

OtoSphere™ – GNSS Protection

Industry's only commercial GNSS protection solution

OtoSphere™ is a small, add-on module to any GNSS-based system that protects it from GNSS jamming or spoofing attacks.

OtoSphere™ ensures continuity of autonomous navigation and timing signals and enables normal operation during jamming and spoofing conditions. No other solution that offers such protection is as small, light, affordable, easy to install or completely unregulated by export control.

Features (Rev 1.x)

- Proprietary Interference Filtering Algorithm
- Small form factor: < 70 x 48 x 24mm, 150g
- Minimal power consumption: < 0.8W (nominal)
- IP67 waterproof rating
- Automotive temperature grade compliant
- Supported constellations: GPS L1 (C/A Code)
- Latency: 100ns ± 15ns (fixed)
- Insertion loss: 6.5dB ± 2dB
- Not designed for aerial applications
- Not designed for highly dynamic platforms (< 150km/h)



How does it work?

The Vulnerability of GNSS is well known. Orbiting at 20,000km, the GNSS satellites emit a signal which is incredibly weak when received by GNSS receivers (~-125dBm). To jam or spoof this signal all one must do is overpower it. Either with a simple jammer bought online which blocks it completely or with a slightly more sophisticated HW which can trick it with erroneous data.

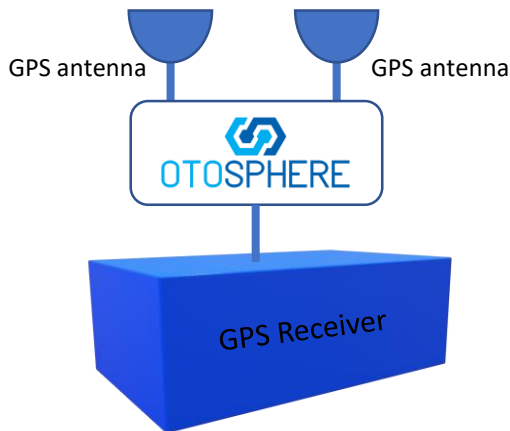
Our unique interference filtering algorithm combines the patterns from 2 omni-directional antennas. OtoSphere™ analyzes where the interference is coming from and feeds it into its algorithm which enables it to filter out the jamming / spoofing signals.

Installation Couldn't Be Easier. After mounting the 2 antennas on a flat, sky-facing base with at least 10cm separation (optimally > 25cm), connect antennas to OtoSphere™, connect it to the antenna input on your GNSS receiver, feed it with power and you're set to go.

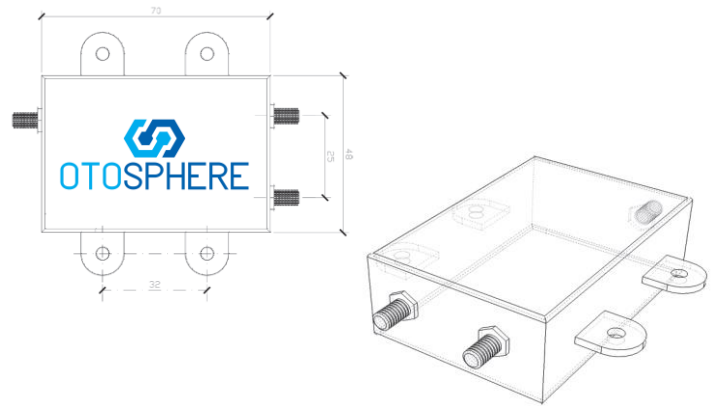
Jamming / Spoofing Detection is available from an LED on the OtoSphere™ itself or via a data output from the device which can be directly integrated into the system computer.

OtoSphere™ is Completely Standalone. OtoSphere™ is compatible with any GNSS receiver on the market and compatible with any off-the-shelf GNSS antenna. OtoSphere™ does not include the GNSS receiver or the antennas.

Operational Diagram



Product Dimensions



Physical	
Enclosure	70mm x 48 mm x 24mm (excluding mounting lugs)
Weight	150g
Mounting	4 x M3 bolts (not supplied)

Environmental	
Operating Temperature Range	-40°C to 85°C
Waterproof Rating	IP67

RF Interfaces	
Antenna Connectors (P/A)	50Ω SMA 2.75VDC designed for 26dB ±2dB gain
Receiver Connector (R)	50Ω SMA Requires *3.3VDC – 32VDC 0.75W

Performance	
Protected Signal	1575.42 MHz (GPS L1 C/A Code)
Latency	100ns ±15ns (fixed)
Compression Point	25 dBm
Insertion Loss	6.5dB ±2dB

Safety & Compliance	
R&TTE 1999/5/EC : EN60950-1, EN301 489-1, EN301 489-3, EN300 440-2	
RoHS compliant	CE Compliant (PPS Version)
WEEE registration number WEE/GK2929WW	

EPS Product Wire Connection Description	
Red Wire	3.3VDC – 32VDC
Black Wire	GND
Brown Wire	Open drain interference indication

Ordering Information

Product Name	Product Number	Description
OtoSphere v1-EPS	1018	External Power Seed (3.3VDC – 32VDC) and interference indication over 3 wire cable (2.15m length)
OtoSphere v1-PPS	1019	Phantom Power Supply (3.3VDC – 32VDC) supplied from (R) connector