Acutime Gold

GPS Smart Antenna for Precise Timing and Synchronization

Key Features and Benefits

- **Stratum 1 time source**
- **Network synchronization**
- **Timing pulse synchronized to within 15 nanoseconds (one sigma) of GPS/UTC**
- **Operating temp -40^0 to $+85^0$C**
- **Waterproof and corrosion resistant housing**
- **RoHS compliant**

Trimble's Acutime™ Gold 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 Gold is a pole-mounted GPS receiver and antenna in a single environmentally sealed enclosure.

The Acutime Gold GPS smart antenna design continues Trimble's line of GPS smart antennas, which have been in production since 1991. This GPS smart antenna is the perfect solution for precise timing and network synchronization needs, including broadband wireless applications. It provides a cost-effective and independent timing source (within the firewall) for any application, such as fault detection systems and synchronization of wireless networks.

Once power is applied, the Acutime Gold 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 15 nanoseconds (one sigma), outputting a time tag for each pulse. The Acutime Gold GPS smart antenna's T-RAIM (Time-Receiver Autonomous Integrity Monitor) algorithm ensures PPS integrity.

The Acutime Gold is the premier time source for synchronization of wireless networks.

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

Physical Interface

The RS-422 interface is ideal for long cable runs required by buildings or towers. Standard cables are available in lengths up to 400 feet. Custom lengths up to 1800 feet may be ordered.

Getting Started

The Acutime Gold 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 Gold GPS smart antenna (RS-422), a 100' interface cable, user guide, RS-422 to USB converter, and a Windows software tool for monitoring and communication.

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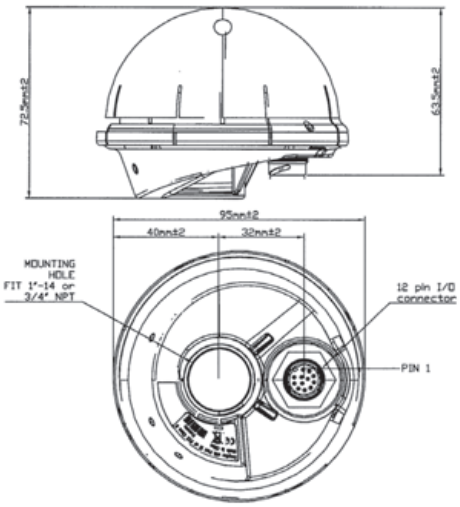
PHYSICAL CHARACTERISTICS

Dimensions: 3.74" D, 2.85" H (95mm x 72.5mm)
Weight: 5.4 oz (154 g)
Connector: 12-pin round, waterproof
Mounting: 1"-14 straight thread or 3/4" pipe thread
Mechanical drawing:



ENVIRONMENTAL SPECIFICATIONS

Operating temp:	–40° to +85° C	
Storage temp:	–55° to +105° C	
Vibration:	0.008 g^2/Hz	5 Hz to 20 Hz
	0.05 g^2/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, static overdetermined clock mode (default).	
Update Rate:	1Hz	
Accuracy Horizontal Position:	<6 meters (50%)	<9 meters (90%)
Accuracy Altitude Position:	<11 meters (50%)	<18 meters (90%)
Velocity:	0.06 m/sec	
Time to First Fix (no stored position):	<46 sec. (50%)	<50 sec. (90%)
Time to First PPS (stationary with stored position, e.g., recovery after power outage):	<14 sec. (50%)	<18 sec. (90%)
Re-acquisition after 60-second signal loss:	<2 sec. (90%)	

Dynamics
Velocity: 500 m/sec maximum
Acceleration: 4g (39.2 m/sec^2)
Jerk: 20 m/sec^3

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 15 nanoseconds (static)
UTC 90 nanoseconds (dynamic, TDOP ≤3)

External Event Capture
Interface: RS-422
Resolution: 488 nanoseconds

Minimum pulse width: 10 microsecond, rising edge on-time
Reporting mechanism: TSIP packet

ELECTRICAL SPECIFICATIONS

Prime power: +5 VDC* to +36 VDC, reverse polarity protection
Power consumption: 50mA @ 12 volts, 0.6 watts (typical), <1 watt max
* reduced cable length@ +5 VDC to +12 VDC

SERIAL PROTOCOLS

Port	*Interface*	*Protocols*	*Defaults*
TxB (primary)	RS-422	TSIP, NMEA	TSIP @ 9600, 8-odd-1
RxB (primary)	RS-422	TSIP	TSIP @ 9600, 8-odd-1
TxA (secondary)	RS-422	TSIP	TSIP @ 9600, 8-odd-1
RxA (secondary)	RS-422	Event	Event

All ports support baud rates of 4,800 – 115,200; 8 data bits; even, odd, no parity

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

ORDERING INFORMATION & ACCESSORIES

Please visit our website for updated information, part numbers and ordering information at: www.trimble.com/timing

Specifications subject to change without notice

2002/95/EC RoHS

Trimble has relied on representation made by its suppliers in certifying this product as RoHS compliant.

Trimble Navigation Limited is not responsible for the operation or failure of operation of GPS satellites or the availability of GPS satellite signals.

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CERTIFICATE OF COMPLIANCE (ROHS)

Company Name: Trimble Navigation Limited
Company Address: 935 Stewart Drive, Sunnyvale, CA 94085, USA

RE: Trimble Navigation Limited Product compliance under DIRECTIVE 2002/95/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 27 January 2003 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (hereafter sometimes, "RoHS Directive") as amended by Commission Decision of 18 August 2006, 2005/618/EC.

Product: **55238-00 (ACUTIME GOLD)**

Trimble Navigation Limited ("Trimble") has classified the above-identified Product under Category 3 (IT and telecommunications equipment) specified in Annex IA of the DIRECTIVE 2002/96/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 27 January 2003 on waste electrical and electronic equipment:

Trimble hereby certifies that, as of 1 July 2006, the above-identified Trimble Product is validated by Trimble to be in compliance in all material respects with DIRECTIVE 2002/95/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 27 January 2003 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS Directive) and Amendment 2005/618/EC filed under C(2005) 3143, with exemptions for lead in solder pursuant to Paragraph 7 of the Annex to the RoHS Directive applied. This certification is limited to Product placed on the market in the Member States of the European Union on or after 1 July 2006.

Trimble further represents that it has collected and filed for future reference RoHS information of our suppliers for the individual component parts that make up this Product; and that, to the best of Trimble's knowledge, all information provided therein is accurate.

The above-identified Product specifically does not include more than:

.1% Mercury
.1% Lead
.01% Cadmium
.1% Hexavalent chromium
.1% Polybrominated biphenyls (PBB) or Polybrominated diphenyl ethers (PBDE)

Authorized signatory for Trimble Navigation Limited:

By: Faruq 7/24/06
Faruq Palla
Vice President of Operations
Advanced Devices