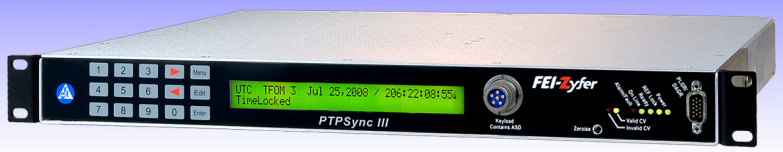
FEI-Zyfer

GPS Time and Frequency Systems

PTPSync III™

PTP v2 Grandmaster Clock



Designed, Manufactured, and Supported in the USA

System Features:

- **IEEE-1588 PTP v2 Grandmaster Clock**
- **Supports NTP, SNTP, Telnet**
- **Supports IPv4 and IPv6**
- **100 nanosecond accuracy over Ethernet**
- **GPS Receiver:** Civil C/A or Military SAASM
- **User Interfaces:**
  - RS-232
  - Dual Ethernet 10/100 (Telnet, SNMP, NTP)
  - Keypad LCD
- **Windows GUI:** Zyfer Monitor™
- **Three I/O Module slots for customization**
- **Certification:** All units are certified to an in-house NIST standard traceable to UTC.
- **Support:** Lifetime support and software upgrades included.

PTPSync III

The PTPSync III™ is a compact 1U high, 19" rack mountable GPS time and frequency instrument based on the FEI-Zyfer's CommSync II® family of time and frequency systems. When requirements call for Precision Time Protocol v2 (PTP v2), where space is at a premium and when redundancy is not required, the modular design of the PTPSync III offers the perfect solution.

The PTPSync III comes configured with either a civil-use GPS receiver, using the C/A signal, or with a military SAASM GPS receiver, using either the L1-P(Y) or the L2-P(Y) signal. The standard off-the-shelf configuration supports the IEEE 1588-2008 (PTP v2) protocol as well as Network Time Protocol (NTP) and SNTP. The PTPSync III provides three I/O module slots for customization of the system using FEI-Zyfer's hot-swappable option modules. Configurable option modules include IRIG, Have Quick, Programmable Clock Rate, Frequency Synthesizer, Phase Aligned, and Low Phase Noise outputs (other options available).

There are two RS-232 communications ports and two Ethernet ports on the rear panel for remote system monitoring and control functions. This allows the system to be connected to a control PC or second network for system control and monitoring via Telnet or SNMP with SSH.

IEEE 1588-2008 is designed for small LANs requiring precise timing and synchronization beyond what can be attained with NTP v4. FEI-Zyfer's PTP v2 products are fully compliant with the IEEE 1588–2008 (PTP v2) protocol. PTP v2 includes enhancements over previous PTP versions, such as transparent clocks for improved accuracy, fault tolerance, and faster update rates.

FEI-Zyfer, Inc.
7321 Lincoln Way Garden Grove CA 92841
Toll-free 888-886-7465 E-mail: sales@fei-zyfer.com www.fei-zyfer.com

PTPSync III™ Specifications

Ethernet Specifications (both ports except as noted)

Connector Type	(2) RJ-45 Auto MDI/MDIX
Signal	10/100Base-TX
Configuration	IPv4, IPv6 address, netmask and gateway selected by user
Compatibility	Ethernet version 2.0/IEEE 802.3
SNMP support	MIB2, and FEI-Zyfer custom MIB, SNMPv1,v2c and v3
NTP Support	Version 1, 2, 3, and SNTP
PTP Support (Port 0 only)	IEEE 1588-2008 (PTP v2)
Command Protocol	Per FEI-Zyfer Document 385-8002

Output Specifications (a)

Frequency Accuracy:	
24 Hour Average	OCXO
Locked to GPS	< 1E-12
Holdover (b) - after 24 hrs.	< 1E-10

Time Accuracy: ≤ ± 5ns to UTC for calibrated units.	
	OCXO
Locked to GPS	< 50ns Peak
Holdover (b) - after 24 hrs.	< 7µs

Short-Term Stability (d) typical:	
Allan Deviation	OCXO
1 sec:	< 1E-11
10 sec:	< 1E-11
100 sec:	< 1E-10

Phase Noise (d) typical:		
	Standard	Low Noise 5MHz
1Hz:	< -90dBc/Hz	< -103dBc/Hz
10Hz:	< -105dBc/Hz	< -130dBc/Hz
100Hz:	< -125dBc/Hz	< -143dBc/Hz
1000Hz:	< -135dBc/Hz	< -153dBc/Hz

Power Options

Several Power Input options are available, including 115 or 230 VAC (nominal) 50/60Hz or 12, 24 and 48 VDC.

Input/Output Rear Panel

1PPS, 50Ω, TTL level, BNC, Ext. Sync Input
RS-232 I/O connector
10 MHz, 50Ω, TTL level, BNC connector
1PPS, 50Ω, TTL level, BNC connector
GPS Antenna, TNC connector
(2) RJ-45 Auto MDI/MDIX

GPS Receiver Options

Standard GPS Receiver - Civil C/A Code	
Type:	8 - 12 channel, independent tracking
Frequency:	1575.42MHz (L1)
Code:	C/A only
Acquisition Time:	Warm Start: < 2 minutes Cold Start: < 20 minutes

SAASM GPS Receiver (e) - Military P(Y) Code	
Type:	12 channel, independent tracking
Frequency:	1575.42MHz & 1227.60MHz (L1 & L2)
Code:	C/A and P(Y)
Acquisition Time:	Warm Start: < 2 minutes Hot/Cold Start: see note (f)
Keyload Interface:	DS-102 (Red/Black-key capable)

Chassis Dimensions

Height:	44 mm (1.75") (1U)
Width:	448 mm (17.65) (19" EIA Rack)
Depth:	381 mm (15.0") including connectors
Weight:	10 lbs. (max.)

Environmental

Operating Temperature:	0°C to 50°C
Rate of Change:	10°C / Hour
Storage Temperature:	-40°C to +85°C
Relative Humidity:	5% to 95%, non-condensing
Altitude, Operating:	-60m to 4000m
Altitude, Storage:	-60m to 9000m

Input/Output Front Panel (SAASM only)

Keyload Interface - DS-102 (Red & Black-key)
Hot Start connector
Zeroize button

Notes:

(a) After 2 hours of GPS locked operation, fixed antenna location, antenna delays entered.
(b) After 48 hours of continuous operation.
(c) 2σ (95.5% probability).
(d) Detailed specifications for various output modules: See "Option Module User's Manual 385-8003".
(e) The sale of SAASM receivers is restricted to users authorized by the U.S. Department of Defense.
(f) Dependent on the accuracy of initialization parameters from PLGR or DAGR handheld military GPS receivers, or other initialization devices.

FEI-Zyfer, Inc. is an ISO 9001 certified company.

FEI-Zyfer, Inc.
7321 Lincoln Way Garden Grove CA 92841
Toll-free 888-886-7465 E-mail: sales@fei-zyfer.com www.fei-zyfer.com