Foreword

Thank you for purchasing the TOPCON Data Collector FC-200. For superior product performance, please read this instruction manual carefully and keep it in a convenient place for future reference.

General Handling Precautions

• Before starting work or operation, be sure to check that the instrument is functioning correctly with normal performance.
• Always make sure instrument is dry before putting it in the soft case. Never store a damp instrument.
• Do not leave the instrument under strong sunlight for a long time. It may cause the instrument to malfunction.
• When waterproofness is necessary, close all the caps securely. However, the serial connector has a waterproof structure, so it will remain waterproof even if its cap is not closed.
Display for Safe Use

In order to ensure the safe use of this product, prevent any danger to the operator or others, or damage to property, important warnings are placed on the product and inserted in the instruction manual. We recommend that you become familiar with the meaning of these Warnings and Cautions before continuing.

<table>
<thead>
<tr>
<th>Display</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>![WARNING]</td>
<td>Ignoring or disregard of this display may lead to the danger of death or serious injury.</td>
</tr>
<tr>
<td>![CAUTION]</td>
<td>Ignoring or disregard of this display may lead to personal injury or physical damage.</td>
</tr>
</tbody>
</table>

- Injury refers to hurt, burn, electric shock, etc.
- Physical damage refers to extensive damage to equipment and structure or furnishings.
Safety Cautions

<table>
<thead>
<tr>
<th>WARNING</th>
</tr>
</thead>
<tbody>
<tr>
<td>There is a risk of fire, electric shock or physical harm if you attempt to disassemble or repair the instrument yourself. This is only to be carried out by TOPCON or an authorized dealer, only!</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>May ignite explosively.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never use an instrument near flammable gas, liquid matter, and do not use in a coal mine.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>High temperature may cause fire.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do not cover the charger while it is charging.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Risk of fire or electric shock.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do not use a wet battery or charger.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Battery can cause explosion or injury.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do not dispose in fire or heat.</td>
</tr>
</tbody>
</table>

| To reduce the risk of hazards, use only CSA/UL certified power supply cord set, cord is Type SPT-2 or heavier, minimum No.18 AWG copper, one end is provided with a moulded-on male attachment plug cap (with a specified NEMA configuration), and the other end is provided with a moulded-on female connector body (with a specified IEC non-industrial type configuration). |

<table>
<thead>
<tr>
<th>The short circuit of a battery can cause a fire.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do not short circuit battery when storing it.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Battery can cause outbreak of fire.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do not use any other type of charger other than the one specified.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Risk of fire or electric shock.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do not use any power voltage except the one given on manufacturers instructions.</td>
</tr>
<tr>
<td>CAUTION</td>
</tr>
<tr>
<td>------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Do not allow skin or clothing to come into contact with acid from the</td>
</tr>
<tr>
<td>batteries, if this does occur then wash off with copious amounts of</td>
</tr>
<tr>
<td>water and seek medical advice.</td>
</tr>
<tr>
<td>Do not connect or disconnect equipment with wet hands, you are at risk</td>
</tr>
<tr>
<td>of electric shocks if you do!</td>
</tr>
<tr>
<td>Do not touch the charger, AC-DC converter or heating part of the</td>
</tr>
<tr>
<td>instrument for a long period while charging the battery. There is a</td>
</tr>
<tr>
<td>risk of low-temperature burn.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Exceptions from Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) The user of this product is expected to follow all operating</td>
</tr>
<tr>
<td>instructions and make periodic checks of the product’s performance.</td>
</tr>
<tr>
<td>2) The manufacturer, or its representatives, assumes no responsibility</td>
</tr>
<tr>
<td>for results of a faulty or intentional usage or misuse including any</td>
</tr>
<tr>
<td>direct, indirect, consequential damage, and loss of profits.</td>
</tr>
<tr>
<td>3) The manufacturer, or its representatives, assumes no responsibility</td>
</tr>
<tr>
<td>for consequential damage, and loss of profits by any disaster, (an</td>
</tr>
<tr>
<td>earthquake, storms, floods etc.), fire, accident, or an act of a third</td>
</tr>
<tr>
<td>party and/or a usage in other than usual conditions.</td>
</tr>
<tr>
<td>4) The manufacturer, or its representatives, assumes no responsibility</td>
</tr>
<tr>
<td>for any damage, and loss of profits due to a change of data, loss of</td>
</tr>
<tr>
<td>data, an interruption of business etc., caused by using the product or</td>
</tr>
<tr>
<td>an unusable product.</td>
</tr>
<tr>
<td>5) The manufacturer, or its representatives, assumes no responsibility</td>
</tr>
<tr>
<td>for any damage, and loss of profits caused by usage other than</td>
</tr>
<tr>
<td>explained in the user manual.</td>
</tr>
<tr>
<td>6) The manufacturer, or its representatives, assumes no responsibility</td>
</tr>
<tr>
<td>for damage caused by wrong movement, or action due to connecting with</td>
</tr>
<tr>
<td>other products.</td>
</tr>
</tbody>
</table>
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Standard Package Components

Upon opening, make sure that all the followings are included.

1) FC-200 Instrument.................................................... 1set
2) BT-62Q Battery ......................................................... 1pc.
3) AC-DC converter AD-11B or AD-11C*1)................... 1pc.
4) Interface cable F-25.................................................. 1pc.
5) Handstrap ................................................................. 1pc.
6) Soft case ................................................................... 1pc.
7) Stylus pen ................................................................. 1pc.
8) Display protection sheet ........................................... 5pcs.
9) Instruction manual .................................................... 1copy

*1) AD-11B is for AC 120V use,  AD-11C is for AC 230V use.
Nomenclature

FC-200

Display and Touch screen

Card slot cap

Speaker

Wireless LED

Escape key

Alt key

Home key

Cursor keys

AC-DC Adapter
Connector cap

Stylus pen

Charge LED

Enter key

Windows key

Power key

Microphone

Connector caps

Hook for tripod

Hook for handstrap

Battery cover

Battery cover knob

Hook for handstrap
To eject the CF card, stand the button up, then press it.

These figures show the FC-200 with the cap opened.
Wireless LED
Display of Wireless Transmission Status
  Flashing Green: Transmitting via Bluetooth
  Flashing Red: Transmitting via Wireless LAN (optional)
  Flashing Orange: Transmitting via RS-1 (optional)
When transmitting via more than one wireless, flashing will occur in sequence.

Shortcut Keys

<table>
<thead>
<tr>
<th>Shortcut Commands</th>
<th>Continue tapping on an item</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OR</td>
</tr>
<tr>
<td></td>
<td>Press [Alt] +</td>
</tr>
<tr>
<td></td>
<td>tap on an item</td>
</tr>
</tbody>
</table>

are the same as a right click on a mouse. A menu is displayed containing commands specific to the item.
### Connectors

#### Serial connector

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>No.1</td>
<td>DCD</td>
<td>(IN)</td>
</tr>
<tr>
<td>No.2</td>
<td>RXD</td>
<td>(IN)</td>
</tr>
<tr>
<td>No.3</td>
<td>TXD</td>
<td>(OUT)</td>
</tr>
<tr>
<td>No.4</td>
<td>DTR</td>
<td>(OUT)</td>
</tr>
<tr>
<td>No.5</td>
<td>GND</td>
<td></td>
</tr>
<tr>
<td>No.6</td>
<td>DSR</td>
<td>(IN)</td>
</tr>
<tr>
<td>No.7</td>
<td>RTS</td>
<td>(OUT)</td>
</tr>
<tr>
<td>No.8</td>
<td>CTS</td>
<td>(IN)</td>
</tr>
<tr>
<td>No.9</td>
<td>RI</td>
<td>(IN)</td>
</tr>
</tbody>
</table>

#### USB Connector (Type Mini-B)

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>No.1</td>
<td>VDD</td>
</tr>
<tr>
<td>No.2</td>
<td>V-</td>
</tr>
<tr>
<td>No.3</td>
<td>V+</td>
</tr>
<tr>
<td>No.4</td>
<td>NC</td>
</tr>
<tr>
<td>No.5</td>
<td>GND</td>
</tr>
</tbody>
</table>

#### USB Connector (Type A)

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>No.1</td>
<td>VCC</td>
</tr>
<tr>
<td>No.2</td>
<td>V-</td>
</tr>
<tr>
<td>No.3</td>
<td>V+</td>
</tr>
<tr>
<td>No.4</td>
<td>GND</td>
</tr>
</tbody>
</table>
Battery

Battery Installation

1. Remove the handstrap.
2. Slide the battery cover knob in the direction of arrow.
3. Open the battery cover.
4. Insert batteries in the direction as shown in the figure to the right.
5. Close the battery cover.

* When the battery cover is opened, it will automatically change to suspension mode (Power OFF).
Battery Charging

1. After installing the battery, plug the connector of AD-11B/11C in the FC-200.

2. Plug the AD-11B/11C in an outlet. Then the charge LED will light. Charging is completed after approximately 4 hours.

The charge LED of FC-200 will indicate charging status:
- Red ON : Charging.
- Green ON : Charging completed.
- Red Flashing : Charging error.

**Note**
The instrument may develop heat while charging, there is no problem of it.
Note
1) Recharge batteries at the room temperature between +10°C to +40°C (+50°F to +104°F).
2) The battery source will discharge when not being used. Always charge before use.
3) If the instrument is not used over an extended period of time, be sure to charge battery source every 15 days and store in a place at 30°C or below. If you allow the battery to be completely discharged, it will have an effect on the proper charging in the future.
4) The charger may develop heat while charging. This is not a breakdown.
5) Attempting to charge batteries immediately after charging may cause a degradation of the batteries.
6) Do not charge successively. It may cause degradation of batteries and/or the battery charger. If more charging needs to be done, wait approximately 30 minutes before charging.
Setting Handstrap

1 Set the handstrap on the handstrap hook ①.
2 Set the handstrap on the handstrap hook ②.
Touch Screen

Adjusting Touch Screen

1 Turn on the instrument after hard-reset or tap [Start], [Setting], [Control Panel], [Stylus], [Calibration], [Recalibrate].

2 Using a stylus pen, touch the center of the target.

3 After touching all targets(5 points), press [ENT] key or tap the display. (Use an accessory stylus pen to touch a screen. Do not use neither a ball-point pen nor pencil.)
Transmission Data to The PC
Using Interface Cable

1 Install ActiveSync in your PC (if it is not already installed).
2 Connect the FC-200 to your PC with an interface cable F-25 as shown below.
3 The FC-200 will give the prompt, “Connecting to Host”.
4 The PC will prompt you to set up a partnership or set up as a guest.
5 Select the [NO] key to setting up as a guest.
6 Press the [Next] key. Once a connection has been established, the ActiveSync window will appear on your PC.
7 Click the [Explorer] icon. You will then see the FC-200 file structure.

Reference software for Connectivity
See the WEB page as follows.
http://www.microsoft.com/windowsmobile/
RAM Data Backup

If your device had not recharged during several days, the battery will be running down, and you would lose all of data on the device other than that in the "Flash ROM (internal Flash ROM)". In addition, you might perform hardware-reset by the hardware problem or software problem. In this case, you would lose all data same as the above.

You can use Backup function of FC-200 in order to evade such kind of uneasiness. Your data will be restored to latest condition* automatically when rebooting by using the Backup function. The Backup function saves all data files of RAM (except for OS files), registry file and additionally installed programs into named "Backup" folder in the "Flash ROM".

Execute the Backup function

1 Tap the icon "Start"-"Settings"-"Control Panel"-"System"-"Backup". You can see the "RAM Backup" screen on Display.

2 Tap the "Backup" button. Backup function will start. Return to "RAM Backup" screen automatically, when the data back up has been completed.

3 Tap the button "OK" on title bar. After that "RAM backup" screen will close automatically.

---

* Restoring former backed up data may be incomplete if you upgrade OS version.
* The conditions that you executed the backup function last.

---

* Backing up data may be incomplete if remaining capacity of "Storage Card" is not enough. Please make sure the remaining capacity of "Storage Card" before proceeding to the data back up.
* Restoration will be impossible if you delete the "Backup" folder in the "Storage Card".
Set the Automatic Backup for every suspension

1 On the "RAM Backup" Screen, please check it 'ON' "RAM data will be backed up before suspension". (Factory setting is 'OFF' as default)

2 Tap the button "OK" on title bar. After that, "RAM backup" screen will close automatically.

Set the restoration disabled after hard reset

1 On the "RAM Backup" Screen, check it 'OFF' the "Data restoration after hard reset." (Factory setting is 'ON' as default)

2 Tap the button "OK" on title bar. After that, "RAM backup" screen will close automatically.
Using Bluetooth
The FC-200 has Bluetooth transmission function built-in. Information can be exchanged between instruments equipped with the same function using wireless. *1)

**Bluetooth ON/OFF**
Follow the procedure below to turn on the Bluetooth function.

1. Tap on [Start]→[Settings]→[Control Panel]→[BtPower] icon.

When the Bluetooth function is turned ON, the wireless LED will flash in green color.

Turn on Bluetooth only when being used. If Bluetooth is left ON, operation time will be shortened.

*1) Serial Port Profile Capable
Using Wireless LAN (Option)
It is possible to connect to a network via wireless if Wireless LAN function, an optional hardware, is used.

**Wireless LAN ON/OFF**
Follow the procedure below to turn on the Wireless LAN function.

1. Tap on [Start]→[Settings]→[Control Panel]→[WLan Power] icon.
   When the Wireless LAN function is turned ON, the wireless LED will flash in red color.

   Turn on Wireless LAN only when being used. If Wireless LAN is left ON, operation time will be shortened.

Using Radio System RS-1 (Option)
Installing the Radio System RS-1, an optional system, enables transmission with Total Station with wireless.
Refer to the application help for details on setting RS-1.

   Turn on RS-1 only when being used. If RS-1 is left ON, operation time will be shortened.
Resetting FC-200

If there is no response to the pressing of a key or tapping of the display, you need to reset the FC-200. There are 3 methods to reset the FC-200.

**Soft Reset**

With the soft reset, all running applications will be shutdown, and data you are editing will be lost; however, installed programs and stored data are protected.

**How to soft reset**

1. Remove all cables or cards (CFs, SDs) that are currently mounted.
2. While pressing the [Alt] key, press the cursor key to right and up direction for at least 2 seconds.

**Hard Reset**

If the instrument does not function properly after soft reset has been done, perform a hard reset. A hardware reset will revert all settings to defaults and erase all RAM data.

> A hardware reset will erase all RAM data and applications. Regular backups will ensure RAM data and applications can be restored.

**How to hard reset**

1. Remove all cables or cards (CFs, SDs) that are currently mounted.
2. Lightly press the Hard reset switch in the middle of the card slot with stylus pen for at least 2 seconds.
## Specifications

### Controller
- **Microprocessor**: XScale PXA 270
- **Processor speed**: 520MHz
- **Operating system**: Microsoft® Windows CE 5.0
- **Memory**:
  - RAM: 128/256MB SDRAM
  - ROM: 256/512MB Flash ROM
- **Display**:
  - Resolution: 230×320 QVGA
  - Type: 3.7 inch TFT Color LCD
  - Number of colors displayed: 262,144 colors
  - Light: LED back light
- **Touch panel**: Analog resistive film
- **Keyboard**: 7 keys (Power key included)
- **LED**: 2 LEDs (charge, wireless)
- **Interface**:
  - Conforming to RS-232C (D-sub 9)
  - USB (rev 1.1) (Type Mini-B)
  - USB (rev 1.1) (Type A) *1)
  - Compact Flash (conforming to Type I/II)
  - SDIO/MMC card slot
  - RS-1 (Optional wireless system) connection port (special 30 pins)
- **External power**: 12V 3A (Max.)
- **Audio**: Sealed speaker (mono), sealed microphone
**Bluetooth™ Functions**
Transmission specifications : Bluetooth™ version 1.2
Transmission method : Frequency hopping spread spectrum (FH-SS) communication
Modulation method : GFSK
Data transmission speed : 1Mbps (Max.)
Antenna : Chip Antenna (built-in)
Frequency range : 2.4GHz (2,402~2,480MHz) (0~78ch)
Transmission distance : 5m (In good visibility) *2)
Corresponding profile : Serial port

**Wireless LAN Function (Option)**
Transmission specifications : IEEE802.11b/g
Transmission method : Direct sequence spread spectrum (DS-SS) communication
Access method : Infrastructure mode
Antenna : Diversity method (built-in)
Security : WEP(128/64bit), TKIP
Frequency range : 2.4GHz (2,412~2,478MHz) (1~13ch)
Transmission output : 30mW
Transmission distance : 10m (In good visibility)
Water resistance and dust resistance
   : IP66 *3)
Operation temperature : -20°C to +50°C
Storage temperature : -30°C to +60°C
Shock resistance : Dropping this instrument from a height of 1 meter does not affect its functions *4)
Operating time : Approx. 15 hours (typical use)
Charging time : Approx. 4 hours (with AC-DC converter AD11B/11C)
Dimensions : 196×107×61 (mm)
Weight : 0.72kg (with battery)

*1) Connector size is within 9.0×16.5 mm.
*2) Transmission distance is influenced by the environment. The distance of radio wave transmission may be reduced in reinforced concrete buildings or near large-sized metal furniture.
*3) When caps are installed.
*4) Each of the instrument's 6 sides was dropped onto a concrete surface, and the instrument's operation was then confirmed. Only the exterior of the instrument was damaged.

Battery (BT-62Q)
Type : Lithium-ion battery
Regular voltage : 7.4V
Nominal capacity : 2,200mAh
Exterior dimensions : 72×39×22 (mm)
Weight : 110g

AC-DC Converter (AD-11B/11C)
Input : 100~240V 50~60Hz, 1.4A
Output : 12V 3A Max. 36W
Charging temperature : 0°C to +40°C
Exterior dimensions : 88×41×27 (mm)
(Not including cable)
Weight : 200 g
Storage precautions

Always clean the instrument after use.
1) If the instrument becomes wet from rain, dry moisture and stow in its soft case.
2) To clean the instrument, dust off well and then wipe clean with a soft cloth.
Use a clean cloth moistened with neutral detergent or water to clean the soft case. Never use ether, benzene, thinner or other solvents.

Bluetooth™ is a trademark owned by Bluetooth™ SIG., Inc., U.S.A.
XScale is a registered trademark of US Intel Corporation in the U.S.A and other countries.
Microsoft, Window Mobile and ActiveSync are registered trademarks of US Microsoft in the U.S.A and other countries.
Regulatory Information

The following sections provide information on this product’s compliance with government regulations.

**FCC Class B 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 Class B 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 on 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.
CAUTION
Any changes or modifications to the equipment not expressly approved by the party responsible for compliance could void your authority to operate such equipment.

Canadian Emissions Labeling Requirements
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.
Community of Europe Compliance

We, Topcon Corporation, declare EC Conformity for the following products:

Product Identification:
- Brand: Topcon
- Model/Type: FC-200 DATA COLLECTOR

Manufacturer:
- Name: TOPCON CORPORATION
- Address: 75-1, Hasunuma-cho, Itabashi-ku, TOKYO, 174-8580
- Country: JAPAN
- Tel: 03-3558-2511  Fax: 03-3966-4401

Standards used:
- EN 60 950:2002
- EN 300 328-2:2001
- EN 301489-1 V1.4.1 (2002-08)
- EN 301 489-17 V1.2.1 (2002-08)

We, the manufacturer (name of the manufacturer) hereby declare that this equipment (type of the equipment), model FC-200 is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.