

# ePT-100

## High-precision Timing Test Analyzer



- BDS (Beidou Satellite System), GPS, IRIG-B, TOD, PTP etc., can be used as time source
- OCXO or Rubidium features
- Safety and reliable multiple source selection algorithm
- 1PPS/1PPM/1PPH/10kHz output
- IRIG-B-DC/AC output
- Idle Contact time output
- 1PPS+TOD time output
- RS-232/485 serial port output
- NTP/SNTP output
- PTP V2 output
- Screen display(3U-Touch Screen/1U-LCD Screen)
- Monitoring(IEC61850/IEC60870/DNP/SNMP(Optional))
- Alarm Contact output
- Dual power supplies (3U)



### » Overview

ePT-100 time test analyzer is a portable time test instrument designed to provide PTP, NTP, IRIG-B, PPS, pulse frequency, pulse width, SOE, idle contact timing test and provide PPS, IRIG-B, NTP, PTP(OC/TC/BC, E2E/P2P) time output.

ePT-100 time test set supports IEC61850 SV/GOOSE message time performance test to get message delay over Ethernet. ePT-100 time test set has high precision measurement reference clock which can be synchronized to absolute time such as GPS, BDS etc. and relevant time such as PTP, IRIG-B, serial time etc. It is equipped with Rubidium for stable hold feature.

ePT-100 time test set provides network protocol capturing and analyzing features for user to solve all kinds of Ethernet communication issues. All captured messages with high precision time tag are saved as standard format files such as PCAP, CSV etc. ePT-100 time test set with more functions is easy to take because of its small size and light weight. The built-in battery makes it work without external power supply.

ePT-100 time test set is designed for any time synchronization system and IEC61850 system. It is a useful auxiliary tool to help user do more IEEE1588 (PTP) and IEC61850 researches. ePT-100 time test set has HMI to help user easier to analyze data by trend, histogram etc. It supports internal and external storage. All timing test data are saved into a standard file which are easier to reload and analyze manually. All screens also can be captured manually. All test result statistics can be shown as average, offset value etc.

### » Key Features

- GPS, BDS external time sources
- PTP, IRIG-B, Serial Code external time sources
- Rubidium for hold performances
- PPS, IRIG-B, Serial, NTP, PTP time output
- PPS, IRIG-B(DC/AC) timing test, NTP, PTP etc. network timing test
- 1PPS+TOD, serial Code timing test
- Pulse frequency, pulse width, SOE timing test

- IRIG-B code monitoring and storage
- IEC61850 SV/GOOSE time performance test
- Switch PTP message residence time test
- Multiple Merge Units time performance test
- Network protocol capturing and storage(PCAP/CSV)
- Idle contact input/output SOE measurement
- Time performance analyzer software, time status management
- Digital scope feature, screen capture feature, built-in battery

### Specification

- Internal BDS synchronization  $\leq 100\text{ns(UTC)}$
- Internal GPS synchronization  $\leq 30\text{ns(UTC)}$
- Hold performance  $\leq 2\mu\text{s/day}$
- 1PPS output  $\leq 30\text{ns}$
- PPS Timing  $\leq 20\text{ns}$ , Resolution: 1ns
- Pulse Width Measurement  $\leq 20\text{ns}$ , Resolution: 1ns
- IRIG-B-DC Timing  $\leq 20\text{ns}$ , Resolution: 1ns
- IRIG-B-AC Timing  $\leq 1\mu\text{s}$ , Resolution: 1ns
- 1PPS+TOD Timing  $\leq 20\text{ns}$ , Resolution: 1ns
- Start Bit+Serial Code Timing  $\leq 1\mu\text{s}$ , Resolution: 1ns
- NTP Timing  $\leq 1\mu\text{s}$ , Resolution: 8ns
- PTP Timing  $\leq 20\text{ns}$ , Resolution: 8ns
- SOE  $\leq 10\mu\text{s}$ , Resolution: 1ns
- IEC61850 SV/GOOSE: 0.1us
- Internal Storage  $\geq 2\text{G}$
- Screen Snapshot: Yes
- Built-in Battery  $\geq 4$  Hours
- Dimensions: 469 x 312 x 150 mm (18.46 x 12.28 x 5.91 inch)

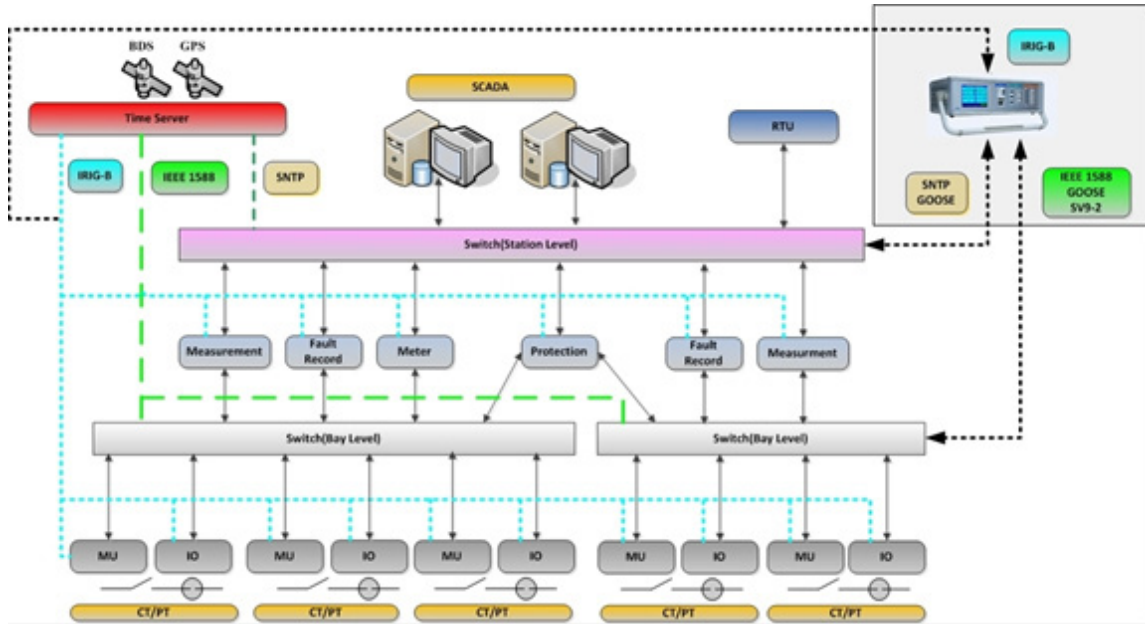
### Interface

- 1PPS+TOD/IRIG-B/Serial: RS422/RS232, RJ45, 2 Input/Output
- 1PPS/IRIG-B/Frequency: TTL, BNC, 3 Input/ 4 Output
- 1PPS/IRIG-B/Frequency: Fiber, ST, 3 Input/ 5 Output
- IRIG-B: AC, BNC, 2 Input / 1 Output
- NTP/PTP/Time Management:

100/1000M Base-T, RJ45, or  
 1000M Base-FX SFP, or  
 100M Base-FX SFP,  
 1 (Input/Output)

DI/ DO: Idle Contact, Terminator, 2 Input/Output  
 Auxiliary Power: 24/48/110/220VDC, Terminator, 4 Sets  
 Storage Interface: USB2.0  
 System Maintenance Interface: RS232 RJ45

## Typical Application



## Ordering Information

ePT-100	-	1	-	D	D	D	D	D	D	D
<b>Power Supply</b>										
85 ~ 264V AC/DC		1								
<b>OSCILLATOR</b>										
OCXO				1						
RUBIDIUM				2						
<b>ETHERNET</b>										
1x100M Base-T+1x1000M C/F MUX					3					
1x100M Fiber+1x1000M C/F MUX					4					
2x1000M C/F MUX					6					
<b>SAT RECEIVER</b>										
GPS						1				
GPS/BD DUAL-MODE						2				
<b>BATTERY</b>										
N/A							0			
BACKUP BATTERY							1			
<b>I/O BOARD</b>										
N/A								0		
2xDI, 2xDO, 4xAUX POWER SUPPLY								1		
<b>PTP TEST</b>										
N/A									0	
PTP MEASURE									1	
<b>IEC 61850 TEST</b>										
N/A										0
GOOSE/SMV TIME TEST										1