

TAU951M-K2 Series

GNSS Dual-band High-precision RTK Module with DR

Standard



PRODUCT DESCRIPTION

The TAU951M-K2 series is a set of GNSS dual-band high-precision RTK navigation and positioning module with dead reckoning, which is based on the state of art CYNOSURE IV dual-core SoC chip. It is capable of tracking all global civil systems (BDS, GPS, GLONASS, Galileo, QZSS, NavIC, and SBAS), as well as BDS-3 signals.

The latest dual-core architecture CYNOSURE IV adopts 22 nm process, integrating multi-band multi-system GNSS RF and baseband. Combining GNSS positioning and inertial navigation technology makes TAU951M-K2 series output positioning data in the environments where GNSS signal quality is poor or even loss (such as tunnels, underground parking, etc.), and provide continuous and accurate positioning for navigation applications. This series is suitable for various demands under different conditions, and can be widely used in smart driving, surveying and mapping, unmanned aerial vehicles (UAVs), intelligent agriculture, and other fields.

HIGHLIGHTS

- Concurrent reception of multi-system satellite signals
- Support BDS-3 signals: B1C, B2a
- Tracking 128 GNSS signal channels at the same time
- Update rate up to 10 Hz
- Support PPP-B2b/PPP/PPP-RTK (upon request)
- Output raw data with built-in 6D IMU
- Internal PVT, RTD, RTK, and DR Engine
- Support A-GNSS
- Smart jammer detection and suppression
- Support four kinds of low power mode
- Support free installation

APPLICATIONS



Surveying & Mapping



Smart driving



UAV



Intelligent agriculture

Product Selector:

Product	DR		GNSS						Feature					Interface			Accuracy			Grade		
	DR	Single/Dual/Multi-band	GPS/QZSS	BDS	GLONASS	Galileo	NavIC	SBAS	Built-in LNA	Built-in SAW	RTD	RTK	Oscillator	SPI	PPS	UART	I2C	Meter	Sub-meter	Centimeter	Standard	Automotive
TAU951M-K200	•	D	•	•	•	•	•	•	•	•	•	T	○	•	•	○			•	•		

T = TCXO ○ = Supported upon request with special firmware

GENERAL SPECIFICATIONS

GNSS Reception

GPS/QZSS: L1C/A, L1C, L2C, L5

BDS: B1I, B1C, B2I, B2a

GLONASS: G1, G2

Galileo: E1, E5a, E5b

NavIC: L5

SBAS: L1

Update Rate

GNSS 10 Hz Max.

Position Accuracy

GNSS	1.0m CEP
SBAS	< 1.0m CEP
RTK	1.0 cm + 1 ppm (H) 2.0 cm + 1 ppm (V)

Velocity & Time Accuracy

GNSS	0.05 m/s CEP
1PPS	20 ns RMS

Time to First Fix (TTFF)

Hot start	1s
Cold start	27s

Sensitivity^[1]

Cold start	-148 dBm
Hot start	-155 dBm
Reacquisition	-158 dBm
Tracking & Navigation	-165 dBm

^[1]: Demonstrated with a good external LNA

Interfaces

UART	2
SPI ^[2]	1
I2C ^[2]	1

^[2]: Supported upon request with special firmware

DR performance

IMU raw data	50 Hz Max.
INS positioning error	< 2% of distance travelled

Operating Limit

Velocity	515 m/s
Altitude	18,000m

Operating Condition

Main voltage	1.75V to 3.63V
Digital I/O voltage	1.75V to 3.63V
Backup voltage	1.62V to 3.63V

Power Consumption

Tracking	GNSS	35 mA @ 3.3V
	Single system	22 mA @ 3.3V
Standby	Data backup	16 uA
	RTC mode	1.4 uA

ENVIRONMENT DATA

Operation temperature	-40°C to +85°C
Storage temperature	-40°C to +90°C

PACKAGE

Packaging	24 PIN LCC
Dimensions	16.0×12.2×2.4 mm

