CommSync II-D®

2U Redundant Modular GPS Time and Frequency System

FEATURES

- **Accuracy**
  - Time: < 50 ns Peak (UTC) < 50 ns RMS
  - Frequency: 1E-12
- **GPS Receivers**
  - Standard Civil C/A Code (L1) Frequency
  - Military M-code, P(Y) Code (L1, L2)
- **User interface**
  - Standard RS-232
  - Keypad/display
  - Ethernet I/O (Telnet, SNMP)
  - Zyfer Monitor™ GUI
- **Time Server**
  - SNTP, NTP
  - PTPv2 IEEE 1588-2008
- **Standard Outputs**
  - 1 PPS
  - 10 MHz
  - 8 output module slots for flexibility
- **External sync input (for distribution systems)**
- **All systems are calibrated with an in-house standard traceable to UTC**

CommSync II-D Model 407

CommSync II-D® is a fully-redundant, modular time and frequency system, combining dual GPS receivers, oscillators, and up to 8 output Option Modules in a single 2U chassis. The heart of the CommSync II-D is the GTF (GPS Time and Frequency) Module. This GTF Module is fully self-contained with a Quartz Oscillator or Rubidium Atomic Clock, and a commercial C/A or military M-code GPS receiver (BAE Systems MPE-M). For redundancy, two GTF Modules, which are hot-swappable, can be installed in the front of the system.

Utilized as a Primary Reference Source (PRS), the CommSync II-D provides either Standard Positioning Service (SPS) GPS (the Civil C/A signal) or the very latest in GPS military technology - M-code GPS receivers (for approved users only). With GPS as the reference source, the CommSync II-D provides a frequency accuracy of 1E-12 and a time accuracy of < 50 ns Peak to UTC(GPS), for calibrated units. It is also designed to take external inputs to provide internal frequency synchronization to the accuracy of the external source.

The CommSync II-D can be populated with (8) Option Modules, including: 1 Pulse Per Second (1PPS) @ 10V or TTL, Low-Phase Noise sine wave, T1/E1, Time Code, Network Time Protocol (NTP), and Precise Time Protocol (PTP) v2 (IEEE 1588-2008). The full line of common CommSync II and GSync option modules are shown in the option module listing on our website.

For Monitor and Control functions there is an RS-232 communication port on the front panel of the GTF module, as well as optional Ethernet rear plug-in modules providing Telnet, SNMP, Network Time Protocol (NTP), and PTPv2 IEEE 1588-2008.

FEI-Zyfer products come with a standard 2 year factory warranty (parts & labor).

Rear Panel View

Dual Antenna Inputs

8 Hot-Swappable Option Module Slots

Power Supply AC or DC Options

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FEI-Zyfer, Inc. is an ISO 9001:2015 and AS9100D certified company.

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FEI-Zyfer

Output Specifications (GTF Front Panel)

After 24 hours of GPS locked operation, fixed antenna location, antenna delays entered.

Frequency Accuracy - 24 Hour average [a]

	Rubidium Clock	Quartz OSC
Locked to GPS:	< 1E-12	< 1E-12
Holdover[a] – first 24 hours:	< 5E-11	< 1E-10

Time Accuracy to UTC, for calibrated units [b]

	Rubidium Clock	Quartz OSC
Locked to GPS:	< 50 ns Peak	< 50 ns Peak
Holdover[a] – first 24 hours:	< 3 us	< 7 us

Short-Term Stability [c] typical (Allan Deviation)

	Rubidium Clock	Quartz OSC
1 sec:	< 3E-11	< 1E-11
10 sec:	< 1E-11	< 1E-11
100 sec:	< 3E-12	< 1E-10

Phase Noise [c] typical	Standard	Low Noise 5 MHz
1 Hz:	< −90 dBc/Hz	< −100 dBc/Hz
10 Hz:	< −105 dBc/Hz	< −130 dBc/Hz
100 Hz:	< −125 dBc/Hz	< −150 dBc/Hz
1 kHz:	< −135 dBc/Hz	< −158 dBc/Hz

Standard Input/Output (GTF Front Panel)

(1) 1 PPS, 50 Ω, TTL level, SMA, External Sync input

(1) RS-232 I/O, DE-9 Connector

(1) 10 MHz, 50 Ω, TTL level, SMA Connector

(1) 1 PPS, 50 Ω, TTL level, SMA Connector

- M-code Option

(1) Key Load connector, (1) Hot Start connector, (1) Zeroize button, (1) Auxillary Receiver Direct Access Port

Power Options

• AC input (115/230 VAC)	90-132 and 180-264 VAC, 130 Watts max., 47-63 Hz
• DC input (24 VDC)	18-36 VDC, 120 Watts max.
• DC input (48 VDC)	36-76 VDC, 120 Watts max.

GPS Receiver Options

Standard GPS Receiver - Civil C/A Code

Type:	12 to 24 channel, independent tracking	
Frequency:	1575.42 MHz (L1)	
Code:	C/A only	
Acquisition Time: [b]	Warm Start:	< 2 minutes
	Cold Start:	< 20 minutes

M-code GPS Receiver - Military M-code, P(Y)-Code [d], C/A code

MPE-M:	24 channel, independent tracking
Frequency:	1575.42 MHz and 1227.60 MHz (L1 & L2)
Code:	C/A, P(Y), and M-code
Acquisition Time [b]	
Warm start:	< 90 seconds
Hot Start:	TTFF(95%) < 15 seconds
Keyload Interface:	DS-101

Physical

Height:	87 mm (3.50") (3U)
Width:	438 mm (17.25") Mounts in 19" EIA rack
Depth:	419 mm (16.5") incl. connectors
Weight:	27 lb. maximum
Panel Color:	Black Satin finish (Front Panel)

Environmental		MIL-STD-810G
Operating Temperature:	0 °C to 50 °C	501.5 & 502.5
Storage Temperature:	−40 °C to +85 °C	501.5 & 502.5
Humidity:	5 % to 95 % non-condensing at 40 °C	507.5
Operating Altitude:	−60 m to 4000 m	500.5
Storage Altitude:	−60 m to 9000 m	500.5
EMC/EMI:	FCC Code of Federal Regulations 47CFR Part 15, Subpart B, Class B	

Notes:

(a) After 48 hours of continuous operation.

(b) 2σ (95.5 % probability).

(c) Detailed specifications for various frequency output modules: see "Option Module User Manual".

(d) Note: U.S. Government policy restricts the sale of M-code equipment to those authorized by the U.S. Department of Defense. Non-U.S. authorized users must purchase M-code equipment through the Foreign Military Sales (FMS) process.

Specifications subject to change without notice.

Designed, Manufactured, and Supported in the U.S.A.

Over 100+ Option Modules available. For a complete list contact FEI-Zyfer, Inc.

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