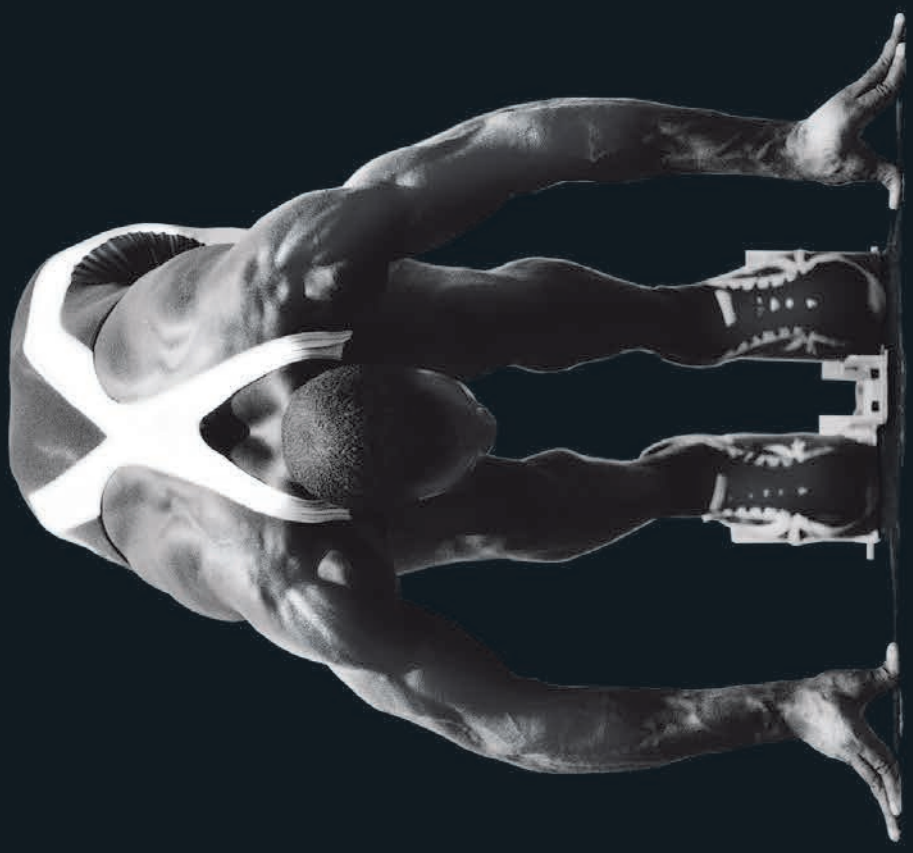
isnav
NAVIGATOR AND TIME SERVER



VEHICULAR NAVIGATOR AND TIME SERVER

The ***isnav*** vehicular navigation system is the **advanced navigation and time reference solution of GMV** for military vehicles. ***isnav*** provides data about position, speed, attitude and time in various formats in order to offer an integrated navigation and synchronization solution. The ***isnav*** system is ready to include the **PRESENCE 2 Public Regulated Service (PRS) Galileo receiver** and may integrate an **Inertial Navigation System (INS)**. The **time server** unit of ***isnav*** can be extended to provide synchronization signals in various formats such as IRG-B or HQ.

isnav has been chosen by the Spanish Ministry of Defense for the VCR 8x8 program.

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NAVIGATOR AND TIME SERVER

The ***isnav*** vehicular navigation system is the **advanced navigation and time reference solution of GMV** for military vehicles. ***isnav*** incorporates multiconstellation (GPS, Galileo and GLONASS) satellite navigation technology and is **ready to include the PRESENCE 2 Public Regulated Service Galileo receiver**. It offers compatibility with external Inertial Navigation Systems (INS) for a robust navigation in covered areas or operation theaters under satellite navigation denial (strong jamming). The multiconstellation technology, the PRS compatibility and the external INS aiding provide a **robust navigation solution** and a **spoofing immunity** in the state of the art.

isnav can also be used as the **time source for the vehicle network**. ***isnav*** implements an NTP time server for the synchronization of the vehicle systems and provides a 1PPS output paired with NMEA messages, for those equipment requiring a higher timing accuracy. If it is required to provide timing signals in alternative formats, such as IRG-B or HQ, ***isnav*** may be extended with the time module developed for GMV SENDA navigation system, to be included in the new Spanish F110 frigates. This additional time module provides a high stability oscillator to serve as a robust time reference in absecense of GNSS signals.

The **modular design** of ***isnav*** allows the adaptation to diverse external INS units, with tailored precision matching the application, and to different mission system requirements. ***isnav*** provides a standard data output based on NMEA messages and an extended proprietary binary output that allow the time, position, speed and orientation be exploited by various vehicle configurations.

Supplied data - Navigation	▪ Position: latitude, longitude and altitude ▪ Speed: horizontal, drift angle and vertical ▪ Attitude: yaw, pitch and roll
Supplied data - Timing	▪ Time: UTC and local ▪ NTP server ▪ 1PPS signal ▪ Optional: Time distribution module with IRIG-B, HQ signals and high stability oscillator for time propagation in abscense of GNSS signal
I/O ports	▪ 2 x Ethernet 10/100 I/O ▪ 1 x CAN (J1939) input ▪ 1 x RF GNSS input ▪ 1 x RF GNSS auxiliary output ▪ 1 x 1PPS output ▪ 1 x PRS key loading port ▪ 5 x Configurable discrete outputs ▪ 2 x Configurable discrete inputs ▪ 1 x PRS zeroize discrete input ▪ 1 x Maintenance port
Logic I/O interfaces	▪ Advanced data and command interface interoperable with the VCR 8x8 mission system ▪ Navigation data according to NMEA 0183 (v. 4.1) ▪ CAN odometer (J1939) ▪ NTP server
isnav-INS interface	▪ 2 x RS232 ▪ 1 x 1PPS ▪ 1 x CAN (J1939) ▪ 1 x Power supply for INS (28 V)
Power supply	▪ 28 V (MIL-STD-1275E) ▪ < 20 W (without PRS)[1]
Size and weight	▪ 258 x 177 x 99 mm ▪ < 4.5 Kg (without PRS)

Enclosure	▪ Mechanized aluminum (painted to vehicle specification) ▪ Military connectors: - MIL-DTL-38999 - MIL-STD-348
Qualification	▪ Temperature: C1 (intermediate cold) y A1 (extreme heat), AECTP-200-4 ▪ Humidity: MIL-STD-810G (M. 507.5 P. II) ▪ Fungus: MIL-STD-810G ▪ Corrosion: ISO9227:2012 (240h) ▪ Vibration: MIL-STD-810G (Ground Vehicle) ▪ Shock: MIL-STD-810G (Crash Hazard Shock Test) ▪ Rain: MIL-STD-810G (M. 506 P. III) ▪ EMI/EMC: MIL-STD-461F ▪ Bonding/Grounding: MIL-STD-464C
GNSS antenna	▪ Low profile ruggedized multiconstellation active antenna: - Direct solar radiation: A1 from MIL-STD-810G (M. 505.5 P. I) - Lightning: AECTP-250 ED CV.1

[1]*Calculated for an average INS, it could vary depending on the INS model chosen for the configuration.*