



FC-2600

Operator's Manual

Part Number 1000504-01

Rev A

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Preface

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Manual Conventions

This manual describes the standard features and operation of the FC-2600. Unless otherwise stated, the operational characteristics described herein correspond to factory default configurations and settings as shipped from Topcon Positioning Systems. Wherever used herein, the term FC-2600 applies to all FC-2600 models (except as noted).

It is beyond the scope of this manual to provide operating system tutorials or information about commercial or customized FC-2600 application programs and connected equipment. This information should be available in the manuals that accompany those products.

This manual uses the following conventions:

Example	Description
File ▶ Exit	Click the File menu, and click Exit .
Connection	Indicates the name of a dialog box or screen.
<i>Frequency</i>	Indicates a field on a dialog box or screen, or a tab within a dialog box or screen.
Enter	Press or click the button or key labeled Enter .



Further information to note about the configuration, maintenance, or setup of a system.



Supplementary information that can help you configure, maintain, or set up a system.



Supplementary information that can have an affect on system operation, system performance, measurements, or personal safety.



Notification that an action has the potential to adversely affect system operation, system performance, data integrity, or personal health.



Notification that an action *will* result in system damage, loss of data, loss of warranty, or personal injury.



Under no circumstances should this action be performed.

Introduction

Getting Acquainted

The FC-2600 is a fully featured, rugged and customizable hand-held computer integrated with a color camera that also reads bar codes (Figure 1-1).

The FC-2600 comes standard with the Windows CE 6.0 operating system and an Intel PXA270 XScale processor that operates up to 624 MHz. It also has Bluetooth®, WLAN, and serial communication (RS-232 and USB).

The FC-2600 enables you to connect to the RS-1 wireless radio. To learn more about the features of the FC-2600, see “General Features of the FC-2600” on page 1-2.



Figure 1-1. FC-2600 Controller

Table 1-1 describes the front components and indicators on the FC-2600.

Table 1-1. Front Components and Indicators

Item	Component	Description
1	Camera	5.17 megapixel digital camera
2	Display	An amorphous silicon active matrix AD-TFT color display.
3	Front Panel	Contains status and modifier key indicators (see Figure 1-2 on page 1-4)
4	Keypad	55 keys with an 8+1 directional keypad

General Features of the FC-2600

Operating System The FC-2600 uses Windows CE 6.0 as its operating system. You can develop applications quickly and easily using the latest development tools and network connectivity from Microsoft, such as eMbedded Visual C++ 4.0, Visual Studio 2005, and ActiveSync.

Processor The FC-2600 uses an Intel PXA270 processor designed specifically for high performance, low power, portable, hand-held devices. It incorporates Intel XScale technology with on-the-fly voltage, frequency scaling, and sophisticated power management. It also complies with the ARM Architecture V5TE instruction set.

Camera The FC-2600 uses a 5 megapixel (4 megapixel processed) digital camera equipped with ultra-bright LED illuminators for photography in low-light areas, a wide, sunlight-readable display for ease of viewing regardless of available ambient light, and adjustable IR coated-glass optics for crisp clear images. There is a 5 mega pixel color CMOS imager, a true camera system, an Auto focus system and a Mechanical Shutter system. The bar-code symbology decode software system is compatible with the following: Code 39, Code 128, Straight Code 2 of 5, UPC, EAN-13, and PDF-417 (2D Code).

Illuminators and Lasers The FC-2600 comes with four LED illuminators that enable you to take pictures in low-light conditions. A pair of 635 nm red visible lasers enable you to position objects and align the FC-2600.

Display The FC-2600 features an amorphous silicon matrix AD-TFT color display. It is outdoors-readable with a diagonal screen size of 3.52" (8.9cm). The active area of the display is 71.52mm H x 53.64mm V. The pixel format is 320H x 240V (1 pixel = R+B+G dots. The touchscreen system is 4-wire resistive technology.

Keypad The FC-2600 has 55 keys plus an 8+1 directional pad. The keyboard is constructed of sheer-proof solid hard keys.

Indicators The FC-2600 has five LED indicators that provide a number of useful functions, including the state of keypad modifier keys. An additional LED indicates the charge and low battery status and WLAN (wireless connection) and Bluetooth power status.

Sound The FC-2600 has an integrated speaker and microphone.

Rechargeable Battery Pack The FC-2600 comes with two rechargeable Lithium-Ion (Li-Ion) battery packs that provide up to 40 hours of operating time on a full charge, depending on power management and use. Each battery is a 2500mAH@7.4V, integrated "Gas Gauge" System; field replaceable. When connected to an external power source, the Internal Charging System is used.

The Lithium-Ion technology used in the FC-2600 has exceptional charge life without the "charge memory." This means partially discharged batteries or batteries connected to the charger for extended periods will not adversely affect battery life or performance.

Configuration Options The FC-2600 comes standard with one RS-232 DE-9 serial port, one RS-1 radio port, and one USB mini A/B connector. The FC-2600 also includes USB (1.1), Wireless LAN (802.11/gb) and Bluetooth (1.2/Class II) (see Figure 1-2 on page 1-4 for connector specifications.

Durability The FC-2600 case is shock-tested per MIL-STD-810F Method 516.5, Procedure IV.

Ingress Protection The FC-2600 is completely dust-tight and can withstand exposure to jets of water. It has an IP (Ingress Protection) rating of 67 as defined by IEC standard 529.



The product warranty does not cover FC-2600 devices that fail due to electrolysis.

Front Panel Components/Indicators for the FC-2600

The front panel components consist of the battery indicator light (battery status), function light, shift key light, speaker, CAPS indicator light, bluetooth connection status, and wireless connection status (Figure 1-2).

The FC-2600 has six LED indicators that provide a number of useful functions, including the state of the art keypad modifier keys. An additional LED indicates the charge and low battery status of the unit (Figure 1-2).

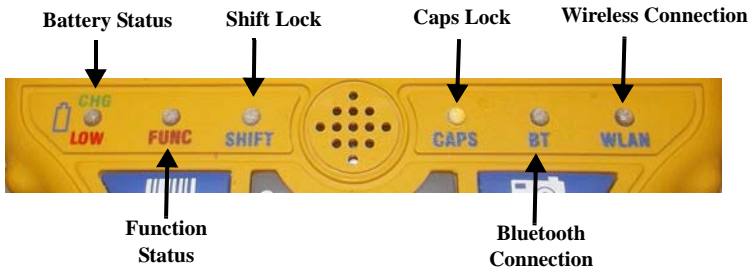


Figure 1-2. FC-2600 Modifier Keys

Table 1-2 describes the front panel components/indicators for the FC-2600.

Table 1-2. Front Panel Components

Item	Component	Description
1	Modifier LEDs	Indicates use of the CHG LOW (battery status), FUNC, SHIFT, CAPS, BT, and WLAN modifier keys

Table 1-2. Front Panel Components

Item	Component	Description
2	Battery LED	Red lights for a low battery or Green lights for a charging battery

Illuminators, Camera, and Lasers for the FC-2600

The FC-2600 comes with two LED illuminators that you can use to take pictures in low light conditions. In addition, The FC-2600 uses a pair of 635nm red visible lasers that allows you to position objects and align the FC-2600 as needed (Figure 1-3).

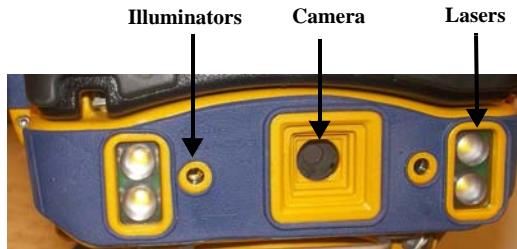
**Figure 1-3. Illuminators, Camera, and Lasers**

Table 1-3 describes the illuminators, camera, and lasers located on the back of the FC-2600.

Table 1-3. Camera, Illuminators, and Lasers

Item	Component	Description
1	Illuminators	Two illuminators that take pictures in low-light conditions
2	Camera	Five megapixel (4 megapixel processed) camera
3	Lasers	Two 635 nm red visible lasers that position objects and align the FC-2600

Configuration Options for the FC-2600

The FC-2600 comes standard with one RS-232 DE-9 serial port and one USB mini A/B connector. Also included is USB (1.1), Wireless LAN (802.11b) and Bluetooth (1.2) capability (Figure 1-4). See “Specifications” on page A-1 for connector specifications.

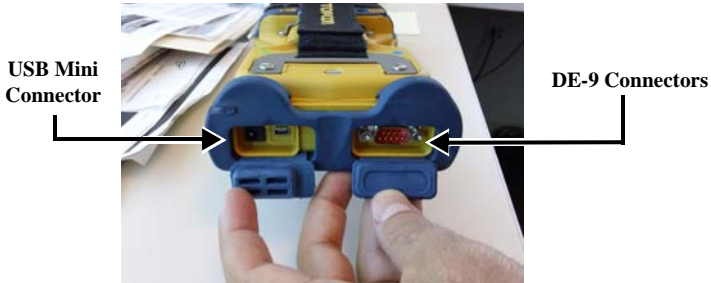


Figure 1-4. Bottom Components of the FC-2600

Table 1-4 describes the bottom components for the FC-2600.

Table 1-4. Bottom Components

Item	Component	Description
1	DE-9 RS232 Male Interface Port	Emulates standard serial pin-out connectors to connect the FC-2600 to most desktop PCs using a standard null modem cable
2	USB mini A/B Port (v 1.1 compatible)	Connects to other USB devices as either host or client

Accessories for the FC-2600

The FC-2600 package includes standard communication and power cables and accessories for configuring the FC-2600 hand-held computer and for providing a power source. Depending on the package purchased, additional accessories may also be included. Table 1-5 on page 1-7 lists the cables included with the FC-2600.

Table 1-5. FC-2600 Cables Package

Cable Description	Cable Illustration
<p>TAD AC cable The AC cable to use with the charger cable. U.S. – p/n 60737</p>	
<p>Charger cable Connects to the FVC-2500 and supplies 12V 3A power to recharge the internal batteries. U.S. p/n 60736</p>	
<p>USB Download cable Used to connect to the PC when downloading files. U.S. – p/n 60630</p>	
<p>USB Flash cable Used with the USB Memory Stick to offload files. U.S. – p/n 60621</p>	



Use of other power supplies, unless approved by Topcon Positioning Systems, may cause damage to the unit and void the warranty.

Operating the FC-2600

The following describes the components shown below on the front side of the FC-2600 (Figure 2-1).

- Main Screen
- Front Panel
- Keypad




Figure 2-1. Front-Side Components of the FC-2600

Front Panel Components

For information on front panel components, see “Front Panel Components/Indicators for the FC-2600” on page 1-4 for further details.

On/Off Button Operations

The **On/Off** button  is located at the bottom-left of the front panel and functions depending upon the state of the hand-held computer when the button is pressed and considering the length of time it is pressed. The following is a list of **On/Off** button operations:

- Cold Boot
- Suspend

Performing a Cold Boot for the FC-2600

To cold boot the FC-2600, press and hold the **On/Off** button for about 10 seconds. This action also terminates running applications and stops serial port operations.

Placing the FC-2600 in Suspend Mode

To place the FC-2600 in Suspend mode, press and release the **On/Off** button. Suspend mode allows you to suspend, but not terminate active applications. In this mode, the display turns off and the FC-2600 stops serial port operations. For battery-powered units, Suspend mode also conserves battery power.

To take the FC-2600 out of Suspend mode, press and release the **On/Off** button again. The display turns on and the device begins running any suspended application, but you must restart any serial port operations. If you attempt to use the FC-2600 before it has completely resumed operations or use it while it is entering Suspend mode, then the device will delay three seconds before resuming or suspending.

Using the Rechargeable Battery

The FC-2600 comes with two rechargeable Lithium-Ion (Li-Ion) battery packs that provides up to 40 hours of operating time on a full charge, depending on power management settings and peripheral use.

The battery packs are shipped from the factory without power, so before using the FC-2600, fully charge the battery pack for a minimum of three hours.



The battery pack will not attain maximum capacity until it has been charged and discharged approximately four times. As a result, you may experience shorter than expected operating time on the first few uses.

Li-Ion batteries are a stable and dependable source of electrical energy, but can be sensitive to extreme temperatures. If you charge the battery pack in extreme hot or cold conditions, it will not attain a full charge until it is recharged again. As a precaution against overheating, the FC-2600 has built-in temperature sensors that suspend the charging process if the battery becomes too warm.

Because the battery pack is an electrical device, do not expose it to moisture or wet environments. If the battery becomes wet, wipe it dry, and then allow it to dry thoroughly for several hours before attempting to use or charge it.

Do not leave the battery pack in a fully discharged state for extended periods. This condition may cause one or more of the cells within the battery pack to fail. When this occurs and the battery pack is subsequently recharged, the failed cell reduces the total capacity of the battery pack, thus making the battery appear to discharge faster.

Checking the Battery Status

The CHG/LOW battery LED, indicates the current battery status as shown in Table 2-1 below.

Table 2-1. Charge/Low Battery Indicator Functions

Function	Description
CHARGE	With the power supply connected, the CHG/LOW battery LED indicates one of the following conditions: <ul style="list-style-type: none"> • Nearly Charged – charging LED indicator flashes Long Green. • Charged – charging LED is Solid Green.
CHG LOW	<ul style="list-style-type: none"> • Batteries are low – Battery LED flashes Red. • Batteries are very low – the Taskbar Icon changes to Low Indication where there is approximately 1 hour of operation remaining.
Critical Battery	<i>Battery LED Constant Red, and Taskbar Icon changes to Exclamation Point when there is approximately 20-30 minutes of operation remaining.</i>
Battery Door Open	Battery LED flashes Red (On, Off, or Suspend state); Charging system disabled for Safety.

Charging the Batteries

The Lithium-Ion (Li-Ion) battery pack has exceptional charge life without the “charge memory.” This means partially discharged batteries or batteries connected to the charger for extended periods will not adversely affect battery life or performance.



Charge the FC-2600 away from any known or potential heat sources. Devices exposed to temperatures in excess of 110 degrees Fahrenheit during the charge cycle may experience incomplete charges and reduced operating time per charge.

To charge the Li-Ion battery pack (Figure 2-2), do the following:

1. Plug the power jack of the battery charger/power supply into the FC-2600.
2. Plug the battery charger/power supply into an available outlet and leave for approximately four hours to fully charge the batteries.



Figure 2-2. Charging the Batteries

3. Once charged, disconnect the AC power supply. The FC-2600 is ready to run exclusively on battery power.

Replacing the Batteries



There is a risk of explosion if the BT 66Q Li-Ion battery is replaced with an incorrect type. Only use the BT 66Q Li-Ion battery supplied with your device or a replacement Li-Ion battery that is supplied, recommended, or approved by Topcon Positioning Systems, Inc.

Remove the batteries from the FC-2600 when not using the device for extended periods. Store the batteries in a cool, dry location at normal room temperature.

To replace the battery packs (Figure 2-3 on page 2-6), do the following:

1. Turn the power off.

2. With the FC-2600 face down, unscrew the two battery door retaining screws.
3. Lift the cover up, and remove the battery pack.
4. To close the battery cover, replace the cover and tighten the screws.



Figure 2-3. Changing the Li-Ion Battery Pack for the FC-2600

Power Management

The battery-powered FC-2600 utilizes two rechargeable BT 66Q Lithium-Ion (Li-Ion) battery packs that have an average operating time of 18 hours on a full charge with power management.

The operating time is dependent on the environment, usage, and the number and type of power-drawing peripherals attached. The battery

discharge rate in a full “Power Off” state is only slightly higher to the self-discharge rate of the battery itself.



Allowing the batteries to remain in a low or very low condition causes the device to enter Suspend mode. Save your work, and recharge the device as soon as possible.

To lengthen the time between charges, shorten auto-suspend time – The FC-2600 is automatically set to suspend operation to conserve battery power when you have not used the keyboard or the stylus after three minutes.


The auto-suspend time can be increased by changing the Power settings in the Control Panel:



- Tap **Start** ▶ **Settings** ▶ **Control Panel**.
- Double-click the *Power* icon in the *Control Panel*.
- On the *Power Properties* dialog box, click on the *Schemes* tab.
- From the *Switch state to Suspend* drop-down list, select either *After 5 minutes*, *After 10 minutes*, *After 15 minutes*, or *After 30 minutes* to auto-suspend time between battery charges.





Extended communication via the serial port, WiFi, RS-1, and Bluetooth may require large amounts of power to operate and can quickly drain the batteries.

Data Entry Using the Keypad

The joystick-style keypad (Figure 2-4 on page 2-8) has 55-keys with easy screen navigation and alphanumeric keypad entry. You can also access special keys via the **FUNC**  key.

To enter data using the keypad, tap **Start** ▶ **Programs** ▶ **Microsoft WordPad**. Using either numbers, letters, or a combination of both, enter the preferred text. Press the **CAPS**  key for capital letters and the **Space**  key to enter more text. To backspace, press the

Backspace key . To begin a new line press the **Enter**  arrow located in the directional circle on the FC-2600.

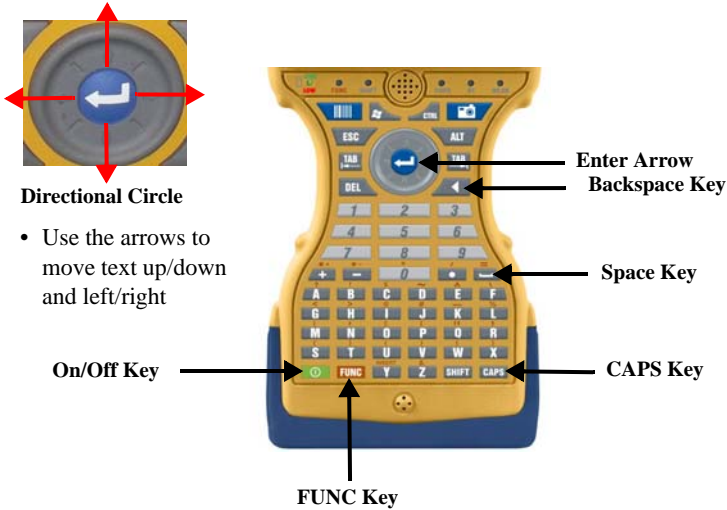


Figure 2-4. FC-2600 55-Key Keypad

Data Entry Using the CE Keyboard

To access the CE Keyboard, tap **Start** ▶ **Programs** ▶ **Tools** ▶ **CeKeys** (Figure 2-5).



Figure 2-5. Accessing the CE Keyboard

To minimize the keyboard, click the keyboard icon in the system tray below the keyboard.

Using the Integrated Camera




The FC-2600 comes with Topcon Positioning Systems' eyeWARE program pre installed, so you can take pictures and scan bar codes

with the integrated camera. You can also pass data to a text field that has a focus in an application.

Power Status Icons

The FC-2600 displays power status icons (Table 2-2) in the status area to indicate power use, charging status, and low battery conditions.



Table 2-2. Power Status Icons

Icon	Description
	Main batteries are charging.
	Main batteries are low – approximately 60 minutes or less of use remaining. The CHG/LOW battery LED blinks Red once per second.
	Main batteries are very low – approximately 20 minutes or less of use remaining. The CHG/LOW battery LED turns solid Red.



Connection Status Icons

The FC-2600 displays connection status icons (Table 2-3) in the status area to indicate a dial-up connection or a direct connection.

Table 2-3. Connection Status Icons

Icon	Description
	Dial-up Connection status.
	Direct Connection status

The Start Menu


Tap the **Windows** button  on the control panel (top left), then press **Start**  to display the start menu. By tapping one of the menu icons you can:

- Open programs that do not appear on the main screen
- View a list of Websites added to your Favorites list
- View recently accessed documents and images
- Access the Control Panel, establish connections, or configure the Taskbar and Startup menu
- View the Help menu
- Start an application using the Run command

Miscellaneous Tools

Screen Capture The Screen Capture program (Figure 2-6 on page 2-11) takes a picture of the current screen and saves it as a bitmap file (.bmp) to a designated location. You can set up the program to run from the system tray or by pressing a hot key.

To set up the Screen Capture program, tap **Start ▶ Programs ▶ Tools ▶ Screen Capture**. The *ScreenCapture* dialog box displays. Make the following selections to capture a screen on the FC-2600:

- Keyboard Hot Key – disabled
- Capture Delay (sec) – select a wait time before the Screen Capture program takes a picture (up to 9 seconds)
- Auto run in the task bar – press and enable to take a picture by tapping the *Screen Capture* icon  in the System Tray



To deselect this option after making it active, tap and hold the icon until the *ScreenCapture* dialog box displays.

- View following capture – press and enable to view the picture immediately following the screen capture
- Reset Counter – press and enable to reset the counter to zero

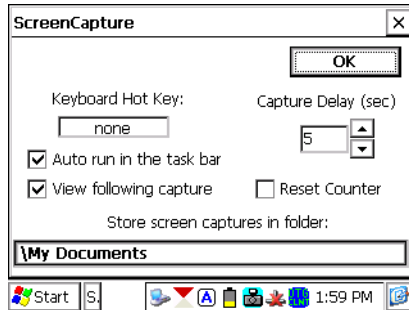


Figure 2-6. ScreenCapture Window

To change the default folder where the screen captures will be stored, press **My Documents** at the bottom of the *ScreenCapture* dialog box (Figure 2-6) to display the *ScreenCapture* dialog box (Figure 2-7).

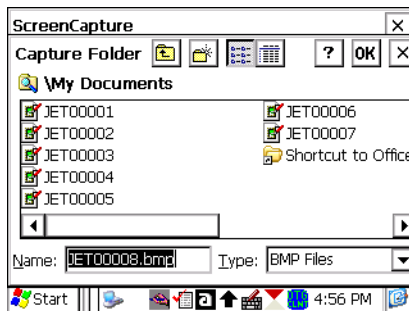


Figure 2-7. Capture Folder Dialog Box

By default, the Screen Capture program automatically assigns a number to each screen capture. The numbering scheme starts at JET00000 and increases by one after each capture.

5. To reset the picture numbering scheme to JET00000, press and enable **Reset Counter** on the *ScreenCapture* dialog box.



Screen captures stored in folders other than the System CF folder will be lost if you remove power from the unit.

Warm Boot Occasionally, a program may encounter an error from which it cannot recover. In this case, you can perform a Warm Boot, which reinitializes the device without affecting the contents stored in virtual memory.

To perform a warm boot do the following:

1. Tap **Start ▶ Programs ▶ Tools ▶ Warm Boot**. The **Warm Boot** confirmation window displays (Figure 2-8).

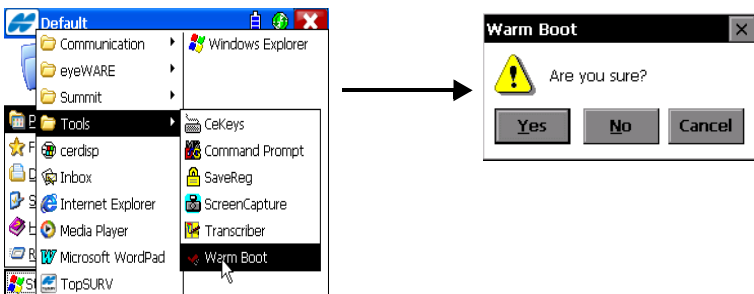


Figure 2-8. Confirmation Dialog Box

2. Press **Yes** to continue or **No** to quit.

Manually Saving the Persistent Registry The FC-2600 internal memory consists of DRAM and Flash. Typically, any changes made to the FC-2600, including file creation, are temporarily stored in the unit's DRAM. To store the information permanently, copy the files from DRAM to internal flash memory.

Consequently, if you do not store the information to flash memory and the device loses power, all information stored in DRAM will be lost; however, when you make changes that affect the registry, such as changing settings in the Control Panel or installing software, you can permanently store registry changes without writing to flash memory by using the Persistent Registry.



The FC-2600 also stores registry information every time you perform a suspend/resume operation.

To permanently store registry information on the FC-2600:

1. Tap **Start ▶ Programs ▶ Tools ▶ SaveReg**. The FC-2600 begins to save the registry. After the registry is successfully saved, a message box displays for confirmation.
2. Press **OK** to close the message box and return to the main screen.

Command Prompt Windows The command prompt window allows you to execute limited MS-DOS command line arguments (e.g., CD SystemCF, Run TEST.BAT, etc.).

To open the *Command Prompt* window:

1. Tap **Start ▶ Programs ▶ Tools ▶ Command Prompt**. The *Command Prompt* window displays (Figure 2-9).

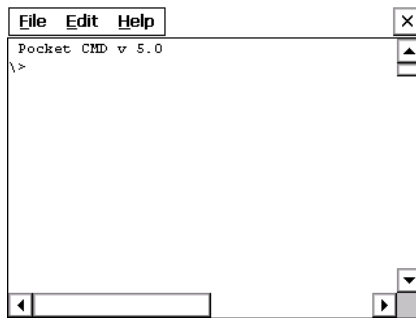


Figure 2-9. Command Prompt Window

2. Type in your command. For a list of supported commands, type **Help**, and press **Enter**.
3. To end the session, type **Exit**, and press **Enter**.

SystemCF Folder The only folder that provides non-volatile (permanent) storage is the SystemCF folder. Information stored in other folders will be lost when you remove power from the FC-2600. You can, however, have the FC-2600 automatically copy files from the SystemCF to other folders when starting up.

Control Panel Functions

Table 3-1 describes the Control Panel functions available on the FC-2600. Tap **Start** ▶ **Settings** ▶ **Control Panel** for access to these functions.

Table 3-1. Control Panel Functions





Icon	Function	Description/Menu(s)
	Bluetooth Device Properties	Add/Edit/Remove Bluetooth devices from your device. 
	Mouse	Adjust double-click time for mouse. 

Table 3-1. Control Panel Functions (Continued)


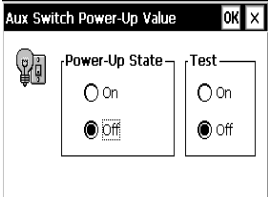



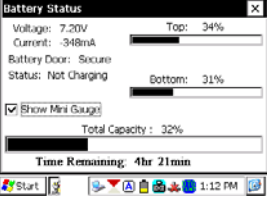
Icon	Function	Description/Menu(s)
	<p>Aux Switch</p>	<p>Sets the default power state (on or off) and tests the connected devices.</p> 
	<p>Backlight</p>	<p>Adjusts the backlight setting for the following conditions: Line Active, Line Inactive, Battery Active, and Battery Inactive.</p> 
	<p>Battery Status</p>	<p>Calibrates the power status icons for proper use: Li-Ion, AC Line, or Alkaline.</p> 

Table 3-1. Control Panel Functions (Continued)






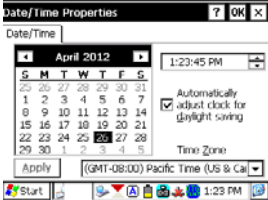
Icon	Function	Description/Menu(s)
	<p>Stylus:</p> <ul style="list-style-type: none"> • Double-tap • Calibration 	<p>Sets the double-tap sensitivity for both the speed and physical distance between taps.</p> 
	<p>Input Panel</p>	<p>Changes the keyboard language or input method editor used to input information on your device.</p> 
	<p>Date/Time</p>	<p>Adjusts the date, time, and time zone.</p> 

Table 3-1. Control Panel Functions (Continued)


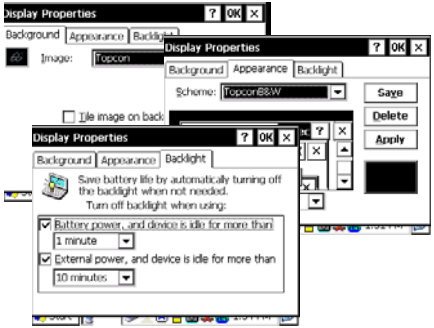


Icon	Function	Description/Menu(s)
	<p>Display:</p> <ul style="list-style-type: none"> • Background • Appearance • Backlight 	<p>Adjusts the backlight timeout, changes the background image, and changes the desktop color scheme.</p> 
	<p>PC Connection</p>	<p>Enables direct connection to a desktop computer.</p> 

Table 3-1. Control Panel Functions (Continued)


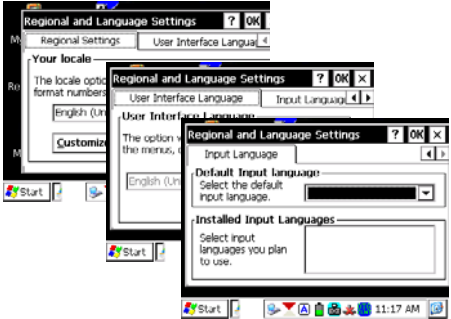

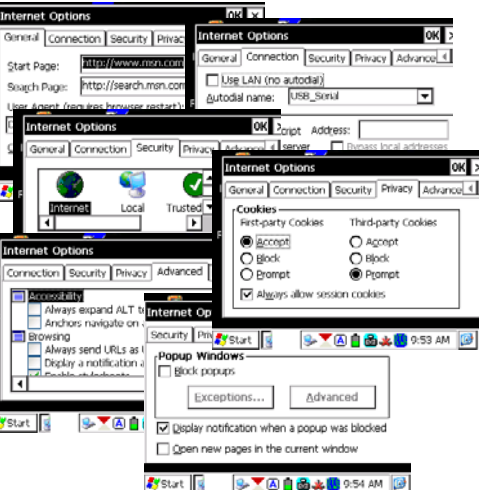
Icon	Function	Description/Menu(s)
	<p>Regional and Language Settings:</p> <ul style="list-style-type: none"> • Regional • User Interface • Input 	<p>Changes the appearance of region-specific information, such as date, time, and currency and language used for menus, dialogs, and alerts.</p> 
	<p>Internet Options</p> <ul style="list-style-type: none"> • General • Connectivity • Security • Privacy • Advanced • Popups 	<p>Sets up connections, security settings, and Internet-related functions.</p> 

Table 3-1. Control Panel Functions (Continued)


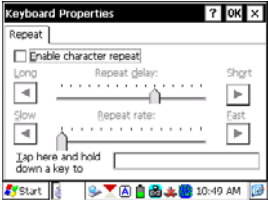



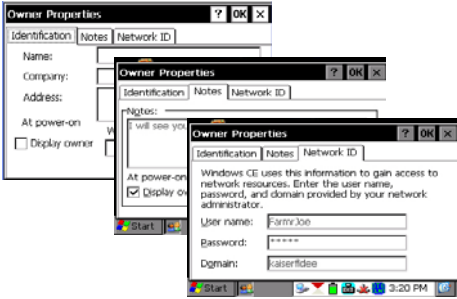
Icon	Function	Description/Menu(s)
	Keyboard	<p>Changes the repeat delay and repeat rate.</p> 
	Password	<p>Enables password protection and password setup.</p> 
	Owner	<p>Allows you to enter the owner name, address, phone numbers, notes, and network ID.</p> 

Table 3-1. Control Panel Functions (Continued)


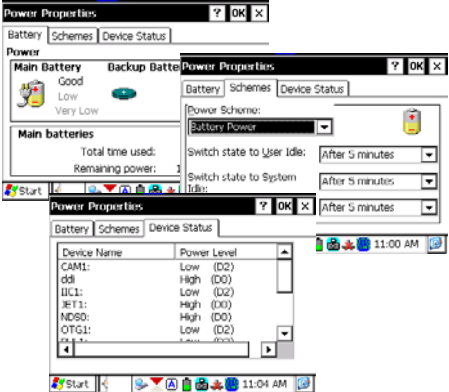

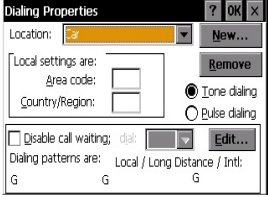

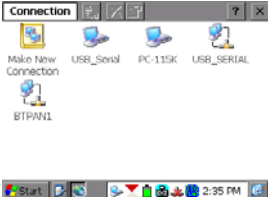
Icon	Function	Description/Menu(s)
	<p>Power:</p> <ul style="list-style-type: none"> • Battery • Schemes • Device Status 	<p>Enables you to:</p> <ul style="list-style-type: none"> • Check battery power level • Set device to turn off when idle • Set up power schemes • Check the power levels of your system devices 
	<p>Dialing</p>	<p>Adjusts the dialing location settings and dialing patterns when using a modem.</p> 
	<p>Network and Dial-up Connections</p>	<p>Sets up identification for remote networks.</p> 

Table 3-1. Control Panel Functions (Continued)


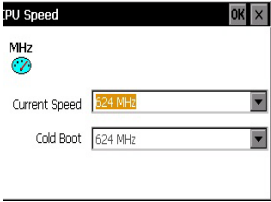

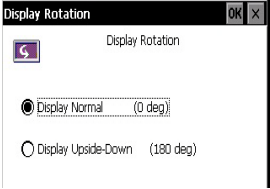

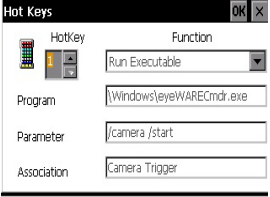

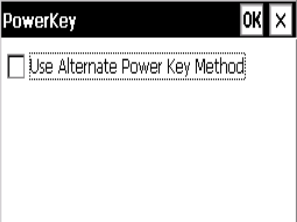
Icon	Function	Description/Menu(s)
	CPU Speed	<p>Determines the current CPU and cold boot-up speed. Allowable selections are 312 MHz and 624 MHz.</p> 
	Display Rotation	<p>Rotates the screen 180 degrees (upside down).</p> 
	Hot Keys	<p>Assigns functionality to the device's eight programmable keys.</p> 
	Power Key	<p>Power key provides general information on battery conditions</p> 

Table 3-1. Control Panel Functions (Continued)




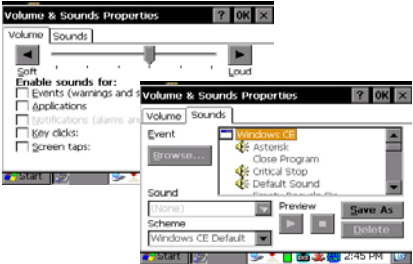

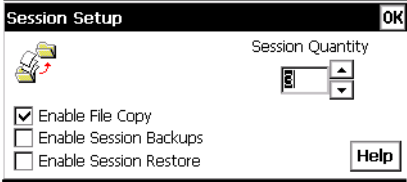
Icon	Function	Description/Menu(s)
	<p>Remove Programs</p>	<p>Enables you to remove programs installed in RAM.</p> 
	<p>Volume & Sounds</p>	<p>Enable sounds for events, applications, notifications, key clicks and screen taps.</p> 
	<p>Startup</p>	<p>Selections for:</p> <ul style="list-style-type: none"> • Initial loading of files at boot-up • Backing up files at suspend • Restoring a session (set of backed up files) on the next boot-up of the device. 

Table 3-1. Control Panel Functions (Continued)


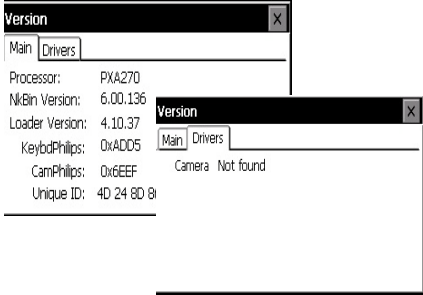

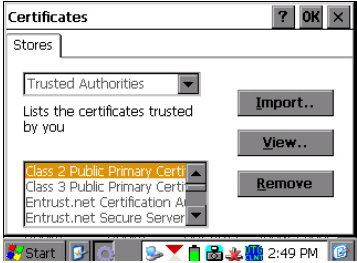

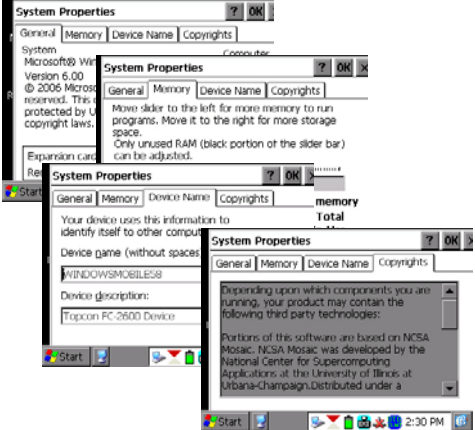

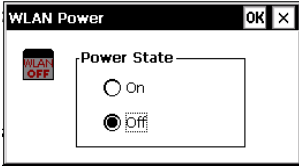
Icon	Function	Description/Menu(s)
	<p>Version</p>	<p>Displays version, configuration, and driver parameters for the FC-2600.</p> 
	<p>Certificates</p>	<p>Imports, displays, or removes certificates, which protects your personal information on the Internet and protects your computer from unsafe software.</p> 

Table 3-1. Control Panel Functions (Continued)

Icon	Function	Description/Menu(s)
	<p>System Properties</p>	<p>Displays system information, changes the RAM (Program/storage memory) division, and changes the device name and description.</p> 
	<p>WLAN</p>	<p>Enables you to power on or off the wireless connection status..</p> 

The Taskbar and Start Menu Settings

The taskbar at the bottom of the Windows CE 5.0 desktop (Figure 3-1 on page 3-12) displays the **Start** button, icons of programs currently running, the *Status Bar*, and the *Show Desktop* icon.

Tap **Start** ▶ **Settings** ▶ **Taskbar and Start Menu Properties** (Figure 3-1 on page 3-12).

The *Taskbar and Start Menu Properties* dialog box displays (Figure 3-2 on page 3-13).

The Status Bar appears on the right and by default displays small icons for the input panel, current time, power status, and network connections (Table 3-1 on page 3-1). Tap an icon to activate the related program.

Tap the *Show Desktop* icon to minimize active programs and re-display the desktop. Tapping the *Keyboard* icon displays the **Ce Keyboard** for data entry.

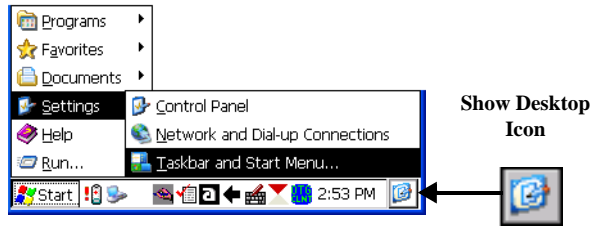


Figure 3-1. Taskbar and Start Menu Settings

On the *General* tab of the *Taskbar and Start Menu Properties* dialog box (Figure 3-2 on page 3-13), do the following:

- *Always on top* – press and enable to ensure that the taskbar is always visible, even when a program displays in a full window (maximized)
- *Auto hide* – press and enable to display the taskbar only when you point to the taskbar area
- *Show Clock* – press and enable to display the time in the taskbar and to automatically set for *Daylight Savings Time*

On the *Advanced* tab of the *Taskbar and Start Menu Properties* dialog box, do the following, then press **OK** to save and exit the menu (Figure 3-2):

- **Clear** – press and enable to remove the contents of the documents menu

- *Expand Control Panel* – check mark this box to display the contents of the Control Panel as items on the *Control Panel* of the **Settings** menu

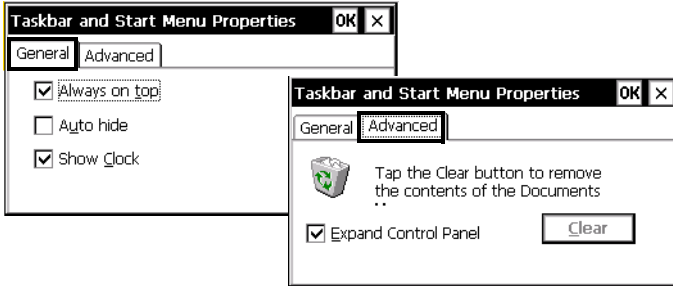


Figure 3-2. Taskbar and Start Menu Properties Dialog Box

Notes

Configuring the FC-2600

Creating an ActiveSync® Connection

ActiveSync is a desktop utility program (available as a free download from Microsoft) that allows you to synchronize certain types of information between a PC and the FC-2600. You can also use ActiveSync to transfer files and install programs on the FC-2600.

ActiveSync 4.1 supports PC sync via USB, FC-2600, or a Bluetooth connection. It does not support remote PC Sync (via WiFi or LAN). For information on how to make an ActiveSync connection using Bluetooth, refer to the FC-2600•XL/eye Bluetooth User's Guide.

USB Connection

By default, the FC-2600 makes an automatic ActiveSync connection and prompts you to create a partnership when you connect a USB cable between the FC-2600 and your computer.

Making a Connection with Windows Mobile Device Center

If you are using an FC-2600 adapter cable, perform the following steps to make an ActiveSync connection:

1. On the FC-2600, tap **Start ▶ Settings ▶ Control Panel** (Figure 4-1 on page 4-2). From the control panel selections, double-click on the *PC Connection* icon. The *PC Connection* dialog box displays.

2. Check and enable the ‘*Enable direct connections to the desktop computer*’ box to connect the FC-2600 to the PC.



Figure 4-1. PC Connection Properties Dialog Box

3. Tap **Change Connection**. The *Change Connection* dialog box displays (Figure 4-2).

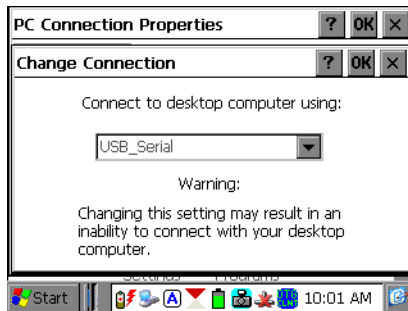


Figure 4-2. Change Connection Dialog Box

4. Select **USB_Serial** from the ‘*Connect to desktop computer using*’ drop-down entry box, and tap **OK** to return to the *PC Connection* dialog box.
5. Tap **OK** again to return to the *Control Panel*.
6. Close the **Control Panel** and return to the Windows CE desktop.

Using the Windows Mobile Device Center

The Windows Mobile Device Center (Figure 4-3) is a desktop utility program that allows you to synchronize certain types of information between a PC and the FC-2600. To operate the Windows Mobile Device Center on your computer, do the following:

- Plug one end of the interface cable into your computer and the other end into the FC-2600.
- The name of your device displays with a check mark showing that you are either connected or an X if you are disconnected.



Figure 4-3. Set Up a Partnership

On the **Windows Mobile Device Center** screen, you can do the following:

Programs and Services Double-click on the Programs and Services option to get updates, downloads, and add/remove programs to/from your mobile device (Figure 4-4 on page 4-4).



Figure 4-4. Programs and Services

Pictures, Music and Video Double-click on the Pictures, Music, and Video option to import videos and pictures and to add media from the Windows Media player to your device (Figure 4-5).

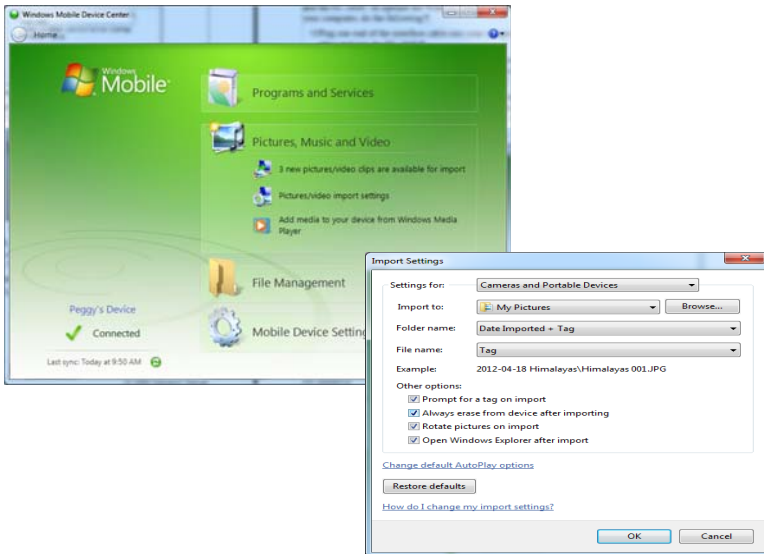


Figure 4-5. Pictures, Music, and Videos

File Management Double-click on the File Management option to have access to all files on your mobile device (Figure 4-6).



Figure 4-6. File Management

Mobile Device Settings Double-click on the Mobile Device Settings option to change, start or stop syncing contents, edit shared settings between your mobile device and the PC, and to change settings connected to the mobile device (Figure 4-7).

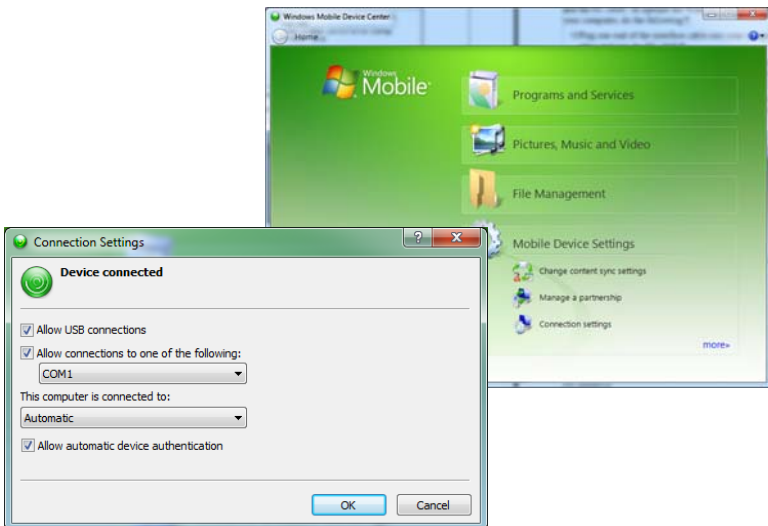


Figure 4-7. Mobile Device Settings

Troubleshooting

This chapter helps you diagnose and solve some common problems you may encounter with the FC-2600.



Do not attempt to repair equipment yourself. Doing so voids your warranty and may damage the hardware.

Before contacting Topcon support, check the following:

My FC-2600 does not respond when I press the power button

- Make sure the unit is not in Suspend mode
- If the unit is operating on battery power, make sure the batteries have not discharged.
- Make sure all of the cables are properly connected.

I changed my system settings, but when I turn on the FC-2600, my settings are gone

You must save the registry after making any system or configuration changes.

I transferred files to the FC-2600 from my computer, but when I turn on the FC-2600, my transferred files are missing

- To permanently store transferred files, copy the files into internal flash memory or a compact flash card.
- Occasionally, transferred files can be hidden from view. Double-tap **My Computer**, select **View ▶ Options** and clear all boxes.

I cannot connect to the development system using ActiveSync •

- Make sure you have administrator access to ActiveSync.
- Confirm the cables are properly connected.

- Make sure the serial communications configuration is correct.
- Make sure the correct COM port is available.
- In ActiveSync, make sure you are using the correct connection settings for the connection type you are using, such as USB, serial, or Ethernet.

The screen is too light or too dark

Adjust the lighting by using the *Backlight* option in the Control Panel to adjust the brightness.

Tap **Start ▶ Settings ▶ Control Panel ▶ Backlight**. The *Backlight Control* dialog box displays. Use the backlight control slider to increase or decrease the lighting on the main screen display.

The stylus is not responding properly

Recalibrate the screen. The screen is not calibrated correctly to interpret the screen taps.

Tap **Start ▶ Settings ▶ Control Panel ▶ Stylus**. The *Stylus Properties* dialog box displays. On the *Calibration* tab, press the **Recalibrate** button to recalibrate the screen.

The FC-2600 responds slowly

The device may be short of program memory or storage memory. To increase memory, tap **Start ▶ Settings ▶ Control Panel ▶ System**. The *System Properties* dialog box displays. On the *Memory* tab, do the following:

- Increase the amount of storage or program memory by adjusting the memory slider
- You can also delete any unnecessary files

I get little or no sound from the FC-2600

Use the *Volume & Sounds* control in the Control Panel to adjust the volume and sound properties.

No sound is heard when I tap the touch screen or press a key

- Make sure the volume setting is high and turned on.

- Make sure the volume slider in the **Volume and Sound** properties dialog box in the Control Panel is set to a high level.

The FC-2600 goes into automatic Suspend mode after a short period of inactivity

- The device automatically defaults to Suspend mode after two minutes of inactivity while running on batteries and after 30 minutes of inactivity when running on AC power.
- Use Power control in the Control Panel to adjust the power management properties to.

Obtaining Technical Support

If the troubleshooting hints and tips in this Operator's Manual fail to remedy the problem, contact TPS Customer Support.

Before contacting TPS Customer support about any problems with the FC-2600 hand-held computer, see "Troubleshooting" on page 5-1 for some solutions that may fix the problem.

Phone

To contact TPS Customer Support by phone, call:

1-866-4TOPCON (1-866-486-7266)
Monday through Friday
7:00 a.m. to 5:00 p.m., Pacific time

e-Mail

To contact TPS Customer Support via e-mail, use one of the following e-mail addresses (Table 5-1).

Table 5-1. Technical Support E-mail

For Questions Related To...	Use...
Hardware (receivers, antennas, firmware)	hardware@topcon.com
GPS+ and 3DMC	psg@topcon.com
OAF	options@topcon.com

Table 5-1. Technical Support E-mail (Continued)

For Questions Related To...	Use...
RTK	rtk@topcon.com
PC-CDU	pccdu@topcon.com
If in doubt...	support@topcon.com



For quick and effective support, provide a detailed description of the problem.

When e-mailing TPS customer support, provide the following information for better, faster service:

1. The receiver model and configuration settings.
 In PC-CDU, click **Help ▶ About**, and click **Save to file**. Enter a name for the file, and save it to your computer. Attach this file to the e-mail.
2. The system/hardware specifications for the computer running PC-CDU; such as operating system and version, memory and storage capacity, processor speed, and so forth.
3. The symptoms and/or error codes/messages that precede and follow the problem.
4. The activities being tried when the problem occurs. If possible, include the exact steps being taken when the error message or other problem occurs.
5. How regularly the problem occurs.

Generally, a customer support representative will reply within 24 hours, depending on the severity of the problem.

Website

The Topcon Positioning Systems website provides current information about Topcon’s line of products. The support area of the website provides access to frequently asked questions, configuration procedures, manuals, e-mail support, and so forth.

To access the TPS website, go to www.topconpositioning.com.

Specifications

The sections in this appendix give the features and specifications for the physical components of the FC-2600 hand-held computer.

FC-2600 Specifications

The following sections provide specifications for the FC-2600 hand-held computer and its internal components.

General Specifications

Table A-1 lists the general specifications for the FC-2600.

Table A-1. General Receiver Specifications

Physical	
Enclosure	General Electric Xenoy
Color	Topcon Yellow and Topcon Blue??
Dimensions	<p>(Display area): (H)10.85 in (217.6mm) x (W) 5.34 in (135.6mm)</p> <p>Width (Keypad area): 3.05 in - 4.80 in. (77.5 – 121.9mm)</p> <p>Width (Active area): 2.89 in x 2.19 in (73.4 – 55.6mm)</p>
Weight	<p>(With Dual Batteries):</p> <ul style="list-style-type: none"> • 2.36 lbs <p>(Without Batteries):</p> <ul style="list-style-type: none"> • 30.20 oz (856.2g)

Table A-1. General Receiver Specifications (Continued)

Battery	<ul style="list-style-type: none"> • Battery capacity of 36 WATT-hours • 40+ hours typical operational time* • 3 hours recharge time* • Smart Battery System • Dual Lithium Ion Extended Capacity Rechargeable Batteries 5000 mAh, 7.4V <p>*actual time may vary, based on a variety of conditions</p>
Keypad	Keypad – 55 keys, plus an 8+1 directional pad The keyboard is constructed of sheer-proof solid hard keys.
LEDs	Five status LEDs Charge/Low battery indicator (battery-powered units)
Power	
Input voltage	Input at 12 -18 VDC, 36 WATTS. Only use the specified Topcon AC adapter.
Rechargeable Battery	<ul style="list-style-type: none"> • Hot-swappable • Lithium-Ion rechargeable • Smart Battery System
Voltage	7.4 volts
Capacity	5000 mAh
Battery charge	~4
Charging time	~6 hours for full charge
Memory	256MB SDRAM 2GB System Flash (30MB reserved for OS)
Display	
Type	Amorphous silicon active matrix AD-TFT color display. Outdoors readable with a diagonal screen size of 3.52” (8.9cm)
Resolution	320 x 240 pixels QVGA color 1 pixel = RGB dots

Table A-1. General Receiver Specifications (Continued)

Environment	
Operating temperature	-4°F to +122°F (-20°C to +50°C)
Storage temperature	-4°F to +158°F (-20°C to +60°C)
Charging Temperature	0 to + 40°C
Humidity	5% to 95% (non-condensing) (MIL-STD 810F Method 507.4)
Shock Resistance	4ft all faces, per MIL-STD 810F Method 516.5IV
Ruggedness	<ul style="list-style-type: none"> • Water immersion and Dust Protection: IP67 for ultra-rugged environments. IP67 – water-tight, IP66 – high pressure water, IP6X – dust tight, 8 hours continuous 75um particles. • Drop and Shock Protection: 26 drops 1.2m all faces, corners, and edges, per MIL-STD 810F Method 516.5 IV
I/O	
Port specifications	DE-9 RS-232C (D-Sub 9pin) serial connector Mini USB 2.0 A/B USB OTG Host and Client
CPU	
Wireless	<ul style="list-style-type: none"> • SDC-MFC10G Radio – Summit Data Systems™ (Wi-Fi CERTIFIED™ for WPA-Personal, WPA-Enterprise, WPA2-Personal, and WPA2-Enterprise - Certified for Cisco Compatible Extensions Version 4 (CCX-V4)) • Bluetooth® –Version 1.2 Class II • Wi-Fi – 802.11 b/g • Integrated Internal Antennas • Optional RS-1, 2.4 GHz SpSp Radio
Type	Marvell XScale® PXA 270 Processor
Speed	624 MHz
OS	Windows CE.NET 6.0

Table A-1. General Receiver Specifications (Continued)

Clock	Real Time clock with rechargeable Lithium backup
Camera System	
Color Image Sensor	<ul style="list-style-type: none"> • 5.17 megapixels color CMOS sensor – (4 megapixel processed) • Auto Focus, Shutter, Aperture, and Illumination
Resolutions (Available)	<ul style="list-style-type: none"> • 320x200 (HF) • 640x480 (VGA) • 2048x1944 (QSXGA) • 1280x960 (SXGA)
Bar Code Symbology	<ul style="list-style-type: none"> • Code 128 • Code 39 • Code 2 of 5 • EAN-13 • PDF-417 (2D Code)
Lens	High quality IR coated glass optics (polarizing lens option)
Regulatory	<ul style="list-style-type: none"> • FCC Part 15 • CE • IC • RoHS Compliant • WEEE • C-tick
Shutter Speeds	Up to 1/500 of a second
Focal Length	Macro 2.25 inches to infinity
Aperture	Automatic, F 2.8 or F 8.0 (software selectable)
LED	Four white LEDs, each with a luminous flux of 100 lm
Laser Focus System	Two class IIIa-type lasers that operate at 635 nm at a radiated power of 3 mW
Multimedia	
Audio	<ul style="list-style-type: none"> • Integrated Speaker and Microphone • Audio Bridge Circuitry

Regulatory Information

The following section contains information on this product's compliance with government regulations for use.

FCC Compliance

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

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

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

- Reorient or relocate the receiving antenna.
- Move the equipment away from the receiver.
- Plug the equipment into an outlet on a circuit different from that to which the receiver is powered.

- Consult the dealer or an experienced radio/television technician for additional suggestions.



Any changes or modifications to the equipment not expressly approved by the party responsible for compliance could void your authority to operate such equipment.

Community of Europe Compliance

The product described in this manual is in compliance with the R&TTE and EMC directives from the European Community.

Canadian Emission Labeling Requirements

1. Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.
2. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that permitted for successful communication.
3. This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.
4. The installer of this radio equipment must ensure that the antenna is located or pointed such that it does not emit RF field in excess of Health Canada limits for the general population; consult Safety Code 6, obtainable from Health Canada's website: www.hc-sc.ca/rpb.

Cet appareil numérique de la classe B respecte conform a la norme NMB-003 du Canada.

Canadian Radio Frequency Emissions Statement

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

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

FCC Class A



This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case, the user will be required to correct the interference at his own expense.

To maintain compliance with the limits of a Class A digital device, Topcon requires that you use quality interface cables when connecting to this device. During testing for certification Category 5 cables were used.



Modifications to this product not authorized by Topcon Positioning Systems, Inc., could void FCC approval and negate your authority to operate the product.

The user may find the following booklet prepared by the Federal Communications Commission helpful: The Interference Handbook, available from the U.S. Government Printing Office, Washington, D.C. 20402. Stock No. 004-000-00345-4.

For more information regarding the above statement, please contact Topcon Positioning Systems, Inc., 7400 National Drive, Livermore, CA 94550 USA; telephone 800-443-4567.

CISPR 22 (EN 55022) Class A



This is a class A product. In a domestic environment, this product may cause radio interference, in which case, the user may be required to take adequate measures.

Canadian Regulatory Information (Canada Only)

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Note that Industry Canada regulations provided, that changes or modifications not expressly approved by Topcon Positioning Systems, Inc. could void your authority to operate this equipment.

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

- **Canada RSS-210/CNR210 (RF Remote Controller)**

To prevent radio interference to the licensed service, this device is intended to be operated indoors and away from windows to provide maximum shielding. Equipment (or its transmit antenna) that is installed outdoors is subject to licensing.

To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (EIRP) is not more than that required for successful communication.



This Class B digital apparatus complies with Canada RSS-210.

Cet appareil numérique de la classe B est conforme à la norme CNR-210 du Canada.

The abbreviation, IC, before the registration number signifies that registration was performed based on a Declaration of Conformity indicating that Industry Canada technical specifications were met. It does not imply that Industry Canada approved the equipment.

Declaration of Conformity for CE Mark

We, at Topcon Corporation, declare EC conformity for the following product:

Brand	Topcon
Model/Type	FC-2600 & RS-1 Radio
Model Numbers	60727 & 60434
Manufacturer's Name	Two Technologies, Inc.
Manufacturer's Address	419 Sargon Way Horsham, Pennsylvania 19066 United States of America

The FC-2600 Mobile Computer satisfies all the technical regulations applicable to the following directives:

- EMC per R&TTE Directive (1999/5/EEC)
 - EN 301 489-17 V1.2.1:2006
 - EN 55022:1998
- Radio Systems per R&TTE Directive: EN 300 328 V1.7.1:2002-08
- Low Voltage Directive (2006/95/EC)
 - N60950-1:2006 Safety of Information Technology Equipment
 - EN60825-1:1994 Safety of laser products

EU Representative:

Name	Topcon Europe Positioning B.V.
Address	Esse Baan 11, 2908 LJ Capelle a/d IJssel, The Netherlands
Country	The Netherlands
Telephone	+31-10-4585077
FAX	+31-10-4585045

WEEE Directive

The following information is for EU-member states only:

The use of the symbol below indicates that this product may not be treated as household waste. By ensuring this product is disposed of correctly, you will help prevent potential negative consequences for the environment and human health, which could otherwise be caused by inappropriate waste handling of this product. For more detailed information about the take-back and recycling of this product, please contact your supplier where you purchased the product or consult.



WEEE Directive



This symbol is applicable to EU member states only.

Following information is only for EU-member states:

The use of the symbol indicates that this product may not be treated as household waste. By ensuring this product is disposed of correctly, you will help prevent potential negative consequences for the environment and human health, which could otherwise be caused by inappropriate waste handling of this product. For more detailed information about the take-back and recycling of this product, please contact your supplier where you purchased the product or consult.



EU Battery Directive

This symbol is applicable to EU member states only.

Battery users must not dispose of batteries as unsorted general waste, but treat properly.

TOPCON CORPORATION

EMC and Radiocommunications Compliance Labeling Using the C-Tick Mark

The use of the C-Tick logo below and the company ID (N13813) indicates that this product complies with the Australian Communications and Media Authority's EMC (electromagnetic compatibility) and Radio communication standards. The compliance label also establishes a traceable link between the equipment and the manufacturer, importer, or the agent responsible for compliance and for placing it on the Australian market.



N13813

The C-Tick mark is a certification trademark registered to the ACA (Australian Communications Authority) in Australia under the 1995 Trade Marks Act and to RSM (Radio Spectrum Management) Group in New Zealand under section 47 of the NZ Trade Marks Act.

The mark is only to be used in accordance with conditions laid down by the ACA and RSM.

Safety Warnings

General Warnings



To comply with RF exposure requirements, maintain at least 25cm between the user and the radio modem.

Battery Pack Warnings



Never attempt to open the casing of the detachable batteries! Lithium-Ion batteries can be dangerous if mishandled!



Do not incinerate or heat battery pack above 212 degrees Fahrenheit (100 degrees celsius). Excessive heat can cause serious damage and possible explosion.



Tampering with the batteries by end users or non-factory authorized technicians will void the battery's warranty.

- Do not attempt to open the battery pack or to replace it.
- Do not disassemble the battery pack.
- Do not charge in conditions different than specified.
- Do not use a battery charger other than the one specified by Topcon.
- Do not short circuit.
- Do not crush or modify.



This product contains a CR Lithium Battery which contains Perchlorate Material – special handling may apply.

See <http://www.dtsc.ca.gov/hazardouswaste/perchlorate/>

Note: This is applicable to California, USA only.

Usage Warnings



Handling the cord on this product, or cords associated with accessories sold with this product, exposes you to lead, a chemical known to the State of California to cause birth defects or other reproductive harm. ***Wash hands after handling.***



If this product has been dropped, altered, transported or shipped without proper packaging, or otherwise treated without care, erroneous measurements may occur.

The owner should periodically test this product to ensure it provides accurate measurements.

Inform TPS immediately if this product does not function properly.



Only allow authorized TPS warranty service centers to service or repair this product.

Warranty Terms

TPS (Topcon Positioning Systems) laser and electronic positioning equipment are guaranteed against defective material and workmanship under normal use and application consistent with this Manual. The equipment is guaranteed for the period indicated, on the warranty card accompanying the product, starting from the date that the product is sold to the original purchaser by TPS' Authorized Dealers.¹

During the warranty period, TPS will, at its option, repair or replace this product at no additional charge. Repair parts and replacement products will be furnished on an exchange basis and will be either reconditioned or new. This limited warranty does not include service to repair damage to the product resulting from an accident, disaster, misuses, abuse or modification of the product.

Warranty service may be obtained from an authorized TPS warranty service dealer. If this product is delivered by mail, purchaser agrees to insure the product or assume the risk of loss or damage in transit, to prepay shipping charges to the warranty service location and to use the original shipping container or equivalent. A letter should accompany the package furnishing a description of the problem and/or defect.

The purchaser's sole remedy shall be replacement as provided above. In no event shall TPS be liable for any damages or other claim including any claim for lost profits, lost savings or other incidental or consequential damages arising out of the use of, or inability to use, the product.

1. The warranty against defects in a Topcon battery, charger, or cable is 90 days.

