

**DVB-S2 Messgerät**

**smartmeter ES1**



**User Manual**

**Version: 11.06.2019 – Englisch**

**SMA-RT**<sup>®</sup>  
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## ***Preface***

Dear Customer,

Thank you for purchasing the digital DVB-S/C/T meter smartmeter ES1.

This user manual contains all the information required

- to connect,
- to operate,
- to clean, and
- to dispose of the device.

Please read the user manual carefully before you start using the meter.

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## Table of Contents

1. Safety precautions
2. Main features
3. Front panel and functions
4. Operations and Management
5. Main menu operation description
  - 5.1 Find
  - 5.2 Spectrum
  - 5.3 List
  - 5.4 Edit satellite
  - 5.5 Edit transponder
  - 5.6 Setup System
6. Update application system
7. Charge indicator
8. Technique specifications
9. Attachments

## Brief introduction:

This type of digital satellite finder is a simple and convenient instrument to install and adjust satellite dish. As digital satellite finder, it is necessary to input corresponding satellite parameters, such as LO frequency of LNB, Down Frequency, symbol rate, etc.

It can be used as an indicator to adjust satellite dish, feedhorn position and polarizing angle so that help the best dish installation.

## 1. Safety precautions

- Please read this user's guide carefully, especially for the first time users.
- Do not touch the LCD display by hand.
- Do not place heavy items on the device.
- Keep this unit away from the heat, direct sunlight, strong mechanical vibration, or dusty places. Clean the surface with a dry and soft cloth. Do not pour any liquid to void serious injury.
- Keep the unit in a ventilated place.
- Please contact your supplier if any failure occurs.
- Operate properly per this user's guide, otherwise any damage of the unit is at the user's risk.
- Specifications are subject to change and improvement without notice. Please inquire of manufacturer if there's any need after the usage.

### Notice:

1. The battery is only applicable to the charger which supplied or appointed by the manufacturer of this machine.
2. The charging time should be minimum 5 hours for the first time , and it should not be charged over 12 hours after the first time.
3. The battery should be stored within a temperature range of 0 °C to 40 °C .
4. When stored for a long period , charger the battery at least once per month so as to prevent over discharge .
5. Products placed for a long time to charge once every three months.
6. The battery is expendable.

## 2. Main features

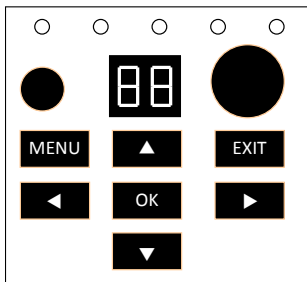
- 1 - Support DVB-S, DVB-S2
- 2 - Support Spectrum Function
- 3 - Support 0/22KHz., DISEqC1.0 , UASLS
- 4 - Support Unicable LNB
- 5 - Build in highlight LED light
- 6 - Show the Signal Quality on Nixie Tube
- 7 - Build in buzzer
- 8 - Support to check the power cable automatically
- 9 - Support to reset to defaults
- 10 - LCD Screen shows signal strength quality, Power, MER, TP Type, FEC, BER, etc.
- 11 - The unit of Signal power support dBm, dB $\mu$ v.
- 12 - USB 2.0 for software update, backup satellite parameters

## 3. Front panel introduction and function description



- 1 Signal Input
- 2 DC input
- 3 USB port
- 4 Compass
- 5 Indicator
- 6 LCD
- 7 Nixie tube
- 8 LED switch
- 9 Buttons
- 10 Power Switch

## 4. Operations and Management



Power: It lights on when the power on

Change: It lights on when change the battery

22K: Indicate the 22K signal

18V: Indicate the 18V output for LNB

Lock: It lights on when the signal is locked

LED switch: Switch the highlight LED

Compass: Indicate the direction

MENU: Direct go to main menu

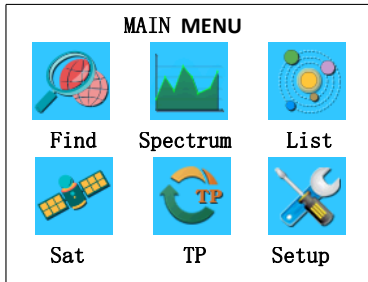
EXIT: Press this button to step back, or cancel current parameter modifying.

OK: Use this button to enter a submenu or save a new setting after adjustment; press it to enter parameter setting.

Move cursor up/down/left/right, Page up/down, change the parameter settings.

## 5. Main menu operation description

When power on, the screen will display some information about software, then enter to the main menu.



### 5.1 Find

In this menu, it is display the signal strength and quality according to the parameters that user selected or edited, help user to adjust the dish.

Satellite Name:	Chinasat6B
Local Freq:	05150
Transponder Freq:	03840
Symbol Rate:	27500
Polarity:	H
22K:	OFF
DiSEqCl. 0:	LNB2
USALS:	OFF
Buzzer:	OFF
S: 57 %	Q: 45 %

The buzzer can be turned on or off by “Buzzer” item.

Move cursor to “S : Q : ”and press [OK], it will display signal strength and quality progress bar as below.



Satellite Name:	Chinasat6B
Local Freq:	05150
Transponder Freq:	03840
Symbol Rate:	27500
Polarity:	H
22K:	OFF
DiSEqC1.0:	LNB2
USALS:	OFF
Buzzer:	OFF
S: 57 %	Q: 45 %

Set USALS parameter “ON”, press [OK] on this parameter to enter USALS function as below:

Satellite Name:	Chinasat6B
Local Freq:	05150
Transponder Freq:	03840
Symbol Rate:	27500
Polarity:	H
22K:	OFF
DiSEqC1.0:	LNB2
USALS:	OFF
Buzzer:	OFF
S: 57 %	Q: 45 %

Longitude: Satellite longitude.

Direction: Satellite direction

Move: To drive the motor to rotate dish antenna, press < / > to select east or west, press [OK] once will rotate one step, press and hold will rotate continuously.

Goto: Rotate to the target automatically, press [OK] to execute

XX: Rotate dish antenna to corresponding satellite automatically

ZERO: Rotate to “0” scale

Set Limit : Set rotation limit, select “LEFT”, “RIGHT” or “CLEAR” and press [OK] to execute.

E.g. rotate motor to an east direction angle, then select “EAST” and press [OK], this angle location will be EAST rotation limit, motor will not be able to rotate over this east limit. Select “CLEAR” to cancel limit.

## 5.2 Spectrum

In this menu, the strength of input signal will display in graphic mode.



Press < / > to move cursor, press Up / Down to change the range of signal strength display, current frequency and signal strength is shown on top, press [OK] to pause.

## 5.3 List

### 5.3.1 Manual Check

Select the desired satellite and corresponding transponder, it will show the signal detail information, include strength, quality, type, FEC and BER.

Chinasat6B			
01	03840	(H)	27500
S:	<input type="checkbox"/>	<input type="checkbox"/>	57%
Q:	<input type="checkbox"/>	<input type="checkbox"/>	45%
TYPE: DVB-S			
FEC: 3/4			
BER: 0.00E-00			

- Press Up / Down to change satellite
- Press < / > to change transponder

### 5.3.2 Auto Check

This function is used for finding which satellite that selected has been connected to the line quickly and easily. It will stop switch satellite and light “Lock” LED when the signal has been locked.

In auto-check	
01	Thaicom5

Press [OK] to search next satellite

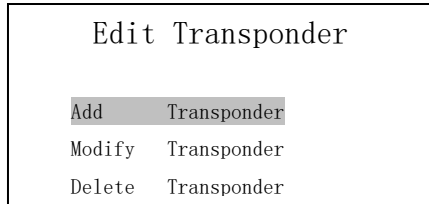
## 5.4 Sat

In this menu user can add, modify or delete the satellites, including satellite name, LO frequency, 22KHz、DiSEqC1.0、USALS and satellite longitude according to self requirements.

Edit Satellite	
Add	Satellite
Modify	Satellite
Delete	Satellite

## 5.5 TP

In this menu user can add, modify or delete the transponders, including transponder frequency, symbol rate and polarity.



## 5.6 Setup

This menu contains some auxiliary functions and user data management

### 5.6.1 Back up Data

You can back up satellite data to U disk by this menu.

### 5.6.2 Update Data

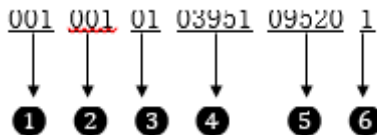
You can update satellite data from U disk by this menu.

Note: Only the "txt" format file which named "sf700" can be identified, and must write as below. (There is a blank line at last)

```

2014-9-2 13:50:29
Sf700
01 01 00China 6B 05150 0 0 0 115.5 0
001 001 01 03951 09520 1
001 002 01 03880 27500 0
01 02 Koreasat 5 11300 1 0 0 113.0 0
001 003 02 12647 28000 1
01 03 0000NSS 11 Univ 0 0 0 108.2 0
    
```

- ① “01” means this line information is about satellite.
- ② The serial number of the satellite, it must be continuous, can not from “01” to “03”.
- ③ Satellite name. The length is ten. If the name of the satellite is sat01, the third must be “00000sat01”.
- ④ The LO Freq of the satellite.
- ⑤ Represent 22KHz signal status. “0” means OFF, “1” means ON.
- ⑥ Represent DiSEqC1.0 status. “0” means OFF, “1” means LNB1, “2” means LNB2, “3” means LNB3, “4” means LNB4.
- ⑦ Represent USALS status, “0”means USALS OFF, “1”means USALS ON.
- ⑧ Satellite Longitude.
- ⑨ Satellite location. “0” means east, “1” means west.



- ① “001” means this line information is about TP.
- ② The serial number of the TP, it must be continuous, can not from “01” to “03”.
- ③ The number means this TP is belong to which satellite have the same number..
- ④ Transponder frequency
- ⑤ Symbol Rate.
- ⑥ Polarity. “0” means H, “1” means V.

### 5.6.3 Reset to Factory

User can reset the satellite data to default in this menu.

### 5.6.4 Calculation Angle

The function can calculate antenna elevation, azimuth and LNB polarization angle according to satellite longitude, local location longitude and latitude parameter settings, it is useful for receiving installation.

Parameter Setting	
Sat Longitude:	111.0 E
Local Longitude:	113.0 E
Local Latitude:	22.2 S
Angle Calculated	
Elevation:	63.8
Azimuth:	354.7
Polarization:	4.8

The letter “E”, “W”, “N” and “S” means east longitude, west longitude, north hemisphere and south hemisphere respectively. Move cursor to the letter, and press < /> to select.

The angle data can be calculated and displayed automatically when parameter is being set. Elevation angle is counted from horizon upward, azimuth angle is from north clockwise.

### 5.6.5 Set Compensation

#### 5.6.6 Select Power’s Unit

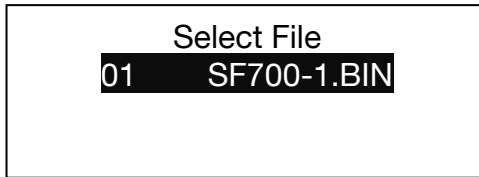
Select the unit of signal level.

#### 5.6.6 Change the color

Select the background color, text color and cursor color.

## 6. Update application system

The product can update application system from USB port, if you want to update application system, insert U disk, press MENU and connect power supply until the screen display as below.



Press "OK" to update .When the system is complete updating, the system will restart.

## 7. Charge indicator

- Green led on: Fully charged
- Red led on: In charging
- Red led flash: No battery or battery error

## 8. Technical specifications

Input signal	Frequency range	950~2150MHz
	Signal Level	-65 ~ -25dBm
	Impedance	75Ω
Signal processing	Symbol rate	1MspS~60MspS
	Demodulation	DVB-S: QPSK DVB-S2: 8PSK,16APSK,32APSK
	22KHz Tone	Supported
	DiSEqC1.0	Supported
	USALS	Supported
Power supply	Switching Power input	AC110~240V 50Hz/60Hz
	Switching Power output	12V DC 2000mA

## 9. Attachments:

Power supply:	x 1
Instruction Manual:	x 1
F type connector:	x 2



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## ***Technical Details***

### ***System Resources***

DDRAM	1GByte DDR
FLASH	8MByte

### ***Connectors***

Data Connector	USB
Audio Video Output Digital	HDMI
Audio Video Output Analog	Hosiden

### ***Power Supply***

Power	15 V
Li-Ion Battery	3000 mAh
Voltage Power Supply/Charger	175 - 250 V ~, 50/60 Hz

### ***Size and Weight***

Length x Wide x Heigth	11.2 cm x 17.7 cm x 4.8 cm
Weigth	0.5 kg

### ***Temperature***

Working Temperature	0° C to +40° C
Storage Temperatur	-40° C to +65° C

## ***Declaration of Conformity***

The company Avanit GmbH, Am Sternbach 1, 91477 Markt Bibart hereby declares conformity with the following guidelines and standards for this product:

- **Guideline for electromagnetic compatibility 99/5/EC and 2014/30/EU**
  - EN61326-1:2013
  - EN61326-2-2:2013
  - EN301489-1:2011-09
  - EN301489-17:2012-09
  - EN300328 V1.9.1:2015-02
- **Guideline for low voltage 2014/35/EU**
  - EN61010-1:2010
  - EN62479:2010



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