

GAJT-410MS

GPS Anti-Jam Technology (GAJT) for marine vessels



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. These threats to assured PNT place your vessel, crew and cargo at risk. With unreliable PNT, your operations are interrupted, cybersecurity is threatened and you may navigate into unsafe waters.

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.

Battle-proven in smaller and lighter enclosure

The GAJT-410MS is a new design that builds on our achievements in battle-proven anti-jam technology in a smaller marine enclosure. It combines antenna array and null forming electronics into an enclosure suitable for installation on a wide range of marine vessels, including military, civilian and autonomous, as well as fixed installations in ports and harbors.

Easy to integrate

The GAJT-410MS is a low size, weight and power (SWaP) enclosure compatible with legacy and modern GPS/GNSS receivers. It is connected with a Radio Frequency (RF) cable which reduces the need for multiple cables or the need for costly platform modifications. This simplified integration is enabled by the Power Injector Data Converter (PIDC) inside the vessel, which provides clean power and data and delivers the protected GNSS signal back to the receiver. The PIDC can be supplied in an enclosure and is available to license for installation into third-party equipment.

Situation awareness

An understanding of your RF environment is critical to fully protect and assure your PNT. The GAJT-410MS PIDC provides jammer status and direction-finding for advanced situation awareness so you can identify and locate sources of jamming.

How it works

GAJT-410MS 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 of the GAJT-410MS is a protected, standard RF feed, free from jamming and suitable for input to modern and legacy GNSS receivers.

Protects GNSS navigation and precise timing receivers

GAJT-410MS protects GPS L1/L2, QZSS L1/L2, SBAS L1 and Galileo E1 signals. The wide bandwidth of GAJT ensures compatibility with M-Code GPS.

Benefits

- Commercial off-the-shelf (COTS)
- Low cost anti-jam protection designed for smaller platforms
- Easy to integrate
- High performance anti-jam protection in dynamic multi-jammer scenarios
- Compatible with legacy and modern GNSS receivers, including M-Code
- Provides situation awareness

Features

- Affordable protection for GNSS position, velocity and time
- Up to 50 dB of interference suppression
- 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

Performance

GNSS Signals

GPS L1, QZSS L1, SBAS L1	1575.42 MHz ±12 MHz
GPS L2, QZSS L2	1227.6 MHz ±12 MHz
Galileo E1	1575.42 MHz ±12 MHz

Interference Rejection

Simultaneous L1/E1 and L2

Interference suppression	40 dB (typical)
	50 dB (max)
Number of simultaneous nulling directions	3

Antenna Array

Built in 4 Element CRPA

GAJT-410 CRPA Ports

1 x SMA (50 Ω) female	RF/Data/Power
-----------------------	---------------

PIDC Ports

1 x ODU 12 pin female	Data/Power
1 x SMA (50 Ω) female	RF
1 x SMA (50 Ω) female	RF/Data/Power

Physical and Electrical

Power (system)

Power Consumption	18 W (typical)
Input Voltage	+10 to +32 VDC

GAJT-410MS CRPA

Dimensions 140 diameter × 95 mm

Weight 1.7 kg

GAJT-410MS Hardware Color Options

- White

PIDC

Dimensions 85.5 W × 85 L × 31.5 H mm

Weight 450 g



Environmental

Temperature

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 4570 m / 15,000'
Storage 12,000 m / 40,000'

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

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

Shock MIL-STD-810G(CH1), 516.7
IEC 60068-2-27 Ea

Water MIL-STD-810G(CH1), 512.6
IEC 60529 IPX9K
IEC 60529 IPX7

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

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

Electromagnetic Compatibility
MIL-STD-461G

Compliance

FCC, ISED, CE, UKCA

Accessories

- Combined data and power cable
- NATO Mount Adapter
- Pole Mount Adapter

Export Approvals

Canadian Controlled Goods

GAJT Products

GAJT-710 series



- Single enclosure system
- 7-element antenna array
- Easy to integrate, ideal for retrofitting
- **GAJT-710ML**
Land vehicles and fixed installations
- **GAJT-710MS**
Warships and other marine vessels and coastal applications

GAJT-AE-N



- Suitable for smaller platforms including UAVs
- Antenna electronics for 4-element antenna array
- Works with most 4-element antenna arrays (supplied separately)

4-Element Antenna Array

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



Contact Hexagon | NovAtel

sales.nov.ap@hexagon.com 1-800-NOVATEL (U.S. and Canada) or 403-295-4900 | China: 0086-21-68882300 | Europe: 44-1993-848-736 | SE Asia and Australia: 61-400-883-601. For the most recent details of this product: novatel.com

This document and the information contained herein are provided AS IS and without any representation or warranty of any kind. All warranties, express or implied, are hereby disclaimed, including but not limited to any warranties of merchantability, non-infringement, and fitness for a particular purpose. Nothing herein constitutes a binding obligation. The information contained herein is subject to change without notice.

GAJT and NovAtel are trademarks of Hexagon AB and/or its subsidiaries and affiliates, and/or their licensors. All other trademarks are properties of their respective owners.

© Copyright 2021 – 2023 Hexagon AB and/or its subsidiaries and affiliates. All rights reserved. A list of entities within the Hexagon Autonomy & Positioning division is available at <https://hexagon.com/company/divisions/autonomy-and-positioning>.