

GNSSOURCE 1000

HIGH PERFORMANCE GPS/GNSS
PRIMARY REFERENCE SOURCE



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.

Safran Electronics & Defense is with you every step of the way, building in the intelligence that gives you a critical advantage in observation, decision-making and guidance.

KEY FEATURES

- Integrated GPS/GNSS receiver & low-noise GXClock-500
- Integrated GPS/GNSS disciplinable GX-Clock-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

Technical Specifications

ELECTRICAL

Spec	GNSSource-1000	
	Standard	Options
Reference module		
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)		< 1E-11 / day (typical: 3E-11 / day)
(Measured after 3 months of continuous operation)		
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 ($\pm 10\%$ / 50 Ω), 1x faceplate **Sine wave, 1.0 Vrms ($\pm 10\%$ / 50 Ω), 8x backplane (** ordering code: 16RF 16x)
Impedance		50 $\Omega \pm 20\%$ < -25dBc
Harmonics		< -80dBc
Spurious $f_0 \pm 100\text{kHz}$ (SYNTH Off)		
GPS Antenna Connector		SMA

SMARTIMING+® FUNCTIONALITY

Spec	GNSSource-1000	
	Standard	Options
Disciplining module		
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 < 50 ns
PPSOUT to PPSREF Sync		No GPS PPSRef noise, $\pm 1^\circ\text{C}$ temp fluctuations
Error		
In Sync mode		
PPSOUT to PPSREF (DE)		
Programmable delay (In Track mode)		0 to 1 s in 50 ns steps
PPSOUT Holdover Time Stability		Within $\pm 2^\circ\text{C}$ <25 $\mu\text{s}/24$ 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	
	Standard	Option
Antenna Types		(ordering code: RA)
Lightning Surge Protector	Patch antenna kit Not applicable	Rooftop antenna kit Included
Cable Length	≥ 5 m / 16.4'	(ordering code: CA) 5+15m / 16.4' + 49'
Antenna mounting bracket	Not applicable	(ordering code: BRA)

POWER

Spec	GNSSource-1000	
	Standard	Options
Power Supply		AC input 100-240 VAC
Power Input Fluctuation		$\pm 10\%$ 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	
	Standard	Options
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-1000	
	Standard	Option
Size		445 x 300 x 44 mm (1U) / 17.52 x 11.81 x 1.73 in.
Weight		2.2 kg / 8.82 lbs
Mounting	Tabletop feet	19" rack mountable ears (ordering code: E)

SYSTEM SUPPLY

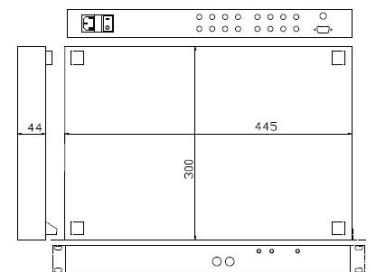
Type	GNSSource-1000	
1x		GNSSource-1000
1x		GPS patch antenna kit (with option code RA : Rooftop antenna kit)
1x		Cables SUB-D male/female for PC serial COM
2x		19" rack mountable ears or tabletop feet (option E)
1x		iSyncMgr application, user manual & spec
1x	Euro Power Cable Standard	US Power Cable (ordering code: US) China Power Cable (ordering code: CN) Swiss Power Cable (ordering code: CH) Indian Power Cable (ordering code: IN)

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	-

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