

58534A

GPS Timing Antenna



Key Features

- Operates on a wide range of input voltages
- Automatically provides 1PPS signal synchronized to the GPS system within 110 ns
- All-in-one antenna, receiver, system interface and power supply

Key Benefits

- Highly reliable
- Consumes minimal power
- Durable and easy to install

The Symmetricom® 58534A GPS Timing Antenna is a highly reliable, user-friendly, low-cost source of precision GPS time. The fully integrated antenna, GPS receiver, system interface and power supply are all ruggedized, weatherproof, and easy to install. A one-pulse-per second (1 PPS) signal synchronized to the GPS system within 110 ns is automatically provided when the 58534A is locked to the GPS satellites.

Up to 150-meter Cable Runs with Minimal Power Consumption

The 58534A conveniently operates on a wide range of input voltages. Less than 1.5 watts will power the unit. RS-422 drivers inside the 58534A allow it to operate 150 meters of interconnect cable easily. Please consult Symmetricom for installations requiring longer cable lengths.

Fast Reacquisition Time Following Power Loss

If power is lost, the Random Access Memory (RAM) which stores the navigation and satellite data continues to be powered by a super-capacitor for up to 2 hours (typical). This lets the 58534A reacquire satellites within 20 seconds after power is restored.

Excellent Immunity to Noise Interference

The 58534A is engineered for reliable operation in the toughest environments. Outstanding immunity to RF interference is imparted by three robust dielectric bandpass filters incorporated in the design. Furthermore, 2-bit A/D conversion, as opposed to 1-bit in competing products, is used to digitize the GPS signal to reduce noise interference. Corrupt satellite data is rejected and multipath is mitigated by the 58534A's Time Receiver Autonomous Integrity Monitor (T-RAIM) algorithm.

Durable and Easy to Install

The waterproof enclosure includes a high-rise dome constructed of molded, high-impact, UV-stabilized polycarbonate. Snow and debris buildup is minimized by the smooth, sloped dome. The bottom housing is durable cast aluminum treated with a polyester powder coat for corrosion resistance. The cable, composed of bundled twisted pairs, is much more flexible and easier to route than heavy RF coaxial cables. Mounting of the 58534A is easy; a high quality glass-filled nylon clamp built into the mounting hub easily secures the unit to the top of a mast. In addition, the cable connector is sheltered from the environment inside the optional mounting mast 58534A-AUB.

Mounting Hardware Kit Available

58534A-AUB provides a mounting hardware kit, complete with a galvanized stainless steel mounting mast, mounting brackets, and hardware.

58534A GPS Timing Antenna

Specifications

ELECTRICAL SPECIFICATIONS

- Receiver Architecture 16 parallel channels
L1 1575.42 MHz
C/A code (carrier aided tracking)
2-bit A/D conversion
SAW filtering
- Antenna Active micro strip patch
High jamming immunity: dielectric bandpass filtering
- Update Rate 1 Hz
- Absolute Timing Accuracy (1 PPS) <110 ns with respect to UTC (USNO MC)
–95% probability when unit is properly installed and locked to GPS
Timing output valid with one satellite acquired in Position Hold mode
- Jitter 40 ns (1 s typical) in Position Hold mode
110 ns (1 s typical) in Survey Mode
- Position Accuracy 25 m SEP without SA (See Note 1.)
100 m SEP with SA
- Acquisition Time to First Fix (TTFF) Cold Start: <2 minutes typical
- Reacquisition <20 seconds typical after loss of power (See Note 2.)

Notes:

1. Spherical error probable
2. Almanac <1 month old and Ephemeris <4 hours old

POWER

- +8 Vdc to +36 Vdc
- <1.5 Watts
- Reverse Voltage Protection, <300 V
- Backup power provided by super-capacitor to GPS data RAM, 2 hours (typical)

SERIAL COMMUNICATIONS

- Interface 9600 Baud
RS-422 Input/Output proprietary protocol based on NMEA language
- Extended Cable Support RS-422 differential pair capable of supporting 150 meters of cable

MECHANICAL SPECIFICATIONS

- Dimensions 58534A (without cable and connector): 16.5 cm H X 15.0 cm D
Mounting mast (Option AUB): 457 mm L X 31.5 mm \pm 0.125 OD
- Mounting Quick-fit clamp (glass-filled, high modulus nylon for secure clamp)
- Weight 684 g
- Cable and Connector 30.5 cm cable (12 conductors, 6 twisted pairs, shielded)
12 pin round, waterproof connector [Deutsch MMP 21C-2212P1]

ENVIRONMENTAL SPECIFICATIONS

- Operating Temperature Standard: –40°C to +80°C
- Storage Temperature –40°C to +85°C
- Shock Half sine waveform, velocity change 404.5 cm/s, <3 μ s duration
- Waterproof/Humidity Operating: <95% R.H. @ 40°C
Non-Operating: <90% R.H./24 hrs. @ 65°C
- Altitude Operating: 4.6 km @ –5°C to +60°C
Non-Operating: 4.6 km @ –40°C
- Vibration Operating: 5-500 Hz, 0.0001 g²/Hz
Survival: 5-500 Hz, 0.5 g Swept Sine
5-500 Hz, 0.015 g²/Hz Random
- EMC CE marked
CISPER 22 Radiated Emission Standards
EN 61000-4-2 (ESD Discharge Immunity Test, 15kV air discharge, 8kV contact discharge)
EN 61000-4-3 (Radiated Electromagnetic Field Immunity, 3V/m)
EN 61000-4-4 (Electrical Fast Transient/Burst Immunity, 500 V)
EN 61000-4-5 (Surge Immunity)
EN 61000-4-6 (Conducted RF Immunity)