Trimble EMPOWER

EM110 AND EM111 ASSET TRACKING MODULES

Modular Accessories Compatible with the Ranger 7 Rugged Handheld Computer

The Trimble® EMPOWER Asset Tracking Modules enable you to easily integrate Barcode Imager and/or Ultra-High Frequency (UHF) RFID reader functionality with the Trimble EMPOWER enabled Ranger 7, facilitating handheld data collection in the harshest outdoor environments.

Scalable and flexible, the Ranger 7 paired with EMPOWER modules delivers the perfect combination of strength, smarts, and flexibility, making it perfectly suited to large scale field data capture in nearly any industry and application. This device boasts a Microsoft® Windows® 10 Pro OS along with a full keyboard in compact form, a 7" sunlight readable display, front and rear facing cameras, and GPS capability to capture the location of a scan.

Efficiency Features for Asset Tracking Workflows

The Trimble EMPOWER Asset Tracking modules give your solution an edge by reading an array of traditional linear barcodes, postal codes, and both matrix and stacked 2D symbology codes. The EM110 and EM111 modules integrate the industry leading Honeywell N6603 Series Imaging Engine, delivering superior barcode reading performance with outstanding speed and unrivaled accuracy.

For Ultra High Frequency (UHF) RFID tag reading, the EM111 module integrates the ThingMagic Mercury6e-Micro (M6e-Micro) RFID reader with an optimized antenna for longer read range. Using EPCglobal Gen 2 RFID technology, the EM111 rapidly reads tags almost simultaneously, for accurate reads in real world conditions. The EM111 UHF RFID module is ready for use around the world, with 2 part numbers available that support either the 902-928 MHz or 865.6-867.6 MHz frequency bands. The appropriate model is dependent on the frequency band authorized by the country where the RFID module will be used. The FCC, IC, ACMA and ANATEL certified EM111 supports the 902-928 MHz frequency bands, and is certified for use in the United States, Canada, Australia, New Zealand and Brazil. The CE, TRA and ICASA certified EM111 supports the 865.6 to 867.6 MHz frequency bands, and is certified for use in most European countries as well as UAE and South Africa.

Support Materials for Full Optimization

Both the EM110 and the EM111 modules have driver and software downloads available to modify settings and read a variety of barcodes and/or EPCglobal Gen 2 RFID tags. For full optimization, developers may access freely available APIs allowing full integration of barcode and/or RFID tag data into custom Windows 10 applications.

Key Features

▶ **Rugged:** Meets the rigorous MIL-STD-810G military standard for drops, vibration, humidity, and extreme temperatures - all while boasting an IP68 rating for protection against dust and water.

▶ **Designed for Data Capture:** The EM110 and EM111 Asset Tracking Modules make it easy to quickly capture barcode and/or RFID data.

▶ **Supported Worldwide:** EM111 RFID module options include 902 to 928 MHz and 865.6 to 867.6 MHz variants for use around the world.

▶ **Trimble EMPOWER:** The EMPOWER solution expands the capabilities of your base unit now or in the future with optional Asset Tracking Modules.

▶ **Develop:** SDK available to programmatically communicate with the Asset Tracking Modules, allowing you to create custom barcode and/or RFID-enabled solutions.

TRIMBLE EMPOWER ENABLED

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Trimble EMPOWER ASSET TRACKING MODULES

CONFIGURATION OPTIONS
Module only; does not include Ranger 7 handheld
- EM110: 1D/2D Barcode Imager
- EM111: 1D/2D Barcode Imager + UHF RFID Reader (902-928 MHz)
- EM111: 1D/2D Barcode Imager + UHF RFID Reader (865.6-867.6 MHz)

HIGH SPEED 1D/2D BARCODE IMAGER
- Integrated Honeywell N6603 Series Imaging Engine
- Optimized White LED Illumination & 650 nm high visibility red laser aimer helps you read all barcodes and gives a clear, sharp, and easily observed target area.
- Superior Scan Performance: ultra-fast motion tolerance up to 5 meters per second, excellent reading capability for poorly printed barcodes and support for color barcodes
- Full Symbology Support:
  – Linear: UPC/EAN, GS1 DataBar, Code 39, Code 128, Code 93, Codabar/NW7, Interleaved 2 of 5, Code 2 of 5, Matrix 2 of 5, MSI, Telepen, Trioptic, China Post
  – 2D Stacked: PDF417, MicroPDF417, GS1 Composite
  – 2D Matrix: Aztec Code, Data Matrix, QR Code, MaxiCode, Han Xin Code
  – Postal: Intelligent Mail Barcode, Australian Post, British Post, Canadian Post, Japanese Post, Netherlands (KIX) Post

ULTRA-HIGH FREQUENCY (UHF) RFID READER
- Integrated ThingMagic M6e-Micro module
- RFID Tag/Transponder Protocol Support: EPCglobal Gen2 (ISO 18000-6C) with Anti-Collision and DRM
- Integrated orientation insensitive antenna for fast and accurate tag reads
- Antenna: Integral passive tag patch antenna
- Power transmission up to +30 dBm (1 Watt) power for demanding applications
- Rapid-Read, high-accuracy performance on multiple tags with multiple orientations, even in crowded conditions.
- The RFID read range can vary according to the type of tag reading environment.

PHYSICAL (NOT INCLUSIVE OF BASE PLATFORM)
- Dimensions (L x W x H): 102.5 mm x 55 mm x 49.7 mm (4.04" x 2.17" x 1.96")
- Weight: 163 g (5.75 oz)
- Housing: Polycarbonate + Polycarbonate/PET blend
- Color: Black

DEVELOPER RESOURCES
- Easy-to use Honeywell and ThingMagic Software Development Kit (SDK) and Application Programming Interfaces (APIs) to customize settings and integrate barcode and/or RFID data
- Trimble EMPOWER Developer Program: Includes access to SDKs and other resources for software developers seeking to create custom apps leveraging Trimble EMPOWER modules such as the EM110/EM111. Also available for sale are the Module Development Kit (MDK) and case parts to build your own custom EMPOWER module. For more information visit empower.trimble.com/Developer

ENVIRONMENTAL SPECIFICATIONS
IEC ratings:
- Water/Dust ingress: IP68 (IEC 60529)
- IP-X8: Protected against the effects of total water immersion beyond 1M for long periods under pressure
- IP-6X: Totally protected against dust; dust chamber with under-pressure - 8 hours of operation with blowing talcum powder

Meets or exceeds the following standards based on MIL-STD-810G test ratings:
- Drops: Survived multiple drops of 1.2m (4ft) on concrete; MIL-STD-810G, Method 516.6, Procedure IV, Transit Drop
- Operating Temperature: -30 ºC to 60 ºC (-22 ºF to 140 ºF); MIL-STD- 810G, Method 502.5, Procedure I, II, III (Low Temp Operating -30 ºC); Method 501.5, Procedure I & II (High Temp Operating 60 ºC) (max temp may be duty-cycle limited)
- Storage Temperature: -40 ºC to 70 ºC (-40 ºF to 158 ºF); MIL-STD-810G, Method 502.5, Procedure I, II, III (Low Temp Storage -40 ºC); Method 501.5, Procedure I & II (High Temp Storage 70 ºC)
- Temperature Shock: Cycles between -30 ºC and 60 ºC (-22 ºF and 140ºF); MIL-STD-810G, Method 503.5, Procedure I-C
- Humidity: 90% relative humidity non-condensing temperature cycle between -30 ºC and 60 ºC (-22 ºF and 140 ºF); MIL-STD- 810G, Method 507.5, Procedure II
- Vibration: General minimum integrity and loose cargo tests; MIL-STD-810G, Method 514.6, Procedure I & II, Category 5
- Solar Exposure: Survives prolonged UVB exposure; MIL-STD-810G, Method 505.5, Procedure II

COMPLIANCE CERTIFICATIONS
- FCC and IC (USA & Canada) approvals
- ACMA (Australia & New Zealand) approvals
- ANATEL (Brazil) approvals
- CE Mark (Europe) approvals
- TRA (UAE) approvals
- ICASA (South Africa) approvals
- Safety: NRTL & CB Scheme, RoHS compliant

IN THE BOX
- Trimble EM110 or EM111 EMPOWER Module
- Quick Start Guide

SOFTWARE INCLUDED
- Module Support Package and Settings/Demo Application available for download at www.trimble.com/empowermodules

Specifications may be changed without notice.

Contact your local Trimble Authorized Distribution Partner for more information

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