

PTS-10A

1U rack mounting high-precision time servers



» Overview

PTS-10A is a multifunction time server designed for 1U 19-inch rack mounting. It provides nanosecond-level accurate time services for various industry fields.

PTS-10A supports GPS (Global Positioning System), BDS (BeiDou Satellite Navigation System), and GLONASS (Global Navigation Satellite System) as sky time sources, and PTP (Precision Time Protocol) and IRIG-B as ground time sources. Based on multiple time source inputs, PTS-10A integrates multi-time-source selection logic and a sky-ground time backup mechanism to ensure reliable time synchronization.

PTS-10A supports PTP (Precision Time Protocol), NTP (Network Time Protocol), IRIG-B, 1PPS, 1PPM, 1PPH, and TOD time synchronization signal outputs. In addition, it supports HSR (High-availability Seamless Redundancy) and PRP (Parallel Redundancy Protocol) to ensure seamless network redundancy and high availability in mission-critical networks, especially in power system communication architectures. It can generate accurate GOOSE signals to trigger events for monitoring IED time status in power systems, and provides GOOSE subscriber capability to transmit time status through IEC 61850 MMS.

PTS-10A has been widely deployed in power systems, industrial automation, healthcare, 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 HSR/PRP Function

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

Support Time status management function

Web, SNMP management

HTTPS, Syslog

Complies 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

Differential level \leq 0.5 μ s

Contact \leq 3 μ s

IRIG-B Fiber \leq 60ns

TTL \leq 60ns

AC \leq 20 μ s

Differential level \leq 0.5 μ s

Serial Data RS232 \leq 5ms

RS485 \leq 5ms(RS485 customizable)

NTP \leq 50 μ s

PTP \leq 50ns

-Frequency

GPS: L1 1575.42MHZ+1.023MHZ

BDS: B1 1559.052MHZ - 1591.788MHZ

-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 (5VDC)

SAT2: BNC connector (5VDC)

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

FI2: SMA connector

FO1+FO2: ST 850nm MM

-Network Interface

Non HSR/PRP Model Ethernet

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

HSR/PRP model Ethernet

1 \times 10/100/1000Base-T(X) Combo port +1 pair 100/1000Base-X HSR/PRP A & B SFP port + 2 \times 10/

100Base-T(X) 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

Type 3 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) 483mm × 45mm × 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

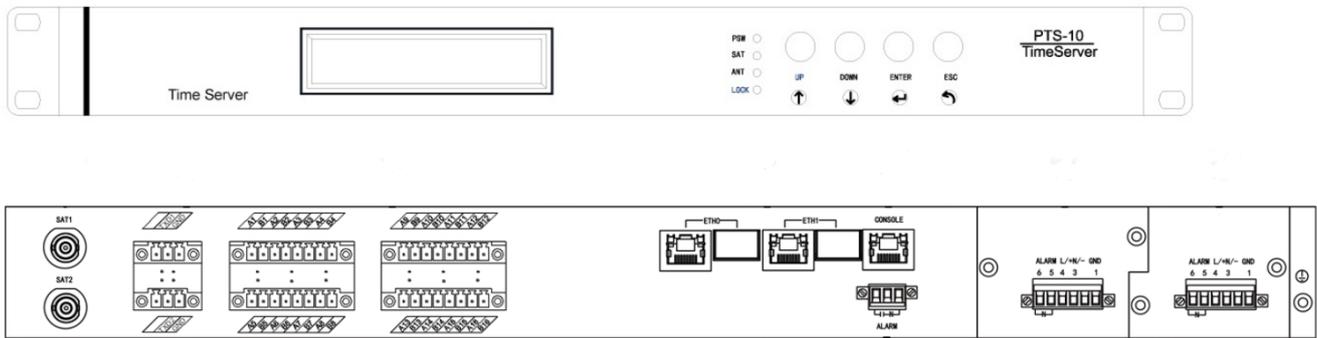
IEC 61000-4-8

IEC 61000-4-9

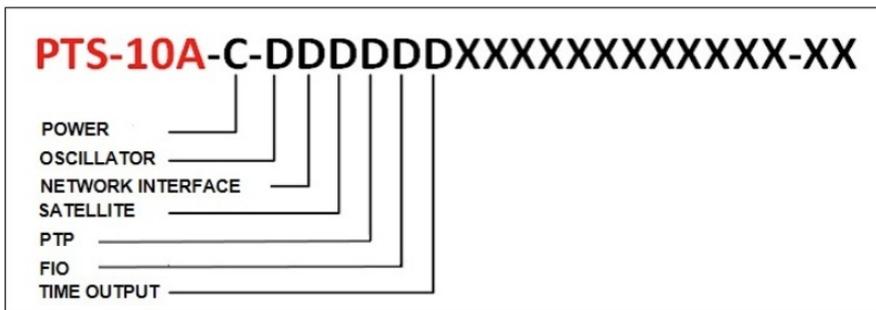
IEC 61000-4-10

IEC 61000-4-12

➤ Mechanical Drawing



➤ Ordering Information



POWER

- 1 110-220VAC/DC Single
- 2 110-220VAC/DC Dual

OSCILLATOR

- 1 TCXO (<55µs/1h)
- 3 OCXO (<6µs/24h)

NETWORK INTERFACE

- 7 2 × 1000Base-X SFP slot, 10/100/1000Base-T(X) Combo ports + 2×10/100Base-TX RJ45 ports
- 8 1×10/100/1000Base-T(X) Combo ports +1 pair 10/100/1000Base-T HSR/PRP A & B SFP port + 2×10/100Base-TX RJ45 ports

SATELLITE

- 2 GPS/BDS (Dual-Mode)
- 5 GPS+BDS (Dual-channel)
- 6 GPS+GLONASS (Dual-channel)

PTP

- 1 PTPv2 (ETH0/ETH1)

FIO

- 0 N/A
- 1 FI1 (ST 850nm MM) + FI2 (SMA) + FO1 (ST 850nm MM) + FO2 (ST 850nm MM)

TIME OUTPUT

- 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
- 2 2 DB9 ports for RS232 TOD

SOFTWARE

PTS-10A-S11 WEB + SNMP (Default)

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

MODEL	POWER	OSCILLATOR	NETWORK Interface; Support HSR/PRP	SATELLITE	PTPv2	FIO	TIME OUTPUT	SOFTWARE PTS-10A-S11
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	√	F11(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	√	F11(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	√	F11(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	√	F11(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	√
PTS-10A-2-382112XXXX XXXXXXXX-XX	Dual	OCXO	√	GPS/BDS Dual-Mode	√	F11(ST 850nm MM)+F12(SMA)+FO1(ST 850nm MM)+FO2(ST 850nm MM)	2 DB9 ports for RS232 TOD	√