# Trimble® CU (Model 3) User Guide



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This is the November 2010 release of the *Trimble CU* (Model 3) User Guide, part number 57059010 version 2.0. It applies to the Trimble CU (Model 3) controller.

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Trimble Navigation Limited warrants that this hardware product (the "Product") will perform substantially in accordance with published specifications and be substantially free of defects in material and workmanship for a period of one (1) year starting from the date of delivery. The warranty set forth in this paragraph shall not apply to software products.

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#### **Notices**

#### Australia and New Zealand

This product conforms with the regulatory requirements of the Australian Communications



N 324

Authority (ACA) EMC framework, thus satisfying the requirements for C-Tick Marking and sale within Australia and New Zealand.

#### Canada

This Class B digital apparatus complies with Canadian ICES-003

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as set out in the radio interference regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de Classe B prescrites dans le règlement sur le brouillage radioélectrique édicté par le Ministère des Communications du Canada.

This device has been designed to operate with an antenna having a maximum gain of 2.0 dBi. Antennas having a higher gain are strictly prohibited per regulations of Industry Canada. The required antenna impedance is 50 ohms. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (EIRP) is not more than that required for successful communication.

Operation is subject to the following 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.

Trimble CU (Model 3) part number 58055010 contains a Bluetooth device, BTunit03. Certification No.4399A-NT0003

Docking station 58252019 with power supply 78600019 and cable Hirose 6P-PC USB 73840019 (ferrite core cables) are included in the package with the host.

The accessories complies with the FCC/IC regulations, operated with the host. Use of others than the listed cables and accessories could void the user's authority to operate the equipment.

#### Europe

This product has been tested and found to comply with the requirements for a Class B device pursuant to European Council Directive 2004/108/EC on EMC, thereby satisfying the requirements for CE Marking and sale within the European Economic Area (EEA). These requirements are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential or commercial environment.

Trimble CU (Model 3) part number 58055010 contains a Bluetooth device that applies to the R&TTED 1999/5/EC and are intended to be used in all European Community member states.

The compliance to the applicable requirements is detailed in the official Declaration of Conformity document, which is filed at Trimble.

For product recycling instructions and more information, please go to www.trimble.com/ev.shtml.

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

#### Japan

Trimble CU (Model 3) part number 58055010 contains a radio module with certificate number: 011WWA10005.



#### USA

Class B Statement - Notice to Users.

NOTE: This equipment 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.

The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the device.

The antenna used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operated in conjunction with any other antenna or transmitter.

Trimble CU (Model 3) part number 58055010 contains a Bluetooth device, BTunit03. FCC ID: QKVNT0003.

Docking station 58252019 with power supply 78600019 and cable Hirose 6P-PC USB 73840019 (ferrite core cables) are included in the package with the host.

The accessories complies with the FCC/IC regulations, operated with the host. Use of others than the listed cables and accessories could void the user's authority to operate the equipment.

#### 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

#### Taiwan

Battery Recycling Requirements

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



# **Important Information**

#### **Environmental Information**

#### NOTICE FOR TRIMBLE'S EUROPEAN UNION CUSTOMERS

Trimble is pleased to announce a new recycling program for our European Union customers. At Trimble, we recognize the importance of minimizing the environmental impacts of our products. We endeavor to meet your needs, not only when you purchase and use our products, but also when you are ready to dispose of them. That is why Trimble is actively pursuing, and will continue to pursue, the expanded use of environmentally friendly materials in all its products, and why we have established a convenient and environmentally friendly recycling program.

As Trimble makes additional recycling facilities available for your use, we will post their locations and contact information to our Recycling Instructions web page.

For product recycling instructions and more information, please go to

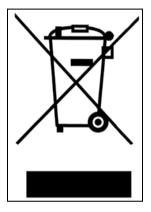


Recycling in Europe: To recycle Trimble WEEE, Call +31 497 53 2430, and ask for the "WEEE Associate"

Or

Mail a request for recycling instructions to:

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





# **Declaration of Conformity**



# **Declaration of Conformity (DoC)**

CE

Issuer's name:

Trimble AB

P.O. Box 64

SE-182 11 Danderyd

Sweden

Object of declaration:

Trimble® Control Unit Model 3

Type/Model

Part Number

Trimble CU Model 3

58055010

The object of declaration described above fulfils the requirements of the Low Voltage Directive 2006/95/EC (LVD) and is in conformity with the essential requirements of the EMC Directive 2004/108/EC (EMCD) and R&TTE Directive 1999/5/EC (R&TTED) based on the following European harmonised standards:

EMCD:

EN 61326-1:2006

(EMC for electrical equipment for measurement, control & laboratory use)

Emission: Group 1 / Class B ISM equipment.
Immunity: Requirements for equipment intended for use in industrial locations.

R&TTED: EN 50371:2002

EN 60950-1:2006 EN 301489-17 V2.1.1 EN 301489-1 V1.8.1

EN 300328 V1.7.1

Art. 3(1)(a) Health Art. 3(1)(a) El. Safety Art. 3(1)(b) EMC Art. 3(1)(b) EMC Art. 3(2) Spectrum

Signed for and on behalf of:

Trimble AB

Date:

October 07, 2010

Name and function:

Peter Fredriksson, Director of Engineering

Signature:

Trimble AB

SE-182 11 Danderyd, Sweden

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# Introduction

#### In this chapter:

- Welcome
- Related Information
- Technical Assistance
- Your Comments
- Registration

#### Welcome

This manual describes the features of the Trimble® CU (Model 3) and how to operate it. Even if you have previous experience of earlier Trimble controllers, Trimble recommends that you spend some time reading this manual to learn about the special features of this product.

In this user guide the Trimble CU (Model 3) is also referred to as the controller.

#### **Related Information**

Sources of related information include the following:

 Help – the application software has built-in, context sensitive help that lets you quickly find the information you need. The Help is also available on the software CD.

#### **Technical Assistance**

If you have a problem and cannot find the information you need in the product documentation, contact your local Distributor. Alternatively, do one of the following:

- Request technical support using the Trimble website at www.trimble.com/support/support.htm
- Send an e-mail to trimble\_support@trimble.com.

# **Your Comments**

Your feedback about the supporting documentation helps us to improve it with each revision. E-mail your comments to ReaderFeedback@trimble.com.

# Registration

To receive information regarding updates and new products please register on the Trimble web site.

www.trimble.com/register

# **Unpacking and Inspection**

#### In this chapter:

- Inspection
- What's in the box?

# Inspection

Inspect the shipping container. If it is received in poor condition, examine the equipment for visible damage. If damage is found, immediately notify the carrier and the Trimble sales representative. Keep the container and packing material for the carrier's inspection.

Also make sure that all parts listed in the table below are included in the shipment.

### What's in the box?

The contents in the box might vary depending on what has been ordered. The table below is an example.

Part	Connection/Use
Trimble CU (Model 3) Controller	
Docking Station	For connecting the controller to an office computer
Application Software CD	Software and User Guide
Docking Station Power Supply	Mains power to Docking Station, 12V 2A
Docking Station connection cable	6-pin Hirose/PC USB 2.5m
USB adapter cable	6-pin Hirose/USB 0.18m
Power cable	6-pin Hirose/Car cigarette lighter
Pack of 10 screen protectors	
Folding A4 card	Getting started, short form information

# The Trimble CU (Model 3)

#### In this chapter:

- Introduction
- Attaching and Detaching the Controller
- The Keyboard
- Power Management
- Touch Screen
- Setting the time and date
- Operating System
- Data Storage
- Connecting the Controller to an Office Computer
- Transferring data or files
- Bluetooth Wireless Technology

#### Introduction

This chapter describes the Trimble® CU (Model 3) controller and its most common features.



Figure 3.1 The Trimble CU (Model 3) controller

# **Attaching and Detaching the Controller**

The procedures for attaching/detaching the controller to a total station applies to the Docking Station, the Robotic Holder, and the GPS Holder.

To attach the controller

**1.** Hook the top of the controller over the top of the panel attachment. Figure 3.2.

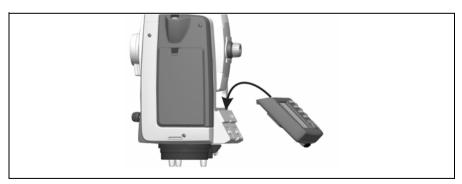


Figure 3.2 Attaching the controller

**2.** Push the controller toward the panel attachment until it locks into place with a click. Figure 3.3.



Figure 3.3 Locking the controller onto the panel attachement

To detach the controller:

- **1.** To turn off the power, press the green power button.
- 2. Push the lock release button at the bottom of the controller and then lift the bottom of the controller away from the instrument. Figure 3.4.

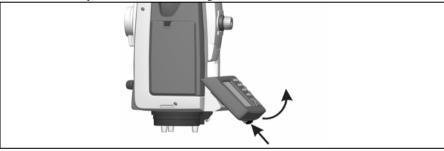


Figure 3.4 Unlocking the controller from the instrument

3. Unhook the top of the controller from the top edge of the panel attachment and remove it from the instrument. Figure 3.5.

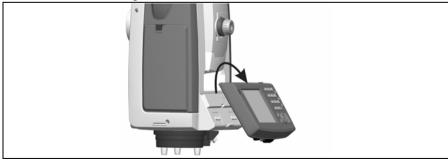


Figure 3.5 Removing the controller from the instrument

# The Keyboard

Data entry on the controller keyboard is similar to that of a cell phone. The " $\alpha$ " button scrolls between three different states of data entry; 123, ABC, and abc. Multiple presses on one key scroll through the letters on that key depending on which state you're in.

The Trimble CU (Model 3) also offers the standard Microsoft<sup>®</sup> Windows<sup>®</sup> functions of cut (Ctrl+X), copy (Ctrl+C), and paste (Ctrl+V).

#### Control functions

In addition to data entry and the standard Window functions, the controller has a number of control functions that are Trimble specific. These functions are described in the table below.

Table 3.1

Key	Control function
Ctrl + α	Toggle the backlight on/off
Ctrl + Trimble	Toggle the touch screen on/off
Ctrl + 7	Toggle the touch screen keyboard on/off
Ctrl + Enter	Display help. Corresponds to F1 on a computer.
Ctrl + ESC	Pop up the the Widows taskbar
Ctrl + .,	Enter a "-" or a "+" symbol
Ctrl + Back space	Delete
Ctrl + Spider key up	Print screen

### **Entering Information**

#### Entering text using the Input Panel keyboard

To display the Input panel keyboard press Ctrl + 7. Ctrl + 7 will toggle the input panel or Trimble keypad keyboard on or off depending on which keyboard that has been selected. The Trimble keypad is the default keyboard. To change to input panel keyboard follow the steps below:

1. Tap once on the Keyboard icon that is located in the Windows taskbar. In the image below the icon is identified by a circle.

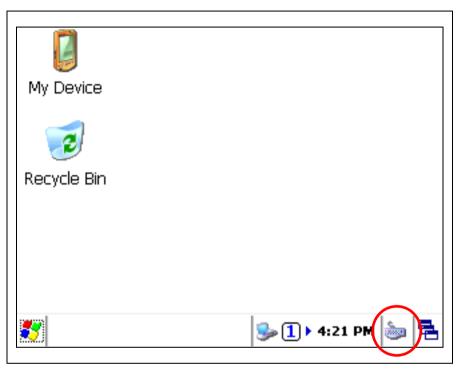


Figure 3.6 The keyboard icon

**2.** Tap once on Keyboard to select the input panel keyboard.



Figure 3.7 Selecting the input panel keyboard

The Input Panel keyboard allows you to input data as if you were typing on a physical keyboard. To change the keyboard to international symbols, tap the [áü] key, identified with a circle in the figure below. To access additional symbols, tap [Shift]:

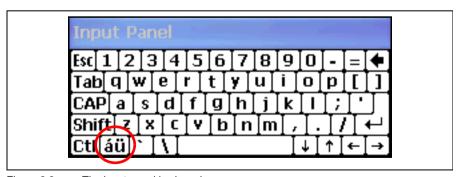


Figure 3.8 The input panel keyboard

To hide the input panel keyboard:

- 1. Tap once on the keyboard icon that is located in the Windows taskbar. See figure 3.6
- Tap once on Hide Input Panel.

or:

**1.** Press Ctrl + 7.

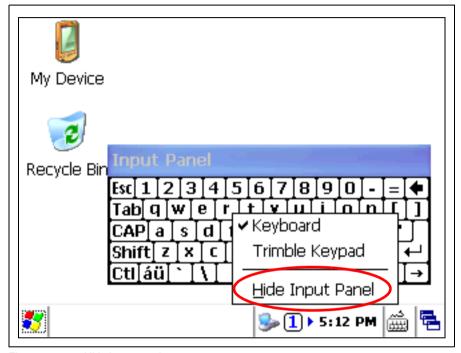


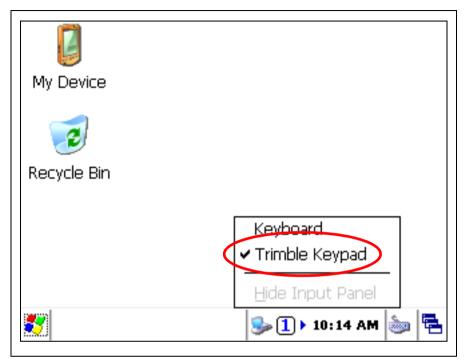
Figure 3.9 Hide input panel

#### Entering text using the Trimble keypad keyboard

Trimble has developed a keyboard similar to the Input Panel keyboard, but with larger keys.

To display the Trimble keypad keyboard press Ctrl + 7. Ctrl + 7 will toggle the input panel or Trimble keypad keyboard on or off depending on which keyboard that has been selected. The Trimble keypad is the default keyboard. To change keyboard to Trimble Keypad follow the steps below:

- **1.** Tap once on the keyboard icon. See figure 3.6
- **2.** Tap once on Trimble Keypad.



Selecting the Trimble keypad Figure 3.10

The Trimble Keypad allows you to input data as if you were typing on a physical keyboard.

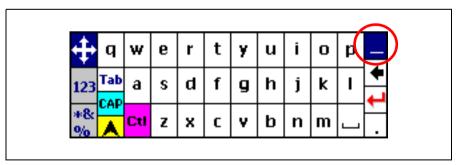


Figure 3.11 Trimble keypad keyboard

To hide the Trimble keypad keyboard:

- 1. Tap once on the keyboard icon that is located in the Windows taskbar. See figure 3.6
- **2.** Tap once on Hide Input Panel. See figure 3.9

or:

- 1. Tap once on the top right blue key, identified with a circle in the figure. See figure 3.11 or.
- **1.** Press Ctrl + 7.

# **Power Management**

The Trimble CU (Model 3) is powered from an external power source, such as a total station, Robotic Holder, GPS Holder, or a docking station.

The controller is equipped with an internal power source that enables you to remove the controller from one power source and attach it to another within a period of 0 - 30 minutes.

Note – It is important that you put the controller in suspend mode before you remove it from its power source. Otherwise the controller has to reboot when it restarts.

**Note** – Trimble does not guarantee that the actual suspend time will always be 30 minutes. The suspend time can be less than 30 minutes in colder temperatures.

### Trimble CU (Model 3) AC adaptor

International and US AC adaptor: This unit is a wall mount unit that does not require an additional power cord. The adaptor is supplied with replaceable socket adaptors. Use the adaptor that match the plug and voltage requirement of your local area. When traveling to another country bring the adaptor for that country.

Rated Voltage: 100-240 / V AC 50-60 Hz / 700mA

#### AC adaptor safety

- Use only the AC adaptor intended for the Trimble CU (Model 3).
- Using another AC adaptor can damage your product and may void your warranty.
- AC adaptors are designed for "INDOOR USE ONLY". Avoid using the AC adaptor in wet outdoor areas.
- Unplug the AC adaptor from power when not in use.
- Do not short the output connector.
- Do not attempt to repair a defective unit. There are no repairable parts inside the unit.

#### Turn the Controller On

Press the power key to turn on the controller. The controller will also turn on if it is attached to a powered docking station or instrument.

## Turn the Controller Off

To turn off the controller press the power key or instrument trigger key if attached to an instrument until the power key window is displayed.

The power key window will be displayed.



Figure 3.12 Power key window

Select Shutdown to turn off the controller.

### **Suspend Mode**

If not used for a pre set period of time the controller will go to Suspend mode. The function and time is set in the operating system, select for the set in the operating system is set in the operating system.

To go to suspend mode press the power key or instrument trigger key if attached to an instrument. The power key window will be displayed, select Suspend.

To turn the controller on press the power key or instrument trigger key if attached to an instrument. The controller will also turn on if attached to a powered docking station or instrument.

If the controller is attached to an instrument, the instrument and controller will stay in suspend mode for 2 hours. After this the instrument and controller will be turned off.

If the controller is attached to a docking station, the controller will stay in suspend mode until power is removed.

#### Restart

To restart the controller press the power key. The power key window will be displayed, select Options.

The power option window will be displayed.

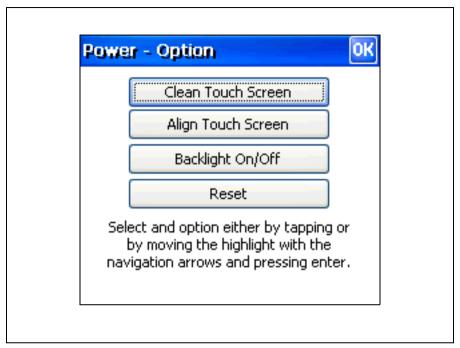


Figure 3.13 Power option window

Select Reset.



Figure 3.14 Restart controller.

Select Yes to restart the controller.

# **Touch Screen**

The Trimble CU (Model 3) LCD screen can be viewed easily both in direct sunlight and in overcast conditions. It also incorporates a touch interface for navigation. Tap elements on the screen with a stylus or your finger.

#### Calibrating the touch screen

If the touch screen does not respond properly when you tap it, recalibrate it as follows:

- 1. Tap the Start menu and select Settings/Control Panel/Stylus.
  - The Stylus Properties appears.
- **2.** To recalibrate, tap Recalibrate in the Calibration tab.
- **3.** Follow the prompts on the screen.

or:

- 1. Press the power key until the power key window is displayed.
- 2. Select Options.
- 3. To recalibrate, select Align Touch Screen.

# Disabling the touch screen

To clean the touch screen during a survey, press [Ctrl] + [Trimble] to disable it. To enable the touch screen again, press [Ctrl] + [Trimble].

or:

- 1. Press the power key until the power key window is displayed.
- 2. Select Options.
- **3.** To disable touch screen, select Clean Touch Screen.

# Display light

The display light is active by default and can be toggled on/off by pressing Ctrl +  $\alpha$ .

or:

- 1. Press the power key until the power key window is displayed.
- 2. Select Options.
- Select Backlight On/Off.

To change the default display light settings:

- 1. Tap the Start menu and then select Settings/ Control Panel/ Display.
- **2.** Select Display light and then make your changes.
- **3.** Tap OK.

# Setting the time and date

- **1.** Tap the Start menu and then select Settings/Control Panel/Date/Time. The Date/Time properties dialogue appears.
- 2. Change the date and time as required.
- 3. To accept the new settings, tap OK. To cancel, tap ESC.

# **Operating System**

The Trimble CU (Model 3) runs the Windows Embedded CE 6.0 R3 operating system.

# **Data Storage**

The Trimble CU (Model 3) has: a 1 GB NAND flash storage memory. The NAND flash storage memory is non-volatile, and protects valuable data and software against memory loss. It uses a robust file system to protect against data loss when power is remove unexpectedly.

# Connecting the Controller to an Office Computer

Use the docking station to connect the controller to an office computer:

- 1. Attach the controller to the docking station.
- 2. Connect the docking station power supply to power the controller. Figure 3.15
- 3. Use the docking station connection cable to connect the controller to the computer through the docking station comm port and the computer USB port.



Figure 3.15 Docking Station +12 V power and com ports

# Transferring data or files

To be able to establish a communication between a device like the controller and an office computer, a software that provides a way for this communication must be installed on the office computer.

For office computers with Windows XP or older Windows operating systems, Microsoft Active Sync is used to provide communication.

For office computers with Microsoft Windows Vista® or Mictrosoft Windows 7 operating systems, Microsoft Windows Mobile<sup>®</sup> Device Manager is used to provide communication.

### With Microsoft ActiveSync Technology

Microsoft ActiveSync® technology provides a way for devices such as the Trimble CU (Model 3) to communicate with desktop computers and laptops that run on Windows XP or older Windows operating systems. ActiveSync technology is already integrated into the operating system on the controller. However, you must install ActiveSync technology on the computer or laptop. You can install the software from the CD that was shipped with the Trimble CU (Model 3) or you can download the current version of ActiveSync Technology from:

http://www.microsoft.com

#### Connecting

Microsoft Active Sync technology will automatically establish communication when the controller is connected to the office computer via the docking station.

As default the controller will be connected as a guest.

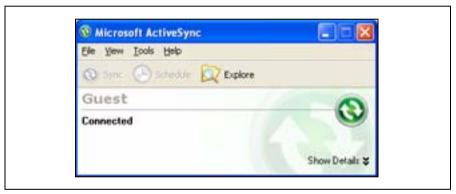


Figure 3.16 Microsoft ActiveSync Technology

To browse the files on the controller double click on Explore.

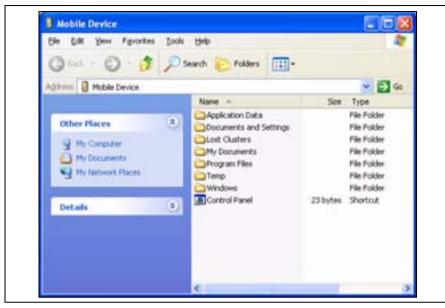


Figure 3.17 Mobile device in Explorer

For more information about ActiveSync Technology, refer to the help or visit the Microsoft website.

#### With Microsoft Windows Mobile Device Center

The Windows Mobile Device Center provides a way for devices such as the Trimble CU (Model 3) to communicate with desktop computers and laptops that run on Windows Vista or Windows 7 operating systems. However, you must install the Windows Mobile Device Center on the computer or laptop. You can download the current version of the Windows Mobile Device Center from:

http://www.microsoft.com

#### Connecting

The Windows Mobile Device Center will acknowledge when a Trimble CU (Model 3) is connected to the office computer via the docking station. The user will be prompted if communication is to be established.

Select Connect without setting up your device





The Windows Mobile Device Center Figure 3.18

To browse the files on the controller select File Management, Browse the content of your device or use the explorer directly.



Figure 3.19 Browse the contents of your device

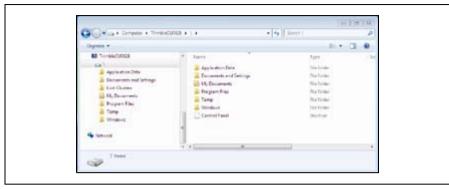


Figure 3.20 Mobile device in Explorer

For more information about the Windows Mobile Device Center, refer to the help or visit the Microsoft website.

# **Bluetooth Wireless Technology**

The Trimble CU (Model 3) is equipped with Bluetooth® wireless technology. The function is enabled by default and makes wireless communication with most other devices that have Bluetooth wireless technology possible. Uses for Bluetooth wireless technology include:

- File transfer application in the Start menu to transfer data to and from other Trimble CU Controllers.
- Browse and transfer files to and from your controller.
- Connect to the Internet through a cellphone equipped with Bluetooth wireless technology.

## Modifying your Bluetooth Wireless Technology settings

To modify your Bluetooth Wireless Technology settings:

- 1. Tap the Start Menu and then select Settings/Control Panel/Bluetooth Device Properties.
- 2. Make your changes.
- **3.** Tap OK.

# **Caring for the Trimble CU** (Model 3)

## In this chapter:

Maintenance

#### Maintenance

Trimble recommends the following to maintain the Trimble CU (Model 3) during everyday use, and to prevent potential physical damage and data loss.

Operating

 $-30^{\circ}$  C to  $+55^{\circ}$  C.

temperature

 $-40^{\circ}$  C to  $+70^{\circ}$  C. Storage

temperature

Shock The Trimble CU (Model 3) is designed and tested to withstand a drop

from a height of 1 meter onto plastic carpet on a concrete floor.

Environment The Trimble CU (Model 3) has been tested to meet the requirements

> of IP55 and EN 60529:1991 IP55, for water and dust. This means that the unit can be cleaned under running water and that dust will not

affect its performance.

Cleaning the case Clean the controller with a soft cloth dampened with clean water or

> with water containing a mild detergent. If the keyboard has dirt or grime on it, use compressed air, a vacuum cleaner, or rinse under

clean water.

Care of the touch

screen

Clean the screen with a soft cloth dampened with clean water or glass cleaner. Do not apply any cleaner directly on the screen. Apply the

cleaner to the cloth and gently wipe the screen.

Note - Do not use abrasive cleaners.

Applying a screen

protector

Use the screen protectors included with the unit to keep the touchscreen clean and protected. To apply a screen protector, first clean the display thoroughly. Peel the backing from the screen protector. Align the edge, and then drop the remainder onto the display. Use a credit card, if necessary, to squeeze the air from

underneath the screen protector.