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]
Relative Accuracy	<2 cm [2]
Repeat Accuracy	<2 cm [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 (with base, battery, and RTK module)
Dimensions	345×187×120 mm
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
Device Storage Temperature	-40°C to 70°C
Battery Storage Temperature	Recommended Storage Temperature: 22°C to 30°C [6]

LiDAR Sensor Parameters

Laser	Mid360
Scan Rate	200,000 pts/s
LiDAR Accuracy	2 cm
Safety Level	Class 1 (Eye-safe)
Laser Wavelength	905 nm
Detection Range	40 m @ 10% reflectivity; 70 m @ 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 + 1 ppm Vertical: 1.5 cm + 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, Vertical: 0.02 m

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
Supported Telescopic Pole Diameter	25-25.5 mm [7]

Frontpack Kit Parameters

Weight	2.1 kg
Outer Packaging Dimensions	560×340×160 mm

Backpack Kit Parameters

Weight	3.9 kg
Dual battery power display	Supported
Dimensions	580×303×145 mm
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.

Learn more at **topconpositioning.com**

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