



Trimble TCU5

Controller

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P/N 57104001-ENG

Legal Notices

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Release Notice

This is the August, 2020 release revision B of the **Trimble TCU5 Controller User Guide**, P/N 57104001-ENG. It applies to the Trimble TCU5 Controller.

The original document is written in English. All documents in other languages are translations from the original English document.

Product Warranty Information

For applicable product warranty information, please refer to the Warranty Card included with this Trimble® product, or consult your Trimble dealer.

Regulatory Information

For applicable regulatory information, please refer to the **Trimble TCU5 Controller Quick Start Guide / Regulatory Information Document** included with this Trimble product, or consult your Trimble dealer.

Registration


To receive information regarding updates and new products, please contact your local dealer or visit www.trimble.com/register. Upon registration you may select the newsletter, upgrade or new product information you desire.

Safety Information


- ▶ Power supply safety
- ▶ Service safety
- ▶ Safe environments of use
- ▶ Distraction
- ▶ Operation
- ▶ Touchscreen glass

Read this guide for important safety and health information that apply to the Trimble® TCU5 controller that you have purchased. Keep all printed guides for future reference. Failure to follow instructions and properly set up, use, and care for this product can increase the risk of serious injury or death, or damage to the device or devices.


Power supply safety

-  **WARNING** – Use only AC and vehicle adapters intended for the device. Other external power sources may damage your product and void the warranty.
- Ensure the input voltage on the adapter matches the voltage in your location.
 - Ensure the adapter has prongs compatible with your outlets.
 - The AC power supply is designed for indoor use only. Avoid using the AC power supply in wet areas.
 - Unplug the power supply from power when not in use.
 - Do not short the output connector.


Service safety

-  **WARNING** – Do not attempt to take apart, open, service, or modify the product, accessories, or power supply. Doing so could present the risk of electric shock or other hazard. Any evidence of any attempt to open and/or modify this device, including any peeling, puncturing, or removal of any of the labels, will void the Limited Warranty.


Safe environments of use

-  **WARNING** – Areas with potentially explosive atmospheres are often, but not always, posted and can include fueling areas, such as below decks on boats, fuel or chemical transfer or storage facilities, or areas where the air contains chemicals or particles, such as grain dust, or metal powders. When you are in such an area, turn off your mobile device, and do not remove or install battery chargers, AC adapters, or any other accessory. In such areas, sparks can occur and cause an explosion or fire.

Distraction

-  **WARNING** – Using the device in some circumstances can distract you and may cause a dangerous situation. Observe rules that prohibit or restrict the use of mobile devices (for example, avoid operating the device while driving a vehicle).

Operation

-  **CAUTION** – If the equipment is used in a manner not specified by Trimble, the protection provided by the equipment may be impaired.

Touchscreen glass



CAUTION – The touchscreen on this device is made of glass. This glass could break if the device is dropped on a hard surface or receives a significant impact. If the glass chips or cracks, do not touch or attempt to remove the broken glass. Cracked or chipped glass due to misuse or abuse is not covered under the product's limited warranty.

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Introduction

- ▶ [About the Trimble TCU5 Controller](#)
- ▶ [Related information](#)
- ▶ [Technical support](#)
- ▶ [Registration](#)
- ▶ [In the box](#)

This user guide describes how to use the Trimble TCU5 controller powered by the Android™ operating system. The information in this guide supplements the information in the Quick Start Guide, which you receive in the box with the device.

Even if you have used other Trimble® handheld or field computers before, Trimble recommends that you spend some time reading this guide to learn about the special features of the product.

Throughout this user guide the Trimble TCU5 Controller will be referred to as the controller.

 **WARNING** – Before you use this product, make sure that you have read and understood all safety requirements. Failure to follow these safety instructions could result in fire, electric shock, or other injury, or damage to the device and/or other property. For more information refer to [Safety Information, page 3](#) of this guide.

About the Trimble TCU5 Controller

The Trimble TCU5 controller is an attachable controller designed to run the field software for surveying. The controller can be attached to the Trimble S5, S7 and S9 total stations, or can be used with the Robotic Holder model 2 or Docking Station model 2.



Related information

For more information about this product, please go to www.trimble.com.

Technical support

If you have a problem and cannot find the information you need in the product documentation, please contact your local distributor or request technical support at www.trimble.com.

Registration

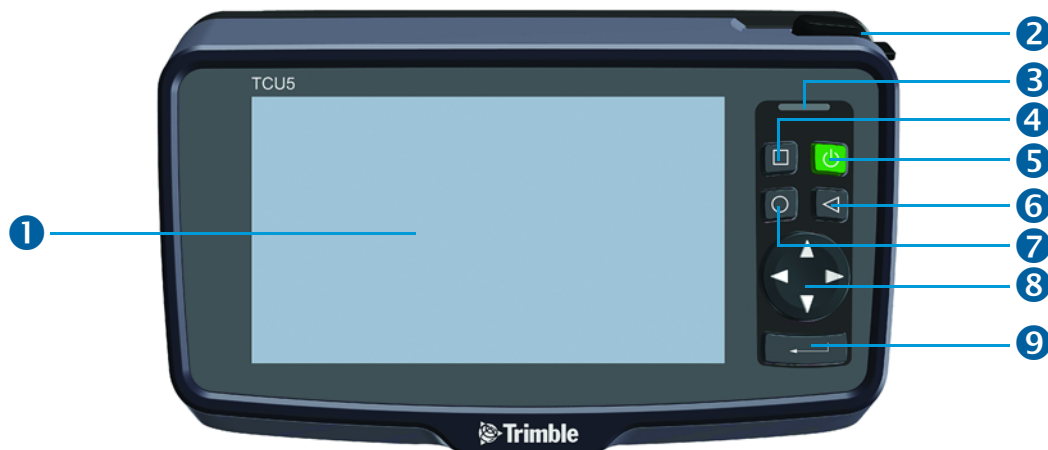
To receive information regarding updates and new products, contact your local dealer or visit the Trimble customer registration website at www.trimble.com/register or go to <http://mytrimbleprotected.com/cc/productsRegistration.html>. When you register your device, you can select the newsletter, upgrade, or new product information. To register your device, you will need the serial number. The serial number is a unique number for your controller and is located on a label on the back side of the controller.

In the box

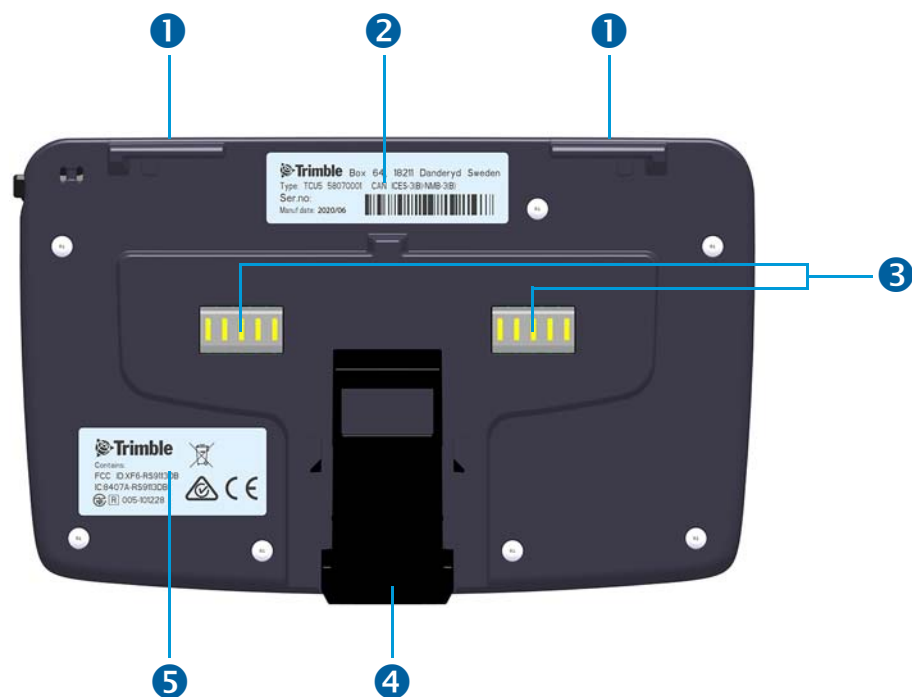


Item	Description
1	TCU5 Controller, including screen protector
2	Docking Station Model 2
3	Stylus with tether cord and extra tip
4	Power Supply
5	Declaration of conformity
6	Warranty activation card
7	Quick Start Guide/Regulatory Information Document
8	Hirose-to-USB (PC) cable
9	Hirose-to-USB stick cable or compact flash card reader

Features



Item	Description
1	Touch screen display with screen protector
2	Stylus
3	Speaker
4	Android Overview key. Opens thumbnails of items you've worked with recently.
5	On/Off key: Press to turn on. If on, long press to open the power menu. Short press for sleep mode. If in sleep mode, short press to wake device.
6	Android Back key. Returns to the previous screen you were working in.
7	Android Home key. Returns to the Home screen.
8	D-Pad. Controls up, down, left and right direction.
9	Enter key



Item	Description
1	Catch
2	Identification label
3	Power and communication connectors
4	Lock release
5	Regulatory label

Setup and Operation

- ▶ Tethering the stylus
- ▶ Operation
- ▶ Power modes
- ▶ Touchscreen
- ▶ Display settings

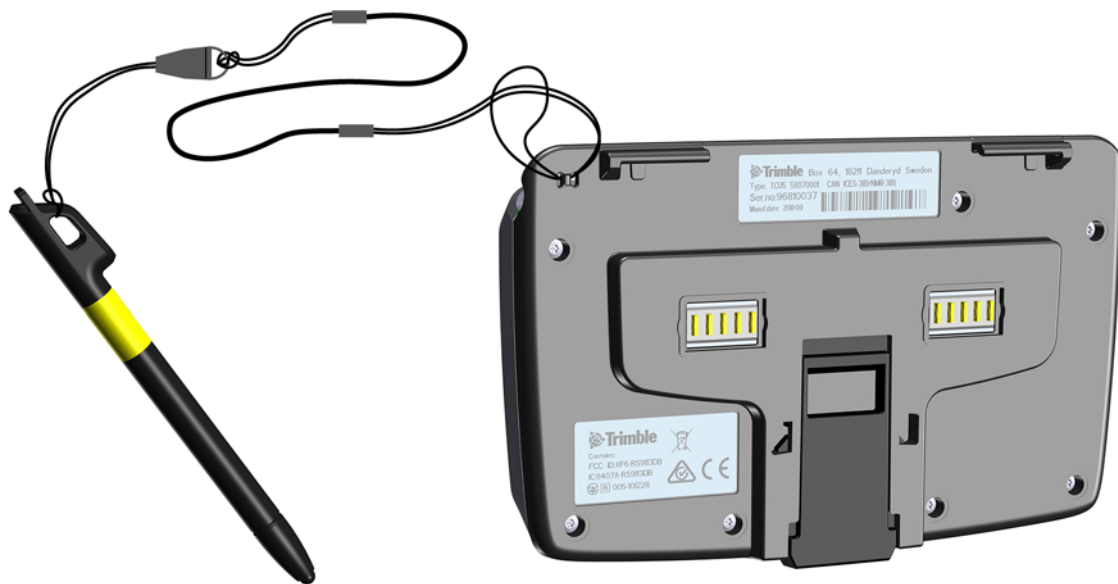
This section tells you how to get started using your controller and explains some basic operating system features.

Tethering the stylus

Attach the stylus to the controller to prevent accidentally dropping the stylus. The stylus is supplied with one end of the tether cord pre-looped to the stylus.

To tether the stylus to the controller:

1. Take the loose end of the tether cord and push it in through the right hole from the back side of the controller.
2. Push the loose end of the tether cord out through the left hole.
3. Feed the stylus through the loop and pull tight.
4. Place the stylus in the stylus dock to store it when not in use.



Operation

The controller does not have an internal battery for operation. It needs to be connected to a power source.

The controller can be connected to the following power sources:

- Trimble S5, S7 or S9 total station
- Robotic Holder Model 2
- Docking Station Model 2

To avoid restarting the controller when it is moved between power sources, it can be set in suspend mode.

When the controller is in suspend mode and has been removed from the power source, it needs to be reconnected to a power source within 15 seconds to avoid a reboot.

To move the controller between two power sources without reboot:

1. Press and hold the **on/off** key until the power menu appears.
2. Select **Suspend**.

3. Wait until the display is switched off.
4. Detach the controller from the power source it is connected to.
5. Within 15 seconds, move and attach the controller to another power source.
6. When connected, the controller will automatically wake up from suspend mode.

In the Office

The items needed to set up the controller in the office are delivered with the product:

- Docking Station Model 2
- Power supply
- Hirose-to-USB (PC) cable

The Docking Station will work as an interface for the power supply to the controller and communication to and from the controller.

⚠ CAUTION – The power supply for the Docking Station Model 2 is intended for indoor use only and shall not be exposed to moisture or liquids.

Attaching

To attach the controller to the Docking Station:

1. Hook the catches in place on the Docking Station.
2. Push towards the Docking Station until it locks in place.

Detaching

To detach the controller from the Docking Station:

3. Push the lock release to unlock from the Docking Station.
4. Remove from the Docking Station.



Connecting

When the controller is attached to the Docking Station, power supply and communication can be connected to the Docking Station.

To connect a power supply:

1. Select and connect the correct mains adapter to your power supply.
2. Connect the power supply to main power.
3. Attach the power supply Hirose connector to the connector on the Docking Station marked +12 Volt.

To connect communication:

4. Attach the Hirose-to-USB (PC) cable to the connector on the Docking Station marked COM.



In the Field

For power supply and communication in the field, the controller can be attached to a Trimble S5, S7 and S9 total station; or a Robotic Holder Model 2.



Trimble S5, S7 and S9 total stations



Robotic Holder Model 2

Power modes

Turning the device on

To turn on the device, press the **On/Off key**. Swipe up on the touchscreen to enter a PIN or password, if one has been set.



CAUTION – If the equipment is used in a manner not specified by Trimble, the protection provided by the equipment may be impaired.

Sleep mode

If you don't use the controller for a few minutes, the screen may turn off and the device goes into a power-saving Sleep state. Sleep allows your device to resume quickly when you want to start working again.

To force your device to Sleep, press the **On/Off key**.

Waking and unlocking the device

To wake the screen when it has turned off, press the **On/Off key** or **Back key**.

Depending on your security settings, your device may be locked. To unlock it, swipe the screen then enter your password, PIN, or unlock pattern.

Restarting the device

To restart your device, press and hold the **On/Off key** until the Power menu appears, then tap **Restart**.





Turning off the device



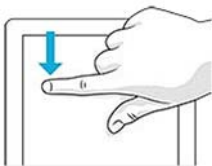
To turn off the device, press and hold the **On/Off key** until the Power menu appears, then tap **Power Off**.

Touchscreen

Your controller can be easily operated with the touchscreen (using your fingers, a stylus, or a glove).

The table below describes the main touchscreen input gestures and functions supported on this device.

Action	Performance	Description
Tap 	Tap once on something.	Opens/executes the action of what you tap on. To enter text, tap where you want to type; the on-screen keypad appears.
Press and hold 	Press and hold your finger or the stylus down for a few seconds.	Shows a menu with options related to what you're doing (like right-clicking with a mouse). On the pop-up menu that appears, tap the action you want to perform.
Slide / swipe 	Slide / swipe your finger or the stylus across the screen.	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. Scrolls vertically or horizontally.
Drag 	Drag your finger or the stylus across the screen.	Hold your finger or the stylus on an item for a moment and then, without lifting your finger/the stylus, move across the screen until you reach the target position. Drag in a list to select multiple items. Drag items on the screen to reposition them.

Action	Performance	Description
Pinch / stretch 	Pinch your thumb and forefinger together or move them apart.	Zooms in or out of a website, map, or picture.
Rotate 	Put two or more fingers on an item and then turn your hand.	
Swipe from top 	Swipe down from the top of the screen.	Displays the Notifications bar.

Touchscreen mode

For best touchscreen performance, the touchscreen can be set to different modes depending on your choice.

To change the touchscreen mode:

1. Press and hold the **On/Off key** until the selection menu appears.
2. Depending on your preferred choice, select between:
 - **Touch: Wet, stylus.** Offers best performance when using the stylus.
 - **Touch: Wet, finger/glove.** Offers best performance when using your fingers or glove.
 - **Touch: Generic mode.** Offers the best average performance when alternating between stylus, fingers or glove.
3. The selection is confirmed.

NOTE – The **Generic mode** is the default setting. Each time the controller is restarted, it will start in Generic mode.

Using an on-screen keypad

You can type on the device using a touchscreen keypad. To access the touchscreen keypad, tap in a text field. To hide the keypad, tap anywhere out of the text field or press the Android Back key.

Using the stylus

To make a selection, tap the screen once on the item you want to select. To display a Right Click Menu, tap and hold an item on the screen, then tap the required menu item.

NOTE – Trimble recommends that you use the Trimble TCU5 Controller stylus accessory. There are many other capacitive touch styli available that will work with the controller as long as they have a rubber tip; however the stylus available as an accessory is tuned for the TCU5 Controller display and it fits into the stylus holder. Trimble offers no guarantee that other styli will work.

Cleaning the touchscreen

The touch screen can be disabled for cleaning.

1. Press and hold the **On/Off** key until the power menu appears.
2. Select **Clean Touch Screen**.
3. The touch screen is now disabled for cleaning.
4. Press **Back** key to enable the touchscreen and exit.

Display settings

Adjusting the back-light

The controller is equipped with a high brightness outdoor readable display. You can easily increase the brightness of the display to increase the readability of the device in bright sunlight conditions, or turn down the brightness to help conserve battery power when working indoors or in dull conditions.

To quickly adjust the back-light setting:

1. Swipe down with the stylus/finger from the top edge of the screen to open the **Quick Settings bar**.
2. Select the **down arrow** to display more options.
3. Slide the **back-light slider** left or right to adjust the brightness.

Or you can adjust the back-light setting from the settings app:

1. Open the **Settings app**.
2. Tap **Display**.
3. Tap **Brightness level**.
4. Slide the **back-light slider** left or right to adjust the brightness.

Operating System

- ▶ The main Android interface
- ▶ Using Apps
- ▶ Power menu

This section introduces some basic information on using the Android 7.1 operating system on the Controller.

The main Android interface

When you start your device for the first time, the main Home screen appears. Here you can add app icons and widgets (an at-a-glance view of the apps most important information) to your Home screen(s). The main parts of the screen and keyboard are:



Item	Description
1	Notifications. To see notifications, swipe down from the top of the screen with one finger or once with stylus.
2	Status bar & Settings. The status bar shows the Wi-Fi signal strength the time and active settings. To open all Settings swipe down from the top of the screen, then tap the Settings icon. To open Quick Settings (frequently used to settings), swipe down from the top of the screen twice with one finger/stylus, or once with two fingers.
3	Android Overview key. Opens thumbnails of items you've worked with recently. To open an item, tap it. To close an application, swipe it left or right or tap x in its top right corner.
4	Android Back key. Returns to the previous screen you were working in, even if it was in a different app. Once you are back on the Home screen, you can't go back any further.
5	Android Home key. Returns to the Home screen.
6	Apps launcher. Opens the Apps screen.
7	Home screen. To move between Home screens if you have more than one, swipe left or right.

Adding apps to a Home screen

1. From the Home screen (or any Home screen if you have more than one) open the Apps screen.
2. Swipe down or from left to right to find the app you want.
3. Touch-hold the app until the Home screen appears, then slide the app icon to where you want to place it, and lift your finger off the screen.

Removing apps from a Home screen

To remove an app icon from the Home screen without removing it permanently from your device:

1. Touch and hold on the app icon.
2. While holding on the app icon slide the icon towards the X in the top left corner of the screen.
3. When the icon is on the X it will turn red.
4. Release the icon by lifting your finger or stylus off the screen.

Uninstalling apps

To uninstall an app permanently from your device:

1. Select **Settings**.
2. Scroll down and select **Apps**.
3. Tap on the app you want to uninstall.
4. Select **Uninstall**.

Using Apps

To see all your apps, including those that come with your device and those you downloaded, tap the App launcher on a Home screen:

On the Apps screen:

- To open an app, tap its icon.
- To place an app icon on a Home screen, see [Adding apps to a Home screen](#).

Power menu

Press and hold the **On/Off** key to make the power menu available.

The following can be selected from the power menu:

- **Power off:** Turns controller off.
- **Restart:** Restarts the controller.
- **Clean Touch Screen:** Disables the touchscreen so that it can be cleaned.
- **Suspend:** Enables the controller to be moved from one power source to another without rebooting. The controller needs to be reconnected to a power source within 15 seconds to avoid reboot.
- **Touch: Wet, stylus:** Offers best performance when using the stylus.
- **Touch: Wet, finger/glove:** Offers best performance when using your fingers or glove.

- **Touch: Generic mode:** Offers the best performance when alternating between stylus, fingers or glove.
- **Touch: Update FW:** Updates the touchscreen firmware.

Data Communication and Updates

- ▶ [Wireless Data Communication](#)
- ▶ [Cable Data Communication](#)
- ▶ [Firmware Update](#)
- ▶ [Field Software Update](#)

This section describes how to connect the controller for data communication and update.

Wireless Data Communication

The controller offer Wi-Fi wireless data communication with support for both 2.4GHz and 5 GHz.

Wi-Fi

By using Wi-Fi you can connect to a wireless network and browse the Internet, download apps, send email messages, access online services, or access other computers and devices on your network.

Before you can send and receive data over Wi-Fi, you need to turn on Wi-Fi on your controller and connect to a wireless network.

Connecting to Wi-Fi

1. Select **Settings**.
2. Select **Wi-Fi**
3. To see available networks, tap the **slide bar** to turn on Wi-Fi.
4. A list of available wireless networks appears.
5. Tap on the **Wi-Fi network** you want to connect to.
6. If the network is secured you are prompted to enter a password.

Once you are connected:

- Connected shows under the network name.
- The Wi-Fi network is a Saved network. When in range, your device automatically connects to it.

Disconnecting from Wi-Fi

1. Select **Settings**.
2. Select **Wi-Fi**
3. Tap the **slide bar** to turn off Wi-Fi.
4. The list of available wireless networks disappears.

Forgetting a Wi-Fi network

If you do not want your device to automatically connect to a saved Wi-Fi network, your controller can forget that network.

To forget a wireless network so it no longer appears in your list of networks:

1. Select **Settings**.
2. Select **Wi-Fi**.
3. To see available networks, tap the **slide bar** turn on Wi-Fi.
4. A list of available wireless networks appears.
5. Tap on the **Wi-Fi network** you want your controller to forget.
6. Select **Forget**.

Advanced Wi-Fi settings

You can change the advanced Wi-Fi settings on your device.

1. Select **Settings**.
2. Select **Wi-Fi**.
3. Select **Settings** by tapping the **settings icon**.
4. Tap an available setting option:
 - Select **Saved networks** to see a list of your saved networks.
 - Select **Network notification** On to get a notification when your device finds a Wi-Fi network to which it can connect.
 - Select **Keep Wi-Fi on during sleep** to select if Wi-Fi should be on in sleep mode:
 - Always on
 - Only when plugged in
 - Never

Here you can also view the MAC address and IP address.

Configure proxy settings

To connect to a Wi-Fi network via a proxy:

1. Select **Settings**.
2. Select **Wi-Fi**.
3. On the Wi-Fi screen, tap-hold the **Wi-Fi network** name.
4. Tap **Modify** network.
5. Scroll down if required and tap the **Advanced options** drop-down menu.
6. Tap the **Proxy** drop-down menu, and select the required option:
 - None
 - Manual
 - Proxy Auto-Config.
7. If necessary, enter the proxy settings.
8. Tap the **IP** settings drop-down menu, and select the required option.
9. Tap **Save**.

NOTE – Proxy settings must be set up separately for each Wi-Fi network.

Managing Wi-Fi from the Quick Settings

You can quickly turn Wi-Fi on or off, or switch networks, from the Quick Settings on a Home screen.

To turn Wi-Fi on or off:

1. Swipe down from the **status bar** once.
2. To turn Wi-Fi on if it is off, tap the **Wi-Fi icon**.
3. To turn Wi-Fi off if it is on, tap the **Wi-Fi icon**.

To change network:

1. Swipe down from the **status bar**.
2. Tap the **drop-down arrow** next to the Wi-Fi icon to see available networks.
3. Tap on the **network name** of your choice to change network.

Airplane mode

If you are traveling on an airplane, use Airplane mode to turn off all wireless radios with transmitting features built into the controller.

To turn Airplane mode on or off:

1. Swipe down from the top edge of the screen to open **Quick Settings**.
2. Tap **Airplane mode** to turn it on. If it is on, tap to turn it off.

Cable Data Communication

The controller offers two different possibilities for data communication using cable:

- Hirose-to-USB cable to connect a computer
- Hirose-to-USB Adapter cable to connect a memory stick

USB Cable

You can transfer data to a device powered by a Windows® operating system or to a MacOS device using the Hirose-to-USB (PC) cable supplied with the controller.

For the Windows operating system:

1. Unlock the screen on the controller.
2. Use a Hirose-to-USB (PC) cable to connect the controller via the Docking Station Model 2 to the Windows device.
3. When you are done, unplug the USB cable.

For a MacOS device:

To transfer files, you must have Android File Transfer installed on your device. Android File Transfer is compatible with MacOS X 10.5 or later and Android 3.0 or later.

1. Download and install Android File Transfer on your device.
2. Open Android File Transfer. (The next time that you connect your device, it should open automatically.)
3. Unlock the screen on the controller.
4. Use a Hirose-to-USB (PC) cable to connect the controller via the Docking Station Model 2 to the MacOS device.
5. When you are done, unplug the USB cable.

USB Memory Stick

You can transfer data to a computer using a memory stick connected to the Hirose-to-USB stick cable supplied with the controller.

1. Connect the Hirose-to-USB stick cable to the controller via the Hirose COM connector on the Docking Station Model 2. or Robotic Holder Model 2.
2. Connect a memory stick the Hirose-to-USB Adapter cable.
3. Swipe down from the top of the controller screen to see your **notifications**.
4. Select **Explore** for your memory stick in the notification field.
5. From the drop-down menu in the top left corner, select to explore the files on the TCU5 or memory stick.
6. To copy or move a file tap and hold on the file to be selected.
7. From the drop down menu in the top right corner, select **Copy to...** or **Move to...**
8. Select where to copy or move the selected file.
9. Select **Copy** or **Move**.
10. To remove your memory stick, swipe down from the top of the controller screen to see your **notifications**.
11. Select **Eject**.
12. Remove the memory stick. The memory stick can now be transferred to another device.

Firmware Update

To update the firmware the controller needs have access to the Internet:

NOTE – Updating the firmware will not affect any data on the controller.

1. Select **Settings**.
2. Scroll down and select **About tablet**.
3. Select **Check for update**.
4. Swipe down from top of the display to open the **Notification bar**.
5. Select **Upgrade** to start.
6. The progress of the upgrade will be displayed.
7. When the upgrade is complete, you will be prompted to **Reboot** the controller to activate the update.

Field Software Update

The field software Trimble Access™ is updated with the app Trimble Installation Manager (TIM).

NOTE – Updating the Trimble Access field software will not affect any data on the controller.

1. Start the **TIM** app.
2. The TIM app will search for available updates.
3. Select **OK** to start the update.
4. Follow the instructions on the screen.