EFIX® FC2 Controller

User Guide

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By surveyors , for surveyors

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Preface

Copyright

Copyright 2020-2022

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Trademarks

All product and brand names mentioned in this publication are trademarks of their respective holders.

Safety Warnings

The Global Positioning System (GPS) is operated by the U.S. Government, which is solely responsible for the accuracy and maintenance of the GPS network. Accuracy can also be affected by poor satellite geometry and obstructions, like buildings and heavy canopy.

Warning and Cautions

WARNING: Charging this device below 0°c may cause unexpected damage to the battery.

A Warning or Caution information is intended to minimize the risk of personal injury and/or damage to the equipment.

WARNING - A Warning alerts you to a potential misused or wrong setting of the equipment.

CAUTION - A Caution alerts you to a possible risk of serious injury to your person and/or damage to the equipment.

Use and Care

The FC2 is a high-performance smart handheld terminal developed by EFIX. Therefore, the FC2 should be treated with reasonable care.

FCC Interference Statement

This equipment has been designed to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules in the Portable Mode. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

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.

An absence of specific alerts does not mean that there are no safety risks involved.

CE Interference Statement

Declaration of Conformity: Hereby, EFIX Geomatcis Co., Ltd. declares that this FC2 is in compliance with the essential requirements and other relevant provisions of Directive 2014/53/EU. A copy of the Declaration of conformity can be found at EFIX Geomatcis Co., Ltd.

Technical Assistance

If you have a problem and cannot find the information you need in the product documentation, contact your local dealer from which you purchased the FC2. Alternatively, please request technical support using EFIX technical support email (support@efix-geo.com).

Your Comments

Your feedback about this Getting Started Guide will help us to improve it in a future revision. Please e-mail your comments to support@efix-geo.com.

1 Introduction

FC2 is a high-performance smart data controller developed by EFIX. FC2 integrates powerful navigation functions with better sensitivity, helping to achieve more accurate and faster positioning services.

This user Guide will provide useful information about your controller. It will also guide you through your first steps of using FC2 in the field.

1.1 Battery Considerations

- Do not leave batteries idle for extended periods of time, either in production facilities or in warehouses. If the battery has been used for 6 months, check the state of charge or dispose of the battery properly.
- The life of lithium-ion battery is generally two to three years, and the cycle charge is 300 to 500 times. A full charge cycle means a full charge, a full discharge, and a full charge.
- Rechargeable Li-ion batteries have a limited lifespan and gradually lose their ability to hold a charge. This amount of loss (aging) is immutable. When the battery loses its capacity, the useful life (run time) is reduced.
- The Li-Ion battery will discharge slowly (automatically) when it is not in using or idle. Please check the state of charge of the battery in daily work, also refer to the instruction manual for instructions on how to charge the battery.
- Observe and record an unused and fully charged battery. Based on new battery runtime compared to older battery. Battery runtime will vary by product configuration and application.
- Regularly check the battery charge status.
- The battery charging time increases significantly when the battery runtime drops to about 80% below the original runtime.
- If the battery has been idle or not used for a long time, check whether the battery still has power, whether there is any remaining power in the battery, and do not try to charge it or use it. A new battery should be replaced. Remove the battery and leave it alone.
- Battery storage temperature is between 5°C~20°C (41°F~68°F)
- Note: There is a danger of explosion if the battery is replaced with the wrong type. Be sure to dispose of the used battery according to the instructions.

2 Installation Guide

2.1 Exterior

2.2 Micro SD, SIM card installation

Install SIM card: This controller does not support hot swap function, you need to shut down the controller and disconnect the charger to install and take out the SIM card and TF card. These are the steps:

1. Use a special screwdriver to unscrew the screw on the battery cover.

2. Use a screwdriver to pry off the battery cover.

3. Take out the battery (this step can be omitted for the built-in battery).

4. Install the S1M card and TF card in the designated location.

2.3 Charging

Please using the adapter we suggested to charge the battery, do not use other brand adapters to charge the controller.

2.4 Keypad and instruction

Keypad		Instruction
Side button	1.Survey button	On right side of controller, used for efield survey Hotkey.
Main keypad	2.Power button	Turn on/off controller
	3.Main keypad	Standard function keypads
	4.APP button	Quickly open customized app

3 Quick tour

3.1 Screen on and off

Turn off the screen

You can press the **[Power key]** to turn off the screen to save power and prevent accidental pressing.

Turn on the screen

You can press the **[Power key]** or the side button to light up the screen.

3.2 Lock and unlock

To prevent accidental operation, you can lock the controller and screen.

Lock the controller

Short press the **[Power key]** to lock the screen. Please note that if you do not perform any operation on the controller within the system default or set screen lock time, the controller will be automatically locked.

Unlock the controller

When the screen is locked, short press the **[Power key]** to light up the screen, and then tap the unlock icon and slide it in any direction to unlock it.

3.3 Notification bar

If there is a new notification, a prompt message will be displayed on the event notification bar at the top of the display. Swipe down from the event notification bar with your finger, and all prompt messages will be displayed. Tap each prompt message to view the details.

3.4 Application menu

1. Tap the application icon to open it on the home page.

2. Tap the to return to the home page.

3. Swipe your finger left or right quickly to switch to another home page.

4. After entering any menu, tap the to return to the previous menu.

5. Long press any menu icon on the main menu interface to drag the menu to the standby interface.

3.5 Backup and restore

A TF card needs to be inserted to back up data and applications.

3.6 Email

Set up an email account

You can select the corresponding email to set on.

Check and read email

In Mail, the Mailboxes interface gives you quick access to all your inboxes and other mailboxes.

When you open the mailbox, the latest messages will be displayed.

3.7 Settings

SIM card management

You can set single card or dual card mode, main card.

WLAN

WiFi settings: Turn WiFi function on or off.

Network notifications: Set the controller to notify when open WIFI are available.

Add Wi-Fi Network: Manually add a WiFi access point.

Bluetooth

You can wirelessly connect with electronic controllers within a 10-meter range via Bluetooth. Bluetooth can be used to send data such as pictures, videos, e-books, etc.

Mobile data usage

Mobile data usage: Set the usage period of SIM card data, and display the usage generated by the application.

More

Airplane Mode: Disables all wireless features of the controller.

NFC: It allows the controller to exchange data when it contacts other controllers.

Network sharing and portable hotspot: WIFI hotspot/USB shared network/Bluetooth shared network can be turned on

Mobile Network: Select using Card 1 or Card 2 mobile network.

USB Internet: Share Windows PC network via USB cable.

Display

You can use this interface to set related screen display, such as brightness, wallpaper, font size, automatic screen rotation, sleep settings and other operations.

Storage

You can check the remaining memory of the TF card and controller.

Battery

Display the controller battery elapsed time and the specific power consumption of the battery.

Application

You can manage your applications, uninstall native applications, and move storage locations.

Location information access

You can manage the permission to access to your location.

Safety

You can set security setting through this interface, such as screen lock, SIM card lock, owner information, and password settings.

Language and input method

You can select language and input method through this interface.

Backup and reset

Reset DRm: Removes all DRm licenses.

Factory reset: Erase all data on the controller.

Account

You can manage your account through this interface and choose whether to synchronize data. After binding the Google account or company account, the application can automatically synchronize the calendar, contacts, and emails in the Google account.

Add Account: Add a new account

Date and time

The time can be automatically updated and the format of the time and date can be set.

Timer switch

On: Set a specific time, when the time is up, the controller will automatically turn on.

Off: Set a specific time, when the time is up, the controller will prompt whether to shut down, after 1 seconds, if there is no operation, the controller will automatically shut down.

Developer Options

You can do system operations on the controller, enable USB debugging, etc.

About the controller

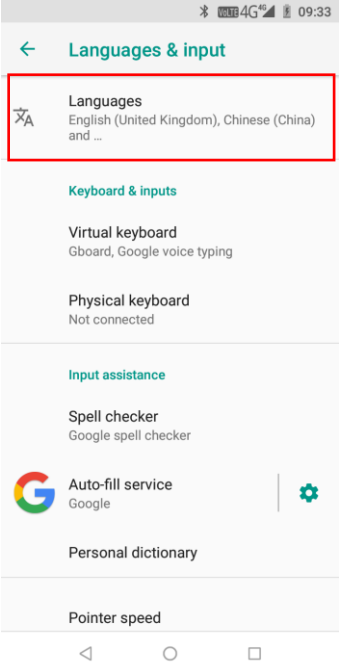
You can view status information, battery usage, and controller model through the interface.

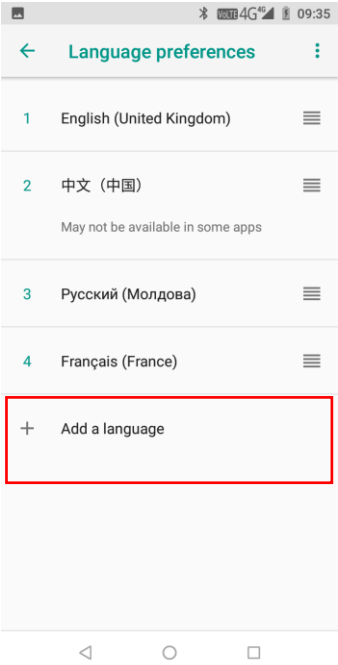
4 Basic operations

4.1 Language & input

Click **[Settings] – [System] – [Language & input] – [Languages]** to select language. If

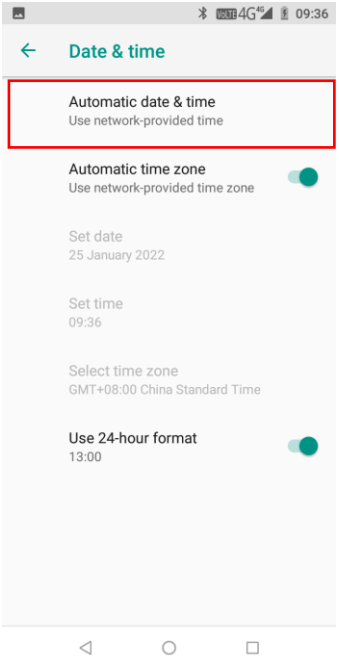
you have not found the lauguage you want to choose, click **[Add a lauguage]** to find the target lauguage.

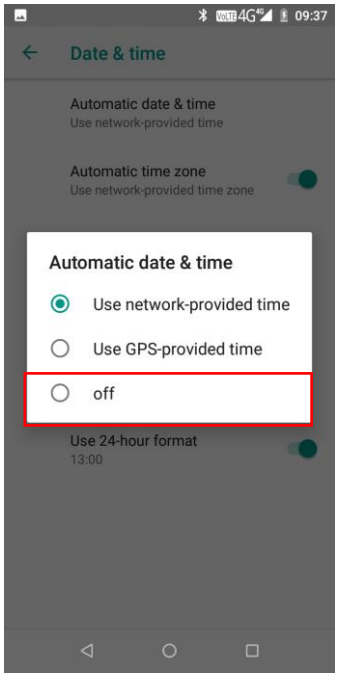




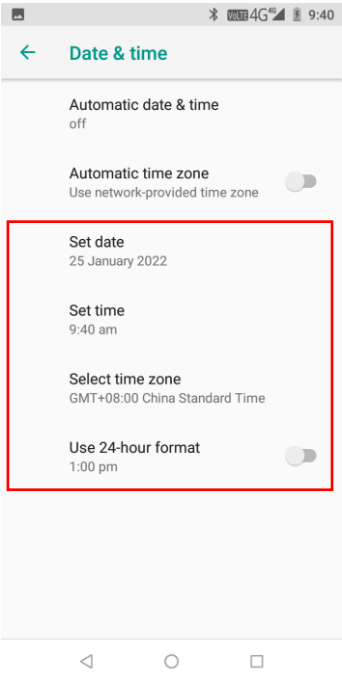
4.2 Set Date & Time

Click **[Settings] – [System] – [Date & time]** and enter **[Date & time]** interface.





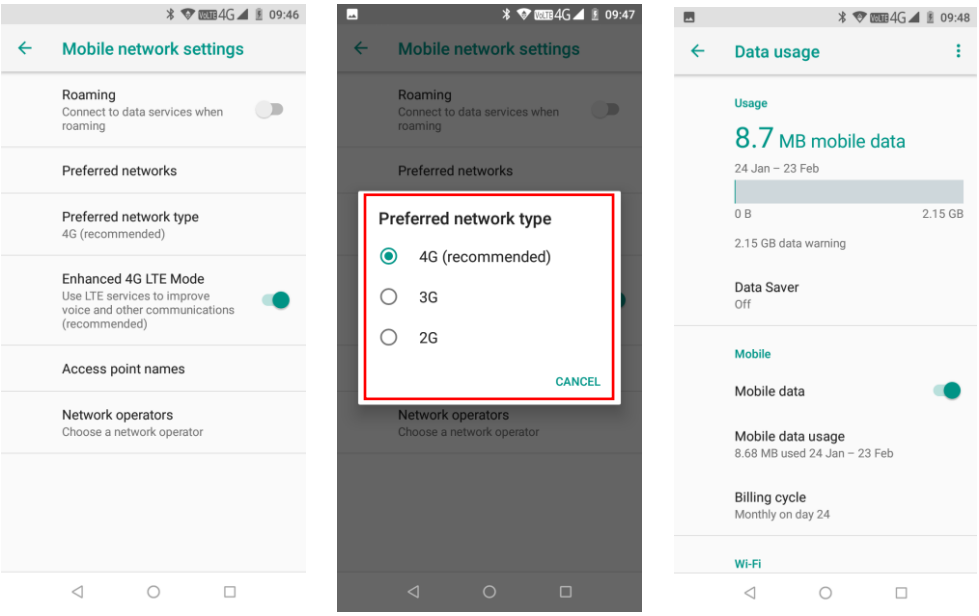
If you want to set date and time by yourself, please turn off the **Use network-provided time** and start your own settings.



You can also customize your time zone and choose whether to **Use 24-hour format** in this interface.

4.3 Log in 4G

After inserting your SIM card, click **[Settings] – [Network & Internet] – [Mobile Networks] – [Preferred network type]** and select corresponding network type of your SIM card. Then turn on **[Network & Internet]** and click **[Data usage]** to check data usage.



4.4 Check the IMEI Number of the Controller

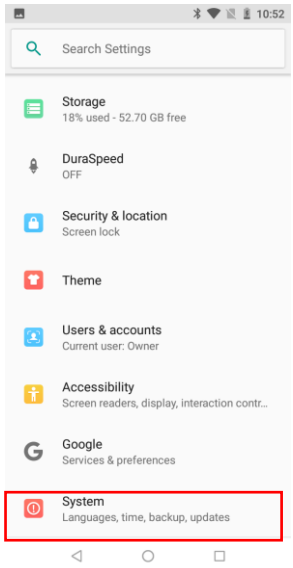
Click **[Settings] – [About phone] – [Status] – [IMEI information],** then the IMEI numbers show up automatically.

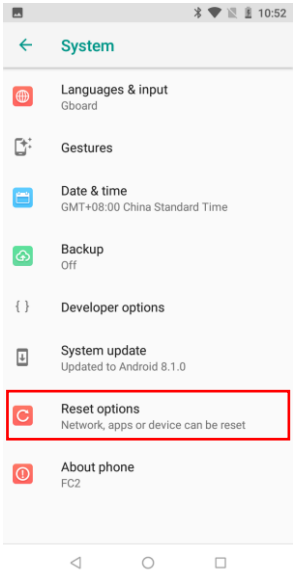
4.5 Restore Factory Setting

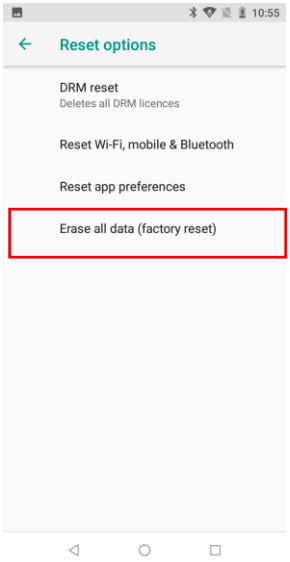
Enter the **[Settings] – [System] – [Reset options] – [Erase all data]**

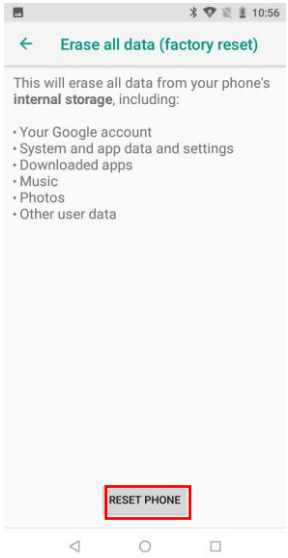
Press **[Erase all data] – [RESET PHONE]**, data controller will automatically shut down and restart.

Note: After choosing **[RESET PHONE]**, the memory data in data controller will be cleared!



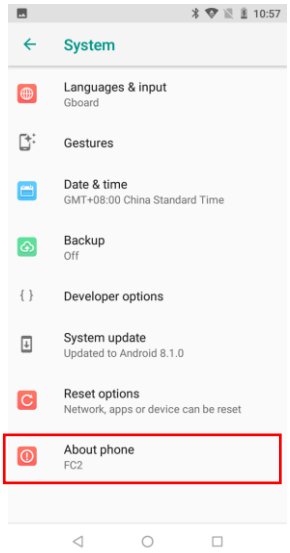


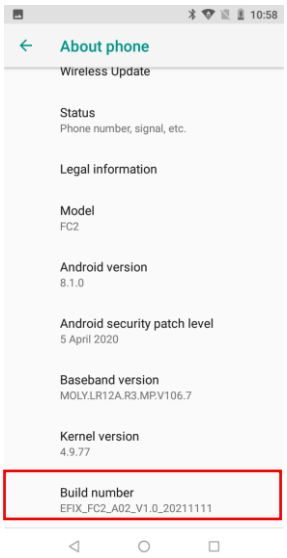




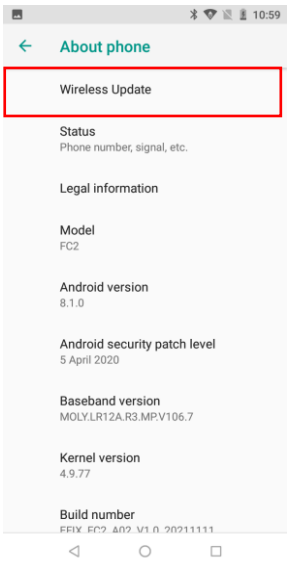
4.6 Upgrading the Operation System

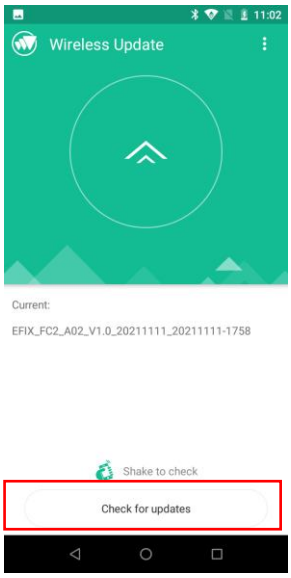
Enter the **[Settings]**, find **[System]** and tap **[About phone]**, check core version of data controller firstly.





Then tap **[Wireless upgrade]**, then click **[Check for updates]** to start.





The controller will restart automatically after upgrading, return to the mobile status interface to see the core version and check if the upgrade is successful.

5 Faults and solutions

Faults	Solutions
Cannot power on	Check the batteries.
SIM card error	(1) Clean the SIM card (2) Reinstall SIM card (3) Replace another SIM card
Low signal	Check the signal strength indicator on the display. The number of bars for this signal is 4 bars for strong signal, and below 2 bars for weak signal.
	Check the environment for the transmission of signal.
	Check the distance from mobile signal base station.
Cannot charge the battery	(1) Charge the battery longer time (2) replace the battery
Cannot connect to network	(1) The signal is too weak, or there is interference around (2) Reinstall the SIM card (3) Replace the SIM card
The standby time becomes shorter	(1) Check the mobile signal (2) Replace the battery

6 Specifications

Specifications	
Dimension	225mm*80mm*17.0mm
Display	5.5"1440 × 720 pixels HD+ 296 ppi
Keyboard	Alphanumeric keyboard
Li-ion Battery	6500mAh
Storage Extension	Micro-SD/TF (Up to 128GB)
Slot extension	one Nano SIM slot
Audio	Microphone, speaker (1W), support voice call
Camara	Rear 13MP Autofocus with flash
Sensor	G-sensor, Gyroscope, E-compass, Light sensor, Proximity
Brightness	500 cd/㎡
Touch screen	Support multi-touch, support glove or wet hand operation
Performance	
CPU	MTK6762 2.0GHz Octa-core
Operation system	Android™ 8.1
RAM	3GB
USB	USB2.0 Type-C, OTG
Flash Memory	64GB
Operating environment	
Operating temperature	-20℃ ~ 50℃

Storage temperature	-40℃~65℃
Humidity	5% - 95% RH (without condensation)
Shock	Survives 1.5 m (4 ft) fall on concrete
Dust proof and waterproof	IP67
Static Protection	CLASS 4 Air：±15KV Contact：±8KV
Wireless connection	
WWAN	LTE FDD：B1/B2/B3/B4/B5/B7/B8/B12/B17/B20/B28AB LTE TDD：B34/B38/B39/B40/B41 WCDMA：B1/B2/B4/B5/B8 TDSCDMA：B34/B39 CDMA EVDO：BC0 GSM：850/900/1800/1900
WLAN	IEEE802.11 a/b/g/n/ac, (2.4G/5G)
Bluetooth	Bluetooth v2.1+EDR,3.0+HS, v4.1+HS
NFC	Support

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FCC Warning:

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.
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 Product meets the government's requirements for exposure to radio waves. The guidelines are based on standards that were developed by independent scientific organizations through periodic and thorough evaluation of scientific studies.The standards include a substantial safety margin designed to assure the safety of all persons regardless of age or health.
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 a residential installation. 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 harmful interference to radio or television 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 followingmeasures:
-- Reorient or relocate the receiving antenna.
-- Increase the separation between the equipment and receiver.
-- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
-- Consult the dealer or an experienced radio/TV technician for help.

RF Exposure Information (SAR)
This device meets the government’s requirements for exposure to radio waves. This device is designed and manufactured not to exceed the emission limits for exposure to radio frequency (RF) energy set by the Federal Communications Commission of the U.S. Government.

The exposure standard employs a unit of measurement known as the Specific Absorption Rate, or SAR. The SAR limit set by the FCC is 1.6 W/kg. Tests for SAR are conducted using standard operating positions accepted by the FCC with the EUT transmitting at the specified power level in different channels. The FCC has granted an Equipment Authorization for this device with all reported SAR levels evaluated as in compliance with the FCC RF exposure guidelines. SAR information on this device is on file with the FCC and can be found under the Display Grant section of www.fcc.gov/oet/ea/fccid.

MPE:

To ensure that RF exposure levels remain at or below the tested levels, use a belt clip, holster, or similar accessory that have no metallic component in the assembly and must maintains a minimum separation distance of 15mm between your body and the device.