TSshield

Instruction manual

1008719-01-B

INTRODUCTION

Thank you for purchasing our products.

This product ("Product") has a capability of TSshield service ("TSshield service(s)"). (TSshield service offers both charged and uncharged services by using cellular phone connection. Please refer below for detail.)
ALL of our customers who bought our product MUST REGISTER before using. These users have to understand some information that is related this product is collected automatically. This information is used for only supplying larger support service from Topcon unless your product should be exported, re-exported, transferred or brought into embargoed countries by EAR. (As of September 1, 2013, the following 5 countries are embargoed by EAR. These countries may be changed without notice, please refer to EAR.)

- North Korea
- Iran
- Syria
- (North) Sudan
- Cuba

(URL of EAR: http://www.access.gpo.gov/bis/ear/ear_data.html)

[User registration]
Before using this product, the customer has to register to our service.
All of the personal information that is registered at registration timing may be supplied to our subsidiaries and our business partners for only supplying TSshield service from these companies. At the anytime, these information MUST NOT be used for other purpose and these information also MUST NOT be supplied to another 3rd party.

[What is TSshield?]
TSshield services can offer various services both charged and uncharged based on collecting information from your Product. TSshield is a name of this service, and you can use the following services, but please note that we may expand or change our services at any time without any notice in advance to you.

You can access to your dealer or read a product manual for the detailed information.

- Viewing instrument information
- Online upgrading*
- Security lock/unlock by remote
- Message receiving
- Download Service of Software for the Products
  (including without limitation to, program files and language files)*

* Any and all software provided under TSshield Service will be licensed only to you, and you must not sell, rent, lease, sublicense or otherwise dispose whole or part of the software.

1. Collecting information

(1) Kinds of information

We collect information from you that is required to make user registration. We also collect information to provide you with the TSshield services through our server that automatically gathers information via cellular phone network from the product you use. The information we collect and maintain may include personal information about you, as well as following information which is planned to collect as of January 1, 2012:

- Power up date/time
- Power up location
- Shut down date/time
- Status/Error information

Please note that, in the event of any change or expansion in the TSshield services, we may collect and maintain more information without any notice to you.

If you have any questions regarding collection of information, please contact the dealer from whom you bought this Product or refer product manual.

(2) Treatment of information

We keep all of information from you in strict confidence, and limit access to the information to our directors, officers and employees who need to know to provide you with the TSshield services. We maintain appropriate physical, electronic and procedural safeguards and controls to protect your information. We use ONLY for providing the TSshield service. We may share the information only with our affiliated companies to provide the TSshield services.

We do not disclose your information to any third party for any reason, except:

- Where such disclosure is required or appropriate pursuant to laws or regulations, including cooperating with governmental agencies, other regulatory bodies and law enforcement officials, resolving disputes or performing risk-management functions; or
- Where such disclosure is required or appropriate to perform you with the TSshield services.

(3) Stopping collecting information

If you want to stop to be provided with the TSshield services, we will suspend collecting information and will retain and use your information only for compliance with regulatory requirements. If you resume being provided with the TSshield services, we will resume collecting information. ("resume process" may needs some additional works.) If you want to suspend and resume subscribing the TSshield services, please contact dealer from whom you bought this Product.

Note: While suspending, you can't use all of TSshield function at all.

(4) Notice of reselling this product

If you want to resell this Product to any other person/entity ("new user"), the registration will not be assigned to the new user. The new user will be required to make the user registration in its own name. If you have a plan for reselling, please contact dealer from whom you bought this Product.

When you resell your instrument to the new user, you MUST NOT disclose your ID and password. Please note that if you disclose this information, the new user can access your personal information. We are not responsible for such disclosure by you. Please be careful in resale of this Product.

2. Other cautions (Export restriction)

This product includes some technologies that are restricted by EAR (U.S.'s Export Administration Regulations). If you export your instrument to other country, you need to perform any procedure for export required by EAR. In this case, you must perform any procedure by yourself. As of September 1, 2013, following countries need additional procedure. These countries may be changed without notice, please refer to EAR.

- North Korea
- Iran
- Syria
- (North) Sudan
- Cuba

(URL of EAR: http://www.access.gpo.gov/bis/ear/ear_data.html)

These commodities, technology or software were exported in accordance with applicable export control laws and regulations. Diversion contrary to those laws and regulations, as well as the export laws and regulations of any countries of reexport, is prohibited.

In consideration for its purchase of commodities, technology or software from Topcon, Purchaser agrees that it will determine any license requirements to export the items and, as applicable, to re-export or transfer the items, obtain any license or other official authorization, and carry out any customs formalities for the export or re-export of the items. Purchaser agrees that it will not reexport or transfer the commodities, technology or software to Cuba, Iran, North Korea, Syria or Sudan without a license or other authorization from all applicable export control authorities. It is also unlawful to receive, use, transfer, or re-export these items to persons on all applicable restricted party lists (see e.g. http://www.bis.doc.gov/index.php/policy-guidance/lists-of-parties-of-concern and http://eeas.europa.eu/cfsp/sanctions/consol-list_en.htm), and http://www.meti.go.jp/policy/anpo/law_document/tutatu/t10kaisei/130830kaisei_userlist_kohyo.pdf) where prohibited, or to use these items in activities involving missiles or unmanned air vehicles, nuclear explosive devices or nuclear propulsion projects, chemical or biological weapons, or any other prohibited end-use prohibited (see e.g. http://www.access.gpo.gov/bis/ear/ear data.html)

It is a violation for this product to be exported to the above-mentioned terrorist supporting countries. If we find your product is located in any of the above E:1 Terrorist Supporting Countries via TS Shield tracking monitor, we shall notify this fact to the relative government agencies. Unless you have obtained the required export license from the appropriate agencies including the US government, in order to comply with export control laws, we may be forced to remotely shut-down this product. This procedure would be considered justified to maintain international security and you have no right to make a claim for the shut-down of your instrument as far as you read and agreed with this software license agreement.

In addition, there are some countries that prohibit bringing out of positioning data from these countries. As of September 1, 2013, following countries need additional procedure.

Prohibit to bring out location data from country

- China
- Oman

If you need to bring your Product in these countries, you have to suspend or stop to be provided with the TSshield service. There may be more strict restriction in some countries. You have to research by yourself.

If you want to suspend and stop to be provided with the TSshield services, please contact dealer from whom you bought this Product.

How to Read This Manual

About this instruction manual

- This instruction manual covers the operating method of the instrument necessary when using TSshield. For functions provided in the TSshield Web site, refer to the "TSshield instruction manual –How to use Web service-".
- For safety precautions and instructions for use of the instrument and how to operate other modes, refer to the instruction manual of the instrument.

Symbols

The signs/marks as shown below are used in the instruction manual.

[CNFG]	:	Indicates softkeys of the instrument and buttons on a PC.
{ESC}	:	Indicates operation keys on the instrument
<WLAN settings>	:	Indicates screen titles
	:	Indicates precautions and important information which should be read before operating the instrument
	:	Indicates chapters (sections) which are relevant or should be referred to
	:	Indicates supplementary notes

- Corporate and product names used in the instruction manual are the trademarks or registered trademarks of individual companies.

Precautions

- When you use the TSshield Web site, use the latest version of a browser supporting HTML5.0.
- If the old information remains on the browser in use, it may not be updated to the new information, causing the website to appear garbled or distorted.
  In that case, follow the procedure below to reload the page.

  For Windows (Internet Explorer): "Ctrl" +"Refresh (F5)"

  For other browsers, see the Help of the browsers.

Backing up data

- Data should be backed up (transfered to an external device etc.) on a regular basis to prevent data loss.

Exceptions from responsibility

- The user of this product is expected to follow all operating instructions and make periodic checks (hardware only) of the product's performance.
- The manufacturer, or its representatives, assumes no responsibility for results of faulty or intentional usage or misuse including any direct, indirect, consequential damage, or loss of profits.
- The manufacturer, or its representatives, assumes no responsibility for consequential damage, or loss of profits due to any natural disaster, (earthquake, storms, floods etc.), fire, accident, or an act of a third party and/or usage under unusual conditions.
- The manufacturer, or its representatives, assumes no responsibility for any damage (change of data, loss of data, loss of profits, an interruption of business etc.) caused by use of the product or an unusable product.
- The manufacturer, or its representatives, assumes no responsibility for any damage, and loss of profits caused by usage different to that explained in the operator's manual.
- The manufacturer, or its representatives, assumes no responsibility for damage caused by incorrect operation, or action resulting from connecting to other products.

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1. TSshield OVERVIEW

TSshield is a cloud-based information management service. It collects various information from your instrument and provides you with a range of support to ensure you can use the instrument safely.

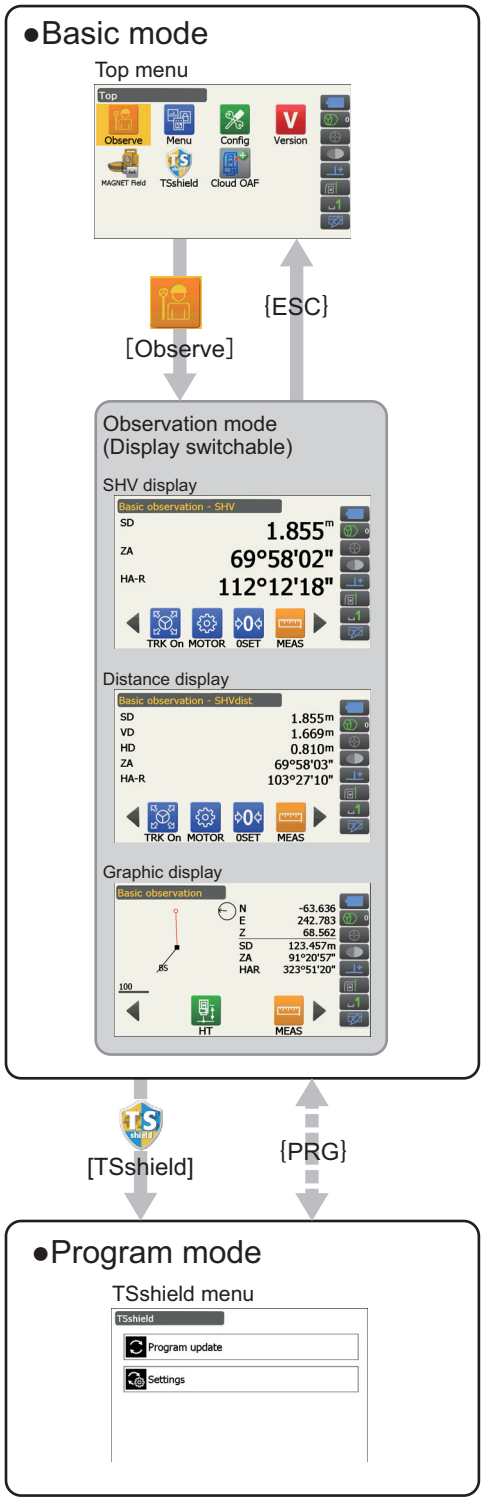
This allows us to send update information to you when the software embedded in your instrument is not up-to-date, and also allows you to see various information about your instrument purchased via your dedicated web site.

Note

- To use TSshield, it is necessary to create an account of TSshield and register a user for an instrument.
  ☞TSshield Instruction manual -How to use Web service- “2.1 Customer who signs up for the first time”

1.1 Mode Settings

Following are mode settings and key operations for shifting between modes of TSshield for this instrument.



:Available only when a program is activated.

2. RELEASING THE DEMO MODE

User registration is required before using the product. The demo mode can be released in two methods; release by performing communications from machine to server (online activation) and release by inputting the obtained activation code in the machine (offline activation).

Note

- If the condition of signal is not good and you cannot conduct the online activation, conduct the offline activation.

2.1 Online activation

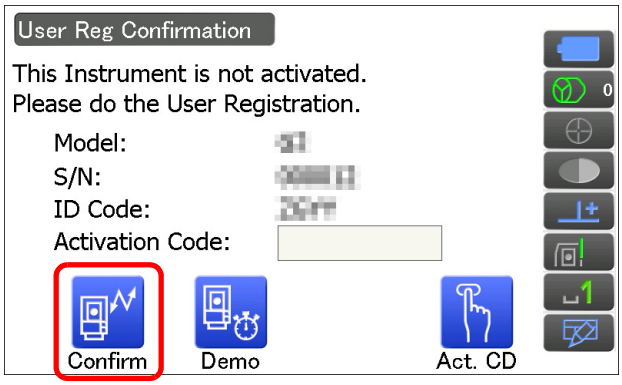
1. Turn ON the instrument

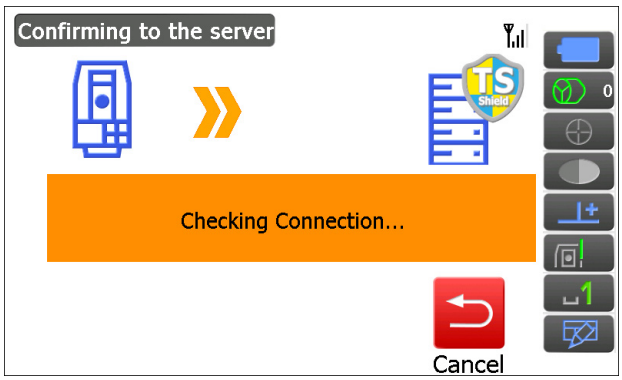
2. Press [Confirm] on the user registration screen

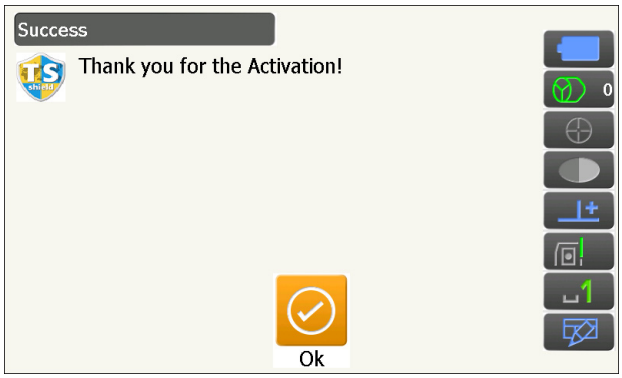
If communications are performed with a server and the registered content is checked, the demo mode is released.

Note

- It may take approximately 10 minutes at maximum to confirm the registration depending on the condition of signal. If the registration is not completed in 10 minutes or more, the condition of signal may not be good. Conduct the offline activation.





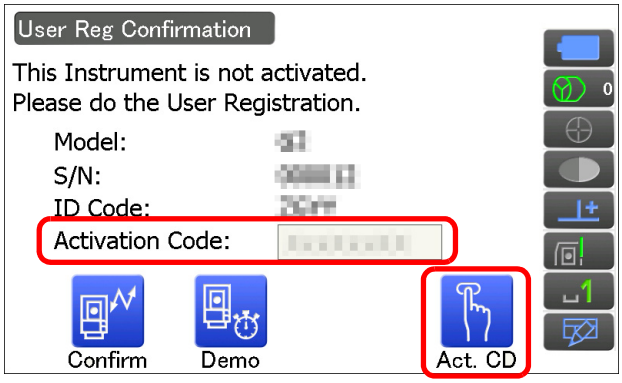


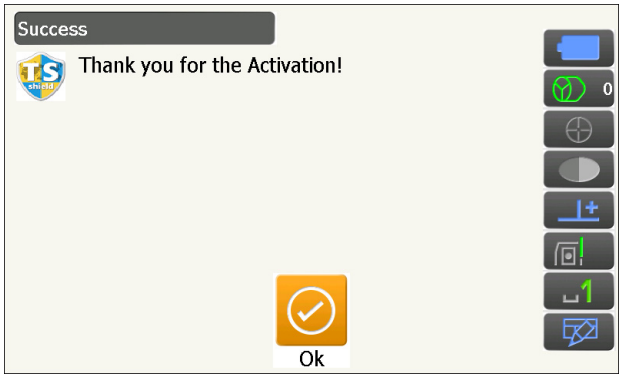
2.2 Offline activation

1. Turn ON the instrument

2. Input the activation code and press [Act. CD]

If you input a correct activation code by one-byte alphanumeric characters, the demo mode is released.





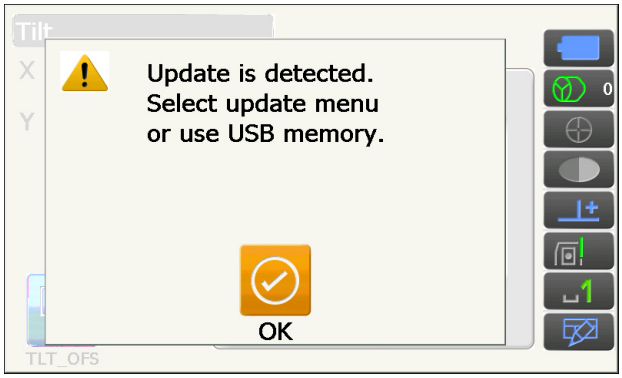
Note

How to find your activation code:

- The mail sent when the registration is completed contains the code.
- The Instrument page of the TSshield web site contains the code.

3. SOFTWARE UPDATE

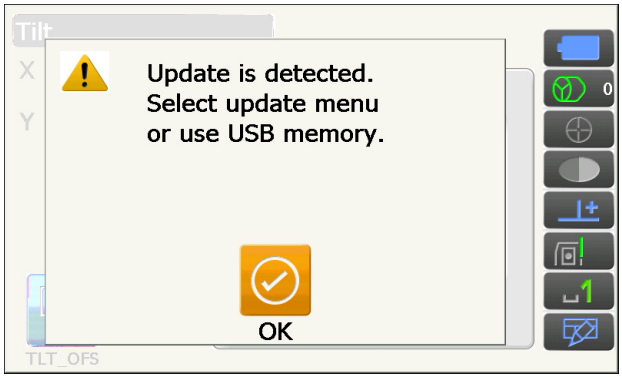
TSshield automatically connects to the network to check if any software in the total station needs update and, when necessary, downloads programs to start updating the software, except for OS (Operating System) and some software for program mode.
When a new software is registered to the network, a message will be displayed when the total station is turned on.



- Choose either Wireless LAN connection or Cellular connection to update software.
- When using Wireless LAN connection, you need to have Wireless LAN (WLAN) Internet access connected by home broadband and have your total station set for Wireless LAN.
- Forward port number 21 and number 7000, and set FTP to passive mode in advance.
  ☞ For the setting procedure, refer to the instruction manuals of your modem or router, or ask their manufacturer.
- In case of restricting some access points on the network using filter etc., contact your local dealer.
- Update may take 10 to 60 min depending on the number of files to update, reception condition and Wireless LAN connection condition.
- You can install the firmware of the instrument offline by downloading its installer from the web site.
  ☞ "3.4 Updating Firmware Offline"

3.1 Update Information Notice and Settings

When the total station is turned on, it checks if there is any software update information. When there is, the following screen is displayed. Press **[OK]** to perform normal update.

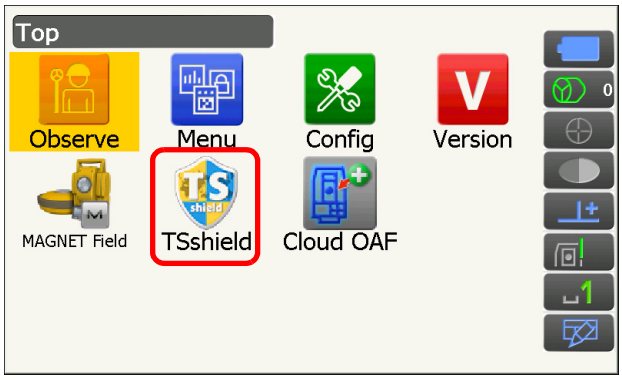


You can change how often you want to confirm update information in the Settings.

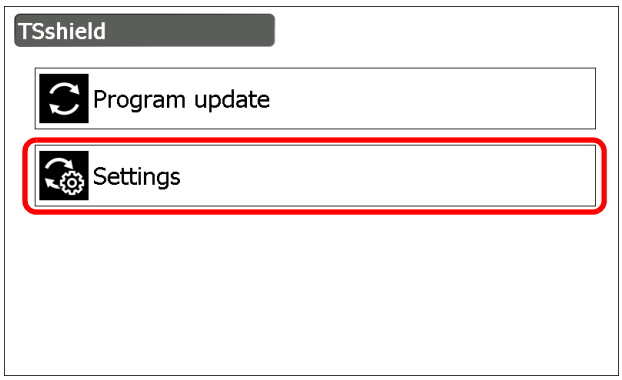
▶Procedure

1. Enter the TSshield menu

Select **[TSshield]** in the top menu.



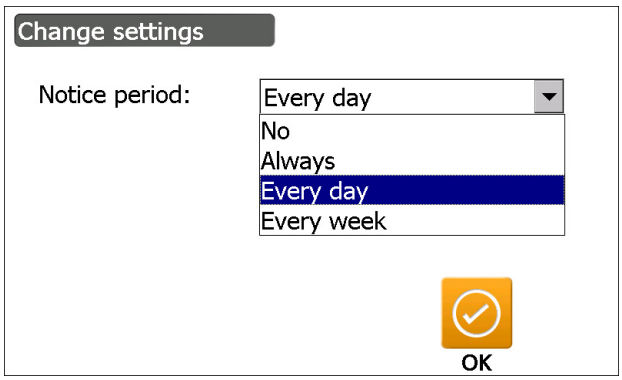
2. Select <Settings>



3. Change notice period

Select a notice period.

Press **[OK]** to complete the change and return to **<TSshield>**.



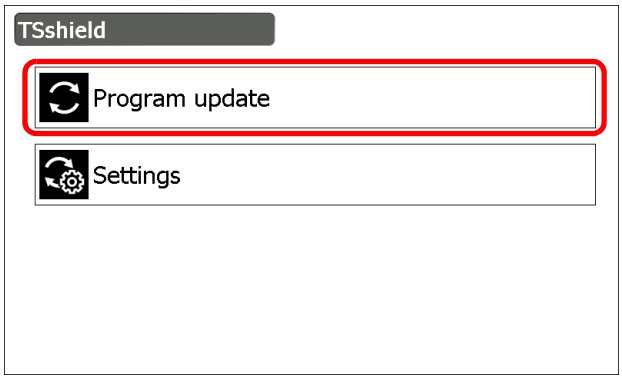
Note

- Choices available for update notice period: Always / Every day / Every week / No

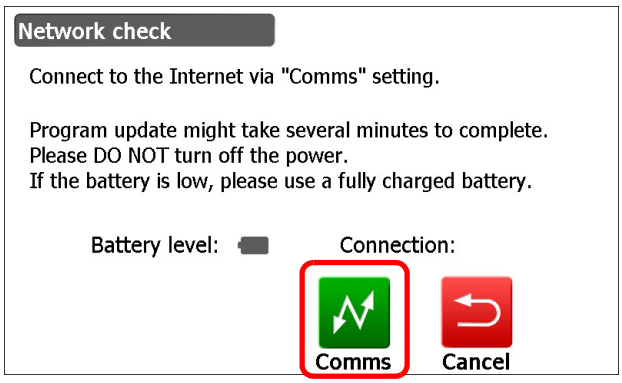
3.2 Selecting Network Connection Method and Settings

▶Procedure

1. Select "Program update" in <TSshield>.



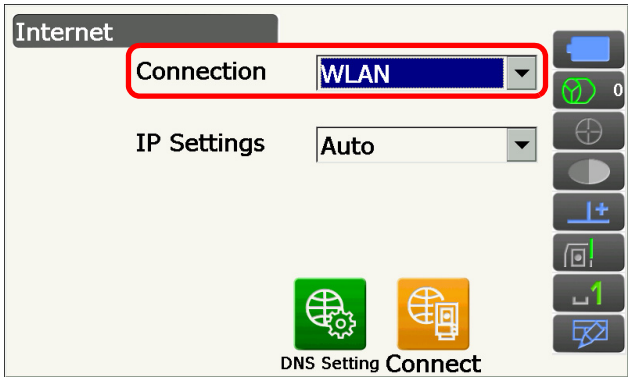
2. Press [Comms] in <Network check>.



3. Select a connection method and set the communication settings.

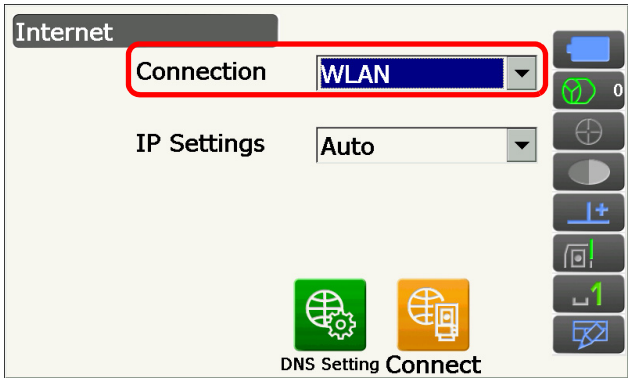
After setting, press **[Connect]** to establish a network connection.

☞ "3.2.1 Wireless LAN Settings", "3.2.2 Cellurar Settings"



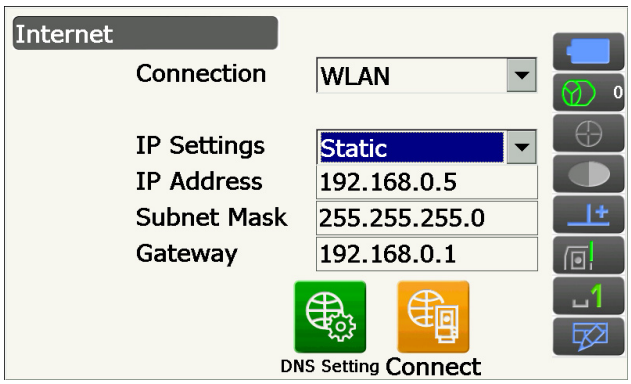
3.2.1 Wireless LAN Settings

1. Set "Connection" to "WLAN" in <Internet>.



2. Set "IP Settings" to "Auto" when obtaining an IP address via DHCP server.

- Set "IP Settings" to "Static" when specifying an IP address and set related items.



Items set

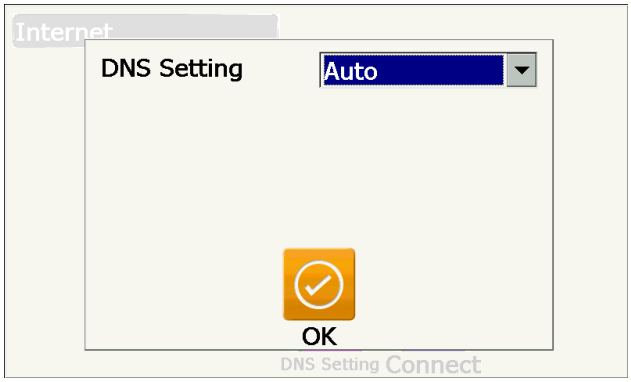
(1) IP Address
(IP address connectable to a router. Input the IP address so that it is not the same of the router to be connected. (Avoid the overlapped range of IP address assigned via DHCP server))
Example:
Set 192.168.0.3 when the router address is 192.168.0.1.

(2) Subnet Mask
(The same value of the router to be connected)

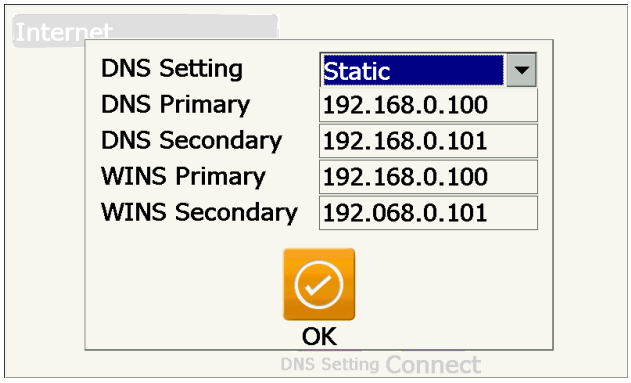
(3) Gateway
(IP address of the router to be connected)

3. Press [DNS Setting] in <Internet>.

Set "DNS Setting" to "Auto" when using a server address assigned via a name server and then press **[OK]**.



- Set "IP Settings" to "Static" when it is necessary to specify a DNS server address manually using the information given from your internet service provider. Set related items and press **[OK]**.



Items set

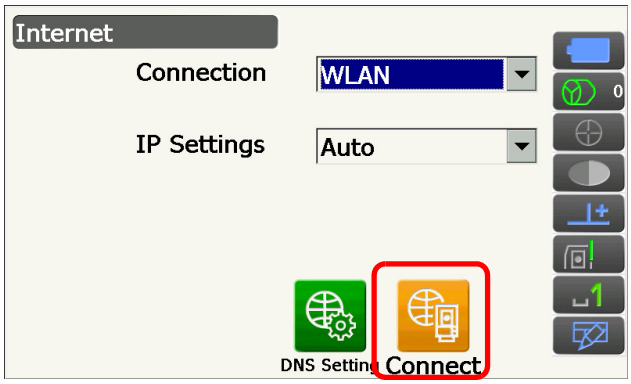
(1) DNS Primary
(IP address of DNS primary server)

(2) DNS Secondary
(IP address of DNS secondary server)

(3) WINS Primary
(IP address of WINS primary server)

(4) WINS Secondary
(IP address of WINS secondary server)

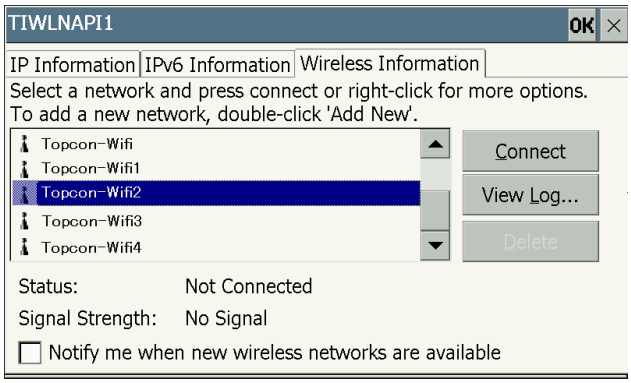
4. Press [Connect] in <Internet> to move to the communication setting screen.



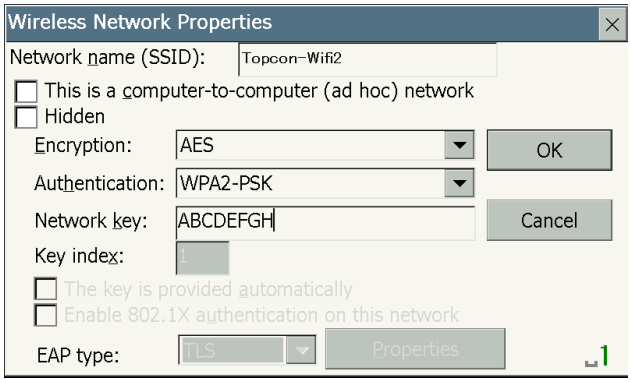
5. Select an access point from the searched Wireless LAN access points and press [Connect].

Note

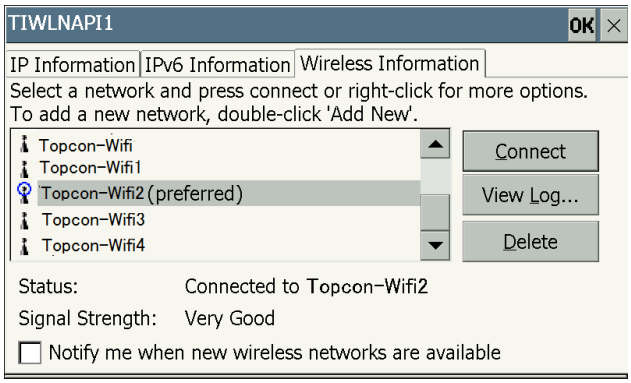
- It may take a few seconds until wireless LAN access points list is displayed.



6. Set necessary security settings for the Wireless LAN connection in <Wireless Network Properties> and press [OK].

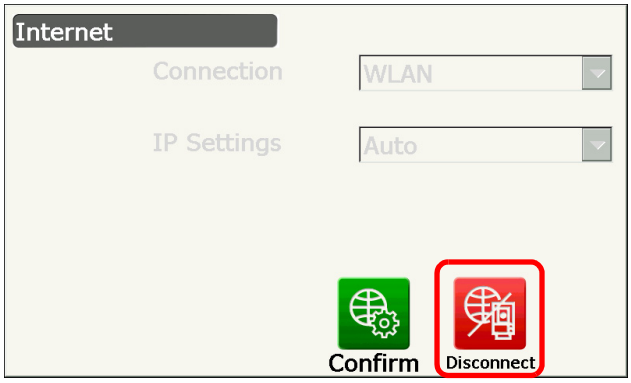


7. Check the connection status in Wireless Information screen. Press [OK] to return to <Internet>.



A program installed on the instrument can now communicate with an external device.

- Press **[Disconnect]** to terminate the connection.
- Press **[Confirm]** to display Wireless Information screen and check the access point setting.



DNS server and WINS server

Domain Name Servers (DNS) are server which resolve a domain name (www.aaa.com etc.) to an IP address and vice versa.

Windows Internet Name Service (WINS) is a server which resolves a computer name on Windows Network to an IP address and vice versa.

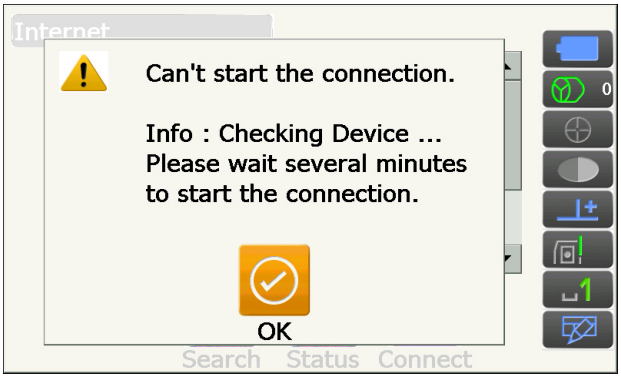
Secondary servers for each server are available to resolve IP address in case of a server system down.

8. Press {ESC} to return to <Network check> and start update.

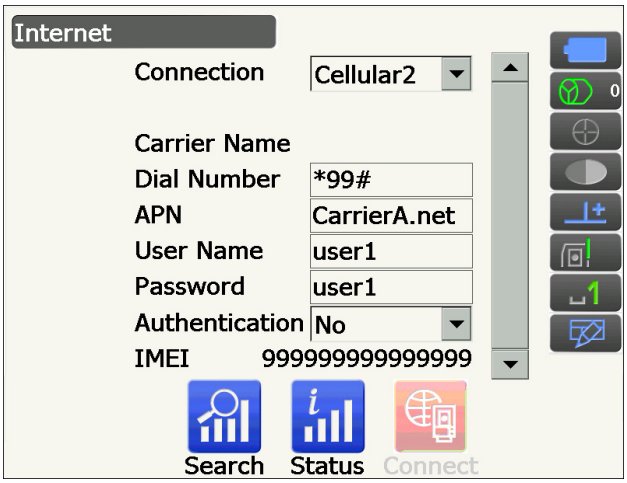
☞ “3.3 Performing Update” step3

3.2.2 Cellurar Settings

- Some SIM cards may not be used depending on the carriers or the contact details with the carrier.
- IMEI (International Mobile Equipment Identity) may be necessary when activating your SIM card. Check the IMEI in the screen of step 1.
- Disable the PIN code on your SIM card before using.
- After powering ON, it is necessary to wait about 5 minutes until cellular communication is ready. The message on the right is displayed before the cellular communication is ready.



1. Set "Connection" to "Cellular2" in <Internet> and set the information of your carrier to connect.



- Do not use SIM card converter adaptor. Inserted adaptor may not be taken out or it may damage the inside of the SIM card slot.
- Some SIM cards may not be used depending on the carriers or the contact details with the carrier.

Items set

(1) Dial Number
(*99# or *99***1#)

(2) APN
(Access point name provided from your carrier)

(3) User Name
(User name provided from your carrier)

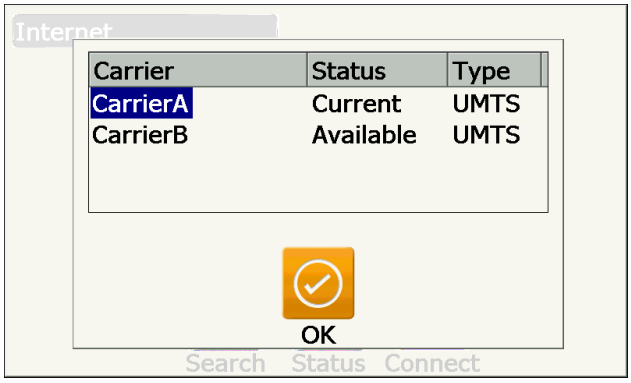
(4) Password
(Password provided from your carrier)

(5) Authentication
No/PAP/CHAP

- When IMEI is necessary for the activation of your SIM card, check the IMEI displayed in this screen.

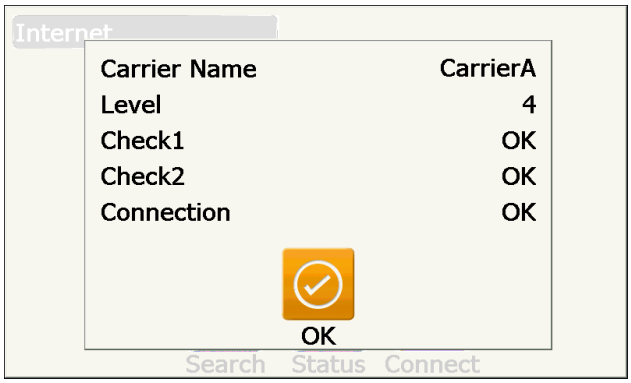
2. Press [Search] to search connection-ready carriers in the immediate vicinity of the instrument.

Select the carrier set in step 1 and press **[OK]**.



- Press **[Status]** to display the communication status. Displayed items are as follows.

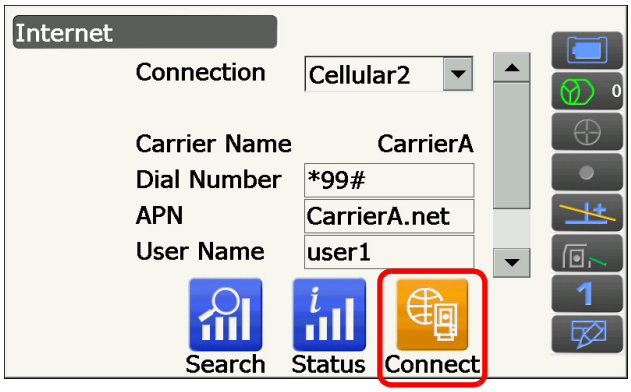
Carrier Name	:	Selected carrier's name
Level	:	Connection status is displayed in 5 levels
Check1	:	OK/-
Check2	:	OK/-
Connection	:	OK/NG



Note

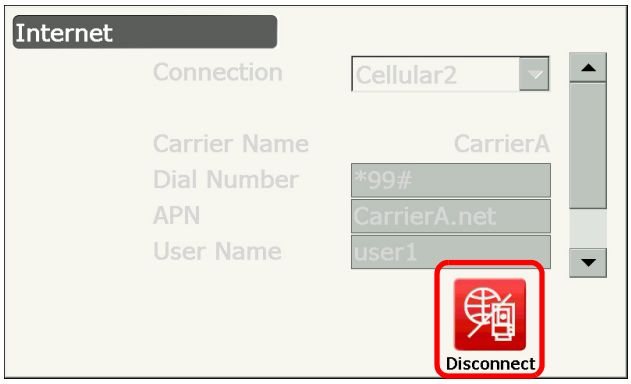
- "Carrier Name" and "Check1" may not be displayed even when connection is correctly established.

3. Press [Connect] in <Internet> to start communication.



A program installed on the instrument can now communicate with a TSshield server.

- Press **[Disconnect]** to terminate the connection.



- When you can not access the internet after the series of steps for connection, check the Dial Number. If a wrong dial number is input, internet connection is not available.

4. Press {ESC} to return to <Network check> and start update.

☞ "3.3 Performing Update" step3

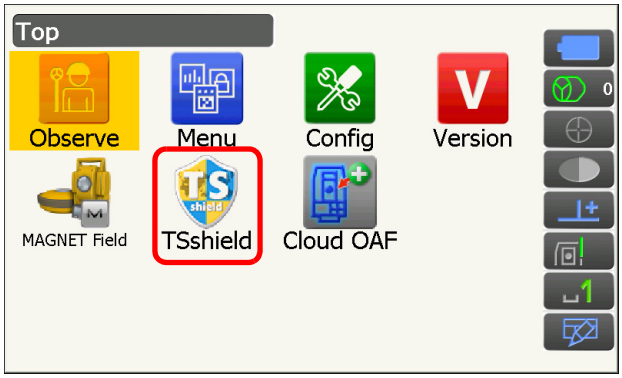
3.3 Performing Update

- Make sure to use the provided battery and there is enough battery left before performing update.
- The update should be done where Wireless LAN connection is in good condition.
- Do not turn off the power of the instrument during the update. Installed program will be damaged, and the total station might not operate collect.
- Instrument Info on the TSshied web page is renewed after 24 hours.

▶Procedure

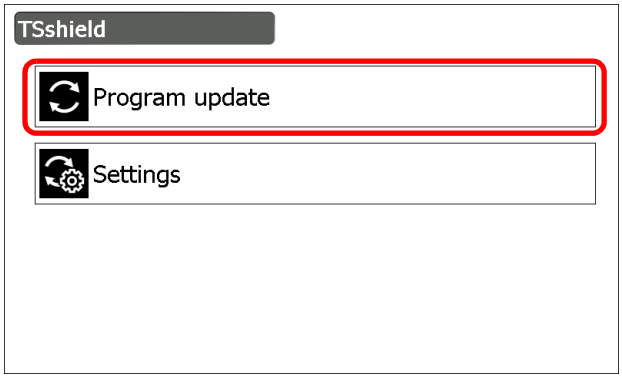
1. Enter the TSshield menu

Select **[TSshield]** in the top menu.



2. Select [Program update]

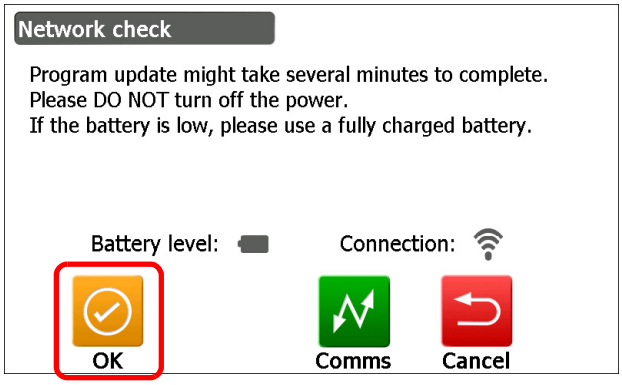
The total station checks with the server for update information.

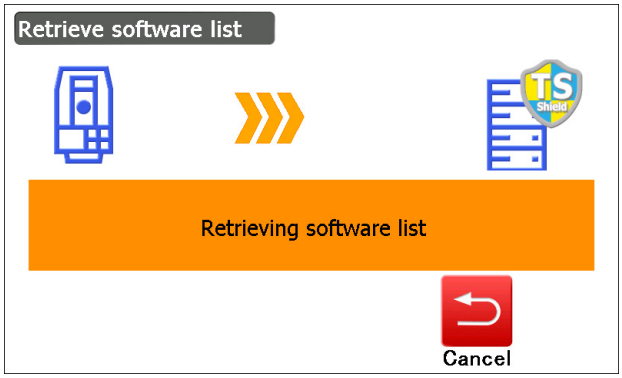


3. Confirm that there remains plenty of battery, press [OK].

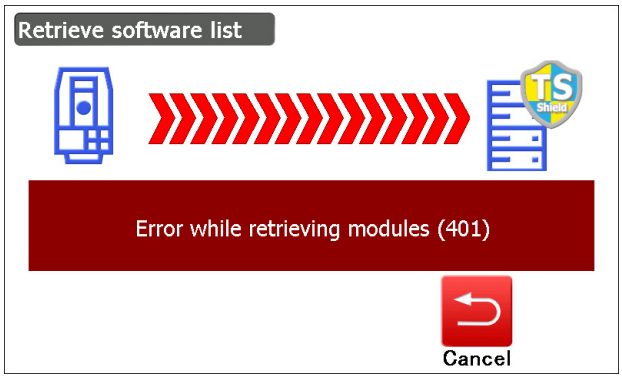
The total station checks with the server for update information.

- Press **[Cancel]** to cancel the update.



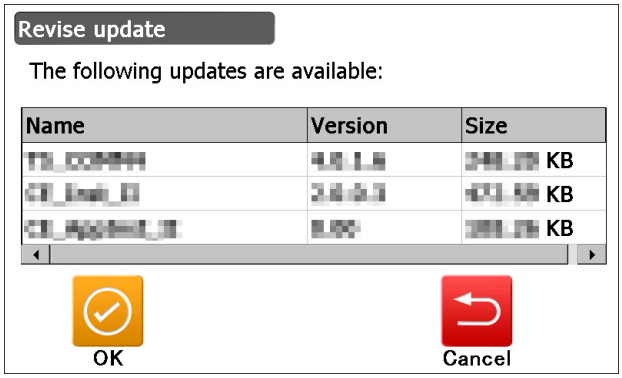


- When a screen shown in the right is displayed, press **[Cancel]** to cancel the update.
  Retry the update where Wireless LAN connection is in good condition, or disconnect the instrument from network and then try reconnecting.

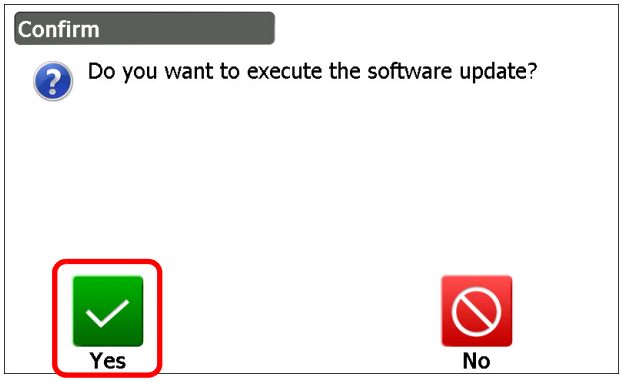


4. Perform update

When there is updatable software, a screen shown in the right is displayed. Then, press **[OK]**.



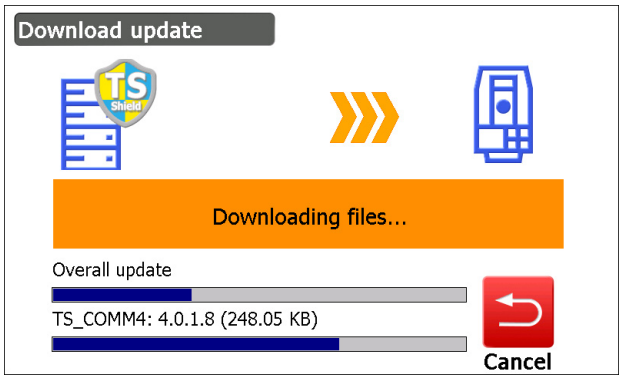
A screen shown in the right is displayed. Then, press **[YES]**. (Update time depends on the connection condition).



Note

- The total station will restart automatically after completing the update. Press **[Yes]** to perform update.

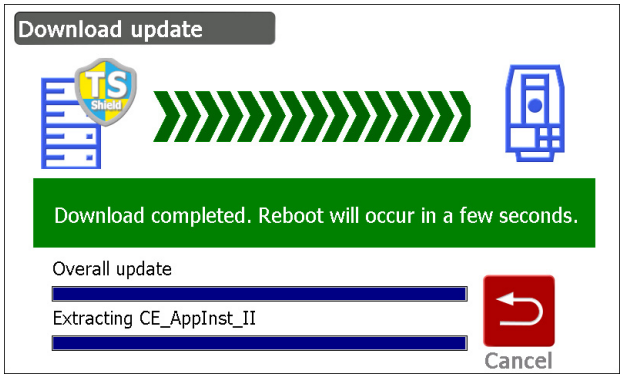
- When performing update, the screen shown in the right is displayed, the update program starts to be downloaded. (Download time depends on the connection condition).

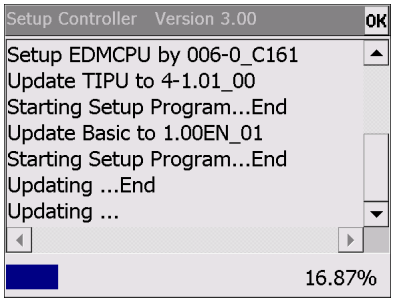


- Press **[Cancel] or {ESC}** to cancel the download.

Canceling may take some time. Do not remove the battery while canceling is in progress.

- When the program download is completed, the total station restarts in update mode and then software update starts automatically. It takes about 5 min before update completion.





5. Finish update

When update is complete, press **[OK]** to return to **<TSshield>**.

The total station restarts.

3.4 Updating Firmware Offline

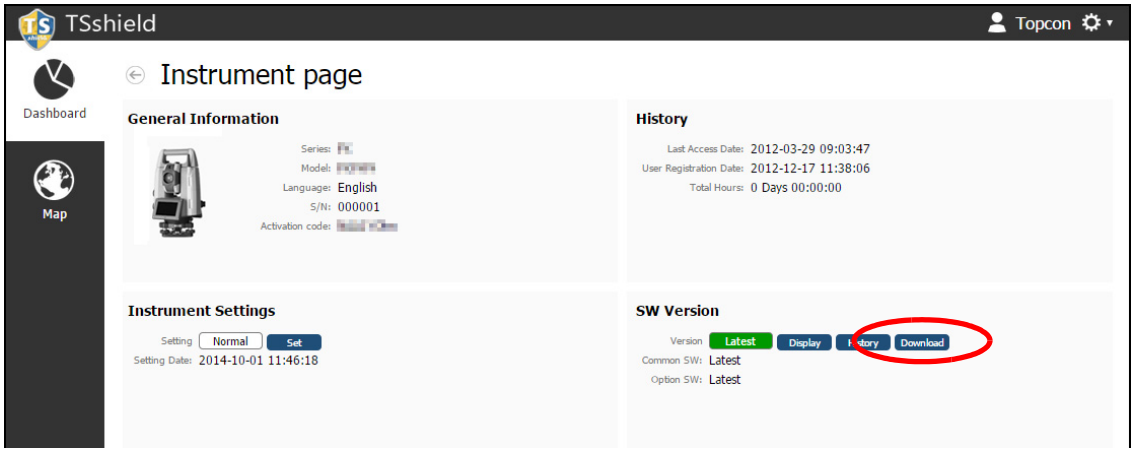
It is possible to update the firmware offline by connecting a USB flash drive storing the firmware installer to the total station. The installer can be downloaded from the TSshield web site.

- When updating the firmware, attach a fully charged battery to the total station or use the external power source adapter (special accessory).
- When updating, use a blank USB flash drive.
- Notice of update information, that is displayed turn on the total station, does not displayed the day after the software update. Instrument Info on the TSshied web page is also renewed after 24 hours.

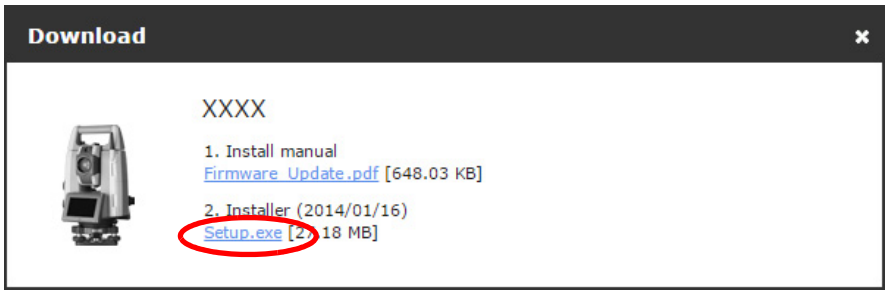
1. Download the installer

Download the firmware's installer (Setup.exe) from the TSshield web site.

(1) Press **[More info]** for the instrument to update the software on the Dashboard.
Press **[Download]** in the “SW Version”.



(2) Click the link for the file to download in the window below.
Follow the instructions on the screen to download the file.



- A warning message may appear depending on the browser in use or the settings of the PC; however, the downloaded file does not have a problem.

Reference: On Internet Explorer
Click the **[x]** button to exit the message.

2. Save the installer to a USB flash drive

Save the downloaded file (Setup.exe) in the route folder of a USB flash drive.

Note

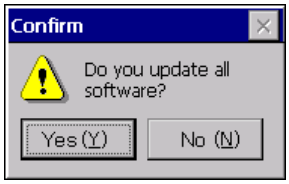
- If the destination to save downloaded files is not changed, the downloaded file is saved in "Download" folder.

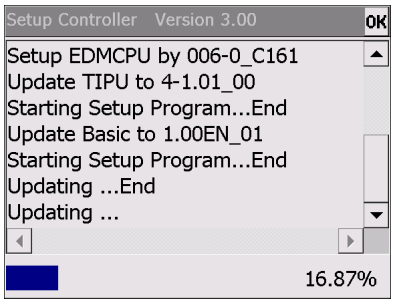
3. Connect the USB flash drive to the total station

Connect the USB flash drive to a USB port of the total station.

4. Execute update

After confirming that the total station has a sufficient battery level, press the power switch while pressing **[α]** and **[☼]**.
The installer automatically starts. Select **[YES]** to start update.





5. Exit update

When update is completed, the total station automatically restarts.

4. WARNING AND ERROR MESSAGES

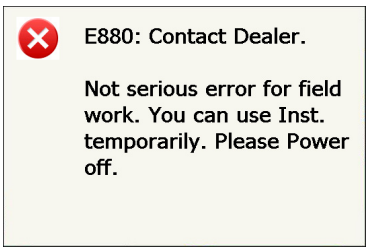
The following is a list of the error messages displayed by the instrument and the meaning of each message.

E:880: Contact Dealer.

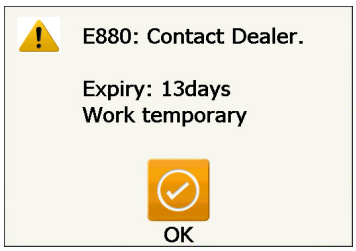
A problem has occurred with TSshield and operation stops.

If this error message appears, contact your local dealer.

Power the instrument OFF then ON to reboot. The instrument can be operated temporarily with TSshield disabled.



When the error occurs



After the reboot

TSshield Error

A problem has occurred with TSshield and operation stops.

The details of the error codes are as follows.

E804, E805, E807:

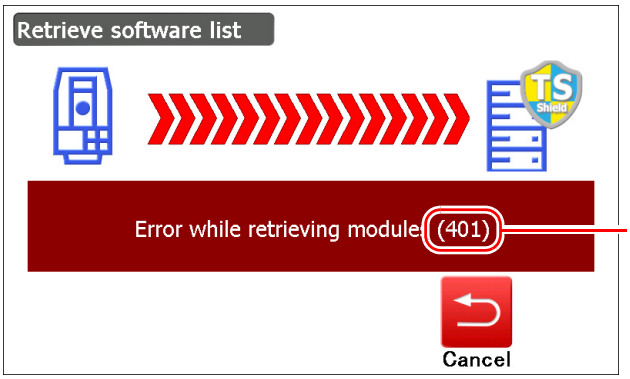
Press **[OK]** to cancel the message. If this error message appears frequently, contact your local dealer.

E806, E808:

Power the instrument OFF then press the power key while **{ENT}** to perform warm boot.

Errors during update

Error codes may be displayed during update. Meanings of the error codes are as follows.



2, 10

Error occurred while downloading files.

Quit the TSShield program and then restart. If this error message appears frequently, contact your local dealer.

100

Error occurred while executing TSshield program.

Quit the TSShield program and then restart. If this error message appears frequently, contact your local dealer.

401

Failed to connect to network.

[Wireless LAN setting is wrong]

Check if the communication settings are correct for Wireless LAN.

[Server connection error]

Wait 5 to 10 minutes and then perform a connection.

This error may also occur during the server maintenance. In that case, wait until the maintenance is completed.

[When none of above cases applies to you]

Contact your local dealer for the instrument check. Your instrument mode name and the serial number are necessary.

408

Network speed is low.

Network speed may be low because of poor signal condition or network environment. Change the location to receive better signal or wait for a while and then retry.

500

Error occurred while connecting to the server.

Wait 5 to 10 minutes and then perform a connection.

This error may also occur during the server maintenance. In that case, wait until the maintenance is completed.

502, 511

Failed to connect to TSshield server because of wrong network settings.

Ask your network administrator to check the following network settings.

The proxy server settings may not be correct.

Ports may not be opened. TSshied uses port 22 and 443. These ports should be open.

TOPCON CORPORATION

75-1 Hasunuma-cho, Itabashi-ku, Tokyo 174-8580, Japan **http://www.topcon.co.jp**

Please see the attached address list or the following website for contact addresses.

GLOBAL GATEWAY http://global.topcon.com/