

PSPT

Portable Survivable Precision Time Clock



Resilient Portable Timing for Evolving Requirements

Founded on Safran's SecureSync® precision time and frequency technology. The PSPT provides a portable precision master clock capabilities that can be easily transported. Use cases include locations that require a temporary GNSS based time and frequency synchronization due to a system failure or lightning strike. Portable Jamming and Spoofing detection capabilities (optional). In addition, the PSPT can also be utilized as a test tool to validate remote site timing and frequency synchronization against UTC traceable time.

Modularity

Built-in time and frequency functions are extended with up to 2 optional input/output modules. The PSPT unit provides configurable Input/Output timing interfaces (TTL pulse, RS232/RS485, IRIG AM/DCLS), in addition to 10 MHz and 1 pps outputs. If more interfaces are needed, the base unit supports 2 option cards, enabling multiple combinations of frequency, phase, NMEA or Have Quick time codes, or network synchronization.

Networking

The PSPT provides strong and scalable networking capability, thanks to higher embedded processing power. Two, 1 Gigabit Ethernet ports (one RJ45, one SFP) are available on the base unit enabling flexible network synchronization as a NTP server or PTP master/slave as a NTP stratum 2 server, or as a PTP slave/boundary clock.

Features

- Multi-GNSS synchronization (GPS, Galileo, GLONASS, BeiDou, QZSS)
- GPS jamming and spoofing detection option
- Internal precision timekeeping via Rubidium Oscillator
- Supports a wide variety of available input/output signals

Safran Federal Systems is the trusted Resilient PNT mission partner to U.S. government and defense organizations, from the lab to the field.

1 PPS Timing Output:

	Rubidium
Accuracy to UTC (1-sigma locked to GPS)	±15 ns
Holdover (constant temp after 2 weeks of GPS lock)	
After 4 hours	0.2 μs
After 24 hours	1 μs
Signal waveform and levels: TTL (5V _{p-p}), into 50 ohm, BNC	

10 MHz Frequency Output:

Internal Oscillator	Rubidium
Accuracy (average over 24 hours when GPS locked)	1x10 ⁻¹²
Medium Term Stability (without GPS after 2 weeks of GPS lock)	5x10 ⁻¹¹ /month (3x10 ⁻¹¹ /month typ)
Short Term Stability (Allan Deviation)	
1 sec	1x10 ⁻¹¹
10 sec	9x10 ⁻¹²
100 sec	4x10 ⁻¹²
Temperature Stability (peak-to-peak)	1x10 ⁻¹⁰
Phase Noise (dBc/Hz)	
@1 Hz	-80
@10 Hz	-98
@100 Hz	-120
@1 kHz	-140
@10 kHz	-140
Signal waveform and levels: +13 dBm Sine into 50 ohm, BNC	

Specifications

See option card descriptions for additional performance specifications.

Communications

Network Port

- Dual Gb Ethernet (one RJ-45, one SFP)

Serial Set-up Interface

- RS-232 communications on front panel via micro USB, and RJ-45

Front Panel

- LED segments for time display
- OLED menu display and keypad for status and basic configuration
- LED status buttons with one-click menu access

Power

- Rubidium: 50 W normal (80 W start-up)

Battery

- Rechargeable Lithium-Ion [BB-2590]
- Watt Hours: 225
- Battery Run Time: 8 hours

Physical and Environmental

Size & Weight

- Dimensions: Pelican Model 1430. 16.40 x 8.71 x 13.15 in (41.7 x 22.1 x 33.4 cm)
- Weight: 26.5 pounds

Timing Signals

10 MHz Sine Output, BNC

SW Configurable Timing Output, BNC

- TTL Output (1 PPS, xPPS [output only], IRIG DCLS, HAVE QUICK)

SW Configurable Timing Input/Output, HD-15

- TTL Input/Output (1 PPS, xPPS [output only], IRIG DCLS, HAVE QUICK)
- RS-232 Input/Output (NMEA, ASCII ToD)
- RS-485 Input/Output (1 PPS, xPPS [output only], IRIG DCLS, HAVE QUICK, NMEA, ASCII ToD)
- IRIG AM Output

Network Services

Management & Communications

- IPv4/IPv6: Dual stack
- VLAN Support
- DHCPv4/DHCPv6 (AUTOCONF)/SLAAC: Automatic IP address assignment
- Syslog: Logging
- HTTP(S): Browser-based configuration and monitoring
- REST API Configuration and monitoring
- (S)FTP Server: Access to files (logs, etc.)
- SNMP: Supports v1, v2c, and v3 (no auth/auth/priv) with Enterprise MIB
- SMTP: Email

Security Features

- Configurable Password Policy
- Authentication: LDAP, RADIUS, TACACS+
- Enable/Block protocols
- Access Control Lists
- HTTP Strict Transport Security (HSTS) support
- SSL/SSH
- TLS v1.2, v1.3
- SFTP/SCP: Securely transfers files to and from the time server over an SSH session
- SNMP v3: Remotely configure and manage over an encrypted connection
- Alert notifications via SNMP traps and email
- Signed software updates

Timing

- NTP v2, v3, v4: Conforms with RFC 1305 and 5905. Supports Unicast, Broadcast, Multicast, Symmetric Key Encryption, Peering, Stratum 2
- SNTP v3, v4: Conforms with RFC 1769, 2030, 4330, and 5905
- PTP v2: Conforms with IEEE 1588:2019. Supports Master, Slave, E2E, IPv4/v6, Multicast, Unicast, Hybrid modes
- PTP supported profiles: default, power (IEEE 61850-9-3, IEEE C37.238-2011/2017), telecom (ITU-T G.8265.1, G.8275.2 master only)

GNSS Receiver

- Connector: Type SMA with Type N cable adapter, +5V to power active antenna
- Frequency: GPS L1 (1575.42 MHz), Galileo E1

(1575.42 MHz), GLONASS L1 (1602.0 MHz), Bei-Dou B1 (1561.1 MHz), QZSS L1 (1575.42 MHz);

- Satellite tracking: 1 to 72, T-RAIM satellite error management
- Synchronization time: cold start <15 minutes (includes almanac download), warm start <5 minutes (assumes almanac downloaded)

Options

- GPS jamming and spoofing detection: SS-OPT-BSH
- I/O timing signals breakout cable enables conversion from single HD-15 connector to individual BNC and Sub-D connectors:CA08R-D500-0001
- SFP (copper, FO Single Mode, FO Multi-Mode)



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