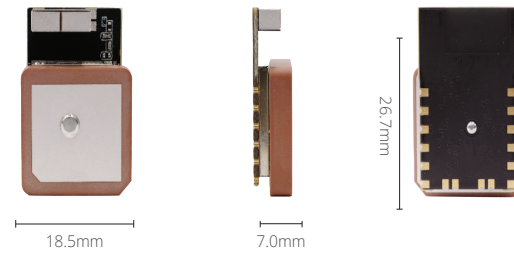


# TR-I10

Dual-band Multi-system GNSS Positioning Module



## PRODUCT DESCRIPTION

TR-I10 is a high-performance dual-band (L1/L5) multi-system GNSS positioning module. It supports the global civil navigation systems, including GPS, IRNSS, BDS, GLONASS, Galileo, and QZSS.

Embedded antennas ensure TR-I10 to work at L1 and L5 bands simultaneously to increase the number of visible satellites assisting by GPS, BDS, Galileo, and IRNSS signals, which makes this module achieve high positioning accuracy and short TTFF, especially in a rough urban environment. TR-I10 supports external active antenna featured with auto-detecting and auto-switching.

With a compact body and high performance, TR-I10 is widely applied to tracking applications, like the automotive, consumer, and industrial tracking.

## HIGHLIGHTS

- Supports GPS, BDS, IRNSS, Galileo and QZSS systems covering L1 and L5 bands
- Supports AGPS/DGPS/SBAS (WAAS/EGNOS/MSAS/GAGAN)
- Built-in LNA & SAW for better sensitivity
- Integrated with dual-feed (L1&L5) antenna
- Supports Geo-Fence function
- Supports message broadcast service for IRNSS \*
- Ultra-low power consumption around 40mA in dual-band tracking mode
- Supports external active antenna featured with auto-detecting and auto-switching
- Compact size: 26.7mm\*18.5mm\*7.0mm

\* Supported by specific firmware upgrade

# GENERAL SPECIFICATIONS

## GNSS RECEPTION

P/N	Option	GPS/QZSS		BDS		GLONASS	Galileo		IRNSS
		L1C/A	L5C	B1I	B2a	L1	E1	E5a	L5
TR-I10	A (Default)	•	•	•	•	-	•	•	•
	B	•	•	-	-	•	•	•	•
	C	•	•	-	-	-	-	-	•

## POSITIONING ACCURACY

GNSS <1m CEP @ Open Sky

## VELOCITY & TIME ACCURACY

GNSS 0.1m/s CEP

PPS\_1 $\sigma$  20ns

## PROTOCOL

NMEA 0183 V4.10

## TIME TO FIRST FIX(TTFF)

Hot start 1s

Cold start 30s

## OPERATION LIMIT

Velocity 515 m/s

Altitude 18,000 m

## SENSITIVITY

Cold Start -149dBm

Reacquisition -158dBm

Tracking -162dBm

## POWER SUPPLY

VCC 3.1V--5.0V, Typical 3.3 V

V\_BAK 1.7V--3.6V, Typical 3.3 V

## EXTERNAL ANTENNA INTERFACE

Antenna Type Active

Antenna Power Supply GNSS module

## POWER CONSUMPTION

Operating mode Acquisition: 42mA@3.3V  
(GPS+QZSS+BDS+Galileo+IRNSS)

Tracking: 40mA@3.3V

Standby mode 12uA@3.3V

## INTERFACES

UART Adjustable: 9600bps-460800 bps,  
Default: 115200 bps,  
Update Rate: 1Hz (Default) Up to 10Hz

I2C Max. bit rate up to 400 kbps

## ENVIRONMENT DATA

Operation temperature -40°C ~ +85°C

Storage temperature -40°C ~ +85°C

## PACKAGE

Weight Approx. 8.5g

Dimensions 26.7mm\*18.5mm\*7.0mm