

Acutime 2000

GPS Smart Antenna for Precise Timing and Synchronization

Key Features

- Timing pulse synchronized to within ± 100 nanoseconds (one sigma) of UTC
- Operating temp -40° to $+85^{\circ}$ C
- Option of RS-422/485 or RS-232 interface
- Standard 8-channel or premium 12-channel option

Trimble's new Acutime™ 2000 GPS smart antenna marks the integration of the latest GPS technology into a rugged self-contained unit that enables easy integration into any system. The Acutime 2000 is a pole-mounted GPS receiver and antenna in an environmentally sealed enclosure. The Acutime 2000's design continues Trimble's line of GPS smart antennas, which have been in production since 1991. It is the perfect solution for precise timing and synchronization of wireless voice and data networks and provides a cost-effective and independent timing source for any application.

Once power is applied, the Acutime 2000 automatically tracks satellites and surveys its position to within meters. It then switches to overdetermined time mode and generates a pulse-per-second (PPS) output synchronized to UTC within ± 100 nanoseconds (one sigma), outputting a time tag for each pulse. The Acutime 2000's T-RAIM (Time-Receiver Autonomous Integrity Monitor) algorithm ensures PPS integrity.

Designed for long-term reliability, the Acutime 2000 GPS smart antenna is water-resistant and weatherproof, and has a rounded top that facilitates run-off from the elements.



The Acutime 2000 is the premier time source for synchronization of wireless voice and data networks.

OPTIONS

The Acutime 2000 is available in a number of configurations to suit all environments. The standard Acutime 2000 is an 8-channel receiver; a premium 12-channel option is also available. The interface is available in either an RS-422/485 (for long cable runs required by buildings or towers) or an RS-232.

GETTING STARTED

The Acutime 2000's Starter Kit makes it easy to evaluate the exceptional performance of this GPS smart antenna and integrate state-of-the-art technology into your system. The Starter Kit includes the Acutime 2000 smart antenna, a 100' interface cable, user guide, RS-422 to RS-232 converter, and a Windows software tool for monitoring and communication.

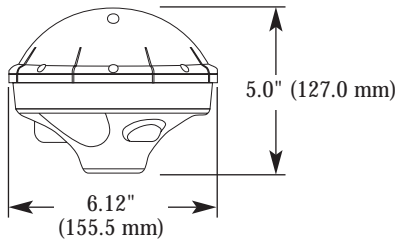
Trimble

Acutime 2000

GPS Antenna for Precise Timing and Synchronization

PHYSICAL CHARACTERISTICS

Dimensions: 6.12" D, 5.0" H (155.5mm x 127.0mm)
 Weight: 12.8 oz (363 g)
 Connector: 12-pin round, waterproof
 Mounting: 1"-14 straight thread
 Mechanical Drawing:



ENVIRONMENTAL SPECIFICATIONS

Operating temp: -40 to +85° C
 Storage temp: -55 to +105° C
 Vibration: 0.008 g²/Hz 5 Hz to 20 Hz
 0.05 g²/Hz 20 Hz to 100 Hz
 -3dB/octave 100 Hz to 900 Hz
 Operating Humidity: 95% RH, non-condensing @ 60° C
 EMC: CE, FCC Class B

PERFORMANCE SPECIFICATIONS

General: L1 frequency, C/A code (SPS), continuous tracking receiver. Available in 8-channel or 12-channel.
 Update Rate: 1Hz
 Accuracy:
 Position: 40m CEP
 Velocity: 0.25 m/s CEP
 Time to First Fix (no stored position): 8-channel typical cold start: < 120 seconds
 12-channel typical cold start: < 110 seconds
 Time to First PPS (stationary with stored position, e.g., recovery after power outage): <60 seconds
 Re-acquisition after 60-second signal loss: <2 seconds (90%)
 Dynamics:
 Velocity: 500 m/sec maximum
 Acceleration: 4g (39.2 m/sec²)
 Jerk: 20 m/sec³
 PPS output
 Physical Interface: RS-422
 Width: 10 microseconds (default). User-programmable from 10 microseconds to 500 milliseconds.
 On-Time Edge: Rising edge on-time (default). User-programmable rising or falling.
 Resolution: 80 nanoseconds (quantization error reported through TSIP)
 Accuracy (one sigma): UTC ±60 nanoseconds (static, without S/A)
 UTC ±100 nanoseconds (static)
 UTC ±300 nanoseconds (dynamic, TDOP≤3)

External Event Capture

Interface: RS-422/485 or RS-232
 Resolution: 320 nanoseconds
 Minimum Pulse Width: 1 microsecond, rising edge on-time
 Reporting Mechanism: TSIP Packet

ELECTRICAL SPECIFICATIONS

Prime Power: +8 Vdc to +36 Vdc, reverse polarity protection
 Power Consumption: 110mA @ 12 volts, 1.2 watts (typical), <1.5 watts max

SERIAL PROTOCOLS

Port	Interface	Protocols	Defaults
TxB (primary)	RS-422/485 or RS-232	TSIP, NMEA	TSIP @ 9600, 8-odd-1
RxB (primary)	RS-422/485 or RS-232	TSIP, RTCM	TSIP @ 9600, 8-odd-1
TxA (secondary)	RS-422/485 or RS-232	TSIP	TSIP @ 9600, 8-odd-1

All ports support baud rates of 300-38,400; 7 or 8 data bits; even, odd, no parity

NMEA messages (default): ZDA

Available messages: GGA, GLL, VTG, GSV, GSA, ZDA, RMC

ORDERING INFORMATION

Acutime 2000 GPS Smart Antenna
 8-channel, RS-422
 12-channel, RS-422

8-channel, RS-232
 12-channel, RS-232

Acutime 2000 Starter Kit
 (includes 8-channel RS-422 Acutime 2000,
 100' interface cable, RS-422/232 converter,
 Acutime Monitor software (Win 9x/2000/NT) User Guide

Acutime 2000 User Guide

Acutime 2000 interface cables
 (12 conductors, 6 twisted pairs, shielded)
 50' (15m)
 100' (30m)
 200' (60m)
 400' (120m)

For additional information, please visit Trimble's website at www.trimble.com and the Acutime 2000 product page for updates, additional tools and current part numbers.



Trimble Navigation Limited
 Corporate Headquarters
 645 North Mary Avenue
 Sunnyvale, CA 94086
 +1-408-481-8940
 +1-408-481-2202 Fax
www.trimble.com

Trimble Navigation
 Singapore PTE Limited
 79 Anson Road
 #05-02
 Singapore 079906
 +65-325-5668
 +65-225-9989 Fax

Trimble Navigation Europe Limited
 Trimble House
 Meridian Office Park
 Osborne Way
 Hook, Hampshire RG27 9HX U.K.
 +44-1256-760-150
 +44-1256-760-148 Fax

Trimble Navigation
 Australia Pty Ltd.
 Level 1/123 Gotha Street
 Fortitude Valley, QLD 4006
 +61-7-3216-0044
 +61-7-3216-0088 Fax

