The right one.™

RESOLUTION T

KEY FEATURES

- Automatic self-survey for improved timing accuracy.
- Extremely accurate 1 PPS output, synchronized to GPS or UTC within 15 ns (one sigma)
- Cable delay compensation removes time delay due to cable distance between antenna and receiver
- TRAIM - Timing Receiver Autonomous Integrity Monitoring assures high PPS integrity
- Quantization Error Reporting can further improve native accuracy
- Supports 3 V or 5 V Antennas
- RoHS-Compliant (Pb-free)

FULL-FEATURED, LOW-COST, EMBEDDED GPS TIMING RECEIVER

The Trimble® Resolution T® GPS Timing Receiver delivers precise timing where you need it all-in-view, 12-channel, parallel-tracking, embeddable GPS receiver designed to provide precise GPS or UTC time and synchronization for many static timing applications. The timing accuracy provides for your current needs with plenty of headroom for future requirements.

This low-cost, yet highly accurate and reliable receiver allows the system integrator to put precise timing and synchronization into locations where cost or size is a limitation. Rather than sharing time from a single timing source, with the resultant delays and loss of accuracy, you now can have precise time (synchronization) at every location regardless of how isolated or remote.

Features Flexibility with Software

The Resolution T receiver can be updated easily in the field with new features as they become available. The modular design also allows for both reduced integration time and low implementation risk.

The Resolution T receiver outputs a 1 Pulse-per-second (PPS) timing signal accurate to within 15 nanoseconds of GPS or UTC (1 sigma) when using an overdetermined solution in a stationary mode.

3 or 5 Volt Antenna Compatible

The receiver is designed for 3.3 V DC prime power, but provides a separate pin on the I/O connector for powering the antenna with a user-supplied voltage from 3.0 to 5.5 V DC.

Starter Kit

The Resolution T Starter Kit provides everything you need to start integrating the module into your application. The kit includes an active, external 5 V DC Bullet-style antenna, 50 feet of RG-59 cable, and an AC/ DC power adapter. The starter kit enclosure includes a mother board that provides serial output, and a USB interface cable.

Trimble®

RESOLUTION T

PERFORMANCE SPECIFICATIONS

General . . . . . L1 (1575.42 MHz) Frequency, C/A Code, 12-channel, parallel-tracking receiver, DSP-based
Update Rate . . . . . TSIP @ 1 Hz; NMEA @ 1 HZ
Accuracy . . . . . Horizontal Position: <6 meters (50%), <9 meters (90%)
Altitude Position: <11 meters (50%), <18 meters (90%)
Velocity: 0.06 m/sec
PPS: within 15 ns to GPS/UTC (1 Sigma)
<5 ns with quantization error removed
Acquisition . . . . . Reacquisition: <2 sec. (90%)
Hot Start: <14 sec (50%), <18 sec (90%)
Warm Start: <41 sec (50%), <45 sec (90%)
Cold Start: <46 sec (50%), <50 sec (90%)

Cold start requires no initialization. Warm start implies last position, time and almanac are saved by backup power. Hot start implies ephemeris also saved. Hot and Warm are shown for comparison purposes and are not used in timing applications.

Sensitivity . . . . . Acquisition –136 dBm
Tracking –141 dBm
Operational (COCOM) Limits* . . . . . Altitude 18,000 m
Velocity 515 m/s

**Either limit may be exceeded, but not both*

PHYSICAL CHARACTERISTICS

Dimensions . . . . . 66.3 mm L × 32.1 mm W × 8.5 mm H
(2.6”L × 1.3”W × 0.33”H)
Weight . . . . . approximately 12.5 grams (0.4 ounce)

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature . . . . . –40 °C to +85 °C
Storage Temperature . . . . . –55 °C to +105 °C
Vibration 0.008 g2/Hz . . . . . 5 Hz to 20 Hz
0.05 g2/Hz . . . 20 Hz to 100 Hz
–3 dB/octave . . 100 Hz to 900 Hz
Operating Humidity . . . . . 5% to 95% R.H. non-condensing, at +60 °C
Altitude . . . . . –400 to 18,000 m max

ELECTRICAL SPECIFICATIONS

Prime Power . . . . . +3.3 V DC ±0.3 V DC
Power Consumption . . . . . GPS board only: 350 mW @ 3.3 V
Ripple Noise . . . . . Max 50 mV, peak to peak from 1 Hz to 1 MHz
Antenna Fault Protection . . Short-circuit/open detection and protection

INTERFACE CHARACTERISTICS

Connectors . . . . . I/O: 8-pin (2x4) 2 mm Male Header
RF: Right-angle SMB (SMA optional)

Serial Port . . . . . 1 serial port (transmit/receive)
PPS. . . . . 3.3 V CMOS-compatible TTL-level pulse, once per second
Rising edge of the pulse synchronized with GPS/UTC
Protocols . . . . . TSIP @ 9600 baud, 8 bits
NMEA 0183 v3.0 @ 4800 baud, 8 bits
NMEA Messages . . . . . GGA, VTG, GLL, ZDA, GSA, GSV and RMC
Messages selectable by TSIP command
Selection stored in flash memory

ANTENNAS

Antenna . . . . . Bullet™ III, TNC (F) 3.3 V DC with 30 dB gain.
or Bullet III, F 5 V DC with 35 dB gain

ORDERING INFORMATION & ACCESSORIES

Please go to www.trimble.com/timing for updated information, part numbers and ordering information.

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

Specifications subject to change without notice.

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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