Data Sheet

Transforming the Way the World Works

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 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 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.

⊕ Trimble.

RES SMT 360™ Multi-GNSS TIMING MODULE

GENERAL SPECIFIATIONS

Receiving Signal……………GPS, GLONASS, Galileo[1], Beidou
   Supports GNSS incl. ………………….……………………….. QZSS
Positioning System………………………………………SPS, Timing
1 PPS Timing Accuracy …………………………15 ηs (1 sigma)
Update Rate……………………………………………………………1 Hz
Typical Min Acq Sensitivity………………..-148dBm cold start
Typical Min Tracking Sensitivity …………………… -160dBm
Time to First Fix[2]…………<46s (50%), <50s (90%) cold start
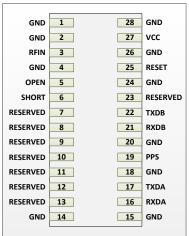Typical Time to Re-acquisition……………………… <2s (90%)

INTERFACE CHARACTERISTICS

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

[1] Hardware ready: a firmware update is required to enable the Galileo constellation.
[2] The performance criteria and times given for TTFF & reacquisition are with GPS satellites in the constellation set.

PINOUT ASSIGNMENTS

RES SMT 360 PINOUTS

Signal	Pin		Pin	Signal
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 ±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