OVERVIEW

Time synchronization creates a platform for an entire system comprising wide range of applications 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 synchronize various network of electrical, computer, communications devices such as DCS, PLCs, LANs, Computer Buses etc.

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, T-GPS-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 GPA-014 and transmitted to the receiver through Low Loss Cable.

SERTEL T-GPS-300-HR generates time base pulses of 1PPS as that in the UTC or the atomic clock in the GPS satellite from the data received.

Pulses can be generated for every second, minute, minute, hour, day etc which are configurable.

Redundant Master Clocks are provided for continuous functioning of the system. Power Supply redundancy for maintaining constant voltage.

Data packets comprising date and time information 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.

LC display 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 indication.

Highly precise and stable OCXO compensates for any interferences or loss of signal from the satellite thus making the operation of the receiver reliable.

KEY FEATURES

- Redundancy in GPS Receiver, Master Clock, Comparator Unit and Power Supply.
- Compact size.
- International Standard Euro Cards.
- 12 Channel GPS Receiver and 8 Channel Continuous Tracking.
- Equipped with high precision OCXO crystal for frequency maintaining micro second level accuracy.
- Various output protocols such as RS232/422/485, IRIGB AM/TTL, BCD, PPH, PPM, PFC, Programmable pulse, DCF 77, etc.
- LCD Display for visual information.
- Highly customizable Output as per requirement.
- Configured to work as Stand Alone Time server.
- Universal Power Supply.
- Output Integrated to 3 decimal of frequency in Hz.
- Status indication through LEDs for various sections.
- Low cost maintenance with durable performance.
TECHNICAL SPECIFICATION

GPS RECEIVER

Model: T-GPS-300-HR
Receiving Frequency: 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

ENVIRONMENT

Ambient Temperature: 0 – 50°C
Humidity: 0 – 95% RH, non condensing

MECHANICAL SPECIFICATION

Dimensions: 3U (H) x 485 (W) x 325 (D) mm
Mounting: 19” rack mounting

GPS ANTENNA

Model: T-GPA-014
Type: Helical
Axial Ratio: 5 dB
Supply Voltage: 5V DC (Internal)
Gain: Over 30 dB
Noise Figure: Less than 2.6 dB

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, 2004
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

INPUTS

• GPS Antenna inputs A & B (Redundant).
• IRIG-B inputs A & B

OUTPUTS

• IRIG-B AM / TTL outputs (3 nos. customizable).
• NTP/SNTP output (3 nos. customizable) for NTP client access through RJ-45.
• RS232 serial port output (2 nos. customizable) in SERTEL format through 9 pin ‘D’ connector (M).
• Potential Free Contact outputs.
• Pulse output: 1 PPS, ½PPM, 1PPM (Configurable).
• Differential Pulse signal for Slave Clock unit.
• Status information for GPS reception, fault, loss of signal.
• Julian Days HH MM SS, DD MM YY, Latitude, Longitude in LC display.
• Customizable output / configurable as per requirement.