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StarFinder Aire User Manual

(Preliminary)

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Release History

Revision	Date	Content
1.00	2015/12/05	It is an internal release

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- Chapter 1 –

Introduction

1.1 Main Features

The SF-Aire is a real-time position tracking device which can work together with a remote Location-based-service-platform through GSM/GPRS networks. It contains the following major features:

- Qua-band GSM/GPRS 850/1900 900/1800 MHz
- Compliance to FCC, CE, and PTCRB
- Compact and robust case design support multiple installation methods
- Water proof compliance to IPV67
- GPS, GSM/GPRS & Battery/Status Indicator LEDs
- 900mAh internal Li-Ion polymer rechargeable battery
- Built in high-sensitivity GPS receiver
- Intelligent Smart Logger, designed to store up to 8500 dynamic waypoint information if there being no GPRS coverage, capable of re-transmitting the information once GPRS recovers
- GSM/SMS or GPRS real-time position reporting by time interval or distance traveled
- Capable of generating external-power-lost alert report
- Capable of counting the vehicle's working time if it can provide a DC input voltage signal which is related to its engine's working status.
- Distance accumulator built in for mileage reporting
- Versatile multi-Geo-fence, up to 20, with alert selection of Geo-fence in, out as well as both in & out
- Geo-fence alert email with address information
- Over-speed warning report
- Built-in motion sensor to detect impact/shock with alert report through GPRS/SMS
- 1 input port with optical isolator
- 2 output ports with built-in relay
- 1 analog port
- 1 RS232 port
- Wide voltage range of external DC power supply

1.2 Network Services

In order to use SF-Aire, you must have GSM/GPRS network service from a wireless service provider.

This device is approved for using GSM 850/900/1800/1900 networks. In certain case, due to limitation of the service in your local GSM/GPRS network or the service plan adapted by user, some of features coming with SF-Aire may not be available.

Check with your GSM/GPRS network service provider for having a suitable service plan for user's application.

1.3 Care and Maintenance

The suggestions below will help to ensure full warranty coverage of your SF-Aire.

- Do not store the device in areas with high temperature which can shorten the life of electronic devices, damage batteries, and warp or melt certain plastics.
- Do not attempt to open the device without the knowledge of an authorized Laipac technician.
- Do not drop, knock, or shake the device on purpose. It will trigger tamper alerts if internal motion sensor is enabled.
- Do not use harsh chemicals, cleaning solvents, or strong detergents to clean the device.

Read these simple guidelines below carefully. Not following them may be dangerous or illegal. Also, Read the complete user guide for further information..



Interference

All wireless devices may be susceptible to interference, which could affect performance.



Switch Off In Hospitals

Switch the device off near medical equipment.



Switch Off In Aircraft

Follow any restrictions. Wireless devices can cause interference in aircraft.



Switch Off When Refuelling

Do not use the device at a refueling point. Do not use near fuel or chemicals.



Switch Off Near Blasting

Follow any restrictions. Do not use the device where blasting is in progress.



Qualified Service

Only qualified personnel may open or repair this product.



Batteries

Use only approved batteries. Do not connect to incompatible products.



Back Up Copies

It is recommended to save important settings.



Connecting To Other Devices

When connecting to any other device, read its user guide for detailed safety instructions.
Do not connect with incompatible products.

- Chapter 2 -

Operation Instruction

2.1 Knowing about Your SF-Aire

Fig. 2.1-1 to 2.1-4 show the locations and names of the major physical features with this product

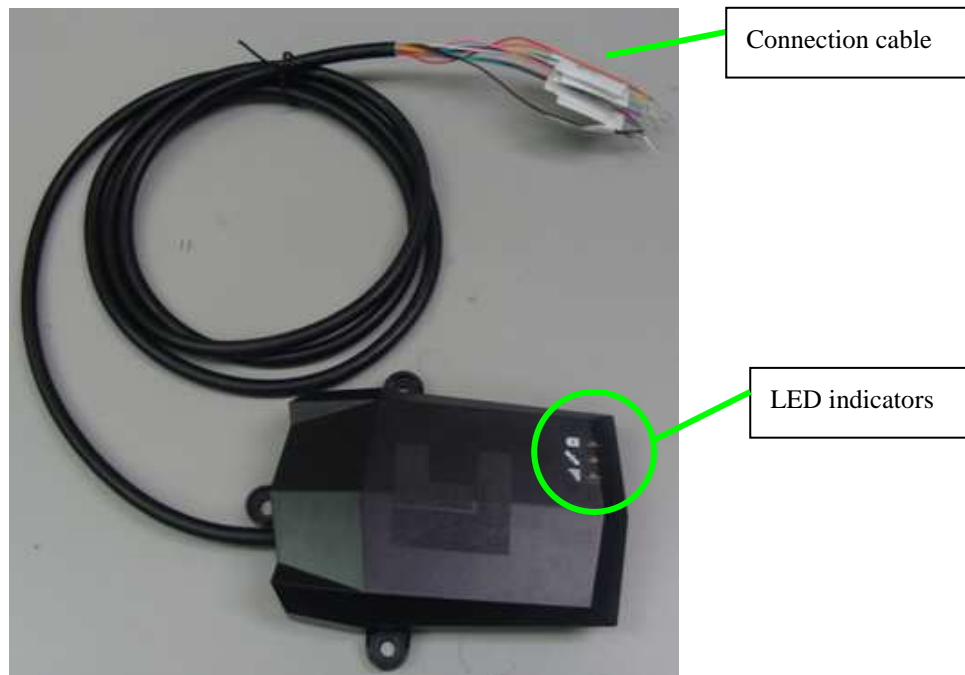


Fig. 2.1-1 Top view of SF-Aire

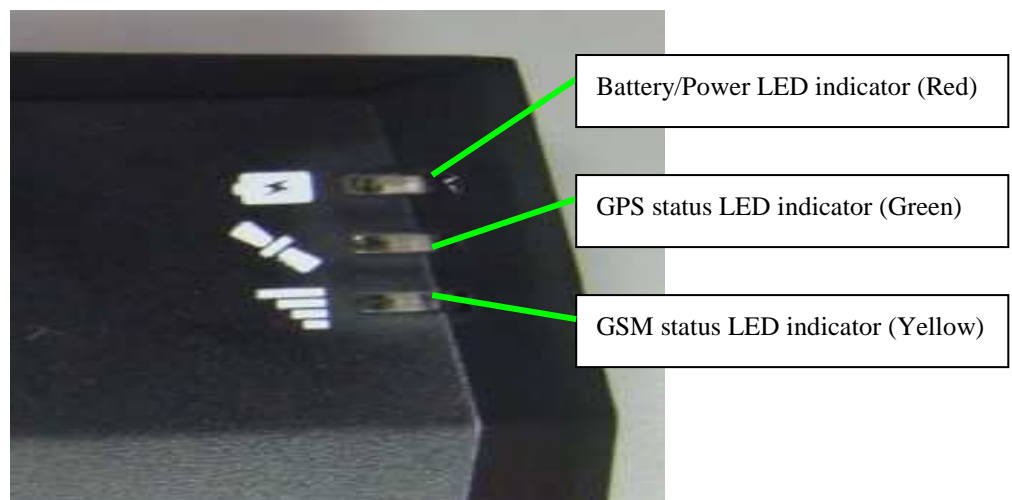


Fig. 2.1-2 LED indicators

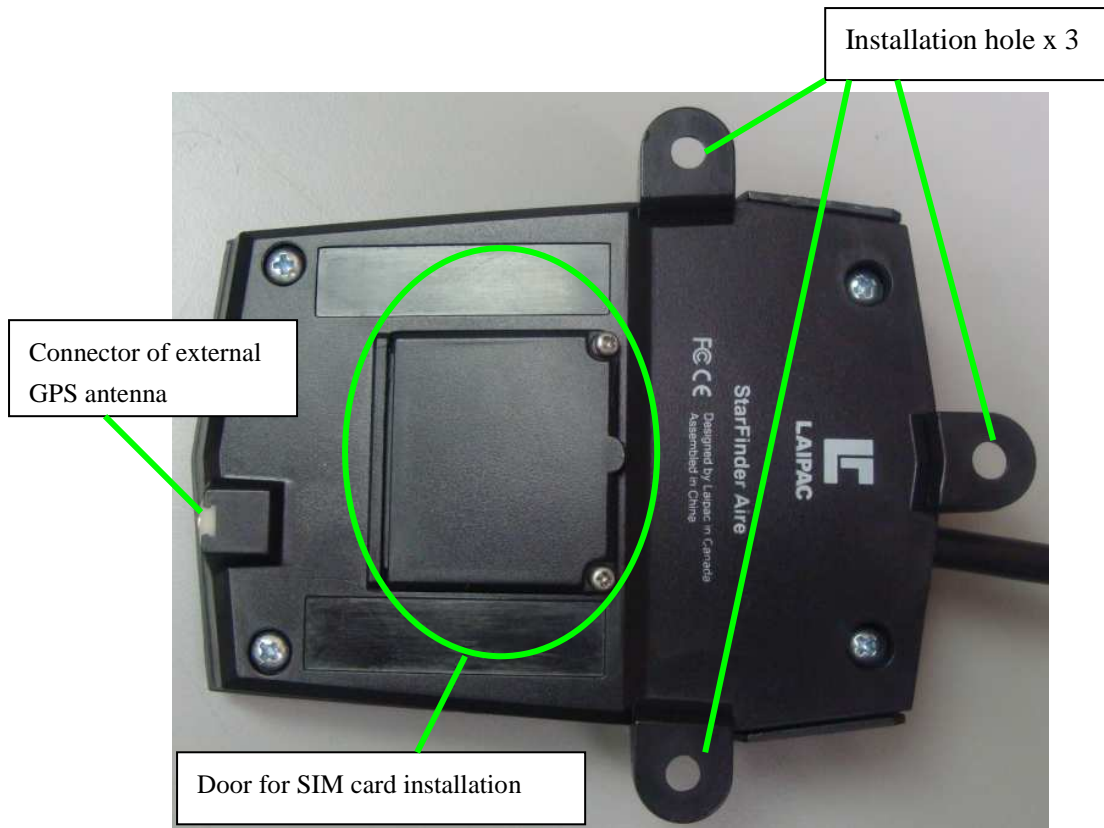


Fig. 2.1-3 Bottom view of SF-Aire

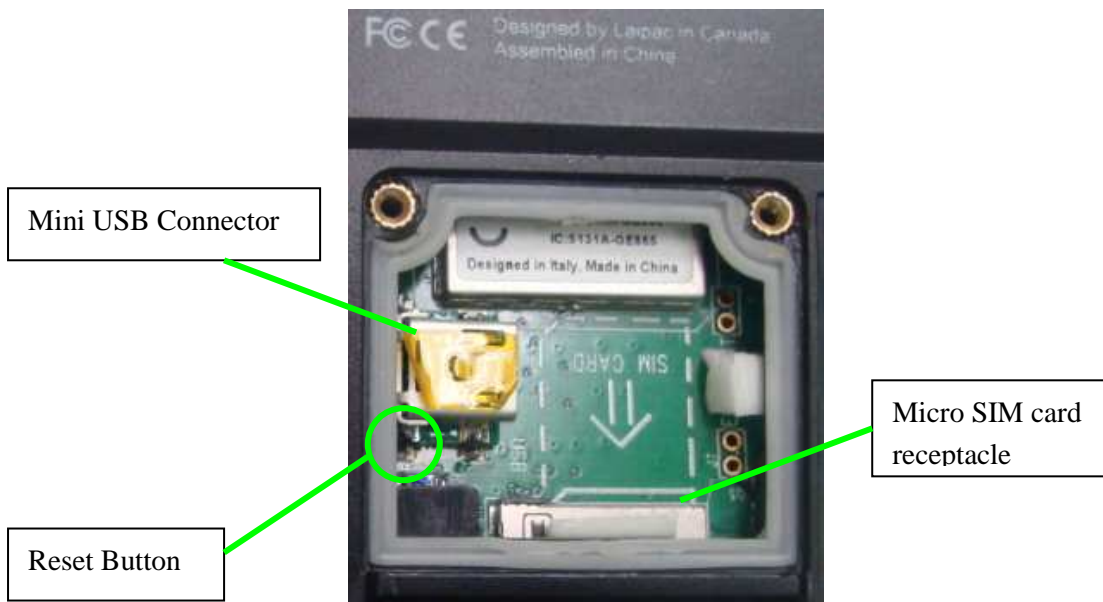


Fig. 2.1-4 The area behind Door

2.2 LED Indicators and Working Status

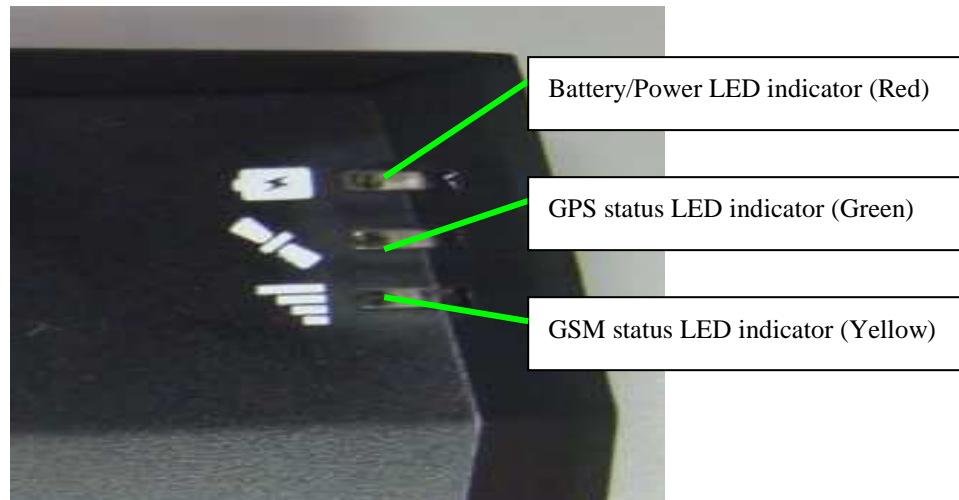


Fig 2.2 LED indicators

There are 3 color LED indicators on SF-Aire. They are as below

- Battery/Power LED indicator (Red) – indicate if device has been powered on by built-in battery or external DC power supply
- GPS status LED indicator (Green) – indicate if device has located its position or not
- GSM status LED indicator (Yellow) – indicate if device has connected to GSM network or not

Table 2.2 further describes how to identify the SF-Aire’s working status by observing the behavior of those 3 LED indicators.

Function	Battery/Power LED	GPS status LED	GSM status LED
Powered by external power supply	On		
Powered built-in battery	On		
Without any power	Off		
Try to locate its position	ON	Flashing	
Its position has been located	ON	ON	
Try to connect GSM network	ON		Flashing fast
Connected to GSM network	ON		Flashing slowly

Table 2.2

2.3 SIM Card and its Installation

2.3.1 Requirement of SIM Card

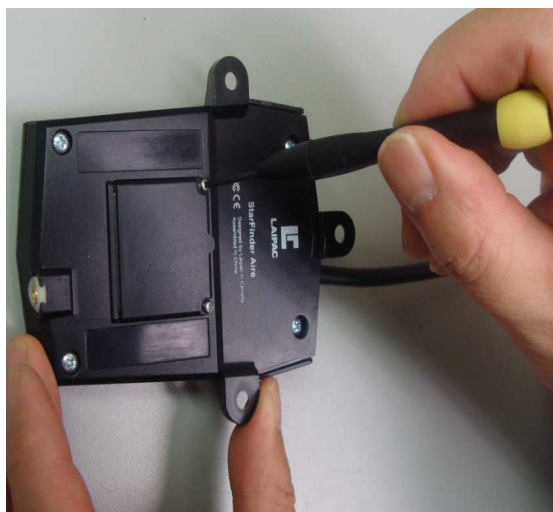
In order to use SF-Aire, user should have a valid 2G **micro SIM** (Subscribe Identity Module) card provided by his local GSM/GPRS service provider. This card can be with both of the GPRS data and SMS functions enabled, or only one of them.

If only SMS is enabled, user's device will not able to access the Location Based Service platform through GSM/GPRS network.

For example, if user wants to use Laipac's LocationNow service platform to track his SF-Aire, he needs have an enabled micro SIM card with the data service plan.

2.3.2 Installation of SIM card

Follow the steps below to install the SIM card into SF-Aire.



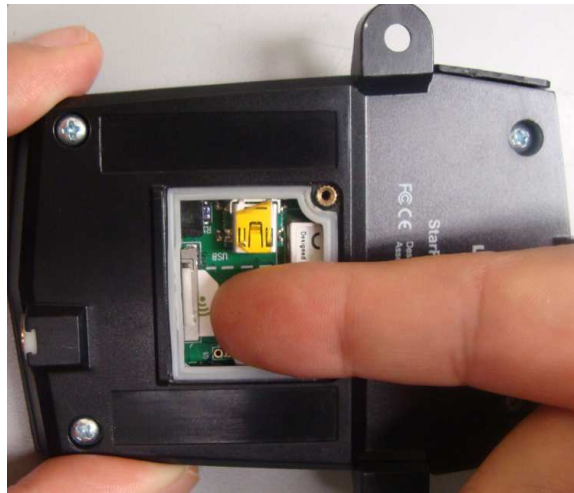
Step 1 Remove 2 screws on the door



Step 2 Open the door



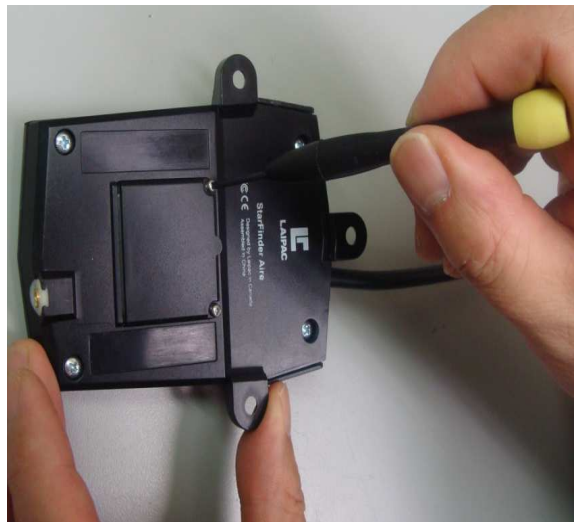
Step 3 Install SIM card



Step 4 Insert card into the receptacle



Step 5 Push the card to the end



Step 6 Close the door and tie 2 screws

2.4 Utility Software and its Usage

2.4.1 Utility Software - LocationNowSuite

As a position tracking device, if SF-Aire wants to work with certain Tracking Service provider's platform, such as, www.LocationNow.com from Laipac Technology Inc., it should properly be configured by using the special utility software, **LocationNowSuite**.

The computer, used for installing this utility, should be with

- Microsoft Windows 7/8/10 O.S as well as USB 2.0 port (recommended)
- Microsoft IE9 or up browser (must)
- Adobe Flash Player V9.0 or up for IE (must)
- Internet access

User can download it by using the link below

www.LocationNow.com .

2.4.2 Usage of Utility Software

Refer to another document, “**StarFinder Aire Operation Manual**”, which including the following instructions:

- How to install this utility software on your computer and its USB driver
- How to configure your SF-Aire
- How to upgrade your SF-Aire's application firmware

- Chapter 3 -
Specifications

3.1 General Electrical & Environmental Specification

Item	Min	Typical	Max	Units
External DC power supply voltage	9	12	36	V
External DC power supply current			300	mA
Built-in Li-Ion polymer rechargeable battery	3.0	3.7	4.2	V
Current Consumption while connecting	50	140	300	mA
Current Consumption in operation mode (Idling)	38	44	57	mA
Current consumption in operation mode (Reporting)	130	135	140	mA
Current Consumption in Power off Mode	-	0.7	-	uA
Peak Current (< 100mS)	-	-	1500	mA
Ambient operating temperature	-20	-	60	° C
Storage temperature	-20	-	60	° C

Table 3.1

Note:

Current consumption is subject to change in areas with lower signal's strength vs higher strength.

3.2 GPS Engine Specification

Item	Value	Units
Channels	66	Channels
RF Frequency	1575.42	MHz
Position update rate	1	Hz
Position accuracy	< 10	Meters
Velocity accuracy	0.1	m/s
Time accuracy	1	uS
Cold start acquisition time	35	Seconds
Warm start acquisition time	33	Seconds
Hot start acquisition time	< 1	Seconds
Maximum velocity tracked	514	m/s
Maximum altitude tracked	18,000	Meters
Tracking Sensitivity	-165	dBm
Navigation Sensitivity	-160	dBm

3.3 GSM Module Specification

- Quad-band GSM/GPRS component (850/900/1800/1900 MHz)
- Class 4 (2W @ 850 / 900 MHz)
- Class 1 (1W @ 1800 / 1900 MHz)
- R&TTE, GCF, FCC, PTCRB, IC
- Embedded TCP/IP stack.
- GPRS Class 10

3.4 Specification of Connection Cable

3.4.1 Signal definition

No.	Signal Name	Description	Wire's colour
1	DC (+)	External DC power supply (+)	Red
2	GND	Ground and External DC power supply (-)	Black
3	Output 1 +	Output port 1 connection +	Light green
4	Output 1 -	Output port 1 connection -	Pink
5	Output 2 +	Output port 2 connection +	Purple
6	Output 2 -	Output port 2 connection -	Blue
7	Input 1+	Optical isolated input port (+)	Dark green
8	Input 1-	Optical isolated input port (-)	Yellow
9	AD +	Analog input port (+)	Orange
10	AD -	Analog input port (-)	Grey
11	RS232 TXD	RS232 data sending (output from device)	White
12	RS232 TXD	RS232 data receiving (received by device)	Brown