

# Time and Frequency GPS Clock Model: 8835

## Application - Defense (Military) ♦ SatCom ♦ Wireless

- ♦ Range Timing
- ♦ Base Station Synchronization
- ♦ Communications
- ♦ Simulcast Systems
- ♦ DAB/DTV
- ♦ Network Time Synchronization
- ♦ Test and Measurement Systems

### Features:

- ♦ GPS Referenced Time and Frequency
- ♦ Stratum 1 Accuracy
- ♦ Choice of Oscillator and Holdover Options
- ♦ Small Form Factor
- ♦ 10/100 base-T Ethernet Port
- ♦ Network Timer Sever
- ♦ SNMP
- ♦ 24VDC and 48VDC Power Input Options
- ♦ Optional AC Power



### Description:

The Model 8835 GPS Time and Frequency Clock incorporates a 12-channel GPS receiver, disciplined oscillator and time and frequency signal generation in a small form factor enclosure. Outputs include 1 PPS and 10 MHz. Oscillator options include single oven and double oven crystal oscillator. Both oscillator options provide Stratum 1 stability and a low phase noise 10 MHz frequency reference signal.

When tracking GPS, a propriety discipline algorithm steers the oscillator to the GPS reference providing < 50 nanoseconds RMS accuracy to UTC and long term frequency stability of <  $1E^{-12}$  (24-hour average). During times when no satellites are being tracked (holdover), time output drift of less than 7 microseconds and frequency drift of less than  $5E^{-10}$  in 24 hours is achieved with the double oven oscillator.

Control and status is available through RS-232 I/O and Ethernet interfaces. The Ethernet interface provides a variety of network protocols including NTP, SNMP, Telnet, SSH, SSL, and FTP.

Three power input options are available to meet a variety of installations. These include 24VDC, 48VDC and 100-240 VAC. For AC applications an external AC/DC power supply is provided.

Specifications subject to change without notice.



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## Specifications:

Oscillator Options Parameter	Single Oven Oscillator	Double Oven Oscillator
Frequency accuracy while tracking GPS	<1E <sup>-12</sup> (24-hour average)	<1E <sup>-12</sup> (24-hour average)
Frequency accuracy in holdover	<1E <sup>-9</sup> /day	<1E <sup>-10</sup> /day
1 PPS accuracy while tracking GPS	< 50 nanoseconds RMS to UTC	< 50 nanoseconds RMS to UTC
1 PPS drift in holdover (after 72 hours locked to GPS)	< ± 1 microsecond in 2 hours at constant temperature ± 5°C	< ± 7 microsecond in 24 hours over operating temp 10°C per hour change
10 MHz harmonic distortion	-20 dBc	-30 dBc
10 MHz spurious	-80 dBc	-80 dBc
Phase noise @ 10 Hz offset	-110 dBc	-115 dBc
Phase noise @ 100 Hz offset	-135 dBc	-135 dBc
Phase noise @ 1 kHz offset	-145 dBc	-145 dBc
Phase noise @ 10 kHz offset	-150 dBc	-150 dBc
Phase noise @ 100 kHz offset	-150 dBc	-150 dBc

### GPS Receiver

Frequency: L1 (1575.42 MHz) C/A code  
 Channels: 12 independent, continuous tracking channels  
 Acquisition Time: <5 minutes cold start  
 External Gain: 18dB to 36dB  
 Antenna Power: +5VDC (5 - 80 ma)  
 Connector: TNC

### 1 PPS Output

Waveform: 100 microsecond pulse width,  
positive edge synchronized to UTC  
 Level: TTL into 50 ohms  
 Accuracy: < 50 nanoseconds RMS to UTC  
 Connector: BNC

### 10 MHz Output

Waveform: Sinusoidal  
 Level: +13dBm ± 2dB into 50 ohms  
 Connector: BNC

### Com Port

Signal levels: RS-232  
 Baud rate: 9600  
 Protocol: 1-start bit, 8-data bits,  
1-stop bit, no parity  
 Connector: 9-pin female D-sub

### Ethernet Port

Interface: 10/100 Base T  
 Protocols: Telnet, FTP, SNMP and NTP  
 Connector: RJ-45

### Power Input

24 VDC option (18 to 36 VDC)  
 48 VDC option (36 to 72 VDC)  
 15 watts at power up  
 8 watts steady state @ +25°C

### AC/DC option

+15 VDC input from an external AC/DC switching power supply.

Note: AC/DC power supply is rated for 0°C to +40°C

### Environmental

Temperature  
 Operating: -30°C TO +60°C  
 Storage: -45°C TO +85°C  
 Humidity: 95% non-condensing

### Physical

Dimensions: 5" L x 4" W x 1.6" H  
 Weight: < 1 lb  
 Mounting: Six #6-32 screw holes in base  
 Optional Mounting: U1 rack mounting adapter

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