CT-TSS3000 *Grandmaster Clock Datasheet*

CT-TSS3000 Grandmaster Clock receives GPS, BD satellite signal as well as various external time source. Built-in OCXO and supporting multi-format outputs make it a high precision and flexible time server which meets the timing requirements of complex systems, and widely used in areas like energy, power, telecommunications, military and transportation etc. It is the secondary master clock of the CT-WTFS9000 Wide-Area Time & Frequency Synchronization System. It can also combine with CT-KZ 001 time code distributor to be a powerful and scalable time synchronization system.

CT-TSS3000 Grandmaster front panel

CT-TSS3000 Grandmaster rear panel

Functions

- ✓ Stratum 1 operation via GPS and/or BD satellite
- ✓ Support multi-format inputs: PTP, IRIG-B, BITS,10MHz
- ✓ Support multi-format outputs: NTP, PTP, IRIG-B, Pulse, Serial, BITS, 10MHz
- ✓ 1x 10/100 Base-T Ethernet interface for management
- ✓ Internal precision time-keeping via OCXO
- ✓ Support automatic selection of valid time source
- ✓ Support IEC61850, IEC60870-5-104 standard
- ✓ Fault alarm functions for time source, board cards, power supply and so on.
- ✓ Time delay compensation mechanism, compensation range: 20ns~500ms
- ✓ Time continuity judgment mechanism to avoid output time discontinuity
- ✓ Rigorous frequency calibration algorithm, to obtain high stable frequency holdover accuracy

Features

- ✓ Flexible module card design, easy for outputs configuration
- ✓ 2 x internal frequency source are configurable, to ensure the internal time reliability and security
- ✓ Support duplex, hot standby, cold standby configuration
- ✓ LCD display with man-machine interaction brings a simple operation
- ✓ Adapt to the strong electromagnetic interference environments
- ✓ Redundant dual power supplies
- ✓ 19'' / 4U rack mount

Specifications

Time Reference	BD B1,　GPS L1,　BD & GPS	
Inputs	PTP,　IRIG-B,　BITS,　10MHz	
Outputs	IRIG-B	TTL、RS422/RS485、RS232、Fiber、idle contact
	Pulse（1PPS/1PPM/1PPH）	TTL、RS422/RS485、RS232、Fiber、idle contact
	Serial (TOD)	RS232
	NTP/SNTP	RJ45
	PTP over Ethernet	RJ45
	PTP over E1	BNC
	10MHz	BNC
	BITS	BNC
Time Performance	Time Accuracy to UTC	≤100ns（RMS）
	Holdover Accuracy	≤1μs/hr　(After 24 hours locked)
	Frequency Accuracy	≤1E-12/day　(After 24 hours tamed)
	Frequency Stability	＜1E-11/s
	Phase Noise	≤- 95dBc/Hz/1Hz ≤-120dBc/Hz/10Hz ≤-135dBc/Hz/100Hz ≤-150dBc/Hz /1KHz
	Harmonic suppression	≤-30dBm 2 times ≤-45dBm 3 times
	Stray	≤-80dBm 3 times
Network Service	Network Interface	RJ45 10/100M Ethernet port, ,ST Optical Fiber
	NTP Time Sync Accuracy	1ms~10ms（Rely on the network environment）
	NTP access ability	2000 requests per second
	NTP\SNTP Protocols	RFC-1059（NTP v1）, RFC-1119（NTP v2）, RFC-1305（NTP v3）, RFC-5905(NTP v4)，RFC -2030（SNTP）
	PTP Protocols	IEEE1588-2008v2
		Support both P2P and E2E delay mechanism
		Support BMC best master clock selection algorithm
	Other Protocols	IEC61850、IEC60870-5-104
		TELNET, HTTP (SSH,DHCP,FTP are customizable)
Installation	19″ / 4U standard chassis	

HI-TECH　CMMi3　ISO 9001