

Overview

The **GPX-1**™ is a multi-frequency and multi-constellation GNSS receiver module that combines GPS/QZSS (L1, L5), Galileo (E1, E5), GLONASS (L1), BeiDou (B1, B2), NavIC (L5), and SBAS (L1) to provide improved performance for global positioning navigation solutions. The use of multiple frequencies greatly reduces multi-path effects in urban environments and improves the location accuracy.

The **GPX-1-RTK**™ has onboard Real-Time Kinematic (RTK), enabling centimeter level position accuracy with an RTCM3 correction input stream.

The **GPX-1-Dual**[™] has two GNSS receivers (two antenna channels) for RTK positioning and dual GNSS heading/compassing, eliminating the need for magnetometer heading.

The GPX-1 comes in a 20.7 x 12.5 mm LGA surface mount module and includes a powerful baseband processor, embedded Flash memory, and integrated LNA. The ultrasensitive RF front-end and multi-frequency and multi constellation capability support navigation in challenging outdoor scenarios.

Combining the GPX-1 and **IMX-5™** tactical grade IMU/INS creates GNSS aided inertial navigation sensor fusion with roll, pitch, heading, velocity, and position up to 250Hz.

The **RUG4-IMX5-GPX1**[™] combines the GPX-1 and IMX-5 tactical grade IMU/INS in a rugged aluminum enclosure and RS232, RS485, and CAN bus. Inertial navigation sensor fusion is enabled for roll, pitch, heading, velocity, and position.

The Inertial Sense SDK is an open-source software development kit for quick integration to configure and communicate with Inertial Sense products. The SDK includes data logger, math libraries, and interface for Linux, Windows, and embedded platforms.





GPX-1Size: 20.7 x 12.5 x 2.9 mm
Weight: 1.7 g

GNSS: Multi-Band L1/L5



RUG4-IMX5-GPX1

Size: 30.5 x 25.4 x 10.5 mm

Weight: 14 g

GNSS-INS: Multi-Band L1/L5

Features

- Multi-band (L1/L5) GNSS receiver
- Multi-constellation (GPS, GLONASS, QZSS, BeiDou, Galileo)
- Dual GNSS receivers (two antennas)
- Onboard RTK Positioning and Compassing
- Low power consumption GNSS positioning
- Combine w/ IMX-5 for GNSS aided INS @ 250Hz
- 0.4° RMS heading accuracy @ 1m baseline
- Ultra-sensitive -165 dBm (tracking) RF front-end
- Supports ephemeris file injection (A-GNSS)
- Satellite Based Augmentation System (SBAS)
- Up to 10 Hz output data rate
- -40°C to 85°C Operating Temperature
- Binary and NMEA Protocol
- PPS Output for Time Synchronization
- SDK, Example Software, and Data Logging

Applications

- Drone Navigation
- Unmanned Vehicle Payloads
- Ground and Aerial Survey
- Automotive Navigation
- Stabilized Platforms
- Antenna and Camera Pointing
- First Responder and Trackers
- Health, Fitness, and Sport Monitors
- Robotics, Ground Vehicles, Maritime

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Specifications

Heading accuracy	Features - Performance					
Vertical Operational Limit Receiver type 62 physical acquisition/tracking channels 67 (L1C/A L1S) GLONASS (L1OF) Galileo (E1B/C, E5a) BeiDou (B1I, B1C, B2a) QZSS (L1C/A, L1S, L1C/B, L5) NaviC (L5) SBAS (L1): WAAS, EGNOS, MSAS, GAGAN Navigation output rate Up to 10 Hz Compassing output rate Up to 2 Hz Convergence time 1 s RTK: < 10 s Acquisition Cold start Hot start 1 s Sensitivity Cold start Hot start -158 dBm Reacquisition Tracking & nav167 dBm Max Velocity G00 m/s Internal LNA gain 1 of 9 dB 1 PPS Output 1 10 ns resolution Anti-jamming T-ch notch filter for each L1 and L5 band Memory Flash Moving base For dual GNSS compassing (heading) Supported antennas * GNSS-Compassing, ** RTK-Positioning Interfaces Serial (GPX-1) UART x2, SPI, RS232, RS485, CAN, USB MAX Baud Rate: SPI UART, RS422, RS485 SPI	Heading accuracy	0.4° RMS using 1m antenna ba	seline *			
Receiver type 62 physical acquisition/tracking channels Constellations (Frequency bands) GPS (L1C/A L5) GLONASS (L1OF) Gallieo (EIBJC, E5a) BeiDou (B1I, B1C, B2a) QZSS (L1C/A, L1S, L1C/B, L5) NavIC (L5) SBAS (L1): WAAS, EGNOS, MSAS, GAGAN Navigation output rate Up to 10 Hz (Position & Velocity) Compassing output rate Up to 2 Hz (Heading) Convergence time 1s RTK: < 10 s Acquisition Cold start 24 s Hot start 1s Sensitivity Cold start -149 dBm Hot start -158 dBm Reacquisition -163 dBm Tracking & nav167 dBm Max Velocity 600 m/s Internal LNA gain 69 dB 1 PPS Output 10 ns resolution < 100 ns accuracy Oscillator TCXO RTC crystal Built-in Anti-jamming 7-ch notch filter for each L1 and L5 band Memory Flash Moving base For dual GNSS compassing (heading) Supported antennas Active * GNSS-Compassing, ** RTK-Positioning Interfaces Serial (GPX-1) UART x2, SPI, RS232, RS485, CAN, USB MAX Baud Rate: SPI 10 Mbps UART x2, SPI, RS232, RS485, CAN, USB MAX Baud Rate: SPI 10 Mbps UART x2, SPI, RS232, RS485, CAN, USB MAX Baud Rate: SPI 10 Mbps UART, RS422, RS485 3 Mbps RS232 500 Kbps I/O Level (UART, SPI, PPS) 1.8V to 3.3V Package Package 42-pin LGA (Land Grid Array) SMT module Size 20.7 x 12.5 x 2.9 mm Weight 1.7 g Function GPX-1 TM +RTK +Dual +IMX-5 TM Position and Velocity • • • • • • • • • • • • • • • • • • •	Position accuracy	1.0 m CEP RTK: 0).02 m CEP **			
Constellations (Frequency bands) GPS (L1C/A L5) Galileo (E1B/C, E5a) QZSS (L1C/A, L1S, L1C/B, L5) SBAS (L1): WAAS, EGNOS, MSAS, GAGAN Navigation output rate Up to 10 Hz Compassing output rate Up to 2 Hz Compassing output rate Convergence time 1 s Acquisition Cold start Hot start Hot start Hot start Cold start Reacquisition Reacquisition Tracking & nav. Oscillator Trac	Vertical Operational Limit	100,000 m				
Galileo (£1B/C, E5a) BeiDou (B1I, B1C, B2a) QZSS (L1C/A, L1S, L1C/B, L5) NaviC (L5) SBAS (L1): WAAS, EGNOS, MSAS, GAGAN Navigation output rate	Receiver type	62 physical acquisition/tracking	g channels			
OZSS (L1C/A, L1S, L1C/B, L5) NavIC (L5)		` ' '	` '			
SBAS (L1): WAAS, EGNOS, MSAS, GAGAN Navigation output rate Up to 10 Hz (Position & Velocity) Compassing output rate Up to 2 Hz (Heading) Convergence time 1 s RTK: <10 s Acquisition Cold start Hot start 1 s Sensitivity Cold start Hot start 1 s Sensitivity Cold start Hot start 1-158 dBm Reacquisition 1-63 dBm Tracking & nav. Hot start Internal LNA gain 69 dB 1 PPS Output 10 ns resolution TCXO RTC crystal Built-in Anti-jamming 7-ch notch filter for each L1 and L5 band Memory Flash Moving base For dual GNSS compassing (heading) Supported antennas Active * GNSS-Compassing, ** RTK-Positioning Interfaces Serial (GPX-1) UART x3, SPI, I2C, CAN, USB Serial (RUG-4) UART x2, SPI, RS232, RS485, CAN, USB MAx Baud Rate: SPI UART, RS422, RS485 RS232 1/O Level (UART, SPI, PPS) 1.8V to 3.3V Package Package Package 42-pin LGA (Land Grid Array) SMT module Size 20.7 x 12.5 x 2.9 mm Weight 1.7 g Function GPX-1 TM +RTK +Dual +IMX-5 TM Position and Velocity • • • • • • • • • • • • • • • • • • •	(Frequency bands)	· · · ·	, , , ,			
MSAS, GAGAN Navigation output rate Compassing output rate Convergence time 1 s RTK: < 10 s Acquisition Cold start Hot start			NaviC (L5)			
Navigation output rate Compassing output rate Convergence time 1 s RTK: <10 s Acquisition Cold start Hot start Reacquisition Tracking & nav. Internal LNA gain Anti-jamming Active *GNSS-Compassing, *** RTK-Positioning Interfaces Serial (GPX-1) Serial (RUG-4) Wax Baud Rate: SPI UART, RS422, RS485 RS232 Solo Kbps I/O Level (UART, SPI, PPS) Dual GNSS Compassing (Heading) Function Position and Velocity GPX-1** Internal LNA (Heading) RTK (Heading) RTK (Headin		• • • • • • • • • • • • • • • • • • • •				
Compassing output rate Convergence time 1 s RTK: <10 s RTK: <10 s Acquisition Cold start Hot start 1 s Sensitivity Finance Reacquisition Tracking & nav. 1-158 dBm Reacquisition 1-163 dBm Tracking & nav. 1-167 dBm Max Velocity Finance Sensitivity Finance Reacquisition Tracking & nav. 1-167 dBm Max Velocity Finance Sensitivity Finance Sensitivity Finance Sensitivity Finance Sensitivity Finance Sensitivity Finance Sensitivity Finance Finance Sensitivity Finance F	Navigation output rate	· · · · · · · · · · · · · · · · · · ·	on & Velocity)			
Convergence time 1s RTK: <10 s Acquisition Cold start 24 s Hot start 1s Sensitivity Cold start -149 dBm Hot start -158 dBm Reacquisition -163 dBm Tracking & nav167 dBm Max Velocity 600 m/s Internal LNA gain 69 dB 1 PPS Output 10 ns resolution <100 ns accuracy Oscillator TCXO RTC crystal Built-in Anti-jamming 7-ch notch filter for each L1 and L5 band Memory Flash Moving base For dual GNSS compassing (heading) Supported antennas Active * GNSS-Compassing, ** RTK-Positioning Interfaces Serial (GPX-1) UART x3, SPI, I2C, CAN, USB Serial (RUG-4) UART x2, SPI, RS232, RS485, CAN, USB Max Baud Rate: SPI UART x2, SPI, RS232, RS485, CAN, USB Max Baud Rate: SPI 10 Mbps UART, RS422, RS485 3 Mbps RS232 500 Kbps I/O Level (UART, SPI, PPS) 1.8V to 3.3V Package Package 42-pin LGA (Land Grid Array) SMT module Size 20.7 x 12.5 x 2.9 mm Weight 1.7 g Function GPX-1 +RTK +Dual +IMX-5™ Position and Velocity • • • • • •		· · · · · · · · · · · · · · · · · · ·	• • • • • • • • • • • • • • • • • • • •			
Acquisition Cold start Hot start 1 s Sensitivity Cold start Hot start 1 -149 dBm Hot start -158 dBm Reacquisition Tracking & nav167 dBm Max Velocity 600 m/s Internal LNA gain 1 PPS Output 10 ns resolution TCXO RTC crystal Built-in Anti-jamming 7-ch notch filter for each L1 and L5 band Memory Flash Moving base For dual GNSS compassing (heading) Supported antennas Active * GNSS-Compassing, ** RTK-Positioning Interfaces Serial (GPX-1) UART x3, SPI, I2C, CAN, USB Serial (RUG-4) UART x2, SPI, RS232, RS485, CAN, USB MAX Baud Rate: SPI UART, RS422, RS485 3 Mbps RS232 1/O Level (UART, SPI, PPS) 1.8V to 3.3V Package Package 42-pin LGA (Land Grid Array) SMT module Size 20.7 x 12.5 x 2.9 mm Weight 1.7 g Function GPX-1™ +RTK +Dual +IMX-5™ Position and Velocity • • • • • • • • • • • • • • • • • • •		•	O/			
Sensitivity Cold start Hot start 1.49 dBm Hot start -158 dBm Reacquisition Tracking & nav167 dBm Max Velocity 600 m/s Internal LNA gain 69 dB 1 PPS Output 10 ns resolution Anti-jamming 7-ch notch filter for each L1 and L5 band Memory Flash Moving base For dual GNSS compassing (heading) Supported antennas Active * GNSS-Compassing, ** RTK-Positioning Interfaces Serial (GPX-1) Serial (RUG-4) UART x2, SPI, RS232, RS485, CAN, USB MAX Baud Rate: SPI UART, RS422, RS485 3 Mbps RS232 500 Kbps I/O Level (UART, SPI, PPS) 1.8V to 3.3V Package Package 42-pin LGA (Land Grid Array) Size 20.7 x 12.5 x 2.9 mm Weight 1.7 g Function GPX-1™ Position and Velocity • • • • • Package RTK Centimeter Level Position Dual GNSS Compassing (Heading) • • •			. 103			
Sensitivity Cold start Hot start Reacquisition Tracking & nav. 163 dBm Tracking & nav. 167 dBm Max Velocity 600 m/s Internal LNA gain 69 dB 1 PPS Output 10 ns resolution TCXO RTC crystal Built-in Anti-jamming 7-ch notch filter for each L1 and L5 band Memory Flash Moving base For dual GNSS compassing (heading) Supported antennas Active * GNSS-Compassing, ** RTK-Positioning Interfaces Serial (GPX-1) UART x3, SPI, 12C, CAN, USB Serial (RUG-4) UART x2, SPI, RS232, RS485, CAN, USB Max Baud Rate: SPI 10 Mbps UART, RS422, RS485 3 Mbps RS232 500 Kbps I/O Level (UART, SPI, PPS) 1.8V to 3.3V Package Package 42-pin LGA (Land Grid Array) SMT module Size 20.7 x 12.5 x 2.9 mm Weight 1.7 g Function GPX-1™ +RTK +Dual +IMX-5™ Position and Velocity • • • • • • • • • • • • • • • • • • •	Acquisition					
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Internal LNA gain 69 dB 1 PPS Output 10 ns resolution < 100 ns accuracy Oscillator TCXO RTC crystal Built-in Anti-jamming 7-ch notch filter for each L1 and L5 band Memory Flash Moving base For dual GNSS compassing (heading) Supported antennas Active * GNSS-Compassing, ** RTK-Positioning Interfaces Serial (GPX-1) UART x3, SPI, I2C, CAN, USB Serial (RUG-4) UART x2, SPI, RS232, RS485, CAN, USB Max Baud Rate: SPI 10 Mbps UART, RS422, RS485 3 Mbps RS232 500 Kbps I/O Level (UART, SPI, PPS) 1.8V to 3.3V Package Package 42-pin LGA (Land Grid Array) SMT module Size 20.7 x 12.5 x 2.9 mm Weight 1.7 g Function GPX-1™ +RTK +Dual +IMX-5™ Position and Velocity • • • • • RTK Centimeter Level Position • • •						
Internal LNA gain 69 dB 1 PPS Output 10 ns resolution < 100 ns accuracy Oscillator TCXO RTC crystal Built-in Anti-jamming 7-ch notch filter for each L1 and L5 band Memory Flash Moving base For dual GNSS compassing (heading) Supported antennas Active * GNSS-Compassing, ** RTK-Positioning Interfaces Serial (GPX-1) UART x3, SPI, I2C, CAN, USB Serial (RUG-4) UART x2, SPI, RS232, RS485, CAN, USB Max Baud Rate: SPI 10 Mbps UART, RS422, RS485 3 Mbps RS232 500 Kbps I/O Level (UART, SPI, PPS) 1.8V to 3.3V Package Package 42-pin LGA (Land Grid Array) SMT module Size 20.7 x 12.5 x 2.9 mm Weight 1.7 g Function GPX-1 TM +RTK +Dual +IMX-5 TM Position and Velocity • • • • • RTK Centimeter Level Position • • •		Tracking & nav167 d	Bm			
1 PPS Output 10 ns resolution < 100 ns accuracy Oscillator TCXO RTC crystal Built-in Anti-jamming 7-ch notch filter for each L1 and L5 band Memory Flash Moving base For dual GNSS compassing (heading) Supported antennas Active * GNSS-Compassing, ** RTK-Positioning Interfaces Serial (GPX-1) Serial (RUG-4) UART x3, SPI, I2C, CAN, USB Serial (RUG-4) UART x2, SPI, RS232, RS485, CAN, USB Max Baud Rate: SPI 10 Mbps UART, RS422, RS485 3 Mbps RS232 500 Kbps I/O Level (UART, SPI, PPS) 1.8V to 3.3V Package Package Package 42-pin LGA (Land Grid Array) SMT module Size 20.7 x 12.5 x 2.9 mm Weight 1.7 g Function GPX-1 TM +RTK +Dual +IMX-5 TM Position and Velocity • • • •	Max Velocity	600 m/s				
Oscillator TCXO RTC crystal Built-in Anti-jamming 7-ch notch filter for each L1 and L5 band Memory Flash Moving base For dual GNSS compassing (heading) Supported antennas Active * GNSS-Compassing, ** RTK-Positioning Interfaces Serial (GPX-1) UART x3, SPI, I2C, CAN, USB Serial (RUG-4) UART x2, SPI, RS232, RS485, CAN, USB Max Baud Rate: SPI 10 Mbps UART, RS422, RS485 3 Mbps RS232 500 Kbps I/O Level (UART, SPI, PPS) 1.8V to 3.3V Package Package 42-pin LGA (Land Grid Array) SMT module Size 20.7 x 12.5 x 2.9 mm Weight 1.7 g Function GPX-1™ +RTK +Dual +IMX-5™ Position and Velocity • • • • • • • • • • • • • • • • • • •	Internal LNA gain	69 dB				
RTC crystal Built-in Anti-jamming 7-ch notch filter for each L1 and L5 band Memory Flash Moving base For dual GNSS compassing (heading) Supported antennas Active * GNSS-Compassing, ** RTK-Positioning Interfaces Serial (GPX-1) UART x3, SPI, I2C, CAN, USB Serial (RUG-4) UART x2, SPI, RS232, RS485, CAN, USB Max Baud Rate: SPI 10 Mbps UART, RS422, RS485 3 Mbps RS232 500 Kbps I/O Level (UART, SPI, PPS) 1.8V to 3.3V Package Package 42-pin LGA (Land Grid Array) SMT module Size 20.7 x 12.5 x 2.9 mm Weight 1.7 g Function GPX-1 TM +RTK +Dual +IMX-5 TM Position and Velocity • • • • • • • • • • • • • • • • • • •	1 PPS Output	10 ns resolution < 100	ns accuracy			
Anti-jamming 7-ch notch filter for each L1 and L5 band Memory Flash Moving base For dual GNSS compassing (heading) Supported antennas Active * GNSS-Compassing, ** RTK-Positioning Interfaces Serial (GPX-1) UART x3, SPI, I2C, CAN, USB Serial (RUG-4) UART x2, SPI, RS232, RS485, CAN, USB Max Baud Rate: SPI 10 Mbps UART, RS422, RS485 3 Mbps RS232 500 Kbps I/O Level (UART, SPI, PPS) 1.8V to 3.3V Package Package 42-pin LGA (Land Grid Array) SMT module Size 20.7 x 12.5 x 2.9 mm Weight 1.7 g Function GPX-1™ +RTK +Dual +IMX-5™ Position and Velocity • • • • • • • • • • • • • • • • • • •	Oscillator	TCXO				
Memory Flash Moving base For dual GNSS compassing (heading) Supported antennas Active * GNSS-Compassing, ** RTK-Positioning ** RTK-Positioning Interfaces Serial (GPX-1) UART x3, SPI, I2C, CAN, USB Serial (RUG-4) UART x2, SPI, RS232, RS485, CAN, USB Max Baud Rate: SPI SPI 10 Mbps UART, RS422, RS485 3 Mbps RS232 500 Kbps I/O Level (UART, SPI, PPS) 1.8V to 3.3V Package Package 42-pin LGA (Land Grid Array) SMT module Size 20.7 x 12.5 x 2.9 mm Weight 1.7 g Function • • Position and Velocity • • • RTK Centimeter Level Position • • • Dual GNSS Compassing (Heading) • • •	RTC crystal	Built-in				
Moving base For dual GNSS compassing (heading) Supported antennas Active * GNSS-Compassing, ** RTK-Positioning Interfaces Serial (GPX-1) UART x3, SPI, I2C, CAN, USB Serial (RUG-4) UART x2, SPI, RS232, RS485, CAN, USB Max Baud Rate: SPI 10 Mbps UART, RS422, RS485 3 Mbps RS232 500 Kbps I/O Level (UART, SPI, PPS) 1.8V to 3.3V Package Package 42-pin LGA (Land Grid Array) SMT module Size 20.7 x 12.5 x 2.9 mm Weight 1.7 g Function GPX-1 TM +RTK +Dual +IMX-5 TM Position and Velocity • • • • • • • • • • • • • • • • • • •	Anti-jamming	7-ch notch filter for each L1 and	d L5 band			
Supported antennas Active * GNSS-Compassing, ** RTK-Positioning Interfaces Serial (GPX-1) UART x3, SPI, I2C, CAN, USB Serial (RUG-4) UART x2, SPI, RS232, RS485, CAN, USB Max Baud Rate: SPI 10 Mbps UART, RS422, RS485 3 Mbps RS232 500 Kbps I/O Level (UART, SPI, PPS) 1.8V to 3.3V Package Package 42-pin LGA (Land Grid Array) SMT module Size 20.7 x 12.5 x 2.9 mm Weight 1.7 g Function GPX-1™ +RTK +Dual +IMX-5™ Position and Velocity • • • • Dual GNSS Compassing (Heading) • • •	Memory	Flash				
* GNSS-Compassing, ** RTK-Positioning Interfaces Serial (GPX-1)	Moving base	For dual GNSS compassing (hea	ading)			
Serial (GPX-1)	Supported antennas	Active				
Serial (GPX-1) UART x3, SPI, I2C, CAN, USB Serial (RUG-4) UART x2, SPI, RS232, RS485, CAN, USB Max Baud Rate: SPI SPI 10 Mbps UART, RS422, RS485 3 Mbps RS232 500 Kbps I/O Level (UART, SPI, PPS) 1.8V to 3.3V Package Package 42-pin LGA (Land Grid Array) SMT module Size 20.7 x 12.5 x 2.9 mm Weight 1.7 g Function GPX-1™ +RTK +Dual +IMX-5™ Position and Velocity • • • RTK Centimeter Level Position • • • Dual GNSS Compassing (Heading) • •	* GNSS-Compassing, ** RT	K-Positioning				
Serial (RUG-4) UART x2, SPI, RS232, RS485, CAN, USB Max Baud Rate: IO Mbps SPI 10 Mbps UART, RS422, RS485 3 Mbps RS232 500 Kbps I/O Level (UART, SPI, PPS) 1.8V to 3.3V Package Package 42-pin LGA (Land Grid Array) SMT module Size 20.7 x 12.5 x 2.9 mm Weight 1.7 g Function GPX-1™ +RTK +Dual +IMX-5™ Position and Velocity • • • RTK Centimeter Level Position • • • Dual GNSS Compassing (Heading) • • •	Interfaces					
Max Baud Rate: SPI 10 Mbps UART, RS422, RS485 3 Mbps RS232 500 Kbps I/O Level (UART, SPI, PPS) 1.8V to 3.3V Package Package 42-pin LGA (Land Grid Array) SMT module Size 20.7 x 12.5 x 2.9 mm Weight 1.7 g Function GPX-1™ +RTK +Dual +IMX-5™ Position and Velocity • • • RTK Centimeter Level Position • • • Dual GNSS Compassing (Heading) • • •	Serial (GPX-1)	UART x3, SPI, I2C, CAN, USB				
SPI 10 Mbps UART, RS422, RS485 3 Mbps RS232 500 Kbps I/O Level (UART, SPI, PPS) 1.8V to 3.3V Package Package 42-pin LGA (Land Grid Array) SMT module Size 20.7 x 12.5 x 2.9 mm Weight 1.7 g Function GPX-1™ +RTK +Dual +IMX-5™ Position and Velocity • • • RTK Centimeter Level Position • • • Dual GNSS Compassing (Heading) • • •	Serial (RUG-4) UART x2, SPI, RS232, RS485, CAN, USB					
UART, RS422, RS485 3 Mbps RS232 500 Kbps I/O Level (UART, SPI, PPS) 1.8V to 3.3V Package Package 42-pin LGA (Land Grid Array) SMT module Size 20.7 x 12.5 x 2.9 mm Weight 1.7 g Function GPX-1™ +RTK +Dual +IMX-5™ Position and Velocity • • • • • RTK Centimeter Level Position Dual GNSS Compassing (Heading) • • •	Max Baud Rate:					
RS232 500 Kbps I/O Level (UART, SPI, PPS) 1.8V to 3.3V Package Package 42-pin LGA (Land Grid Array) SMT module Size 20.7 x 12.5 x 2.9 mm Weight 1.7 g Function FUNCTION FUNCTION +RTK +Dual +IMX-5™ Position and Velocity • • • RTK Centimeter Level Position • • • Dual GNSS Compassing (Heading) • • •	SPI	10 Mbps				
I/O Level (UART, SPI, PPS) 1.8V to 3.3V		•				
Package Package 42-pin LGA (Land Grid Array) SMT module Size 20.7 x 12.5 x 2.9 mm Weight 1.7 g Function GPX-1™ +RTK +Dual +IMX-5™ Position and Velocity • • • • RTK Centimeter Level Position • • • Dual GNSS Compassing (Heading) • • •		•				
Package 42-pin LGA (Land Grid Array) SMT module Size 20.7 x 12.5 x 2.9 mm Weight 1.7 g Function GPX-1™ +RTK +Dual +IMX-5™ Position and Velocity • • • • • RTK Centimeter Level Position Dual GNSS Compassing (Heading) • • •		1.8V to 3.3V				
Size 20.7 x 12.5 x 2.9 mm Weight 1.7 g Function GPX-1™ +RTK +Dual +IMX-5™ Position and Velocity • • • • RTK Centimeter Level Position • • • Dual GNSS Compassing (Heading) • • •						
Weight 1.7 g Function GPX-1™ +RTK +Dual +IMX-5™ Position and Velocity • • • • RTK Centimeter Level Position • • • Dual GNSS Compassing (Heading) • • •		•	MT module			
FunctionGPX-1™+RTK+Dual+IMX-5™Position and Velocity••••RTK Centimeter Level Position•••Dual GNSS Compassing (Heading)•••		.2.5 x 2.9 mm				
Position and Velocity RTK Centimeter Level Position Dual GNSS Compassing (Heading) • • • • • • • • • • • • •						
RTK Centimeter Level Position • • • • Dual GNSS Compassing (Heading) • •	Function	GPX-1™ +RTK	+Dual +IMX-5™			
Dual GNSS Compassing (Heading) • •	•					
			• •			
Roll, Pitch, Velocity, Position (INS)		<u> </u>	• •			
	Roll, Pitch, Velocity, Position	Roll, Pitch, Velocity, Position (INS)				

Part Numbers

IS-GPX-0010-U3G2-IND
Dual GNSS (no compassing or RTK positioning)
IS-GPX-0010-U3G2-C1-IND
GNSS-Compassing
IS-GPX-0010-U3G2-R1-IND
RTK-positioning (available mid 2024)
IS-IG-2050-U3G2-C1R1-DVK
Development Kit for IG2-IMX5-GPX1



Development kits available on our website.

Environmental		MAX		
Operating Temperature		-40 to 85 °C		
Storage Temperature		-40 to 85 °C		
ESD rating		± 2 kV	Human	body model
Solder Reflow Temperature M	lax	245 °C		
Solder Reflow Temperature Li	mit 21	7°C liquidus: 4	.0 − 60 s	
Magnetic field immunity	25	mT (operation	n), 55 mT (sto	rage)
Electrical				
	Min	Тур	Max	Units
Power Draw @ 5Hz		160*	200*	mW
Power Draw @ 25Hz		190*	240*	mW
Supply Voltage (Vcc)	3.0	3.3	3.6	V
I/O Pin MAX Voltage Range	-0.5		3.6	V
Total Output Current, All			100	mA
Pins				
Logic levels for 3.3V I/O (VAUX	(= 3.3V)			
Input low-level			0.99	V
Input high-level	2.31	3.3		V
Output high-level		3.3		V
Logic levels for 1.8V I/O (VAUX	(= 1.8V)			
Input low-level			0.4	V
Input high-level	1.3	1.8		V
Output high-level		1.8		V
RF Power In (GNSS1_RF, GNSS	2_RF)		0	dBm

 $\ensuremath{^{*}}$ Power draw does not include active antenna power draw.

VCC_RF Output Current** @3.0V

^{**} VCC_RF is supplied from VAUX through a load switch and a 10Ω 0.2W resistor.

Related Products: RUG-4 & IG-2 Electrical						
	Min	Тур	Max	Units		
Supply Voltage (VIN)	4.5		20	V		
RUG4-IMX5-GPX1 + Antenna						
Current Draw @ 5V, 250Hz*		185		mA		
Power Consumption @250Hz*		927		mW		
Power Consumption @100Hz*				mW		
Power Consumption – Dual		1470		mW		

*Navigation filter update rate.

Related Products: RUG-4 Package				
Size	30.5 x 25.4 x 10.5 mm			
IP Rating	40	No liquid protection		
Mounting Tab	30.836 mm	Hole Spacing		
Weight	14.0 g			
Connectors	Main: Harwin# G125-MV11205L1	P, GPS 1/2: MMCX		
Related Products: IG-2 Package				
Package	36-pin LGA (Land Grid Array)	SMT module		
Size	46.6 x 24.5 x 5.9 mm			
Weight	8.5 g			



IG-2

SMT Module (GPX1 + IMX5) Size: 46.6 x 24.5 x 5.9 mm

Weight: 8.5 g

GNSS-INS: Multi-Band L1/L5