

SyncSystem 4380A

Master Timing Reference



Key Features

- Timing accuracy: < 10 ns RMS
- Frequency accuracy: < 1E-13 @ 1 day
- Phase noise: -110 dBc/Hz (1 Hz Offset)
- Holdover: 250 ns @ 1 day
- Network Time Protocol (NTPv4)
- Hot-swappable user output modules
- Redundant and hot-swappable power supplies
- SSHv2 Network Management Console
- L1/L2 GPS receiver mitigates effect of ionospheric delay changes and supports advanced GPS processing
- Remote software upgrades via network
- External frequency reference input enables augmented timing performance when higher stability frequency standard is available

The Microsemi® SyncSystem 4380A provides superior time and frequency performance in a highly configurable 1U rack-mountable package, building upon the successful 4370A DVB SyncSource. The combination of a high performance internal atomic oscillator and L1/L2 GPS receiver ensures accurate synchronization of the system with UTC(USNO) while still providing the excellent phase noise and short-term stability demanded by metrology, aerospace, communications, and defense applications.

Configurable and Scalable

The 4380A is well suited to satisfy your current timing needs and provide the scalability to meet future requirements as well. Each 4380A has six expansion ports for hot-swappable user output modules that provide a wide array of timing signals.

Enhanced Timing Performance

Although the 4380A already employs an internal rubidium oscillator, the unit also has the ability to use an external frequency reference (e.g., 5071A, MHM 2010) when available. This further enhances the performance of the 4380A without requiring additional upgrades.

Positioning Data

Recognizing that timing is often just one component of our customers' overall solution, positioning data from the internal L1/L2 GPS receiver is provided to users as well. GPS measurement data can either be logged to internal memory for subsequent downloading and post-processing or output in real-time via the Ethernet port.

Remote Monitoring and Control

An Ethernet interface allows users to remotely monitor and control the unit as well as upgrade the system software and firmware. Support for RS-232 is also available through the use of a USB/RS-232 adapter and the local USB ports.

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Specifications

STANDARD INPUT/OUTPUT SIGNALS

- GPS input
 - Connector TNC(F)
 - Antenna voltage 0, +5 VDC, +12 VDC (selectable)
- 10 MHz input
 - Connector BNC(F)
 - Level 10 dBm ± 3 dB
 - Impedance 50 Ω
 - Format Sine wave
- Serial
 - Connector DB9(M) (requires USB to RS-232 converter)
 - Format RS-232
 - Baud 115,200 (others available upon request)
- Network interface
 - Connector RJ-45
 - Interface 10/100/1000 Base-T
- 4385A – AC power input module (2 included)
 - Connector IEC 60320 C-14 Inlet
 - Voltage 100-240 VAC, 45-65 Hz
- 4386A – DC power input module (optional, requires DC option in chassis)
 - Connector 3 pin (mating connector: AMP #1-350346-0)
 - Voltage 22 – 60 VDC
- 4394A – PPS/DC IRIG output module (optional)
 - PPS (default configuration)
 - Outputs 2
 - Connector BNC(F)
 - Level > 2.4 V high, < 0.8 V low (into 50 Ω)
 - Pulse width 100 μs ± 10%
 - Rise time < 2 ns
 - Jitter < 100 ps
 - DC IRIG (default configuration)
 - Outputs 2
 - Connector BNC(F)
 - Format B003
 - Level > 2.4 V high, < 0.8 V low (into 50 Ω)
- 4395B-10 – 10 MHz output module (optional)
 - Outputs 4
 - Connector BNC(F)
 - Level 13 dBm ± 2 dB
 - Format Sine wave
 - Harmonics < -40 dBc
 - Impedance 50 Ω
- 4387A – IRIG output module (optional)
 - Outputs 4
 - Connector BNC(F)
 - Format B123
 - Level 3 Vpp (into 50 Ω)
 - Modulation ratio 10:3

MECHANICAL/ENVIRONMENTAL

- Size 1.75" (h) x 19.00" (w) x 19.00" (d)
- Weight 20 lbs (9.1 kg)
- Operating temperature 0° C – 50° C
- Humidity 0 – 95% non-condensing
- Power 55 Watts

TIMING PERFORMANCE

- NTP Stratum-1 (~ 100 NTP requests/second)
- Time accuracy < 10 ns RMS
- Frequency accuracy 1E-13 @ 1 day
- Temperature stability 3E-10 (0° C to 50° C)
- Aging 5E-11 / month
- Holdover 250 ns @ 1 day
- Allan Deviation (GPS locked)
 - 1 s 6E-13
 - 10 s 8E-13
 - 100 s 8E-13
 - 1,000 s 6E-13
 - 10,000 s 6E-13
 - 100,000 s 1E-13
- Phase noise (4395B-10)
 - 1 Hz -110 dBc/Hz
 - 10 Hz -132 dBc/Hz
 - 100 Hz -145 dBc/Hz
 - 1 kHz -150 dBc/Hz
 - 10 kHz -155 dBc/Hz
 - 100 kHz -155 dBc/Hz
 - 1 MHz -155 dBc/Hz

OPTIONAL ACCESSORIES

- 4395A-1 1 MHz output module
- 4395A-5 5 MHz output module
- 4395B-10 10 MHz output module
- 4394A PPS/DC IRIG output module
- 4387A IRIG output module
- 4393A 4-Channel PPS measurement card
- 94000-115200 RS-232 console interface (115,200 bps) included
- 94001-5071A 5071A serial converter (9600 bps)
- 90240-TT30 Antenna cable, LMR-240, 30 m, TNC(M)-TNC(M)
- 90000-L1L2 Inline GPS signal amplifier, L1/L2
- 92000 L1/L2 GPS antenna included



Rear Panel View



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