

ARGOS

GNSS JAMMING / SPOOFING MONITORING SYSTEM

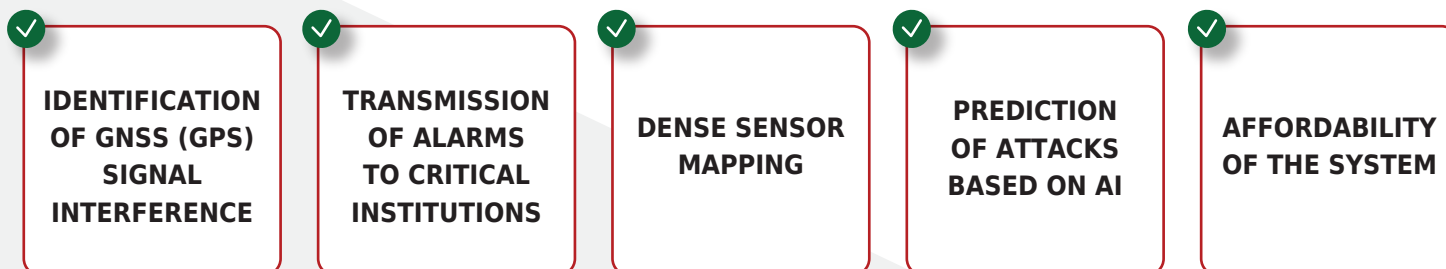
GNSS (GPS) SIGNAL
INTERFERENCE
IS A THREAT TO
NATIONAL SECURITY

LACK OF CONTROL OVER CRITICAL INFRASTRUCTURE

LACK OF CONTROL OVER THE FINANCIAL SYSTEM

LACK OF COMMUNICATION

MAIN ADVANTAGES OF THE ARGOS SYSTEM

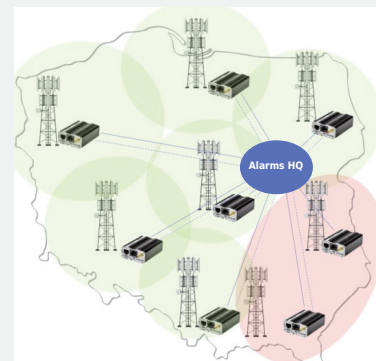
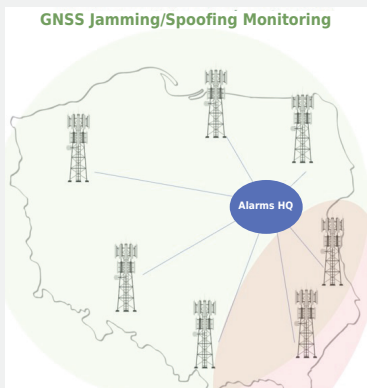
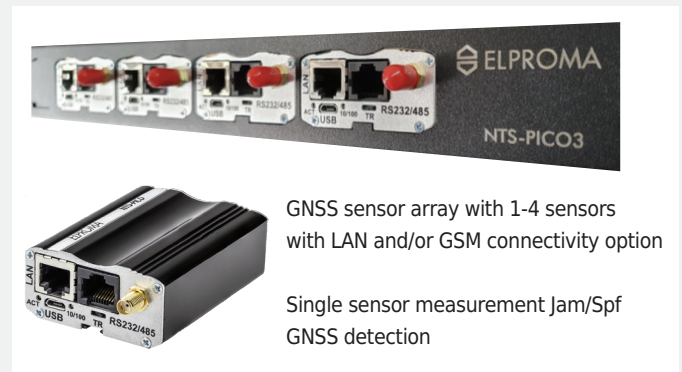
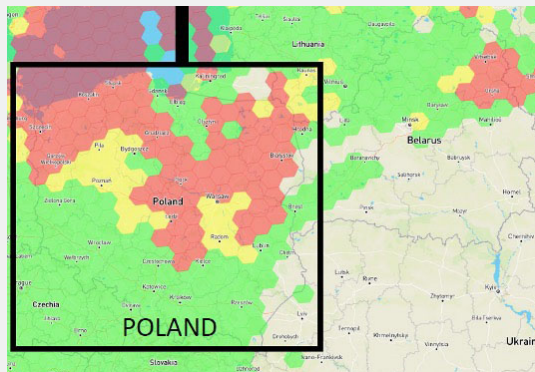


ENHANCED FUNCTIONALITY OF THE ARGOS SYSTEM

- **Recognition and monitoring of GNSS jamming and spoofing** over the national territory.
- **Alert function with notification** of the Crisis Management Centre.
- **Dense mapping** over the entire national territory.
- **Ease of integration** with any existing critical infrastructure: telco, energy, transport (Air Traffic Control, Railways), measurement points e.g. weather stations, etc.
- **Precise measurement of GNSS signals**, ie: GPS, Galileo, Glonass*, Beidou*, IRNSS*, in the "L1" and "L5" frequency bands.
- Built-in* **spectrum analyser** for GNSS signals.
- **Automatic sending of MIB2 trap class alarms** directly to OSS class systems operating critical infrastructures of the country and to Emergency Management Centres.
- Each sensor **measures and reports GNSS interference**, but is also immune to:
 - **Reflections** (meacooning multipath-mitigation GNSS),
 - **Jamming**,
 - **Spoofing**.
- It also recognises **local attacks** using mobile GPS jammers, conducted by small 2-3 person sabotage groups.
- **The open architecture** of ARGOS allows for horizontal and vertical scalability, and by incorporating AI at the DSP level allows new complex threat vectors to be identified in a hybrid model.
- System 100% designed and **manufactured by Polish company Elproma**.
- Low sensor price - more than 10x lower than solutions offered on the market.
- **System based on NTP/PTP time server sensor designed** for autonomous vehicles and robots, a proven solution, extended by a customised signal receiver.
- **Proprietary EDMS software** can integrate up to 200,000 sensors operated simultaneously.

* - on request

ARGOS - FULL SECURITY IN HYBRID CONFLICT



The ARGOS system, is a new statistical quantitative (not qualitative) approach to detecting GPS signal interference. Based on BIG DATA, collected in real time from industrial sensors ARGOS identifies interference represented numerically (binary evaluation 1 is interference; 0 is no interference). Additionally, using the AI and machine learning functions available in the cloud (ML), ARGOS can predict development trends or identify new radio attack vectors.

ARGOS is a robust modern industrial solution with effective binary interference recognition (JAM/SPF) GPS.

Recommended for the system, the ARGOS dense mapping should divide the national territory into 10x10km operational squares allowing the creation of an interference bitmap image to identify both large-scale national radio attacks and small-scale ones, i.e. those that may indicate the diversionary nature of the activities of small, local diversionary groups (e.g.: interference with local railway junctions railways). The ARGOS system is the digital approach currently favoured by NATO.

An important feature of ARGOS is that it is an industrial solution in the Operational Technology (OT) class, and therefore with features of continuous 24/7 operation, fault tolerance, reliability and operational stability. The system is based on a tried-and-tested, Polish-manufactured component of the Elproma NTS-PICO3 time synchronisation server, used in autonomous solutions (robots, cars Industry40). ARGOS is a stationary system, so it does not depend on the state of destruction of the transport infrastructure, which can be important in the event of armed conflict. Thanks to its low energy consumption, the sensors can be installed at any point (e.g. at the BTS). Based on the experience of past armed conflicts, there is no 100% destruction of the infrastructure of the telecommunications (BTS), as it is essential for warfare for all parties to the conflict. System restoration from the destruction phase can be carried out by available technical staff trained in basic radio installations.

ELPROMA IS:

- Global brand in telemetry and time systems
- Technology owner and creator of the synchronization market
- Global provider of comprehensive security systems for stabilization and time precision
- Polish engineering company since 1992
- THE WORLD'S HIGHEST QUALITY ISO 9001
- IQ-Net AUDIT (QUALITY AUSTRIA)
- NATO (CODIFICATION)
- POLISH NATIONAL MAIN OFFICE OF MEASUREMENT ATTESTATION