



SAFESYNC

PRECISE NTP SERVER

WITH PRECISION RUBIDIUM/OCXO OSCILLATOR



- ❖ 72/184 Channel GNSS Engine
- ❖ Supports GPS/QZSS, GLONASS, BEIDOU, GALILEO & IRNSS
- ❖ Anti spoofing and Anti jamming detect Features.
- ❖ 1 Gbps / 10/ 100Mbps NTP Server
- ❖ Synchronization over ETHERNET & FiberOptic
- ❖ Highly stable Rubidium/OCXO Oscillator
- ❖ Programmable pulse per second
- ❖ One micro second per day hold over Accuracy
- ❖ GPS GLONASS Monitoring Software (RHEL and Windows)
- ❖ Customized for defence application



Safesync is a high performance Timing Synchronization System provides synchronized Time and Frequency output. The unit is configured to provide appropriate timing interface data at designated connectors mounted on the backpanel.

The unit generates highly accurate disciplined 1PPS signal from an internal high stability Rubidium that is synchronised with reference to 1PPS signal from the GPS/ GLONASS/ SBAS/ IRNSS receiver along with the reference frequency that is phase synchronised to GPS / GLONASS/ SBAS/ IRNSS 1PPS signal.

This is achieved by using an 72/184 channels Engine . GPS/ GLONASS/ IRNSS /SBAS receiver which tracks every visible satellite and maintains accurate and reliable time

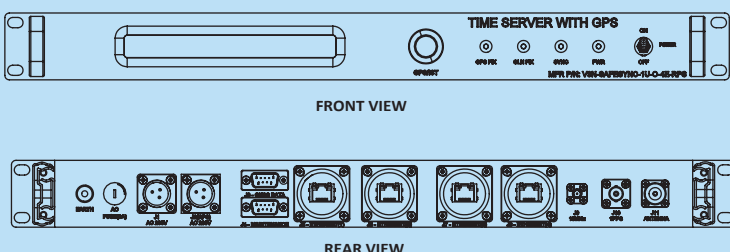
While tracking GNSS is accurate to <15nsecs to UTC. Beyond accurate NTP time stamping, this precision is excellent for generating the standards 1PPS and 10MHZ outputs.

The unit is specially designed to meet the requirements of timing and synchronisation applications. On power up the unit enters phase lock mode and Rubidium gets disciplined with respect to GPS/ GLONASS, IRNSS.

The built-in Rubidium Oscillator keeps the TSS extremely accurate while servicing NTP in the event GPS/ GLONASS service is interrupted. The unit is built to meet the EMI/EMC specifications as per MIL-461E standard.

Informative status LEDs provides health of the system. Bright Vacuum fluorescent display offers high readability.

MECHANICAL DRAWING:



* ALL DIMENSIONS ARE IN MM.

GNSS Receiver Specifications

Frequency	GPS 1575.42MHz, GLONASS 1598-1608MHZ IRNSS-L5, 1176.5MHz, IRNSS S-BAND 2491.7MHz
GNSS core	72/184 - Channel GNSS engine GPS/QZSS L1 C/A, L2C*, GLONASS L10F, IRNSS, Beidou B1 SBAS L1 C/A: WAAS, EGNOS, MSAS Galileo E1B/C, GPS, GLONASS
GPS + GLONASS Position Accuracy - Horizontal	< 2.5m CEP
GPS + GLONASS Position Accuracy - Vertical	< 2.5m CEP
GPS + GLONASS Velocity Accuracy	0.05 m/sec RMS
Timing Accuracy Of 1PPS	< 15 ns RMS with GPS/GLONASS/IRNSS
TTFF	Cold Start(Without Almanac) : < 30secs Warm start(With Almanac, Approximate Position and time) : < 26 Secs Hot Start : < 1 Sec Reacquisition : < 1 sec
Message output	NMEA / UBX Binary protocol format on RS-232 (Serial)

Reference Clock - High Precision Rubidium*

Stability	Short term stability > 3 X 10 ⁻¹¹ / Sec Long term stability > 2 X 10 ⁻¹¹ / Day Temp stability better than 0.1 ppb over temp range: -20°C to +60°C
Time for Phase locking	10 - 20 Mins
Jitter of Disciplined PPS	± 50 ps
Holdover Accuracy	The holdover accuracy shall be about 1 µsec for one day under below condition. • After the warm up time of high precision Rubidium Oscillator*, the system should be locked to GPS for a minimum of 24 hours. • System shall operate in a room temperature environment with temperature variation of ± 2°C

Environmental Specifications

Storage Temperature	-30°C to +70°C
Operating Temperature	-20°C to +55°C
Thermal Shock	-20°C for 1 hour and +55°C for 1 hour
Vibration	5-33 Hz, ± 0.125 displacement
Bump Specification	Half sine wave, 400 bumps, 40g acceleration
EMI/EMC	As per MIL-STD-461F CE101, CE102, RE101, RE102, CS101, CS103, CS104, CS106, CS114, CS115, CS116, RS101, RS103 - 10 V/m (2 MHz to 1 GHz) ; 50 V/m (1 GHz to 18 GHz)

Display and Keypad Specifications

Display	Backlight LCD/ Vacuum Fluorescent alpha Numeric Display
Indication	UTC and RTC time, GNSS fix, No. of GPS satellites, No. of GLONASS Satellites, SYNC and Power LED

Power Supply Specifications

Power Supply	230 V AC, 50 Hz, ± 2 Hz/28 V DC ± 5%/ Redundant) (*Refer Ordering Guide)
Power Consumption	45 W at power ON during warmup for about 20 mins 35 W during continuous operation

Interfaces

Network interface	1 Gbps ethernet port for NTP protocol- 4 Nos
Programmable Pulse Output	1 PPS to 10 MPPS output at LVTTTL level-1no
Frequency output	10 MHz at LVTTTL, stability 5 x 10 ⁻¹² when locked to GNSS or 2 X 10 ⁻¹¹ during holdover
External Reference PPS	1PPS at TTL
Configuration Port	RS-232 port for configurarion
Monitoring port	RS-232 port for monitoring GNSS Configuration
Back panel Connectors	10 MHz o/p-SMA connector Programmable pulse - TNC Antenna I/P- N Type Monitoring Port- DB9 connector Ethernet ports- TVC series connector External 1PPS port

Mechanical Details

Size	19 inch 1 U Rack
Weight	About 6.5 Kg

Protocols/Software

Protocols	• NTP client for windows 7,8 xp platform LINUX 32 bits/64 bits support
Monitoring software	PC based software to monitor GNSS parameters

Accessories

Active antenna	GPS GLONASS, IRNSS active antenna 40 dB gain
Antenna cable	LMR 240/400 RF cable, 20m Length
Slide rail	Slide rail for 1 U rack
Mounting brackets	Antenna mounting brackets

ORDERING GUIDE :

V3N	SAFESYNC	FORM FACTOR	OSCILLATOR TYPE	GNSS CONSTELLATIONS	NO. OF ETHERNET PORTS	NO. OF FIBEROPTIC PORTS	TYPE OF POWER SUPPLY	IRIG B
V3N	SAFESYNC	1U	RUBIDIUM	IRNSS L5 + S BAND	4	4	AC + RPS	4
		- 1U	- OXCO	- GPS/GLONASS	- 1	- 0	- AC	- 0
		- 2U	- RUBIDIUM	- IRNSS L5	- 2	- 1	- AC + DC	- 1
				- IRNSS L5 + S BAND	- 3	- 2	- AC + RPS	- 2
					- 4	- 3		- 3
						- 4		- 4



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