter with built in remote controller, 200mW*

⇒*PUMA800 Transmitter with built in remote controller, 800mW*

- *Can be connected to our range of special microphones.*

[REC 128 DIGITAL RECORD]

The REC 128 is a professional grade quality audio recorder designed for covert use. It has a full metal case in milled aluminum (or, on request, can be also delivered in heat shrinkable tube only), highly autonomous 120 days stand-by with 240 hours continuous recording on one charge with more than 70 days of recording.
Profiting of the latest DSP technology, it combines miniature size, very low power consumption, long battery duration and a high audio quality.
The Recorder is equipped with a very high sensitive microphone with a wide dynamic range, able to record conversations under a long distance, up to 10 meters. All stored recorded tracks can be found on the micro SDHC card and can be managed through the included software.
The software provides fast overview of each recorded track with basic editing functions. Including the search of active sounds only. This is an important feature for long recording. To protect stored data, it is possible to set the password-protected access to all recorded files. Inside the recorder there is a real-time clock to enable to start recording in any specific period of the day or on a fixed date. All recorded tracks are impressed with time stamp, providing great option when you must search in long length recordings.

[REC128 DIGITAL RECORD]

TECHNICAL FEATURES

- *Digital Recorder—Encryption AES128 or data scramble*
- *Extremely low power consumption allows great battery life.*
- *240 hours in continuous recording—great autonomy*
- *120 days autonomy in stand-by mode*
- *Sampling rate: 16/22/44KHz*
- *16 bit uncompressed , ADPCM , Ulav compressed*
- *Time stamping: date and time , Vox time and recorder serial number*
- *Software included*
- *Audio search capability through SW*
- *Exporting format WAV*
- *Removable protected SDHC Card*
- *Mic. Sensitivity: 10 meters- it allows recording from great distance*
- *VOX and Scheduled daily and week recording time*

- *Compact size:*
  - ⇒*in aluminum case, 88x50x10mm (battery included)*
  - ⇒*In heat shrinkable tube: 40*30*8.5mm (battery excluded)*
  - ⇒*If customers request, we can add a rechargeable Li-Po battery in the heat shrinkable tube.*

[SPECIAL MICROPHONES]

To complete our product range, we have selected from the market the best choices of Microphones capsules and we have developed custom solutions.

All our microphones can be interconnected to our transmitters:

SPREAD SPECTRUM AND FSK TECHNOLOGY

We offer:

[WATERPROOF MICROPHONE]

This solutions is the perfect one when you have to install the Transmitter outdoor. The capsule is granted up to 3 meters of immersion.

[HOLE MICROPHONE]

If you cannot enter a room, then the best option is to try to get audio over a hole in the wall. Our needle mic is the perfect solution.

[PS-XXV SERIES]

VERY SMALL POWER SUPPLY

Our AC/DC power supplies are miniaturized, insulated, noiseless and stabilized.
You can use them for long- time deployment to connect our transmitters to mains power.
In so doing, you'll be able to enhance the results of your operations.
You can choose among different models, depending on the required voltage.

- *PS5V200 @5Volt In110-240Vac*
  > Out 200mA - dim. 15x15x40mm
- *PS5V80 @5Volt In110-240Vac*
  > Out 80mA - dim. 15x15x25mm
- *PS12V80 @12Volt In110-240Vac*
  > Out 80mA - dim. 15x15x25mm
- *PS12V200 @12Volt In110-240Vac*
  > Out 200mA - dim. 15x15x40mm
- *PS12V500 @12Volt In110-240Vac*
  > Out 500mA - dim. 16x19x42mm

[WIRED / WIRED 4G]

FOR PSTN DEAD LINE

WIRED 4G

STEREO & IP STATIC
Store&Forward

WIRED/WIRED-REC

Wired MIC stereo system with DSP noise reduction and recorder built-in option

Wired MICs allows audio monitoring using a 2 wire line.

The Analog Wired MICs system is composed by a receiver (Wired MICs RX), a transmission line (2 wires) and 2 mic transmitters (Wired MICs TX). The 2 wire LINE can be implemented with telephonic pairs, unused LAN cables, coaxial cables, ecc. The maximum distance covered is about 5Km and depends from section of single wire and so depends from the resistance of the LINE.

The MICs transmitter is composed by:

1) A line interface that provides the right voltage to the microphone circuit.

2) A tiny PCB board that contains a mic amplifier and a limiter, in order to prevent audio distortion when the speaker is close to the microphone. The microphone is supplied with 20 cm of cable.

Technical Specifications of Microphones

PCB dimension of Mic: about 5x7x16mm, black Heat Shrink enclosure.

Microphone: with 200mm of flexible coaxial cable (grey colour).

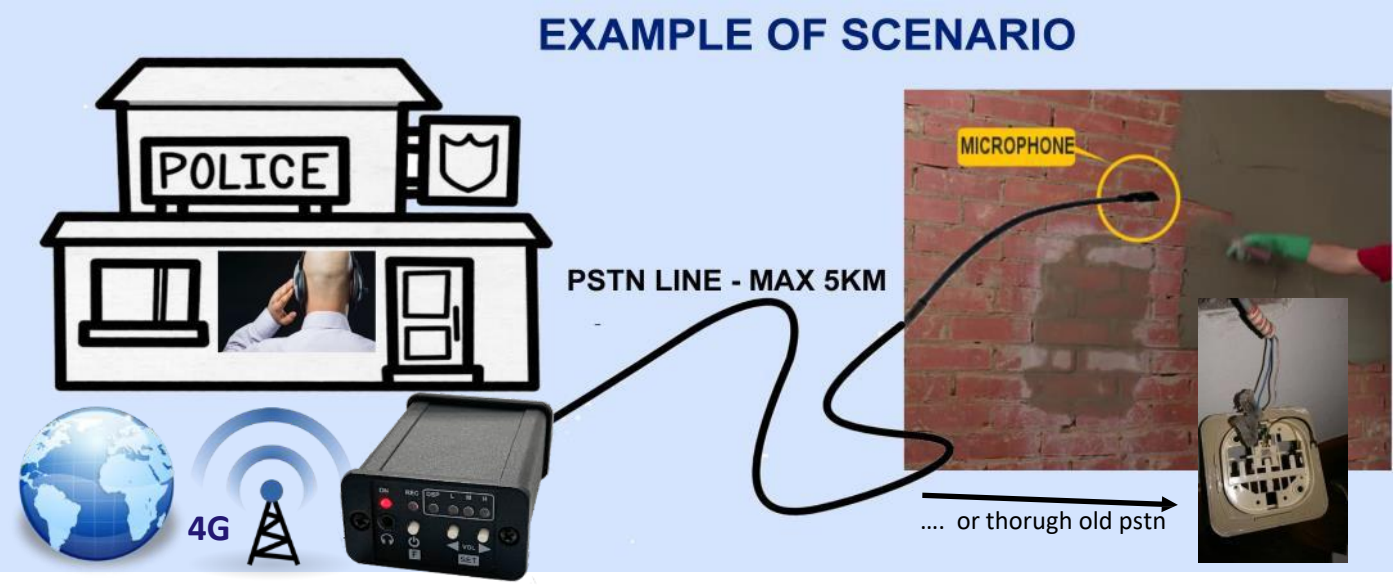
MIC characteristics: Knowles capsule with cable extension.

RELAUNCH TROUGH "4G S&F" OR RECORDER OPTION:

The audio captured by mics can be stored and forwarded through an optional 4G system. The audio signal can be also only recorded by optional internal REC128 This is a professional grade quality audio recorder.
By profiting of the latest DSP technology, it combines miniature size, very low power consumption, long battery lasting and a high audio quality.

[WIRED / WIRED 4G]

FOR PSTN DEAD LINE



Wired MICs RX

The MICs receiver is composed by:

1) A line interface that provides the right voltage/current (**32Volt, 12mA)** on the line and implements the necessary protections: the system works around a constant current line typology, so there is no risk to get accidentally dangerous short circuits!

The line interface supports up to 2 microphones.

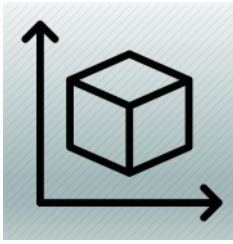
2) An audio amplifier volume control, headphones output, line-out. Thanks to constant current line typology and to high quality microphones, the noise floor is very low.

3) An optional audio Recorder with VOX feature. The audio tracks are recorded on a MicroSD memory card (up to 128GB), so the system can record up to 25hours/GB at the maximum definition.

The recorder configuration (VOX enable, threshold and timing, audio definition) can be easily set-up by a PC (through supplied USB/ cable and the supplied software interface).

4) A 7.4Volt LiPo battery inside.

5) Power supply for recharging the internal battery



- **WIRED/WIRED-REC :**
  about 90 x 60 x 30mm
- **WIRED 4G:**
  about 91 x 60 x 35mm

DSP

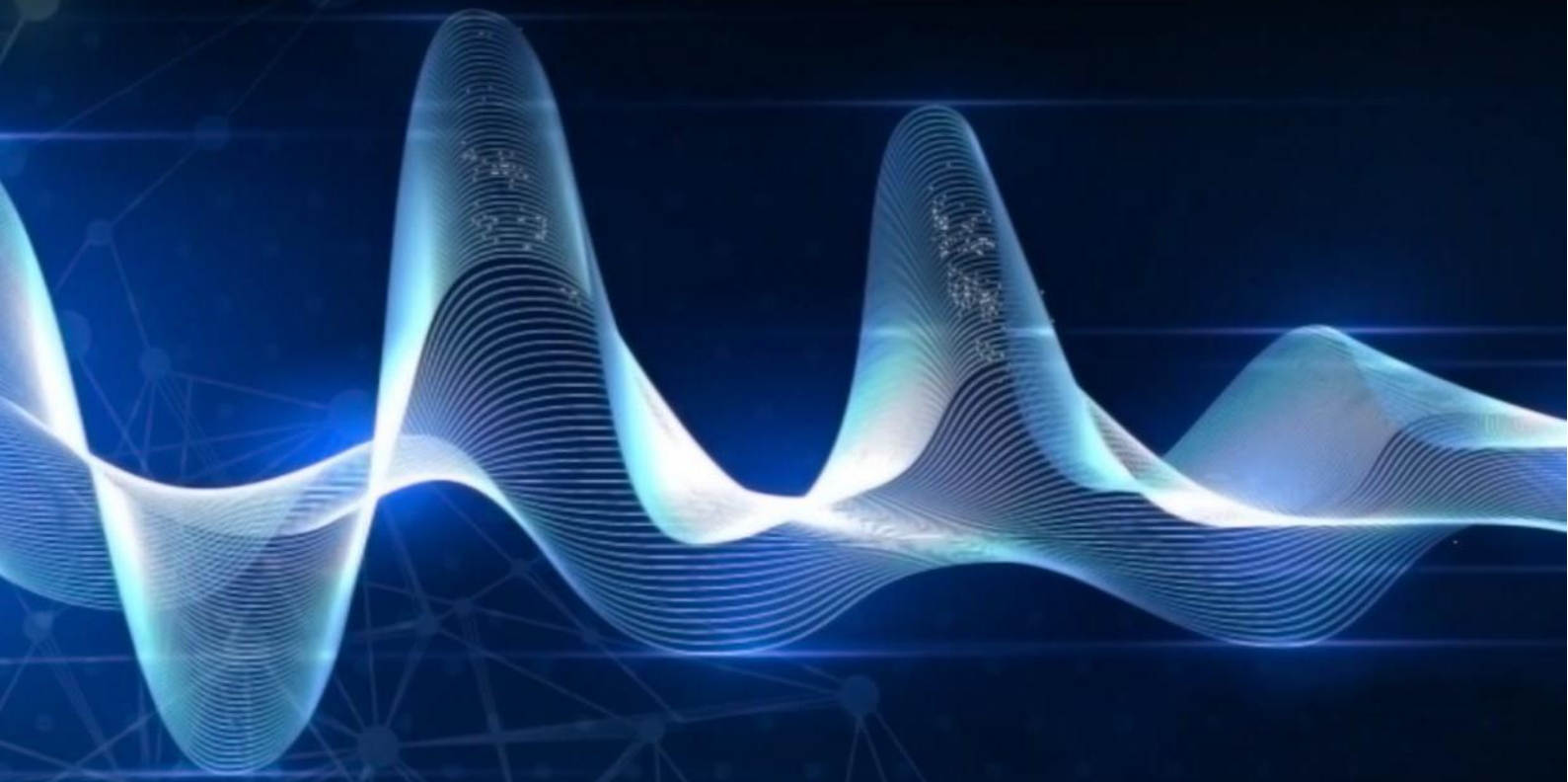
The DSP UNIT is a dual channel audio Noise Suppression module capable of handling a wide range of audio inputs and providing up to 40dB of noise suppression.

ARGUS SOT

Sicherheit- und Ortungstechnik

A company of the ARGUS Security Group

DEM SOLUTIONS



DEM SOLUTIONS S.R.L.

Turin, Italy