NAVSTAR

navstar.com

NavStar Control Box

Custom-made for dependable data management

Versatile Solution

Designed to meet diverse operational and data management needs, even in the most challenging environments.

Configurable as a GNSS Base Station, Gateway, Repeater, or Total Station Control Box, and more, ensuring a perfect fit for any monitoring setup.

Flexible Powering and Connectivity

Multiple connectivity options include LTE, Wi-Fi, and Ethernet.

Solar or A/C power options offer flexibility.

Seamless Integration with GeoExplorer

Efficient data communication with a multitude of sensor types, providing consistent performance and adaptability.

Phone: +1 604 540 1100 | Email: info@rstinstruments.com

Control Box Configurations and Components

The FLP200 acts as a gateway with a high-speed processor, facilitating communication and data transfer between the GMS rover and GeoExplorer.

The GPM300 functions as a high precision GPS base station, providing accurate positioning data.

The GNSS antenna receives signals from GNSS satellites, which are essential for the base station's operation in providing precise positioning data.

The FLL400 functions as a repeater, extending the transmission range and enhancing the reliability of data being broadcast in challenging environments.

While the NavStar Control Box can be customized to meet a wide range of needs, the following are the most commonly used configurations:

GNSS Base Station	Gateway	Total Station Control Box	Repeater
▪ FLP200 ▪ GPM300 ▪ GNSS antenna ▪ Power supply	▪ FLP200 ▪ Power supply	▪ FLP200 ▪ RJ45 to DB9 cables for serial 1 / serial 2 ports included ▪ Power supply	▪ FLL400 ▪ Power supply

For information on additional configurations not listed above, please contact NavStar support.

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Control Box Technical Specifications

Physical Specifications (weight)
5.8 to 6.8 kg (Configuration Dependent)
External Battery Enclosure Weight = 38kg

Control Box General Specifications	
Enclosure Dimensions	400mm x 352mm x 197mm
Enclosure Material	Fiberglass Reinforced Polyester
Connectors	TNC (F) for GNSS Antenna N (F) for Radio Antenna Ethernet RJ45 External Battery AC Power Solar Power Serial DB9 (Optional) Grounding Lug
Mounting	Pole and Wall
Temperature	Operating: -40°C to +60°C Storage:-40°C to +60°C
Environmental Protection	Ingress Protection (IP65)

Power Supply Options	
AC / Lead Acid Battery	AC unit option 1: Direct AC 12V 7Ah (no internal battery) AC unit option 2: 12V 100Ah External Lead Acid Battery Solar units: Charge Control with 100Ah External Battery
Solar	1 or 2 110W Solar Panels (depending on environmental conditions on project site). Please contact RST Instruments for more information. 12V 100AHR External Battery

Telemetry	
LPWAN Radio	868 MHz, 900 MHz
WiFi	802. 11
LTE	Bands 1, 2, 3, 4, 5, 8, 12, 13, 18, 19, 20, 25, 26, 28 and 39
LTE Carrier Approvals	AT&T (LTE-M), Verizon (LTE-M), Bell (LTE-M), Telus (LTE-M), PTCRB (LTE-M/ NB-IoT)
Certifications	RST Certification

Sensors	
GNSS Receiver	555
GNSS Signals Received *† Optional, requires extra license*	GPS L1 C/A, L1C, L2C, L2P, L5 GLONASS† L1 C/A, L2 C/A, L2P, L3, L5 Galileo† E1, E5 AltBOC, E5a, E5b, E6 BeiDou† B1I, B1C, B2I, B2a, B3I QZSS† L1 C/A, L1C, L2C, L5, L6
Environmental Sensors	Temperature, Input Voltage, Input Current, Runtime Metrics

Typical GNSS Measurement Performance		
	Post Processing Mode	Real-Time Kinematic Mode
Horizontal Repeatability (24 hr average)	3 mm*	8 mm*
Vertical Repeatability (24 hr average)	5 mm*	15 mm*

**The repeatability and precision of GNSS measurements at a particular location and time are affected by the number and geometric distribution of satellites in the visible sky, the effect of multipathing, unit distance from Base Station, and other factors. The measurement performance stated above assumes a typical installation with favourable topography.*

GNSS Antenna	
Signals Received	GPS L1 / L2 GLONASS L1 / L2 Galieo E1 Beidou B1
Dimensions	176 mm D x 55 mm H
Connector	TNC (F)
Mounting	5/8" Coarse Thread Mount
Phase Center Stability	< 2.0 mm

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Control Box Technical Specifications

FLP200	
Power	Nominal Voltage: 12V (DC) Input Voltage Range: 9-30V (DC) Power Consumption: 1.6 - 1.9W Switched Power Output: 3 channels
Temperature	Operating: -40 to +65°C Storage: -45 to +80°C
Ports	Firmware Update: USB-C Serial IO: 2 x RS232 Ethernet: RJ45 Bus: Full-Duplex RS485
Size	99 × 52 × 99mm
Weight	248g
Housing	Polyamide, green, inflammability class VO (UL94), Din-rail mountable
Supported Modules	SER100 (Serial Expansion) (High Precision GNSS) GPM300 (High Precision GNSS)
Other Features	Remote firmware updates available via GeoExplorer software Internal hardware power management Watchdog timer support Full GeoServer / GeoExplorer Support
Radio	900MHz (North America, Brazil, Australia) 868MHz (EU, Africa)

GPM300	
Power	Bus-powered through the FLP200 Power Consumption: 2.1W (approx.)
Temperature	Operating: -40°C to +65 °C Storage: -45°C to +80 °C
Ports	Firmware update: USB-C
Size	99 × 26 × 99mm
Weight	144 g

FLL400	
Power	Nominal Voltage: 12V (DC) Input Voltage Range: 9 - 30V (DC) Power Consumptopn: ≈1.5W
Temperature	Operating: -40 to +65°C Storage: -45 to +80°C
Ports	Firmware Update: USB-C GPIO: 1 input Bus: Full-Duplex RS485
Size	99 × 26 × 99mm
Weight	124g
Housing	Polyamide, green, inflammability class VO (UL94), Din-rail mountable
Radio	900MHz (North America, Brazil, Australia) 868MHz (EU, Africa)

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