FEI-Zyfer

GPS Time and Frequency Systems

IEEE 1588-2008

PTP v2 Ethernet I/O Module

FEI-Zyfer, Inc., the leading provider of precision time and frequency reference systems, offers a IEEE 1588-2008 Precision Time Protocol (PTP v2) Dual Port Ethernet, Input/Output Module for our CommSync II® family of systems.

The PTP v2 Modules allow customers to configure new or existing systems to support both PTP v2 and legacy requirements. As with other FEI-Zyfer module options, the modules are hot-swappable and can be configured in any CommSync II, CommSync II-D, GSync®, or GSync II systems with available slots. The PTP v2 Modules are available in three versions: with an RS-232 Status & Control port, or with a 1 PPS external reference input, or with 1, 5, or 10 MHz external reference inputs via either coaxial or fiber-optic cables.

385-4097-01
PTP Module

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

The PTP v2 Modules provide two 10/100Base-T IPv4 and IPv6 TCP/IP Ethernet connections. This allows the same Ethernet module to connect to two separate networks for controlling and monitoring of the CommSync II family of systems through Telnet, SSH, or SNMP. The PTP v2 Modules are configurable as either a PTP Grandmaster or Slave via the system RS-232 port or via the Ethernet port (Telnet). In addition to providing PTP Grandmaster capability, the module also provides (NTP/SNTP) network time service. When referenced to GPS, the PTP v2 Module can also be used as a Network Measurement device, allowing for the monitoring and measuring of PTP Grandmaster performance. Easy to read diagnostic LEDs on the Module provide for immediate visual identification of module status.

Features:

- **Three PTP v2 Module versions available**
- **100 nanosecond accuracy over Ethernet** via pass-through hubs
- **PTP Grandmaster or Slave,** software configurable
- **10/100 Ethernet I/O:** Includes Telnet, SSH, SNMP, SNTP, and NTP
- **IPv4 and IPv6 support**
- **External Reference Input Options:**
  1 PPS:
  50Ω Coax, BNC (f)
  1, 5, or 10 MHz:
  50Ω Coax, BNC (f) or Fiber Optic, ST conn
- **External Reference Media Options:**
  Coax via BNC
  Fiber Optic via ST
- **Support:**
  Lifetime support and software upgrades included

Designed, Manufactured and Supported in the USA

FEI-Zyfer, Inc.
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Dual Port Ethernet I/O IEEE 1588-2008 (PTP v2) I/O Module Specifications
385-4097-01 through –03

Ethernet Specifications (both ports except as noted)

Connector Type	(2) RJ-45
Signal	10/100Base-Tx
Configuration	IPv4 address, netmask and gateway selected by user
Configuration	IPv6 address, netmask and gateway selected by user
Compatibility	TCP/IP, 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

RS-232 I/O Interface (385-4097-01 only)

Connector Type	9-contact female D-Subminiature
Output (TxD)	Pin 2
Input (RxD)	Pin 3
Signal Return	Pin 5
Signal Levels	RS-232 compatible
Baud Rate	19200
Data Bits	8
Stop Bits	1
Parity	None

Input Specifications 385-4097-02 (1 PPS Input)

Connector Type	BNC female
Number of Inputs	2 (A and B inputs)
Input Frequency	1 PPS
Minimum Input Pulse Width	10 µS
Input Signal Type	Square Wave or Pulse
Input Signal Amplitude	1 to 5 Vp-p
Input Stability Required to Discipline Rb DTF	≤ 1E-10
Input Stability Required to Discipline OCXO DTF	≤ 1E-9
Trigger	Rising edge
Input Impedance	> 100K W

Note: For 1 PPS input an external termination (50Ω) is required.

Input Specifications 385-4097-02 (Frequency Input)

Connector Type	BNC female
Number of Inputs	2 (A and B inputs)
Input Frequency	1 MHz, 5 MHz, or 10 MHz
Input Signal Type	Square Wave or Sine Wave
Input Signal Amplitude	0.7 Vp-p to 10 Vp-p
Input Stability Required to Discipline Rb DTF	≤ 1E-10
Input Stability Required to Discipline OCXO DTF	≤ 1E-9
Input Impedance	> 100K W

Note: For square wave inputs an external termination (50Ω) is required.

Input Specifications 385-4097-03 (Fiber-Optic Frequency Input)

Connector Type	ST (for fiber)
Number of Inputs	2 (A and B inputs)
Input Frequency	5 MHz or 10 MHz
Input Signal Type	Square Wave or Pulse
Input Signal Amplitude	-20 (min) to -8 (max) dBm
Input Stability Required to Discipline a Rb DTF	≤ 1E-10
Input Stability Required to Discipline an OCXO DTF	≤ 1E-9
Wavelength	850 nm
Fiber Cable	Multi-mode 50/125 or 62.5/125

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

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