

GAJT-710MS

Enhanced single enclosure GPS Anti-Jam Technology (GAJT) for marine applications



Jamming and interference are constant threats

Jamming and interference, whether intentional or unintentional, can seriously degrade GNSS position, navigation and timing (PNT) availability—even to the point of total solution denial. Jammers create excessive noise, overpowering the low power GNSS signals and saturating the electronics in a GNSS receiver front end. Methods are needed to suppress this interference so your GNSS receiver continues to operate.

Enhanced functionality, same battle-proven small form factor

The GAJT-710MS is the next evolution of battle-proven anti-jam technology for marine platforms from Hexagon | NovAtel. It offers direction-finding functionality to support enhanced situational awareness and a new silent mode feature that reduces the thermal signature. It also has enhanced GNSS tracking performance. All these improvements are achieved while maintaining the same form and fit of the previous generation product.

How it works

GAJT-710MS mitigates interference by creating nulls in the antenna gain pattern in the direction of jammers, providing significant anti-jam protection even in dynamic multi-jammer scenarios. The output is a protected standard Radio Frequency (RF) signal, free from jamming and suitable for input to modern and legacy GNSS receivers.

Leading-edge technology

The commercial off-the-shelf (COTS) system uses NovAtel's seven element antenna array to receive GNSS signals in the L1 and L2 bands. Interference mitigation is achieved by applying proprietary digital null forming algorithms to the signals, creating dynamic nulls to give protection against narrowband and broadband interference sources. The unit is comprised of Radio Frequency (RF) front ends and null forming electronics. Integration to your GNSS receiver is seamless; DC power supply and data output are via separate connectors for which optional cables can be provided.

Protects GNSS navigation and precise timing receivers

GAJT-710MS protects GPS L1/L2, QZSS L1/L2, SBAS L1 and Galileo E1 signals. The wide bandwidth of the GAJT-710MS ensures future compatibility with M-Code GPS.

Benefits

- Commercial off-the-shelf (COTS)
- Low cost anti-jam protection for ships and boats
- Easy to integrate, ideal for retrofitting
- Anti-jam protection in dynamic multi-jammer scenarios
- Compatible with legacy and modern GNSS receivers, including M-Code
- Provides situational awareness
- Reduced thermal signature

Features

- Affordable protection for GNSS position, velocity and time
- Up to 55 dB of interference suppression
- Single enclosure system
- Simultaneous GPS L1/L2, QZSS L1/L2, SBAS L1 and Galileo E1 protection
- Supports M-Code on GPS L1 & L2
- Adaptive digital nulling
- Jammer direction-finding
- Silent mode capability

Performance

GNSS Signals

L1 Band 1575.42 MHz \pm 12 MHz
GPS L1, Galileo E1, QZSS L1, SBAS L1

L2 Band 1227.6 MHz \pm 12 MHz
GPS L2, QZSS L2

Interference Rejection

Simultaneous L1/E1 and L2

Interference suppression 40 dB (typical)
55 dB (max)

Number of simultaneous nulling directions 6

Capabilities

- Jammer direction-finding (Situational Awareness)
- Silent mode (for reduced thermal signature)

Controlled Reception Pattern Antenna (CRPA)

Number of elements 7
Noise figure (typical) 3 dB
LNA gain 30 dB
VSWR \leq 2.0:1
RF output 50 Ω TNC

Connectors

Power MIL-C-26482, Series 2
RF TNC (Female)
Data MIL-DTL-38999, Series 3

Physical and Electrical

Dimensions

289 mm diameter x 120 mm height

Weight 7.5 kg

Power

Power consumption 25 W
Input voltage +10 to +33 VDC

Environmental

Temperature

MIL-STD-810G(CH1), 501.6
Operating -40°C to +71°C
Storage -55°C to +85°C

Humidity MIL-STD-810G(CH1), 507.6, Proc. II

Altitude MIL-STD-810G(CH1), 500.6
Operating 3,600 m/12,000'
Storage 12,000 m/40,000'

Solar Radiation MIL-STD-810G(CH1), 505.6

Corrosion MIL-STD-810G(CH1), 509.6
MIL-STD-810G(CH1), 518.2
MIL-STD-810G(CH1), 504.2

Water MIL-STD-810G(CH1), 512.6
MIL-STD-810G(CH1), 506.6
IEC 60529 IPX6
IEC 60529 IPX7

Sand and Dust MIL-STD-810G(CH1), 510.6
IEC 60529 IP6X

Vibration MIL-STD-810G(CH1), 514.7

Shock MIL-STD-810G(CH1), 516.7

Drop IEC 60068-2-31 Ec, Proc 1, 50 cm

Compliance

FCC, ISED, CE, UKCA

Accessories

- 5 m unterminated GAJT-710 vehicle power cable (01018776)
- GAJT-710 data cable (01019845)

Export Approvals

Canadian Controlled Goods

Other GAJT Products

GAJT-710ML



- Single enclosure system for land and fixed applications
- 7-element antenna array
- Easy to integrate, ideal for retrofitting

GAJT-410ML



- Compact enclosure system for land and fixed applications
- 4-element antenna array
- Direction-finding and jammer status
- Available in Olive Drab or Desert Tan
- Also available in white (GAJT-410MS)

GAJT-AE-N



- Suitable for smaller platforms including UAVs
- Antenna electronics for 4-element antenna arrays
- Works with most 4-element antenna arrays (supplied separately)
- Available as a card-only variant (GAJT-AE-R) for space constrained platforms.

4-Element Antenna Array

A 4-element antenna array allows gain pattern shapes to be changed in response to interference. Provides 3 independent nulls.



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