



Receiver module

ICB-230

The ICB-230 module is a satellite navigation receiver capable of utilizing GPS, Beidou, Galileo, GLONASS, QZSS, SBAS signals to provide 3D navigation in one compact package. The module can track all GPS, Beidou, Galileo, GLONASS, QZSS satellites in sight. It is fully autonomous so that once power is applied, the receiver automatically searches for, receives and tracks satellite signals. When enough satellites are tracked with reliable measurements, the receiver provides three-dimensional position and speed data.

Four-satellite capability allows more satellite signals to be utilized than receivers with two GPS/ GLONASS satellite systems. The increased number of satellites provides superior performance in challenging urban canyon and multipath environments.

The module can autonomously capture, track and locate in challenging environments with weak signals. Its high sensitivity provides continuous positioning in virtually all outdoor applications. The high-performance signal parameter search engine provides excellent signal detection and low time to first fix (TTFF). The module configuration ensures normal operation even in the presence of strong RF interference when a cellular modem is located near the module.

Features:

- 230 capture/tracking channels;
- Support global GPS, Beidou, Galileo, GLONASS;
- Support regional QZSS, SBAS;
- Multipath detection and suppression;
- Interference detection and cancellation;
- Works with active and passive antenna;
- Built-in protection of active antenna from short circuit.

Technical specifications

Name of characteristic	Value	
Receiver type	Frequency L1, 230 channels	
Supported satellites	GPS, Beidou, Galileo, GLONASS, QZSS	
Add-on system	QZSS, WAAS, EGNOS, MSAS, GAGAN	
Refresh rate	1 / 2 / 4 / 5 / 8 / 10 / 20 / 25 Hz (default 1Hz)	
Accuracy	Position	1.5 m CEP
	Speed	0.1 m/s
	Time	10 ns
Time to first fixation (TTFF)	Hot Start	1 s
	Warm start	28 s
open sky	Cold start	29 s
Recapture	1 s	
Sensitivity	Cold Start	-148 dBm
	Re-capture	-160 dBm
	Tracking	-165 dBm
Multibeam suppression	Advanced multipath detection and suppression	
A-GPS	Server-based AGPS	
Acceleration	4g (39.2 m/s ²)	
Operating range	Speed	<515 m/s
	Altitude	<80 000 m
Serial interface	3.3 V low voltage TTL	
Protocol	NMEA 0183 version 4.1 115200 baud, 8, N, 1	
Datum	WGS-84 default, user defined	
Input voltage	3.3 V DC +/-10%	
Power consumption	Capture	75 mA, 3.3 V
	Tracking	65 mA, 3.3 V
Operating Temperature	-40°C to +85°C	
Storage Temperature	-55°C to +100°C	
Humidity	5 to 95%	