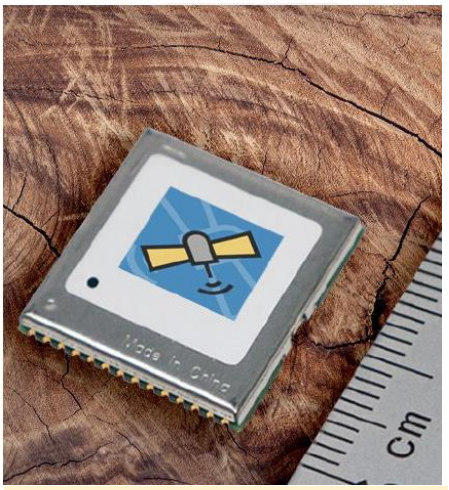
Datasheet

Miniature Multi-GNSS Timing Module with Super-Sized Features

ICM SMT 360 Multi-GNSS Timing Module



Ideal for Low Signal Environment

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

PPS and Frequency Outputs

The ICM SMT 360™ timing module outputs a precise1 pulse-per-second (1PPS) and 10 MHz frequency to maximize your network performance and synchronize systems at a global level. Custom frequencies are also available for volume sale.

Standard Timing Features

The 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.

Carrier Board and Starter Kit Options

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

The Starter Kit provides everything you need to evaluate the ICM SMT 360™ timing module, including the ICM 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
- Holdover:
  ±7us over 5-minute period
  (min. 1-hour learning)
  100ppb over 24 hours
- PPS, PP2S and 10MHz output
  (Custom frequencies available)
- Extended temperature range
  (-40°C / +85°C)

HYPER-TECH Systems

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General Specifications

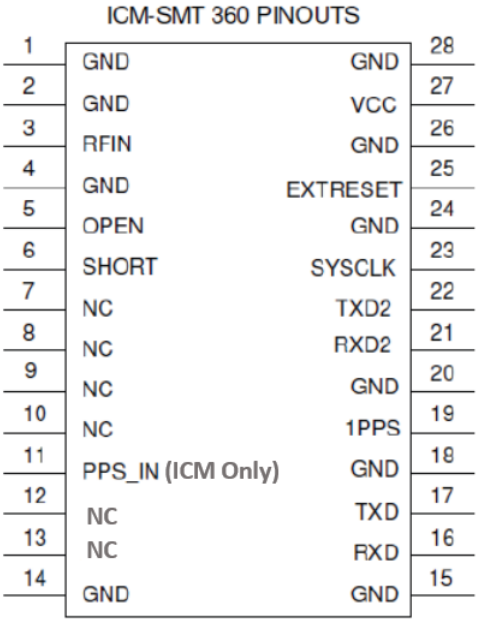
Receiving Signal……..…….....GPS, GLONASS, Galileo, Beidou
Supports GNSS incl. ……..…….. QZSS
Positioning System……..…..SPS, Timing
1 PPS Timing Accuracy ……..15 ηs (1 sigma) @ room temp
Holdover Stability……..…..<±7us over 5 min period
(Min. 1hr learning)
(100ppb over 24hrs.)
Update Rate……..1 Hz
Typical Min Acq Sensitivity……..…….. -148dBm cold start
Typical Min Tracking Sensitivity ……..…….. -162dBm
Time to First Fix1……..…….<46s (50%), <50s (90%) cold start
Typical Time to Re-acquisition……..…….. <2s (90%)

Interface Characteristics

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

The performance criteria and times given for TTFF & reacquisition are with GPS satellites in the constellation set.

Pinout Assignments



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)

Phase Noise

Maximum, over temperature range:
-100dBc/Hz @ 100Hz
-120dBc/Hz @ 1KHz
-135dBc/Hz @ 10KHz
-140dBc/Hz @ 100KHz

Typical:
-105dBc/Hz @ 100Hz
-125dBc/Hz @ 1KHz
-140dBc/Hz @ 10KHz
-145dBc/Hz @ 100KHz

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