

GNSSource™-1000

Smart GPS/GNSS & Low-Noise OCXO 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 disciplining OCXO and a GPS/GNSS receiver. It uses the GPS/GNSS SmarTiming+® technology, disciplining GXClock-500 with an auto-adaptive loop time constant of 100 to 10,000 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 GXClock-500
- Integrated GPS/GNSS disciplinable GXClock-500 function, using SmarTiming+® technology at 1ns resolution
- Output Frequencies (8x 10 MHz / 8x 1PPS or 16x 10 MHz)
- Integrated smart auto calibration
- Internal Bit Alarm
- RS232 standard interface (9600 b/s)
- Windows 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-1000	
Reference module	Standard	Options
RFOUT Frequency	10MHz	
Number of Output	8x backplane 1x faceplate	16x backplane 1x faceplate (ordering code: 16RF)
PPSOUT	1PPS	1PPS
Functionality	See SMARTIMING+	See SMARTIMING+
Number of Output	8x backplane 1x faceplate	1x faceplate ONLY (ordering code: 16RF)
Short Term Stability		
1s	5E-12	2E-12
10s	5E-12	(ordering code: S)
100s	5E-12	
Phase Noise (dBc/Hz) (RFOUT: 10 MHz)		
1Hz	-95	
10Hz	-120	
100Hz	-140	
1kHz	-145	
10kHz	-150	
Aging (free running) (Measured after 3 months of continuous operation)		< 1E-11 / day (typical: 3E-11 / day)
Frequency Retrace		< 1E-8 24 hr / 1 hr
Off/On (In stable temperature, gravity, pressure and agnetic field conditions)		
Average Accuracy over 1 day (GNSS locked)		< 1E-12
RFOUT Levels		
Output		Sine wave, 0.5 Vrms (±10% / 50 Ω), 1x faceplate **Sine wave, 1.0 Vrms (±10% / 50 Ω), 8x backplane (** ordering code: 16RF 16x)
Impedance		50 Ω ±20% < -25dBc < -80dBc
Harmonics		
Spurious f ₀ ± 100kHz (SYNTH Off)		
GPS Antenna Connector		SMA

SMARTIMING+® FUNCTIONALITY

Spec	GNSSource-1000	
Disciplining module	Standard	
PPSOUT	1PPS	
Output level	CMOS 0-5V (±20 mA sink/source)	
Pulse width (PW) or duty cycle	User settable, 0 to 1s in 133ns/step	
PPSOUT to PPSREF	Sync Error < 50 ns	
In Sync mode	No GPS PPSRef noise, ± 1°C temp fluctuations	
PPSOUT to PPSREF (DE)	Programmable delay (in Track mode)	
PPSOUT Holdover Time Stability	0 to 1 s in 50 ns steps Within ± 2°C <25 μs/24 hr	
Smart Loop Time Constant	Auto-adaptive 100 to 10,000 sec	
Phase/Frequency	User settable Sync/Track mode **	
User settable	Selected by RS232 interface ** Sync: phase/time alignment; Track: frequency alignment	

GPS / GNSS ANTENNA

Spec	GNSSource-1000	
Antenna Types	Standard	Option
Lightning Surge Protector	Patch antenna kit	(ordering code: RA) Rooftop antenna kit
Cable Length	Not applicable	Included (ordering code: CA) 5+15m / 16.4' + 49'
Antenna mounting bracket	Not applicable	(ordering code: BRA)

POWER

Spec	GNSSource-1000	
Power Supply	Standard 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	0.65 – 0.5A	
Connector Type	IEC plug	

ENVIRONMENT

Spec	GNSSource-1000	
Operating Temperature	Standard 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-1000	
Size	Standard 445 x 300 x 44 mm (1U) / 17.52 x 11.81 x 1.73 in.	Option 19" rack mountable ears (ordering code: E)
Weight	2.2 kg / 8.82 lbs	
Mounting	Tabletop feet	

SYSTEM SUPPLY

Type	GNSSource-1000	
1x	GNSSource-1000	
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	US Power Cable (ordering code: US)
Standard		China Power Cable (ordering code: CN)
		Swiss Power Cable (ordering code: CH)
		Indian Power Cable (ordering code: IN)

SOFTWARE UPGRADES

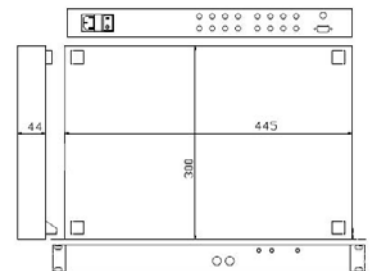
GNSSource-1000	
Download the latest software upgrades at www.spectratime.com	

ORDERING INSTRUCTIONS

GNSSource-1000 / XX / YY /



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	I/O
J3- J10	SMA	8x 10MHz sine reference outputs	O
J11-J18	SMA	8x 1PPS outputs (16x10 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 - T 3.15A	-

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	-
I6	Green LED	1PPS GPS applied	-