

# Acutime™

## 6-Channel GPS Smart Antenna

### Description

The Acutime smart antenna is a sealed, shielded, self-contained unit housing a GPS receiver, GPS antenna, power supply and interface circuitry. Unlike separate receiver and antenna components, integration of the Acutime is simple and does not require any RF or GPS expertise. Simply mount the Acutime on a pole, route the digital cable to the host system and provide DC power. Once power is applied, the Acutime automatically provides accurate position, velocity and time information. In addition to the exceptional reliability and performance found in all Trimble GPS products, the Acutime features a timing pulse (one pps) which is synchronized to UTC within one microsecond (nominal).

### Ordering Information

#### Acutime smart antennas:

28529-61 RS-422 Interface  
28530-61 RS-232 Interface

#### Acutime interface cables:

19360-05 50'(15 m)  
19360-10 100'(30 m)  
19360-20 200'(60 m)

#### Other accessories:

25334-00 Developer's Reference Guide  
27380-01 GPS toolkit software  
21589-40 Acutime Developer's Starter Kit:  
Includes an Acutime smart antenna with RS-232 interface, 100' (30 m) interface cable, TSIP software tool kit, and developer's guide

### Physical Characteristics

**Dimensions:** 5.8" D x 3.9" H (147 mm x 100 mm)  
**Weight:** 13.4 oz. (0.38 kg)  
**Connector:** 7-pin round, waterproof connector  
**Interface cable:** 7-conductor, shielded, PVC jacket

### Technical Specifications

**Prime power:** +9 to +32 Volts DC  
**Power consumption:** 168 mA @ 12 Volts, 2.0 Watts (nominal)  
**Backup power:** +3.6 to +32 Volts DC  
**Backup consumption:** 2  $\mu$ A @ 3.6 Volts and 25°C (nominal)  
**Serial interface:** RS-422, 1 input / 1 output (28529-61)  
RS-232, 2 input / 1 output (28530-61)  
**Serial protocols:** TSIP @ 9600, 8-Odd-1  
RTCM @ 4800, 8-None-1 (28530-61)  
**One pps interface:** Open collector  
**Timing pulse:** One microsecond wide pulse with the leading edge synchronized to UTC  $\pm$  1  $\mu$ s. The leading edge is  $\leq$  20 ns wide and the pulse shape is affected by the distributed capacitance of the interface cable/circuit.

### Performance Specifications

**General:** L1 frequency, C/A code (SPS), 6-channel, continuous tracking receiver  
**Update rate:** 2 Hz  
**Accuracy:** Position: 25 m SEP without SA  
Velocity: 0.1 m/sec without SA  
Time: UTC  $\pm$  1  $\mu$ s (nominal)  
**DGPS accuracy:** Position: 2 to 5 m (2 sigma)  
(28530-61 only) Velocity: 0.1 m/sec  
Time: UTC  $\pm$   $\mu$ s (nominal)  
**Acquisition (typical):** Cold start: 2 to 4 minutes  
Warm start: 50 seconds with time upload  
Hot start: 30 seconds with time upload  
**Re-acquisition:** < 2 seconds  
**Dynamics:** Velocity: 500 m/sec maximum  
Acceleration: 4g (39.2 m/sec<sup>2</sup>)  
Jerk: 20 m/sec<sup>3</sup>  
**Noise immunity:** Resistant to broad-band noise jamming where the jammer-to-signal power ratio at the antenna/pre-amp interface is no greater than 20 dB at an input signal of -160 dBW  
**Filtering:** -20 dBm @ 1626 MHz  
-10 dBm @ 1500 MHz  
**Burnout protection:** Protected from damage by RF signals at frequencies greater than 100 MHz from the L1 frequency (1575.42 MHz), when the power received by the antenna is no greater than one watt

### Environmental Specifications

**Operating temp:** -30° to +70°C (standard)  
-40° to +85°C (optional)  
**Storage temp:** -55° to +100°C  
**Vibration:** 0.008g<sup>2</sup>/Hz 5 Hz to 20 Hz  
0.05g<sup>2</sup>/Hz 20 Hz to 100 Hz  
-3dB/octave 100 Hz to 900 Hz  
**Waterproof:** Submersion to 1 meter  
**Salt fog:** Mil. Std. 202F, Method 101D, Condition B  
**Operating humidity:** 95% R.H. non-condensing  
**Altitude:** -400 m to +18,000 m

*Specifications subject to change without notice.*