Enclosures GPStation-6™

NEXT GENERATION, HIGH PERFORMANCE GNSS IONOSPHERIC SCINTILLATION AND TEC MONITOR (GISTM) RECEIVER ENCLOSURE WITH LOW PHASE NOISE OSCILLATOR

MODERNIZED GISTM RECEIVER TECHNOLOGY

GPStation-6 is a next-generation GNSS Ionospheric Scintillation and TEC Monitor (GISTM) receiver. The multi-frequency, multi-constellation GPStation-6 design is based on the mature GSV4004B GISTM receiver that has been used in ionospheric monitoring networks and space weather applications around the world since 2004. By combining the proven GSV4004B receiver design with NovAtel's latest 120 channel OEM628™ GNSS measurement engine, the GPStation-6 offers a future proof modernization path for existing customers and a leading edge solution for new customers in this unique application space.

FUTURE-PROOFED SCALABILITY

GPStation-6 is software upgradable in the field to provide the custom performance required for application demands. The receiver can track all present and upcoming GNSS constellations and satellite signals including GPS L1/L2/L2C/L5, SBAS L1/L5, GLONASS L1/L2, Galileo E1/E5a/E5b/AltBOC, QZSS L1/L2C/L5 and BeiDou signals and delivers high performance GNSS signal tracking together with ionospheric scintillation and TEC measurements.

GISTM FEATURES

A maximum sampling rate of 50 Hz generates high rate ionospheric scintillation measurements for each of the 120 available tracking channels. The receiver tracks and reports ionospheric scintillation and TEC measurements for all supported signal types. A 25 Hz raw signal intensity noise bandwidth and 25 Hz phase noise bandwidth ensures that all the spectral components of both amplitude and phase scintillations are measured.

CUSTOMIZABLE UTILITY SOFTWARE

The provided GPStation-6 software utilities support automated receiver configuration and control, log decoding, specialized post-processing algorithms and real-time data display. The GPStation-6 receiver software and utilities are based on the same software that the GSV4004B included, allowing for easy transition of existing work flows to the new GISTM platform.

BENEFITS

+ Measure ionospheric activity for research applications
+ Monitor localized space weather impact on GNSS
+ Familiar workflow and data for existing GSV4004B users

FEATURES

+ 50 Hz phase data and amplitude sampling
+ 120 independent tracking channels
+ Amplitude and phase scintillation indices output
+ Code TEC and Carrier TEC output
+ Customizable utility software for data collection and analysis

If you require more information about our GISTM receiver, visit www.novatel.com/products/scintillation-tec-monitor/

GPStation-6™

PERFORMANCE

Channel Configuration

120 channels

Signal Tracking

GPS	L1, L2, L2C, L5
GLONASS	L1, L2-C/A, L2P
Galileo	E1, E5a, E5b, AltBOC
BeiDou[1]	
SBAS	L1, L5
QZSS	L1, L2C, L5

Horizontal Position Accuracy

Single point L1	1.5 m
Single point L1/L2	1.2 m

Measurement Precision

Fully independent code and carrier measurements:

	GPS	GLO
L1 C/A code	4 cm	8 cm
L1 carrier phase	0.5 mm	1.0 mm
L2 P(Y) code[2]	8 cm	8 cm
L2 carrier phase[2]	1.0 mm	1.0 mm
L2C code[3]	8 cm	8 cm
L2C carrier phase[3]	1.0 mm	1.0 mm
L5 code	3 cm	–
L5 carrier phase	0.5 mm	–

Ionospheric Modeling

Phase and Amplitude Data (raw or detrended)	50 Hz

S4, σ_Φ

GPS	L1-C/A, L2C, L5
GLONASS	L1, L2
Galileo	E1, E5
SBAS	L1, L5
QZSS	L1-C/A, L2C, L5

Code TEC and Carrier TEC

GPS	L1/L2, L1/L5
GLONASS	L1/L2
Galileo	E1/E5a
SBAS	L1/L5
QZSS	L1-C/A, L2C, L5

Maximum Data Rate[6]

Measurements	50 Hz
Position	50 Hz

Time to First Fix

Cold start[4]	< 50 s
Hot start[5]	< 35 s

Signal Reacquisition

L1	< 0.5 s (typical)
L2	< 1.0 s (typical)

Time Accuracy 20 ns

PHYSICAL AND ELECTRICAL

Dimensions	233 × 154 × 71 mm
Weight	1.4 kg

Power

Input voltage	+11 to +18 VDC
Power consumption	6 W (typical)

Antenna LNA Power Output

Output voltage	+5 VDC
Maximum current	100 mA

Communication Ports

1 USB/RS-232 port
2 RS-232 serial ports capable of 9,600 to 921,600 bps
1 I/O port (PPS, Event, ERROR and Position valid)

Connectors

Power	4-pin LEMO
Antenna Input	TNC female
OSC 10 MHz output	BNC female
COM 1	DB-9 male
COM 2	DB-9 male
COM 3	DB-9 male
I/O	DB-9 female

ENVIRONMENTAL

Temperature

Operating	-20°C to +45°C
Storage	-45°C to +85°C

COMPLIANCE

FCC, CE, Industry Canada

FEATURES

- Field upgradable software
- PAC multipath mitigating technology
- Navigation output support for NMEA 0183 and detailed NovAtel ASCII and binary logs
- Auxiliary strobe signals, including a configurable PPS output for time synchronization and mark inputs
- Built-in low phase-noise 10 MHz oscillator

INCLUDED ACCESSORIES

- Serial cable (null)
- I/O cable
- Power cable
- Serial cable (straight)
- USB cable
- Utility software CD

OPTIONAL ACCESSORIES

- GPS-700 series antenna
- GNSS-750 antenna
- RF cables—5, 10 and 30 m lengths
- AC Adapter - International and North American

For the most recent details of this product:
www.novatel.com/products/scintillation-tec-monitor/gpstation-6/

novatel.com

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SE Asia and Australia 61-400-883-601

Version 5 Specifications subject to change without notice.

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1. The BeiDou signal is not finalized and changes in the signal structure may still occur. Designed for BeiDou Phase 3 compatibility
2. L2 P for GLONASS
3. L2 C/A for GLONASS
4. Typical value. No almanac or ephemerides and no approximate position or time
5. Typical value. Almanac and recent ephemerides saved and approximately position and time entered
6. Controlled by software model