



INSTRUCTION MANUAL DATA COLLECTOR

FC-200

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.

Display	Meaning
 WARNING	Ignoring or disregard of this display may lead to the danger of death or serious injury.
 CAUTION	Ignoring or disregard of this display may lead to personal injury or physical damage.

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

Safety Cautions



WARNING

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!

May ignite explosively.

Never use an instrument near flammable gas, liquid matter, and do not use in a coal mine.

High temperature may cause fire.

Do not cover the charger while it is charging.

Risk of fire or electric shock.

Do not use a wet battery or charger.

Battery can cause explosion or injury.

Do not dispose in fire or heat.

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).

The short circuit of a battery can cause a fire.

Do not short circuit battery when storing it.

Battery can cause outbreak of fire.

Do not use any other type of charger other than the one specified.

Risk of fire or electric shock.

Do not use any power voltage except the one given on manufacturers instructions.



CAUTION

Do not allow skin or clothing to come into contact with acid from the batteries, if this does occur then wash off with copious amounts of water and seek medical advice.

Do not connect or disconnect equipment with wet hands, you are at risk of electric shocks if you do!

Do not touch the charger, AC-DC converter or heating part of the instrument for a long period while charging the battery. There is a risk of low-temperature burn.

Exceptions from Responsibility

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

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Standard Package Components

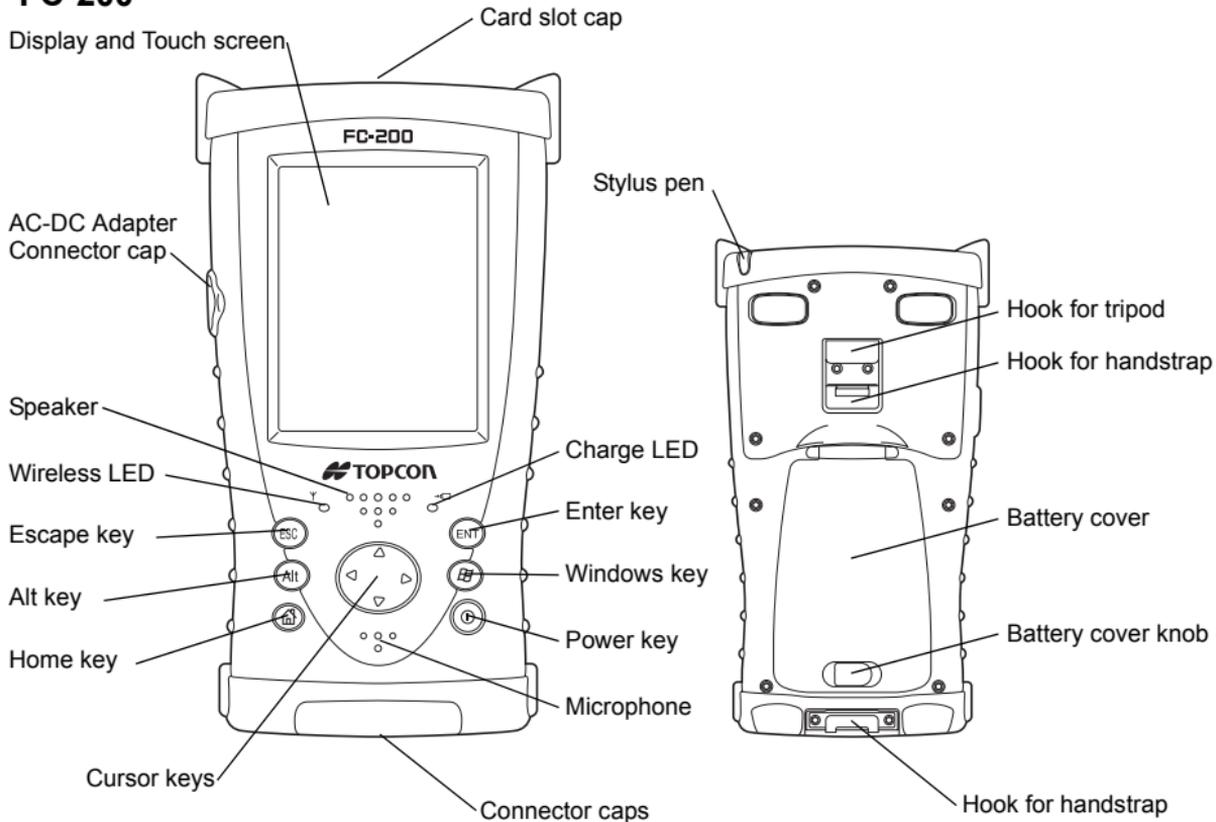
Upon opening, make sure that all the followings are included.

- 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.

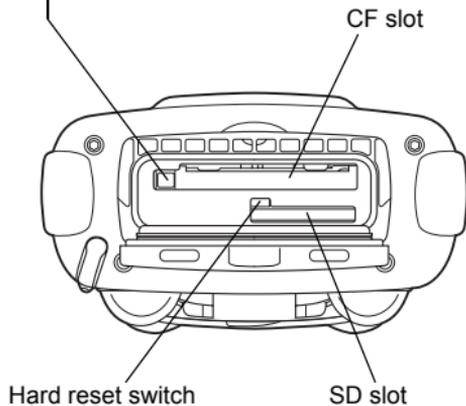
Nomenclature

FC-200



Card slot side

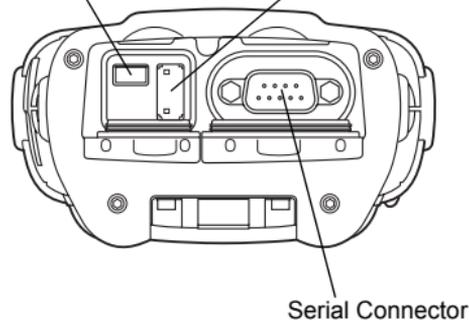
CF card eject button
To eject the CF card, stand the button up,
then press it.



Connector side

USB Connector
(Type Mini-B)

USB Connector
(Type A)



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)

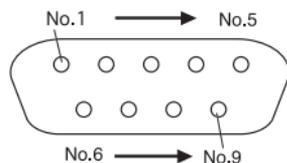
When transmitting via more than one wireless, flashing will occur in sequence.

Shortcut Keys

Shortcut Commands	<div data-bbox="473 394 963 438">Continue tapping on an item</div> <p data-bbox="695 443 739 467">OR</p> <div data-bbox="473 472 963 591">Press [Alt] + tap on an item</div> <p data-bbox="336 596 1100 658">are the same as a right click on a mouse. A menu is displayed containing commands specific to the item.</p>
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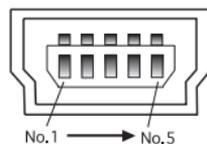
Connectors

Serial connector



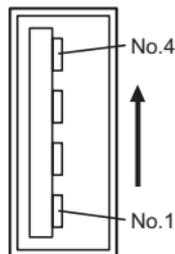
No.1	DCD	(IN)
No.2	RXD	(IN)
No.3	TXD	(OUT)
No.4	DTR	(OUT)
No.5	GND	
No.6	DSR	(IN)
No.7	RTS	(OUT)
No.8	CTS	(IN)
No.9	RI	(IN)

USB Connector (Type Mini-B)



No.1	VDD
No.2	V-
No.3	V+
No.4	NC
No.5	GND

USB Connector (Type A)



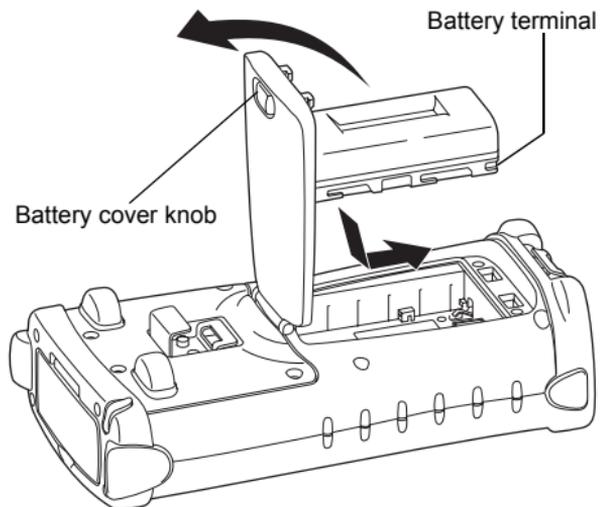
No.1	VCC
No.2	V-
No.3	V+
No.4	GND

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;

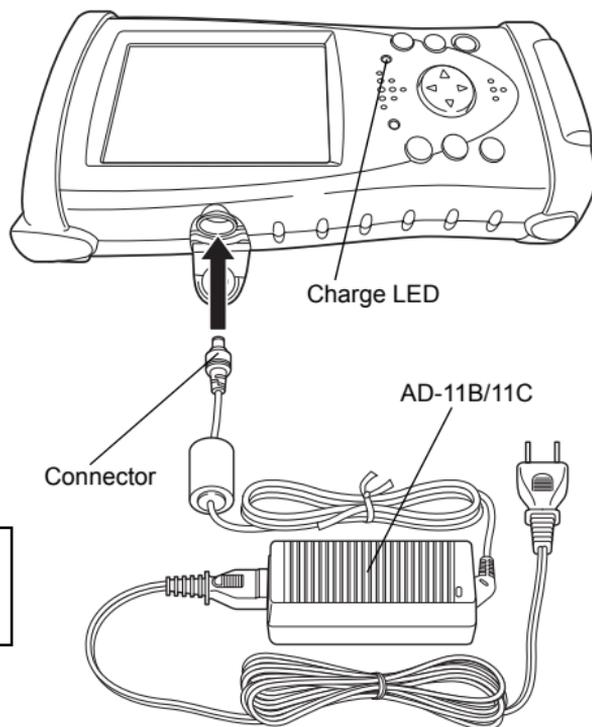
Red ON : Charging.

Green ON : Charging completed.

Red Flashing : Charging error.

Note

The instrument may develop heat while charging, there is no problem of it.

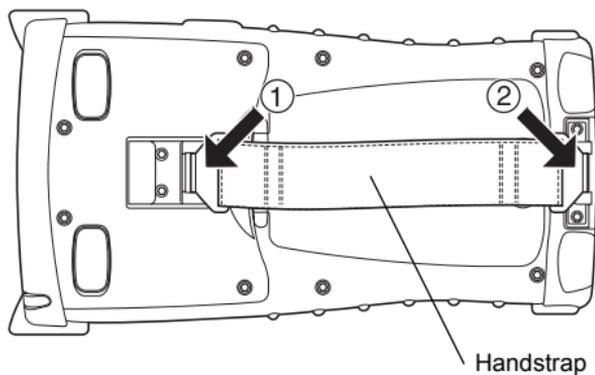


Note

- 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

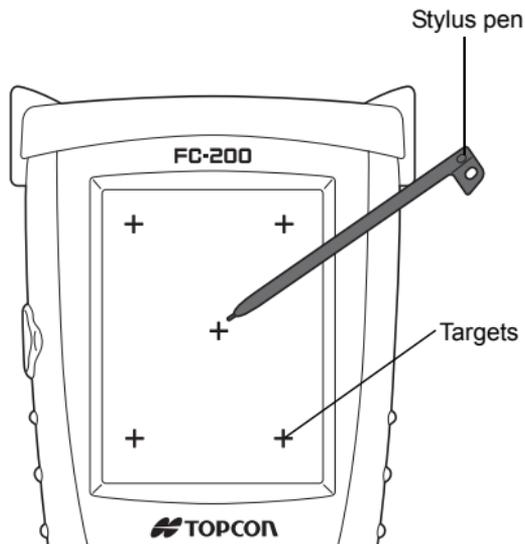
- 1** Set the handstrap on the handstrap hook ①.
- 2** Set the handstrap on the handstrap hook ②.



Touch Screen

Adjusting Touch Screen

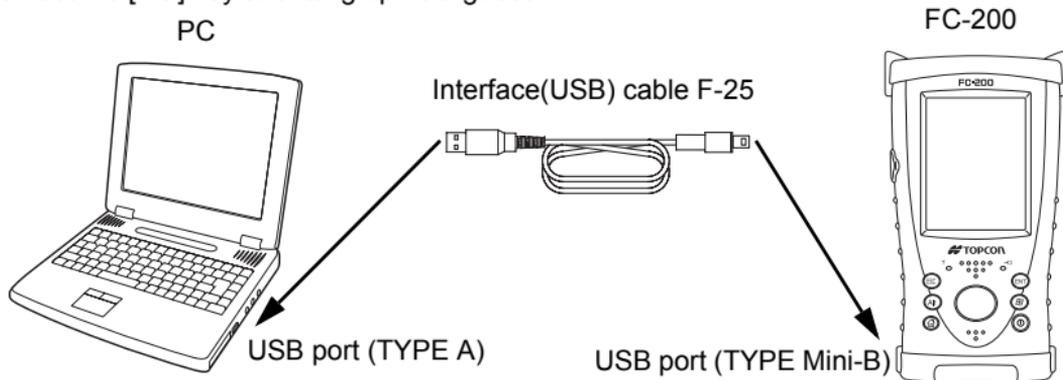
- 1** Turn on the instrument after hard-reset or tap [Start], [Setting], [Control Panel], [Stylus], [Calibration], [Recalibrate].
- 2** Using a stylus pen, touch the center of the target.
- 3** After touching all targets(5 points), press [ENT] key or tap the display.
(Use an accessory stylus pen to touch 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".



* Restoring former backed up data may be incomplete if you upgrade OS version.

* The conditions that you executed the backup function last.

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.



* 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.

2 On the [Bluetooth Power] screen, tap on the [POWER ON] button.

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.
- 2 On the [Wireless LAN Power] screen, tap on the [POWER ON] button.
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	: 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.



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TOPCON POSITIONING SYSTEMS, INC.

7400 National Drive, Livermore, CA 94551, U.S.A.
Phone: 925-245-8300 Fax: 925-245-8599 www.topcon.com

TOPCON CALIFORNIA

3380 Industrial Blvd, Suite 105, West Sacramento, CA 95691, U.S.A.
Phone: 916-374-8575 Fax: 916-374-8329

TOPCON EUROPE POSITIONING B.V.

Essebaan 11, 2908 LJ Capelle a/d IJssel, The Netherlands.
Phone: 010-458-5077 Fax: 010-284-4941 www.topconeurope.com

IRELAND OFFICE

Unit 69 Western Parkway Business Center
Lower Ballymount Road, Dublin 12, Ireland
Phone: 01460-0021 Fax: 01460-0129

TOPCON DEUTSCHLAND G.m.b.H.

Giesserallee 31, 47877 Willich, GERMANY
Phone: 02154-885-100 Fax: 02154-885-111 info@topcon.de
www.topcon.de

TOPCON S.A.R.L.

89, Rue de Paris, 92585 Clichy, Cedex, France.
Phone: 33-1-41069490 Fax: 33-1-47390251 topcon@topcon.fr

TOPCON SCANDINAVIA A. B.

Neogatan 2 S-43151 Mölndal, SWEDEN
Phone: 031-7109200 Fax: 031-7109249

TOPCON (GREAT BRITAIN)LTD.

Topcon House Kennet Side, Bone Lane, Newbury, Berkshire RG14 5PX U.K.
Phone: 44-1635-551120 Fax: 44-1635-551170
survey.sales@topcon.co.uk laser.sales@topcon.co.uk

TOPCON SOUTH ASIA PTE. LTD.

Blk 192 Pandan Loop, #07-01 Pantech Industrial Complex, Singapore 128381
Phone: 62780222 Fax: 62733540 www.topcon.com.sg

TOPCON INSTRUMENTS (THAILAND) CO., LTD.

77/162 Sinn Sathorn Tower, 37th Fl.,
Krungthongburi Rd., Klongtong Sai, Klongsarn, Bangkok 10600 Thailand.
Phone: 02-440-1152~7 Fax: 02-440-1158

TOPCON INSTRUMENTS (MALAYSIA) SDN. BHD.

Excella Business Park Block C, Ground & 1st Floor, Jalan Ampang Putra,
Taman Ampang Hilir, 55100 Kuala Lumpur, MALAYSIA
Phone: 03-42701068 Fax: 03-42704508

TOPCON KOREA CORPORATION

2F Yooseoung Bldg., 1595-3, Seocho-Dong, Seocho-gu, Seoul, 137-876, Korea.
Phone: 82-2-2055-0321 Fax: 82-2-2055-0319 www.topcon.co.kr

TOPCON OPTICAL (H.K.) LIMITED

2-4/F Meeco Industrial Bldg., No. 53-55 Au Pui Wan Street, Fo Tan Road,
Shatin, N.T., Hong Kong
Phone: 2690-1328 Fax: 2690-2221 www.topcon.com.hk

TOPCON CORPORATION BEIJING OFFICE

Building A No.9, Kangding Street
Beijing Economic Technological Development Area, Beijing, China 100176
Phone: 10-6780-2799 Fax: 10-6780-2790

TOPCON CORPORATION BEIRUT OFFICE

P. O. BOX 70-1002 Antelias, BEIRUT-LEBANON.
Phone: 961-4-523525/961-4-523526 Fax: 961-4-521119

TOPCON CORPORATION DUBAI OFFICE

C/O Atlas Medical FZCO., P. O. Box 54304, C-25, Dubai Airport Free Zone, UAE
Phone: 971-4-2995900 Fax: 971-4-2995901

TOPCON CORPORATION

75-1 Hasunuma-cho, Itabashi-ku, Tokyo 174-8580, Japan
Phone: 3-3558-2520 Fax: 3-3960-4214 www.topcon.co.jp