

PTS-10

1U rack mounting high-precision time servers



» Overview

PTS-10 is a modular-designed multifunction time server. PTS-10 is designed for 1U 19 inch rack mounting requirements. It provides nanosecond accuracy time service for any industry fields. It supports GPS (Global Positioning Service), BDS (Chinese Satellite System), and GLONASS (Russian Satellite System) as sky time sources and PTP (Precision Timing Protocol), IRIG-B as ground time sources. Based on the multiple time source input PTS-10 has multi-time source selection logical and Sky-Grounding time backup function inside. It also supports PTP (Precision Timing Protocol), NTP (Network Time Protocol), IRIG-B, 1PPS, 1PPM, 1PPH and TOD etc. time synchronization signal output as time synchronization purpose. PTS-10 supports TMS (Time Management System) features to report PTS-10 time status by IEC61850, IEC60870-5-104, SNMP, Modbus TCP, DNP over TCP etc. It also can generate accurate GOOSE signal to trigger an event to monitor IED time status in power system and provides GOOSE subscriber to send time status by IEC61850 MMS. It has been widely deployed in power, industrial automation, health care and other industries.

» Key Features

- 1U 19 inch rack mounting time server
- Support up to 2 100/1000M combo ports
- 85-264VAC/DC single power input
- GPS/BDS dual-mode
- Support integrated TCXO or OCXO for time holdover

Support LCD screen display and operation by keys on front panel

Support up to 2 slots for Time Output Module (11 types of module for flexible configuration)

Support time status management function

Support Web, SNMP management

HTTPS, Syslog

Comply with IEC61850-3, IEEE1613

Product Specifications

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-Satellite Receiver and Antenna

Receiving Sensitivity of Receiver Locking Sensitivity<-160dBm

Tracking Sensitivity<-167dBm

Locking Time <0.5min (Warm Boot), <10min (Cold Boot)

Time Accuracy of Receiver Better than 20ns (1pps, relative to UTC)

Receiving Antenna Sensitivity $\leq$ -163dBm

-Time Accuracy

1PPS Fiber $\leq$ 60ns

TTL $\leq$ 60ns

RS485 $\leq$ 0.5 μ s

Contact $\leq$ 3 μ s

IRIG-B Fiber $\leq$ 60ns

TTL $\leq$ 60ns

RS485 $\leq$ 0.5 μ s

AC $\leq$ 20 μ s

Serial Data RS232 $\leq$ 5ms

RS485 $\leq$ 5ms

NTP $\leq$ 50 μ s

PTP $\leq$ 50ns

-LED

PSW ON: Power ON; OFF: Power OFF

SAT ON: Satellite number $\geq$ 4; OFF: Satellite number<4

ANT ON: Antenna status is normal;

OFF: Antenna status is abnormal

LOCK Flash per second: Clock is locked

Flash per 3 seconds: Clock is hold

OFF: Clock is unlocked

-Key

UP Move the cursor up

DOWN Move the cursor down

ENTER Confirm operation

ESC Cancel operation

-Holdover Accuracy

TCXO 55 μ s per hour

OCXO 6 μ s per 24h

-Input Interface

Satellite SAT1: BNC connector (5V DC)

Fiber FI1: ST-850nm MM (IRIG-B-DC)

FI2: ST-850nm MM (IRIG-B-DC)

-Network Interface

Ethernet

2 $\times$ 10/100Base-TX RJ45 ports or

2 $\times$ 1000Base-X SFP slot, 10/100/1000Base-T(X) Combo ports

-Output Interface

TTL(Terminal) Terminal connector, 1PPS/1PPM/1PPH or IRIG-B

TTL(BNC) BNC connector, 1PPS/1PPM/1PPH or IRIG-B

Fiber ST multimode connector, 1PPS/1PPM/1PPH or IRIG-B

Serial Data (Terminal) RS232, 1PPS/1PPM/1PPH or serial time signal

RS485, 1PPS/1PPM/1PPH, IRIG-B or serial time signal

Serial Data (DB9) DB9 connector, 1PPS/1PPM/1PPH, IRIG-B or serial time signal

IRIG-B Modulated (Terminal) Terminal connector, IRIG-B modulated signal

IRIG-B Modulated (BNC) BNC connector, IRIG-B modulated signal

Contact (Terminal) Terminal connector, 1PPS/1PPM/1PPH or IRIG-B

-Power Supply

Power Input 110-220VAC/DC(85-264VAC/85-300VDC),47-63Hz

Single power input

Power Terminal 5-pin 5.08 mm-spacing plug-in terminal block

Power Alarm Support

Status Alarm Support

-Physical Characteristics

Housing Metal

Cooling Natural cooling, fanless

Protection Class IP40

Dimensions(WxHxD) 483 × 45 × 280mm

Weight 4.5kg

Mounting 1U 19 inch rack mounting

-Environmental Limits

Operating temperature -20°C to +70°C

Storage temperature -30°C to +80°C

Ambient Relative Humidity 5% to 95% (non-condensing)

-Quality Assurance

MTBF 50000hrs

Warranty 5 years

-Approvals

CE

-Standard

DL/T 1100.1-2018

IEC 60068-2-78

IEC 61000-4-2

IEC 61000-4-4

IEC 61000-4-5

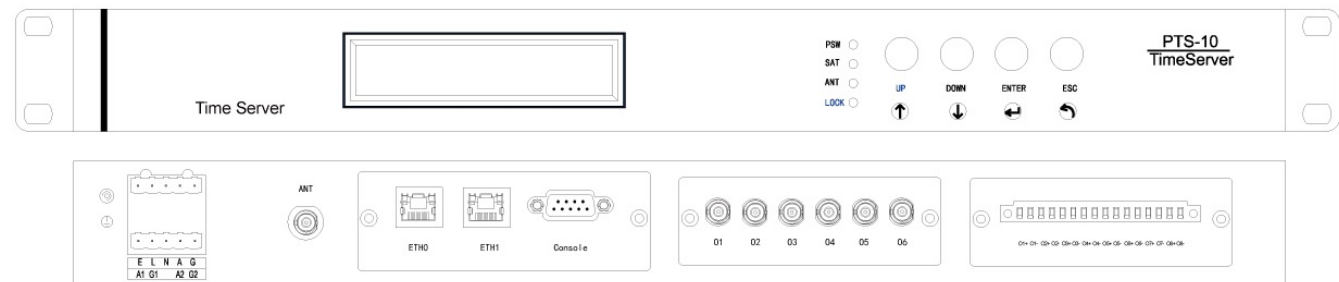
IEC 61000-4-8

IEC 61000-4-9

IEC 61000-4-10

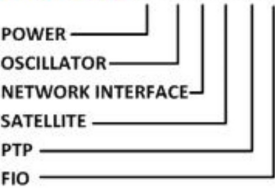
IEC 61000-4-12

Mechanical Drawing



Ordering Information

PTS-10X-C-DDDDXXXXXXXXXXXX-XX



POWER	
1	110-220VAC/DC Single
OSCILLATOR	
1	TCXO (<55μs/1h)
3	OCXO (<6μs/24h)
NETWORK INTERFACE	
1	2 × 10/100Base-TX
6	2 × 1000Base-X SFP slot, 10/100/1000Base-T(X) Combo ports
SATELLITE	
1	GPS
2	GPS/BDS (Dual-Mode)
3	GPS/GLONASS (Dual-Mode)(Customizable)
PTP	
1	PTPv2 (ETH0/ETH1)
FIO	
0	N/A
1	FI1 (ST 850nm MM) + FI2 (ST 850nm MM)

TIME Server Model

Model	Description
PTS-10X-1-36211XXXXXXXXXXXX-10	GPS/BDS, OCXO(6us/24H), 2*100/1000M C/F(LC), Alarm Contact, FI1+FI2, PTPv2, 85~264V AC/DC

PTS-10X-1-11210XXXXXXXXXXXX-10	GPS/BDS, TCXO, 2*100M Base-T, Alarm Contact, PTPv2, 85~264V AC/DC
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TIME OUTPUT MODULE (max 2pcs for 2 slots)

PTS-10X-OUT-PPS-TTL-TB	Output module with terminal connector for 8 outputs of TTL PPS
PTS-10X-OUT-PPS-TTL-BNC	Output module with 5 BNC ports for TTL PPS
PTS-10X-OUT-PPS-850-FO	Output module with 6 ST 850nm fiber ports for PPS
PTS-10X-OUT-PPS-1310-FO	Output module with 6 ST 1310nm fiber ports for PPS
PTS-10X-OUT-PPS-485-TB	Output module with terminal connector for 8 outputs of RS485 PPS
PTS-10X-OUT-CONTACT-TB	Output module with terminal connector for 8 outputs of PPS/PPM contact
PTS-10X-OUT-IRIG-TTL-TB	Output module with terminal connector for 8 outputs of TTL IRIG-B (DC)
PTS-10X-OUT-IRIG-TTL-BNC	Output module with 5 BNC ports for TTL IRIG-B (DC)
PTS-10X-OUT-IRIG-850-FO	Output module with 6 ST 850nm fiber ports for IRIG-B (DC)
PTS-10X-OUT-IRIG-1310-FO	Output module with 6 ST 1310 nm fiber ports for IRIG-B (DC)
PTS-10X-OUT-IRIG-485-TB	Output module with terminal connector for 8 outputs of RS485 IRIG-B (DC)
PTS-10X-OUT-IRIG-AC-TB	Output module with terminal connector for 6 outputs of IRIG-B (AC)
PTS-10X-OUT-PPS-232-TB	Output module with terminal connector for 6 outputs of RS232 PPS
PTS-10X-OUT-TOD-232-TB	Output module with terminal connector for 6 outputs of RS232 TOD
PTS-10X-OUT-TOD-485-TB	Output module with terminal connector for 8 outputs of RS485 TOD
PTS-10X-OUT-COMBO-DB9	Output module with 1 BNC port for IRIG-B (AC), 2 BNC ports for TTL PPS/IRIG-B (DC), 1 DB9 port for RS232 TOD
PTS-10X-OUT-COMBO-FO	Output module with 2 BNC ports for IRIG-B (AC), 2 BNC ports for TTL PPS/IRIG-B (DC), 1 ST 850nm fiber port for PPS/IRIG-B

ANTENNA

PTS-ANT-GPS-BDS-TNC	GPS/BDS, TNC Female Connector
PTS-ANT-GPS-BDS-N	GPS/BDS, N Female Connector
PTS-ANT-GPS-BDS-GLN_TNC	GPS/BDS/GLONASS, TNC Female Connector
PTS-ANT-GPS-BDS-GLN_N	GPS/BDS/GLONASS, N Female Connector
PTS-ANT-CABLE-15	Coaxial Cable (15 meters) (N Male to BNC Male Connector)
PTS-ANT-CABLE-30	Coaxial Cable (30 meters) (N Male to BNC Male Connector)
PTS-ANT-CABLE-50	Coaxial Cable (50 meters) (N Male to BNC Male Connector)
PTS-ANT-CABLE-80	Coaxial Cable (80 meters) (N Male to BNC Male Connector)
PTS-ANT-CABLE-100	Coaxial Cable (100 meters) (N Male to BNC Male Connector)
PTS-ANT-AMPLIFIER	Antenna Amplifier (BNC Female to Male Connector) (Needed when the antenna cable length exceeds 100 meters)
PTS-ANT-LIGHTING	Lighting Arrester (BNC Female to Male Connector)
PTS-ANT-BNC-J/BNC-K-30cm	Lightning protection device feeder 30 centimeters
PTS-ANT-MOUNT-BASE	Base Mount accessory for antenna
PTS-ANT-MOUNT-HOOP	Hoop Mount accessory for antenna

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