

Specifications

*Specifications are indicative only and are subject to change without notice.

Emesent GX1 is powered by Emesent SLAM, a proprietary SLAM algorithm which is the key to unlocking stunning global accuracies in a variety of environments. All global accuracies are reported as 3D RMSE in accordance with good surveying practice. SLAM global accuracy is correlated with the density of features in the scan environment.

Global accuracy

Global accuracy - unconstrained ¹	→ 5mm (many features) → 10mm (few features)
Global accuracy - with GCPs ²	→ 5mm (many features) → 8mm (few features)
Global accuracy - with RTK/PPK ³	→ 15mm

¹ Measured in test environments by performing a rigid alignment to control points.

² Measured in test environments by non-rigidly constraining the point cloud with control points and measuring global accuracy with check points. Constraint points are not used in the accuracy calculation.

³ Measured in a standard outdoor test environment using a local base station (<1km baseline).

Local accuracy & precision

Local accuracy ¹	5mm
Precision ²	Up to 2mm

¹ Reported as 3D RMSE. Measured in test environments by calculating point-to-point distances between control points. Constraint points are not used in the accuracy calculation.

² Reported at 1 standard deviation.

Integrated RTK

Channels	448
Horizontal Accuracy ¹	0.6cm + 0.5ppm
Vertical accuracy	1cm + 0.5ppm
PPK	Yes
Connectivity	Integrated 4G modem, nano size SIM

¹ RTK receiver accuracy only. Not indicative of overall global accuracy. Global accuracy is typically improved when combining RTK and SLAM data.

LiDAR

Model	Hesai XT32M2X
Sensing range	300 meters / 984ft
Returns	3
Points/sec	→ 640,000 (single return) → 1,920,000 (triple returns)
Channels	32

Cameras

Cameras	4 x 20MP high-resolution cameras
Panorama field of view	360° x 284°
Ground sample distance	→ 0.96mm/px @ 1 meter → 4.8mm/px @ 5 meters

Scanner

Weight	→ 3.2kg / 7.05lbs (without battery) → 3.5kg / 7.71lbs (with battery)
IMU	High-performance AHRS
Travel protection	Store in custom-designed IP65 backpack
IP rating	IP65
Operating temperature	-10 to 45°C (14 to 113 °F)
External interfaces	→ RJ45 (Ethernet) → Multi-function connector → USB-C (USB3.2)WiFi (2.4GHz)
Wireless interfaces	→ WiFi 2.4/5.8GHz → 4G
Storage	→ 2TB → SD card expansion (up to 2 TB)
Mounting methods	→ Backpack → Survey pole (5/8" thread) → Vehicle → Supported handheld

Battery & charging

Power	54Wh 10.8V Smart Li-Ion Battery (removable)
Battery life	60 minutes
External power	→ Multi-function connector (9-24V) → USB-C (65W, for offload and firmware upgrades only)
Charging	→ Dual-bay battery charger → In-device battery charging with external power
Charging time	Approx 2 hours