



Miniature Multi-GNSS Timing Module with Super-Sized Features

RES SMT 360 Multi-GNSS Timing Module

Ideal for Low Signal Environment

Protempis designed the RES 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 SMT 360™ timing module accepts aiding data for environments requiring the highest levels of enhanced sensitivity.

PPS and Frequency Outputs

The RES SMT 360™ timing module outputs a precise 1 pulse-per-second (1PPS) to maximize your network performance and synchronize systems at a global level. Custom frequencies are also available for volume sale.

Standard Timing Features

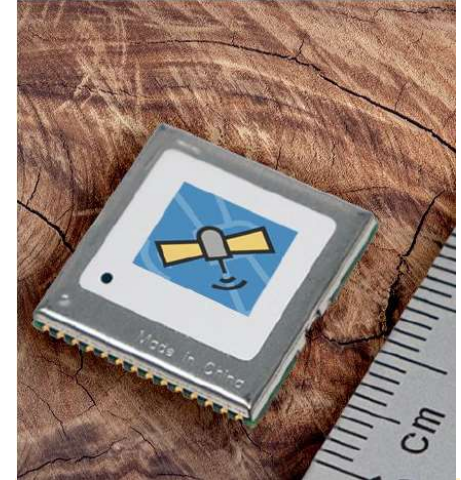
The RES SMT 360™ timing module includes many of Protempis' standard timing features, including Time-Receiver Autonomous Integrity

Monitoring (T-RAIM) algorithm, automatic self-survey, and GNSS disciplining of the oscillator to provide an accurate frequency reference.

Carrier Board and Starter Kit Options

The RES SMT 360™ timing module can be loaded directly onto the customer's application board.

The Starter Kit provides everything you need to evaluate the RES SMT 360™ timing module, including the RES SMT 360™ on a carrier board, AC/DC power converter, antenna and USB interface cable.



Key Features

- Multi-Constellation
- Simultaneous GPS / GLONASS or GPS / Beidou tracking
- Ideal for populated urban and indoor environments with limited sky-view
- PPS and PP2S outputs, Synchronized to GNSS / UTC within 15ns (1 sigma)
- Extended temperature range (-40°C / +85°C)

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General Specifications

Receiving Signal.....GPS, GLONASS, Galileo, Beidou
 Supports GNSS incl.SBAS, QZSS
 Positioning System.....SPS, Timing
 1 PPS Timing Accuracy15 ns (1 sigma) @ room temp
 Update Rate.....1 Hz
 Typical Min Acq Sensitivity.....-148dBm cold start
 Typical Min Tracking Sensitivity-160dBm
 Time to First Fix1.....<46s (50%), <50s (90%) cold start
 Typical Time to Re-acquisition..... <2s (90%)

Interface Characteristics

Connections.....28 surface-mount edge castellations
 Serial Port.....2 serial port
 PPS / Even Second.....CMOS-compatible
 LVTTTL-level pulse, once per second
 Protocols.....TSIP, NMEA 0183

Enclosure.....Metal Shield
 Dimensions 19 mm W x 19 mm L x 2.54 mm H
 (0.75" W x 0.75" L x 0.1" H)
 Weight.....1.8 grams (0.06 ounce)
 (Including shield)

Electrical Characteristics

Supply Voltage Range.....3.3VDC to ±5%
 Power Consumption.....0.5W max.

Environmental Specifications

- Operating temp.-40 °C to +85 °C
- Humidity 5%-95% RH (non-condensing)
- Storage Temperature.....-50°C to +105°C

General Information

Module available in 20-piece trays for evaluation
 Production quantities on tape on reel (500 pieces)

Reference Board..... GNSS module mounted on a carrier board with I/O and RF connectors, including RF circuitry with the antenna open detection, as well as antenna short detection and protection.

Starter KitIncludes Reference Board mounted on interface motherboard in a durable metal enclosure, AC/DC power converter, Bullet 360 antenna, USB interface cable, TSIP and NMEA protocols

Antenna..... Bullet 360

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

Pinout Assignments

RES SMT 360 PINOUTS

GND	1	28	GND
GND	2	27	VCC
RFIN	3	26	GND
GND	4	25	RESET
OPEN	5	24	GND
SHORT	6	23	RESERVED
RESERVED	7	22	TXDB
RESERVED	8	21	RXDB
RESERVED	9	20	GND
RESERVED	10	19	PPS
RESERVED	11	18	GND
RESERVED	12	17	TXDA
RESERVED	13	16	RXDA
GND	14	15	GND

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