CT-TMU001A *Time Monitor Datasheet*

CT-TMU001A Time Monitor is a time sync management equipment which monitors and measures different type of input signals. It meets the demand of various industrial users for time monitoring and measuring, can be independently used in power industry, telecommunications, transportations as well as other related areas. It is also a part of the CT-WTFS9000 Wide Area Time & Frequency Synchronization System.

CT-TMU001A Time Monitor front panel

CT-TMU001A Time Monitor rear panel

Functions

- ✓ **Wide-area clocks monitoring:** Monitoring the time difference between different devices located in different geographical areas
- ✓ **Local-area clocks monitoring:** Monitoring the time difference between different devices located in the same geographical area
- ✓ **Multi-format time signal monitoring:** PTP(IEEE1588v2), NTP, SNTP, IRIG-B, Pulse, Serial
- ✓ **Multiple time reference for selection:** BD B1, GPS L1 and external time source for measuring
- ✓ **Can be treated as a standard time source and support multi-format outputs:** PTP(IEEE1588v2), NTP, SNTP, IRIG-B, Pulse, Serial
- ✓ **Timing equipments status information collection:** Including time source status, frequency source status, input/output module status, equipment synchronization status, power status, time continuity status and self-inspection information
- ✓ **Timing terminals status information collection:** Adopt a variety of communication protocols to complete the timing terminals' status information collection
- ✓ **Perfect self-management functions:** Provide the time monitor's self-inspection information and working status information

Features

- ✓ **Wide monitoring range:** Comprehensively monitor all the clocks and terminals in all levels'

nodes

- ✓ **Modular hardware design:** All the monitoring modules on the monitoring device can be also integrated in the timing equipments
- ✓ **Support time difference measurement:** the time difference between external reference and the monitored device can be measured
- ✓ **Continuous on-line monitoring ability:** All-day continuous monitoring, continuously provide effective monitoring data, convenient to analyze synchronization performance
- ✓ **Remote monitoring management:** Available to share monitoring and measuring data via network management interfaces (Ethernet or USB) , easy for remote monitoring and control

Specifications

Time Reference	BD B1, GPS L1, external time source		
Time Accuracy	≤ 100 ns（RMS）		
Frequency Source	Rubidium	OCXO	
Holdover Accuracy	≤300 ns / 24hr (After 24 hours locked)	≤10 μs / 12hr (After 24 hours locked)	
Frequency performance	Starting features: ≤ 2×10-10/10mins Frequency drift: ≤2×10-12/day	Frequency temperature stability: ≤1x10-8 Aging rate: ≤2×10-10/day	
Measurement capability and resolution	**Signal type**	**measurement accuracy**	**Measurement Resolution**
	1PPS/1PPM/1PPH	100ns	10ns
	IRIG-B DC	100ns	10ns
	IRIG-B AC	4 μs	10ns
	Serial	1 μs	10ns
	PTP	150ns	10ns
	NTP/SNTP	10 μs	10ns
	SOE（optional）	100 μs	10ns
	frequency measurement（optional）	0.001Hz	0.0001Hz
	GOOSE、SV	150ns	10ns
Output time accuracy	**Output signal type**	**Time Accuracy**	
	1PPS/1PPM/1PPH （TTL、RS422/485、Optical fiber）	150 ns	
	1PPS/1PPM/1PPH （idle contact）	1 μs	
	IRIG-B （AC）	5 μs	
	IRIG-B （DC）	150 ns	
	NTP/SNTP	0.1 ms	
	PTP	150 ns	
Reliability	MTBF	≥6000h	
	MTTR	≤0.5h	
	Usability	99.9%	
	Life Time	About 10 years	