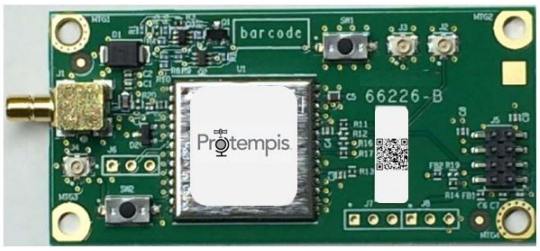
Datasheet

Single Band (L1) GNSS Timing Module with Nanosecond Accuracy

RES/ICM360™ Multi-GNSS Timing Module on Carrier Board



Resilient Timing

The RES/ICM360 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 RES/ICM360 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.

Ideal for Low Signal Environment

Protempis designed the RES/ICM SMT 360™ Timing Module to work in the most demanding weak signal environments, including femtocells and in-building systems.

With its robust performance in low signal environments, users can save on expensive cabling and externally mounted antennas. In addition, the RES/ICM SMT 360™ timing module accepts aiding data for environments requiring the highest levels of enhanced sensitivity.

Timing Signal Outputs

The RES/ICM SMT 360™ timing module outputs a precise1 pulse-per-second (1PPS) and an even second pulse to maximize your network performance and synchronize systems at a global level.

Standard Timing Features

The RES/ICM SMT 360™ timing module includes many of Protempis' standard timing features, including Time-Receiver Autonomous Integrity Monitoring (T-RAIM) algorithm, automatic self-survey, and GNSS disciplining of the oscillator to provide an accurate frequency reference.

Starter Kit Options

The RES/ICM SMT 360™ on carrier board can be loaded directly onto the customer's application board.

The Starter Kit provides everything you need to evaluate the RES/ICM SMT 360™ timing module, including hardware firmware, communication protocol, AC/DC power converter, antenna and USB interface cable.

Protocols & Configuration

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

Embed in you design

Get your product to market faster by embedding the carrier board in your application. The carrier board is a proven design and fully tested.

Protempis is an industry leader in timing technology.

Key Features

- ▶ Nanosecond-level timing accuracy (< 15nS 1-sigma).
- ▶ Single Band (L1) GPS, GLONASS, Galileo, Beidou, QZSS GNSS timing module.
- ▶ Antenna OPEN/SHORT Detection
- ▶ RF Input Surge Protection
- ▶ Protects against anti-jamming with Hardware filtering and software algorithms
- ▶ Supports industry standard protocols such as NMEA and TSIP for configuration and Control.
- ▶ World class tracking and acquisition sensitivity

Applications

- Broadband Wireless
- Cellular Base Station
- Private Wireless
- SCADA
- TDOA

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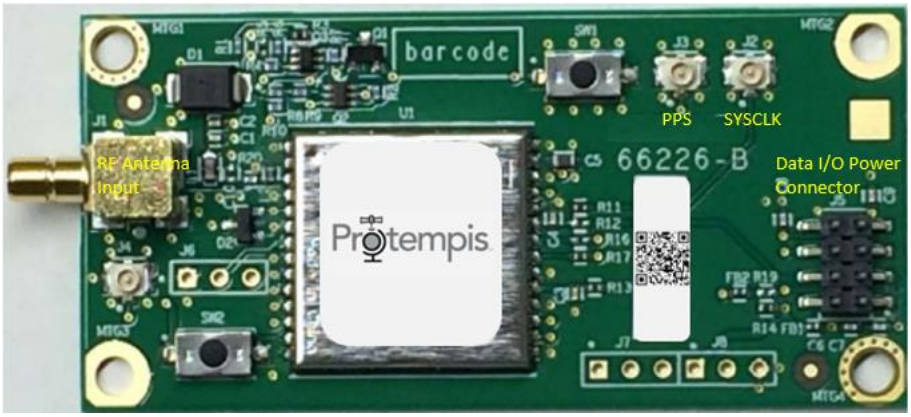

Timing Output

• 1 PPS (± 15nS)/PP2S
• Accuracy - < 15nS (1-sigma, clear sky, absolute mode)

Protocol

• NMEA
• TSIP

Antenna Power

Antenna Feed Pin 1……+3.0 to +5.5v DC 55mA max

J3 Connector – PPS Output

U.FL (UMCC) Connector Receptacle, Male Pin

J2 Connector – 10MHz Frequency Output

U.FL (UMCC) Connector Receptacle, Male Pin

Digital I/O Power connector Pinout

Pin	Function	Description
1	Antenna power input	+3 to +5 V DC, 55 mA max
2	Prime power input	+3.3 V DC ±0.3 V DC
3	TXDA	Port A transmit, CMOS 3.3 V
4	Sysclk (RES/ICM Version Only)	10MHz Frequency Output
5	RXDA	Port A receive, CMOS 3.3 V
6	1PPS	One pulse-per-second, CMOS 3.3 V
7	Reserved	Reserved
8	GND	Ground, Power and Signal

Interface Characteristics

• 1 Serial Port
• RF input Connector: Right Angle SMB
• Digital I/O Connector
single 8-pin (2×4) male header connector for both power and data I/O

Dimension

Length: 2.6"
Wide: 1.25"
Mounting hole size: 0.125"

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

Surge Protection

RF Input 6.0 V TVS diode with a peak pulse power dissipation of 600 W (10/1000 µs waveform)

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