Trimble R780

GNSS RECEIVER

Trimble
Transforming the Way the World Works

Activate warranties, install options, install radio frequencies, and update firmware

1. Install Trimble® Installation Manager. Go to trimble.com/installationmanager.
2. Connect the receiver to your computer using the lemo to USB accessory cable (P/N 80751).
3. Start Trimble Installation Manager.
4. Select the **Receiver** tab and click **Connect**.

Charge the battery

Charge the battery (P/N 192670) in the Trimble dual slot battery charger (P/N 109000).

Insert the battery

1. Open the receiver battery door by pressing down on the battery door latch and allowing the door to swing open.
2. Slide the battery (P/N 192670) into the battery tray with the metal contacts facing up and to the rear of the battery compartment.
3. Close and secure the battery door.

Connect the radio antenna

Connect the radio antenna—P/N 66540-10 (900 MHz) or P/N 44085-60 (450 MHz)—to the TNC connector on the underside of the receiver. Do not overtighten.

NOTE — The no-radio version of the receiver requires an antenna (P/N 66540-10) for proper Wi-Fi and Bluetooth® radio operation.

Power on/off and LED descriptions

Power on the receiver by pressing and releasing the power button on the front panel.

Power off the receiver by pressing and holding the power button until the Satellite LED turns off, approximately 2 seconds.

Satellite LED	Radio LED	Power button
Wi-Fi LED	Battery LED	

See the online help guide for LED blink pattern definitions.

Using the web interface

1. Power on the receiver and wait for the Wi-Fi LED to start flashing.
2. Search for available Wi-Fi networks on your smartphone or computer. Select **Trimble GNSS xxxx** (xxxx represents the last four digits of the receiver's serial number).

   The default network password is: **abcdeabcde**
3. On your smartphone or computer:
   a. Open a web browser and enter the IP address: **http://192.168.142.1**
   b. Log into the web interface. The default login details are:

      User name: **admin**

      Password: **password**
4. The first time you connect to the web interface, you are prompted to change the default login credentials.

Alternatively you can access the receiver's web interface using the cable P/N 80751, and IP address **192.168.144.1**.

Safety information

Before you use your Trimble product, make sure that you have read and understood all safety requirements.

WARNING – This alert warns of a potential hazard which, if not avoided, could result in severe injury or even death.

CAUTION – This alert warns of a potential hazard or unsafe practice that could result in minor injury or property damage or irretrievable data loss.

NOTE – An absence of specific alerts does not mean that there are no safety risks involved.

Use and care

This product is designed to withstand the rough treatment and tough environment that typically occurs in construction applications. However, the receiver is a high-precision electronic instrument and should be treated with reasonable care.

CAUTION – Operating or storing the receiver outside the specified temperature range can damage it.

Regulations and safety

Some receiver models with base station capability contain an internal radio-modem for transmission or can transmit through an external data communications radio. Regulations regarding the use of the 410 MHz to 470 MHz radio-modems vary greatly from country to country. In some countries, the unit can be used without obtaining an end-user license. Other countries require end-user licensing. For licensing information, consult your local Trimble dealer.

NOTE – The R780 GNSS receiver uses the 403 MHz to 473 MHz frequency range.

All Trimble receiver models described in this documentation are capable of transmitting data through Bluetooth wireless technology.

Bluetooth wireless technology, and 900 MHz radio-modems and 2.4 GHz radio-modems operate in license-free bands.

NOTE – 900 MHz radios are not used in Europe. The frequency range of 900 MHz is not marketed in Brazil.-

Before operating a Trimble receiver, determine if authorization or a license to operate the unit is required in your country. It is the responsibility of the end user to obtain an operator's permit or license for the receiver for the location or country of use.

Type approval

Type approval, or acceptance, covers technical parameters of the equipment related to emissions that can cause interference. Type approval is granted to the manufacturer of the transmission equipment, independent from the operation or licensing of the units. Some countries have unique technical requirements for operation in particular radio-modem frequency bands. To comply with those requirements, Trimble may have modified your equipment to be granted type approval.

Unauthorized modification of the units voids the type approval, the warranty, and the operational license of the equipment.

Exposure to radio frequency radiation

R780 (with internal 450 MHz radio operating in base station transmit mode). Note the safe distance is 47 cm (18.5 inches) for RF Exposure.

For 450 MHz radio

Safety. Exposure to RF energy is an important safety consideration. The FCC has adopted a safety standard for human exposure to radio frequency electromagnetic energy emitted by FCC regulated equipment as a result of its actions in General Docket 79-144 on March 13, 1986.

Proper use of this radio modem results in exposure below government limits. The following precautions are recommended:

- DO NOT operate the transmitter when someone is within 47 cm (18.5 inches) of the antenna.
- DO NOT co-locate (place within 47 cm (18.5 inches)) the radio antenna with any other transmitting antenna.
- DO NOT operate the transmitter unless all RF connectors are secure and any open connectors are properly terminated.
- DO NOT operate the equipment near electrical blasting caps or in an explosive atmosphere.
- All equipment must be properly grounded according to Trimble installation instructions for safe operation.
- All equipment should be serviced only by a qualified technician.

For license-free 900 MHz radio

CAUTION – For your own safety, and in terms of the RF exposure requirements of the FCC, always observe these precautions:
- Always maintain a minimum separation distance of 20 cm (7.9 inches) between yourself and the radiating antenna.
- Do not co-locate the antenna with any other transmitting device.

NOTE – 900 MHz radios are not used in Europe.

For Bluetooth radio

The radiated output power of the internal Bluetooth wireless radio and the Wi-Fi radio included in some Trimble receivers is far below the FCC radio frequency exposure limits. Nevertheless, the wireless radio(s) shall be used in such a manner that the Trimble receiver is 25 cm or further from the human body. The internal wireless radio(s) operate within guidelines found in radio frequency safety standards and recommendations, which reflect the consensus of the scientific community. Trimble therefore believes that the internal wireless radio(s) are safe for use by consumers. The level of energy emitted is far less than the electromagnetic energy emitted by wireless devices such as mobile phones. However, the use of wireless radios may be restricted in some situations or environments, such as on aircraft. If you are unsure of restrictions, you are encouraged to ask for authorization before turning on the wireless radio.

Installing antennas

CAUTION – For your own safety, and in terms of the RF exposure requirements of the FCC, always observe these precautions:

- Always maintain a minimum separation distance of 47 cm (18.5 inches) between yourself and the radiating antenna
- Do not co-locate the antenna with any other transmitting device

WARNING – The GNSS and its cabling should be installed in accordance with all national and local electrical codes, regulations, and practices. The cabling should be installed where they will not become energized as a result of falling nearby power lines, nor be mounted where they are subjected to over-voltage transients, particularly lightning. Such installations require additional protective means that are detailed in national and local electrical codes.
Trimble receiver internal radios have been designed to operate with the antennas listed below. Antennas not included in this list are strictly prohibited for use with this device. The required antenna impedance is 50 ohms.
To reduce potential radio interference to other users, the antenna type and its gain should be an approved Trimble antenna, so that the equivalent isotropically radiated power (e.i.r.p.) is not more than that permitted for successful communication.

Regulatory information

For full legal and regulatory information, please go to https://receiverhelp.trimble.com/r780-gnss.

USA

FCC Compliance Statement

Model Numbers: R780

FCC IDs: JUPR750M566-90,
JUPR750M566-60

FCC Class B - Notice to Users. This device complies with part 15 of the FCC rules.

RESPONSIBLE PARTY:

Trimble Inc.
10368 Westmoor Drive
Westminster CO 80021
USA

trimble.com/Corporate/Contacts.aspx

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. Changes or modifications made to this equipment not expressly approved by Trimble Inc may void the FCC authorization to operate this equipment.

FCC Certified Modular Transceiver

The TRM900 (902.0 MHz to 928.0 MHz) Limited Singular-Modular Transceiver is only approved for use by Trimble in its own GNSS Receiver products and not intended for sale to third parties. This module is not intended for OEM integrators or end users.

As a Limited Single Module, additional compliance evaluation is required for use in each of the GNSS Receiver host.

The TRM900 was tested and certified with a monopole antenna (868MHz-940MHz, 2.5dBi max gain, TPN66540-10). The connector type was RP-TNC.

The TDL450i (403.0 MHz to 473.0 MHz) Singular-Modular Transceiver was tested and certified with a monopole antenna (400MHz-512MHz, -2dBi max gain, TPN44085-60). The connector type is also RP-TNC.

Canada

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

- This device may not cause interference.
- This device must accept any interference, including interference that may cause undesired operation of the device.

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

(1) l'appareil ne doit pas produire de brouillage;

(2) l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be chosen so that the equivalent isotropically radiated power (EIRP) is not more than that required for successful communication.

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (PIRE) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

This apparatus complies with Canadian RSS-GEN, RS-102, RSS-247.

Cet appareil est conforme à la norme CNR-GEN, CNR-102, CNR-247 du Canada.

Japan

Ministry of Internal Affairs and Communications technical conformity

R 201-140447 (BT/WiFi)

R 020-200095 (UHF)

United Kingdom

Hereby, Trimble Inc., declares that the R780 GNSS receiver complies with the following UK legislations:

- S.I. 2016 No. 1101, Low Voltage, RF Exposure
- S.I. 2016 No. 1091, EMI/EMC
- S.I. 2017 No. 1206, Radio Equipment

South Africa

This product was type approved by the Independent Communications Authority of South Africa.

Australia and New Zealand

This product conforms with the regulatory requirements of the Australian Communications and Media Authority (ACMA) Radiocommunications Act.

Europe

Hereby, Trimble Inc., declares that the R780 GNSS receiver complies with the following directives:

- RED 2014/53/EU
- RoHS Directive 2011/65/EU
- WEEE Directive 2012/19/EU

CE marking

The products covered by this guide may be operated in all EU member countries (BE, BG, CZ, DK, DE, EE, IE, EL, ES, FR, HR, IT, CY, LV, LT, LU, HU, MT, NL, AT, PL, PT, RO, SI, SK, FI, SE, UK), Great Britain (England, Wales, Scotland), Norway and Switzerland. Products been tested and found to comply with the requirements for a Radio Equipment device pursuant to European Council Directive 2014/53/EU on EMC, thereby satisfying the requirements for CE Marking and sale within the European Economic Area (EEA). Contains a Bluetooth radio module. These requirements are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential or commercial environment.

Recycling

For product recycling instructions and more information, go to www.trimble.com/en/our-commitment/responsible-business/corporate-compliance/environmental-compliance.

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