

PENTAX

Positioning Systems

Precision Satellite Surveying
with extended measurement
support functions

Series

GX2

GPS | GLONASS | BEIDOU | SBAS | GALILEO

Made in Japan



GX2 Models

- + **GX2-A: with AR stakeout function**
- + **GX2-L: with AR stakeout & Laser measurement functions**
- + **GX2-C: with AR stakeout & Photogrammetry functions**

* Optional data collection software PTS3.0 is necessary to utilize these extended functions.

TI Asahi Co.,Ltd
Focusing on true performance

Positioning Systems Series **GX2**



Characteristics

The GX2 is a portable, multi-functional GNSS receiver featuring a high-precision positioning module that tracks satellite signals from all GNSS constellation systems and frequency bands. It is equipped with Bluetooth, WiFi, 4G full network access, and a built-in EX and RX data transmission radio that allows it to function as both a Rover and Base station. The device supports a hot-swap dual battery system for seamless battery replacement without shutting down the receiver, and includes a high-precision IMU for quick RTK fixes.

Designed for maximum efficiency and performance of surveying work, the GX2 boasts a robust, lightweight housing suitable for harsh outdoor environments. It also features a camera that enables visual guidance on the controller during stakeout operations. GX2 is ideal for surveyors who demand both speed and accuracy in their work, ensuring ease and reliability in challenging conditions.



Powerful GNSS Engine

The GX2, equipped with a powerful multi-frequency GNSS engine, covers all positioning satellite systems such as GPS, GLONASS, BeiDou, and Galileo. It is suitable for surveying tasks that require stable, fast, and accurate measurement results in any location.



Tilt compensation

Automatic tilt compensation within a range of $\pm 60^\circ$, eliminating the need to keep the receiver vertical. This reduces operational steps, improves job flexibility, and adapts to rugged terrain.



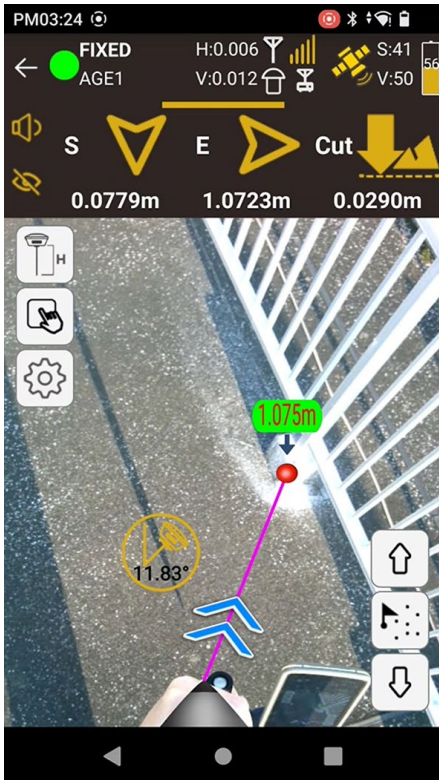
IP68 waterproof and dustproof

All the electronic components are enclosed in a lightweight yet robust magnesium alloy housing with IP68 waterproof and dust-proof capabilities. This ensures stable operation in harsh weather or dusty environments.



Large LED display

The large, clear color LED display allows operator to easily see the real-time status and operation of the equipment at a glance.



AR stakeout

All models of the GX2 can capture images of the ground directly below using a high-resolution camera mounted on the bottom of the receiver. The captured images are reflected in real-time on the controller's software, providing visual guidance for stakeout tasks.

Optional Software PTS3.0 is required.



Dual hot-swap battery system

The GX supports a hot-swapping dual lithium battery system, enabling over 20 hours of uninterrupted continuous operation. This makes it especially suitable for long-term outdoor surveying work.

Extended measurement functions

GX2-L

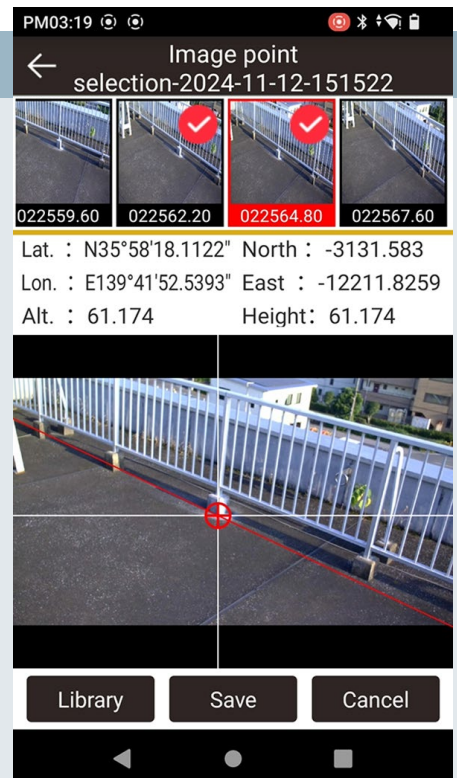


Laser measurement

GX2-L has a high-precision millimeter-level laser ranging module that allows users to measure points inaccessible to surveyors. Its built-in high-precision IMU compensates for receiver inclinations up to 60 degrees.

Optional Software PTS3.0 is required.

GX2-C



Imaging survey

GX2-C features a 1/2.6-inch large base high-definition wide-angle camera mounted on the side of its housing. It can capture images for photogrammetry measurements.

Optional Software PTS3.0 is required.

GNSS SPECIFICATIONS

Model		GX2-A	GX2-L	GX2-C
Channel Configuration		1408 channels Multi-Frequency for GPS, GLONASS, Galileo, Beidou and QZSS		
Receiver Board		UM980		
Signal Tracking	GPS	L1 (L1C/A, L1C), L2 (L2P, L2C), L5		
	GLONASS	L1, L1C/A, L2 (L2 C/A, L2P), L3		
	BEIDOU	B1 (B1I, B1C), B2 (B2I, B2a, B2b), B3 (B3I)		
	Galileo	E1 (E1BC), E5a, E5b, E6, AltBOC *1		
	QZSS	L1 C/A, L1C, L2C, L5, L6 *1		
	SBAS	L1 C/A(WAAS, EGNOS, GAGAN, MSAS)		
	NavIC (IRNSS)	L5, L1 *1		
	PPP	B2b,E6		
Position Accuracy		Horizontal / Vertical		
	SBAS (WAAS, GAGAN etc.)	0.5 m (RMS) / 0.7 m (RMS)		
	DGPS	0.25 m + 1 ppm (RMS) / 0.5 m + 1 ppm (RMS)		
RTK Performance	Horizontal Accuracy	8 mm + 1 ppm (RMS)		
	Vertical Accuracy	15 mm + 1 ppm (RMS)		
	Horizontal Accuracy (Network RTK)	8 mm + 0.5 ppm *2 (RMS)		
	Vertical Accuracy (Network RTK)	15 mm + 0.5 ppm *2 (RMS)		
	Average Time to Work	Typ. < 10 sec.		
	Availability/Initialization Reliability	> 99.9%		
Static Performance	Horizontal Accuracy (Long time observation) *3	3 mm + 0.1 ppm *3 (RMS)		
	Vertical Accuracy (Long time observation) *3	3.5 mm + 0.4 ppm *3 (RMS)		
	Horizontal Accuracy	2.5 mm + 0.5 ppm (RMS)		
	Vertical Accuracy	5 mm + 0.5 ppm (RMS)		
PPP (Precision Point Positioning)		Horizontal: 5 cm (RMS) / Vertical: 10 cm (RMS)		
Ports		Lemo 7-pin, external radio and power supply USB - Type C, SMA connector		
Internal Radio Modem	Frequency	410 Mhz - 470 Mhz		
	Output Power	0.5 W / 1.5 W (2 W for special area)		
Cell Modem	Modem	Fully supports 2 / 3 / 4 G networks		
	Frequency Bands	LTE FDD: B1/2/3/4/5/7/8/12/13/18/19/20/25/26/28 LTE TDD: B38/39/40/41 WCDMA: B1/2/4/5/6/8/19 GSM: B2/3/5/8		
	Network Protocol	NTRIP, HTTP, FTP, TCP, UDP		
Power	Internal Battery	3,350 mAh / 7.4 V x 2		
	Current Drain	0.24 A / 12 V		
	Battery Running Time	Approx. 20 hr: Rover with 2 Batteries		
Weight		1.03 kg with 2 batteries		
Dimensions		Ø 156.8 mm x H 83 mm		
Environmental Specifications	Operating Temperature	-20 °C to +60 °C		
	Storage Temperature	-40 °C to +80 °C		
	Shock/Drop	Withstand 2 m pole drop		
	Humidity	100 % non-condensing		
Velocity Accuracy	Standalone	0.03 m/sec RMS		
Data Output	Raw Data output frequency	up to 20 Hz		
	NMEA Data output frequency	up to 20 Hz		
	Correction Data Protocol	RTCM 2.X, RTCM3.X, CMR, CMR+ *4		
Time to First Fix	Cold Start	< 40 sec		
	Warm Start	< 20 sec		
	Reacquisition	< 1 sec		
WiFi		IEEE 802.11b/g/n		
IMU	Electric Bubble	Yes		
	Tilt compensated	Tilt range up to 60°		
	Tilt accuracy	2 cm (RMS)		
Imaging	Downward (AR Camera)	Resolution: 1920 x 1080 Field of view: D70.3° H62.7° V38.6°		
	Side (Photogrammetry Camera)	N/A	N/A	Resolution: 1920 x 1080 Field of view: D51.8° H42.4° V32.4°
AR Stakeout		≤ 2 cm with PTS 3.0		
Photogrammetry		N/A	N/A	Typical 2 ~ 4 cm, measuring distance 2 ~ 15 m with PTS 3.0
Laser Measurement		N/A	5.5 cm (RMS, 3D distance up to 5 m) with PTS 3.0	N/A
Laser Wavelength and Power		N/A	Laser wavelength 520 nm ± 20 nm Laser output power: 2-3 mW	N/A
Bluetooth		BR + EDR + BLE		
Memory		Internal 32 GB (24GB for User Data Storage)		
RoHs		Complied		
Waterproofing		IP 68		
Certification		CE		
Standard Accessories		2 x Li-Ion rechargeable battery pack Battery charger + AC Adapter UHF radio antenna (longer one) 5/8 inch screw adapter QR Code Card for Online User Manual		

*1 Hardware ready.

*2 Network RTK ppm values are referenced to the closest physical base station and depends on the network performances.

*3 Performance, Accuracy and Reliability are dependent upon various factors including satellite geometry, number of satellites, ionospheric conditions, atmospheric conditions and multipath.

*4 For future upgrade

PENTAX Positioning System is dedicated to providing customers with first class positioning system products and freedom of choice. We have carefully designed high-quality products to meet the needs of today's surveyors based on the experience of many years involved in instrument design and construction. Our engineers have been involved in Survey products since the beginning of the Satellite Surveying Era. We are committed to ease of use, a low cost of ownership and flexibility to accommodate different working environments. Our close partners are carefully chosen and are committed to these values as we are.

www.pentaxsurveying.com/en/

TI Asahi Co., Ltd.

International Sales Department

4-3-4 Ueno Iwatsuki-Ku, Saitama-Shi

Saitama, 339-0073 Japan

Tel.: +81-48-793-0118

Fax: +81-48-793-0128

E-mail: International@tiasahi.com

ISO 9001: 2015 Certified



The CE marking assures that this product complies with the requirements of the EC directive for safety.

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