

### FEATURES

- Accuracy
  - Time: < 50 ns Peak (UTC)
  - < 50 ns RMS
  - Frequency: 1E-12
- GPS Receivers
  - Standard Civil C/A Code (L1) Frequency
  - SAASM Military C/A-P(Y)-Codes (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
  - 13 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 Model 385**

**CommSync II<sup>®</sup>** is a fully-redundant, modular time and frequency system, combining dual GPS receivers, oscillators, and up to 13 output option modules in a single 3U chassis. The heart of the CommSync II is the GTF (GPS Time and Frequency) Module. This GTF module is fully self-contained with a Quartz or Rubidium oscillator, and a commercial C/A or military SAASM GPS receiver (Rockwell-Collins MPE-S GB-GRAM or Trimble Force 22E MRU). For redundancy, two GTF modules, which are hot-swappable, can be installed in the front.

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

The CommSync II can be populated with 13 output option modules, including Low-Phase Noise sine wave, T1/E1, Time Code, and Network Time Protocol (NTP). 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



Power Supply  
AC or DC Options

13 Hot-Swappable Option Module Slots

Power Supply  
AC or DC Options

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



### Output Specifications (GTF Front Panel)

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

Frequency Accuracy - 24 Hour average<sup>(a)</sup>

	Rubidium OSC	Quartz OSC
Locked to GPS:	<1E-12	<1E-12
Holdover <sup>(a)</sup> – first 24 hours:	<5E-11	<1E-10

Time Accuracy to UTC, for calibrated units<sup>(b)</sup>

	Rubidium OSC	Quartz OSC
Locked to GPS:	<50 ns Peak	<50 ns Peak
Holdover <sup>(a)</sup> – first 24 hours:	<3 us	<7 us

Short-Term Stability<sup>(c)</sup> typical (Allan Deviation)

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

Phase Noise<sup>(c)</sup> 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

### 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

- SAASM Option

(1) Key Load connector, (1) Hot Start connector, (1) Zeroize button

### Power Options

• AC input (115/230 VAC)	90 to 264 VAC, 150 Watts max., 47-63 Hz
• DC input (24 VDC)	18-36 VDC, 150 Watts max.
• DC input (48 VDC)	36-76 VDC, 150 Watts max.
• DC input (12 VDC)	11.5-18 VDC, 150 Watts max.
• DC input (28 VDC aircraft bus)	22-29 VDC, 150 Watts max.

### GPS Receiver Options

Standard GPS Receiver - Civil C/A Code

Type:	8 to 12 channel, independent tracking	
Frequency:	1575.42 MHz (L1)	
Code:	C/A only	
Acquisition Time <sup>(b)</sup>	Warm Start:	<2 minutes
	Cold Start:	<20 minutes

SAASM GPS Receiver - Military P(Y)-Code<sup>(d)</sup>

MPE-S GB-GRAM:	12 channel, independent tracking	
FORCE 22E MRU:	24 channel, independent tracking	
Frequency:	1575.42 MHz and 1227.60 MHz (L1 & L2)	
Code:	C/A and P(Y)	

Acquisition Time<sup>(b)</sup>

Warm start:	<2 minutes	
Hot or Cold Start:	Dependent on accuracy of initialization parameters from PLGR or DAGR handheld military GPS receivers, or other initialization devices	

Keyload Interface: DS-102

### Physical

Height:	134 mm (5.25") (3U)	
Width:	448 mm (17.65") Mounts in 19" EIA rack	
Depth:	381 mm (15") includes connectors	
Weight:	25 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 Precise Positioning Service (PPS) equipment to those authorized by the U.S. Department of Defense. Non-U.S. authorized users must purchase PPS 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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