

Topcon CR-S2

Capture reality with unmatched speed and flexibility.



The Topcon CR-S2 combines MLF-SLAM (multiple localization fusion-SLAM), VSLAM (visual SLAM), and RTK-SLAM technologies. This integrated approach delivers stable, centimeter-level accuracy - even in areas where GNSS signals are weak or unavailable - by leveraging LiDAR, visual, IMU, and RTK data. High-fidelity point clouds and real-time colorized imaging ensure actionable results in a single workflow, minimizing return visits and rework.

- » Capture data on the move with a truly portable solution.
- » Simplify your workflow from field capture to final processing.
- » Achieve survey-grade accuracy without the need for extensive setup.
- » Scan diverse environments, from dense forests to urban canyons.
- » Integrate seamlessly with Topcon software for a complete solution.

System Parameters

Absolute Accuracy	<3 cm (1.18 in.) ¹
Relative Accuracy	<2 cm (0.79 in.) ²
Repeat Accuracy	<2 cm (0.79 in.) ³
Horizontality/Verticality	<0.025° ⁴
Power Supply Method	Lithium Battery Powered
Battery Capacity	3450 mAh
Single Battery Life	2 h ⁵
Weight	1.3 kg (2.87 lbs) (with base, battery, and RTK module)
Dimensions	345×187×120 mm (13.58x7.36x4.72 in.)
Protection Level	IP64
Storage Capacity	512 GB SSD
Port	USB-C
Control Method	APP, Button
Firmware Upgrade Method	OTA, Offline
Operating Temperature	-20°C to 40°C (-4°F to 104°F)
Device Storage Temperature	-40°C to 70°C (-40°F to 158°F)
Battery Storage Temperature	Recommended Storage Temperature: 22°C to 30°C (71.6°F to 86°F) ⁶

LiDAR Sensor Parameters

Laser	Mid360
Scan Rate	200,000 pts/s
LiDAR Accuracy	2 cm (0.79 in.)
Safety Level	Class 1 (Eye-safe)
Laser Wavelength	905 nm
Detection Range	40 m (131.23 ft) @ 10% reflectivity; 70 m (229.66 ft) @ 80% reflectivity
Field of view	Horizontal 360 °, Vertical -7° to 52°

Camera Parameters

Number of Cameras	4
Visual SLAM camera	1.3MP×2
Panoramic Camera	12MP ×2
Frame Rate	Adjustable

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RTK Parameters

Satellite Systems	BDS B1I, B2I, B3I, B1C, B2b GPS L1C/A, L2C, L2P(Y), L5 GLONASS G1, G2 Galileo E1, E5a, E5b, E6 QZSS L1C/A, L2C, L5 SBAS L1C/A
Channels	1408
RTK Differential Protocol	NTRIP
RTK Accuracy	Horizontal: 0.8 cm (0.31 in.) + 1 ppm Vertical: 1.5 cm (0.59 in.) + 1 ppm
Differential Data	RTCM V3.X
RTK Data Format	.rtk

IMU Parameters

Output Frequency	200 Hz
Post-Processing Attitude Accuracy	Roll/Pitch: 0.005°, Heading: 0.01°
Post-Processing Position Accuracy	Horizontal: 0.01 m (3.94 in.), Vertical: 0.02 m (7.87 in.)

Mapping Method

Mapping Principles	MLF-SLAM, PPK-SLAM, RTK-SLAM, SLAM
Real-Time Colorization	Supported
Real-Time Processing	Supported

Output Specifications

Colored Point Cloud	LAS
MESH	LOD-OSGB
Panoramic Image	JPG

Telescopic Pole Adapter

Weight	300 g (0.66 lbs)
Supported Telescopic Pole Diameter	25-25.5 mm (0.98-1.00 in.) ⁷

Frontpack Kit Parameters

Weight	2.1 kg (4.63 lbs)
Outer Packaging Dimensions	560×340×160 mm (22.05x13.39x6.30 in.)

Backpack Kit Parameters

Weight	3.9 kg (8.60 lbs)
Dual battery power display	Supported
Dimensions	580×303×145 mm (22.83x12.99x5.71 in.)
Hot Swap	Supported

^{1,2} Deviations may occur in some scenarios.

³ Two scans with GNSS, with GNSS disconnection not exceeding 100 meters.

⁴ Requires measurement of absolutely horizontal and vertical objects such as building walls and interiors.

⁵ Battery life tested at 20°C without camera recording or RTK connection.

⁶ -20°C to 45°C for <1 month; -20°C to 35°C for >1 month.

⁷ Only supports the outer diameter of the telescopic part in the range of 25-25.5 mm for RTK telescopic poles; The locking device does not support RTK telescopic poles with a protruding circular ring on the top contact surface.

Specifications subject to change without notice.

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