RES720™ Multi-GNSS Timing Module

Secured Dual Band (L1/L5) GNSS Timing Module with Nanosecond Accuracy

Resilient Timing

The RES720 offers an industry leading, value-engineered solution for carrier grade timing products. It is designed to meet the resilient timing requirements mandated by the 2020 Executive Order for positioning, navigation, and timing (PNT) services.

The RES720 module offers unparalleled accuracy to meet the stringent synchronization needs of the next-generation networks in various industry verticals including 5G X-Haul, Smart Grid, Data Center, SATCOM, Calibration Services and Industrial Automation applications.

Dual Band

With dual-band multi-constellation capability, RES720 reduces the timing error under clear skies to 5 nanosecond without the need for an external GNSS correction service.

Additionally, the RES720 offers the benefit of higher power L5 signals (twice as much power as L1) with its greater bandwidth, and advanced signal design lowers the risk of interference and improves multi-path protection. The multi-band capability of the RES720 allows it to compensate for the ionosphere error while reducing the timing error under clear skies to few nanoseconds without further need for correction.

The RES720 has a single RF input for all the GNSS bands to simplify host circuitry. It uses dual SAW filters for exceptional signal selectivity and out-of- band attenuation thus providing the best total cost to performance ratio.

Nanosecond-level Accuracy

The RES720 offers precision time synchronization with 5 nanosecond accuracy in normal mode of operation. RES720 is designed to meet stringent timing requirements of critical infrastructure and help operators maximize the performance of their networks and optimize the return on their infrastructure investments.

Smart GNSS Assurance™

To protect against today's sophisticated attacks and signals meaconing, Trimble's timing module offers automatic detection and failover with highly reliable anti-jamming and anti-spoofing capabilities.

Advanced Security Features

With the ideals of zero trust security, the RES720 provides secure boot and anti-tampering features by default. Additionally, RES720 offers T-RAIM to provide the highest level timing integrity.

Protocols & Configuration

Trimble's timing modules support industry standard NMEA (National Marine Electronics Association) and TSIP (Trimble Standard Interface Protocol) for configuration and control .

Key Features

► Nanosecond-level timing accuracy (5 ns 1-sigma).

► Dual Band (L1 and L5) Multi-constellation GNSS timing module.

► Protection against jamming and spoofing with Trimble's Smart GNSS Assurance™ .

► Advanced Security features that includes secure boot, secure interface and T-RAIM.

► Supports industry standard protocols such as NMEA and TSIP for configuration and Control.

► Advanced Multi-path Mitigation capabilities to distinguish and process directly received signal from reflected signals.

Trimble
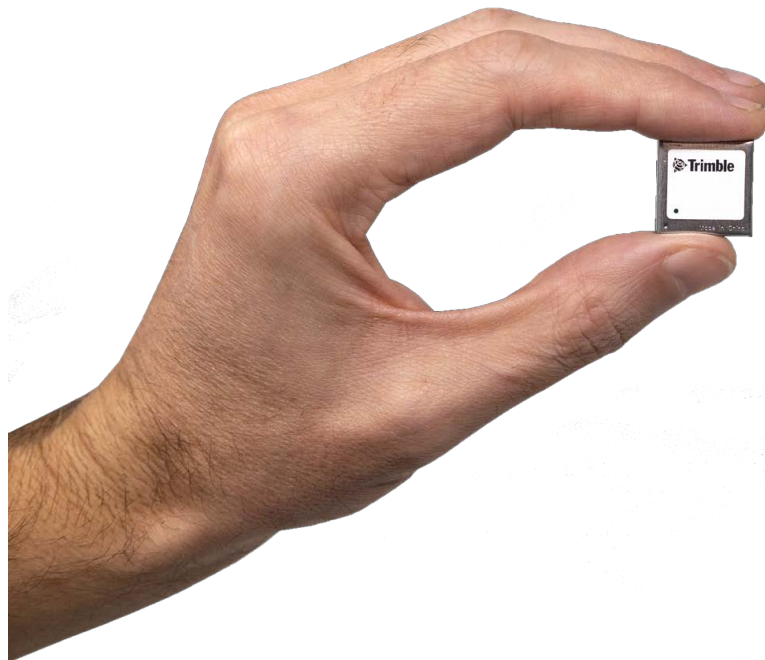
Timing Output

- 1 PPS(± 5ns)/PP2S
- Accuracy - <5 ns (1-sigma, clear sky, absolute mode)

Constellations & Bands

| Bands	Frequency	Constellations
L1	1602MHz & 1575.42 MHz	GPS, GLONASS, QZSS, Galileo
	1561.098 MHz	BeiDou
L5	1176.45 MHz	GPS, QZSS, Galileo & BeiDou, NavIC

Acquisition

- Cold Start 30s
- Hot Start 1s

Sensitivity

- Tracking & Nav: -166 dBm
- Reacquisition: -160 dBm
- Hot Starts: -157 dBm
- Cold Starts: -148 dBm

Smart GNSS Assurance™ & Security

- Anti-Jamming: Active CW detection and removal
- Anti-Spoofing: Advanced anti-spoofing algorithms
- Advanced Multi-path Mitigation
- Secure Boot
- Secure Firmware Update

Protocol

- NMEA
- TSIP
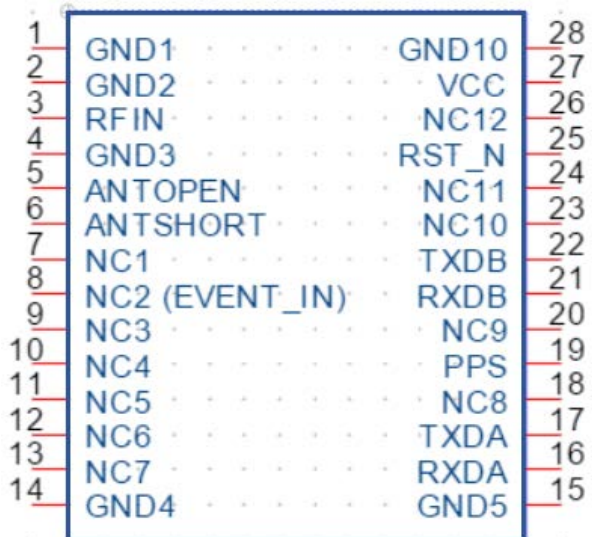
Package

- Edge Castellation
- 19mm x 19mm x 2.5mm (L x W x H)

Integrity Report

- T-RAIM active, phase uncertainty
- Time pulse rate/duty-cycle, inter-constellation biases

Environmental Data, Quality & Reliability

- Operating temp.–40 °C to +85 °C
- Storage temp. –50 °C to +105 °C
- Humidity 5%-95% (non-condensing)
- RoHS compliant (lead-free)
- Green (halogen-free)
- ETSI-RED Complaint

Electrical Data

- Supply voltage: 3.3VDC to ±5%
- Power consumption: 0.5W max.

Visit www.trimble.com/timing for part numbers and information about where to buy.

- Starter Kits Available.
- Parts of the product are patent protected.
- Trimble has relied on representations made by its suppliers in certifying this product as RoHS-II compliant.
- Specifications subject to change without notice.
- Trimble is not responsible for the operation or failure of operation of GPS/GNSS satellites or the availability of GPS/GNSS satellite signal.

Pin	Name		Pin	Name
1	GND1		28	GND10
2	GND2		27	VCC
3	RFIN		26	NC12
4	GND3		25	RST_N
5	ANTOPEN		24	NC11
6	ANTSHORT		23	NC10
7	NC1		22	TXDB
8	NC2 (EVENT_IN)		21	RXDB
9	NC3		20	NC9
10	NC4		19	PPS
11	NC5		18	NC8
12	NC6		17	TXDA
13	NC7		16	RXDA
14	GND4		15	GND5

Disclaimer

Contact your local dealer today