

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 (13.58×7.36×4.72 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 |

Topcon CR-S2

Capture reality with unmatched speed and flexibility.

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 (22.05×13.39×6.30 in.) |

Backpack Kit Parameters

| | |
|----------------------------|--|
| Weight | 3.9 kg (8.60 lbs) |
| Dual battery power display | Supported |
| Dimensions | 580×303×145 mm (22.83×12.99×5.71 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.

© 2026 Topcon Corporation. All rights reserved. 7010-2477 A 01/26

Learn more at topconpositioning.com

