

LEONARDO ELECTRONICS

GALILEO PR2C

GNSS SECURE DUAL-CONSTELLATION
RECEIVER



GNSS Secure Public Regulated service Dual Constellation receiver (PR2C) provides advanced navigational capabilities specifically designed for critical land and maritime tactical platforms involved in today's operations.

For military surface mobility, secure navigation systems are the sole ones ensuring freedom of movement while controlling the theatre.

The simultaneous access to Galileo, GPS and other constellations is definitely the fundamental asset for operations in challenged or denied environments.

The PR2C's architecture can host, through two standard GB-GRAM receiver slots, Type I/II form-factor Leonardo Galileo PRS receiver and military P(Y) Code or M-Code GPSs, with the purpose to compose a real dual military constellation solution.

In these frameworks, PR2C globally provides assured and reliable Position, Velocity and Time (A-PVT) information along with precise frequency reference signal.

The system allows the simultaneous reception of E1/E6 and L1/L2 dual-frequency Galileo and GPS signals, early enabling the access to the Galileo PRS secure navigation service that is seamlessly extended to the publicly available Galileo OS and GPS C/A Code services.

The embedded fusion engine makes use of the multi-constellation to compute the most favourable combination of received signals, improving the position estimation in difficult environmental or jammed conditions.

PR2C receiver supports augmentation navigation capabilities by interfacing embedded or external inertial IMU sensors and EGNOS satellite system.

The compact form factor and the adoption of standard interfaces makes the PR2C easily deployable into legacy vehicles, providing its straightforward adoption, and opening the path to navigation innovation.

KEY FEATURES

- 24 channel E1/E6 Galileo PRS navigation
- 12/24 channel L1/L2 GPS P(Y) / M-Code (optional)
- 12 channel Galileo Open Service (OS) navigation
- 12 channel GPS C/A navigation
- Multi-Constellation Data Fusion Engine
- Inertial Measurement Unit (IMU) improving PVT estimate
- Anti-Spoofing and Anti-Meaconing mechanisms
- Dynamic/adaptive filtering and interference mitigation
- Ionosphere/troposphere interference correction
- Multipath disturbance mitigation
- Receiver Autonomous Integrity Monitoring (RAIM)
- Standard PVT interfaces (NMEA/RINEX)
- "Unclassified when keyed"
- Beidou and Glonass constellations ready
- Full SW upgradable

TECHNICAL SPECIFICATIONS

PHYSICAL CHARACTERISTICS

Size/Volume	240 mm x 83 mm x 120 mm (W x H x D)
Weight	<3 Kg (including mounting plate)
Power	Nominal 28 VDC Conformant to MIL-STD-1275E
Temperature Storage	-40 °C to 71 °C
Operating	-40 °C to 55 °C
Humidity	<95%
Altitude	-400 m to 4650 m
Ingress Protection rating	IP67
EMI/EMC	Conformant to MIL-STD-461F
Climatic / Mechanic	Conformant to MIL-STD-810G
Mean Time Between Failure (MTBF)	GM@40°C ΔT 10°C >12000 h AIC@40°C ΔT 10°C >13000 h NS@40°C ΔT 10°C >16000 h

SYSTEM PERFORMANCE

Bands and frequencies:

- E1/L1 (Galileo OS, GPS C/A) 1559 MHz-1610 MHz
- E6 (Galileo PRS) 1215 MHz-1300 MHz
- L1/L2 (GPS P(Y) Code) optional)
- L1/L2 (GPS M-Code) optional)

Max speed (tracking)	1000 m/s
Max acceleration	100 m/s ²
Acquisition time >95% TTFF:	<90 sec (cold) <30 sec (warm) <10 sec (hot)
Coordinate system	WGS84 (Default) / GTRF

HARDWARE/CONNECTOR INTERFACES

Power connector	(1x) MIL-DTL-26482C, shell size 8 (4 pins)
Data connector	(2x) VG96912, shell size 12 (22 pins)
Antenna connector	(1x) TNC (50 Ohm)
Crypto key input connector	(1x) VG96912, shell size 10 (13 pins)
Mounting Plate	

SIGNAL INTERFACES

User

- ICD-GPS-153 and NMEA-0183 data input/output
- Three serial interfaces:
 - One RS232 (In/Out) or RS422 (Out)
 - One RS232 (In/Out) or RS422 (In/Out)
 - One RS232 (In/Out) or RS422 (Out)

- Three PPS output
- One PPS input
- One fixed reference clock (output, 10 MHz)
- One programmable reference clock
- Three PTTI / HAVEQUICK interfaces

Configuration

- One management interface (RS232)
- One Ethernet interface (10/100/1000 Base T)
- Standalone GUI application and Web Interface over Ethernet for easy configuration
- One USB 2.0 interface
- One CAN-bus interface

Antenna

PR2C provides an output voltage of 4 VDC for active external antenna current (< 50 mA) through a TNC (50 Ohm) connector

Fill Gun

Two interfaces for key-loading:

- One DS-101 (RS485), Galileo PRS
- One DS-101 (RS485/RS232) / DS-102, GPS P(Y) Code/ M-Code (optional)

Logging / Reporting Support

- NMEA 4.1 or higher
- RINEX 3.02 or higher

Unit Status

Status (Vehicle Power Good, Zeroise, Secure/Unsecure PVT) available via LEDs on unit and push buttons (Power On/Off, Reset, Zeroise)

For more information:

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