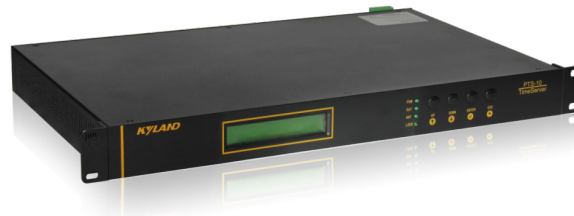


# PTS-10A

## 1U rack mounting high-precision time servers



### » Overview

PTS-10A is a multifunction time server. PTS-10A 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-10A 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-10A supports TMS (Time Management System) features to report PTS-10A 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
- 100-360VDC/85-264VAC, redundant power inputs
- Dual satellite channels (GPS, BDS, GLONASS Optional)
- Support integrated TCXO or OCXO for time holdover
- Support safe and reliable multi-source selection algorithm to guarantee time output accuracy
- Support LCD screen display and operation by keys on front panel

Support up to 10 BNC ports for TTL PPS/IRIG-B (DC) or 4 BNC ports for IRIG-B (AC)+6 BNC ports for TTL PPS/IRIG-B (DC)

Support 2 DB9 ports for RS232 TOD

Support time status management function

Support Web, SNMP management

## **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

Differential level $\leq$ 0.5 $\mu$ s

Contact $\leq$ 3 $\mu$ s

IRIG-B Fiber $\leq$ 60ns

TTL $\leq$ 60ns

AC  $\leq$ 20 $\mu$ s

Differential level $\leq$ 0.5 $\mu$ s

Serial Data RS232 $\leq$ 5ms

RS485 $\leq$ 5ms(RS485 customizable)

NTP  $\leq$ 50 $\mu$ 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 $\mu$ s per hour

OCXO 6 $\mu$ s per 24h

**-Input Interface**

Satellite SAT1: BNC connector (5VDC)

SAT2: BNC connector (5VDC)

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

FI2: SMA connector

FO1+FO2: ST 850nm MM

**-Network Interface**

Ethernet

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

2 $\times$ 1000Base-X SFP slot, 10/100/1000Base-T(X) Combo ports + 2 $\times$ 10/100Base-TX RJ45 ports

**-Output Interface**

Type 1 4 BNC ports for IRIG-B (AC), 6 BNC ports for TTL PPS/IRIG-B (DC), 2 DB9 ports for RS232 TOD

Type 2 10 BNC ports for TTL PPS/IRIG-B (DC), 2 DB9 ports for RS232 TOD

**-Power Supply**

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

Single/Dual power input(s)

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

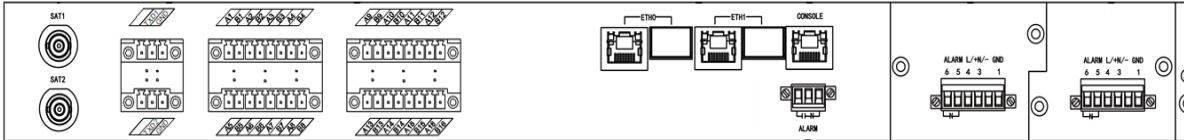
IEC 61000-4-8

IEC 61000-4-9

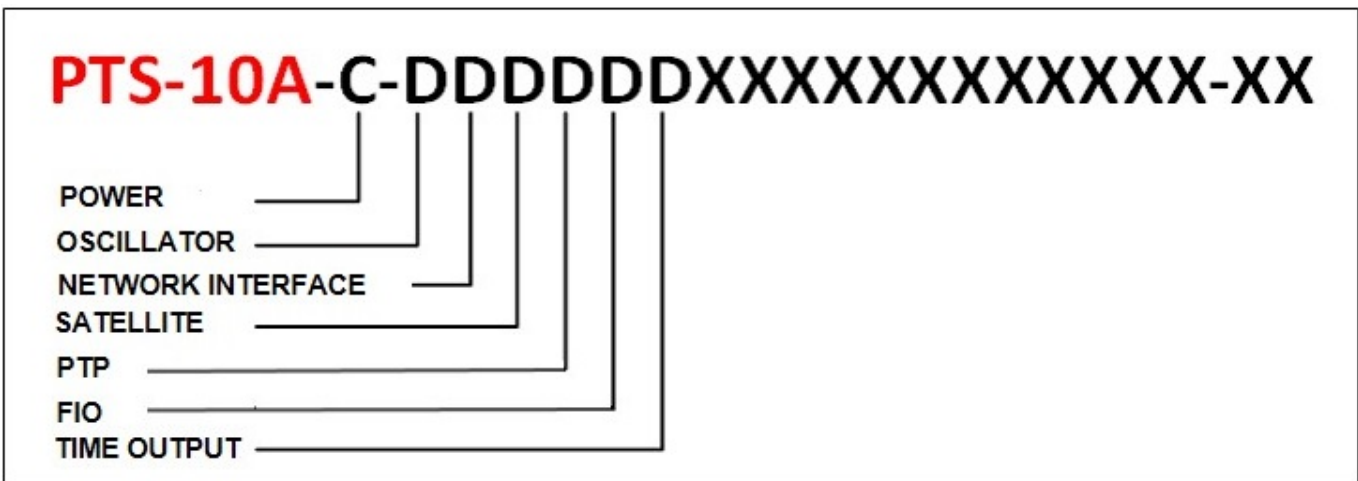
IEC 61000-4-10

IEC 61000-4-12

**» Mechanical Drawing**



## Ordering Information



<b>POWER</b>	
1	110-220VAC/DC Single
2	110-220VAC/DC Dual
<b>OSCILLATOR</b>	
1	TCXO (<55µs/1h)
3	OCXO (<6µs/24h)
<b>NETWORK INTERFACE</b>	
7	2 × 1000Base-X SFP slot, 10/100/1000Base-T(X) Combo ports + 2×10/100Base-TX RJ45 ports
<b>SATELLITE</b>	
2	GPS/BDS (Dual-Mode)
5	GPS+BDS (Dual-channel)
6	GPS+GLONASS (Dual-channel)(Customizable)
<b>PTP</b>	
1	PTPv2 (ETH0/ETH1)
<b>FIO</b>	
0	N/A
1	FI1 (ST 850nm MM) + FI2 (SMA) + FO1 (ST 850nm MM) + FO2 (ST 850nm MM)
<b>TIME OUTPUT</b>	
0	4 BNC ports for IRIG-B (AC), 6 BNC ports for TTL PPS/IRIG-B (DC), 2 DB9 ports for RS232 TOD
1	10 BNC ports for TTL PPS/IRIG-B (DC), 2 DB9 ports for RS232 TOD

**SOFTWARE**

PTS-10A-S11                      WEB + SNMP

**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)
- 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

MODEL	POWER	OSCILLATOR	NETWORK INTERFACE 2*100/1000M C/F(LC)+2*100 M Base-T Support NTP/SNTP PTP optional	SATELLITE	PTPv2	FIO	TIME OUTPUT	SOFTWARE PTS-10A-S11 WEB+SNMP
PTS-10A-2-175100XXXX XXXXXXXX-XX	Dual	TCXO	√	GPS+BDS Dual- channel	√	N/A	4 BNC ports for IRIG-B(AC),6 BNC ports for TTL PPS/IRIG- B(DC),2 DB9 ports for RS232 TOD	√
PTS-10A-2-175110XXXX XXXXXXXX-XX	Dual	TCXO	√	GPS+BDS Dual- channel	√	F1(ST 850nm MM)+F12(SMA)+FO1(ST 850nm MM)+FO2(ST 850nm MM)	4 BNC ports for IRIG-B(AC),6 BNC ports for TTL PPS/IRIG- B(DC),2 DB9 ports for RS232 TOD	√
PTS-10A-2-175111XXXX XXXXXXXX-XX	Dual	TCXO	√	GPS+BDS Dual- channel	√	F1(ST 850nm MM)+F12(SMA)+FO1(ST 850nm MM)+FO2(ST 850nm MM)	10 BNC ports for TTL PPS/IRIG-B(DC),2 DB9 ports for RS232 TOD	√
PTS-10A-2-375110XXXX XXXXXXXX-XX	Dual	OCXO	√	GPS+BDS Dual- channel	√	F1(ST 850nm MM)+F12(SMA)+FO1(ST 850nm MM)+FO2(ST 850nm MM)	4 BNC ports for IRIG-B(AC),6 BNC ports for TTL PPS/IRIG- B(DC),2 DB9 ports for RS232 TOD	√
PTS-10A-2-176110XXXX XXXXXXXX-XX	Dual	TCXO	√	GPS+GLN Dual- channel Customizabl e	√	F1(ST 850nm MM)+F12(SMA)+FO1(ST 850nm MM)+FO2(ST 850nm MM)	4 BNC ports for IRIG-B(AC),6 BNC ports for TTL PPS/IRIG- B(DC),2 DB9 ports for RS232 TOD	√
PTS-10A-1-172100XXXX XXXXXXXX-XX	Single	TCXO	√	GPS/BDS Dual-Mode	√	N/A	4 BNC ports for IRIG-B(AC),6 BNC ports for TTL PPS/IRIG- B(DC),2 DB9 ports for RS232 TOD	√