GNSS BASED TIME SYNC SERVER

OVERVIEW

Network of computers are omnipresent. Synchronization of these computers is highly recommended at all enterprises. This integrates various diversified systems to work in unison.

The demand for improving the effectiveness of any system in place is met with time synchronization system deployed in the field. Troubleshooting is simplified by the application of time syncing equipment's in the event of fault analysis.

Sertel NTP Time Server will act as a Stratum 0 server that generates precise time stamp signals to synchronizes various networks of devices, critical servers, electrical, communications devices such as SCADA, DCS, PLCs, LANs, Computer Buses, RTUs etc. System supports SFTP over SSH

Equipped with internal high precision and high stability Rubidium Oscillators, provides exceptional frequency accuracy in the order of 0.1PPB

GPS Time Sync Server maintains accuracy in the order of better than <15ns level

Most modern device have provision to accept external IRIG-B [AM] input over BNC connector and NTP over RJ45 Connector

The time stamps in the signal could be transmitted over long distances maintaining synchronization in the whole network.

Equipped with Anti-Jamming and spoofing attack

OPERATION

The signal from the satellite is collected by T-GPA-014-S15,an active triple band antenna and transmits the signal to Multi Constellation GNSS NTP Time Server.

Server are provided for continuous functioning of the system across 24x7 Operation. Supports Universal Power Source in the wide range of 90 to 260v AC and DC operation. Customizable for 48vDC and 24v DC

NTP Server will switch from internal /external sources automatically based on signal availability.

NTP Server will accept external 10Mhz frequency signal over BNC connector as external input*

Precise Time stamps measurement data can be analysed by feeding external 1PPS Pulse Marker over TTL level*

LC display in the front panel shows the frequency, input, date, time and geographical location. These can be viewed with the help of keypad function. The status of the NTP Server is shown by LED indication.

Highly precise and stable Rubidium Oscillators compensates for any interferences or loss of signal from the satellite/external input thus making the operation of the receiver reliable & to maintain Stratum 0 level during non-availability of GNSS signal

Includes Antenna Mounting kit with Antenna, GNSS Cable, Lightening Arrestor, Wall Mounting Bracket

KEY FEATURES

• Supports GPS, IRNSS [NaVIC], Glonass, BeiDou, Galileo, S-BAS – GNSS Receiver.

• 24 Channel GNSS Receiver and 12 Channel Continuous Tracking.

• Capable to handle 10000 to 1,00,000 requests per second

• Capable to track up to 48 satellites

• Equipped with high precision Rubidium Oscillator maintaining better holdover and frequency level

• 2x20/4x40 characters LC display with keypad to show the Time, Date, Latitude, Longitude. Time Zone.

• Automatic leap second correction and information over NTP and IRIG-B

• Products are RoHS Compliant

• Supports HTTP/SSL/HTTPS/SSH Web Server interface, SHS, SCP, IPv4, IPv6, SYSLOG, SNMPV3/v2 network management / configurability protocols.

• Supports NTPv4/v3/v2, SNTP, NTP Unicast/Broadcast/Multicast/Broadcast

• Equipped with HMAC authentication through Autokey SHA-1, SHA-2 [256/512], SHA-3

• Highly customizable Output as per requirement and all ports are dedicated and isolated.

• Configured to work as Stand Alone NTP Time server with high stable oscillator

• Has inbuilt EPROM to store configuration even after power reboot.

• NTP Server will accept peer NTP server as reference

• Supports IPv4 and IPv6 Versions/SSH/TACACS+/RADIUS/MD5[SHA]/LDAP

• Accepts Wide Range of External Input Sources 1PPS, IRIG-B, 10Mhz, NTP*

SERTEL ELECTRONICS PVT LTD
Old Mahabalipuram Road, Perungudi,
Chennai, Tamilnadu, India 600 096.
Ph: +91(44)23454060, +91(44)23454062
sales@sertelelectronics.com

SERTEL ELECTRONICS UK LTD
Rutland House, 148 Edmund Street,
Birmingham, B3 2FD, UK
Ph: +44 (0) 121 661 6479
enquiryuk@serteltelser.com

SERTEL INSTRUMENTS INC
Saskatoon,
Saskatchewan Canada

GPS TIME SYNC SERVER
T-GPS-300-N7K

TECHNICAL SPECIFICATIONS

GPS ANTENNA

Model	T-GPA-014-S15
Receiving Frequency	L1- 1575.42 MHz L5- 1176 MHz S Band – 2492.028 MHz
Tracking code	'L' Band, 'S' Band CA code
Geodetic System	WGS – 84
No. of Channels	24 Channel / Parallel
Type	Helical
Axial Ratio	<4 dB
Supply Voltage	+5V DC (Internal)
Gain	Over 40 dBm
Noise Figure	Less than 1.5 dBm
Operating Temp	-40 °C to +85 °C
Connector	BNC
Dimension	80(H)x55(D) x 82(W) mm
Mounting	Fixed (Roof mount) IP67 (Ingress Protection Rating)

GPS RECEIVER

Model	T-GPS-300-N7K
Interface	TTL (Normal High)
Input connector	BNC
Output Rate	Every second
Power Supply	90-260 V AC/DC A&B [Dual]
Display	4x40 / 2x16 / 2x20 LCD
Type	GPS: L1 C/A, L2C,L5 GLO: L1OF, L2OF, GAL: E1B/C BDS: B1I, B2I, IRNSS:L5 184 Channel Parallel-tracking receivers
Frequency	Tripe Band - L1 / L5 Band / S Band
Sensitivity (Acquisition)	-148 dBm
Sensitivity (Tracking)	-167 dBm
Design	1U/2U/3U Rack-mount bracket designed for 19 Inch Cabinets Fabricated Heatsinks IP40 (Ingress Protection Rating)
Protocol	NMEA, Sertel Format, Serial String ASCII format.

ENVIRONMENT

Operating Temperature	-40 °C to +85 °C
Humidity	0 – 95% RH, non-condensing
Power Drain	60W *Depends on Output configuration
Power Connectors	Phoenix/Wago/C13/C14*

MECHANICAL SPECIFICATION

Dimensions	2U(H) x 485(W) x 185(D) mm (Or) 3U(H) x 485(W) x 185(D) mm *Size Depends on number of outputs
Mounting	19" Rack
Weight	2.5 KG

Oscillator Options
*Feature Available only on Specific requests and suitable price points

Power Supplies	1x or 2x Power Supplies High Voltage - AC/DC 90-370 VDC 80-260 VAC Low Voltage - DC 24-60 VDC *		Disciplined Oscillator	TBC*
Ingress Protection	IP20		Rubidium	TBC*
Configuration Software			VCTCXO	TBC*
Platform	HTTPS/SSL Browser-based configuration		OCXO	TBC*
INPUT*			**OUTPUT ***	
GNSS Antenna inputs	GNSS, BNC [F]		1PPS	TTL, 50 Ω Impedance, BNC [F]
External 1PPS	TTL, BNC [F], Phoenix/Wago		Serial	RS232, Wago
External IRIG-B	TTL/AM, BNC [F], Phoenix/Wago		Ethernet	NTP/SNTP, RJ45
External 10Mhz	0 to 13dBm, BNC [F], Phoenix/Wago		FO Ethernet	NTP/SNTP, SFP
Impedance	50 Ω Sine Wave / HCMOS / TTL		T1/E1/J1 Output	RJ45 T1/E1/J1 Output
External NTP	Lock to External Input, RJ45		Fiber Output	ST Fiber 62.5/125 µm, ʎ 820 nm
Configuration	Web server Interface and Sertel Time Management Suite for complete accessibility and configurability of server. SNMP for remote management Keypad for local configuration L1Band GNSS, BNC [F] *Feature Available only on Specific Requests and suitable price points		Ethernet Interface Ethernet Output	10/100/1000 MBPS – Copper 1G/2.5G/10G – SFP, SFP+ RJ45 - Time Protocols NTP, PTP SFP & SFP+ -Time Protocol NTP
Input	DC IRIG-B Input (BNC)		Ethernet Connections	RJ45 1GbE/Fast Ethernet SFP 1GbE`/Fast Ethernet SFP 2.5GbE`/Fast Ethernet SFP 10GbE`/Fast Ethernet *Feature Available only on Specific Requests and suitable price points
			Alarm Relay	3-Pin Form-C NO/NC alarm relay

NETWORK TIME SERVER OPTION

*IEEE 1588v2 (PTP)	P2P/E2E delay 1-Step/2-Step delay C37.238:2011 Power Profile C37.238:2017 Power Profile ITU G.8265.1 Telecom Profile ITU G.8275.1 Telecom Profile IEEE 61850-9-3 Power Utility Profile		*PRP	IEC 62439-3 (2016) Fast failover slave Supports up to two PRP pairs PTP (IEEE 1588v2) Default & Power Profiles
NTP/SNTP	Stratum 0 NTP & SNTP Time server Multicast & Broadcast capability		Security	Local Authentication -- TACACS+/RADIUS/LDAP methods Encryption for NTP, SNMP using MD5/SHA algorithms.

CLOCK ACCURACY TO UTC & NETWORK FEATURES

GPS Time Server Overall Accuracy	< 15 ns	TTL/Fiber:	< 100 ns
1 PPS	< 100 ns	PTP Time Stamp	< 100 ns
NTP Timestamp at Server Source	< 1 μs (At client End Depends on Network Architecture for more accuracy)	Authentication – SHA-1 [Fixed Length 160 Bits], SHA-2 [256/512], SHA-3	
SNMP	V1, V2C & V3 support can be independently enabled Configurable V1, V2C community names & security Fully configurable via Custom SERTEL MIB, SNMP;	Notifications	SNMP trap generation V1, V2C & V3 SNMPv3 traps can be authenticated Syslog (RFC-3164 & 5424 verities)
Protocols supported	ARP, UDP, ICMP, DHCP, SNMP, HTTPS, IPV4, SSH, RADIUS, TACACS,SHA	Authentication Methods	TACACS+ [TCP Port: 49] RADIUS [UDP Port: 1812/1813] LDAP [TCP/UDP Port: 1812/1813]

*Feature Available only on Specific Requests and suitable price points

TEST AND STANDARDS

Dry Heat Test	IEC 60068-2-2	Electrostatic Discharge Immunity Test	IEC 61000-4-2,2008
Cold Test	IEC 60068-2-1	Radiated Susceptibility Test	IEC 61000-4-3,2010
Damp Heat (Steady State) Test	IEC 60068-2-3	Electrical Fast Transient Immunity	IEC 61000-4-4,2012
Sinusoidal Vibration Test	IEC 60068-2-6	High Energy Surge Immunity Test	IEC 61000-4-5,2014
Dielectric Strength Test	IEC 60255-5-0	Conducted RF Immunity Test	IEC 61000-4-6,2013
Pulse Magnetic Field Test	IEC 61000-4-9,2016	Power Frequency Magnetic Field Test	IEC 61000-4-8,2009
Radiated RF Power Disturbance	CISPR 14-1,2009	Damped Oscillatory Sinusoidal Immunity Test	IEC 61000-4-18,2011
Voltage Fluctuation and Flicker Emission Test	IEC 61000-3-3,2013	Voltage Dips and Interruption Immunity Test	IEC 61000-4-11
Harmonics, Inter Harmonics and Low Frequency Immunity Test	IEC 61000-4-13,2002		

*Feature Available only on Specific requests and suitable price points
*Output ports are customizable based on the requirements
*Product development is continuous process, subject to change without prior notice