

GUARANTEED TECHNICAL PARTICULARS – GENERAL

TIME SYNCHRONIZATION EQUIPMENT

(a) Name and country of Mfr.	M/s. Sertel Electronics Pvt Ltd, India
(b) Mfrs. Type and Model No	Time Synchronization Equipment Model No. T-GPS-300
(c) Reference standards	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 Test : 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
(d) Name of satellite system & Type of time Signal	Global Positioning System – 1PPS
(e) Number of satellites that can be tracked	8 TO 12 Satellites
(f) Accuracy in (ms)	With GPS Signal – 187ns, With Out GPS – 1PPM. * Please Ref note as below.
(g) Minimum Number of satellites required to be tracked	2 to 4 Nos.
(h) Acquisition Time	
1. Cold Start	15 Min
2. Warm Start	20 Sec.
(i) Output Ports which can be provided User to specify required outputs 1U (H) x 485 (W) x 325 (D)-All in mm Tolerance ±5 mm	NTP/SNTP Protocol IRIG B -1 KHz modulated frequency default 55 Hz
(j) Periodicity of Time correction facility	Every sec

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(k) Whether equipment is compatible for synchronization of event logger disturbance recorder & SCADA at S/S	Yes, any other specific requirement can also be fulfilled.
(l) Operating temp range	0 to 55°C
(m) Storage Temp range	-15°C to 90°C
(n) Dimension of Equipment	19" rack – 1U(H) x 485(W) x 325(D) Tolerance ±5 mm
(o) Humidity	0 – 95% RH, Non Condensing.
(p) Power supply in volts with permissible variation	90-260V AC/DC
(q) Power consumption	60 Watts
(r) Size of Antenna	Ø93x133mm

*- Note: When link disconnects GPS, System works as standalone mode. We give below the calculations without GPS receiver synchronization for the master clock.

**Our OCXO stability, accuracy is 1PPM.

$$\begin{aligned} \text{For one month} &= 31 \times 24 \times 60 \times 60 \times 0.25 \mu \text{ sec} \\ &= \pm 669600 \mu \text{ sec} \\ &= \pm 0.67 \text{ sec} \end{aligned}$$

$$\begin{aligned} \text{For one day} &= \pm 0.67/31 \\ &= \pm 0.022 \text{ sec/day} \end{aligned}$$

This is when the clock continuously run on standalone mode which is in cumulative in nature when works on standalone. Whenever the GPS received again its get corrected to the atomic clock level. Where by no cumulative takes place and will give an output correspondingly to the function of operations.

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