

USER GUIDE

# MobileMapper 50 Handheld

with Android operating system

Version 1.00  
Revision A  
July 2016



## Corporate Office

10368 Westmoor Drive  
Westminster, CO 80021  
USA

## Trimble Mobile Computing Solutions

345 SW Avery Avenue  
Corvallis, Oregon 97333  
USA

[www.trimble.com](http://www.trimble.com)

## Legal Notices

© 2016, Trimble Navigation Limited. All rights reserved.

Trimble and the Globe & Triangle logo are trademarks of Trimble Navigation Limited, registered in the United States and in other countries.

The Bluetooth word mark and logos are owned by the Bluetooth SIG, Inc. and any use of such marks by Trimble Navigation Limited is under license.

Android is a trademark of Google Inc.

All other trademarks are the property of their respective owners.

## Release Notice

This is the July 2016 release (Revision A) of the MobileMapper 50 handheld documentation. It applies to the Android operating system 5.1.

## Limited Warranty Terms and Conditions

### Product Limited Warranty

Subject to the terms and conditions set forth herein, Trimble Navigation Limited ("Trimble") warrants that for a period of three (3) years from date of purchase this Trimble product (the "Product") will substantially conform to Trimble's publicly available specifications for the Product and that the hardware and any storage media components of the Product will be substantially free from defects in materials and workmanship. All accessories and the product battery fall under a warranty period of one (1) year from the date of purchase from Trimble.

### Product Software

Product software, whether built into hardware circuitry as firmware, provided as a standalone computer software product, embedded in flash memory, or stored on magnetic or other media, is licensed solely for use with or as an integral part of the Product and is not sold. The terms of the end user license agreement, as included below, govern the use of the Product Software, including any differing limited warranty terms, exclusions and limitations, which shall control over the

terms and conditions set forth in the limited Product warranty.

## Warranty Remedies

If the Trimble Product fails during the warranty period for reasons covered by this limited warranty and you notify Trimble of such failure during the warranty period, Trimble will repair OR replace the nonconforming Product with new, equivalent to new, or reconditioned parts or Product, OR refund the Product purchase price paid by you, at Trimble's option, upon your return of the Product in accordance with Trimble's product return procedures then in effect.

## How to Obtain Warranty Service

To obtain warranty service for the Product, please contact your Trimble dealer. Dealers may contact their Trimble Technical Support group. Please be prepared to provide:

- your name, address, and telephone numbers;
- proof of purchase;
- a copy of this Trimble warranty
- a description of the nonconforming Product including the model number; and
- an explanation of the problem.

The customer service representative may need additional information from you depending on the nature of the problem.

## Warranty Exclusions and Disclaimer

This Product limited warranty shall only apply in the event and to the extent that (i) the Product is properly and correctly installed, configured, interfaced, maintained, stored, and operated in accordance with Trimble's applicable operator's manual and specifications, and; (ii) the Product is not modified or misused. This Product limited warranty shall not apply to, and Trimble shall not be responsible for, defects or performance problems resulting from (i) the combination or utilization of the Product with hardware or software products, information, data, systems, interfaces, or devices not made, supplied, or specified by Trimble; (ii) the operation of the Product under any specification other than, or in addition to, Trimble's standard specifications for its products; (iii) the unauthorized installation, modification, or use of the Product; (iv) damage caused by: accident, lightning or other electrical discharge, fresh or salt water immersion or spray (outside of Product specifications); or exposure to environmental conditions for which the Product is not intended; (v) normal wear and tear on consumable parts (e.g., batteries); or (vi) cosmetic damage. Trimble does not warrant or guarantee the results obtained through the use of the Product or Software, or that software components will operate error free.

NOTICE REGARDING PRODUCTS EQUIPPED WITH TECHNOLOGY CAPABLE OF TRACKING SATELLITE SIGNALS FROM SATELLITE BASED AUGMENTATION SYSTEMS (SBAS) (WAAS, EGNOS, AND MSAS), OMNISTAR, GPS, MODERNIZED GPS OR GLONASS SATELLITES, OR FROM IALA BEACON SOURCES: TRIMBLE IS NOT RESPONSIBLE FOR THE OPERATION OR FAILURE OF OPERATION OF ANY SATELLITE BASED POSITIONING SYSTEM OR THE AVAILABILITY OF ANY SATELLITE BASED POSITIONING SIGNALS.

THE FOREGOING LIMITED WARRANTY TERMS STATE TRIMBLE'S ENTIRE LIABILITY, AND YOUR EXCLUSIVE REMEDIES, RELATING TO THE TRIMBLE PRODUCT. EXCEPT AS OTHERWISE EXPRESSLY PROVIDED HEREIN, THE PRODUCT, AND ACCOMPANYING DOCUMENTATION AND MATERIALS ARE PROVIDED "AS-IS" AND WITHOUT EXPRESS OR IMPLIED WARRANTY OF ANY KIND, BY EITHER TRIMBLE OR ANYONE WHO HAS BEEN INVOLVED IN ITS CREATION, PRODUCTION, INSTALLATION, OR DISTRIBUTION, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, TITLE, AND NON-INFRINGEMENT. THE STATED EXPRESS WARRANTIES ARE IN LIEU OF ALL OBLIGATIONS OR LIABILITIES ON THE PART OF TRIMBLE ARISING OUT OF, OR IN CONNECTION WITH, ANY PRODUCT. BECAUSE SOME STATES AND JURISDICTIONS DO NOT ALLOW LIMITATIONS ON DURATION OR THE EXCLUSION OF AN IMPLIED WARRANTY, THE ABOVE LIMITATION MAY NOT APPLY TO YOU.

#### **Limitation of Liability**

TRIMBLE'S ENTIRE LIABILITY UNDER ANY PROVISION HEREIN SHALL BE LIMITED TO THE AMOUNT PAID BY YOU FOR THE PRODUCT. TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, IN NO EVENT SHALL TRIMBLE OR ITS SUPPLIERS BE LIABLE FOR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGE WHATSOEVER UNDER ANY CIRCUMSTANCE OR LEGAL THEORY RELATING IN ANYWAY TO THE PRODUCTS, SOFTWARE AND ACCOMPANYING DOCUMENTATION AND MATERIALS, (INCLUDING, WITHOUT LIMITATION, DAMAGES FOR LOSS OF BUSINESS PROFITS, BUSINESS INTERRUPTION, LOSS OF DATA, OR ANY OTHER PECUNIARY LOSS), REGARDLESS OF WHETHER TRIMBLE HAS BEEN ADVISED OF THE POSSIBILITY OF ANY SUCH LOSS AND REGARDLESS OF THE COURSE OF DEALING WHICH DEVELOPS OR HAS DEVELOPED BETWEEN YOU AND TRIMBLE. BECAUSE SOME STATES AND JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF LIABILITY FOR CONSEQUENTIAL OR INCIDENTAL DAMAGES, THE ABOVE LIMITATION MAY NOT APPLY TO YOU.

PLEASE NOTE: THE ABOVE TRIMBLE LIMITED WARRANTY PROVISIONS WILL NOT APPLY TO PRODUCTS PURCHASED IN THOSE JURISDICTIONS (E.G., MEMBER STATES OF THE

EUROPEAN ECONOMIC AREA) IN WHICH PRODUCT WARRANTIES ARE THE RESPONSIBILITY OF THE LOCAL DEALER FROM WHOM THE PRODUCTS ARE ACQUIRED. IN SUCH A CASE, PLEASE CONTACT YOUR SPECTRA PRECISION DEALER FOR APPLICABLE WARRANTY INFORMATION.

#### **Notice to Australian Purchasers - The Australian Consumer Law**

Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

Trimble's warranty, as set out in the user manual accompanying this statement, or as described in the warranty card accompanying the Product you purchased, is in addition to any mandatory rights and remedies that you may have under the Australian Consumer Law.

#### **Official Language**

THE OFFICIAL LANGUAGE OF THESE TERMS AND CONDITIONS IS ENGLISH. IN THE EVENT OF A CONFLICT BETWEEN ENGLISH AND OTHER LANGUAGE VERSIONS, THE ENGLISH LANGUAGE SHALL CONTROL

#### **Registration**

To receive information regarding updates and new products, please contact your local dealer or visit the Spectra Precision website at <http://www.spectraprecision.com> and create an account.

#### **Importer of Record**

Trimble European Regional Fulfillment Center, Logistics Manager, Meerheide 45, 5521DZ Eersel, Netherlands.

#### **Notices**

##### **FCC Regulations**

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.

This device has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular

installation if this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on. The user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Changes and modifications not expressly approved by the manufacturer or registrant of this equipment can void your authority to operate this equipment under Federal Communications Commission rules.

The radios in this device have been designed and manufactured to not exceed stipulated emission limits for exposure to radio frequency (RF) energy as required by the Federal Communications Commission of the U.S. Government 47 C.F.R. § 2.1091 and 2.1093. The external antenna connector provided in this device is for GNSS antennas only.

## IC

Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

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 Category II radio communication device complies with Industry Canada Standard RSS-310.

Ce dispositif de radiocommunication de catégorie II respecte la norme CNR-310 d'Industrie Canada.

### IMPORTANT NOTE:

#### IC Radiation Exposure Statement

This EUT is compliant with SAR for general population/uncontrolled exposure limits in IC RSS-102 and had been tested in accordance with the measurement methods and procedures specified in IEEE 1528. This equipment should be installed and operated with minimum distance 0.5 cm between the radiator & your body.

This device and its antenna(s) must not be co-located or operating in conjunction with any other antenna or transmitter. The County Code Selection feature is disabled for products marketed in the US/Canada.

## CE

### a. Caution:

- Risk of explosion if battery replaced by an incorrect type.
  - Dispose of used batteries according to the instructions.
- b. Make sure the temperature for adapter will not be higher than 40 °C.

## CE SAR Compliance

This device meets the EU requirements (1999/519/EC) on the limitation of exposure of the general public to electromagnetic fields by way of health protection.

The limits are part of extensive recommendations for the protection of the general public. These recommendations have been developed and checked by independent scientific organizations through regular and thorough evaluations of scientific studies. The unit of measurement for the European Council's recommended limit for mobile devices is the "Specific Absorption Rate" (SAR), and the SAR limit is 2.0 W/ kg averaged over 10 gram of body tissue. It meets the requirements of the International Commission on Non-ionizing Radiation Protection (ICNIRP).

For body worn operation, this device has been tested and meets the ICNIRP exposure guidelines and the European Standard EN 50360, EN 50566, EN 62209-1 and EN 62209-2, for use with dedicated accessories. Use of other accessories which contain metals may not ensure compliance with ICNIRP exposure guidelines.

## RoHS Statement

This device conforms to RoHS (Reduction Of Hazardous Substances) European Union regulations that set maximum concentration limits on hazardous materials used in electrical and electronic equipment.



CAUTION: RISK OF EXPLOSION IF BATTERY IS DISPOSED OF INCORRECTLY. DISPOSE OF THE DEVICE AND THE BATTERY ACCORDING TO INSTRUCTIONS FOR ELECTRONIC WASTE.

## Canada

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

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

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Cet appareil est conforme avec Industrie Canada RSS standard exempts de licence (s). Son fonctionnement est soumis aux deux conditions suivantes:

- (1) cet appareil ne peut pas provoquer d'interférences et
- (2) cet appareil doit accepter toute interférence, y compris les interférences pouvant entraîner un mauvais fonctionnement de la appareil.

RF Radiation Exposure Statement:

For body worn operation, this phone has been tested and meets RF exposure guidelines when used with an accessory that contains no metal and that positions the handset a minimum of 1.5 cm from the body.

Use of other accessories may not ensure compliance with RF exposure guidelines.

Déclaration de l'exposition aux radiations RF:

Pour le fonctionnement du corps, ce téléphone a été testé et répond aux directives d'exposition RF lorsqu'il est utilisé avec un accessoire qui ne contient pas de métal et qui place le combiné d'un minimum de 1.5 cm du corps.

Utilisation d'autres accessoires peut ne pas assurer le respect des directives d'exposition RF.

## Europe / EU Conformance

The following CE compliance information is applicable to this device that carry the following CE mark:

**CE 0700**

This product has been tested and found to comply with all requirements for CE Marking and sale within the European Economic Area (EEA).

The Spectra Precision MobileMapper 50 handheld has Bluetooth wireless technology approval in most EU countries and satisfies the requirements for Radio and Telecommunication Terminal Equipment specified by European Council Directive 1999/5/EC. These requirements provide reasonable protection against harmful interference when the equipment is operated appropriately in a residential or commercial environment.

Spectra Precision MobileMapper 50 handhelds equipped with wireless cellular modem radios are intended for connection to European Networks operating with GSM 900, or GSM 1800.

## European Conformity Statement

Declaration of Conformity with Regard to the R&TTE 1999/5/EC and EMC 89/336/ EEC directives.

According to ISO / IEC Guide 22 and EN 450 14

- Manufacturer's Name: Trimble Europe B.V.
- Manufacturer's Address: European Regional Fulfillment Centre, Meerheide, 45, 5521DZ Eersel, The Netherlands.
- Declares, under our sole responsibility, that the product:
- Product Name: MobileMapper 50 WiFi and 4G
- Model Number: MobileMapper 50 WiFi and 4G
- Regulatory Name: MobileMapper 50 WiFi and 4G
- Product Options: ALL

Conforms to the following Product Specifications:

### All versions

- ETSI EN 301 489-1 : 2011 V1.9.2 ; ETSI EN 301 489-3 : 2013 V1.6.1 ; ETSI EN 301 489- 17 : 2009 V2.2.1
- ETSI EN 300 440-1 : 1.6.1 ; ETSI EN 300 440-2 : 1.4.1
- ETSI EN 301 328 : V1.8.1
- LVD directive 2006/95/EC EN 60950-1 :2006 + A11 :2009 + A1 :2010+A12 :2011+A2 :2013 ; EN50360 :2001 A1 :2012/EN62209-1 :2006/ EN 50566 :2013 AC : 2014/EN 62209-2 :2010/EN62479 :2010

### 4G version only

- ETSI EN 301 489- 7 : 2002 V1.3.1 , ETSI EN 301 489- 24: 2009 V1.5.1
- ETSI EN 301 908-1 : V6.2.1 ( 2013-04); ETSI EN 301 908-2 : V6.2.1 , ETSI EN 301 908-13 : V6.2.1
- ETSI EN 300 330-1 : 1.7.1 ; ETSI EN 300 330-2 : 1.5.1
- ETSI EN 301 511-2 : V9.0.2

## European Union Customers: (WEEE)

For product recycling instructions and more information, please go to [www.trimble.com/Corporate/Environmental\\_Combpliance.aspx](http://www.trimble.com/Corporate/Environmental_Combpliance.aspx).

Recycling in Europe: To recycle Trimble WEEE (Waste Electrical and Electronic Equipment, products that run on electrical power.), Call +31 497 53 24 30, and ask for the "WEEE Associate". Or, mail a request for recycling instructions to:

Trimble Europe BV  
c/o Menlo Worldwide Logistics  
Meerheide 45  
5521 DZ Eersel, NL



## Australia and New Zealand

This product conforms with the regulatory requirements of the Australian Communications Authority (ACA) EMC and Radiocommunications framework, thus satisfying the requirements for C-Tick Marking and sale within Australia and New Zealand.

Additionally, Spectra Precision MobileMapper 50 4G products that incorporate a modem also comply with the requirements for A-Tick Marking and sale in Australia.



## Taiwan

低功率電波輻射性電機管理辦法

第十二條：經型式認證合格之低功率射頻電機，非經許可，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。

第十四條：低功率射頻電機之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。低功率射頻電機需忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾。

SAR 標準值2.0W/Kg，送測產品實測值為0.545w/Kg

## Taiwan – Battery Recycling Requirements

The product contains a removable Lithium-ion battery. Taiwanese regulations require that waste batteries are recycled.



廢電池請回收

# Contents

<b>Safety information</b>	<b>10</b>
Radio use	10
Exposure to Radio Frequency (RF) Signals	11
Exposure to radio frequency radiation from Bluetooth and WLAN transmitters	11
Exposure to radio frequency radiation from cellular wireless transmitters	12
Telecommunications & Internet Association (TIA) information	12
AC adaptor safety	13
Battery safety	13
Electrostatic discharge	14
Storage card use	15
Exposure to loud audio	15
Environmental Hazards	16
<b>1 Getting started</b>	<b>17</b>
Introduction	17
Technical assistance	18
Additional help	18
Use and care of the handheld	18
Parts of the MobileMapper 50 handheld	21
Accessories	22
Powering the handheld	22
Charging the battery	22
Turning the handheld on and off	23
Checking the level of battery power	23
Conserving power	23
Assigning apps to the programmable buttons	24
Resetting the handheld	24
Storing data	24
Memory cards	25
Inserting and removing a SIM card (4G model only)	26
Connecting to an office computer	27
<b>2 Using the Android operating system</b>	<b>29</b>
Using the Home screen	29
Interacting with the handheld	30
Using the Android buttons on the MobileMapper 50 handheld	32
Entering information	32
Using the menus	32

Using the on-screen keyboard .....	33
Editing text .....	33
Managing notifications .....	34
Select the language .....	35
Set the time and date .....	35
Using the clock to set alarms .....	35
Display settings .....	36
Sounds and notifications .....	36
Locking the device .....	36
Sending and receiving email .....	37
<b>3 Using the WLAN and Bluetooth radios .....</b>	<b>38</b>
Turning on and turning off the WLAN and Bluetooth radios .....	38
Connecting to a WLAN access point .....	39
Adding a WLAN network .....	39
Forgetting a WLAN network .....	40
Advanced WLAN settings .....	40
Connecting to a Bluetooth-enabled device .....	41
Working with paired Bluetooth-enabled devices .....	41
Unpairing a Bluetooth device .....	42
Accessing a corporate network .....	42
<b>4 Using the cellular modem (4G model only) .....</b>	<b>44</b>
Manually connecting to a cellular network from the modem .....	44
Using the Smartphone .....	45
Using the Call History log .....	46
Messaging .....	47
Sending a text or a multimedia message .....	47
Deleting message threads .....	48
Replying to messages .....	48
Changing Messaging settings .....	48
<b>5 Using the GNSS receiver .....</b>	<b>49</b>
Receiving signals from GNSS satellites .....	49
Supported software .....	50
Using an external GNSS antenna .....	51
Using an external GNSS receiver .....	51
<b>6 Using the camera .....</b>	<b>52</b>
Starting and closing the Camera app .....	52
Using the camera in Still mode .....	52
Using the camera in Panorama mode .....	53



Using the camera in Video mode .....	54
Camera setting options .....	55
Working with photos and videos in the Android Photos app .....	56

# Safety information

- ▶ Radio use
- ▶ Telecommunications & Internet Association (TIA) information
- ▶ Battery safety
- ▶ AC adaptor safety
- ▶ Electrostatic discharge
- ▶ Storage card use
- ▶ Exposure to loud audio
- ▶ Environmental Hazards

## Radio use

Depending on the model, the MobileMapper 50 handheld contains a Bluetooth® radio, a WLAN radio, and a cellular modem radio. In some situations, you may be required to turn off the radios. For example, aviation authority regulations restrict the use of wireless transmission devices on board aircraft.

To prevent the handheld from emitting radio signals, do one of the following:

- To put the handheld in airplane mode, press and hold the Power button for two seconds to display the **Power options** menu, then tap **Airplane mode**. This mode turns off all wireless connections.
- To turn off the handheld, press and hold the Power button for two seconds to display the **Power options** menu, then tap **Power off**.
- To turn off the Bluetooth, WLAN, and wireless cellular modem radios only:
  - a. On the **Apps** screen, tap **Settings**.
  - b. Under **Wireless & Networks**, tap each radio type and make sure it is OFF. If any radio is ON, flick the ON/OFF slider to turn it off.

**NOTE** – You may need to deactivate the WLAN and/or Bluetooth radio in the handheld if the country in which you are working does not approve the use of WLAN and/or Bluetooth wireless technology. If you are unsure about whether the handheld’s radios are approved for use in your country, check with your Spectra Precision reseller.

## Exposure to Radio Frequency (RF) Signals

Your device contains a radio transmitter and receiver. The radiated output power is far below the international radio frequency exposure limits. These limits are part of comprehensive guidelines and establish permitted levels of RF energy for the general population. The guidelines are based on the safety standards previously set by international standards bodies:

- American National Standards Institute (ANSI) IEEE. C95.1-1992.
- National Council on Radiation Protection and Measurement (NCRP). Report 86. 1986.
- Int'l Commission on Non-Ionizing Radiation Protection (ICNIRP) 1996.
- Ministry of Health (Canada), Safety Code 6. The standards include a substantial safety margin designed to assure the safety of all persons, regardless of age and health.

SAR: 0.545w/kg

Use of unauthorized or modified antennas may impair call quality and damage the device, causing loss of performance. To assure optimal performance and ensure human exposure to RF energy is within the guidelines set forth in the relevant standards; always use your device only in its normal-use position.

Avoiding contact with the antenna area when the device is IN USE optimizes the antenna performance.

## Exposure to radio frequency radiation from Bluetooth and WLAN transmitters

This device is approved as a portable device with respect to Radio Frequency (RF) exposure compliance. The radiated output power of the internal wireless radio transmitters is less than 100 milliwatt, which results in exposure levels far below the FCC radio frequency exposure limits, even when operated in close proximity to the body. The internal wireless radios operate within guidelines found in international radio frequency safety standards and recommendations, which reflect the consensus of the international scientific community. Spectra Precision therefore believes the internal wireless radios are safe for use by users. The level of electromagnetic energy emitted is hundreds of times lower 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 radios.

## Exposure to radio frequency radiation from cellular wireless transmitters

Devices equipped with wireless cellular modem radios have been designed and manufactured to meet safety requirements for limiting exposure to radio waves. When used in accordance with the instructions set forth in this manual, the equipment has been independently verified to not exceed the emission limits for safe exposure to radio frequency (RF) energy as specified by the Federal Communications Commission of the U.S. Government in 47 CFR §2.1093. These limits are part of comprehensive guidelines and establish permitted levels of RF energy for the general population. The guidelines are based on standards that were developed by independent scientific organization through periodic and thorough evaluation of scientific studies. The standards include a substantial safety margin designed to assure the safety of all persons, regardless of age and health.

## Telecommunications & Internet Association (TIA) information

**Hearing Aids:** Some digital wireless phones may interfere with some hearing aids. In the event of such interference, you may want to consult your wireless service provider, or call customer service to discuss alternatives.

**Pacemakers and Other Medical Devices:** The Health Industry Manufacturers Association recommends a minimum separation of six inches be maintained between a handheld wireless phone and a pacemaker to avoid potential interference with the pacemaker. These recommendations are consistent with the independent research by and recommendations of Wireless Technology Research. Persons with pacemakers should use the ear opposite the pacemaker to minimize the potential for interference. Persons with pacemakers should exercise great caution if using a hands-free device such as a headset, as these persons may be at greater risk of the device not maintaining the recommended minimum six inches of separation from the pacemaker. If you have any reason to suspect that interference is taking place, turn the device OFF immediately.

If you use any other personal medical device, consult the manufacturer of your device to determine if they are adequately shielded from external RF energy. Your physician may be able to assist you in obtaining this information.

Turn the device OFF in health care facilities when any regulations posted in these areas instruct you to do so. Hospitals or health care facilities may be using equipment that could be sensitive to external RF energy.

## AC adaptor safety

To charge the handheld's battery, use the power cable and adaptor kit provided with the handheld (see [Powering the handheld, page 22](#)).

---


 **WARNING** – To use AC adaptors safely:

- Use only the AC adaptor intended for the handheld. Using any other AC adaptor can damage the handheld and may void your warranty. Do not use the AC adaptor with any other product.
  - Make certain that the input voltage on the adaptor matches the voltage and frequency in your location.
  - Make certain that the adaptor has prongs compatible with your outlets.
  - Do not use the AC adaptor in wet outdoor areas; it is designed for indoor use only.
  - Unplug the AC adaptor from power when not in use.
- 


## Battery safety

The rechargeable Lithium-ion battery is supplied partially charged. Charge the battery completely before using it for the first time (see [Powering the handheld, page 22](#)). If the battery has been stored for longer than six months, charge it before use.

---

 **WARNING** – Use only the battery intended for the product. Using any other battery can damage the handheld and may void your warranty. If the battery becomes damaged or stops charging fully, replace it with a new battery.

---


 **WARNING** – Charge and use the rechargeable Lithium-ion battery only in strict accordance with the instructions. Charging or using the battery in unauthorized equipment can cause an explosion or fire, and can result in personal injury and/or equipment damage. To prevent injury or damage:

- Do not charge or use the battery if it appears to be damaged or leaking.
  - Charge the Lithium-ion battery only in a product that is specified to charge it. Be sure to follow all instructions that are provided with the battery charger.
  - Discontinue charging a battery that gives off extreme heat or a burning odor.
  - Use the battery only in equipment that is specified to use it.
  - Use the battery only for its intended use and according to the instructions in the product documentation.
-

---

 **WARNING** – Avoid contact with the rechargeable Lithium-ion battery if it appears to be leaking. Battery fluid is corrosive, and contact with it can result in personal injury and/or property damage. To prevent injury or damage:

- If the battery leaks, avoid contact with the battery fluid.
  - If battery fluid gets into your eyes, immediately rinse your eyes with clean water and seek medical attention. Do not rub your eyes!
  - If battery fluid gets onto your skin or clothing, immediately use clean water to wash off the battery fluid.
- 

 **WARNING** – Do not damage the rechargeable Lithium-ion battery. A damaged battery can cause an explosion or fire, and can result in personal injury and/or property damage. To prevent injury or damage:


- Do not use or charge the battery if it appears to be damaged. Signs of damage include, but are not limited to, discoloration, warping, and leaking battery fluid.
  - Do not store or leave your device near a heat source such as near a fireplace or other heat-generating appliance, or otherwise expose it to temperatures in excess of 70 °C (158 °F) such as on a vehicle dashboard. When heated to excessive temperatures, battery cells could explode or vent, posing a risk of fire.
  - Do not leave the battery immersed in water.
  - Do not use or store the battery inside a vehicle during hot weather.
  - Do not drop or puncture the battery.
  - Do not open the battery or short-circuit its contacts.
- 

 **CAUTION** – Safe temperature ranges are:

- Operating temperature range: -20 °C to +60 °C (-4 °F to +140 °F).
  - Storage temperature range: -30 °C to +70 °C (-13 °F to +158 °F).
- 

## Electrostatic discharge

---

 **WARNING** – Static electricity can harm electronic components inside your handheld. To prevent static damage, discharge static electricity from your body before you touch any of the electronic components inside your device, such as a memory module. You can do so by touching an unpainted metal surface.

---


The handheld is designed for outdoor conditions; however under conditions of low humidity extremely high voltage discharge events are possible. Users are advised that the

risk of causing discharge to sensitive electronics can be minimized by avoiding finger contact to the recessed connectors on the unit.

## Storage card use

The handheld provides a storage card slot, providing an alternative storage location to the storage memory in the handheld.

---

 **WARNING** – Static electricity can harm electronic components inside your handheld. To prevent static damage, discharge static electricity from your body before you touch any of the electronic components inside your device, such as a memory module. You can do so by touching an unpainted metal surface.

---

## Exposure to loud audio






To prevent possible hearing damage, do not listen at high volume levels for long periods.



## Environmental Hazards

The product complies with international RoHS regulations.

### Toxic and Hazardous Substances and Elements

Part name	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent Chromium (Cr6+)	Poly-brominated biphenyls (PBB)	Poly-brominated diphenyl ethers (PBDE)	
Display	X	O	O	O	O	O	
Keypad		O	O	O	O	O	
Housing	O	O	O	O	O	O	
Hardware	O	O	O	O	O	O	
Battery	X	O	O	O	O	O	
Power supply	X	O	O	O	O	O	
Cable	O	O	O	O	O	O	
Manual	O	O	O	O	O	O	
Hand strap	O	O	O	O	O	O	
Stylus Package	O	O	O	O	O	O	



# Getting started

- ▶ Introduction
- ▶ Technical assistance
- ▶ Use and care of the handheld
- ▶ Parts of the MobileMapper 50 handheld
- ▶ Accessories
- ▶ Powering the handheld
- ▶ Resetting the handheld
- ▶ Storing data
- ▶ Inserting and removing a SIM card (4G model only)
- ▶ Connecting to an office computer

## Introduction

This user guide describes how to set up and use the MobileMapper 50 handheld. The information in this guide supplements the information in the *MobileMapper 50 Quick Start Guide*, which you received with the handheld.

There are two models of the MobileMapper 50 handheld—a WLAN-only model, and a 4G / WLAN model. Both models:

- are powered by the Android™ 5.1 “Lollipop” mobile operating system
- have Wireless LAN technology
- have Bluetooth® wireless technology
- have a high-sensitivity GNSS receiver, supporting GPS, GPS plus GLONASS, or GPS plus Beidou, with 1 to 2 meter positioning accuracy in real time (using SBAS)
- are rated IP67 (see [Use and care of the handheld](#) for more information)

- contain a MicroSD/SDHC storage slot
- have a replaceable Li-ion battery

The MobileMapper 50 Wi-Fi only handheld has a built-in 8 megapixel digital camera with geotagging, 8 GB of storage, and a 3100 mAh removable battery.

The MobileMapper 50 4G handheld contains a 4G cellular modem for data transfer and voice call capability, a 13 megapixel digital camera with geotagging, 16 GB of storage, NFC (Near Field Communication) capabilities, and a 4800mAh removable battery.

The handheld's battery is partially charged when shipped new from the factory.

The SIM card and Micro SD card slots are below the battery; to access the slots, turn off the handheld and remove the battery.

Your warranty is invalidated if you open or tamper with the outer casing of the device. Unapproved modifications or operations beyond or in conflict with these instructions for use may void authorization by the authorities to operate the equipment.

Only approved accessories may be used with the device. In general, all cables must be high quality, shielded, correctly terminated and normally restricted to two meters in length. The power supply approved for this product employs special provisions to avoid radio interference and should not be altered or substituted.

## Technical assistance

Go to the MobileMapper 50 handheld webpage on the Spectra Precision website [www.spectraprecision.com](http://www.spectraprecision.com) for the latest support information, including:

- support notes detailing support issues
- documentation
- the latest files available for download

## Additional help


If you still cannot find the information that you need, contact your Spectra Precision reseller.

## Use and care of the handheld

The device's rugged design allows you to run your device in harsh outdoor environments. Here are some considerations that will help you protect your device and get the most out of it when working in very wet, hot or cold conditions.

- The handheld is rated IP67 but is not completely waterproof. IPx7 is defined as resistant to submersion in water up to 1 meter deep for up to 30 minutes. However, do not unnecessarily immerse the handheld in water.

---

 **CAUTION** – Make sure all the protective port covers are appropriately fitted to any external ports, and that they are not damaged; if any protective port covers are missing or damaged in any way, the IPx7 rating is compromised and the device is not water-resistant.

---

- The device is designed to resist damage for drops up to 4 ft (1.22 meters). However, the device should not be dropped unnecessarily or subjected to any strong impact. Check the fit of the SIM card, storage card, and battery after a drop.
- Protect the handheld from extreme temperatures. For example, do not leave the handheld on the dashboard of a vehicle.
- Temperature range: The operational temperature range is from -20 °C to +60 °C (-4 °F to +140 °F). Although the device is designed to be rugged, do not leave it in direct sunlight in excessive heat or in a vehicle in the sunlight for extended periods as the internal temperature may exceed the operating or storage temperature limits, especially while charging the battery.

Batteries perform best at room temperature. The battery has a stable capacity as temperatures rise; however, the colder the temperature, the greater the reduction in available battery capacity. Under very cold conditions (-20°C / -4 °F and below), the battery capacity is noticeably reduced. To improve the battery performance in very cold conditions, consider increasing the load on the battery, such as by adjusting the backlight to full brightness. Increasing the battery load causes the battery to generate heat, thus warming the battery and improving the performance.

- Protect the display from impact, pressure, or abrasive substances that can scratch it or crack it. Use your finger or a capacitive stylus, and avoid using excessive pressure and sharp or abrasive objects. To protect the touch screen from pressure and abrasive objects, apply a screen protector; two are shipped with the device, and you can purchase additional screen protectors if required. The use of ballpoint pens, nails or other sharp objects to operate the touchscreen will scratch and/or damage the device.
- Do not use abrasive cleaners directly on the display. Doing so may void your warranty.
- Keep the outer surface free of dirt and dust. To clean the handheld, use a soft, dampened cloth with either water or a diluted mild detergent. If a mild detergent is used, ensure all soap residue is removed. Do not use any chemical cleaners and do not put the device in the dishwasher.
- Ensure that the protective covers are re appropriately fitted to any external ports so that they are kept free from dirt, dust, fluid ingress, and electrostatic discharge.

Do not attempt to dismantle the device for repair. There are no user-serviceable parts inside. For service, contact your local dealer.

**Battery safety:** Lithium-ion batteries are classified by the U. S. Federal Government as non-hazardous waste and are safe for disposal in the normal municipal waste stream except where prohibited by local or regional regulations. These batteries contain recyclable materials and are accepted for recycling.

**NOTE –** In the event of battery failure, return the device to Spectra Precision or an Authorized Service Provider. Spectra Precision disposes of used batteries in accordance with local regulations.

- Do not disassemble or open, crush, bend or deform, puncture, or shred the battery assembly. There are no user-serviceable parts in the battery assembly.
- Do not use the battery if plastic case is cracked, compromised or punctured.
- Do not modify or remanufacture, attempt to insert foreign objects into the battery, immerse or expose to water or other liquids.
- Do not expose to fire, explosion, or other hazard. Do not expose to temperatures above +70 °C (+158 °F).
- Only use a charging system that has been qualified for use with the device.
- In the event of a battery leak, do not allow the liquid to come in contact with the skin or eyes. If contact has been made, flush the affected area with water and seek medical advice.

**Power supply safety:** Use only AC adapters intended for the device. Other external power sources may damage your product and void the warranty. Certification of this Class III product is only valid with the power supply that shipped with the device.

- Ensure the input voltage on the power supply matches the voltage in your location. Ensure the power supply has prongs compatible with your outlets.
- The power supply is designed for indoor use only. Avoid using the power supply in wet areas.
- Unplug the power supply from power when not connected to the device.
- Do not create a short circuit in the power output connector.

## Parts of the MobileMapper 50 handheld



- |                                  |                           |
|----------------------------------|---------------------------|
| 1 Power button                   | 11 USB /charging port     |
| 2 Speaker (phone)                | 12 Reset button           |
| 3 Camera (front)                 | 13 GNSS antenna connector |
| 4 Headphone or headset connector | 14 Camera flash           |
| 5 Programmable buttons A and B   | 15 Camera (rear)          |
| 6 Touch screen                   | 16 Volume control buttons |
| 7 Android Menu button            | 17 Battery cover lock     |
| 8 Android Home button            | 18 Battery cover          |
| 9 Android Back button            | 19 Wrist strap attachment |
| 10 Microphone                    |                           |

For details on assigning apps to the programmable buttons A and B, see [Assigning apps to the programmable buttons, page 24](#).

## Accessories

The following standard accessories ship with the MobileMapper 50 handheld:

- Wrist strap
- Screen protectors x2
- AC adaptor
- USB cable

The following optional accessories are available to purchase:

- External magnetic GNSS antenna
- Range pole bracket
- Batteries and battery covers

## Powering the handheld

The MobileMapper 50 handheld contains a rechargeable Lithium-ion battery.

Charge the battery completely before using the handheld for the first time.

**NOTE** – Cold temperatures, or using Bluetooth wireless technology, WLAN, or the cellular modem consume additional battery power and so shortens battery life between charges.

## Charging the battery

---

 **CAUTION** – Safe temperature ranges are:

- Operating temperature range: -20 °C to +60 °C (-4 °F to +140 °F).
  - Storage temperature range: -30 °C to +70 °C (-13 °F to +158 °F).
- 

The device's USB cable has a specific connector which fits with the device's micro USB connector. Most standard USB cables will not connect properly to the device. Make sure you use the one provided with the device.

1. Connect the micro USB end of the USB power cable to the micro USB power socket on the handheld.
2. Connect the USB end of the power cable to the AC adaptor.
3. Connect the adaptor to main power. An international adaptor kit is provided with the handheld.

Fully charging the standard 3100mAh battery from empty takes approximately four hours when connected to main power. The extended 4800mAh battery will take longer to charge.

It is recommended to charge from main power for the most efficient charging.

Avoid keeping the battery at full charge at high temperatures.

**NOTE** – The life of the battery can be significantly shortened if power is constantly supplied to the handheld. To avoid this issue, connect the handheld to an external power source only when the battery requires charging. Once fully charged, disconnect the external power source and allow the battery to discharge through normal use.

## Turning the handheld on and off

To turn on the handheld, press the **Power** button until the device vibrates and emits a sound.

To completely shut down the handheld, press and hold the **Power** button until the **Power options** menu appears, and then tap **Power off**. All running apps are shut down, and the handheld is completely turned off.

**NOTE** – You can also use the **Power options** menu to put the handheld into silent mode or Airplane mode.

## Checking the level of battery power

To check the level of battery power remaining at any time while the handheld is on, on the **Apps** screen, tap **Settings/ Battery**.

The **Battery** screen shows the battery status and battery level.

Tap the battery chart to view history details.

## Conserving power

The Lithium-ion battery life is dependent upon the application and operating environment.

It is recommended that you do the following to reduce power consumption:

- Set the handheld to automatically turn off the backlight after a period of time. For more information, see [Display settings, page 36](#).
- Reduce the brightness setting for the backlight or set the backlight to **Adaptive** to automatically adapt to the light environment. For more information, see [Display settings, page 36](#).
- Turn off the integrated Bluetooth and WLAN radios, and the handheld's cellular modem, whenever you are not using them. For more information, see [Turning on and turning off the WLAN and Bluetooth radios, page 38](#).

## Assigning apps to the programmable buttons

To assign apps to the programmable buttons A and B on the MobileMapper 50 handheld:

1. In the **Apps** screen, tap **Settings**, then scroll down to the **Personal** section and tap **AB Key Set**.
2. Tap the required button (Key A Settings or Key B Settings) at the top of the screen.
3. Select the app that you want to assign to the button.

## Resetting the handheld

You can factory-reset the MobileMapper 50 handheld if you forget the password that you use to lock the device, or to delete all of your personal data from the handheld's internal storage, system and app settings, and any downloaded apps.

Performing a factory data reset does not delete any system software updates.

1. On the **Apps** screen, tap **Settings**, then tap **Backup & Reset/ Factory data reset**.
2. If required, select the checkbox to delete data on the SD card.
3. Tap **Reset phone**.

If the device stops responding, you can also reset it by pressing the **Reset** button on the bottom of the device (you will need a slim implement).



## Storing data

The handheld has several types of memory available:

- Program memory (2GB for all models) is used for running apps. You cannot use it to save data.
- Internal storage is used for storing apps and private app data, as well as the Android operating system. Full capacity of this storage memory is 8 GB for the Wi-fi model and 16 GB for the 4G model. Actual space available is less, due to operating system installation.
- Removable SD card refers to micro SD cards inserted into the handheld's removable SD card slot. An SD card up to 64 GB can be used.



When the handheld is connected to a computer (see [Connecting to an office computer, page 27](#)), you can copy files to and from internal storage or an SD card if you have inserted one.

To check the memory capacity on the handheld, in the **Apps** screen, tap **Settings/ Storage**.


It is recommended that you regularly copy important data to an office computer. For more information, see [Connecting to an office computer, page 27](#).

## Memory cards

As an alternative to storage memory, you can save data to a memory card. Use a MicroSD memory card to securely store data, or transfer data to and from another device that supports MicroSD memory cards.


The device supports up to 64 GB SDHC microSD storage cards.

---

 **WARNING** – The presence of any dust or moisture in the memory card slot may adversely affect the device and void your warranty. To prevent dust or moisture entering the memory card slot, when inserting or removing a memory card, place the handheld on a dust-free indoor surface.

---

---

 **WARNING** – Static electricity can harm electronic components inside your handheld. To prevent static damage, discharge static electricity from your body before you touch any of the electronic components inside your device, such as a memory module. You can do so by touching an unpainted metal surface.

---

To insert a memory card:

1. Turn off the handheld. See [Turning the handheld on and off, page 23](#).
2. In a dust-free indoor environment, remove the battery cover on the back of the device, and remove the battery to access the memory card slot.
3. Insert the memory card into the card slot (under the SIM card slot); make sure you insert the card correctly as illustrated:



4. Replace the battery and the battery cover.

When you select the **Save As** option in an app, the memory card appears in the list of available storage locations as /removablecard.

To remove a memory card:

1. Turn off the handheld. See [Turning the handheld on and off](#), page 23.
2. In a dust-free indoor environment, remove the battery cover on the back of the device, and remove the battery to access the memory card slot.
3. Pull the card to release it from the slot.
4. Replace the battery and the battery cover.

## Inserting and removing a SIM card (4G model only)

---

**CAUTION** – The SIM card and its contents can be easily damaged by scratches or bending. Use caution when inserting or removing the card.

---

**CAUTION** – The presence of any dust or moisture in the SIM card slot may adversely affect the device and void your warranty. To prevent dust or moisture entering the SIM card slot, when inserting or removing a SIM card, place the handheld on a dust-free indoor surface.

---

**WARNING** – Static electricity can harm electronic components inside your handheld. To prevent static damage, discharge static electricity from your body before you touch any of the electronic components inside your device, such as a memory module. You can do so by touching an unpainted metal surface.

---

To insert a SIM card:

1. Turn off the handheld. See [Turning the handheld on and off](#), page 23.
2. In a dust-free indoor environment, remove the battery cover on the back of the device, and remove the battery to access the SIM card slot.
3. Insert the SIM card into the SIM card slot; make sure you insert the card correctly as illustrated:



4. Replace the battery.
5. Replace the battery cover and lock into place.

To remove a SIM card:

1. Turn off the handheld. See [Turning the handheld on and off](#), page 23.
2. In a dust-free indoor environment, remove the battery cover on the back of the device, and remove the battery to access the SIM card slot.
3. Remove the SIM card.
4. Replace the battery and the battery cover.

## Connecting to an office computer

Connect the handheld to an office computer to transfer information, settings, and files from one device to the other, or to install software onto the handheld.

Connect the handheld to a computer using the USB cable provided with the device. This is a specific cable which fits with the device's micro USB connector. The use of any other USB cable will not guarantee a good connection or will not provide a USB connection at all.

To protect your data, it is recommended that you regularly copy important data to an office computer. When you connect the handheld a computer, make sure you follow the computer's instructions for connecting and disconnecting USB devices, to avoid damaging or corrupting files.

**NOTE** – The MobileMapper 50 handheld uses the Media Transfer Protocol (MTP) for transferring data between the handheld and a computer. For the Microsoft® Windows® XP operating system, Windows Media® Player 10 or later must be installed on the computer to provide access to MTP devices such as the MobileMapper 50 handheld. For the Windows Vista® and later operating systems, the MTP drivers are already provided by Microsoft and should be found automatically. For other operating systems, you may need a driver or separate application.

1. Connect the handheld to the computer using the USB cable that you received with the handheld.
2. A window opens on the computer. Select **Open device to view files**. The handheld is listed as a portable device connected to the computer.
3. Copy or move files as required between the handheld and the computer.

# 2

## Using the Android operating system

- ▶ Using the Home screen
- ▶ Interacting with the handheld
- ▶ Managing notifications
- ▶ Select the language
- ▶ Set the time and date
- ▶ Using the clock to set alarms
- ▶ Display settings
- ▶ Sounds and notifications
- ▶ Locking the device
- ▶ Sending and receiving email

The MobileMapper 50 handheld is powered by the Android operating system. When you start the handheld, the **Home** screen appears. From here you can access all the features on the handheld.

### Using the Home screen

You can customize the app icons, widgets, shortcuts, and other features that appear on your **Home** screens for fast access to your most-used items. To add an app icon or widget to a **Home** screens, navigate to it (for example, in the **Apps** screen, then tap and hold it, and drag it to the required **Home** screen. To open any item on the **Home** screen, tap it.

For full details, refer to the Android Help at <http://support.google.com/android/?hl=en> and search for the version of the operating system that is on your MobileMapper 50 handheld.

To move between **Home** screens, swipe left or right. A bar at the bottom of the screen shows which **Home** screen you are on.

To open the **Apps** screen and view all your apps, tap the **Apps** screen icon .

To see notifications, swipe down from the top of the screen with one finger. See [Managing notifications, page 34](#)

To open **Quick Settings** (frequently used settings), swipe down from the top of the screen twice with one finger or once with two fingers.

To quickly open all **Settings**, swipe down from the top of any screen with two fingers or swipe twice with one finger, then tap  in the top left

To return to the **Home** screen at any time, from within any app, tap .

You can set the screen timeout so that if you don't use the handheld for a while, the screen automatically turns off to conserve battery power. In the **Apps** screen, tap **Settings**, then tap **Display / Sleep**, then select the required timeout.

To wake up the handheld when the screen has turned off, press the **Power** button. If you have set security on the handheld, you will need to unlock it (see [Locking the device, page 36](#)), then drag the lock icon to the right.




## Interacting with the handheld

To interact with the handheld using the touchscreen, use a capacitive stylus or your finger to tap, swipe, or drag items on the touch screen, to scroll up or down, and to enter information.

- **Tap.** Tap the screen once to open items and select options. Use the keyboard input panel to enter typed text by tapping keys on the on-screen keyboard
- **Tap and hold.** Tap and hold the stylus or your finger on an item to see a list of actions available for that item. On the pop-up menu that appears, tap the action you want to perform.
- **Drag.** Hold the stylus or your finger on an item for a moment and then, without lifting your finger, move your finger on the screen until you reach the target position. Drag in a list to select multiple items. Drag items on the **Home** screens to reposition them.
- **Swipe or slide.** Quickly move your finger across the surface of the screen, without pausing when you first touch it, to scroll a page or a list up or down.
- **Double tap.** Tap quickly twice on a webpage, map, or other screen to zoom. Double-tapping after pinching to zoom in some apps, such as Browser, reflows a column of text to fit the width of the screen.
- **Pinch.** In some apps (such as Browser and Photos), place two fingers on the screen at once and pinch them together to zoom out or spread them apart to zoom in.




- **Rotate the screen.** On most screens, the orientation of the screen rotates with the phone as you turn it from upright to its side and back again. You can turn this feature on and off, see [Display settings, page 36](#).

The handheld has the following buttons:

Button	Press	Press and hold
 Home	Opens the <b>Home</b> screen. If you are viewing a left or right extended <b>Home</b> screen, it opens the central <b>Home</b> screen.	Action can be configured in <b>Settings / Buttons</b> .
 Menu	Opens a menu with items relevant to the current screen or app.	
 Back	Opens the previous screen you were working in. If the onscreen keyboard is open, the keyboard closes.	
Power (top of device)	Turns off the screen.	Opens a menu with options for Airplane mode, Silent mode, vibrate, reboot, and for powering off the phone.
Volume Up / Down (right side of device)	When a call is in progress, it increases or decreases the call volume. When the phone is ringing, it silences the ringer. On the Home screen when no call is in progress, it increases or decreases the ringtone volume, or sets the phone to be silent or to vibrate instead of ringing. In other apps, it controls the volume of music, spoken directions, and other audio.	Quickly increases the ringtone volume to maximum or minimum.
Customized (2 buttons, left side of device)	Use the <b>AB Key Set</b> utility to configure which apps you want to assign to each of the buttons on the left side of the device. On the <b>Apps</b> screen, tap <b>Settings / AB Key Set</b> ; for each of <b>Key A Settings</b> and <b>Key B Settings</b> , select from the list the app that you want to assign to the button.	N/A

## Using the Android buttons on the MobileMapper 50 handheld

The Android buttons on the MobileMapper 50 handheld can be used alone or in combination to perform different actions:

-  The **Home** button opens the **Home** screen, or the most recently used apps. If you are viewing the left or right extended **Home** screen, pressing the **Home** button opens the central **Home** screen.
-  The **Menu** button opens a menu with items relevant to the current screen or app.
-  The **Back** button opens the previous screen you were working in. If the onscreen keyboard is open, the keyboard closes.


## Entering information

Depending on the program or app you are using, you can enter information in several ways:

- **Synchronizing.** Connect the handheld to an office computer to exchange information between the handheld and the office computer. For more information, see [Connecting to an office computer, page 27](#).
- **Writing.** Use your finger or a stylus like a pen to write directly on the screen.
- **Typing.** Use the keyboard input panel to enter typed text by tapping keys on the onscreen keyboard.
- **Recording.** Create a recording.

## Using the menus

The Android mobile technology platform has two kinds of menus:

- **Options menus** contain tools that apply to the activities of the current screen or app, not to any specific item on the screen. To open options menus, press the Menu icon . Not all screens have options menus. Some screens have more options menu items than can fit in the main menu; tap More to open a menu of additional items. Options menus contain items that apply to the current screen or to the app as a whole.
- **Context menus** contain tools that apply to a specific item on the screen. To open a context menu, tap and hold an item on the screen. Not all items have context menus. If you tap and hold an item that has no context menu, nothing happens.





## Using the on-screen keyboard

In some apps, the keyboard appears automatically. In others, it appears when you tap in a text entry field.

- If you tap in a text field which already contains text, the cursor is inserted at the point where you tapped and the insertion point tab appears. To move the insertion point, drag the insertion point by its tab.
- Select a word, or several words at a time, to copy, cut, and paste text. See [Editing text](#) below.
- Tap the required keys on the screen to enter text. What you type appears in the text field and in the strip above the keyboard.

When the keyboard has a suggestion for what you might be typing, the word you are typing is underlined in the text field and the suggestions appear in the strip above the keyboard. You can tap and hold on the strip to display additional suggestions; to select a suggested word, tap it.


- Tap the Delete key  to delete characters to the left of the cursor.
- To enter numbers, tap the **?123** key. To return to letters, tap **ABC**.
- To enter symbols and other characters that are not on the main keyboard, tap and hold a key and then slide your finger up to the list of options that appears. To select an option, lift your finger when you reach it. For example, tap and hold a vowel or the C, N, or S key to open a small window where you can drag onto the accented vowel or other alternate letter you want to use.
- Tap and hold the Period key ( . ) or the comma key ( , ), or tap and hold a symbol key to select other common symbols.
- To close the keyboard, tap .

## Editing text

To edit text in text fields:

1. Tap the text field containing the text you want to edit. The cursor is inserted where you tapped, and has a tab you can use to drag it if you need to move it.
2. To select a word or string of text, double tap it. Tabs appear to the left and right of the highlighted text. Drag either tab left or right to increase or decrease the selected text. To deselect the text, tap any unselected text in the same or in another text field, or tap



3. Tap the selected text to open a menu (this appears at the top of the screen) which gives you options to cut or copy your selection, or, if you have previously cut or copied text, paste.
4. You can also:
  - tap a word to bring up a list of words stored in the dictionary; tap the required word in the list to replace your selected word.
  - enter text by typing over the selected text, tap **Delete** to delete the selected text, or add it to the dictionary.
5. Tap  to close the keyboard.

## Managing notifications

Notification icons appear when you have new messages, calendar events, and alarms, as well as ongoing events, such as when call forwarding is on or the current call status. Depending on your settings you may also hear a notification sound, or the phone may vibrate. For information on these settings, see [Sounds and notifications, page 36](#).

When you receive a notification, its icon appears in the Status bar, along with a summary that appears briefly.


To open the **Notifications** panel to view a list of all your notifications, swipe down from the top of the screen with one finger.

To open a notification in its app, touch the notification icon. Some notifications also enable you to take specific actions by touching icons within the notification. For example, Calendar notifications allow you to Snooze (remind you later) or send email to other guests.

Some notifications can be expanded to show more information, such as email previews or calendar events. The one at the top is always expanded when possible. To expand or collapse a notification, swipe two fingers vertically or pinch-zoom.


When you're finished with a notification, swipe it away to the left or right.

To clear all notifications, open the **Notifications** panel and then tap **Dismiss** at the top right of the panel. All event-based notifications are cleared; ongoing notifications remain in the list.


To close the **Notifications** panel, drag the tab at the bottom of the **Notifications** panel to the top of the screen, or tap . The panel also closes when you touch a notification to respond to it.

## Select the language

You can select from the following languages: Afrikaans, German, English (UK/US), Spanish, French, Italian, Portuguese (Portugal or Brazil), Greek, Russian, Korean, or Chinese (simplified or traditional).



1. In the **Apps** screen, tap **Settings/ Language & input**.
2. Select the language you want.
3. Tap  to exit the screen.

## Set the time and date


1. In the **Apps** screen, tap **Settings/ Date & time**.
2. Do one of the following:
  - Tap **Automatic date & time** to use network time and date settings. Tap **Automatic time zone** to use the network time zone.
  - Manually set the time and date. Make sure the **Automatic** are not selected, then tap the other options on the screen to set the date, time zone, time, time format, and date format.
3. Tap  to exit the screen.

## Using the clock to set alarms

In addition to displaying the date and time, the Clock app can be used as an alarm clock.

1. To open the Clock app, in the **Apps** screen, tap .
2. Tap  to open the **Alarms** screen.
3. On the **Alarms** screen, select any existing alarm to turn it on (tap the box to the left of the alarm), or tap the alarm to change the alarm details

To add a new alarm, tap **+** at the bottom of the screen.

To access more clock or alarm features, for example volume and snooze length, tap  at the bottom of the screen and select **Settings**.

**NOTE** – The Clock app also has a stopwatch and countdown timer.

## Display settings

To open the Display settings:


1. In the **Apps** screen, tap **Settings**, then tap **Display**.
2. To set the screen brightness, do one of the following:
  - tap **Brightness level** then drag the slider left or right as required.
  - select **Adaptive brightness** to enable the display brightness to adapt automatically to your surroundings.

**NOTE** – The backlight makes the screen easier to read in low light, but uses extra power.

3. To set the screen to timeout when the handheld is idle, tap **Sleep** and then select the required screen idle timeout duration.
4. To set the size of text on the screen, tap **Font size** then select the required option.
5. To turn on or off automatic screen rotation when the handheld is turned, tap **When device is rotated** and select the required option.

## Sounds and notifications

Use the **Sound & notification** settings to set preferences for the speaker volume and system sounds such as the phone ringtone, vibrations, alerts, notifications, and alarms.

1. In the **Apps** screen, tap **Settings**, then tap **Sound & notification**.
2. Set the required options.
3. Tap  to exit the screen.

## Locking the device


You can set the screen on the handheld to lock to prevent others from using it.

1. In the **Apps** screen, tap **Settings** then tap **Security**.
2. Tap **Screen lock**.
3. Select the required option, and follow the instructions that appear on the screens.

The next time you turn on the handheld or wake up the screen, you must slide the padlock, enter your PIN or password, or draw your unlock pattern to unlock it.

## Sending and receiving email

You can set up access to an existing email account from the MobileMapper 50 handheld to send and receive emails.

1. Make sure you are connected to a network. See [Using the WLAN and Bluetooth radios, page 38](#) or [Using the cellular modem \(4G model only\), page 44](#).
2. In the **Apps** screen, tap .
3. If you do not already have an email account set up, enter an email address and a password, and follow the instructions on screen to set up the account.

You can choose to synchronize your email on the handheld with an office computer.

When the account is set up and you are connected, tap  in the **Apps** screen to access your emails.

To change email settings, tap , then tap **Settings**. From here you can also:

- add further accounts.
- remove an account. Tap the account you want to remove, scroll down and tap **Remove account**.

# Using the WLAN and Bluetooth radios

- ▶ [Turning on and turning off the WLAN and Bluetooth radios](#)
- ▶ [Connecting to a WLAN access point](#)
- ▶ [Connecting to a Bluetooth-enabled device](#)
- ▶ [Working with paired Bluetooth-enabled devices](#)
- ▶ [Accessing a corporate network](#)

The MobileMapper 50 handheld includes an integrated Bluetooth radio and WLAN radio, and provides a number of options for connecting to networks and other devices.

To use the WLAN or Bluetooth radio, you need to turn it on (see [Turning on and turning off the WLAN and Bluetooth radios, page 38](#)).

You can use the handheld's integrated WLAN radio to connect to the Internet or a corporate network using a connection to a WLAN access point ("hotspot").

You can use Bluetooth wireless technology to connect directly to other Bluetooth-enabled devices that are within range (typically within 5- 10 meters of the handheld).

**NOTE** – For details on using the integrated cellular modem (4G model only) for sending and receiving data, SMS, and making voice calls, see [Using the cellular modem \(4G model only\), page 44](#).

## Turning on and turning off the WLAN and Bluetooth radios

1. In the **Apps** screen, tap **Settings**.
2. Slide the On/Off slider for each radio to turn it on or off.
3. When a radio is on, tap it to access further details.

To save power and optimize battery life, turn off wireless radios when they are not in use.

## Connecting to a WLAN access point

To use WLAN on the MobileMapper 50 handheld, you must access a wireless access point, or “hotspot.” Some hotspots are open and you can easily connect to them. Others are hidden or implement other security features, so you must configure the handheld so it can connect to them.

The Status bar displays icons that indicate WLAN status.

When you connect to a WLAN network, the handheld obtains a network address and other information it needs from the network. If required, you can configure the handheld with advanced settings; see [Advanced WLAN settings](#) below.

To turn on the WLAN radio and connect to a WLAN network:

1. In the **Apps** screen, tap **Settings**.
2. Make sure WLAN is turned on. If it is not, move the **WLAN** slider to ON.
3. Tap **WLAN**. The handheld lists the WLAN networks available. Secured networks are indicated with a Lock icon.
4. If the handheld finds a network that you connected to previously, it connects to it. Otherwise, tap the network that you want to connect to.
  - If the network is open, you are prompted to confirm that you want to connect to the network. Tap **Connect**.
  - If the network is secured, you’re prompted to enter a password or other details.

To view details about the speed, security, address, and related settings of the network you are connected to, in the WLAN settings screen, tap the network name.


By default, when the WLAN radio is on, notifications appear in the Status bar when the handheld detects an open WLAN network. To receive notifications when open networks

are in range, in the WLAN settings screen, tap , tap **Advanced** and then turn on **Network notification**.

## Adding a WLAN network

You can add a WLAN network so the handheld remembers it, along with any security details. You can then connect to it automatically when it is in range. You must also add a WLAN network to connect to it if the network does not broadcast its name (SSID), or to add a WLAN network when you are out of its range.

To join a secured network, you must obtain the security details from the network’s administrator.

1. In the **Apps** screen, tap **Settings**.
2. Make sure WLAN is turned on. If it is not, move the **WLAN** slider to ON.
3. Tap  at the top of the screen then tap **Add network**.
4. Enter the network SSID.
5. Select the type of security for the network. Enter the password and other security details for the network.
6. Tap **Save**.

The handheld connects to the wireless network automatically when you are within range.

## Forgetting a WLAN network

You can make the handheld forget about the details of a WLAN network that you saved—for example, if you do not want the handheld to connect to it automatically or if it is a network that you no longer use.

1. In the **Apps** screen, tap **Settings**.
2. Make sure WLAN is turned on. If it is not, move the **WLAN** slider to ON.
3. In the WLAN settings screen, tap the saved network you want the handheld to forget.
4. Tap **FORGET**.

## Advanced WLAN settings

To access advanced WLAN settings, in the WLAN settings screen, tap  at the top of the screen and then tap **Advanced**. Advanced settings include:

- Network notification, to let you know when an open network is available.
- The WLAN sleep policy, to specify when the WLAN radio disconnects. If this is set to Never, the WLAN radio uses more battery power.
- The MAC (Media Access Control) address of the handheld when connecting to WLAN networks.
- The IP address assigned to the handheld by the WLAN network you are connected to.



## Connecting to a Bluetooth-enabled device


The MobileMapper 50 handheld has an integrated Bluetooth radio that you can use to establish a wireless connection to other Bluetooth devices that are within range. The MobileMapper 50 handheld can only connect to paired Bluetooth devices.

Using a Bluetooth connection, you can communicate with devices such as cellular phones, office computers, other handhelds, and Bluetooth-enabled laser rangefinders and barcode scanners. You can also communicate with peripheral devices that use Bluetooth adaptors instead of serial or USB connections.

To connect to a Bluetooth device, you must turn on the handheld's Bluetooth radio, and set up a paired Bluetooth connection between the two devices. See [Working with paired Bluetooth-enabled devices](#), below.

Turn off the Bluetooth radio when it is not in use, to extend the charge of the handheld battery. You may also be required to turn Bluetooth off in some locations. See [Turning on and turning off the WLAN and Bluetooth radios, page 38](#).

To turn on the Bluetooth radio:

1. In the **Apps** screen, tap **Settings**, then tap **Bluetooth**.
2. Make sure the Bluetooth radio is turned on. If it is not, move the **Bluetooth** slider to ON.
3. The MobileMapper 50 handheld has a generic name by default, which is visible to other devices when you connect to them. You can change the name so that it is more recognizable. Tap **Bluetooth**, then tap  and select **Rename this device**. Enter a sensible name for the handheld. Tap **Rename**.

Status bar icons indicate Bluetooth status.

## Working with paired Bluetooth-enabled devices

Pairing the handheld with another Bluetooth-enabled device creates a permanent security bond between the devices, which helps to exchange information securely between the devices. The paired relationship is established when two devices create and exchange a link key. Once the relationship is established, the handheld and the other Bluetooth device only need to have their Bluetooth radios turned on to exchange information; they do not need to be visible to other devices.

You must pair the handheld with a device before you can connect to it. Once you pair the handheld with a device, they stay paired unless you unpair them.


To pair with and connect to a Bluetooth device:

1. In the **Apps** screen, tap **Settings**.
2. Make sure the Bluetooth radio is turned on. If it is not, move the **Bluetooth** slider to ON.

3. Tap **Bluetooth**. The handheld lists the Bluetooth devices it can detect. (If the device you want to connect to is not listed, make sure it is discoverable; refer to the documentation for the device).
4. To set up a paired connection to a device, tap it in the list of Bluetooth devices. If you are prompted to, enter a password (you will need to obtain this from the other device) or confirm that the security code is the same on both devices.

If the pairing is successful, the handheld connects to the device. The device shows as connected in the list.

## Unpairing a Bluetooth device

You can unpair a Bluetooth device to delete all pairing information about it. Tap  next to the device in the list of Bluetooth devices, then tap **FORGET**.

## Accessing a corporate network

Use a Virtual Private Network (VPN) connection to access a corporate network or Intranet. VPNs enable you to connect to the resources inside a secured local network, from outside that network.

Before you begin, obtain the following information from your network administrator:

- username and password
- domain name
- host name or IP address of the VPN server

To add a VPN:

1. In the **Apps** screen, tap **Settings**.
2. Tap **More**, then tap **VPN**. (You may be prompted to enter an 'unlock' PIN or pattern before you can proceed.)
3. In the screen that opens, tap **+** at the top of the screen to add a VPN, then follow the instructions from your network administrator to configure each component of the VPN settings.
4. Tap **Save**.

The VPN is added to the list on the VPN settings screen.

To connect to a VPN:

1. In the **Apps** screen, tap **Settings**.
2. The VPNs configured in the handheld are listed on the VPN settings screen. Tap the

VPN that you want to connect to.

3. Enter any requested security details and then tap **Connect**.

When you are connected to a VPN, an ongoing notification appears in the Status bar. If you are disconnected, you receive a notification that you can use to return to the VPN settings screen so that you can reconnect to it. See [Managing notifications, page 34](#).

To disconnect from a VPN, open the Notifications panel and tap the ongoing notification for the VPN connection.

To edit a VPN:

1. In the **Apps** screen, tap **Settings**.
2. Tap **More/ VPN**.
3. The VPNs configured in the handheld are listed on the VPN settings screen. Tap the VPN that you want to edit.
4. Tap **Edit profile**, then make the required changes.
5. Tap **Save**.

To delete a VPN:

1. In the **Apps** screen, tap **Settings**.
2. Tap **More/ VPN**.
3. The VPNs configured in the handheld are listed on the VPN settings screen. Tap the VPN that you want to delete.
4. Tap **Delete profile**.

# Using the cellular modem (4G model only)


- ▶ [Manually connecting to a cellular network from the modem](#)
- ▶ [Using the Smartphone](#)
- ▶ [Messaging](#)

The 4G model of the MobileMapper 50 handheld features a 4G cellular modem that you can use to connect to the Internet, make voice calls and send / receive data and messages.

Use the phone to make phone calls, set up speed dials, keep track of calls, and send SMS messages just like the standard features of a mobile phone.

Before using the cellular modem for voice or data connection, you must purchase a cellular plan and SIM card from a cellular service provider.

---

 **CAUTION** – Use of the cellular modem data or voice call capability will incur charges which may be fixed (per month) or may be based on the data bandwidth you use. Charges when roaming outside your home network (for example, abroad) are significantly higher than those incurred when on your home network. Check with your carrier for full details of usage charges, both on their own network and when roaming.

---

## Manually connecting to a cellular network from the modem



Use the integrated cellular modem to connect to a cellular network and access the Internet or a company network. Use this type of connection to access a background map server, or for Internet and email access.

Before you begin the steps below, you must:

- make sure that a SIM card is inserted in the handheld. See [Inserting and removing a SIM card \(4G model only\), page 26](#).
- confirm that the modem can access the Internet directly. If necessary, contact your service provider and confirm whether you must enter a user name, password, and domain details when connecting.
- make sure that you have the correct APN (Access Point Name) from your cellular provider.

The handheld attempts to automatically set the appropriate Access Point Name (APN) for your data connection based on your cellular provider's identity. This process can take several minutes.

To configure cellular network settings:

1. In the **Apps** screen, tap **Settings** then tap **More**.
2. Tap **Cellular networks**.
3. If you need to create a new APN:
  1. Tap **Access Point Names**.
  2. Tap an existing APN to edit it, or tap  to create a new APN. Enter the APN settings that you obtained from your wireless service provider.
  3. Tap  / **Save**.
  4. To use the new or edited APN, select it in the APN screen.
4. To enable data transfer when roaming, select **Data roaming**.



## Using the Smartphone

Use the handheld's Smartphone feature to make and receive phone (voice) calls. You can enter a number to dial using the keypad (see below), or select a number from the **Contact** app.

**NOTE** – You can use a Bluetooth headset with the MobileMapper 50 handheld.

To make a phone call:

1. Make sure that a SIM card is installed. See [Inserting and removing a SIM card \(4G model only\), page 26](#).

2. To open the Phone app, tap the Phone icon  on the **Home** screen or in the **Apps** screen.
3. Do one of the following:
  - Type a name or number in the field at the top of the screen. To dial an international number, tap and hold the 0 key to enter the plus ( + ) symbol, then enter the international prefix for the country, followed by the full phone number. Then tap the number / contact from the list.
  - Tap the numeric keypad icon at the bottom of the screen, then enter a phone number and tap  to start the call.
  - To call a number stored as a contact, tap CONTACTS. Tap the required contact, then tap the number.
  - To call a recently used number, tap RECENTS then tap the required number / contact.

If required, press the Volume Up / Down button on the left side of the handheld to adjust the call volume.

To end a phone call, tap the End call icon .

When you receive a phone call, the **Incoming Call** screen opens with the caller ID and any additional information about the caller if they are saved in People. Touch the incoming call icon on the screen. You can then do the following:

- To answer a call, tap **Answer**.
- To decline the call and send the caller to voicemail, tap **Dismiss**.

All incoming calls are recorded in the Call History log.




To silence the ringer before answering the call, press the Volume Down button.

## Using the Call History log

The Call History log contains all the calls you have made, received, or missed.


In the **Phone** app, tap  then select **Call History**.

Arrow icons beside a call indicate the type of call. Multiple arrows indicate multiple calls.

-  Outgoing call
-  Received incoming call
-  Missed incoming call

To clear the Call History log, tap  / **Call History**, then tap  / **Clear call log**.




You can use an entry in the Call History log to redial a number, return a call, or send an SMS.

- To dial a number listed in the Call History log, tap the number or contact then tap **Call Back**.
- To send an SMS to a number listed in the Call History log, tap the number or contact then tap **SMS**.
- To view details of a call for a listed number or contact, tap the number or contact then tap **Details**.
- To edit number before calling, or to blacklist a number, tap the number or contact then tap **Details**. Tap  then tap **Edit number before call** or **Add to blacklist**.

## Messaging

Use Messaging to send and receive text messages (SMS) and multimedia message (MMS).

### Sending a text or a multimedia message

1. Make sure that a SIM card is installed. See [Inserting and removing a SIM card \(4G model only\)](#), page 26.
2. Tap the Messaging icon  on the **Home** screen or in the **Apps** screen. The **Messaging** window opens, where you can create a new message or open an ongoing message thread.
3. Tap the **New message** icon  at the bottom of the screen to start a new text or multimedia message (or tap an existing message thread to open it).
4. For a new message, do one of the following:
  - enter a phone number in the **To** field. As you enter the number, matching contacts appear. You can tap a contact to select it or continue to enter the number.
  - start to type the name of a contact in the **To** field. As you type, matching contacts appear. Tap a contact to select it.
5. Tap the composition text box, and enter your message using the on-screen keyboard.
6. For a multimedia message, press the paperclip icon to attach a file.
7. Tap the Send icon  to send the message.

## Deleting message threads

To delete a specific message thread, tap and hold the message thread, then tap the rubbish bin icon at the bottom of the screen.

To delete all message threads, tap  and then tap **Delete**.

## Replying to messages

If you are working in a message window, messages that you receive are displayed in it. Otherwise, you receive a new message notification and a new message icon appears in the Status bar. See [Managing notifications, page 34](#)

When you tap the new message notification, the **Message** window opens, where you can reply to the message. If Auto-retrieve is not selected (see [Changing Messaging settings](#), below), tap **Download** to view the message.

If the message contains a media file, tap **Play** to view, watch, or listen to it. Tap and hold the media file to open a menu with an option for saving messages to your internal SD card.

Tap and hold a message to open a menu with a number of options for working with the message and its sender's information.

## Changing Messaging settings

Tap the Messaging icon  in the **Apps** screen, then tap  / **Settings**.

You can specify the following settings:

- Default SMS app, to define the application to be used by default for messaging
- Sounds or vibrate for outgoing / incoming messages
- Notifications Yes / No

In Advanced Settings, you can specify the following:

- Auto-retrieve. When not selected, only the heading of multimedia messages is downloaded, which you can then tap to open a menu to download the whole message. This is useful for controlling how much data you download, for example, when connected to a slow data network.
- Roaming auto-retrieve. When not selected, only the header of multimedia messages is downloaded when connected to other carrier's data networks. This is useful for avoiding unexpected charges, if your contract has limits on data roaming.
- SMS delivery report, to request a delivery report for each message you send.
- Simple characters only, to automatically convert special characters in messages you send.



# Using the GNSS receiver

- ▶ Receiving signals from GNSS satellites
- ▶ Supported software
- ▶ Using an external GNSS antenna
- ▶ Using an external GNSS receiver

The MobileMapper 50 handheld contain an integrated uBlox Neo-M8T GNSS receiver, which is set to ensure the best possible performance in the field for data collection and full compatibility with Spectra Precision field and office software.

The receiver supports GPS, GPS plus GLONASS, or GPS plus Beidou, with 1 to 2 meter positioning accuracy in real time (using SBAS) in open sky.

## Receiving signals from GNSS satellites

To receive signals from GNSS satellites, the handheld must have a clear view of the sky. GNSS positions may not always be available, particularly in or near buildings, in vehicles, or under tree canopy.

The handheld has a tuned GNSS antenna located inside and at the top left of the device, near the speaker. For optimal GNSS reception, hold the handheld at 15° from horizontal allowing it visibility of the sky. When collecting point data with a MobileMapper 50 handheld, it is recommended that you remain stationary at the point for at least 10 seconds before beginning to log GNSS positions. This allows the GNSS receiver's internal algorithms to stabilize, and ensures the best possible point feature accuracy.

The GNSS receiver supports all three available SBAS correction services (WAAS in North America, EGNOS in Europe, and MSAS in Japan).

Using GNSS enables the handheld to determine your location within 1 to 2 meter accuracy in open sky (with SBAS), and enables geo-tagging of photos you take using the handheld's integrated camera (see [Using the camera, page 52](#) for more information on enabling geotagging and taking photos).

To use the GNSS receiver:

1. In the **Apps** screen, tap **Settings** then tap **Location**.
2. Slide the **Location** slider to On.
3. Tap **Mode** then select the mode you want the device to use to determine your location:
  - High accuracy. Uses GNSS satellites, WLAN, and cellular networks to determine your location.
  - Battery saving. Uses WLAN and cellular networks to determine your location.
  - Device only. Uses GNSS only to determine your location.
4. Tap NMEA output to turn it on or off.
5. Tap SBAS mode to turn it on or off.
6. Tap **Location mode** then select the Location mode you want the device to use (GPS + BDS; GPS + GLONASS; GPS only).
7. Tap **Update rate** to modify the update rate of the GNSS solution. Two settings are available; 1s and 2s. By default the receiver is set to 2s but it is recommended that you use 1s to maximize reactivity of any GNSS applications.

## Supported software

Spectra Precision provides both GIS and Survey applications to run specifically on the MobileMapper 50:

- MobileMapper Field for Android for GIS
- Survey Mobile for survey

The MobileMapper 50 handheld can be used with any Android application. A wide range of application software is compatible with the Android 5.1 operating system and spatial data available through the Google Location Services API, including many GNSS navigation and data collection applications. To access spatial data from the internal GNSS receiver of the MobileMapper 50 handheld, an application must support one or more of:

- Android Location Services API
- NMEA-0183 ASCII protocol


## Using an external GNSS antenna

The MobileMapper 50 handheld provides an external GNSS antenna port on the back of the device, and a GPS + Glonass external antenna is available as an accessory to be used with the receiver.

---

 **CAUTION** – The use of an external GNSS antenna should be occasional only. The connector used to connect the antenna is not compatible with intensive, daily usage.

---

 **CAUTION** – The presence of any dust or moisture in the external antenna port may cause the external antenna to not work. To prevent dust or moisture entering the external antenna slot, take care when using the handheld with an external antenna in wet or dusty conditions.

---

To use an external antenna, you must configure antenna settings in the GNSS field software, once you have connected the external antenna to the handheld. Refer to the relevant software documentation for details.

## Using an external GNSS receiver

Using the MobileMapper 50 handheld and the Survey Mobile application, you can control SP60 and SP80 survey receivers. The Survey Mobile application supports all basic survey workflows and gives access to the main configuration parameters of the survey receivers. With a modern look and feel this application is very easy to use and provides all that a surveyor may require.

# Using the camera

- ▶ Starting and closing the Camera app
- ▶ Using the camera in Still mode
- ▶ Using the camera in Panorama mode
- ▶ Using the camera in Video mode
- ▶ Camera setting options
- ▶ Working with photos and videos in the Android Photos app

The MobileMapper 50 handheld has a 2 megapixel front-facing integrated digital camera, and a rear main camera (8 or 13 megapixel, depending on the model) with geotagging, which you can use to capture photos or video.

## Starting and closing the Camera app


To start the Camera app:

1. In the **Apps** screen, tap **Camera**.
2. Make sure that the protective lens covers (front and/or rear) are clean; wipe with a microfiber cloth before taking pictures.

To close the Camera app, tap  or .




## Using the camera in Still mode

To take a photo:




1. Start the camera, and make sure Still mode is selected;  is displayed in the bottom right corner.

2. Do one of the following:

- To use the rear camera:

- a. Make sure  is displayed at the top of the screen. If  is displayed, tap it to switch to the rear camera.
- b. Use the viewfinder to frame the photo you want to capture, and adjust any other settings if required (see [Camera setting options, page 55](#)). The preview image changes as you change the settings.
- c. To capture the photo, tap the screen to focus; when the photo is in focus, the focus indicators on the screen turn green. Tap  to capture the photo.

- To use the front camera:

- a. Make sure  is displayed at the top of the screen. If  is displayed, tap it to switch to the front camera.
- b. Use the viewfinder to frame the photo you want to capture, and adjust any other settings if required (see [Camera setting options, page 55](#)). The preview image changes as you change the settings.
- c. Tap  to capture the photo.




Note that you can also pinch the screen in or out to zoom in or out (front and rear cameras).


The photo is displayed as a thumbnail at the bottom of the screen, which you can tap to open in the Android **Photos** app. Photos are stored as .jpg files.

To view photos in the **Photos** app, tap a thumbnail in the Camera app to open the **Photos** app, or in the **Apps** screen, tap **Photos**. See [Working with photos and videos in the Android Photos app, page 56](#) for more information.


## Using the camera in Panorama mode

To capture a panorama:

1. Start the camera, and make sure Panorama mode is selected; tap the icon in the bottom right corner ( or  depending on what mode you are in) and tap .
2. Use the viewfinder to frame the start of the panorama you want to capture.

- To start capturing the panorama, tap , then slowly move the device left or right. The progress bar starts to fill in blue (from left to right, or right to left, according to the direction you moved the device in).









If you move the device too fast, the progress bar turns red, and the message *Too fast* appears on the screen.

- To end the capture, tap .
- Wait for the panorama to render.

When complete, you can view it in the Android **Photos** app. Panoramas are stored as .jpg files.

See [Working with photos and videos in the Android Photos app, page 56](#) for more information.

## Using the camera in Video mode


- Start the camera, and make sure Video mode is selected; tap the icon in the bottom right corner ( if you are in Still mode) and tap  .
- Use the front or rear camera to capture video, as required; tap  or  at the top of the screen.
- Use the viewfinder to frame the start of the video you want to capture, and adjust any other settings if required (see [Camera setting options, page 55](#)). The preview image changes as you change the settings.
- To start recording, tap  . The video starts recording and a timer displays at the top of the screen to indicate the length of the video.
- To pause recording, tap  at the top of the screen. Tap  to continue recording.
- To stop recording, tap  .

Before you start recording, or during a recording, you can pinch the screen in or out to zoom in or out (front and rear cameras).



The video you recorded is saved in the Android **Photos** app. Videos are stored as .mp4 files. See [Working with photos and videos in the Android Photos app, page 56](#) for more information.

## Camera setting options



The camera setting options are displayed on the camera screen, and indicate the current settings for the selected mode.

To access the camera settings, start the **Camera** app. Some settings are on this screen. For other settings, tap .

### Still mode settings

Store location	Turn geotagging on or off.
Picture size	1.3 to 13 Megapixel, depending on model of device.
Picture quality	Set required value. Normal to Jpeg 55%.
Countdown timer	Set required value. Off to 60 seconds.
Storage position	Store photos to the device's main memory or to an SD card.
Continuous shot	Turn on or off. When turned on, hold down  when capturing images; the camera takes continuous photos until you release  .
	<b>NOTE</b> – This setting is not available if HDR is turned on.
Select ISO	Set required value. Auto to ISO1600.
Exposure	Set required value. -2 to +2
	<b>NOTE</b> – This setting is not available if HDR is turned on.
White balance	Set the camera to adjust the white balance in different kinds of light: Incandescent, Fluorescent, Automatic, Daylight, Cloudy.
	<b>NOTE</b> – This setting is not available if HDR is turned on.
Redeye Reduction	Enable or Disable.
Restore defaults	

## Still mode settings

Effects	 Tap  at the top of the screen to set to None, Mono, Sepia, Negative, Solarize, Aqua, Emboss, Sketch, Neon. <b>NOTE</b> – These options are not available if HDR is turned on.
AUTO	Set to Auto. Portrait, Landscape, Sports, Flowers, Backlight, Candlelight, Sunset, Night, Beach, Snow.

## Video mode settings

Flash mode	On, Off.
Video quality	Set required value. QCIF to HD 1080p.
Video duration	Set required value. 30 seconds to No limit.
Storage position	Store videos to the device's main memory or to an SD card.
White balance	Set the camera to adjust the white balance in different kinds of light: Incandescent, Fluorescent, Automatic, Daylight, Cloudy.
Restore defaults	

## Working with photos and videos in the Android Photos app

To view, edit, share, or delete files in the Android **Photos** app, tap a thumbnail in the Camera app just after you have captured the file to open it in the **Photos** app, or in the **Apps** screen tap **Photos**.

- Tap the share icon (at the top of the screen) to send the image via Messaging, Bluetooth, or Email.
- Tap the menu icon (at the top of the screen) to access Delete, Edit, Rotate left, Rotate right, Crop, Set picture as, and Details options.
- Tap the edit (pencil) icon at the bottom left of the screen to edit the file.

To close the **Photos** app, tap  or .