The Global Leader in
Resilient **PNT**

GNSSource™-2500

Smart GPS/GNSS & Low-Noise Rubidium Reference Source

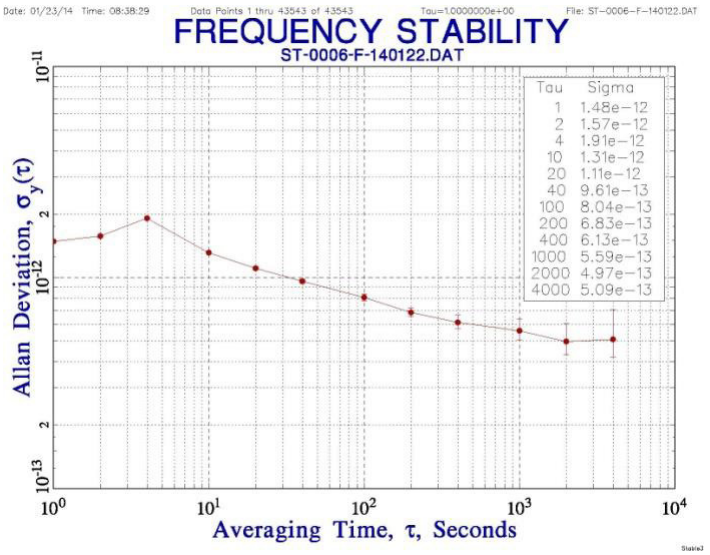
SmarTiming+® 1ns-Resolution Disciplining Technology Inside

The GNSSource is a low-cost, high-performance GPS/GNSS primary reference source. It integrates a smart, low-noise Rubidium LNRClok-1500 and a GPS/GNSS receiver. It uses the GPS/GNSS SmarTiming+® technology, disciplining the Rb LNRClok with an auto-adaptive loop time constant of 1,000 to 100,000 seconds, depending on the GPS/GNSS signal quality, at cutting-edge 1ns resolution. It's designed for cross-industry applications, where high stability and timekeeping features is a driving requirement.

KEY FEATURES

- Integrated GPS/GNSS receiver & low-noise Rb LNRClok
- Integrated GPS/GNSS disciplinable Rb LNRClok function, using SmarTiming+® technology at 1ns resolution
- Output Frequencies (8x 10MHz / 8x 1PPS or 16x 10 MHz)
- Integrated smart auto calibration
- Internal Bit Alarm
- RS232 standard interface (9600 b/s)
- Windows 7, XP software application
- GPS antenna types (patch or rooftop)
- Power supply voltage (AC input 100-240 VAC / 50-60Hz)
- Compact 1U rack mountable chassis

Typical Short Term Stability



Applications

Synchronization | Timing | Reference/Test Source | Time/Frequency Source

SPECIFICATIONS

ELECTRICAL

Spec	GNSSource-2500		
Reference module	Standard	Options	
RFOUT Frequency Number of Output	10MHz 8x backplane 1x faceplate	10.23MHz 16x backplane 1x faceplate **(ordering code: 16RF)**	
PPSOUT Functionality Number of Output	1PPS See SMARTIMING+ 8x backplane 1x faceplate	1PPS See SMARTIMING+ **(ordering code: 16RF)** 1x faceplate	
Short Term Stability 1s 10s 100s	 2E-11 6E-12 2E-12	**(ordering code: S)** 3E-12 3E-12 1E-12	
Phase Noise (dBc/Hz) (RFOUT: 10 MHz) 1Hz 10Hz 100Hz 1kHz 10kHz	 -90 -110 -135 -145 -150	**(ordering code: LN)** -100 -126 -145 -155 -155	**(ordering code: ULN)** -103 -133* -153* -155 -158
		*: subject to export control	
Aging (Measured after 3 months of continuous operation)	< 5E-11 / month (typical: 3E-11 / month)		
Frequency Retrace Off/On (In stable temperature, gravity, pressure and agnetic field conditions)	< 5E-11 24 hr / 1 hr		
RFOUT Levels Output Impedance Harmonics Spurious fO ± 100kHz (SYNTH Off)	 Sine wave, 0.5 Vrms (±10% / 50 Ω), 1x faceplate **Sine wave, 1.0 Vrms (±10% / 50 Ω), 8x backplane **(** ordering code: 16RF 16x)** 50 Ω ±20% < -25dBc < -80dBc		
GPS Antenna Connector	SMA		

SMARTIMING+® FUNCTIONALITY

Spec	GNSSource-2500
Disciplining module	Standard
PPSOUT Output level Pulse width (PW) or duty cycle	1PPS CMOS 0-5V (+- 20 mA sink/source) User settable, 0 to 1s in 133ns/step
PPSOUT to PPSREF Sync Error In Sync mode	 < 50 ns No GPS PPSRef noise, ± 1°C temp fluctuations
PPSOUT to PPSREF (DE) Programmable delay (In Track mode)	 0 to 1 s in 66 ns steps
PPSOUT Holdover Time Stability	Within ± 2°C 1 µs/24 hr
Smart Loop Time Constant Phase/Frequency User settable	Auto-adaptive 1000 to 100,000 sec User settable Sync/Track mode ** Selected by RS232 interface ** Sync: phase/time alignment; Track: frequency alignment

GPS / GNSS ANTENNA

Spec	GNSSource-2500	
	Standard	**(Option code GPS)** : using LEA-6T receiver **(Option code GNSS)**: using LEA-M8T receiver allowing Beidou , Galileo etc...
Antenna Types Lightning Surge Protector Cable Length	 Patch antenna kit Not applicable ≥5 m / 16.4'	**(ordering code: RA)** Rooftop antenna kit Included **(ordering code: CA)** 5+15m / 16.4' + 49'
Antenna mounting bracket	Not applicable	**(ordering code: BRA)**

POWER

Spec	GNSSource-2500
	Standard
Power Supply	AC input 100-240 VAC
Power Input Fluctuation	±10% of nominal supply voltage (230V~)
Input Frequency	50 – 60 HZ
Power Consumption @25°C	< 25W after warm-up
Current	1.5 – 0.65A
Connector Type	IEC plug

ENVIRONMENT

Spec	GNSSource-2500
	Standard
Operating Temperature	0 to 40°C (Relative humidity: 10-85%)
Storage	-25 to 55°C
Transportation	-25 to 70°C
Max Altitude	10'000 Ft

PHYSICAL

Spec	GNSSource-2500	
	Standard	Option
Size	445 x 300 x 44 mm (1U) / 17.52 x11.81x1.73 in.	
Weight	4 kg / 8.82 lbs	
Mounting	Tabletop feet	19" rack mountable ears **(ordering code: E)**

SYSTEM SUPPLY

Type	GNSSource-2500	
1x	GNSSource-2500	
1x	GPS patch antenna kit (with option code RA : Rooftop antenna kit)	
1x	Cables SUB-D male/female for PC serial COM	
2x	19" rack mountable ears or tabletop feet (option E)	
1x	iSyncMgr application, user manual & spec	
1x	Euro Power Cable Standard	US Power Cable (ordering code: US) China Power Cable (ordering code: CN) Swiss Power Cable (ordering code: CH) Indian Power Cable (ordering code: IN)

SOFTWARE UPGRADES

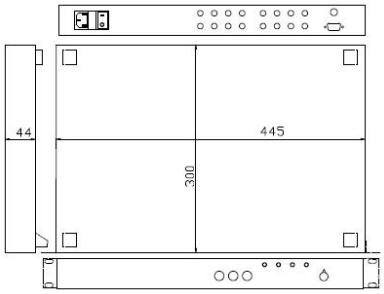
GNSSource-2500
Download the latest software upgrades at www.spectratime.com

ORDERING INSTRUCTIONS

GNSSource-2500 / XX / YY / .....

Type / Option 1 / Option 2

MECHANICAL LAYOUT



I/O INTERFACES

Back Panel

N°	Type	Definition	I/O
J1	SMA	GPS antenna connection	I
J2	SUB-D9-F	Serial communication RS232 Pin 2 TxD / Pin 3 RxD / Pin 5 GND	I/O
J3- J10	SMA	8x 10MHz sine reference outputs	O
J11-J18	SMA	8x 1PPS outputs (16x 10 MHz sine reference outputs with option code 16RF)	O
J19	IEC PLUG	Power connection	I
S1	SWITCH	On/Off switch	-
F1	FUSE	Primary power Supply fuse T3.15A	-

Front Panel

N°	Type	Definition	I/O
J20	BNC	10MHz sine reference output	O
J21	BNC	1PPS output	O
I3	Green LED	Power indicator	-
I4	Green LED	Sync or Track mode enabled	-
I5	Red LED	Rubidium clock locked alarm	-
I6	Green LED	1PPS GPS applied	-
S2	SWITCH	Free run, Sync or track selection switch	-

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