



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

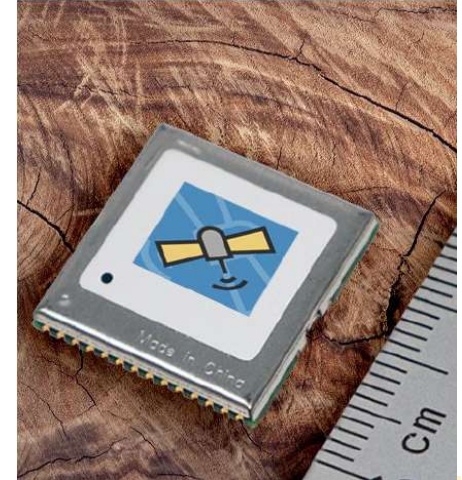
The RES SMT 360™ timing module includes many of Protempis' standard timing features, including Time-Receiver Autonomous Integrity

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)



14 Odem ST. P.O.B. 7042 Petach Tikva 4917001, ISRAEL | Office: +972-3-924-3352
Fax: +972-3-9243385 | sales@hypertech.co.il | www.hypertech.co.il



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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

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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