

GEW[®] GRJ8500

Communications electronic attack system

GEW's new-generation electronic attack and surveillance system offers superior spectrum surveillance and tactical advantage in the complex modern-day signal environment. The GEW[®] GRJ8500 is a versatile jamming system for tactical, ground-mobile, or fixed applications. Multiple transmitter bands, adaptive waveform algorithms, fast scanning and advanced jamming modes reliably counter even the most elusive target signals.

- Synchronised hopper follower jamming
- Instantaneous receiver bandwidth of 160 MHz
- Detection of low probability of intercept and burst signals
- Mobile, semi-mobile and fixed applications
- Advanced jamming algorithms
- Various jamming modes
- Signal intelligence functionality

Key advantages

- › Versatile electronic attack system for ground-mobile, tactical or fixed applications
- › High-speed processing with very low latency, for instant response to threat signals
- › Integrated direct control of power amplifiers maximizes jam/look-through ratio
- › Countermeasures against modern spread-spectrum communications
- › Advanced signal intelligence operations when not used in electronic attack role
- › Modular software with powerful, yet user-friendly interface
- › Remote command and control interfaces for tasking and performance feedback

Key technical features

- › Wide instantaneous bandwidth: up to 160 MHz
- › Receiver full frequency coverage: 20 MHz – 6 GHz
- › Frequency-hop jamming rate of up to 2 000 hops per second
- › Various jamming modes: hopper follower, responsive, broadband/barrage, frequency list
- › Expandable counter-waveform library



Advanced countermeasures for the contemporary battlefield

The GRJ8500 communication electronic attack (EA) system, with its interfaces to application-specific power amplifiers and antennas, is a powerful and versatile jamming system for ground mobile, tactical, or fixed applications. The system provides fast spectrum surveillance with multi-waveform countermeasures against the latest-generation threat signals. The system offers an intuitive graphical user interface to harness the operational advantage of the powerful hardware.

Advanced algorithms and tracking methods optimise signal output and makes it possible to use a more compact power amplifier unit, resulting in a more streamlined and overall compact system. The GRJ8500's advanced architecture simultaneously targets point-to-point radio links and new-generation multi-standard networks seamlessly. With significantly increased instantaneous bandwidth, it is now possible to detect frequency-agile threats across wider bandwidths than previous-generation EA systems.

Smart jamming

Adaptive waveform technology is used to constantly optimise the jammer's response to an ever-changing spectral environment. This smart technology enables the GRJ8500 to autonomously respond to various signal scenarios in the most effective way.

Advanced jamming modes

The GRJ8500's jamming modes provide advanced reactive algorithms to track and effectively jam a wide variety of target signals. The system employs GEW's well-known and field-proven electronic attack modes:

- › Synchronised hopper follower jamming mode, jamming at a rate of up to 2 000 hops per second
- › Responsive jamming mode
- › Broadband jamming mode
- › List jamming mode

With the GRJ8500 boasting multiple exciter output channels, a wide range of fully programmable analogue or digital waveforms are produced. The waveforms can be generated as single waveforms, in time-division multiplex (TDM) patterns, or in frequency-divisional multiplexing (FDM) to increase jamming efficiency. Each exciter features two output channels and generates signals in the frequency band from 20 MHz to 6 GHz. Sub-band waveforms are also generated to guard protected frequency bands, without having to switch between the bands.

Waveform generator (optional)

With the addition of an optional waveform generator, the GRJ8500 system generates wideband signals and networks that simulate real-world signal scenarios for jamming new-generation threats.

These waveforms effectively counter modern digital threat signals, including:

- › CDMA – code division multiple access
- › DSSS – direct-sequence spread spectrum
- › Digital radio networks
- › Cellular networks

Waveform library

A waveform library is used to store and access a database of generated waveforms, including:

- › Pre-recorded audio files
- › Counter waveforms for DSSS signals
- › Custom-generated audio files

Electronic support (ES) functionality

At the GRJ8500's core is a high-performance COMINT receiver that further extends the capabilities of the GRJ8500 to signal intelligence operations when not used in the electronic attack role. Featuring real-time signal analysis, the receiver continuously monitors the frequency spectrum for threat signals.

The receiver achieves exceptional scan speeds, effectively detecting LPI signals, such as fast-burst signals, and even the fastest frequency hoppers. With a high sensitivity and dynamic range, the fast-scanning receiver ensures reliable detection of all signals of interest.

Integrated demodulator

The GRJ8500 features an integrated demodulator. The sampled IF data is digitally down-converted and available for demodulation using the standard digital receiver interface. Digital audio streaming of the demodulated signal is provided to the operator.

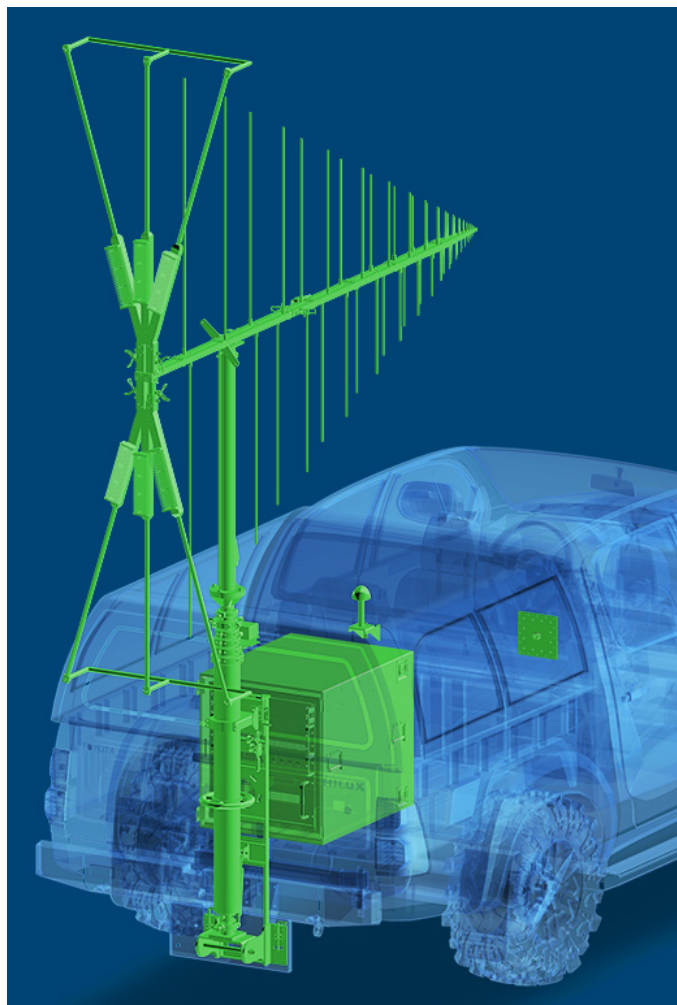
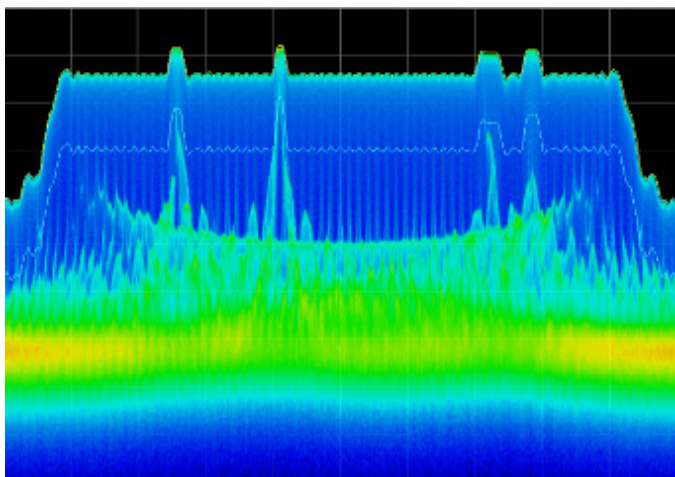
Powerful user interface

Combined with the GRJ8500 equipment and sensors, the GEW® COMJAM software suite provides the capabilities to meet any signal-jamming scenario. This field-proven system software is developed for reliable situational awareness, facilitating effective countermeasures.

With emphasis on optimised and simultaneous jamming of different signal types, the user interface offers controls and integrated workflows that allow precise jamming power and direction, visualised RF-propagation calculation and jamming-efficiency prediction. The software allows local and remote jamming tasks to be created, distributed and executed.

Flexible future

The GRJ8500 is fully software-defined, allowing new jammer waveforms to be added quickly and easily. This offers future expandability and technology upgrades, ensuring effective long-term use of the equipment.



GEW® GRJ8500

V/U/SHF electronic attack sub-system

The GEW® GRJ8500 is a versatile electronic attack system for selective jamming of communications systems in the V/U/SHF frequency range. It offers advanced jamming building-blocks for ground mobile, tactical, or fixed counter-measures. The new-generation GRJ8500 features a powerful jamming processor and synthesiser, integrated with a wideband surveillance receiver, enabling it to jam conventional and frequency-agile signals. The system offers some of the most advanced signal attack modes and algorithms on the market today:

- › Fixed-frequency responsive mode
- › Smart broadband/barrage mode
- › Time-division multiplex (TDM)
- › Frequency-divisional multiplexing (FDM)
- › Synchronised hopper follower

Synchronised hopper follower

The GRJ8500's sophisticated hopper follower algorithms

track and jam individual hops of modern fast-hopping radios. With its predictive algorithm and fast look-through capabilities, the system locks onto a hopping radio after detecting the first hops transmitted, ensuring that communications are never established.

Smart broadband/barrage

Frequency hopping or spread-spectrum signals can be characterised using the wideband receiver and the information can be used to define a smart jamming waveform matching the target signal, which is much more efficient than traditional barrage attack methods.

Spectrum surveillance

With a selection of high-performance wideband receiver-channels, as well as digital demodulation functionality, the GRJ8500 doubles as a very effective spectrum surveillance and signal monitoring sub-system, which is vital for conducting effective jamming missions.

Electronic attack specifications

Frequency range	20 MHz – 6 GHz
Typical detection/reaction latency	100 µs typical
Counter-modulation exciters	2 standard, optional up to 3, with 2 output channels each (up to 6 output channels)
Attack modes	Single, TDM (16) and FDM (in combination with additional exciters)
Power amplifier control	Flexible configurations and frequency range
Jamming modes	Synchronised hopper follower, responsive, broadband/barrage, list jamming
Frequency-hop jamming rate	Up to 2 000 hops per second

Electronic support specifications

Frequency range	20 MHz – 6 GHz
Receiver instantaneous bandwidth	Up to 160 MHz
Spectral sensitivity	≤ -110 dBm
Demodulator	Built-in demodulator
Demodulation modes	AM, CW, FM, USB, LSB, IQ

General specifications

Power requirements	DC supply, 18 V – 32 V
Size and weight	19" 7 U x 520 mm depth, < 50 kg
Operating temperature range	-10°C to +50°C

WHO WE ARE

As HENSOLDT South Africa's spectrum dominance business unit, we provide clients with premium solutions to detect and protect in contemporary defence and civil environments. On land, at sea or in the air, our **electronic warfare, spectrum monitoring and security solutions** offer tactical and strategic superiority.

HENSOLDT SA's GEW® range of products and systems are rooted in a long lineage that spans more than 50 years of innovation.



Detect and Protect

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