

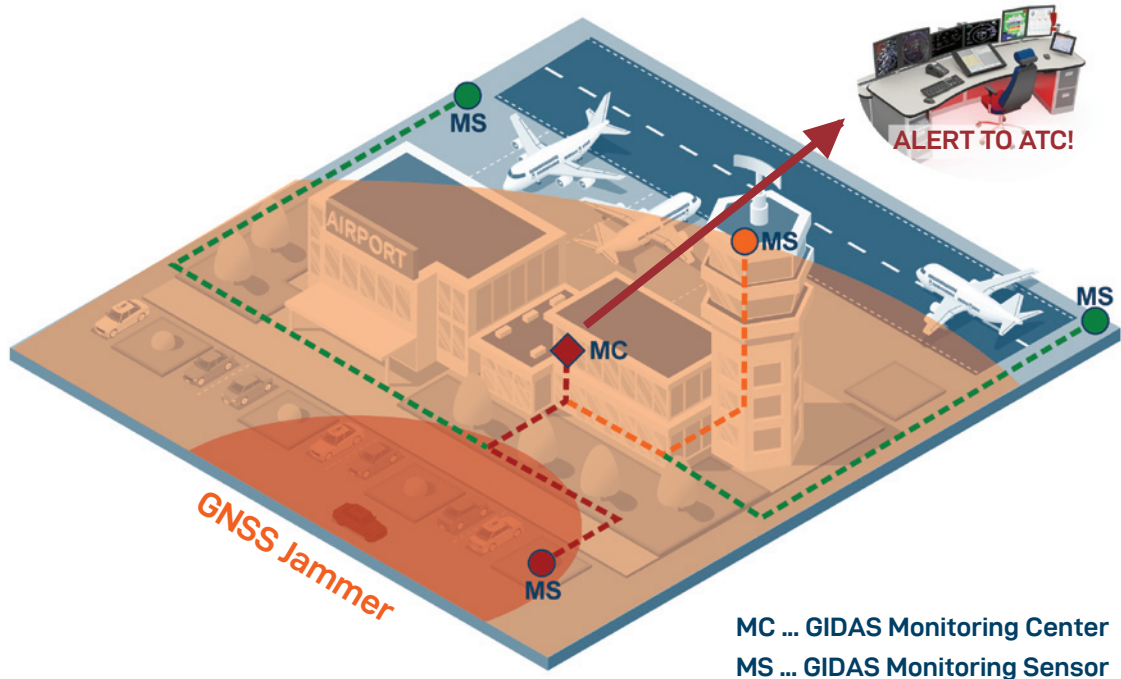


## Protect Critical Infrastructure against GNSS Interference

Global Navigation Satellite System (GNSS) positioning and timing services form the backbone of many applications and markets. Examples are navigational means to aircrafts, time synchronization of power grids, communication systems and stock exchanges, localizing accident victims or rescue units, tracking goods and vehicles. GNSS is relied on by many stakeholders. Civilian GNSS services are free of charge and globally available but insufficiently protected against unintentional and even intentional disturbances. OH B Digital Solution researches for more than 20 years on how to provide means to monitor and augment the GNSS services with GNSS quality assurance. OH B's **GNSS Interference Detection & Analysis System (GIDAS) Stationary** adds to the secureness of your critical infrastructure by making threats visible.

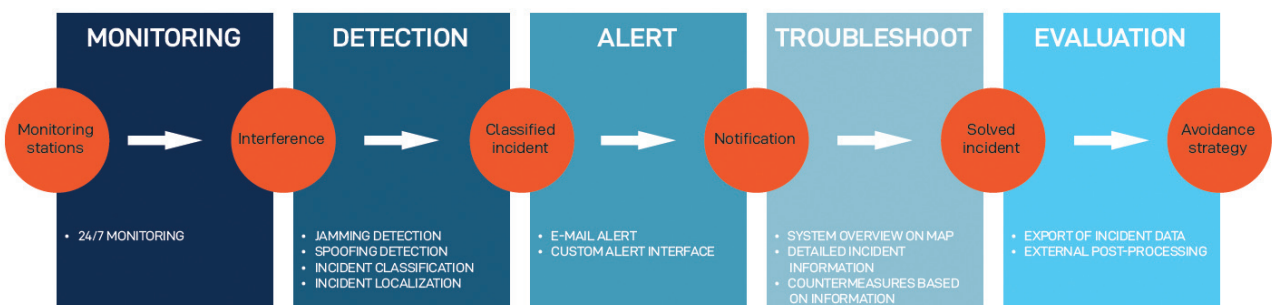
Supported GNSS signals	GPS: L1 C/A, L2C, L5 Galileo: E1B/C, E5a, E5b GLONASS: G1, G2 BeiDou: B1 SBAS and regional systems on L1 (e.g. EGNOS, QZSS)
Bandwidth	up to 61,44 MHz
Dynamic range	up to 2 x 12 bit (complex)
Interference detection	Jamming, Spoofing
Monitoring features	Real-time monitoring and interference detection Classification of interference sources Localization of interference sources Detailed analysis in post-processing
Operating modes	Stand-alone monitoring for detection and classification Network monitoring for detection, classification and localization
Outputs	Interference alert Interference detection details Interference classification details Interference localization Automatic reporting Recording of signal snapshots (incl. metadata description according to ION's GNSS SDR metadata standard) Log-Files (proprietary formats)
Standards supported	ICAO Annex 10 - International Standards and Recommended Practices ICAO Doc. 8071 - Manual on Testing of Radio Navigation Aids RTCA DO-229D - Minimum Operational Performance Standards for Global Positioning System / Wide Area Augmentation System Airborne Equipment
Alerting	via GUI, TCP/IP, email, custom alert interface (e.g., alert device for air traffic controller)
Alarm latency	< 6 seconds (avg. < 3 seconds)
Detection thresholds	User definable as well as predefined (e.g., ICAO, RTCA) threshold masks
Output update rate	1 to 10 Hz (configurable)
Detection probability	> 99 % for ICAO thresholds
Jamming classification	Classification regarding the spectral characteristics (power, pulsed / non-pulsed, type, modulation index, sweep rate, etc.)
Supported jamming signal types	Pulsed and non-pulsed Amplitude modulated (AM) Frequency modulated (FM) Continuous wave (CW) Swept continuous wave (SCW)
Time / spectrum resolution	Configurable Frequency resolution typically 1 kHz Time resolution for classification typically 10 µs
Localization	Requires at least 3 Monitoring Sensors Techniques: - Angle of Arrival (AoA) - Difference in received signal strength (DRSS) Accuracy: - Typically better than 20 m
Graphical user interface	Multi-user web client
Interface (center, sensors, GUI)	Local LAN or fiber optic network, LTE mobile network for remote stations, TCP/IP SSH encrypted
Power supply	220-230 VAC (~100 W per monitoring sensor)
Dimensions	19" 2U rackmount system for monitoring sensor 19" 2U rackmount server for monitoring center
Operating environment (Protection class: IP20)	Operating temperature: 0° C to +40° C Storage temperature: -20° C to +50° C
Connectors	2 x TNC for GNSS antennas, 1 x LAN, 1 x power
Usability	Designed for monitoring the on-site health and quality of GNSS to protect critical infrastructure against GNSS interference

OHB's **GIDAS Stationary** is a scalable real-time system to monitor the GNSS services on-premise and get alerted in the case of malfunction or performance degradation. The heart of GIDAS is formed by a multitude of jamming and spoofing detection techniques, developed in more than 20 years of research. The smart combination of different monitoring approaches makes for a robust statement of the current local integrity of the GNSS positioning and timing services. GIDAS is specifically designed for permanent installation at critical infrastructure and can detect, classify and localize a wide range of jamming and spoofing signals. Its comprehensive data analysis platform with reporting functionality allows operators to delve into interference event history, filter data with precision and generate insightful statistics.



**GIDAS Stationary:**

- Network of on-premise **GIDAS monitoring sensors**
  - Spatially distributed, on-premise GNSS sensors cover the area of interest
  - 24/7 monitoring of the local GNSS service quality and integrity
  - Bearing estimation of local interference sources and localization of the threat by Angle of Arrival (AoA) techniques
- Central **GIDAS monitoring center**
  - Local data processing without costly cloud infrastructure
  - On-premise data hosting – full control of the recorded data
  - Central data archive for post processing and analysis of interference events
  - Web-based user interface for seamless operational integration
  - Custom alert interface – depending on the operational context





## GIDAS Stationary

**GIDAS** adds to the operational safety of many different GNSS reliant applications. OHB's **GIDAS Stationary** is already operational in ports and airports, to help to secure GNSS navigation. **GIDAS Stationary** addresses private companies as well as public and governmental bodies and will be installed in security-critical infrastructures such as power grids, inland waterways, GNSS based toll enforcement gantries, and many more.

A first step of safe GNSS applications is the awareness of present threats - **GIDAS Stationary** detects, classifies, localizes and alerts if GNSS is about to be interrupted. OHB makes your GNSS-dependent application more robust and reliable.

Get in touch with us to learn how we can make your GNSS-based operations safe!

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