



## RES SMT 360™ Multi-GNSS Timing Module

### 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)

### Miniature Multi-GNSS Timing Module with Super-Sized Features

#### Ideal for Low Signal Environment

Trimble® 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.

#### Timing Signal Outputs

The RES SMT 360™ timing module outputs a precise 1 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 SMT 360™ timing module includes many of Trimble's 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.

# RES SMT 360™ Multi-GNSS TIMING MODULE

## GENERAL SPECIFICATIONS

Receiving Signal.....GPS, GLONASS, Galileo<sup>1</sup>, Beidou  
Supports GNSS incl. ....SBAS, QZSS  
Positioning System.....SPS, Timing  
1 PPS Timing Accuracy .....15 ns (1 sigma)  
Update Rate.....1 Hz  
Typical Min Acq Sensitivity.....-148dBm cold start  
Typical Min Tracking Sensitivity ..... -160dBm  
Time to First Fix<sup>2</sup> .....<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

<sup>1</sup> Hardware ready: a firmware update is required to enable the Galileo constellation.

<sup>2</sup> The performance criteria and times given for TTFF & reacquisition are with GPS satellites in the constellation set.

## 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

## PHYSICAL CHARACTERISTICS

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  $\pm 5\%$   
Power Consumption.....0.5W max.

## ENVIRONMENTAL SPECIFICATIONS

Operating Temperature.....-40°C to +85°C  
Operating Humidity.....5%-95% RH non-condensing (+60°C)  
Storage Temperature.....-50°C to +105°C

## GENERAL INFORMATION & ACCESSORIES

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 Kit .....Includes 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

Visit [www.trimble.com/timing](http://www.trimble.com/timing) for part numbers and information about where to buy.

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.

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