

AJNS-1M Anti-Jamming Navigation System©



Benefits

- Three independent navigation solutions: blended INS/GNSS; smoothed navigation ; GNSS only
- Low cost jammer protection for combat vehicles, main battle tanks, infantry fighting vehicles
- Ideal for retrofitting
- Provides anti-jam protection in dynamic multi jammer scenarios
- Digital interface with Battle Management System
- Three versions execution of orders: AJNS-1M-1, AJNS-1M-2, AJNS-1M-3.

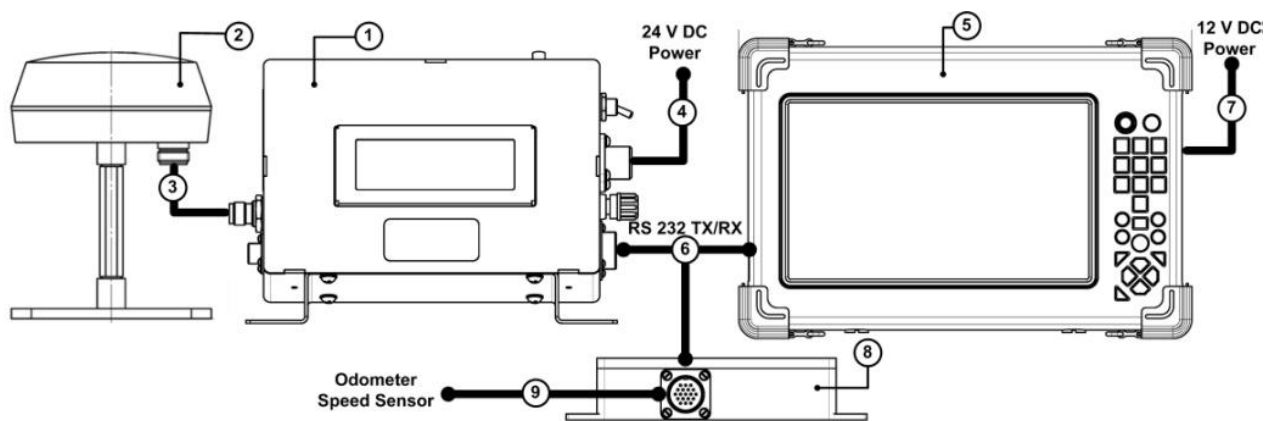
Features

- GLONASS L1/L2 + GPS L1/L2 dual satellite system calculating
- All-in-view navigation using proven, 120-channel GLONASS/GPS signal processor
- Standalone Position Accuracy < 1.5 m
- Up to 110 dB of additional anti-jamming protection
- Adaptive digital nulling

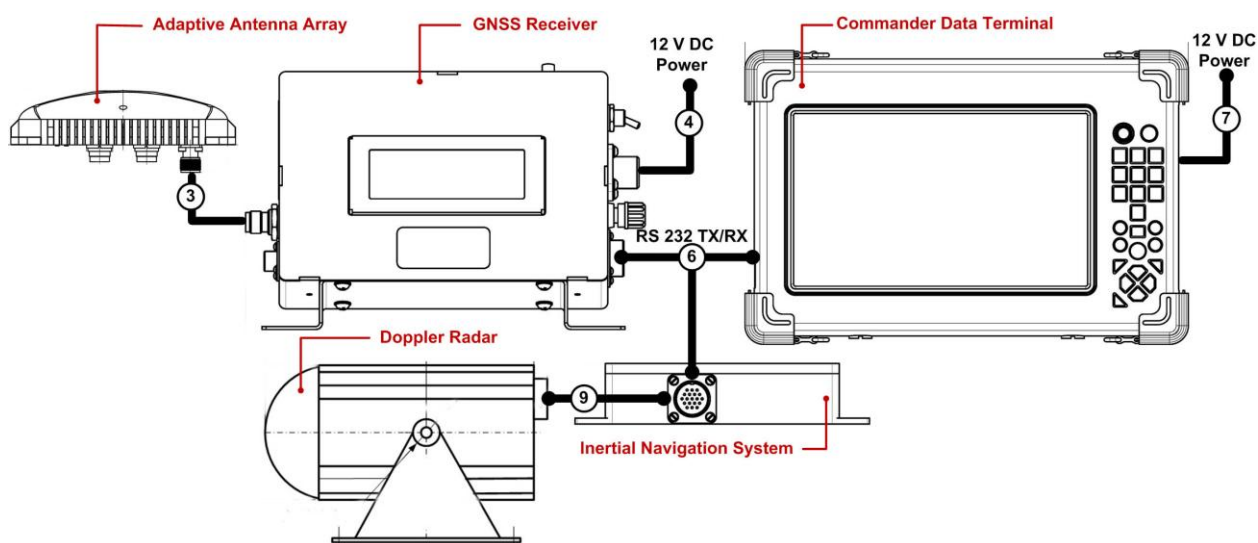
The jamming of signals and frequencies seems so farfetched, even in today's world, that many don't understand the importance of this kind of technology. GNSS (GLONASS/GPS) has become integral to the navigation and planning systems of many military and civilian devices. There exists technology today that can prevent devices from receiving GNSS signals from the satellites. In a military situation, this can mean everything, as so many vehicles are equipped with GNSS devices that will not run without receiving the signal from the GLONASS/GPS/BeiDou.

Aboard today's tactical military vehicle, infantry fighting vehicle and battle tanks seamless system integration is imperative, space is at a premium, and GLONASS/GPS/BeiDou is vulnerable to disruption by natural, friendly, and hostile jamming. Whole armies and navies could be rendered useless if the enemy uses jamming technology. It is this fear of the worst case scenario that justifiably runs up the urgency in having anti-jamming technology for military use.

The **AJNS-1M** is designed to integrate with Tactical Battlefield Management Systems such as Advanced Position Location and Reporting System. It's the perfect navigation and pointing solution for vehicle systems integrators and today's digital military. SMA PROGRESS,LLC **GNSS Anti-Jamming Technology** addresses the needs of Navigation Warfare, including Electronic Protection, Electronic Support and Electronic Attack. This equipment ensures continuous positioning even in the face of interference and jamming.



Drawing a System Diagram AJNS-M1-1



Drawing a System Diagram AJNS-M1-2

The *key elements* of the system are the **AJNS-1M** the Inertial Navigation System (INS), the Commander Data Terminal (CDT), the GNSS Receiver (DGR), the GNSS Antenna (GA), the Adaptive Antenna Array (AAA), and the Doppler Radar (DR).

The *Inertial Navigation System* (INS) includes 3 x MEMS gyroscopes and 3 x MEMS accelerometers, with an ARM7 that provides excellent system performance. The result is the unprecedented accuracy and precision necessary for urban combat.

The *Commander Data Terminal* includes central processing unit, video processor and power supply. The CDT includes Rugged Touch Display (RTD) is a rugged color liquid crystal daylight readable man-machine interface device. This RTD displays the menus required after initialization and is the readout device for vehicle navigation, attitude and driver information, as well as selected target location data.

A 4-element *Adaptive Antenna Array* allows gain pattern shapes to be changed in response to interference. Provides 3 independent nulls.

Specifications

Inertial Navigation System

Performance

Start-up Time Valid Data – 1 sec

Update Rate – 100 Hz

Position/Velocity

Position Accuracy (CEP) - 1.5 m

X,Y,Z Velocity Accuracy (RMS) - 0.4 m/s

1 PPS Accuracy - ±50 ns

Attitude

Range, Roll, Pitch (°) – ±180 , ±90

Resolution (°) – 0.1

Heading

Range (°) - ±180

Resolution (°) – 0.1

Acceleration: Input Range X,Y,Z (g) – 6

Characteristics

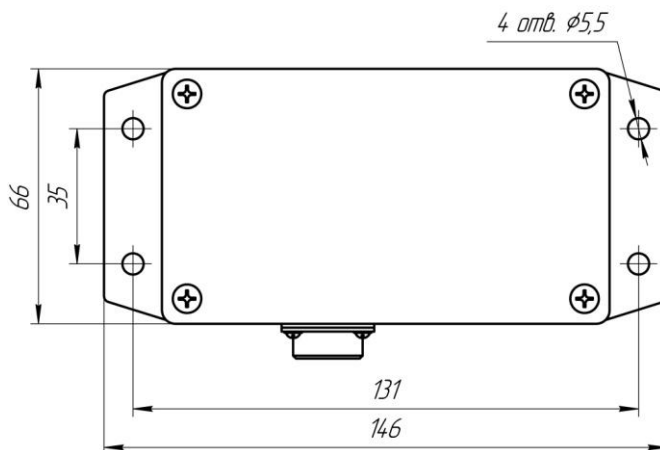
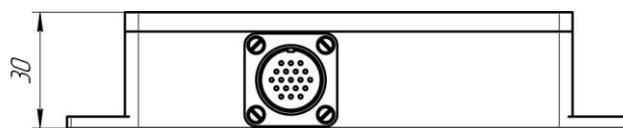
Power: MIL-STD-704E

Weight: 220 g

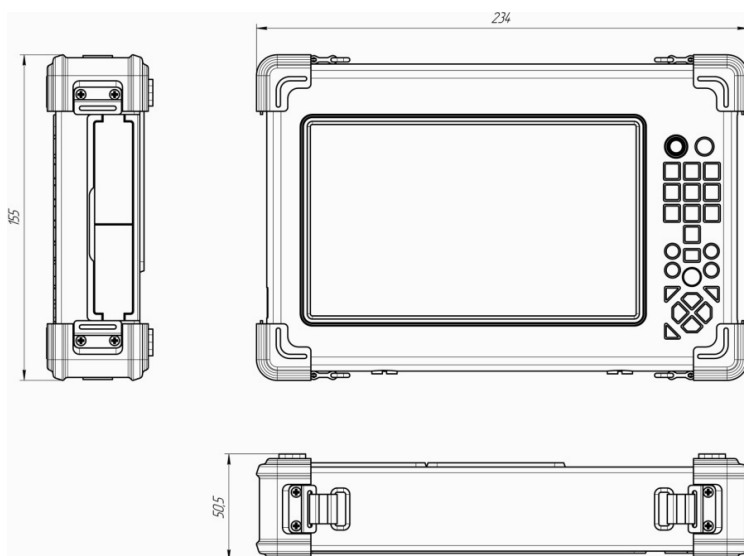
Temperature: -40° C - +85 C

Dimensions: 146 x 66 x 30 mm;

MTBF: 90,000 hours.



Inertial Navigation System



Commander Data Terminal

Commander Data Terminal

CPU: Atom Z530P 1,6 GHz

Rugged Touch Display: 7" WSVGA

HDD: mSATA

Dimensions: 234 x 155 x 50.5 mm

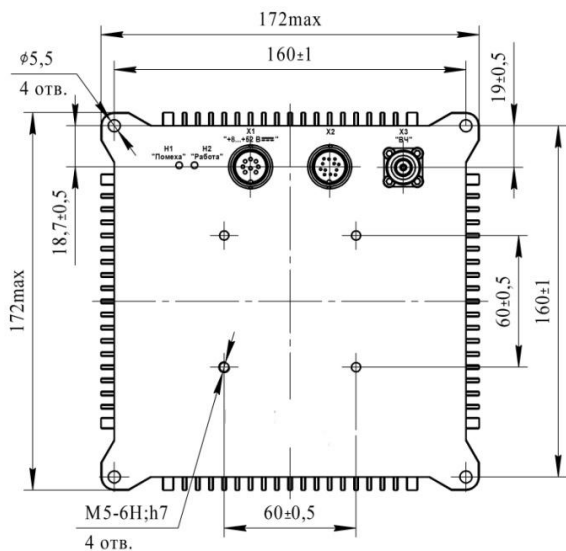
Weight : 1.2 kg

Temperature: -20° C - +85 C

MTBF: 90,000 hours

MIL STD-810G 516.6/502.5 (II)/516.6(I)

IP 65



Adaptive Antenna Arrays

Adaptive Antenna Array

GNSS Signals: GPS L1/L2 + GLONASS L1/L2
Interference Rejection: Wide band suppression 50 dB
Controlled radiation pattern antennas (CRPA): number of elements - 4
Dimensions: 172 x 172 x 43 mm
Weight : 1000 g
Temperature: -40° C - +85 C
MTBF : 90,000 hours

GNSS Antenna

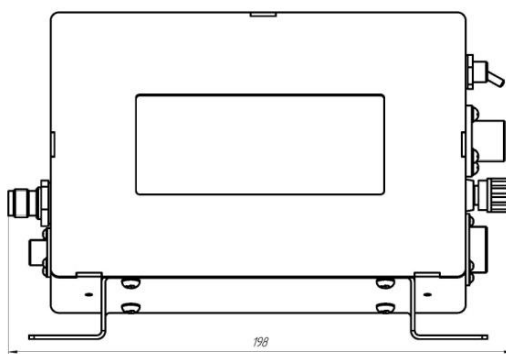
Frequency range: GLONASS L1/L2 + GPS L1/L2;
Dimensions: Ø 100 x 40 mm
Weight: 500 g
Temperature: -40° C - +85 C
MTBF: 90,000 hours

Doppler Radar

Frequency range: Ka;
Dimensions: Ø 67 x 118 mm
Weight: 520 g
Temperature: -30° C - +85 C
MTBF: 90,000 hours

GNSS Receiver

Frequency range: GLONASS L1/L2 + GPS L1/L2;
Standalone Position Accuracy: 1.5 m;
Channel: 120 GNSS tracking channels
PPS time Accuracy: 50 nanoseconds
Anti-Jam Performance*: 110 dB J/S
Interfaces: RS-232, RS-485, CAN, USB
Driver's Display: 70.4 x 20.8 mm
Dimensions: 198 x 132 x 85 mm
Weight: 1200 g
Temperature: -20° C - +85 C
MTBF: 90,000 hours
 * DGR with AAA



GNSS Receiver

For more information about AJNS-1M , please contact:

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