GPS TIME SYNC SYSTEM
T-PAN-300

Most modern protection relays and Intelligent Electronic Devices (IED) come with ports to accept the time synchronization signal. Equipped with high precision and stable OCXO/TCXO, T-PAN-300 is capable of performing during temporary signal loss thus showing its accuracy and reliability.

The time stamp in the signal could be transmitted over long distance maintaining the synchronization of the whole network.

OPERATION
The signal from the satellite is collected by GPS antenna and transmitted to the GPS Receiver.

SERTEL GPS Receiver generates time base pulses as that in the UTC or the atomic clock in the GPS satellite from the signal received.

Pulses can be generated for every second, minute or hour. Serial data packets comprising date and time information along with the pulses forms the time stamp and are made available in a variety of protocol format such as RS232, NTP/SNTP, IRIGB and many other to interface with wide range of devices.

LCD displays in the front panel shows the frequency, date, time and geographical location. These can be viewed with the help of keypad upfront. The status of the GPS receiver is shown by LED indications and alerts during failure through alarm provision.

Highly precise and stable OCXO/TCXO compensates for any interferences or loss of signal from the satellite thus making the operation of the receiver reliable. Redundant Master Clocks are provided for continuous functioning of the system.

Integrated inside one unit are the Redundant Comparators which receive input from the GPS Receiver and generates numerous output formats embedding time signals into them.

External time signal input provision as a source of time signal is provided.

Signal Conditioner units are provided to multiply the time signal in various protocols such as RS232, Pulse, PFC IRIGB, TCP/IP and many others to give that many number of provision for connecting other devices for time synchronization.

Redundancy in Power Supply is provided through redundant Diode Oring unit to maintain the exact voltage supply to all the units.

KEY FEATURES
• 12 Channel GPS Receiver and 8 Channel Continuous Tracking.
• Equipped with high precision OCXO/TCXO crystal for frequency maintaining micro second level accuracy.
• Accuracy of 187 nano seconds with GPS signal.
• Redundancy in GPS Receiver, Master Clock, Comparator Unit and Power Supply.
• Type Tests are certified by ETDC and SAMEER.
• 4 x 40 characters LC display in Receiver units, 6-digit Date/Time display in Master Clock units.
• Highly customizable Output / configurable as per customer’s requirements.
• Configured to work as Stand Alone Clock during temporary GPS signal loss with high tenacity.
• Output Integrated to 3 decimal of frequency in Hz.
• Capable to drive a number of Slave Clocks at large distances through multidrop mode.
• Low cost maintenance with durable performance.
• Customizable output protocols such as RS232/422/485, IRIG-B AM/TTL, NTP / SNTP, DCF77, BCD, PPH, PPM, PFC, Programmable pulse and others.

OVERVIEW
Time synchronization creates a platform for an entire system comprising wide range of products to operate in synchronous with time. 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 synchronization in the event of fault analysis. SERTEL manufactures GPS based Time Synchronization System which generates precise time stamp signals that synchronizes various network of electrical, computer, communications devices such as DCS, PLCs, LANs, Computer Buses etc.
TECHNICAL SPECIFICATION

GPS PANEL T-PAN-300

GPS Receiver T-GPS-300-EU
Model : T-GPS-300-EU
Receiving : 1575.42 MHz +/- 1 MHz
Tracking code : ‘L’ Band CA code
Geodetic System : WGS – 84
No. of channels : 8 Channel / Parallel
Interface : TTL (Normal High)
Output rate : Every second

GPS Antenna T-GPA-014-S15
Model : T-GPA-014-S15
Receiving : 1575.42 MHz +/- 1 MHz
Tracking code : ‘L’ Band CA code
Geodetic System : WGS – 84
No. of Channels : 12 Channel / Parallel
Type : Cubical / Cylindrical
Axial Ratio : <4 dB
Supply Voltage : 5V DC (Internal)
Gain : Over 27 dB
Noise Figure : Less than 1.5 dB
Operating Temp. : -10 °C to +85 °C
Connector : TNC/BNC
Mounting : Wall Mounting

Signal Conditioner (customizable)
Type : Individual 19" rack mountable units of 2U or 3U sizes available for variety of signal formats
Input : From GPS Receiver T-GPS-300-EU
Output : Multiple numbers of corresponding inputs

Slave Distribution Amplifier
Model : T-SDA-300
Input : Differential Pulse
Output : Differential Pulse (4-6 nos.) for connecting Slave clocks

ENVIRONMENT
Ambient Temperature : -10to+55 °C
Humidity : 0-95% RH, non-condensing

INPUTS
- GPS Antenna signal.
- Power Supply : 230 or 110 V AC
- External IRIG-B input (optional)

OUTPUTS
- Various protocols such as RS232/422/485, IRIGB AM/TTL, NTP/SNTP, BCD, PPH, PPM, PFC, Programmable pulse, DCF 77, etc. are customizable.
- IRIG-B AM, IRIG-B TTL output through RG-58 BNC connector.
- NTP/SNTP outputs for NTP client access (Default IP: 192.168.1.254) through RJ-45.
- Differential Pulse signal for Slave Clock unit.
- Alarm signal output for failure indication.
- Julian Days HH MM SS, DD MM YY, Latitude, Longitude in LC display.
- SERTEL make Alarm Annunciator can be mountable.
- Customizable output / configurable as per requirement.

MECHANICAL SPECIFICATION
Panel Dimensions : 2415(H) x 800(W) x 800(D) mm (customizable)
Panel Colour : Customizable

TEST AND STANDARDS
Dry Heat Test : IEC 60068-2-2
Damp Heat (Steady State) Test : IEC 60068-2-3
Sinusoidal Vibration Test : IEC 60068-2-6
Bump Test : IEC 60068-2-29
Dielectric Strength Test : IEC 60255-5-0
Shock Test : IEC 60255-21-2
Radiated Emission : CISPR 11 Class A,2006
Radiated RF Power Disturbance : CISPR 14-1,2005
Electrostatic Discharge Immunity Test : IEC 61000-4-2,2001
Radiated Susceptibility Test : IEC 61000-4-3,2006
Electrical Fast Transient Immunity : IEC 61000-4-4,2004
High Energy Surge Immunity Test : IEC 61000-4-5,2006
Conducted RF Immunity Test : IEC 61000-4-6,2004
Power Frequency Magnetic Field Test : IEC 61000-4-8,2001
Damped Oscillatory Wave Immunity : IEC 61000-4-12,2001
Dust/Water Protection : IP 5X / IP X5

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