AMIKO TSC-1100
User's Manual

www.amikostb.com

Please refer to the following notes before use.

- Please read this user manual carefully to be able to safely use and maintain your meter.
- The technical specifications and operation guides in this manual are subject to changes without notice.
- Before using the first time, please charge the battery for 3 hours.
- Please use the special adapter for charging attached with the meter, do not use it for other product
- In case of any technical questions, please contact your local dealer.

1. MAIN FEATURES

- Support DVBS/DVBS2/DVBT/DVBT2/DVBC/DVBC2/MCNS/ OPTICAL
- LNB short-circuit protection and indicator.
- Extremely fast and accurate with high sensitivity.
- 400*360 color LCD display.
- Database editable by user easily.
- Signal lock audible notification.
- Optical power level measurement.
- Firmware can be upgraded by USB port.
- Power-supply100-240V/50/60Hz 12V@1A.
- Ultra-long standby, low power consumption.
- Fast charging Li-ion battery can last around 3 hours

DVB-S/S2

- Real time Spectrum-Analyzer and transponder message detected
- Angle calculation of azimuth and elevation.
- Azimuth and elevation measurement.
- Satellite alignment system.
- Power, CNR, CBER, VBER(DVBS), LBER(DVBS2) Modulation mode display.
- DiSEqC1.0, DiSEqC1.2, USALS,SCD and SCD2 supported.
- Auto DiSEqC identification for DiSEqC1.0

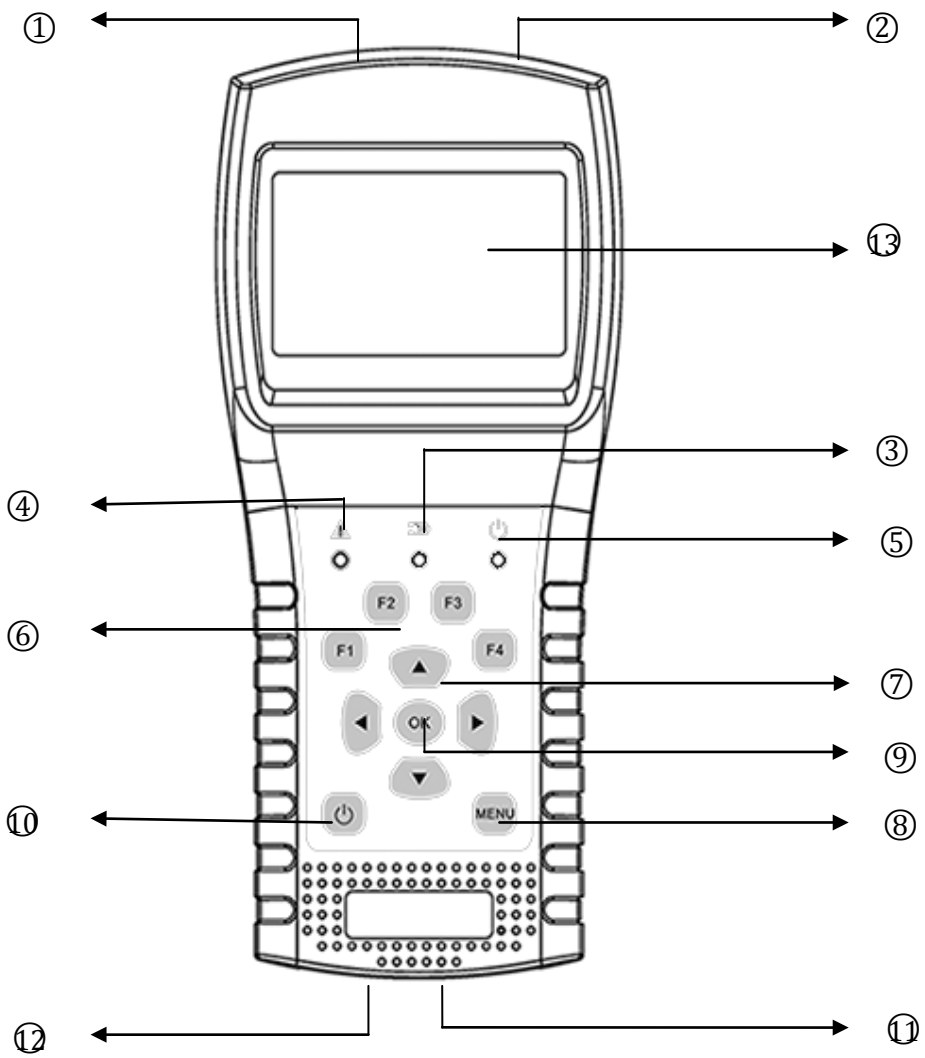
DVB-T/T2

- Power, VBER(DVBT), LBER(DVBT2) SNR and CBER display.
- Spectrum analyzer
- SCOPE Display
- Channel Auto Scan

DVB-C/C2/MCNS

- Power, BER, PER(DVBC/MCNS), LBER(DVBC2), SNR and Symbol Rate display
- Spectrum analyzer
- Channel Auto Scan
- Trunk voltage measurement (AC&DC)
- Tilt Display

2. BUTTONS AND INDICATORS



1. LNB Input: Signal input port for satellite. Connects directly to LNB using coaxial cable.

2. Antenna Input: Signal input port for terrestrial and cable. Connect directly to Antenna using coaxial cable.

3. Charge Light:

Red: the battery is being charged.

Blue: the battery is full.

4. Warn Light: Flash if LNB is short connected

5. Working Light: Green: the meter is in working status

6. Function Keys: Function keys.

7. **Navigation Keys:**

   ◀ / ▶ **:** Move focus or change value**.**

   ▲ / ▼ **:** Move focus or change value

8. **MENU:** Go into main menu or exit from the current menu

9. **OK:** Confirm

10. ⏻ **:** Turn the meter on/off, press and hold for 2 seconds to power on/off the meter.

11. **Charging:** Connect with the charger cord for charging the equipment.

12. **Reset:** Reset the meter

13. **Screen Display**: Show menus and parameters.

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3. HOW TO MEASURE

Power on the meter, select the system to measure or select system setting to set parameters for the device in the HOME menu.

In all menus, press [▲/▼] button to navigate, press [◀ / ▶] button to change the value of focused item, press [OK] button to confirm your select, edit value or enter a list to select a wanted item, press [MENU] button to enter or exit menus.

How to measure satellite signal:

1. Connect the signal cable to F-Type, Female jack.
2. Enter Satellite submenu.
3. Calculate the elevation and azimuth according to your local position in Calculate Angels menu. Set or adjust your dish to the right position.
4. Set the LNB parameters according to your field environment in LNB Setting menu. Make sure all the things are correct.
5. Enter to Satellite Measure menu, select the correct satellite and a normal transponder to check the signal is locked or not.

According to all the output values, such as strength, quality, CNR and power level, you can accurate your dish to get the best quality signal. And also you can analyzer the signal in Spectrum Chart menu to help you to learn the locked signal well. User can edit the satellite position and transponder in Satellite Edit menu.

How to measure terrestrial signal:

1. Connect the signal cable to IEC-Type, Female jack first.
2. Make sure set Antenna Power to ON in System Setting menu if your antenna needs power supply.

3. Analyze the signal in Terrestrial Measure menu.
4. Analyze the scope in Scope menu and the spectrum in Spectrum Chart menu.

How to measure digital cable signal:

1. Connect the signal cable to IEC-Type, Female jack first.
2. Analyze the signal in cable Measure menu.
3. Analyze the TILT in TILT menu and the spectrum in Spectrum Chart menu.

How to measure analogue TV signal:

1. Connect the signal cable to IEC-Type, Female jack first.
2. Analyze the signal in Measure menu.
3. Analyze the TILT in TILT menu and the spectrum in Spectrum Chart menu.

Please refer below descriptions if you want to learn all functions.

4. HOME MENU

The meter will enter this menu first during power on. Press [▲/▼] to switch items or [OK] to enter submenus.

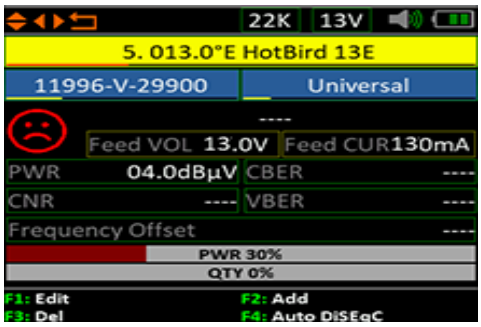
Satellite TV:	Submenu for DVB-S/S2 system.
Terrestrial TV:	Submenu for DVB-T/T2/ISDBT system.
Cable TV:	Submenu for DVB-C/C2/MCNS system.
Analog TV:	Submenu for analogue TV system.
System Setting:	Submenu for system parameters setting. Such as language, auto power off and so on.

5. SATELLITE TV

The submenu for **Satellite TV** functions. User can read the parameters of the live signal, analyze the spectrum chart, calculate the angles for a special satellite and edit the parameters of satellites.

5.1 MEASUREMENT

The device will show the strength and quality of the live signal. And also CBER,VBER,LBER,CNR, modulator type, FEC and power level



- **5. 013.0°E HotBird 13E:** The current satellite. Press [◄/►] to switch between satellites and press [OK] to enter satellite list to select satellite. Press [OK] button to select the focused satellite and press [MENU] to exit from edit menu. All the other parameters on the menu will be refreshed according to the selected satellite.
- **11996-V-29900:** The current transponder. Press [◄/►] to switch between transponders and press [OK] to enter edit. Press [◄/►] to move curse and [▲/▼] to change value of each focused item in edit menu.
- **Universal:** The LNB type. Press [◄/►] to switch between LNB types and press [OK] to enter list to select type.
- **22K:** The 22k output status
- **13V:** The LNB power supply status
- **CNR:** The CNR value of signal.
- **PWR:** The power level of signal.
- **CBER:** The BER before FEC value of signal.
- **VBER:** The BER before viterbi value of signal.
- **Feed VOL:** The LNB feed voltage.
- **Feed CUR:** The LNB feed current.
- **PWR 30%:** The strength of signal.
- **QTY 0%:** The quality value of signal.

The red face icon will change to green once the LNB input signal is locking.

Press [OK] button to pop-up list window to select.

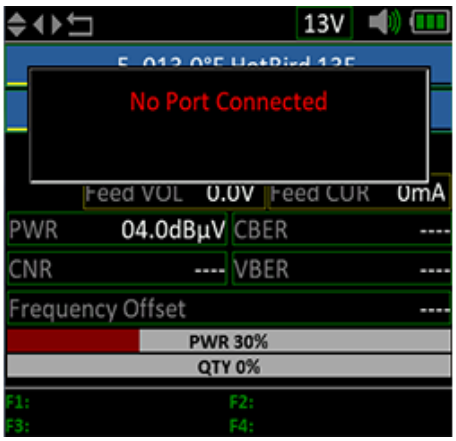
Please edit items or enter sub-functions according to the help information.

5.1.1 ZOOM

This function to show signal strength and quality in big mode.

5.1.2 AUTO DISEQC

Press F4 to enter into DiSEqC 1.0 detection menu as below.



5.1.3 LNB SETTING

Press [F1] to enter LNB setting window during the curser focus on LNB type.

- **013.0° E HotBird 13E:** The current satellite.
- **Universal(9750-10600):** The LNB type. Press [◂ / ▸] to switch between LNB types and press [OK] to enter list to select type.
- **Auto:** The 22k parameter. Press [◂ / ▸] button to switch between Auto, Off and On.
- **Auto:** The power parameter of the LNB. Press [◂ / ▸] button to switch between Auto, Off, 13v and 18v.
- **DiSEqC 1.0:** The DiSEqC port setting for DiSEqC 1.0 and 1.1. Press [◂ / ▸] button to switch between ports or press [OK] button to select port in the list.
- **Fixed:** Set the motor type. Press [◂ / ▸] to switch between Fixed, USALS and DiSEqC 1.2.

USALS Setting:

Press [OK] to enter USALS SETUP menu on Position Type if the type sets to USALS parameters

- **HotBird 13E:** The current satellite.
- **Irkutsk:** Select longitude and latitude by position name. Press [OK] to list all the positions. Please select Customized if you want to set the longitude and the latitude manually.
- **52.5°N/ 104.3°E:** Show the selected longitude and latitude. And you can edit the value if Customized is selected.
- **Move to center:** Press [OK] to move the dish to central position.
- **Move to position:** Press [OK] to confirm to move to setting position

Diseqc 1.2 Setting:

Press [OK] to enter Diseqc 1.2 setting menu on Position Type if the type sets to Diseqc 1.2

- **Move single step:** Move the motor by step. Press [◂ / ▸] to move to west or east
- **Move Continuous:** Move the motor incessantly. Press [◂ / ▸] to move to west or east
- **Move to center:** Press [OK] to move to centre point
- **Limit east:** Set the move limit to east
- **Limit west:** Set the move limit to west
- **Remove Limit:** Disable all limits.
- **Save and Commit:** Press [OK] to save current position
- **PWR:** The strength of signal
- **QTY.:** The quality of signal

5.2 SAT LIST

This menu list all the satellites and the transponders of each satellite.

Press [▲ / ▼] buttons to move curse in list. Press [◂ / ▸] to switch satellite list and transponder list.

Functions for satellite:

1. LNB setting

Press [F1] to edit LNB settings. Please refer to 5.1.3.

2. Add satellite

Press [F2] to add new satellites.

3. Delete satellite

Press [F3] to delete current satellite.

4. Move satellite

Press [F4] to start move satellite function, then press [▲/▼] to move the satellite in the list, press [OK] to confirm.

5. Edit satellite

Press [OK] to enter edit satellite window as below. User can edit name and orbit.

Functions for transponder:

1. Edit transponder

Press [OK] to edit transponder if the curser is focus on the transponder.

2. Delete transponder

Press [F3] to delete the current transponder.

3. Move transponder

Press [F4] to start move transponder in the list, then press [▲/▼] to move, press [OK] to confirm the movement.

5.3.Multi TP

This menu show 4 transponder signal results on one screen.

Press [▲/▼] to switch focused transponder. Press [OK] to select transponder in the transponder list window.

5.4. SPECTRUM

This menu will show the spectrum chart of setting frequency range on current cable line. Press [▲/▼] to switch curser focus between Start Frequency, End Frequency, LNB Setting and Current Frequency Mark.

- **22K:** Show the RF 22k status. The 22K is on if the icon is green.
- **13V:** Show the LNB power output status.
- **20~50~100:** The range of power level.
- **4530 MHz/100 dBuV :** The current frequency curse and power level, press [◀ / ▶] to set the current frequency.
- **03600:** The start frequency of the spectrum chart.
- **11504:** The end frequency of the spectrum chart.

Press [F1] to pop up LNB setting dialog box to set LNB parameters.

Press [◀ / ▶] to change current frequency if the curse is focusing on the current frequency mark.

Press [◀ / ▶] to change start or end frequency of the spectrum frequency range if the curse is focusing on the start or end frequency icon.

Press [F3] to switch LNB power supply between 13V and 18V.

Press [F4] to switch LNB LO frequency between 9750 MHz and 10600 MHz.

Press [F2] to start to identify the current connected satellite in the saved satellite list. Set the correct LNB parameter first and then check the signal of each satellite in the satellite list.

5.5 ANGLE CALCULATION

The elevation and azimuth of the antenna will be calculated according to the customized longitude and latitude or the selected city. Press [OK] to enter edit mode on My Longitude or My Latitude if Customized is selected. And press [◀ / ▶] to switch the focused item and press [▲/▼] to change values for each item under edit mode.

010.1°E: The location of local area

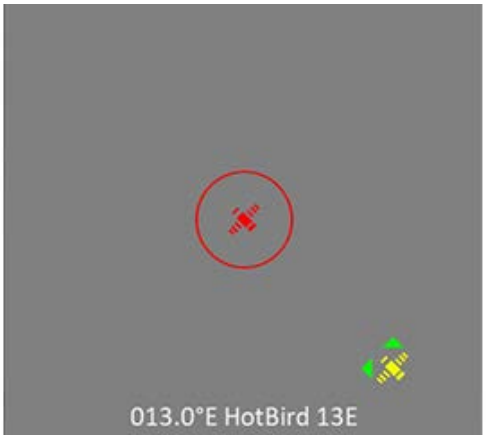
50.2°N: The hemisphere of local area

31.8°: The elevation calculated by meter

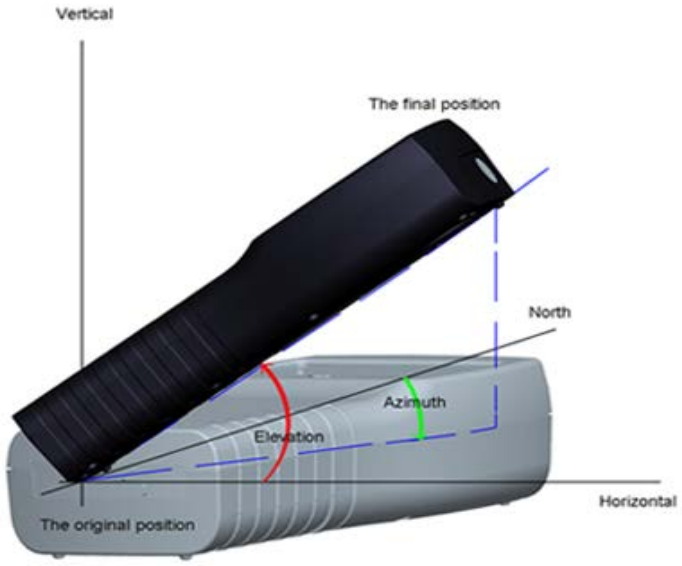
168.2°: The azimuth calculated by meter

07.5°: The polarization of the LNB

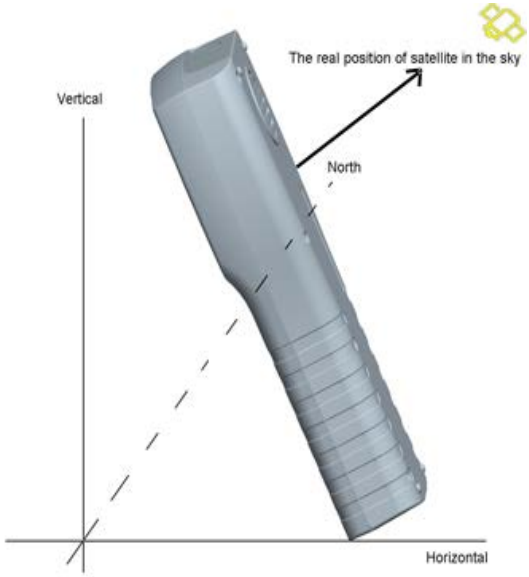
Select Align and press [OK] to goto alignation menu. User can simulate the antenna right position more directly on this menu. And the menu as folowing screen shot.



User need to adjust the attitude of the meter according to the simulated results until the current simulated values very close to the right ones. As close as possible. Then the BLUE lines will turn GREEN. Belowing is the graph for meter during adjust.

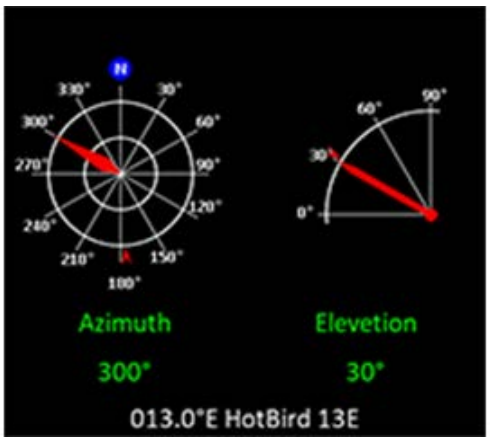


The meter must face to the satellite in the sky that user is plan to find.Belowing is the figure of aligment on this menu.



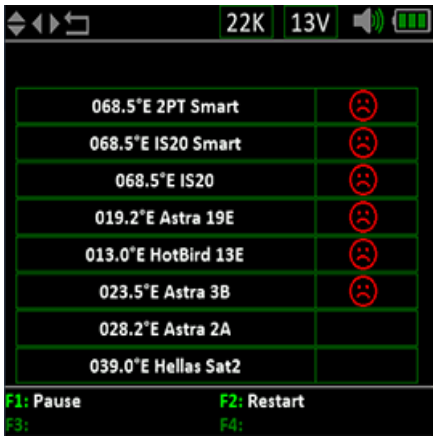
User need to adjust the attitude of the meter according BLUE arraw on the screen. The meter will deep and the RED icon turns to GREEN if the RED icon closes to the YELLOW one. It is better to make the two icon overlapping. And also values of azimuth and elevation will refresh on time according to the current position during the whole process.

Select Compass and press [OK] to go to compass submenu. And the menu as bellowing figure.



5.6 SAT IDENTIFACTION

The meter will identify the satellite of current LNB connected in the saved satellite list. Set the LNB parameter according to the connected LNB, then the meter will try to identify the connected satellite.



6.TERRESTRIAL TV

User can measure the live DVB-T/T2 signal, analyze the spectrum, the multi channels on one screen, auto scan all the saved frequencies and list all the locked ones. There are six submenus: Measurement, Auto Scan, Channel List , Spectrum chart, Multi channel and Antenna Power.

6. 1 MEASUREMENT

The device will show SNR, CBER, VBER, power value, strength and quality of the connected live signal. Please see below for detail.

Press [▲/▼] to switch focus curser.

-  **:** The lock status. The signal is locking if the icon is green otherwise the color of the icon is red.
- **A-048.00MHz:** The channel name and frequency.

  Press [OK] to pop-up channels list to help to select channel easily.

  Press [F1] to enter edit window to edit channel name and frequency.

  Press [F2] to add channel.

  Press [F3] to delete channel.

  Press [F4] to enter zoom menu to show signal results in big mode.
- DVBT-8MHz: The system type and bandwidth.

  Press [OK] to pop-up bandwidth list to help to select.
- **----:** Show the signal system, constellation mode and FEC value.
- **Feed VOL:** The feed voltage of antenna.
- **Feed CUR:** The feed current of antenna.
- **MER:** The MER value of the live signal.
- **CBER:** The CBER(BER before FEC) value of the live signal.
- **VBER:** The VBER value of the live signal.
- **PWR:** The power level value of the live signal.
- **Frequency Offset:** The frequency offset value.
- **PWR 30%:** The power level of the live signal in percent.

- **QTY:** The quality of the live signal in percent.

6.2 AUTO SCAN

The meter will scan all the saved frequencies and show the lock status one by one and will then return to the main menu once scanning is finished. Press [MENU] to abort a scan in progress and return to the main menu.

6.3 CHANNEL LIST

This menu shows all the locked frequencies during Auto Scan.

6. 4 SPECTRUM CHART

This menu shows the spectrum chart of the setting frequency range. Please see below screenshot.

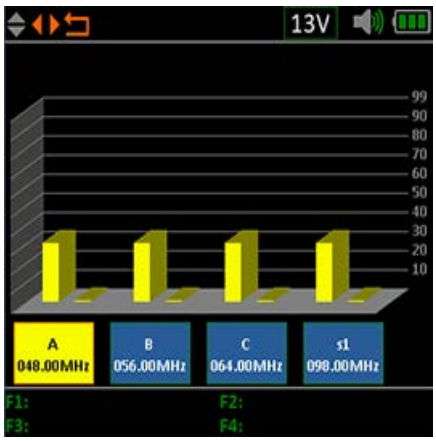
Press [▲/▼] to switch between current frequency, start frequency and end frequency:

Press [◀ / ▶] to change start or end frequency of the spectrum frequency range if the curse is focusing on the start or end frequency icon.

- **20~50~100:** The range of the level value.
- **644MHz 20dBuV:** The curse of the current frequency and power level. Press [◀ / ▶] to change the value.
- **50MHz:** The start frequency of the spectrum chart.
- **1130MHz:** The end frequency of the spectrum chart.

6.5 MULTI CHANNEL

This screen show 4 channels level (dBuV) in one screen, use [◀ / ▶] to move focus on channel number and press [OK] change channel number.



6.6 ANT POWER

User can enable/disable the antenna power supply for antenna. 5v, 12v, 18v and 24v output are supported.

7. CABLE TV

User can measure DVB-C live signal in this submenu. There are total six submenus: Measurement, Auto scan, Channel List, Spectrum chart and Tilt.

7.1 MEASUREMENT

User can read SNR, BER, PER, level, strength and quality of the live signal.

-  **:** The lock status. The signal is locking if the icon is green otherwise the color of the icon is red.
- **S08162.00MHz:**The channel name and frequency.

  Press [F1] to edit enter edit window to edit name and frequency.

  Press [F2] to add channel.

  Press [F3] to delete current channel.

  Press [OK] to pop-up channel list to help to select channel easily.
- **DVBC-8MHz:** The cable system and bandwidth.

  Press [OK] to pop-up window to help to select.
- **AC VOL:** The main line AC/DC voltage.

  Press [F4] to switch between DC and AC measurement.
- **CBER:** The CBER value of the live signal.
- **MER:** The MER of the live signal.
- **VBER:** The VBER of the live signal.
- **PWR:** The power level value of the live signal.
- **Frequency Offset:** The frequency offset value.

- **PWR 30 %:** The power level value of the connected signal in percent.
- **QTY:** The quality value of the connected signal in percent.

7.2 AUTO SCAN

The meter will scan all the saved frequencies and show the lock status one by one and will then return to the main menu once scanning is finished. Press [MENU] to abort a scan in progress and return to the main menu.

7.3 CHANNEL LIST

This menu shows all the locked frequencies during Auto Scan.

7.4 SPECTRUM CHART

Please refer to 6.4.

7.5 MULTI CHANNEL

Please refer to 6.5

7.6 TILT

This menu shows tilt of three channels` power level.

- **S02 114.00MHz:** The channel name and frequency. Press [▲/▼] to switch between them. Press [▲/▼] to change the channel number and press [OK] to pop out the channel list window to select.
- **LEVEL:** The power level of the first channel
- **DELTA1:** The delta of power level to the first channel
- **DELTA 2:** The delta of power level to the first channel

8. ANALOGUE TV

User can measure analogue TV signal in this submenu. There are total three submenus: Measurement, Tilt and Spectrum chart.

8.1 MEASUREMENT

User can read SNR, Video and audio ratio, level, strength and quality of the analogue TV signal in this menu.

-  **:** The lock status. The signal is locking if the icon is green otherwise the color of the icon is red.
- **A-045.25MHz:** The channel name and frequency.

  Press [F1] to edit enter edit window to edit name and frequency.

  Press [F2] to add channel.

  Press [F3] to delete current channel.

  Press [OK] to pop-up channel list to help to select channel easily
- **PAL-I:** The analog system mode.

  Press [◂ / ▸] to switch between system modes.

  Press [OK] to pop-up list window to select.
- **----:** The signal real system.
- AC Vol: The main line AC/DC value.

  Press [F4] to switch between DC and AC.
- **CNR:** The CNR value of the live signal.
- **AVR:** The video and audio ratio of signal..
- **PWR:** The power level value of the live signal.
- **Frequency Offset:** The frequency offset value.
- **PWR 30%:** The power level value of the connected signal in percent.
- **QTY:** The quality value of the connected signal in percent.

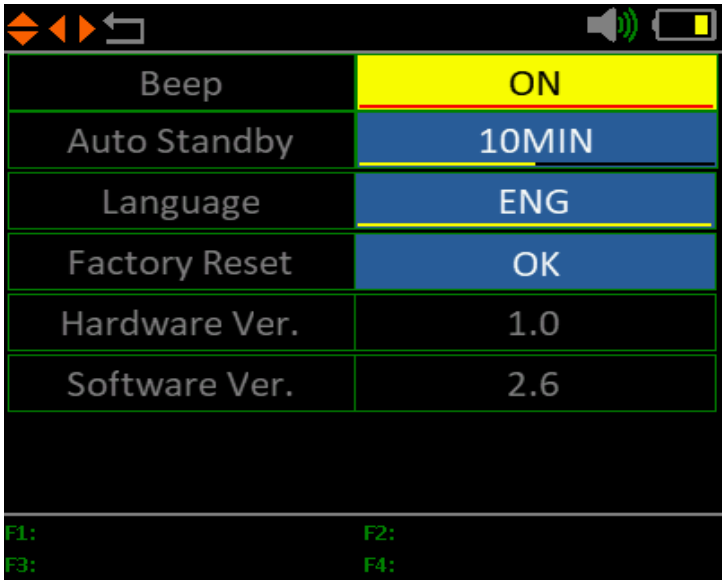
8.2 SPECTRUM

Please refer to 7.4

8.3 TILT

Please refer to 7.6

9. SYSTEM SETTING



- **Beep:** The beep status during pressing keys or when the signal is locking. Press [◄/►] to turn on or turn off beep.
- **Auto Standby:** Set the time for meter to enter standby mode automatically. Press [◄/►] to switch between Off, 10 min, 20 min, 30 min and 60 min.
- **Language:** The language of UI. Press [◄/►] to switch between available languages
- **Factory Reset:** Press [OK] to display a confirm dialog. Then select YES to do a factory reset or select NO to cancel.
- **Hardware Ver:** The version number of hardware.
- **Software Ver:** The version number of software.

11. ACCESSORIES

Power adapter, 2 RF connector, 1 CD for user manual.

12. TROUBLE SHOOTING

1. **Unable to power on:** Charge the meter about 3 hours until the charge light turn blue.
2. **Warning LED flashing:** Antenna overload, power off the meter and check the signal cable. After that please power on again.
3. **Hung up:** Press the reset button to reset the meter.
4. **Can't lock signal:** Please confirm the signal cable is connected correctly and make sure the antenna power is been set to ON if the antenna needs power supply.

13. TECHNICAL SPECIFICATION

DVB-T	
Bit Error Rate (BER)	CBER (before Viterbi): 1E-7 – 1E-3 VBER (before Reed Solomon): 1E-7 – 1E-3
Frequency range	42-1005MHz
Power level	30-100 dBµV, +/-2dB
SNR	5 - 35dB, +/-0.5dB
Bandwidth	6MHz, 7 MHz, 8 MHz
FFT type	2k, 8k
Constellation	QPSK, 16QAM, 64QAM
Viterbi rate	1/2, 2/3, 3/4, 5/6, 7/8
Guard interval	auto
Spectrum inversion	auto
DVB-T2 / T2 Lite	
Bit Error Rate (BER)	CBER (before LDPC): 1E-7 – 1E-3 LBER (before BCH): 1E-9 – 1E-5
Frequency range	42-1005MHz
Power level	30-100 dBµV, +/-2dB
Modulation Error Rate(MER)	5 - 35dB, +/-0.5dB
Bandwidth	1.7MHz, 5MHz, 6MHz, 7 MHz, 8 MHz
Mode	SISO, MISO, PLP single or multiple
FFT type	1k, 2k, 4k, 8k, 16k, 32k + extended bandwidth
Constellation	QPSK, 16QAM, 64QAM, 256QAM
Viterbi rate	1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 1/3, 2/5
Guard Interval	auto
Spectrum inversion	auto
DVB-C J83A	
Bit Error Rate (BER)	BER (before Reed Solomon): 1E-7 – 1E-3 PER (Packet Error Rate): 1E-6 – 1E-2
Frequency range	42-1005MHz
Power level	35-100 dBµV, +/-2dB
SNR	20 - 40dB, +/-0.5dB
Symbol Rate	1.7 to 7.2 Msym/s
Constellation	16QAM, 32QAM, 64QAM, 128QAM, 256QAM
Spectrum inversion	auto
MCNS J83B	

Bit Error Rate (BER)	BER (before Reed Solomon): 1E-7 – 1E-3 PER (Packet Error Rate): 1E-6 – 1E-2	
Frequency range	42-1005MHz	
Power level	35-100 dBµV, +/-2dB	
SNR	20 - 40dB, +/-0.5dB	
Symbol Rate	5.6 Msym/s	
Constellation	16QAM, 32QAM, 64QAM, 128QAM, 256QAM	
Spectrum inversion	auto	
DVB-C2		
Bit Error Rate (BER)	CBER (before LDPC): 1E-7 – 1E-3 LBER (before BCH): 1E-9 – 1E-5	
Frequency range	42-1005MHz	
Power level	30-100 dBµV, +/-2dB	
SNR	5 - 35dB, +/-0.5dB	
Bandwidth	6MHz, 8 MHz	
FFT type	4k	
Constellation	16QAM, 64QAM, 256QAM, 1024QAM, 4096QAM	
Viterbi rate	2/3, 3/4, 4/5, 5/6, 8/9, 9/10	
Guard interval	auto	
Spectrum inversion	auto	
DVB-S		
Bit Error Rate (BER)	CBER (before Viterbi): 1E-7 – 1E-3	
Frequency range	950-2150MHz	
Power level	35-100 dBµV, +/-3dB	
CNR	0 - 20dB, +/-0.5dB	
Symbole rate	333 Ksym/s to 45 Msym/s	
Constellation	QPSK	
Viterbi rate	1/2, 2/3, 3/4, 5/6, 6/7, 7/8	
Spectrum inversion	auto	
DVB-S2		
Bit Error Rate (BER)	CBER (before LDPC): 1E-7 – 1E-3	
Frequency range	950-2150MHz	
Power level	35-100 dBµV, +/-3dB	
CNR	0 - 20dB, +/-0.5dB	
Symbol rate	333 Ksym/s to 45 Msym/s	
Constellation	QPSK, 8PSK, 16APSK, 32APSK	
Viterbi rate	2/5, 1/2, 3/5, 2/3, 3/4, 5/6, 8/9, 9/10	
Spectrum inversion	auto	
Remote supply	**Terrestrial**	**Satellite**

Voltage	5V/13V/18 V 200 mA max	13/18 V 400 mA max
DiSEqC	-	DiSEqC 1.2 control of dish motor switches committed & uncommitted
Mini DiSEqC (22kHz)	-	22 kHz, Tone Burst
SCD EN 50494	-	8 slots max switch committed
SCD2 EN 50607	-	32 slots max
Inputs / Outputs		
RF input	75 Ohms, F (with adaptor)	
Interfaces	Mini USB for power input 12V@1A	
Display	2.7 Inch, LCD	
Battery	Battery Li-ion 1400mAH@7,.4V	
Charging time	3hour for 80% of capacity	
Operating temperature	-5°C to 45°C	
Storage temperature	-10°C to 60°C	
Dimensions	174 x 82x 35 mm	
Weight	0.54kg	