



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

ICM720™ Multi-GNSS Timing Module with 1PPS & 10MHz

Interference Detection & Mitigation

The ICM720 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 ICM720 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, ICM720 reduces the timing error under clear skies to < 10 nanoseconds without the need for an external GNSS correction service.

Additionally, the ICM720 offers the benefit of the L5 signal to lower the risk of interference, improve receiver performance and multipath protection. The multi-band capability of the ICM720 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 ICM720 has a single RF input for all the GNSS bands to simplify the 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

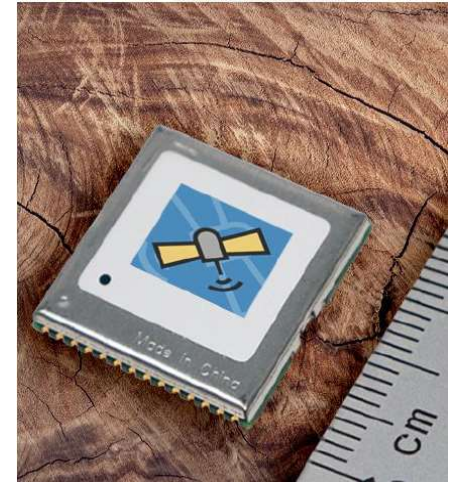
The ICM720 offers precision time synchronization with < 10 nanoseconds accuracy in normal mode of operation. ICM720 is designed to meet stringent timing requirements of critical infrastructure and help operators maximize the performance of their networks and optimize the return on their infrastructure investments.

Smart GNSS Assurance™

To protect against today's sophisticated attacks and signal beaconing, Protempis' 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 ICM720 provides secure boot and anti-tampering features by default. Additionally, ICM720 offers T-RAIM to provide the highest-level timing integrity.



Key Features

- Nanosecond-level timing accuracy (< 10 ns 1-sigma).
- 1PPS/PP2S & programable 10MHz frequency output.
- Dual Band (L1 and L5) Multi constellation GNSS timing module.
- Protection against jamming and spoofing with Protempis' 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.

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Protocols & Configuration

Protempis' timing modules support the industry standard NMEA (National Marine Electronics Association) and TSIP for configuration and control.

Timing Output

- 1 PPS(± 10 ns)/PP2S
- Programable Frequency Output .25Mhz to 10 MHz
- Accuracy - < 10 ns (1-sigma, clear sky, absolute mode)

Constellations & Bands

BANDS	FREQUENCY	CONSTELLATIONS
L1	1602 MHz	GPS, GLONASS, QZSS, Galileo
	1575.42 MHz	
	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
Constellations & Bands
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 $\pm 5\%$
- Power consumption: 0.5W max.

Please go to www.protempis.com for the latest documentation and tools, part numbers and ordering information.

www.protempis.com

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