

# First Strike Meters FS1 Digital Satellite Finder

## *Operator's Manual*



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Make certain that the battery is fully charged before the first using of the meter.

Warning: The meter is powered with high-performance Li-ion battery. Use only the charger provided by the manufacturer. Using any other battery charger may overheat or distort the meter, or cause fire, injury or harm to the environment and will void the warranty.



This extended warranty program will not cover physical and non-physical damages, which include accident, use of supplies or parts not meeting the product's specifications, misuse other software application, damage due to shipment, neglect, fire, water, lightning, or other acts of nature, unauthorized product modification, removal, installation and set-up service charges by any third party, and failure to follow instructions supplied with the product.

To ensure safe operation and maximum benefit from the features of this device, please read this manual carefully prior to initial use.

The technical specifications and operating methods included in this manual are subject to changes without notice. In case of any inquires after a period of usage, please consult the manufacturer.

### **WARNING**

Inspect the instrument, box and packing material prior to use to verify that damage has not occurred in transit to your location. Verify that all listed accessories are included with your unit, and that the unit is functioning properly. In the event of improper operation, or that items are missing or damaged, please contact your distributor immediately.



### **Battery Notice:**

Do not expose to, dispose of the battery in fire.

Avoid shorting the battery.

Avoid excessive physical shock or vibration.

Do not disassemble or deform the battery.

Do not leave battery in charger over 12 hours.

Store the battery in a cool, dry and well-ventilated area.

Keep battery packs away from children.

Promptly and properly dispose of used battery packs according to local regulations for the disposal of batteries.

Damaged or leaking battery packs should be handled with extreme care.

Charge unused battery packs at least once every six months.



### **Charger Notice:**

Charge the battery packs only with the specified charger.

Never use a modified or damaged charger.

We recommend that Li-Ion batteries should be charged in an unoccupied area.

Do not charge battery packs near combustible or conductive materials.

Charge the battery packs in a well-ventilated room that does not exceed room temperatures of 40°C/104°F.

## **Accessories**

AC Adaptor	1PC
Car charger	1PC
RF connector	2PCS
USB cable	1PC
User manual	1PC
Li-ion battery	1PC

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## Overview:

FS1 Satellite Finder is an ideal instrument for satellite installation. It reacts fast, works reliably, the easy-to-use features can really make satellite searching a easy job.

The meter calculates the elevation and polarization automatically and show in the display, according to your location and satellite's longitude.

The meter comes with the global data of satellite channel plan, you can also download channel plan data via PC or edit the user-defined channel plan which can save up to 100 satellite parameters.

## Screen instructions:

Screen instructions: Fig.1

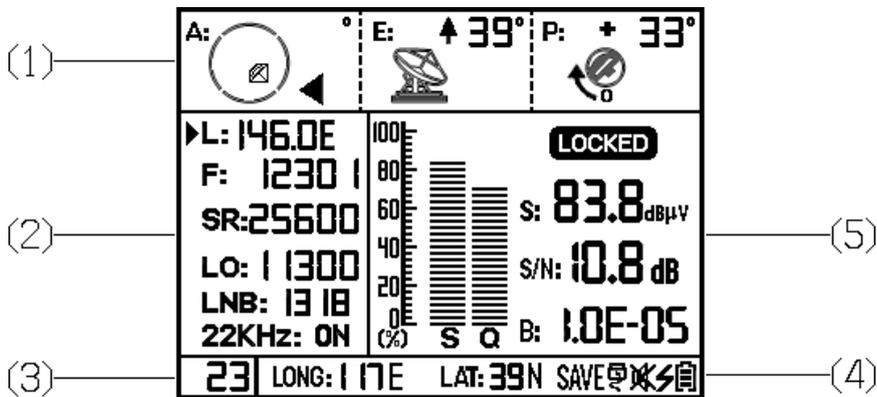


Fig.1

## (1) Positioning guide zone:

A: Indicates the azimuth direction.

E: Indicates the degree of elevation

P: Indicates the LNB polarization angle

## (2) Satellite settings zone:

L: Satellite longitude

F: Transponder frequency

SR: Symbol rate

LO: Local oscillator frequency

LNB: 13V (vertical) or 18V (horizontal) polarization switch

22KHz Control: "ON" indicates on, blank indicates off.

## (3) Channel number zone:

User channel plan can save 100 user-defined satellite parameters, you can also save frequently-used parameters here.

Using  and  key select the channel. The meter has preset the data of most satellite channel plans in the world, and reserves 300 empty channel plans.

Inputting the longitude and latitude of your location, the meter will automatically select and display a channel that you can receive.

## (4) Latitude and longitude settings &amp; functions zone:

LONG: Longitude

LAT: Latitude

**SAVE:** It blinks when pressing  to indicate saved successfully.

: Indicates the mode of local channel plan.

: Hold  for 3 seconds until the symbol shows, indicating the speaker is off; Press and hold for 3 seconds again to turn on the speaker.

:Linked with PC

.Shows current battery status,  blinks when the battery is low.

(5) Measurement zone: After setting satellite parameters, you should move cursor to channel number zone and press any numeric key from 0 to 9 to activate the measurement.

S, Q column

S, Q column displays the signal strength and signal quality in percentage.

S, S/N and B

S:Actual value of signal strength

S/N: Carrier noise ratio

B: Bit error rate

**LOCKED**

Indicates the signal has been locked.

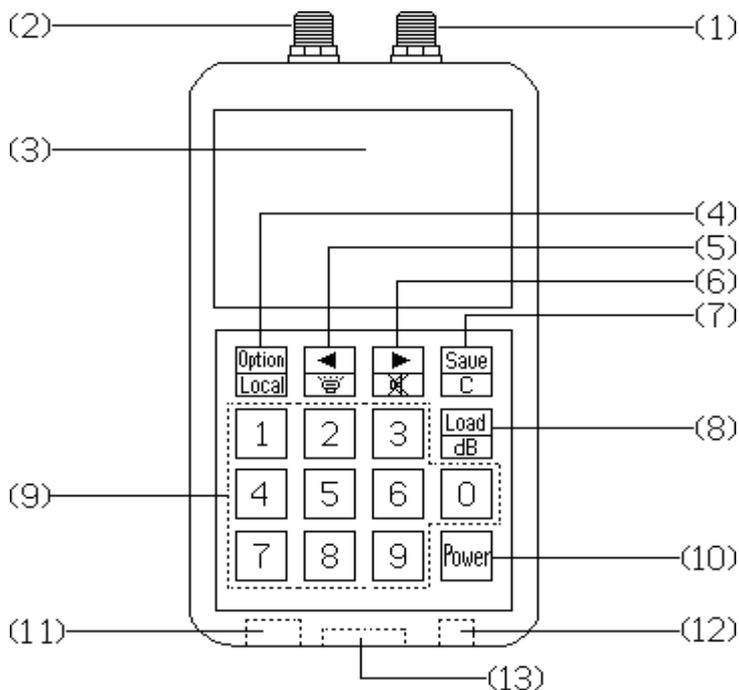
**Panel introduction:**

Fig. 2

- (1) Input port: The port to connect with LNB
- (2) Output port: When the battery is low, connect this port with input port of satellite receiver, then turn on the receiver to supply power for meter and get signal input.
- (3) LCD: LCD display with backlight.

(4) Option Key & shift key between default and user-defined channel plans:

Single-press, the cursor will move downwards circularly.

Hold for 3 seconds, screen will shift between default and user-defined channel plans.

(5) Number digit key & backlight key:

Single-press: cursor moves left

Hold for 3 seconds to turn on or turn off backlight.

(6) Number digit key & mute key:

Single-press: cursor moves right

Hold for 3 seconds to turn on (off) the speaker.

(7) Save & delete key:

Press to save modified items.

Hold for 3 seconds to delete the selected item.

(8) Load and unit key

Single-press: load parameters in local channel plan to user-defined channel plan.

Hold for 3 seconds to shift among the measurement units dBuV, dBmV, dBm.

(9) Numeric Keys: Enter numbers from 0 to 9. When cursor is in channel number zone, press any numeric key to start or stop the signal measurement.

Hold "0" key for 3 seconds to enter local longitude & latitude modifying mode.

(10) POWER: power on & power off key.

(11) Data port to connect with PC

(12) Charging port

(13) Speaker

## Start using your meter.

### 4-1. Power on/off:

Hold the power key until the meter “beeps” and enters the main menu. Press the power key again to power off.

### 4-2. Enter the coordinates of your location.

Enter the latitude and longitude of your location.

First, using   key move cursor to channel number zone. Make sure the measurement zone is blank, otherwise press any numeric key to quit the measurement mode. Then hold “0” key for 3 seconds, the cursor will move to the longitude and latitude setting zone. As shown in Fig. 3

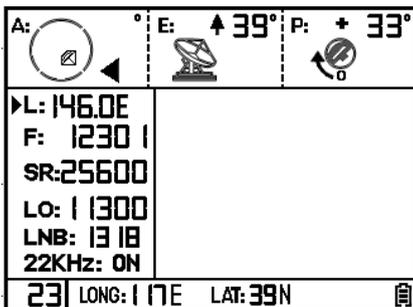


Fig. 3

For example: Enter longitude 117E , latitude 39N.

Using  key move cursor to “LONG” , using  or  key select the number digit, and enter the number “117” when the cursor blinks.

Continuing to press  or  key until “E” or “W” blinks, press any key from 0 to 9 to shift between “E” and “W”.

Using  key move cursor to “LAT”, enter “39”. Continuing to press  or  key until “N” or “S” blinks, press any key from 0 to 9 to shift between “N” and “S”.  
Hold “0” for 3 seconds to save and exit

### 4-3. Manually Searching Satellite

4-3-1. Enter parameters:

In user channel plan, move cursor to channel number zone, press  or  to select an empty channel plan, pressing  key to move cursor to L, F, SR, LO, LNB, 22KHz and enter the correct parameters one by one.

For example:

Moving cursor to “L” and enter 146E:

Enter number when the digit blinks, using  or  key move the cursor. When the cursor is at “hundred” it won't blink, directly enter “1”.

Continuing to use  or  key move the cursor to “E” or “W” , when “E” or “W” blinks, press any numeric key from 0 to 9 to shift between “E”

or “W”.

When the cursor is at “LNB” or “22KHz”, use any numeric key to shift between the options.



After entering all parameters, press  key to save. The cursor moves to channel number area automatically and all parameters are saved into current channel successfully.

Note: As “L” is entered, the meter will calculate elevation and polarization and display on the positioning guide zone, according to local longitude & latitude you have entered, provided the satellite program is available locally.

#### 4-3-2. Signal measurement:

Make sure the cursor is in the channel number zone, press any numeric key to launch signal test mode. When the input port is connected with LNB, the meter will detect LNB noise and display the signal level, indicating the LNB is OK and connected well with the meter. As Fig.4

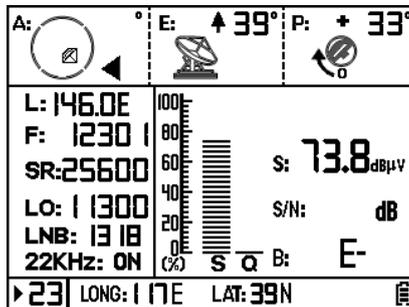


Fig. 4

#### 4-3-3. Signal searching:

Turn the antenna in the direction the meter indicates, the tone will become louder and sharper. When the antenna is close to the satellite,

the meter shows a increasing value of S/N and BER. As Fig. 5

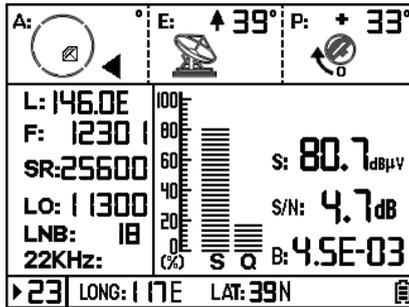


Fig. 5

Continue to turn the antenna slowly in the direction that makes the S/N increase. When the value is sufficient, the meter sounds a steady tone and show **LOCKED** icon on the display. As Fig. 6

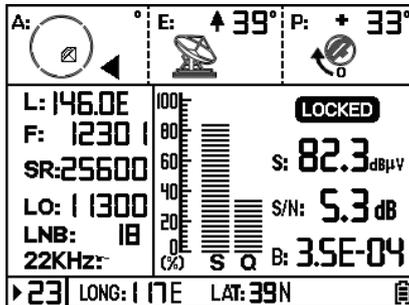


Fig. 6

Continue to tune the antenna until the meter shows the maximum S/N value, now the antenna is in the best position. As Fig. 7

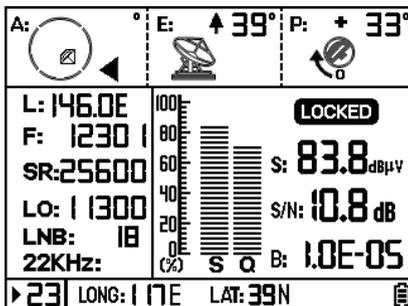


Fig. 7

Note: In measurement mode, you can press  or  key to change the parameter of “F” item by 1MHz step. Press  key to save.

 icon will blink when the battery is low, please charge the battery or connect to the STB as power supply, otherwise although the meter can still work it may not be able to supply power for the LNB.

#### 4.4 Using default channel plan.

Hold  key until  shows at the lower right corner of screen, press  or  to change the channel number. Press any numeric key to start testing.

#### 4.5 Using user channel plan.

In default channel plan, hold  key until  disappears. The meter

enters user channel plan mode. Press  or  to change channel number and press any numeric key to start testing.

#### 4.6 Copy a channel from default channel plan to the user channel plan.

In default channel plan mode, using  and  keys select the favorite channel and press  key. The meter displays **SAVE** in the lower right and the channel is copied to the user channel plan successfully.

#### 4.7 Modify channels in both default & user channel plan.

In the default or user channel plan mode, using  key move the cursor to the  item and modify it. Press  key to save. The meter displays **SAVE** in the lower right and the channel modification is saved successfully.

In the default channel plan mode, the “L” item can’t be modified. Above function can’t be done in the test mode, press any numeric to switch out of test mode.

#### 4.8 Delete channel in the user channel plan.

In the user channel plan mode, using  and  keys select the

channel to be deleted and hold  for 3 seconds to delete the channel.

#### **4.9 Restore factory settings.**

Type in 9876 immediately after power on, about 5 seconds later, the meter will restart and recover to factory settings. All saved and modified contents will loss. Please use this function carefully.

#### **4.10 Upgrades:**

Install the software provided in the product disk or downloaded from [www.FirstStrikeMeters.com](http://www.FirstStrikeMeters.com), connect with PC with the communication cable.

#### **4.11 Charging by satellite receiver:**

The input port of a satellite receiver can supply power for the meter. Connect the input port of satellite receiver with the output port of the meter.

AS Fig. 8

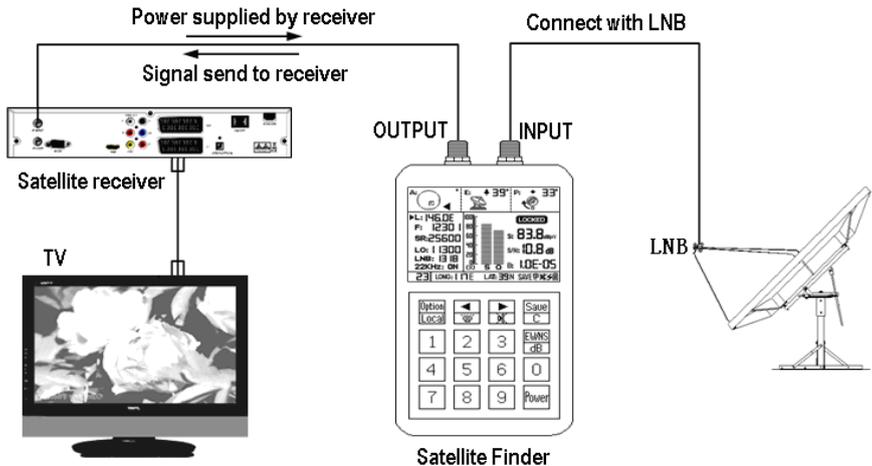


Fig. 8

Above configuration is used only when the battery is low.

## Technical parameters

Input frequency range: 950~2150MHz

Signal level range: 30dBuV-105dBuV

Measurement unit: dBmV; dB $\mu$ V; dBm

Measurement accuracy:  $\pm 1.5$ dB

Input resistance: 75 $\Omega$

Symbol rate: 2Msps-45Msps

Connector: F type

Measurement item: signal strength; bit error rate; S/N

QPSK switch: Auto

22K control: supported

Audio output: speaker

Display: Code segment wide-temperature LCD

Memory content: 300 reserved locations for global satellite channels,  
100 user-defined channels

LNB Power Supply: 13V, 18V,  $\leq 500\text{mA}$

Interface mode: USB

Adapter power supply: AC100V-240V

DC input: 13.5V/2A

Output port voltage: DC12-23V

Battery working time: about 2.5 hours continuously after full charged,  
varying from LNB with different power consumption.

Charging time: 4 to 6 hours

Working Temperature:  $0^{\circ}\text{C}\sim 40^{\circ}\text{C}$

Storage Temperature:  $-10^{\circ}\text{C}\sim 50^{\circ}\text{C}$

Dimensions: 142\*82\*35(mm)

Weight: 0.42Kg

Gross weight: 0.9 Kg