



# Trimble EMPOWER

## EM100 GNSS MODULE

### PROFESSIONAL GRADE GNSS PERFORMANCE IN THE HAND

Add the Trimble® EM100 module to your Trimble EMPOWER-enabled devices, such as the Trimble TSC7 survey controller, Nomad® 5 handheld, or Trimble T7 tablet to get integrated sub-meter positioning in the field. With support for a range of different correction sources, built in antenna, and support for external antennas, the EM100 GNSS module has everything you need to turn your compatible base device into an accurate data collection handheld.

#### Multiple Constellation Support Provides Global Reach

The EM100 supports multiple GNSS constellations, including GPS, GLONASS, Galileo, QZSS and BeiDou, to provide a truly global GNSS solution. The EM100 receiver includes the ability to utilize SBAS, Trimble ViewPoint™ RTX or VRS correction sources to suit location and business requirements.

The Trimble ViewPoint RTX service provides global sub-meter accuracy, using WiFi or cellular where coverage is available, or over satellite L-band for support even in the most remote locations.

Through support of all this technology the EM100 GNSS module provides accurate GNSS information almost anywhere on earth.

#### Application Integration Options

Positions generated from the EM100 are provided to location services, enabling accurate positioning for any application aware application\*. Developers requiring richer position data along with tighter integration have a choice of APIs including Trimble GNSS Direct and TPSDK.

#### A Fully Integrated GNSS Solution

Unlike many other solutions on the market the Trimble EMPOWER compatible EM100 GNSS module enables a fully integrated user experience. From the rugged 'all in one' device feel to the tightly integrated software, users will realise the benefits of an external GNSS receiver without the need to carry extra equipment.

### Key Features

- ▶ **Powerful:** High-sensitivity GNSS Receiver with on-board processing of all positioning data
- ▶ **Compact:** Integrated antenna
- ▶ **Accurate:** Sub-meter real time accuracy from a range of correction sources
- ▶ **Global:** Support for Trimble ViewPoint RTX™ for global sub-meter positioning
- ▶ **Extensible:** External antenna connector to support a wide range of workflow needs



\* Positions provided to location services from the EM100 are supported by Android devices only

# Trimble EMPOWER EM100 GNSS MODULE

## GNSS

Module	Trimble Maxwell 6
Sensor type	L1/G1 GNSS receiver
Internal antenna	Yes, helical antenna
External antenna	SMB Female, 3.4V DC, 150 mA 50 Ohms
Constellations	GPS L1 C/A GLONASS L1 C/A (aka G1C) SBAS L1 C/A (WAAS, EGNOS, MSAS, GAGAN, SDCM <sup>1</sup> ) Galileo E1 BeiDou B1 QZSS L1 C/A & L1-SAIF
Raw data output	Yes
Channels	44-channel, parallel tracking
Correction sources	SBAS L1 C/A, LUCH (SDCM <sup>1</sup> ), Internet (NTRIP, RAW), ViewPoint RTX <sup>2</sup> (L Band, IP), QZSS L1 SAIF
SBAS	WAAS, EGNOS, MSAS, GAGAN, SBAS ranging
Real time correction protocols	CMR, CMR+, Encrypted CMR+, CMRx, RTCM 2.x DGPS, RTCM 3.2, RTX
Receiver protocols	DCOL (RT 27 & GSOF), NMEA 0183 (Version 4.10) (Legacy version support 3.01)
Update rate	1 – 10 Hz user configurable
Time to first fix	45 s typically
Reacquisition	< 2 s
Maximum speed	1,850 kph / 1,150 mph / 999 knots
Maximum altitude	9,000 m (29,520 ft)

## ACCURACY<sup>3</sup>

SBAS	1 m
VRS (Now) H-Star	.75 cm
VRS / DGNSS	.75 cm
RTX - ViewPoint	.50 cm
Code DGNSS accuracy (post-processed)	.50 cm + 1 ppm HRMS

## ENVIRONMENTAL SPECIFICATIONS

Independently tested IEC ratings	IP65, IP67 (IEC 60529)
Water/Dust ingress	IP65, IP67 (IEC 60529)
<b>Meets or exceeds the following standards based on MIL-STD-810G test ratings</b>	
Operating temperature	-30 °C to +60 °C (-22 °F to +140 °F)
Storage temperature	-40 °C to +70 °C (-22 °F to +158 °F)
Drop-shock	1.2 meters (Method 516.5 Procedure IV)
Heavy vibration	Method 514.5 Procedure I Category 24
Humid environment operation	95% RH (MIL-STD-810G Method 507.6)
High altitude operation	30,000 ft (MIL-STD-810G Method 500.5)
High altitude transport	40,000 ft (MIL-STD-810G Method 500.5)
Solar exposure	MIL-STD-810G, Method 505.5, Procedure II

## PHYSICAL DIMENSIONS

Size (L x W x H)	132 mm (5.2") x 56 mm (2.2") x 60 mm (2.3")
Weight	.143 g (5 oz)

## COMPLIANCE CERTIFICATIONS

- FCC, IC, CE, RCM, and RoHS

## IN THE BOX

- Trimble EM100 GNSS Module
- Quick-start guide

## OPTIONAL ACCESSORIES

- External antenna

## DEVELOPER RESOURCES

- Trimble EMPOWER Developer Program: Including access to generic Microsoft® Windows® 10 SDK assets and resources, GNSS Direct SDK for access to rich GNSS configuration and data.

1 When available.  
 2 Trimble ViewPoint RTX service provides global sub-meter accuracy using IP cellular where coverage is available, or over satellite L-band, so remote location work is not a problem.  
 3 Stated performance assumes a dynamic data collection workflow. GNSS accuracy and reliability may be subject to anomalies due to multipath, obstructions, satellite geometry and atmospheric conditions. Always follow recommended GNSS data collection practices.

Specifications subject to change without notice.

Contact your local Trimble Authorized Distribution Partner for more information

**NORTH AMERICA**  
 Trimble Inc.  
 10368 Westmoor Dr  
 Westminster CO 80021  
 USA

**EUROPE**  
 Trimble Germany  
 GmbH  
 Am Prime Parc 11  
 65479 Raunheim  
 GERMANY

**ASIA-PACIFIC**  
 Trimble Navigation  
 Singapore PTE Limited  
 3 HarbourFront Place  
 #13-02 HarbourFront Tower Two  
 Singapore 099254  
 SINGAPORE

