



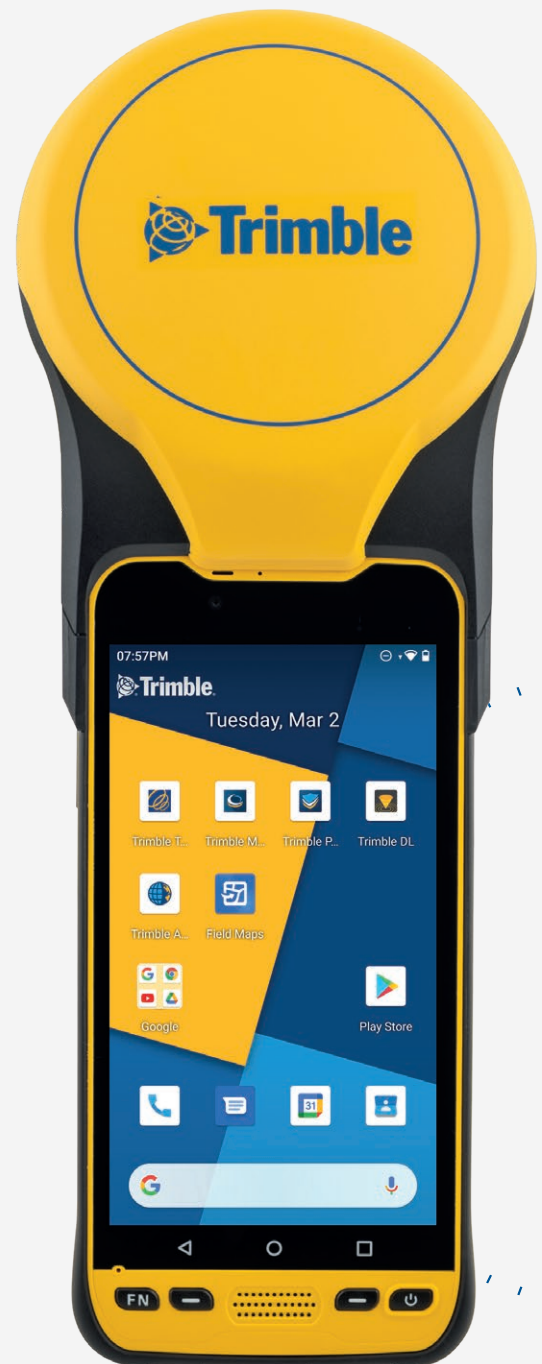
# Trimble TDC650

## HANDHELD

### KEY FEATURES

- ▶ Integrated high-accuracy GNSS receiver
- ▶ Scalable positioning accuracy from meter to centimeters
- ▶ Versatile GNSS corrections support
- ▶ Android™ operating system
- ▶ 6-inch sunlight readable multi-touch capacitive screen
- ▶ Google Mobile™ services certified to run Google core applications and services
- ▶ Compatible with Trimble or third-party software applications
- ▶ High speed 4G LTE cellular data connectivity
- ▶ Ultra-rugged design with MIL-STD-810 certification and rated IP67
- ▶ Removable, all day battery
- ▶ Fast Qualcomm® processor with 4 GB RAM and 64 GB internal storage
- ▶ Ergonomic form factor
- ▶ Front- and rear-facing cameras

**Learn more:**  
[geospatial.trimble.com/tdc650](http://geospatial.trimble.com/tdc650)



# Trimble TDC650 HANDHELD

## GNSS CHARACTERISTICS

- 240 GNSS channels
  - GPS L1, L2
  - GLONASS L1, L2
  - BeiDou B1, B2
  - Galileo E1, E5b
  - QZSS L1, L2
  - SBAS L1 (WAAS, EGNOS, MSAS, GAGAN)
  - L-band
- Scalable accuracy from meter to centimeter (meter, sub-meter (30/30), decimeter (7/2), centimeter)
- Full utilization of signals from all 6 GNSS systems (GPS, GLONASS, BeiDou, Galileo, QZSS and SBAS)
- Enhanced GNSS-centric algorithm: fully-independent GNSS signal tracking and optimal data processing
- Fast search engine for quick acquisition and re-acquisition of GNSS signals
- Patented SBAS ranging for using SBAS code & carrier observations and orbits in RTK processing
- Patented Strobe™ Correlator for reduced GNSS multi-path
- Supported data formats: ATOM, CMR, CMR+, RTCM 2.1, 2.3, 3.0, 3.1 and 3.2 (including MSM), CMRx and sCMRx
- External antenna connector (TNC)

## REAL-TIME ACCURACY (RMS)<sup>1,2,3</sup>

### Meter (SBAS only)

Horizontal ..... < 70 cm  
 Vertical ..... < 90 cm

### Sub-Meter

Horizontal ..... 30 cm  
 Vertical ..... 30 cm

### Decimeter

Horizontal ..... 7 cm  
 Vertical ..... 2 cm

### Centimeter

Horizontal ..... 10 mm + 1 ppm  
 Vertical ..... 15 mm + 1 ppm

### Real-Time Performance<sup>4</sup>

Instant-RTK Initialization ..... Typically 2 sec for baselines < 20 km  
 Up to 99.9% reliability  
 RTK initialization range ..... over 40 km

### Trimble RTX® Positioning<sup>5</sup>

FieldPoint RTX ..... 10 cm horizontal  
 Initialization Fast ..... < 5 min

## POST-PROCESSING ACCURACY (RMS)<sup>1,2,3</sup>

Horizontal ..... 15 mm + 1 ppm  
 Vertical ..... 25 mm + 1 ppm

## PROCESSOR

- Qualcomm Snapdragon™ 626
- Clock frequency: 2.2 GHz

## OPERATING SYSTEM

- Android 10 (Google certified)<sup>6</sup>
- Software package includes: Google Mobile Services

## COMMUNICATIONS

- Cellular: GSM (850,900,1800,1900), WCDMA (B1, B2, B5, B8), LTE-FDD (B1, B2, B3, B4, B5, B7, B8, B12, B13, B17, B20, B25, B28), LTE-TDD (B38/B39/B40/B41), TD-SCDMA (B34, B39)
- NanoSIM x2
- Wi-Fi (IEEE) 802.11 a/b/g/n/ac
- Bluetooth® 4.1
- NFC (13.56 MHz)
- USB 3.0 (Type C)

## MEMORY

- 4 GB SDRAM
- Storage: 64 GB (non volatile).
- MicroSDXC™ memory card (up to 256 GB)

## ENVIRONMENTAL CHARACTERISTICS

Operating temperature ..... -20 °C to +55 °C (-4 °F to +131 °F)<sup>7,8</sup>  
 Storage temperature ..... -40 °C to +70 °C without battery (-40 °F to +158 °F)<sup>9</sup>  
 Humidity ..... 5% to 90% RH, non-condensing according to MIL-STD-810H 507.6  
 Water & dust proof ..... IP67 (IEC 60529)  
 Salt fog ..... MIL-STD-810H method 509.7  
 Free drop ..... 1.2 m (39 ft), 10 drops on concrete  
 Shocks ..... MIL-STD-810G (fig 516.6-10 Procedure I)  
 Vibration ..... MIL-STD-810G (fig 514.6C1-Cat4)  
 Altitude ..... MIL-STD-810G-2014 method 500.5

## POWER CHARACTERISTICS

Battery ..... Li-Ion, 8000mAh  
 Battery life ..... 8 hrs @ 20 °C (68 °F) with GNSS on<sup>10</sup>  
 Charging time ..... 4 hours (removable battery)

## PHYSICAL CHARACTERISTICS

Size ..... 30.6 x 12.2 x 4.7 cm (12 x 4.8 x 1.8 in)  
 Weight ..... 790 g (1.74 lb)  
 User interface ..... 2 volume keys, on/off/reset key, 4 programmable keys, standard 3 button Android touch panel

### On screen keyboard display

Size ..... 6.0" capacitive multi touch  
 Resolution ..... 1920 x 1080 pixels  
 Brightness ..... 450 Cd/m2  
 Panda Glass 3 damage-resistant  
 Auto rotate ..... between Portrait and Landscape

## MULTIMEDIA & SENSORS

- Rear camera: 13 MP pixels with auto-focus and LED flash
- Front camera: 5 MP pixels with fixed focus
- E-Compass
- Gyrometer
- Accelerometer
- Ambient light sensor
- Barometer
- Speaker
- Microphone
- Light sensor

## STANDARD ACCESSORIES

- Handstrap
- Screen protectors (x2)
- A/C charger
- USB cable
- Pouch
- Battery door opener
- Monopole adaptor

## OPTIONAL ACCESSORIES

- External GNSS antenna
- Pole bracket
- Monopole
- Dual-battery charger

## OPERATING MODES

- RTK rover: Direct IP, NTRIP (VRS, FKP, MAC networks)
- Post-processing (if supported by the field application)
- Trimble RTX IP or Satellite (both exhibit excessive power consumption)

## FIELD SOFTWARE

- Trimble TerraFlex®
- Trimble Penmap® for Android
- Trimble Access™
- Third-party Android applications

- 1 Accuracy and TTFF specifications may be affected by atmospheric conditions, signal multipath, obstructions, satellite geometry and corrections availability and quality. Always follow recommended GNSS data collection practices.
- 2 Performance values assume minimum of five satellites, following the procedures recommended in the product manual. High multipath areas, high PDOP values and periods of severe atmospheric conditions may degrade performance. Except for Meter (SBAS only), real time accuracies require RTK corrections.
- 3 RMS performance based on repeatable in field measurements. Achievable accuracy and initialization time may vary based on type and capability of receiver and antenna, user's geographic location and atmospheric activity, scintillation levels, GNSS constellation health and availability, and level of multipath including obstructions such as large trees and buildings.
- 4 Receiver initialization time varies based on GNSS constellation health, level of multipath, and proximity to obstructions such as large trees and buildings.
- 5 Long baselines, long occupations, precise ephemeris used. RTX on TDC650 is not supported outside RTX Fast areas (<https://positioningservices.trimble.com/resources/coverage-maps/>). RTX on TDC650 only supports GPS and GLONASS.
- 6 Android security updates provided until December 2024.
- 7 Internal batteries are rated from -20 °C to +48 °C.
- 8 At very high temperatures, UHF module should not be used in the transmitter mode. With UHF transmitter on radiating 2W of RF power, the operating temperature is limited to +55 °C (+131 °F).
- 9 Without batteries. Batteries can be stored up to +70 °C.
- 10 Screen brightness at factory default (62%).

Specifications are 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

