

CUSTOMER FAQs

APRIL 2021

TRIMBLE TSC5 CONTROLLER

What is the TSC5 controller?

The Trimble® TSC5 controller is a new rugged-yet-lightweight field solution that continues Trimble's legacy of creating high-quality controllers for land and civil construction surveyors. Built for practical, everyday tasks, the Trimble TSC5 combines high performance and dependability so professionals can complete tasks efficiently and accurately.

The Trimble TSC5 features a brightly lit, anti-glare 5-inch landscape screen, a backlit international QWERTY keyboard with numeric, function and directional keys, enabling fast, reliable and efficient field data collection in tough conditions, even while wearing gloves. Its ergonomic design is lightweight and easy to grip, yet sufficient for rugged environments and resistant to shock, dust and water. The controller's battery provides all-day power on a single charge, with the optional battery nearly doubling the power for extended use.

Featuring an Android 10 operating system and Qualcomm processor, the TSC5 is fast and efficient with built-in Bluetooth, Wi-Fi, GNSS, worldwide WWAN, and a rear facing camera, making it easy to capture videos and images, send and receive emails, and access the Internet.

The Trimble TSC5 is the must-have controller for survey fieldwork and is fully integrated with Trimble's survey-grade instruments and software packages, including Trimble Access™ Field Software and Trimble Siteworks Software. The TSC5 also supports the Trimble EMPOWER Module system, for use with the EM120 (Long Range Radio), EM100 (GNSS), and EM11X family (RFID/Barcode readers).



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What are the key features of the Trimble TSC5 controller?

5" rugged outdoor touch screen viewable in all conditions, backlit international QWERTY keyboard with numeric, function and directional keys, rugged yet ergonomic and lightweight design tested to military MIL-STD-810H and IP65 standards, all day battery life with internal batteries, with an optional user removable battery pack for even longer operation, GMS certified Android® 10 operating system, up-to-date connectivity with built in Wi-Fi, GNSS, Bluetooth, Worldwide WWAN and a rear facing camera.

What is in the Trimble TSC5 controller packout?

The Trimble TSC5 controller, AC power adaptor with regional plugs and USB-C port, USB-C (male) to USB-C (male) cable for charging and data transfer, glass screen protector, stylus & tether, Philips #1 screwdriver, handstrap, carry case and quick start guide.

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Physical Specifications

What are the environmental performance characteristics of the Trimble TSC5 controller?

The TSC5 has an IP-65 rating which protects the device against water spray and dust intrusion, and military spec MIL-STD-810H for protection against drops, temperature shock, solar exposure, humidity, salt spray and vibration, and for operation in the most extreme temperatures and altitudes.

For more details please refer to the datasheet.

<https://geospatial.trimble.com/products-and-solutions/trimble-tsc5#plp-resources>

<https://heavyindustry.trimble.com/resources/datasheet-brochures-english/trimble-tsc5-controller-datasheet-english>

Which screws are intended to be unscrewed by users?

Only Phillips (cross tip) screws are intended to be unscrewed by users. They are used to attach modules and the covers of the optional battery / SIM card slot. Do not unscrew any other screws; you might damage a water and/or

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dust-tight sealing. Other screws should only be unscrewed by Trimble Authorized Service Providers.

Keyboard

What keyboard options are available? Can I change the keyboard?

There is one QWERTY keyboard layout available. You can have the keyboard replaced by a Trimble Authorized Service Provider if it is damaged.

How many function keys does the Trimble TSC5 controller have?

The Trimble TSC5 controller has 12 physical F-keys (function keys). F1-F6 are located next to the left and right side of the D-pad (directional pad), and F7-F12 are located below the numeric keypad.

How do I set up Function keys and what can they do?

The Function keys may be configured within Trimble Access or 3rd party software applications, but not within the OS settings.

Is the keyboard backlit?

Yes, TSC5 has an adjustable backlit keyboard. It can be adjusted manually or automatically under **Settings > System > Languages & input > Physical keyboard > Built-in Keyboard**. The TSC5 uses the ambient light sensor on the display and uses this for automatic adjustment if this setting is turned on.

Screen

What is important to know about projective capacitive touchscreens?

Capacitive touchscreens are very common in today's tablet computers and smartphones. The Trimble TSC5 controller has a capacitive touchscreen that is highly responsive to the touch of a finger, as well as a capacitive stylus. You can easily zoom into images or data (if the software used supports dual touch user interface).

The capacitive touchscreen is based upon the user being a conductor to enable the touchscreen properties. If you are wearing gloves, such as during very cold weather, Trimble recommends using gloves that are designed for capacitive touchscreens; otherwise, use the stylus.

It is important to select the appropriate touch mode when using fingers, stylus or gloves.

The capacitive screen also works in the rain. However in heavy rain or when you wipe the screen, false contacts may happen. Using the screen protector with finger mode helps with false contacts. To wipe off the display, you can use the "Clean Screen" function combination Fn+1. Press any key to unlock the touchscreen. You may also put the TSC5 in suspend mode by pressing the power button briefly.

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How do I change the "Touch Modes"?

Use the Touch Panel Mode settings app pre-installed on the Trimble TSC5 controller to switch between stylus, finger, or (conductive) glove mode, or access them quickly from the Quick Settings Menu.

To select or switch between Finger, Glove, and Stylus mode:

- Swipe down on the Notifications bar at the top of the Home screen to access Quick Settings.
- Tap the touch mode icon to cycle through Finger / Stylus / Glove modes or swipe down a second time to view the icon and text and cycle through the 3 modes.

You can also open the Touch Panel Mode settings to select or switch between Finger, Glove, and Stylus mode:

- Swipe down on the Notifications bar at the top of the Home screen then swipe down again and tap the Settings icon.
- Select Display then tap the Advanced dropdown.
- Select Touch Panel Mode and choose between Finger, Stylus or Glove Mode.

When using the device in the rain, Trimble recommends that you use Finger mode, with a screen protector installed.

Why do I have to change touch screen modes when switching between finger and stylus?

The capacitive touchscreen responds differently to the different characteristics of fingers, styli, and gloves. For optimal response Trimble recommends that you select the appropriate mode.

If I lose my stylus, can I use a non-Trimble stylus?

Yes, there is a wide variety of capacitive touch styli available that will work with the Trimble TSC5 controller as long as they have a rubber tip. However the stylus available as an accessory is tuned for the Trimble TSC5 controller's display and it fits into the stylus holder. Trimble cannot guarantee other styli will work and recommends that you order a replacement Trimble stylus.

Do I have to use Trimble-provided gloves for my touchscreen to work?

No, but you do need to use gloves designed for use on projective capacitive touchscreens. There are plenty of touchscreen safety gloves available; Trimble does not provide gloves.

Do I need a screen protector?

Yes. Trimble strongly recommends using a screen protector as it protects the screen long term. The screen protector is provided in the box with the Trimble TSC5 controller and is also available as an accessory. Although the screen of the Trimble TSC5 controller is hardened glass, it may show scratches over time. The screen protector also protects the screen from UV radiation and provides better response in the rain.

How do I apply the screen protector?

The TSC5 controller is fitted with a mechanically strengthened glass touchscreen which is highly resistant to abrasion and impact damage. However to ensure maximum protection, it is recommended that you use a Trimble-approved glass TSC5 controller screen protector. **Make sure the screen is clean before you apply the screen protector;** any

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dust or dirt between the screen and screen protector will be visible and degrade your display experience.

To install a screen protector:

1. Place the device on a clean, flat surface. Make sure your hands are clean.
2. Clean the touchscreen with the supplied alcohol wipe.
3. Polish and dry the screen with the lint-free cleaning cloth supplied.
4. Remove any dust specs with the supplied dust sticker.
5. Remove the protective film from the screen protector.
6. Align the screen protector with the bottom of the glass display. Use the TSC5 controller badge at the top of the keyboard as a guide, leaving a small, evenly spaced gap around all edges. The screen protector should line up evenly with the TSC5 controller label and the edges of the device.
7. Carefully lay the screen protector down on the screen. If you make a mistake and the glass looks off-center, you can gently lift the screen protector up and realign it. Then, once the protector is on the screen, give it a soft press in the center and allow the adhesive surface to grip to the screen naturally.
8. If there are any bubbles remaining, use the cloth provided to gently smooth them toward the edges of the screen protector.

For more information on where to purchase the correct screen protector for your device, contact your local Trimble reseller.

How do I lock the screen rotation?

The TSC5 controller is equipped with orientation sensors that can detect if your device is in portrait or landscape orientation. The operating system can automatically adjust the display to match your device orientation, or you can lock the orientation. The screen is in landscape mode by default.

Swipe down from the top of the screen to display the Quick Settings bar.

- If auto-rotate is turned off, the auto-rotate icon is not visible; Portrait or Landscape will be displayed instead. Tap to turn on auto-rotate .
- If auto-rotate is turned on, the auto-rotate icon is visible. You can:
 - Tap to toggle auto-rotate Off.
 - Lock the orientation. Orientate the device to Portrait or Landscape, then tap to turn off auto-rotate and lock the device in the selected orientation.

Accessories

What optional accessories are available for the Trimble TSC5 controller?

The following optional accessories are available for the TSC5 controller: TSC5/TSC7 shoulder sling, TSC5 Pole mount bracket, TSC5/TSC7 quick release pole mount clamp with adjustable arm, USB-A (male) to USB-C (male) data transfer cable, USB-A (male) to USB-C (female) adapter, vehicle charger, desktop hub, and EMPOWER modules (2.4GHz radio, sub-meter GNSS, barcode, and RFID).

The following replacement accessories from the TSC5 controller packout are available: charger kit with AC power adaptor, regional plugs and USB-C (male) to USB-C (male) cable for charging and data transfer, glass screen

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protector, stylus & tether, handstrap, and carry case.

For more information, contact your Trimble Distributor.

Does the Trimble TSC5 controller fit into existing hard carry cases?

The display on the Trimble TSC5 controller is wider than the TSC3 controller, and does not have a tilted screen like the TSC7. We are investigating an updated hard case for TSC5.

How does the pole mount work?

An optional accessory for the TSC5 controller, the pole mount consists of three components:

- The TSC5 controller-facing part. This is a custom bracket mount which attaches to the TSC5 controller using the 4 screws provided in the package.
- The adjustable arm
 - The adjustable arm must be attached to the TSC5 bracket using one of 3 mounting positions, depending on how close you need the TSC5 controller to the pole. One end screws onto the custom TSC5 controller bracket mount, and the other end includes a connector that is compatible with other Trimble mounting products, including the quick release clamp.
 - The arm can be set up for left or right hand usage. To switch it from one side to the other, unscrew the screws in the cradle plate where the device sits, rotate the cradle plate, then screw it back into place.
 - NOTE – This part is shipped with the pole clamp and can also be used with a Trimble TSC7 controller (which requires slightly different screws).
- The pole-facing part (quick release clamp)
 - One side attaches to the connector on the adjustable arm, and the other side includes the pole clamp.
 - The pole-facing part is compact, so that it fits into a 10 cm (4") pipe for storage (with the TSC5 bracket and arm detached).
 - NOTE – This part will be shipped with the adjustable arm. The clamp can also be used with a Trimble TSC7 controller and other Trimble products.

The TSC5 controller bracket mount “snaps” easily onto the controller. To attach the bracket to the TSC5 controller:

- Screw the adjustable arm onto the bracket mount.
- To install the bracket onto the TSC5 controller, place the bracket hook into the mount point directly above the battery door on the controller (below the EMPOWER module slot). Then, pull down on the spring mechanism on the bottom of the bracket mount and push firmly into the controller to snap into place.

To remove the bracket mount from the TSC5 controller, pull down on the spring mechanism and lift up to remove.

When the pole bracket mount and adjustable arm are attached to the TSC5 controller, it “snaps” easily into the cradle of the pole clamp assembly. To attach the TSC5 controller onto the pole clamp, place the connector on the adjustable arm into the pole clamp and then push it firmly into the snap lock.

To remove the TSC5 controller from the pole clamp, on the back of the locking mechanism of the pole clamp, pull the

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lever to release the TSC5 controller.

How do I attach and use the handstraps on the Trimble TSC5 controller?

Attach the handstrap to the left or the right side of the device, according to your personal preference. To ensure a good fit:

1. Thread one end of the handstrap ribbon through the top handstrap slot; thread from the center of the device toward the top of the device.
2. Pull the end of the ribbon back towards the center of the handstrap and feed it up, over, and down through the lock buckle on the handstrap and pull it tight.
3. Thread the ribbon at the other end of the handstrap through the bottom handstrap slot; thread from the center of the device toward the bottom of the device.
4. Pull the end of the ribbon back towards the center of the handstrap and feed it up, over, and down through the lock buckle on the handstrap and pull it as tight as is comfortable for your hand.

If required, use a small blunt tool to push the ribbons through the handstrap slots on the device. Do not use a sharp tool.

When using the handstrap, the device should sit firmly in the hand.

How do I attach and use the shoulder sling with my Trimble TSC5 controller?

The optional shoulder sling is shipped with 2 rings to attach to the mounting points of the TSC5 or TSC7 controller as an alternative to attaching it to the rings on the handstrap. The sling can be attached to the lower or upper mounting point, or attached crosswise. With 2 shoulder slings it is possible to create a simple harness.

The shoulder sling is also compatible with the TSC5 protective carry case. Connect to D-Rings on either side of the case to use as a shoulder bag.

What are the EMPOWER modules?

The optional Trimble EMPOWER modules provide functions like robotic radio, sub-meter GNSS, RFID scanning, or barcode reading. They are user-exchangeable and compatible with TSC7, T7, Nomad 5, T100 and TSC5.

To attach an EMPOWER module to the TSC5 controller:

1. Before you install or remove a module from the device, make sure the device is powered off or in Sleep state.
2. Hook the EMPOWER module onto the back of the device, ensuring that the slots on the top of the device line up with those on the EMPOWER module.
3. Using the Philips #1 screwdriver, tighten the 2 captive screws at the bottom of the EMPOWER module to secure the module in place. Do not overtighten the screws.

NOTE – You need to re-calibrate the compass after installing or removing the EMPOWER module. For more information, refer to the user guide or [Google Maps Help page](#).

For EMPOWER Module datasheets and support downloads, visit <https://www.trimble.com/empowermodules/>.

NOTE - All EMPOWER software is pre-installed on the TSC5, and since TSC5 is an Android device, it is updateable on

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Google Play.

Does the TSC5 controller require EMPOWER module covers?

No. The TSC5 controller is fully sealed against dust and water ingress and does not require a cover for the EMPOWER module slot.

How much weight does the EM120 radio module add?

The weight of EM120 is 149.6 grams without the antenna and 174.25 grams with the antenna.

Software

Is there a flashlight app?

The camera LED may also be used as a flashlight. It is accessed by swiping down from the Status bar and tapping the Flashlight icon to toggle it on and off. There are also many free flashlight applications available in Google Play.

How do I capture screensnaps?

Fn + 0 (PRTSCR) copies a screenshot of what is currently visible on the screen. You may also capture a screenshot by holding down the **Power Button**, and then tap **Screenshot**. Screenshots are saved to the **Files > Pictures > Screenshots** folder.

What software is supported on the TSC5 controller?

Trimble Access Field Software version 2021.00 and later and Trimble Siteworks Software version 1.40 and later are supported on the Trimble TSC5 controller. The Access and Siteworks software can be installed on the same TSC5 controller.

Is Trimble TerraFlex supported on the TSC5 controller?

No. TerraFlex does not support a landscape screen orientation.

Is Trimble Forensics Capture supported on the TSC5 controller?

No. Capture does not support a landscape screen orientation.

Is Trimble SiteVision supported on the TSC5 controller?

No. SiteVision is not supported at this time.

Is Penmap Supported on the TSC5 controller?

No, Penmap does not fully support the landscape orientation of the TSC5 display, or the function keys. The

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alternative software is Trimble Access which is fully supported.

Is Trimble Installation Manager pre-installed on the TSC5 controller?

Yes, Trimble Installation Manager is pre-installed on the TSC5 controller and it will automatically check for updates.

Is Trimble Access or Siteworks pre-installed on the controller?

Trimble Access and Siteworks are not pre-installed with the OS and are sold separately. They are easily installed using Trimble Installation Manager.

Are Access job files compatible with Access 2021 on a TSC7?

Yes, the Access job files are the same and compatible across devices. They are not controller or Operating System specific.

How do I install Trimble Access or Siteworks?

Trimble Access and Trimble Siteworks are installed using the Trimble Installation Manager, which is pre-installed on the TSC5. Connect the Trimble TSC5 controller to the Internet, open Trimble Installation Manager on the TSC5 and it will automatically check for updates. You may need to set permissions to allow the Trimble software to update. When you start the Trimble Installation Manager, Trimble software downloads. You must have a software license. For more information, visit <http://www.trimble.com/installationmanager/>.

Is SX10/SX12 scanning support on the horizon for Android devices?

The SX12 is compatible with Windows Controllers Running TA 2021.00 or later. Trimble Access for Android devices does not support the SX12 at this time.

Which GNSS receivers and Total Stations are supported with TSC5?

The simplest answer is to compare the support to existing controllers.

- TSC5 supports the same instruments as the TSC3 PLUS the R12i.
- TSC5 supports the same instruments as the TSC7 MINUS the SX10 and SX12.

The complete list of instruments that are supported with Access 2021.00 are at this link:

<https://help.trimblegeospatial.com/TrimbleAccessReleaseNotes/en/ProductCompatibility.htm>

Operating System

What operating system is installed on the Trimble TSC5 controller?

Android 10 is installed on the Trimble TSC5 controller. This is a common operating system for mobile devices including mobile phones and tablets, enabling you to run any Android software available on Google Play. The operating system is Google Mobile Services (GMS) certified through an independent lab, so it will always be kept up

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to date according to the Google Android requirements.

How does the operating system language provisioning feature work?

When you turn on the TSC5 for the first time, you are prompted to select the desired language. The process is the same as on any Android device.

How can I restart my Trimble TSC5 controller?

If your device becomes unresponsive and is no longer responding to touchscreen or keyboard input, you may need to force it to restart by removing power from the system.

NOTE – Restarting the system by holding down the Power key removes power to the CPU. Any unsaved files and settings will be lost.

To force your device to restart, press-hold the Power key until the **Power Off** and **Restart** options appear on the screen. Tap **Restart** to restart the device.

How can I reset my Trimble TSC5 controller?

If restarting your device does not resolve the issue that you are seeing, factory resetting it might help.

WARNING –

A factory reset wipes all data from the device and returns it to factory settings. While any data stored in your Google Account will be restored, all apps and their associated data will be uninstalled.

WARNING –

Your device is protected to prevent other people from using it if it's been reset to factory settings. After a factory reset, you'll need to enter your Google username and password associated with the device. If you don't have this information, you won't be able to finish the setup process and use the device at all after the factory reset.

Erasing your data may take some time, so make sure that you plug your device into a power source before you start. Open Settings > System > Advanced. Tap Reset options, and then tap the reset option you want to use: (Reset Wi-Fi, Mobile & Bluetooth. Reset app preferences. Erase all data (factory reset)). Select this option to factory reset the device to the original state it was shipped in. Follow the on-screen instructions for the option you selected. You may need to enter your unlock pattern, PIN, or password. When the device has finished erasing, you'll be prompted to go through the new device setup.

Can I prevent Operating System updates from happening at any time?

The Trimble TSC5 controller runs the Android OS which does not push frequent updates to the device from Google, unlike the Trimble TSC7 which has frequent Windows 10 updates from Microsoft pushed to the device. Trimble will periodically release an OS update and you will be notified on the controller. You can then choose to install the update at your convenience. Trimble recommends that you keep the operating system updated as it contains bug fixes, enhancements and security updates from Google. This reduces your vulnerability to cyber-attacks,

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and helps to improve the Android operating system.

How do I find and transfer files to and from the TSC5 and the cloud, a computer, or USB drive?

For more information, refer to the Support Note posted here:

<https://www.trimble.com/globalTRLTAB.aspx?nav=Collection-130786>.

How do I set up a Google Enterprise 'G Suite' account?

For more information, refer to the Support Note posted here:

<https://www.trimble.com/globalTRLTAB.aspx?nav=Collection-130786>.

Can I load Android apps on the TSC5?

Yes, you can install any app on Google Play. You can also install applications using an .apk file.

Does TSC5/Ranger 5 have an anti-theft feature?

If you've added a Google account to your device, you can use the **Google Find My Device** app to help locate your lost or stolen device and lock it until you get it back. The app is downloadable from the Google Play:

<https://play.google.com/store/apps/details?id=com.google.android.apps.adm> and allows you to see your TSC5's location on a map. If the current location is not available, it will show the last known location. It also allows you to erase the device or lock it with a custom message and contact number on the lock screen. Find My Device is part of Google Play Protect.

There are also many more 3rd party anti-theft apps available on Google Play.

Power

What does the status LED indicate?

- Solid green: fully charged
- Amber/Green: charging normally (changes to solid green when charged)
- Red flashing: battery charging error

How do I change batteries?

The internal batteries are rechargeable and are not user removable. When the Service Plan is launched they will be replaceable at Trimble Regional Service Centers and Trimble Authorized Service Providers.

Can I charge the batteries in my Trimble TSC5 controller?

Yes. The wall charger provided in the packout is able to charge both the internal batteries as well as the optional user replaceable battery which will be available later this year.

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What is the internal battery's capacity, battery life and charging time?

The internal Li-Ion batteries have 4530 mAh / 7.2V (32.6 Wh) nominal capacity.

Battery life with internal batteries is 16 hours for a workflow using a EM120 radio and robotic total station, and 18 hours with a GNSS receiver.

Full-charge for internal batteries using the supplied charger and cable is 3.5 hours, with 0-50% charge in 1.5 hours.

Is it normal for the battery to get warm?

Yes, it is normal for any battery to get warm while charging. Note that batteries should not be charged at temperatures below +32 °F (0 °C) nor temperatures above +104 °F (+40 °C) to avoid impacting battery longevity and performance. Do not charge batteries inside a hot vehicle (for example, parked in the sun) as temperatures can quickly exceed the specified range.

Can I use a power bank to charge the Trimble TSC5 controller?

Yes. A power bank typically provides 5V through the USB port, and the TSC5 charger is a 5V/9V, 3A USB-PD compliant charger with Type C connector. If the power bank has at least a 27W output and a USB Type C cable, it will charge the TSC5 controller just as if it were plugged into any power source with the supplied wall charger. If the power output of the power bank is less than 27W, charging will be slower. If it is more than 27W it will not charge any faster.

Why are the batteries arriving "dead"? / My device will not turn on!

The TSC5 may be in "Shelf Mode" which prevents them from degrading when they are shipped or stored. The TSC5 will "wake up" once the Trimble TSC5 controller is plugged in and charging.

Will using WWAN impact my battery life?

Yes. However, battery life is a complex calculation, based on a variety of factors that include: software applications in use, wireless features in use (Bluetooth, Wi-Fi, WWAN, GPS), exposure to extreme heat or cold, age of the batteries, and battery storage and charging routines. Using the WWAN feature requires power which comes from the batteries when the device is not plugged into an electrical outlet. Typically, your battery run times will be impacted less than 10% to as much as 20%, depending on transmit and receive times, and standby time.

How do I maximize battery life?

The Android 10 operating system includes a number of features to help you get the maximum run time out of your battery. Here are some practical suggestions that you can do to reduce power consumption and extend battery life:

- Use **Battery Saver mode** which turns off or restricts background activity, some visual effects and other high-power features to extend battery life. To turn on **Battery Saver** mode, swipe down from the **Status bar** and tap the **Battery Saver** icon, then tap **TURN ON**. When **Battery Saver** mode is on, the battery icon in the Status bar is red.
- **Keep Battery optimization on** to have apps use your device's battery only when they need to. **Battery**

optimization is on by default.

- To specify battery optimization for any apps, go to **Settings / Battery**, then tap **Battery usage**. Tap on any app in the list to view options. Under **MANAGE BATTERY USAGE**, you can view or select **Background restriction** and **Battery optimization**.
- **Avoid high-drain activities** to conserve battery life; for example, heavy screen use, heavy data processing.
- **Turn off the wireless radios** when not using them to limit connectivity
 - Turn off Bluetooth or turn on Airplane mode, Swipe down from the top edge of the screen twice to open **Quick Settings**, then tap the Bluetooth or the Airplane mode icon to turn it on or off.
 - Turn off Wi-Fi or WWAN (cellular): access Wi-Fi and WWAN settings from the **Apps** screen, open the **Settings** app. Tap **Network & Internet**, then tap **Wi-Fi** or **Mobile Network**.
- Limit location data; for example, turn on GPS battery saving mode, turn off Location services. Refer to [How do I get Location data?](#)
- Limit automatic syncing; for example, turn off auto-sync for your Google account and apps. Go to **Settings > Accounts > Automatically sync data, and turn on or off.** and deselect the items you don't need
- Unplug USB devices. Many USB devices use power just by being connected. If you use a USB flash drive, unplug it when you are not using it.
- Turn off EMPOWER modules if you will not be using them for a prolonged period.
 - From the Home screen, swipe up to open the Apps screen. Tap on the EMPOWER Hub icon to open the app.
- Decrease the display brightness to the lowest comfortable level. To adjust the backlight settings, and turn Adaptive brightness off / on: Open the **Settings** app, tap **Display**, and tap the setting that you want to change.
 - You can also use the keypad to reduce the display backlight brightness (Fn + 4 keys on the keypad).
- Turn off screen rotation. The TSC5 controller is equipped with orientation sensors that can detect if your device is in portrait or landscape orientation. The operating system can automatically adjust the display to match your device orientation, or you can lock the orientation. Swipe down from the top of the screen to display the **Quick Settings** bar. If auto-rotate is turned off, the auto-rotate icon is not visible; Portrait or Landscape will be displayed instead. Tap to turn on auto-rotate. If auto-rotate is turned on, the auto-rotate icon is visible. You can tap to toggle auto-rotate Off.
- **Disable the keypad backlight** if you are not working in low light settings. Go to **Settings / System / Languages & input / Physical keyboard / Built-in Keyboard**. To disable the keyboard backlight, tap the slider next to **Enable**.
 - You can also adjust the brightness of the keyboard backlight by moving the Backlight brightness slider left or right.
- Turn off the handheld when you are not using it. To turn off the device, press-hold the **Power key** until the **Power menu** appears, then tap **Power Off**.
- Use **Sleep State** to reduce the length of time before the operating system turns off the display. To further save battery power, ensure the device settings are configured to turn off the screen when you haven't used it for a length of time. To force your device to Sleep, briefly press the Power key.
- To set the screen turn-off time, go to **Settings / Display / Advanced / Screen timeout**, and select 2, 5, 10 or 30 minutes.

For more information on these suggestions, refer to the TSC5 User Guide. For more information on making your battery last longer, refer to the help topic 'Get the most life from your battery' on the google.com support site.

Connectivity

Can the Trimble TSC5 controller be used for voice calls?

No. However you can use video calling applications and services for VoIP, such as Skype or the pre-installed Google Duo application which is a simple, high-quality video chat application with an easy one-tap interface. However, this is not optimal for video calls since the TSC5 controller has a rear facing camera, but could be used for voice only calls.

What cellular networks does the Trimble TSC5 controller support?

Worldwide LTE in regions where it is available, and compatible with 4G and 3G networks. AT&T and Verizon certified.

What size is the SIM card?

The Trimble TSC5 controller requires a MicroSIM.

How do I change the SIM card?

If your TSC5 controller is equipped with a 4G LTE modem, you will need a data plan and microSIM card from your local cellular service provider to use cellular data. **Do not replace the SIM card while outdoors.** Water, dust, dirt or debris may collect inside the SIM card bay causing performance issues. The SIM card slot is underneath the battery bay on the back of the device.

1. If the device is on, turn it off; press-hold the Power key, then tap Power Off.
2. Using the Philips screwdriver, loosen the 4 screws to remove the cover from the back of the device.
3. Pry open the MicroSIM card door using a coin or the tool located on the stylus tether as shown; do not remove the door completely.
4. Slide the microSIM card into the slot in the orientation shown on the microSIM door.
5. Close the microSIM door, making sure it clicks shut.
6. Replace the cover and tighten the 4 screws using the Philips screwdriver.

How can I use the Trimble TSC5 controller Wi-Fi capability?

The Trimble TSC5 controller has an integrated Wi-Fi wireless Local Area Network (WLAN) radio that can be used to receive data anywhere within the range of a Wi-Fi access point. A Wi-Fi connection can be used to connect to the Internet (at broadband speeds) through an access point.

NOTE: When there is an active connection to a Wi-Fi access point, power consumption increases and the battery will discharge more rapidly, depending on factors such as:

- Proximity to the access point (more distance requires more energy)
- Total data sent and received over time (more data requires more energy)
- Ratio of upload and download activity (transmission, or upload, requires more energy)

How can I use the Bluetooth capability?

The Trimble TSC5 controller has an integrated Class 1 Bluetooth® radio with Bluetooth 5 classic & BLE 5, to establish cable-free connections to other Bluetooth devices that are within 100 meters. Using a Bluetooth connection, you can communicate with other Bluetooth-enabled devices such as mobile phones, desktop computers and more. You can also communicate with Bluetooth-enabled peripheral devices instead of using USB connections.

NOTE: When there is an active connection to another Bluetooth device, power consumption increases and the battery will discharge more rapidly. Individual usage patterns will vary by device and the frequency of the Bluetooth communications.

Can I connect to any Bluetooth device?

To pair the TSC5 with a Bluetooth device, it must have a Bluetooth PIN (for example 0000 or 1234). Some old Bluetooth devices do not require a PIN. For security, the TSC5 cannot connect to these older devices that do not require a PIN.

To connect to a Bluetooth-enabled receiver with a PIN, if for any reason you cannot connect via Bluetooth, connect instead over Wi-Fi with the IP address 192.168.142.1. This will work in most cases (for example, with a Trimble R10 receiver or Trimble R2 receiver); otherwise refer to the receiver manual.

What type of cable connections does the Trimble TSC5 controller support?

The Trimble TSC5 controller includes a USB Type-C connector for power and data transfer. You can also convert the USB-C connector to a USB-A connector with an optional USB-C to USB-A adapter.

Can I replace the I/O block?

No. The I/O boot is not user-replaceable. If the USB-C port gets damaged, it can be replaced at a Trimble Regional Service Center (RSC) or Trimble Authorized Service Provider (ASP).

Can I use a normal USB cable to connect my Trimble TSC5 controller controller to my desktop PC / laptop?

Yes. USB Type C cables used for many modern mobile devices will work with the TSC5 controller. However not all cables are high quality and could cause issues with proper charging and data transfer, so Trimble recommends using the cable that is shipped with the controller. You can also use an adapter to turn the USB-C port on the TSC5 to a USB-A female port for use with USB-A accessories such as memory drives. You can also use a USB-C to USB-A cable to connect the TSC5 to a computer that only has a USB-A port.

How do I find and transfer my files, pictures and screenshots that are saved to internal storage or on a connected USB drive or computer?

Files located on the TSC5 controller or on connected devices such as a USB drive or another computer can be found in the Files application, pre-installed on the device. Photos on the TSC5 are located under Files/TSC5/Pictures, and

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screenshots are found under Files/TSC5/Pictures/Screenshots.

Files and data can be transferred to / from the TSC5 using the following methods:

- Via USB-C memory stick or storage drive
- Via USB-C cable connected to a PC or laptop
- Using cloud-based file sync service software and cloud storage (using a Wi-Fi or cellular data connection)

The following Support Note describes how to find the files and transfer them between the TSC5 and other devices or to the cloud: <https://www.trimble.com/global/TRLTAB.aspx?nav=Collection-130786>.

Is Windows Mobile Device Center compatible with the TSC5 controller?

Microsoft® ActiveSync and Windows Mobile Device Center are not supported on the Trimble TSC5 controller because it runs the Android 10 operating system, not a Windows Mobile operating system.

GNSS

Does the TSC5 have internal GNSS?

Yes. The TSC5 has an integrated GNSS receiver like most other Trimble controllers or tablets.

What level of GPS accuracy can I expect with my Trimble TSC5 controller?

The TSC5 controller has a built-in 5-10m accuracy GNSS (Global Navigation Satellite System) receiver module, and an integrated antenna with automatic SBAS corrections. The controller supports most of the external Trimble GNSS receivers, including the submeter Trimble EM100 GNSS EMPOWER module. Refer to the documentation for the receiver you want to use, and check the specifications and connection options.

What are SBAS corrections and how does the Trimble TSC5 controller use SBAS?

All Trimble TSC5 controllers have an integrated GPS receiver that supports SBAS (Satellite Based Augmentation Systems) satellites under normal conditions.

How do I enable the accelerometer and electronic compass?

The orientation sensors are active and applications can access and use the sensors. Use Google Play to browse for 3rd party tools that enable you to view sensor output.

Can I use an external GNSS antenna with my Trimble TSC5 controller?

No. The internal receiver has no antenna connector.

Advanced GNSS setups can be done with the Trimble EMPOWER EM100 GNSS module or survey grade receivers.

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Can I post process the GNSS data from the internal GNSS receiver?

No. If you want GNSS raw data for post processing, use an external GNSS receiver or the EM100 GNSS EMPOWER module.

Can I use an external GNSS receiver with my Trimble TSC5 controller?

Yes. You can use most of the Trimble GNSS receivers (legacy receivers may not work). Please research the specifications and connection options prior to making model and configuration assumptions for an external GNSS receiver or contact your Trimble dealer. If you want to connect via Bluetooth make sure the receiver is capable of using a Bluetooth PIN. Older receivers may not require a PIN and cannot connect due to modern security expectations from the Android 10 operating system.

For more information on supported devices, refer to the section titled [Which GNSS receivers and Total Stations are supported with TSC5?](#)

For more information on connection issues with older GNSS receivers, refer to the Support Note posted here: <https://www.trimble.com/globalTRLTAB.aspx?nav=Collection-130786>.

How do I get Location data?

Location data are received from your Wi-Fi or WWAN network, or from the Trimble TSC5 controller's internal GNSS receiver. You can turn on Google Location Services to get more accurate location while using Maps and other applications. To turn on, swipe down from the top of the screen then touch and hold the Location icon. Or Tap **Settings > Location**, then tap **Advanced > Google Location Accuracy** and turn **Improve Location Accuracy on or off**. You can also choose which apps use the TSC5 controller location. Swipe down from the top of the screen then touch and hold the Location icon. Tap App permission. Under "Allowed all the time," "Allowed only while in use," and "Ask every time," find the apps that can use your phone's location. To change the app's permissions, tap it, then choose the location access for the app.

Camera

What are the functions of the integrated digital camera?

The Trimble TSC5 controller includes a rear (field-facing) 13 megapixel camera, with an LED flash and geotagging. The camera is accessed through the Camera application which is pre-installed with the operating system. The camera features a variety of shooting modes to make it easier to capture images in different lighting conditions, and it can also record video with audio.

For more information

For more information contact your local Trimble Dealer or sales representative.

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