

OFFFEL

Sistemi di ricezione TV e SAT

User manual

Measuring instrument

for DVB-T/T2, DVB-S/S2, DVB-C, TVCC
and mobile signals

Art. 55-106 M101



Thank you for purchasing this instrument.

Please read this manual before using and maintaining the instrument to get the best product performance.

Keep this manual for future reference.

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SUPPORTED RESOLUTIONS	Errore. Il segnalibro non è definito.
DECLARATION OF CONFORMITY	Errore. Il segnalibro non è definito.

WARNINGS

The information contained in this manual is provided subject to errors and modifications.

The warranty does not cover damage resulting from incorrect use of the information contained in this manual.

In case of tampering, the company OFFEL s.r.l. is not liable for any product malfunctions. Anyone who makes changes to a CE marked product that lead to non-compliance is subject to the penalties provided for by art. 11 Legislative Decree 615/96.

LIABILITY DISCLAIMER. This document is based on information available at the time of its publication. Although every effort has been made to ensure the accuracy of the content, the information contained in it is not intended to describe all the details or variations of the software and / or hardware, nor cover any possible eventualities concerning use and maintenance. The manual can describe functions that are not present in every software / hardware. The manufacturer assumes no obligation to notify holders of this document of subsequent changes.

CHARACTERISTICS AND INFORMATION CONTAINED IN THIS MANUAL ARE SUBJECT TO CHANGE WITHOUT NOTICE.

WARRANTY. The warranty is limited to material and construction defects. This excludes:

- damage caused by accident, negligence, modification or improper use;

- damage caused by lightning, surges, liquids, fire, acts of war, vandalism, insufficient ventilation or other causes not attributable to the manufacturer;

- damage caused by repairs carried out by unauthorized service centers / unauthorized persons and / or by the use of non-original spare parts.

These warranty conditions do not affect the rights provided in favor of the consumer according to the provisions of the Consumer Code (Legislative Decree 206/2005) or other national legislative provisions



Q This product complies with EU directive 2002/96 / EC. The symbol of the crossed-out bin shown on the appliance indicates that the product, at the end of its useful life, having to be treated separately from household waste, must be delivered to a separate collection center for electrical and electronic equipment, or returned to the seller at the time of the purchase of a new equivalent equipment. The user is responsible for providing the appliance at the end of its life with the appropriate collection facilities. Adequate separate collection for the subsequent start-up of the appliance for recycling, treatment and environmentally compatible disposal helps to avoid possible negative effects on the environment and on health and promotes the recycling of the materials of which the product is composed. For more detailed information on the collection systems available, contact your local waste disposal service.

1. SAFETY INSTRUCTIONS

For a correct use of the instrument, the safety instructions and the indications for use described in this manual must be observed.

- Do not use the instrument for purposes other than those described in this manual.
- Use the battery charger supplied as standard to avoid any deterioration of the instrument and to protect its measurement capabilities.
- Do not use the instrument in an explosive environment.
- Do not use the instrument in wet or high humidity environments. Neither liquids nor other substances must come into contact with the inside of the meter.
- In the event of a sudden transition from a warm to a cold environment, do not use the instrument immediately. It is advisable to switch off the instrument and switch it on again after 1 - 2 hours.
- Keep the instrument as clean as possible in clean and sufficiently ventilated areas.
- Do not cover the instrument and do not place it on sources of heat.
- Do not leave the instrument in environments with critical conditions (eg excessive heat, cold or humidity).
- Clean the shell with a soft cloth.
- Do not remove the cover. Only qualified personnel will be able to carry out any repairs or maintenance procedures on the instrument. In this case, original spare parts must be used.
- Do not open the instrument: risk of electric shock.

ATTENTION: the instructions contained in this manual refer to the factory installed software version. In the event of software updates, the interface may change without prior notice.

2. CONTENT OF THE PACKAGE

The package includes the following items:

- Field measurement
- Silicone cover with shoulder strap and case
- 12V 1.5A power supply
- Car charger
- AV cable
- Female F connector and BNC connector
- Padded bag with shoulder strap
- User manual



Fig. 1: Silicone cover and case



Fig. 2: power supply 220 Va.c.



Fig. 3: Car charger



Fig. 4: AV cable



Fig. 5: Female F connector and BNC connector



Fig. 6: Padded bag with shoulder strap

3. FUNCTIONS OVERVIEW



4. MAIN FEATURES

- High resolution 3.5 inch LCD TFT screen
- Measurement of DVB-S / S2 / T / T2 / C signals
- Unique RF input (45 ÷ 2150 MHz) at 75 Ω with F connector
- Input video signals AHD and CVBS for CCTV
- MPEG2 and MPEG4, SD and HD images with program list, Audio and Video PIDs all on screen
- Measure levels in dBm, dBuV and dBmV
- Voltage level test for end user
- AAC and DOLBY audio support
- Programmable frequency plans (30 CATV plans, 30 Terrestrial TV plans, 150 SAT plans)
- 5000 storable frequencies
- Automatic scanning and preparation of terrestrial and CATV signals frequency table
- 800 MHz processor speed - 8MB memory
- Backlit silicone keyboard
- Timer function for battery saving
- Integrated microphone
- Sound alarms
- LED flashlight
- Replaceable 7.4V / 3000mAh lithium batteries, lasting > 4h
- 0.6 kg in weight with batteries
- Dimensions: 190 x 110 x 60 mm
- Working temperature 0 ° C to +50 ° C
- Humidity up to 90% without condensation
- Software upgradeable via USB
- Compact and portable

5. TECHNICAL SPECIFICATIONS

TERRESTRIAL SIGNALS	
Measured standards	DVB-T/T2 and analog signal level measurements
Input frequencies	45 ÷ 1002 MHz
Input signal level	-90 ÷ 0 dBm
Antenna power supply	5V / 12V / 20V, I _{Max} 250 mA
Constellation	QPSK, 16QAM, 64QAM (DVB-T), 256QAM (DVB-T2)
FEC	DVB-T: 1/2, 2/3, 3/4, 5/6, 7/8 - DVB-T2: 1/2, 2/3, 3/4, 5/6, 7/8, 3/5, 4/5
Channels bandwidth	1.7 MHz, 5MHz, 6 MHz, 7 MHz, 8 MHz
Digital signal quality measurements	MER - BER - C/N
Measurement accuracy level	1 dB typ. (2.5 dB max.)
Spectrum analyzer	Real time
Span of the spectrum	15, 30, 50, 100, 200, 500, 1000 MHz
Transponder identification	Automatic, NIT function in the Spectrum menu
TILT / LIMIT function	For the whole band
Analog V / A ratio	4 ÷ 26 dB
Analog audio	4,5 MHz, 5,5 MHz, 6,0 MHz, 6,5 MHz
SATELLITE SIGNALS	
Measured standards	DVB-S/S2
Input frequencies	950 ÷ 2150 MHz
Input signal level	-80 ÷ 0 dBm
band switching control	22 KHz
Power supply LNB	13V / 18V / 21 V, I _{Max} 500 mA
Constellation	QPSK, 8PSK
FEC	DVB-S: 1/2, 2/3, 3/4, 5/6, 7/8 - DVB-S2: 1/2, 2/3, 3/4, 5/6, 8/9, 9/10, 2/5, 3/5
Symbol Rate	1 ÷ 45 Mbps – automatic selection
Signal quality measures	MER - BER - C/N
Measurement accuracy level	1 dB typ. (2.5 dB max.)
Real-time spectrum analyzer	Real time
Span of the spectrum	50, 75, 150, 300, 600, 1200 MHz
Transponder identification	Automatic, NIT function in the Spectrum menu
Transponder control	4 tp levels of one or two satellites in a screen
Multi-level control	2 LNB Dual Feed sat levels in one screen
Auto Port Scan	Diseqc 1.0 -1.1 - Unicable ports for each satellite
DiSEqC supported	DiSEqC 1.x, DiSEqC 2.x and USALS
Unicable supported	Unicable 1 and 2 (EN50494/EN50607)
Types of LNBS supported	no. 32

CATV SIGNALS	
Measured standards	DVB-C and analog CATV measurements
V/A ratio	4 ÷ 26 dB
Input frequencies	45 ÷ 1002 MHz
Input signal level	-90 ÷ 0 dBm
Constellation	16QAM, 32QAM, 64QAM, 128QAM, 256QAM
Channel bandwidth	6 MHz, 7 MHz, 8 MHz
Digital signal quality measurements	MER - BER - C/N
Measurement accuracy level	1 dB typ. (2.5 dB max.)
Real-time spectrum analyzer	Real time
Span of the spectrum	15, 30, 50, 100, 200, 500, 1000 MHz
Transponder identification	Automatic, NIT function in the Spectrum menu
TILT / LIMIT function	for the whole band
Analog audio	4,5MHz, 5,5 MHz, 6,0 MHz, 6,5 MHz
Symbol Rate	2 ÷ 6.999 Mbps - automatic selection
MOBILE PHONE SIGNALS	
LTE / 4G	800MHz
GSM900	900MHz
DCS1800	1800MHz
UMTS2100	2100MHz
Power measurement interval	-80 ÷ 10 dBm
POWER SUPPLY	
Lithium battery	7.4V / 3000 mAh
Supply voltage	12Vd.c. 1,5A
PHYSICAL CHARACTERISTICS	
Dimensions (W x L x H)	110 x 190 x 60 mm
Net weight	0,6 Kg with batteries

6. DVB-S/S2

After turning the instrument on using the ON / OFF switch and connecting the signal cable to be measured to the corresponding input, press the MENU button to display the main menu.

6.1 LEVEL MEASURES

STARTING THE DEVICE:

To access the satellite menu, in the main menu choose DVB S / S2 (fig. 8).

Pressing the ENTER key, the TV / radio channel list will appear on the TV transmission screen (fig. 10).



Fig. 8

Fig. 9

Fig. 10

SOUND ADJUSTMENT:



While watching a channel, you can change the audio volume with the RIGHT / LEFT buttons or mute it with the MUTE button (fig. 11).

Fig. 11

COLOR ADJUSTMENT:



While watching a channel, you can change the image color settings by holding down the EDIT button (fig. 12).

Fig. 12

LEVEL INDICATORS:



While watching a channel, you can view the channel signal levels in real time on the screen by pressing the LEVEL button (fig. 13). The color of the level indicators will change from gray to green and red when attaching any channel.

Fig. 13

6.2 SATELLITE SEARCH MENU

By pressing the MENU button you can display the main menu on the screen.

Using the UP / DOWN buttons select the SATELLITE SEARCH menu (fig. 14).

Select the satellite you want to set or you want to see the signal levels, the transponder, the DiSEqC type and the type of LNB and press ENTER (fig. 15).



Fig. 14



Fig. 15



Fig. 16

It is thus possible to see the signal levels appear on the screen and check whether their values are more or less high (fig. 16). By pressing the LEVEL button it is possible to see the levels on the screen in detail (fig. 17).



Fig. 17

With the RIGHT / LEFT buttons it is possible to review the various transponders.

After adjusting the signal level in the best way, you can press the ENTER button and perform a CHANNEL SCAN.

Scanning can be performed in SINGLE TP mode (fig. 18), ALL TP (fig. 19) and BLIND SCAN (fig. 20).

The detected channels can be added to the channel list by following the instructions shown in the figures below (fig. 21-23).

After that, the channels are stored in the memory and added to the end of the channel list.



Fig. 18



Fig. 19



Fig. 20



Fig. 21



Fig. 22



Fig. 23

USALS (Universal Satellites Automatic Location System) - MOTOR SETTINGS:

To use DiSeqC Motors commands with the USALS system, on the SATELLITE SEARCH screen in the DiSeqC section select USALS MOTOR (fig. 24). Keeping the EDIT button pressed for 2-3 seconds, the USER POSITION screen appears (fig. 25). Enter the coordinates of the area where the installation will be performed, set the desired satellite and confirm with the OK box; moving to GO and pressing the ENTER key the dish will automatically go into position.



Fig. 24



Fig. 25

SETTINGS MENU UNICABLE I & II:

You can use this menu for multiswitches or unicable LNBs (dCSS or SCR) and run the tests after changing the following settings (fig. 26-31). First select UNICABLE (fig. 26) or UNICABLE II (fig. 27) in the DiSeqC section, go to the DOOR section and keep the EDIT button pressed for 2-3 seconds (fig. 28).



Fig. 26



Fig. 27

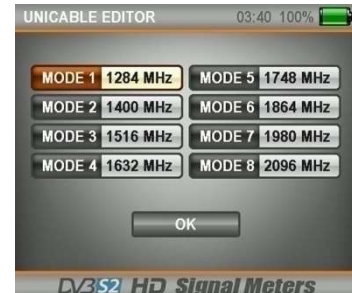


Fig. 28

In the EDITOR UNICABLE screen it is possible to adjust the IF output frequencies based on the Unicable Multiswitch or Unicable SCR LNB type that will be tested. Then you can test the signals from the SATELLITE SETTINGS menu.



Fig. 29



Fig. 30



Fig. 31

DISEQC 1.2 - MOTOR SETUP MENU:



Fig. 32



Fig. 33

In the DiSeqC section select the DiSeqc 1.2 Motor option and press the ENTER button to see the signal levels in the SATELLITE SETTINGS menu. Here you can see the signal levels and at the same time manually rotate the DiSeqC 1.2 Motor in the EAST / WEST directions with the RIGHT / LEFT keys.

During these operations the instrument's battery could be discharged more quickly since it consumes more than the normal use of the instrument. It is therefore advisable to keep the power supply handy during this type of scan.

6.3 SPECTRUM ANALYSIS MENU

Press the MENU button and select SPECTRUM in the main menu (fig. 34).

After setting the Satellite, LNB, Power and DiSEqC sections, select the desired IF frequency in the TP section and press the ENTER button (fig. 35). The spectrum of signals will appear (fig. 36).



Fig. 34

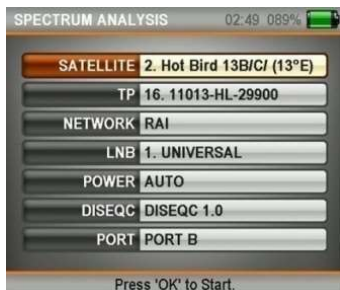


Fig. 35

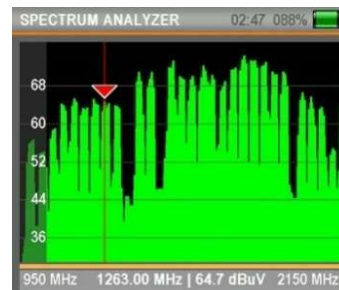


Fig. 36

Pressing once on the LEVEL button, the C / N value will appear on this screen (fig. 37).

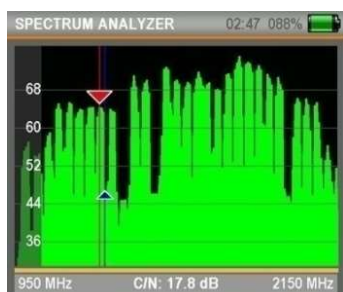


Fig. 37

When you press the MENU button on the spectrum screen (fig. 38) with the MASK SAVE function you can store the spectrum mask and with the MASK LOAD function you can then recall it later from the memory during a new installation that needs the same settings.

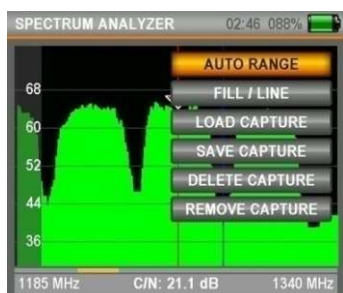


Fig. 38

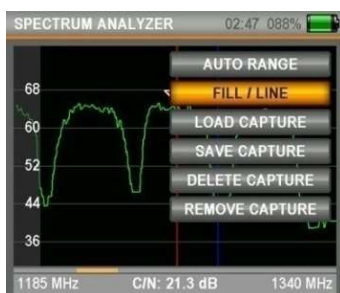


Fig. 39

Thanks to the AUTO RANGE mode it is possible to adapt the upper and lower signal levels of the screen to the automatic measurement levels. Thanks to the FULL / EMPTY function: you can see the levels in the spectrum screen as full or empty (fig. 39). By pressing the EDIT button it is possible to modify the IF Frequency, Span, Reference, Gamma, Power and Mode values (fig. 40). With the MODE option it is possible to modify the spectrum speed (NORMAL or FAST): when it is in NORMAL mode the spectrum will move at the optimal speed. When the FAST mode is selected the spectrum will move faster (in this case the image may not be displayed in detail).

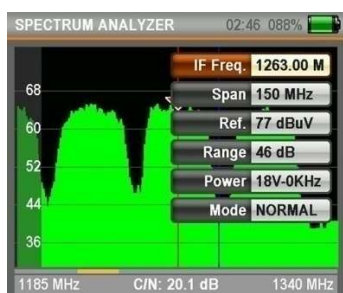


Fig. 40

NIT RECOGNITION:

By moving the IF frequency slider to a signal in the SPECTRUM menu, it is possible to automatically find the channel list and the Satellite position in Uplink by pressing the ENTER button (fig. 41).

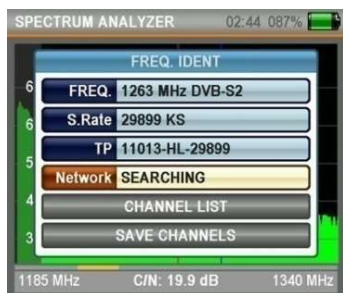


Fig. 41

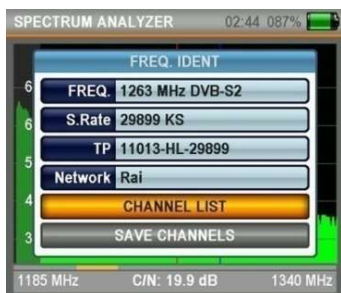


Fig. 42

NOTE: the name of the satellite may be incorrect due to the information contained in the NIT data supplied by the transmission company. This can also occur when the transmission company transmits to 2-3 satellites simultaneously.



Fig. 43

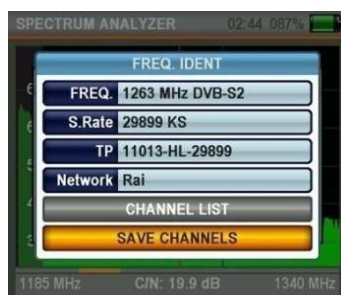


Fig. 44

By pressing CHANNEL LIST (fig. 42) it is possible to display the channel lists (fig. 43) and with the SAVE CHANNELS function (fig. 44) record the channels in the memory with the universal LNB set.

6.4 TRANSPONDER CONTROL MENU



Fig. 45

Press the MENU button and select TP CONTROL from the main menu. This menu also allows you to check the signal levels of multiple frequencies simultaneously.

CONTROL OF A SINGLE SATELLITE:

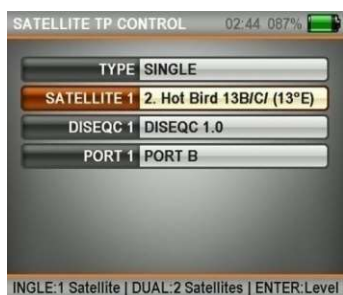


Fig. 46



Fig. 47

In the TYPE section select SINGLE and press ENTER after having set the necessary settings (Satellite, DiSEqC, Door).

As shown in fig. 47, it is possible to display the signal levels of 4 different frequencies of a single satellite on the same screen. In this way it is possible to check if the signal levels and the satellite dish setting are correct at all frequencies or not.

CONTROL OF TWO SATELLITES:

In the TYPE section select DOUBLE and press ENTER after having set the necessary settings (fig. 48).

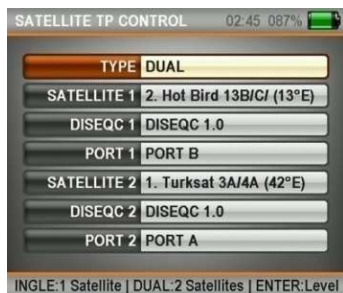


Fig. 48



Fig. 49



Fig. 50

As shown in fig. 49-50 it is possible to display on the same screen the signal levels of 8 different frequencies from 2 different satellites. It is possible to test and check the correctness of the multiswitch and the assembly of the system by displaying all the frequencies on the same screen.

6.5 CONSTELLATION MENU

Press the ENTER button and select CONSTELLATION in the main menu (fig. 51). The constellation menu shows in a graph the correctness of the digital I / Q symbol coordinates received at any time. In this way it is also possible to check the correctness of the modulation (QPSK, 8PSK).



Fig. 51

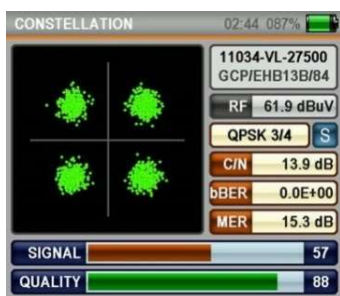


Fig. 52

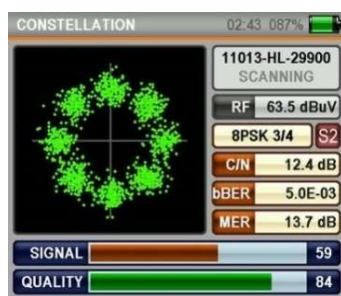


Fig. 53

Enter the CONSTELLATION menu, select the satellite and the frequency of the transponder whose correctness is to be checked and press the ENTER button after setting all the settings. The constellation diagram shows the 4 QPSK signals (fig. 52) or the 8 8PSK signals (fig. 53). The closer the coordination points are to each other, the more the signal is correct.

6.6 MULTI-LEVEL CONTROL MENU

Press the MENU button and select MULTI-LEVEL CONTROL in the main menu (fig. 54).



Fig. 54

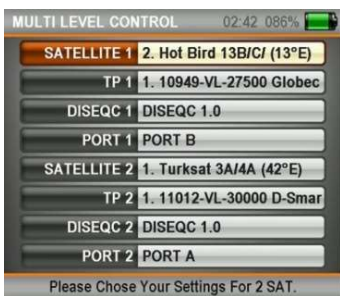


Fig. 55



Fig. 56

In the multi-level control menu, the signal levels of each frequency from 2 different satellites are shown on the screen (fig. 56). In this way, monoblock LNB installations and multiswitch tests can easily be performed.

6.7 AUTOMATIC SEARCH MENU

Press the MENU button and select AUTOMATIC SEARCH in the main menu (fig. 57). In this menu it is possible to see which satellite is connected to which DiSEqC port.



Fig. 57



Fig. 58

Select NONE / NA in cases where the DiSEqC switch is not available and the cable is directly connected to the LNB (fig. 58).

Examples of searches for the DiSEqC port are shown below (fig. 59 Tone Burst and fig. 60 DiSEqC 1.0).

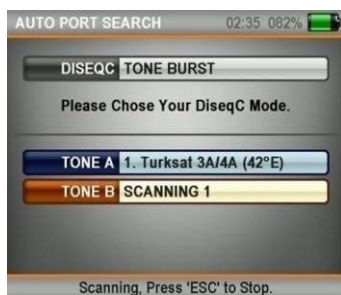


Fig. 59



Fig. 60

6.8 CHANNEL LIST MENU

While watching a channel, you can call up the CHANNEL LIST by pressing the ENTER button in the main menu (fig. 61).



Fig. 61

It is possible to select, cancel and reposition in the CHANNEL LIST menu the TV and Radio channels one by one or based on the name of the satellite (fig. 62).

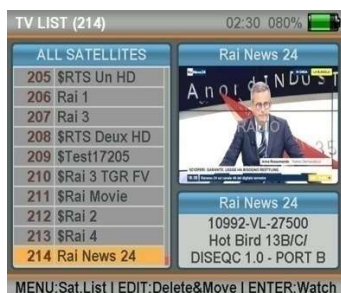


Fig. 62

ORDERING VIA SATELLITE:

After entering the CHANNEL LIST menu, press the MENU button and select the satellite (fig. 63). In this case only the channels of the selected satellite will be displayed.



Fig. 63

DELETE CHANNELS:

In the CHANNEL LIST menu, press the EDIT button and select DELETE (fig. 64).

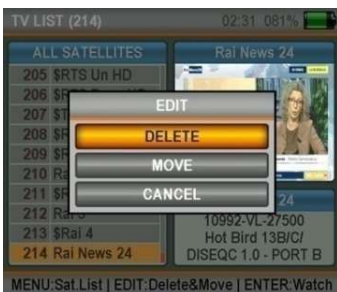


Fig. 64



Fig. 65

Select the channels you want to delete on the screen one by one with the ENTER key (fig. 65) and finally press EDIT. The channels will be permanently deleted when DELETE is selected in the EDIT menu.

MOVE THE CHANNELS:

In the CHANNEL LIST menu, press the EDIT button and select MOVE (fig. 67).



Fig. 66



Fig. 67

Select the channels you want to move with the ENTER key one by one and press the EDIT button when you are in the position where you want to transfer them. The channels will then be transferred to the desired position (fig. 68).

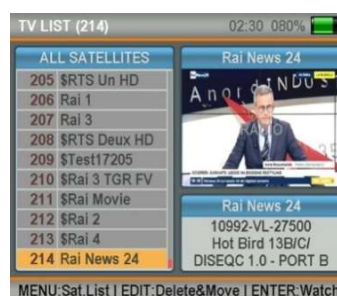


Fig. 68

6.9 SATELLITE SETTINGS MENU

Press the MENU button and select SATELLITE SETTINGS in the main menu (fig. 69).

In this menu it is possible to choose the DiSEqC and LNB types suitable for the satellites and transponders in the area in which the services are provided (fig. 70). The settings will take effect in all menus and this will allow you to work faster. Please always check the correctness of the settings.



Fig. 69

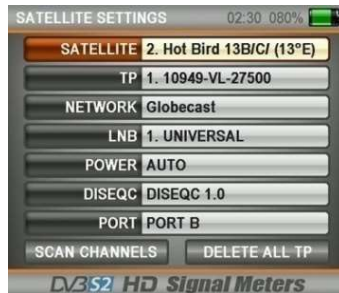


Fig. 70



Fig. 71

In addition to this, it is possible to delete ALL the satellite TRANSPONDERS (fig. 71) and perform a CHANNEL SCAN for these satellites (fig. 74).



Fig. 72



Fig. 73

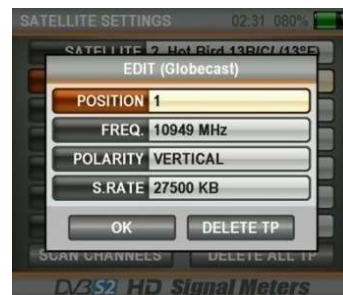


Fig. 74

6.10 DVB-S/S2 SETTINGS

Through the DVB-S / S2 SETTINGS menu (fig. 75) it is possible to make changes in the DVB-S/S2 menus.



Fig. 75



Fig. 76



Fig. 77

On the SETTINGS screen (fig. 76) you can set the following options:

DISPLAY: shows the power level indicators in dBm, dBuV or dBmV.

CALIBRATION: you can calibrate the level if you think the signal measurement indicator is low or high.

AUTO LOOP: it is possible to select in the SATELLITE and AUTOMATIC SEARCH menu the number of satellites you want to control.

ACTIVE REGION: it is possible to modify the active region for the list of received satellites.

MEMORY INFO: you can check the amount of memory used in the satellite section, delete all the transponders and all the channels and restore the factory settings (fig. 77).

7. DVB-C

STARTING THE DEVICE:

Press the POWER ON / OFF button and turn on the device.

In the main menu select DVB-C (fig. 78); the TV / Radio channel list will appear on the screen.



Fig. 78



Fig. 79



Fig. 80

LEVEL INDICATORS:



Fig. 81



Fig. 82

While watching a channel, you can instantly view the channel signal levels watched on the screen in real time by pressing the LEVEL button (fig. 81-82).

7.1 LEVEL MEASURE MENU



Fig. 83

Press the MENU button to enter the CATV MENU screen (fig. 83). To start taking measurements, select LEVEL MEASUREMENT. In the selected frequency plan it is possible to perform both ANALOGUE and DVB-C / QAM DIGITAL measurements.

DVB-C / QAM:

In the CATV LEVEL MEASUREMENT menu, under the item SYSTEM select DVB-C and press ENTER.

Use the RIGHT / LEFT buttons to select the CHANNEL you want to measure, or go to FREQUENCY and enter the desired frequency and select a bandwidth of 6, 7 or 8 MHz (fig. 84).

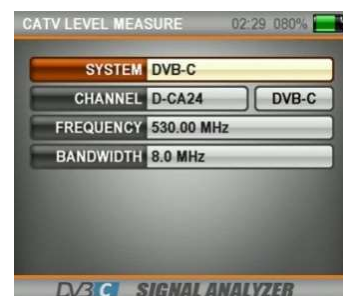


Fig. 84

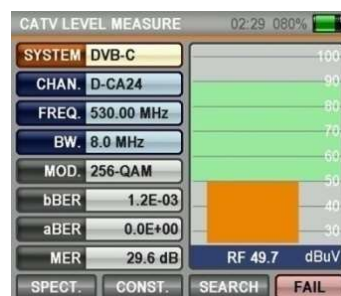


Fig. 85

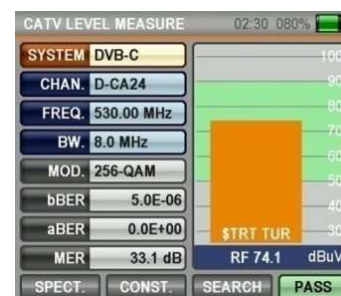


Fig. 86

After entering the parameters of the frequency you want to measure, press the ENTER button to enter the measurement screen (fig. 85-86).

The thick orange bar on the right of the screen visually indicates the signal level.

The signal level is indicated in figures below the orange bar.

The green area indicates whether the level performance bar is within the Max and Min values that can be selected in the settings menu.

On the left side of the screen it is possible to see the frequency parameters and signal quality measurement values such as MODULATION, BER and MER.

An ERROR indication will appear in the small box at the bottom right when the signal values are insufficient (fig. 85) and an OK indication when the signal values are appropriate (fig. 86).

When the signal levels are correct, the channel names will be indicated in the orange bar.

By pressing the LIST button you can see the channel names in the measured frequency.

Note: it is possible to quickly switch to the other menus related to the measured signal by selecting one of the following items: SHIFT, CONSTELLATION or SEARCH on the lower side of the screen.

SEARCH FOR A CHANNEL AND REGISTER IN THE CHANNEL LIST:

Select the SEARCH item at the bottom of the screen, on the right (fig. 87).

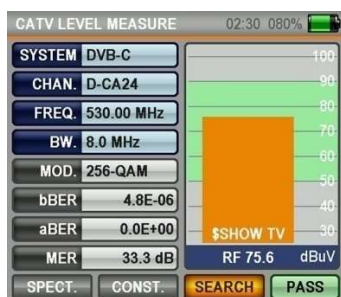


Fig. 87



Fig. 88



Fig. 89

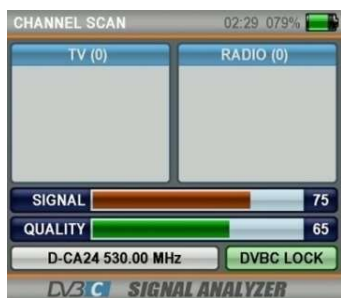


Fig. 90



Fig. 91

In the CHANNEL SCAN screen it is possible to perform a scan by selecting the NON-ENCODED, CODIFIED or both together items from the CHANNELS item and pressing ENTER next to START (fig. 88).

When the scan is finished, an information screen will appear on the channels found and you will be asked if you want the channels to be recorded or not (fig. 91).

DVB-C ANALOGUE MEASUREMENT:

In the CATV LEVEL MEASUREMENT menu, under SYSTEM select ANALOGUE (fig. 92).

Use the RIGHT / LEFT buttons to select the CHANNEL and the FREQUENCY you want to measure.

It is possible to enter information on the video frequency and audio frequency for ANALOGUE measurement with the EDIT button, moving over the boxes.



Fig. 92

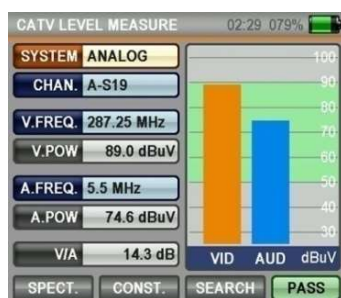


Fig. 93

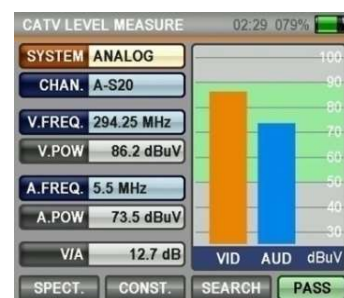


Fig. 94

To go to the measurement screen, press the ENTER button after entering the parameters of the frequency you want to measure. In this screen it is possible to view the channel name, the frequency and power of the video carrier and the audio carrier and the V / A (video / audio) ratio measured in dB (fig. 93-94).

The green area indicates whether the orange video level bar and the blue audio level bar are within the maximum and minimum values selected in the settings menu.

An ERROR indication will appear in the small box at the bottom right when the signal values are insufficient and an OK indication when the signal values are correct.

Note: it is possible to quickly switch to the other menus related to the measured signal by selecting the item SHIFT, CONSTELLATION or SEARCH at the bottom of the screen.

7.2 SPECTRUM ANALYSIS MENU

Press the MENU button to enter the CATV MENU screen. To start measuring, select SPECTRUM (fig. 95). The device will display all the ANALOG and DIGITAL signals within the span (frequency range) when it is set to the SPECTRUM measurement mode.



Fig. 95

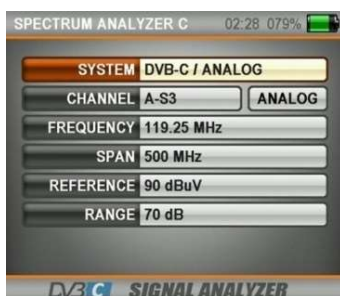


Fig. 96



Fig. 97

Select the ANALOGUE or DIGITAL system, the WIDTH (SPAN), the REFERENCE (upper measurement point) and the RANGE (the interval between the upper and lower measurement points) and press ENTER (fig. 97).

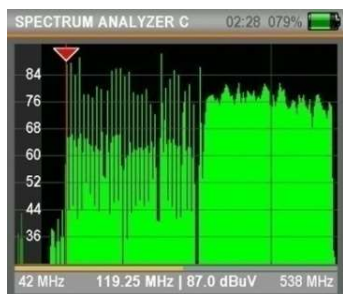


Fig. 98

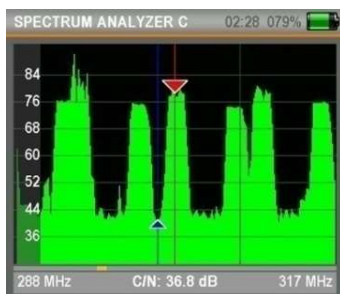


Fig. 99

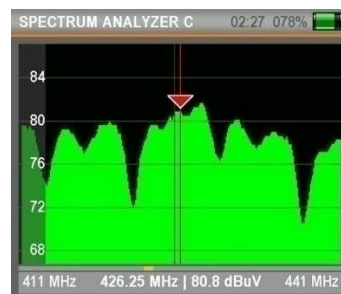


Fig. 100

The ANALOG and DIGITAL signals can be displayed in different forms on the spectrum screen depending on the bandwidth and power levels (fig. 98-100).

By clicking on the MENU button:

When in the Spectrum screen click on the MENU button, the screen of fig.101 appears.

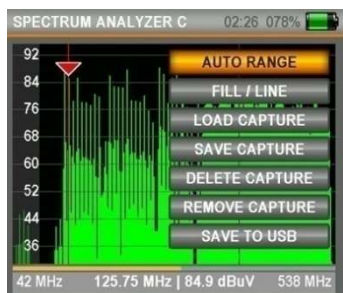


Fig. 101

AUTO RANGE: determines the highest and lowest values of the signal level and establishes the interval of the screen indicator according to this.

FULL / EMPTY: shows the image of the empty or full spectrum.

MASK SAVE: records the image of the spectrum on the screen, to be able to recall it later and compare it with the last measurement performed.

SAVE TO USB: makes it possible to record the image data of the spectrum on the monitor on the USB memory card.

By clicking on the LEVEL & EDIT button:

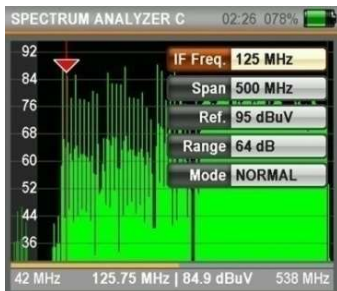


Fig. 102

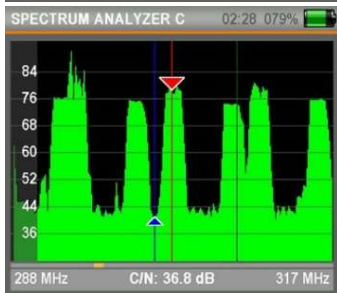


Fig. 103

Pressing the LEVEL button the marker will show the C / N value at the frequency highlighted on the screen (fig. 103).

Pressing the EDIT button when changing the FREQUENCY IF of the marker, the marker will move slowly across the spectrum based on the variation.

SPAN: it is possible to display the desired frequency range on the screen by selecting one of the options between FULL / 15/30/50/100/200/500 MHz.

REFERENCE: determines the measurement point.

RANGE: determines the interval between the lowest measurement point and the highest measurement point.

MODE: when in NORMAL mode the spectrum will move at the optimal speed. When the FAST mode is selected the spectrum will move faster (in this case the image may not be displayed in detail).

By clicking on the OK button:



Fig. 104



Fig. 105



Fig. 106

By moving the marker to any upper point of the signal in the spectrum screen and pressing ENTER, the instrument will automatically find any digital transmission, if present in this frequency (fig. 105).

To see the names of the channels you can select CHANNEL LIST and press ENTER (fig. 106).

To record the channels found in the instrument memory, select SAVE CHANNELS.

7.3 CONSTELLATION MENU

Press the MENU button to enter the CATV MENU screen and select CONSTELLATION (fig. 107). The constellation screen allows you to see the quality of the digital signal measured.



Fig. 107

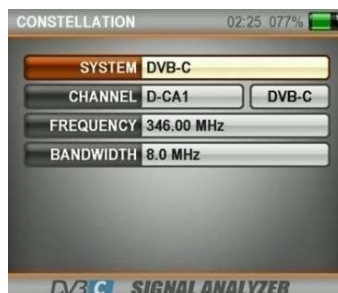


Fig. 108



Fig. 109

Both the constellation and the other signal parameters can be displayed on the same screen and fast and reliable measurements can be performed (fig. 109).

7.4 TILT/LIMIT MENU



Fig. 110



Fig. 111

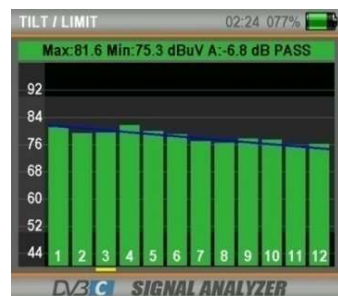


Fig. 112

The Tilt / Limit test is an efficient solution to check the order of the cable system and the further weakening of the signal at high frequencies. It is possible to acquire the signal levels of 12 channels (fig. 111) and easily observe the measurement result thanks to the graphic display (fig. 112). It is possible to select the first 6 frequencies of the group starting from the beginning of the television band and the last 6 frequencies starting from the end. Then you can control the slope and arrange the amplifiers and distribution elements based on this inclination.

7.5 SEARCH TABLE MENU



Fig. 113

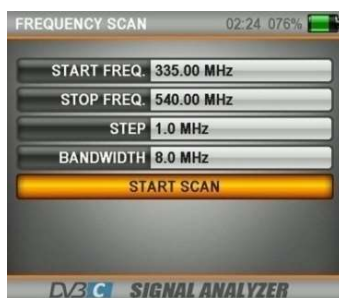


Fig. 114

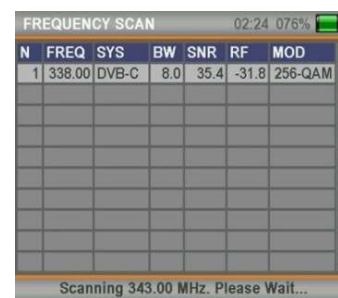


Fig. 115

The channel scan function allows you to quickly test the order and gain of the DVB-C QAM cable TV system. It is possible to select the range of steps and the end frequencies and scan all the signals within the band on one of the bandwidths of 6, 7 or 8 MHz (fig. 113-115).

N	FREQ	SYS	BW	SNR	RF	MOD
16	458.00	DVB-C	8.0	34.7	-30.5	256-QAM
17	466.00	DVB-C	8.0	33.5	-34.1	256-QAM
18	474.00	DVB-C	8.0	33.6	-31.0	256-QAM
19	482.00	DVB-C	8.0	34.7	-30.2	256-QAM
20	490.00	DVB-C	8.0	33.7	-31.9	256-QAM
21	498.00	DVB-C	8.0	33.0	-32.3	256-QAM
22	506.00	DVB-C	8.0	33.6	-31.3	256-QAM
23	514.00	DVB-C	8.0	33.5	-31.3	256-QAM
24	522.00	DVB-C	8.0	33.0	-35.2	256-QAM
25	530.00	DVB-C	8.0	33.0	-33.9	256-QAM

Fig. 116

N	FREQ	SYS	BW	SNR	RF	MOD
16	458.00	DVB-C	8.0	34.7	-30.5	256-QAM
17	466.00	DVB-C	8.0	33.5	-34.1	256-QAM
18	474.00	DVB-C	8.0	33.6	-31.0	256-QAM
19	482.00	DVB-C	8.0	34.7	-30.2	256-QAM
20	490.00	DVB-C	8.0	33.7	-31.9	256-QAM
21	498.00	DVB-C	8.0	33.0	-32.3	256-QAM
22	506.00	DVB-C	8.0	33.6	-31.3	256-QAM
23	514.00	DVB-C	8.0	33.5	-31.3	256-QAM
24	522.00	DVB-C	8.0	33.0	-35.2	256-QAM
25	530.00	DVB-C	8.0	33.0	-33.9	256-QAM

Fig. 117



Fig. 118

A table similar to that of fig. 116 will appear after scanning the selected band. Going to a frequency in the table and pressing ENTER it is possible to measure the channel in real time (fig. 117). Then pressing the EDIT button it is possible to download the signal parameters to a USB memory (fig. 118).

7.6 CHANNEL LIST



Fig. 119



Fig. 120

You can view the list of channels from the main menu (fig. 119) or while watching a channel by pressing the ENTER button (fig. 120).



Fig. 121

To modify the list of channels, go to the channels, press the EDIT button, select one of the DELETE or MOVE options (fig. 121) and select the channel you want to edit.

Select the channel again when you want to delete it or move the cursor to the chosen position, when you want to reposition it.

After completing the process, pressing ENTER can exit by answering YES to the question "Do you want to save the changes?".

7.7 CATV SETTINGS

Through this menu (fig. 122) it is possible to change the QAM / DVB-C settings (fig. 123).

POWER UNIT: it is possible to measure the power level in dBuV, dBm or dBmV.

CALIBRATION: you can calibrate the level if you think the signal measurement indicator is low or high.

MINIMUM AND MAX POWER: it is possible to change the intensity level of the measurement.

BER MAX: it is possible to modify the maximum BER limit both pre and post-Viterbi.



Fig. 122

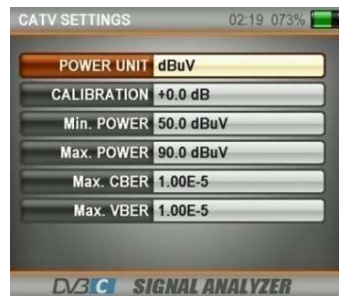


Fig. 123

7.8 PIANO FREQUENCIES

Through this menu (fig. 125) it is possible to modify the frequencies suitable for the region in which the service is provided.

In this way the settings adopted in the frequency plan will be displayed in all the other menus with consequent time savings. Please always check the correctness of the settings.



Fig. 124

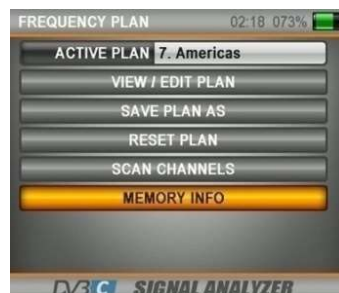


Fig. 125

NO	CHAN	FREQ	BW/AF	SYSTEM
23	D-CA8	402.00 M	8.0 M	DVB-C
24	D-CA9	410.00 M	8.0 M	DVB-C
25	D-CA10	418.00 M	8.0 M	DVB-C
26	D-CA11	426.00 M	8.0 M	DVB-C
27	D-CA12	434.00 M	8.0 M	DVB-C
28	D-CA13	442.00 M	8.0 M	DVB-C
29	D-CA14	450.00 M	8.0 M	DVB-C
30	D-CA15	458.00 M	8.0 M	DVB-C
31	D-CA16	466.00 M	8.0 M	DVB-C
32	D-CA17	474.00 M	8.0 M	DVB-C
33	<ADD>			

Fig. 126

You can scan all channels and check memory data for CATV frequency plans and channel lists (fig. 125-126).

8. DVB-T/T2

STARTING THE DEVICE:

Press the POWER ON / OFF button and switch on the instrument.

Select DVB-T/T2 in the main menu (fig.127): the list of TV/Radio channels will appear on the screen.



Fig. 127



Fig. 128



Fig. 129

LEVEL INDICATORS:



Fig. 130



Fig. 131

By pressing the LEVEL button it is possible to display the signal levels of the channel you are watching on the screen in real time (fig. 130-131).

8.1 LEVEL MEASURE MENU

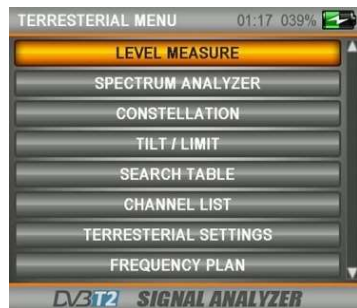


Fig. 132

Pressing the MENU button enters the terrestrial menu (fig. 132).

Selecting LEVEL MEASUREMENT starts the measurement.

It is possible to carry out both ANALOG and digital DVB-T/T2 measurements.

DVB-T/T2 LEVEL MEASUREMENT:

In the TERRESTRIAL LEVEL menu under SYSTEM select DVB-T (fig. 133). Use the RIGHT / LEFT buttons to select the CHANNEL you want to measure, or go to FREQUENCY and enter the desired frequency and select a bandwidth of 1.7, 5, 6, 7 or 8 MHz for DVB-T / T2 .

Since there may be some amplifiers on the terrestrial TV antennas, it is possible in this case to select a supply voltage of 5V, 12V, 20V at the output.



Fig. 133



Fig. 134



Fig. 135

After entering the parameters of the frequency you want to measure, press the ENTER button to enter the measurement screen (fig. 134-135).

The thick orange bar on the right of the screen visually indicates the signal level.

The signal level is indicated in figures below the orange bar.

The green area indicates whether the level performance bar is within the Max and Min values that can be selected in the settings menu.

On the left side of the screen it is possible to see the frequency parameters and signal quality measurement values such as MODULATION, BER and MER.

An ERROR indication will appear in the small box at the bottom right when the signal values are insufficient and an OK indication when the signal values are appropriate.

Channel names will be indicated in the orange bar when the signal levels are correct.

By pressing the LIST button you can see the channel names in the measured frequency.

Note: it is possible to quickly switch to the other menus related to the measured signal by selecting one of the following items: SHIFT, CONSTELLATION or SEARCH on the lower side of the screen.

SEARCH FOR A CHANNEL AND REGISTER IN THE CHANNEL LIST:

Select the SEARCH item at the bottom of the screen, on the right. In the CHANNEL SCAN screen it is possible to perform a scan by selecting the NON-ENCODED, CODIFIED or both together items from the CHANNELS item and pressing ENTER next to START (fig. 136).

When the scan is finished, an information screen will appear on the channels found and you will be asked if you want the channels to be recorded or not (fig. 138).

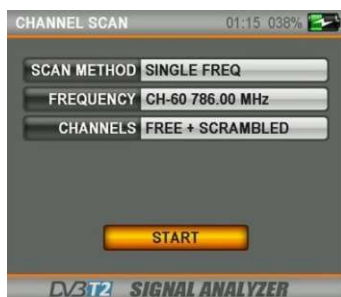


Fig. 136



Fig. 137



Fig. 138

ANALOGUE MEASUREMENT:

In the TERRESTRIAL LEVEL menu, under SYSTEM select the ANALOGUE (fig. 139).

Use the RIGHT / LEFT buttons to select the CHANNEL or FREQUENCY you want to measure.

You can enter video frequency and audio frequency information for TV ANALOG TERRESTRIAL measurement with the EDIT button.

Since there may be some amplifiers on the terrestrial TV antennas, it is possible in this case to select a supply voltage of 5V, 12V, 20V at the output.



Fig. 139

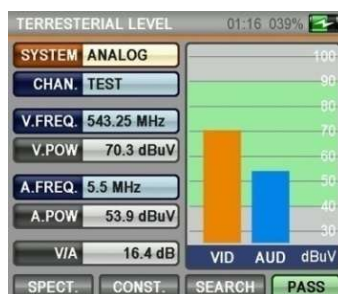


Fig. 140

To go to the measurement screen, press the OK button after entering the parameters of the frequency you want to measure. In this screen it is possible to view the channel name, the frequency and power of the video carrier and the audio carrier and the VIDEO / AUDIO ratio measured in dB (fig. 140).

The signal intensity bars on the right side of the screen facilitate the display of the measurement, thanks also to the color change depending on the level and become orange (video bearer power) and blue (video bearer power).

The green area indicates whether the orange video level bar and the blue audio level bar are within the maximum and minimum values selected in the settings menu.

An ERROR indication will appear in the small box at the bottom right when the signal values are insufficient and an OK indication when the signal values are correct.

Note: it is possible to quickly switch to the other menus related to the measured signal by selecting the items SHIFT, CONSTELLATION or SEARCH at the bottom of the screen.

8.2 SPECTRUM ANALYSIS MENU

Press the MENU button and go to the TERRESTRIAL MENU screen. To start measuring, select SPECTRUM (fig. 141). The device will display all the ANALOG and DIGITAL signals within the span (frequency range) when it is set to the SPECTRUM measurement mode.

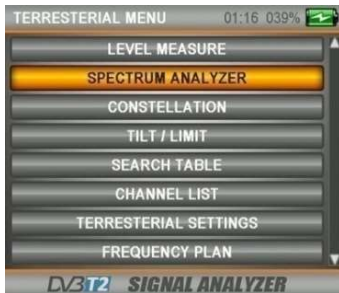


Fig. 141

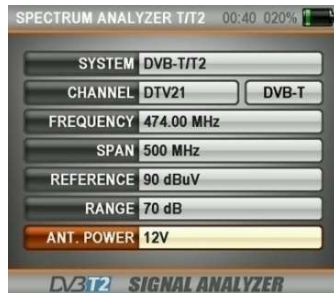


Fig. 142

Select the type of ANALOGUE or DIGITAL frequency, the WIDTH (SPAN), the REFERENCE (upper measurement point) and the RANGE (the interval between the upper and lower measurement points).

Since there may be some amplifiers on the terrestrial TV antennas, it is possible in this case to select a supply voltage of 5V, 12V, 20V at the output (fig. 142).

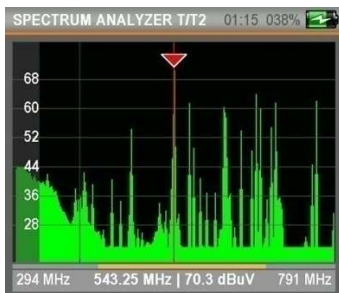


Fig. 143

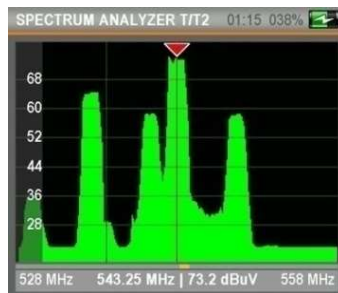


Fig. 144

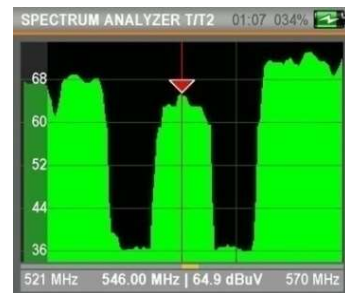


Fig. 145

Analog and digital signals can be displayed in different forms on the spectrum screen depending on bandwidth and power levels (fig. 143-145).

By clicking on the MENU button:

When in the Spectrum screen click on the MENU button, the screen appears in fig. 146.

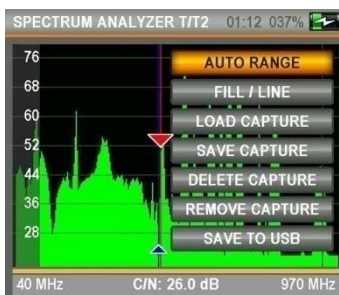


Fig. 146

AUTO RANGE: determines the highest and lowest values of the signal level and establishes the interval of the screen indicator according to this.

FULL / EMPTY: shows the image of the empty or full spectrum.

MASK SAVE: records the image of the spectrum on the screen, to be able to recall it later and compare it with the last measurement performed.

SAVE TO USB: makes it possible to record the image data of the spectrum on the monitor on the USB memory card.

By clicking on the **LEVEL & EDIT** button:

Pressing the LEVEL button the marker will show the C / N value at the frequency highlighted on the screen (fig. 147). Pressing the EDIT button when changing the FREQUENCY IF of the marker, the marker will move slowly across the spectrum based on the variation.

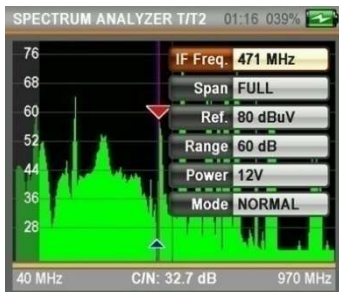


Fig. 147

SPAN: it is possible to display the desired frequency range on the screen by selecting one of the options between FULL / 15/30/50/100/200/500 MHz.
REFERENCE: determines the measurement point.
RANGE: determines the interval between the lowest measurement point and the highest measurement point.

MODE: when in NORMAL mode the spectrum will move at the optimal speed. When the FAST mode is selected the spectrum will move faster (in this case the image may not be displayed in detail).

By clicking on the **OK** button:



Fig. 148



Fig. 149



Fig. 150

Moving the marker to any upper point of the signal in the spectrum screen and pressing ENTER, the instrument will automatically find any digital transmission, if present in this frequency (fig. 149).

To see the names of the channels you can select CHANNEL LIST and press ENTER (fig. 150).

To record the channels found in the instrument memory, select SAVE CHANNELS.

8.3 CONSTELLATION MENU

Press the MENU button to enter the TERRESTRIAL MENU screen and select CONSTELLATION (fig. 151). The constellation screen lets you see the quality of the measured digital signal.



Fig. 151



Fig. 152



Fig. 153

Both the constellation and the other signal parameters can be displayed on the same screen and fast and reliable measurements can be performed (fig. 152-153).

8.4 TILT / LIMIT MENU

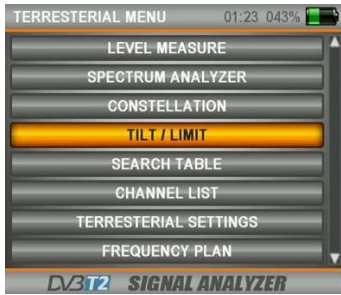


Fig. 154

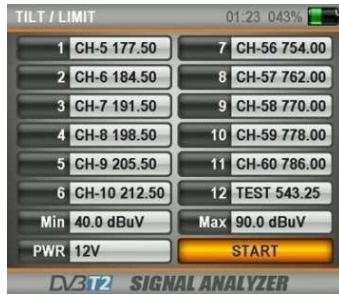


Fig. 155

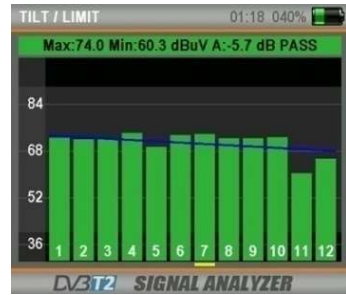


Fig. 156

The Tilt / Limit test is an efficient solution to check the order of the cable system and the further weakening of the signal at high frequencies. It is possible to acquire the signal levels of 12 channels (fig. 155) and easily observe the measurement result thanks to the graphic display (fig. 156). It is possible to select the first 6 frequencies of the group starting from the beginning of the television band and the last 6 frequencies starting from the end. Then you can control the slope and arrange the amplifiers and distribution elements based on this inclination.

8.5 SEARCH TABLE MENU



Fig. 157

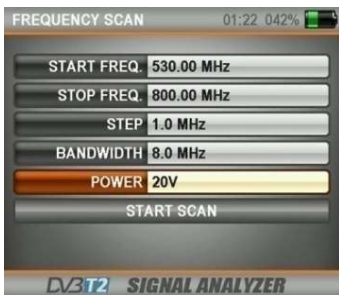


Fig. 158

N	FREQ	SYS	BW	SNR	RF	MOD
1	546.00	DVB-T	8.0	26.4	-42.2	64-QAM
2	786.00	DVB-T	8.0	24.2	-48.0	64-QAM

Fig. 159

The channel scan function allows you to quickly test the order and gain of the T / T2 system. It is possible to select the range of steps and the end frequencies and scan all the signals within the band on one of the bandwidths of 6, 7 or 8 MHz (fig. 157-159).

Since there may be some amplifiers on the terrestrial TV antennas, it is possible in this case to select a supply voltage of 5V, 12V, 20V at the output.

N	FREQ	SYS	BW	SNR	RF	MOD
1	546.00	DVB-T	8.0	26.4	-42.2	64-QAM
2	786.00	DVB-T	8.0	24.2	-48.0	64-QAM

Fig. 160



Fig. 161

A table similar to that of fig. 160 will appear by scanning the selected band. Going to a frequency in the table and pressing ENTER it is possible to measure the channel in real time. Then pressing the EDIT button it is possible to download the signal parameters to a USB memory (fig. 161).

8.6 CHANNEL LIST



Fig. 162



Fig. 163

You can view the list of channels from the main menu (fig. 162) or while watching a channel by pressing the ENTER button (fig. 163).

CHANGE THE CHANNEL LIST:



Fig. 164

To modify the list of channels, go to the channels, press the EDIT button, select one of the DELETE or MOVE options (fig. 164) and select the channel you want to edit.

Select the channel again when you want to delete it or move the cursor to the chosen position, when you want to reposition it.

After completing the process, pressing ENTER can exit by answering YES to the question "Do you want to save the changes?".

8.7 TERRESTRIAL SETTINGS

Through this menu it is possible to modify the DVB-T/T2 settings (fig. 166).



Fig. 165

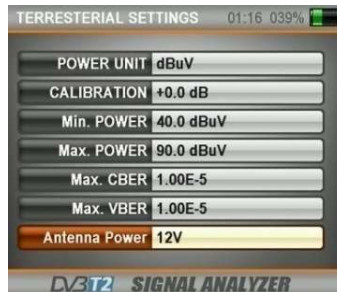


Fig. 166

POWER UNIT: it is possible to measure the power level in dBuV, dBm or dBmV.

CALIBRATION: you can calibrate the level if you think the signal measurement indicator is low or high.

MINIMUM AND MAX POWER: it is possible to change the intensity level of the measurement.

BER MAX: it is possible to modify the maximum BER limit both pre and post-Viterbi.

8.8 FREQUENCY PLAN

Through this menu (fig. 168) it is possible to modify the frequencies suitable for the region in which the service is provided.

In this way the settings adopted in the frequency plan will be displayed in all the other menus with consequent time savings. Please always check the correctness of the settings.



Fig. 167



Fig. 168

NO	CHAN	FREQ	BW/AF	SYSTEM
64	DTV4	195.00 M	5.5 M	ANALOG
65	DTV5	202.00 M	5.5 M	ANALOG
66	DTV6	209.00 M	5.5 M	ANALOG
67	DTV7	216.00 M	5.5 M	ANALOG
68	DTV21	474.00 M	7.0 M	DVB-T
69	DTV21	474.00 M	8.0 M	DVB-T2
70	DTV22	482.00 M	8.0 M	DVB-T2
71	DTV23	490.00 M	8.0 M	DVB-T2
72	DTV24	498.00 M	8.0 M	DVB-T2
73	DTV25	506.00 M	8.0 M	DVB-T2
74	DTV26	514.00 M	8.0 M	DVB-T2

Fig. 169

You can scan all channels and check memory data for terrestrial frequency plans and channel lists (fig. 168-169).

9. MOBILE PHONE SIGNALS

STARTING THE DEVICE:

Press the POWER ON / OFF button and switch on the instrument. Select MOBILE in the main menu (fig. 170). The list of bands dedicated to mobile phone signals will appear on the screen (fig. 171).



Fig. 170



Fig. 171

9.1 LTE / 4G SPECTRUM - 800 MHz band

To measure the 800 MHz band select LTE / 4G SPECTRUM and press the ENTER button. Make sure the instrument is connected to an antenna suitable for the reception of the 800 MHz band.

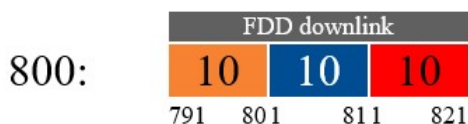


Fig. 172

In the above ranges of the LTE / 4G display it is possible to see the downlink signals of the operators (fig. 172). To measure the signal levels move the red marker with the RIGHT / LEFT buttons. It is possible to complete the measurement after capturing the cleanest and highest signal level in the entire spectrum band.

LEVEL KEY: in this screen, once the LEVEL button is pressed, the C / N value will be displayed (fig. 174).

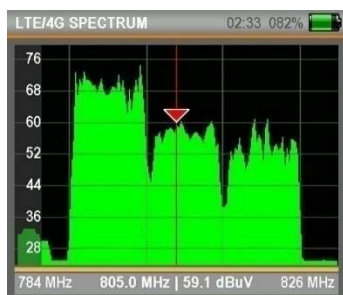


Fig. 173

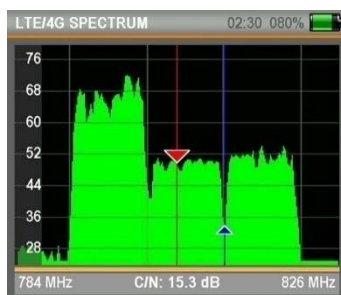


Fig. 174

MENU KEY: when the MENU button is pressed, on the SPECTRUM screen it is possible to easily perform measurements with the functions on the screen (fig. 175).

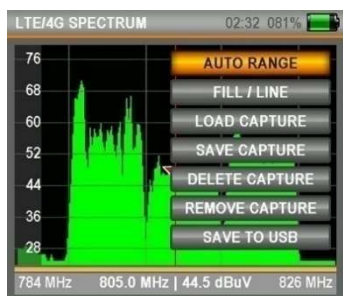


Fig. 175

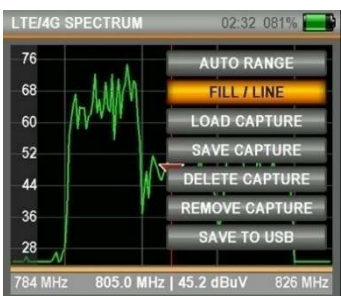


Fig. 176

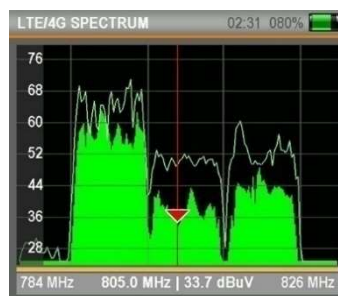


Fig. 177

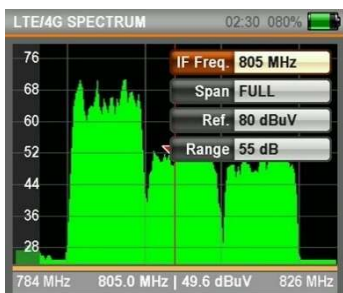
AUTO RANGE: automatically determines the measurement range based on the highest and lowest signal level on the SPECTRUM screen.

FULL / EMPTY: you can see the levels in the SPECTRUM screen as full or empty (fig. 176).

MASK SAVE: it is possible to save the measurement with the MASK SAVE function when measuring the spectrum, then use the MASK LOAD function to recall it and use it as a reference (fig. 177).

SAVE TO USB: it is possible to save the measured values as a table *.CSV on USB.

EDIT BUTTON: in the SPECTRUM screen it is possible to manually change the display parameters by pressing the EDIT button (fig. 178).



IF FREQ: it is possible to see the frequency on which the marker is positioned.

SPAN: you can select the desired frequency range on the screen.

REF.: it is possible to select the highest measuring point.

RANGE: it is possible to select the level range of the signal to be measured.

Fig. 178

9.2 GSM900 SPECTRUM - 900 MHz band



Fig. 179

To measure the 900 MHz band, select GSM900 SPECTRUM and press the ENTER button (fig. 179). Make sure the instrument is connected to an antenna suitable for the reception of the 900 MHz band.

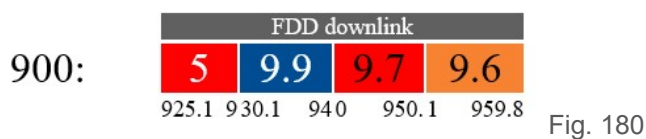


Fig. 180

In the above ranges of the GSM900 display it is possible to see the downlink signals of the operators (fig. 180).

To measure the signal levels move the red marker with the RIGHT / LEFT buttons.

It is possible to complete the measurement after capturing the cleanest and highest signal level in the entire spectrum band.

LEVEL KEY: in this screen, once the LEVEL button is pressed, the C / N value will be displayed (fig. 182).

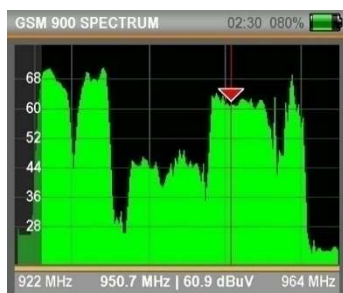


Fig. 181

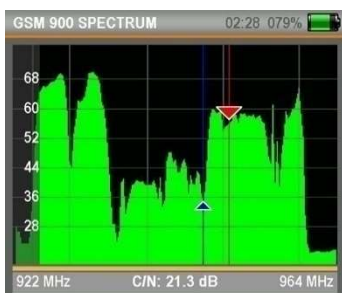


Fig. 182

MENU KEY: when the MENU button is pressed, on the SPECTRUM screen it is possible to easily perform measurements with the functions on the screen (fig. 183).

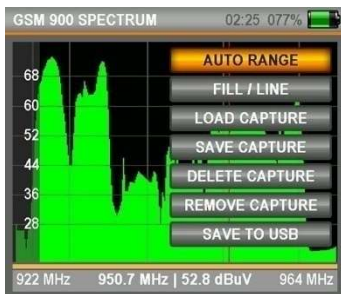


Fig. 183

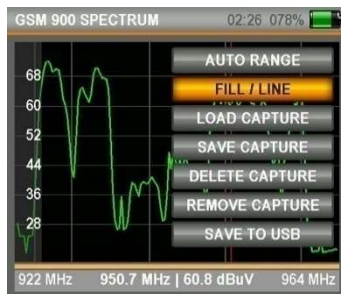


Fig. 184



Fig. 185

AUTO RANGE: automatically determines the measurement range based on the highest and lowest signal level on the SPECTRUM screen.

FULL / EMPTY: you can see the levels in the SPECTRUM screen as full or empty (fig. 184).

MASK SAVE: it is possible to save the measurement with the MASK SAVE function when measuring the spectrum, then use the MASK LOAD function to recall it and use it as a reference (fig. 185).

SAVE TO USB: it is possible to save the measured values as a table * .CSV on USB.

EDIT BUTTON: in the SPECTRUM screen it is possible to manually change the display parameters by pressing the EDIT button (fig. 186).

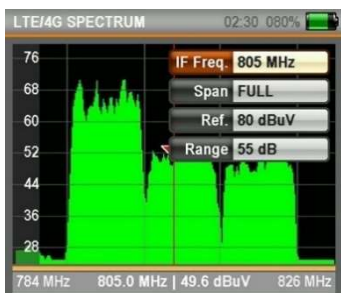


Fig. 186

IF FREQ: it is possible to see the frequency on which the marker is positioned.

SPAN: you can select the desired frequency range on the screen.

REF.: it is possible to select the highest measuring point.

RANGE: it is possible to select the level range of the signal to be measured.

9.3 SPECTRUM DCS1800 - 1800 MHz band



Fig. 187

To measure the 1800 MHz band select DCS1800 SPECTRUM and press the ENTER button (fig. 187). Make sure the instrument is connected to an antenna suitable for the 1800 MHz band reception.

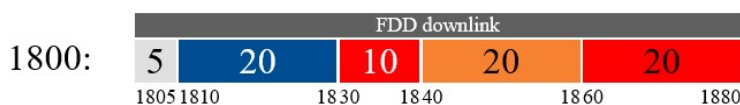


Fig. 188

In the above ranges of the DCS1800 display it is possible to see the downlink signals of the operators (fig. 188). To measure the signal levels move the red marker with the RIGHT / LEFT buttons.

It is possible to complete the measurement after capturing the cleanest and highest signal level in the entire spectrum band.

LEVEL KEY: In this screen, once the LEVEL button is pressed, the C / N value will be displayed (fig. 190).

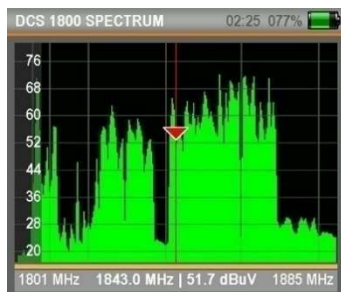


Fig. 189

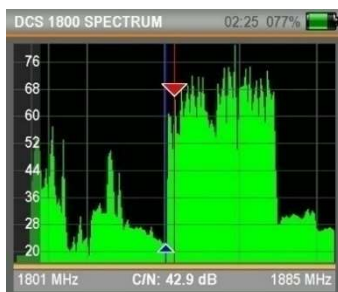


Fig. 190

MENU KEY: when the MENU button is pressed, on the SPECTRUM screen it is possible to easily perform measurements with the functions on the screen (fig. 191).

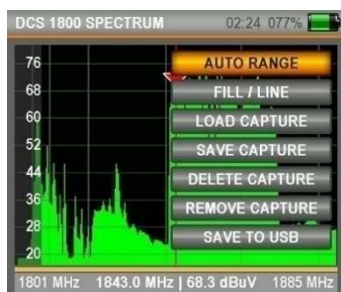


Fig. 191

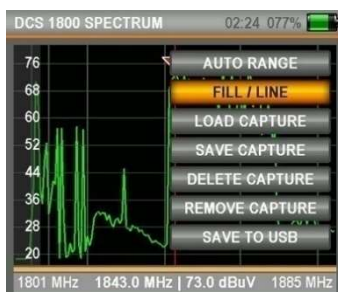


Fig. 192

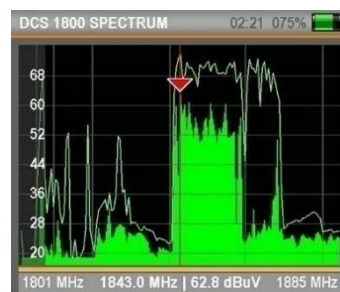


Fig. 193

AUTO RANGE: automatically determines the measurement range based on the highest and lowest signal level on the SPECTRUM screen.

FULL / EMPTY: you can see the levels in the SPECTRUM screen as full or empty (fig. 192).

MASK SAVE: it is possible to save the measurement with the MASK SAVE function when measuring the spectrum, then use the MASK LOAD function to recall it and use it as a reference (fig. 193).

SAVE TO USB: it is possible to save the measured values as a table * .CSV on USB.

EDIT BUTTON: in the SPECTRUM screen it is possible to manually change the display parameters by pressing the EDIT button (fig. 194).

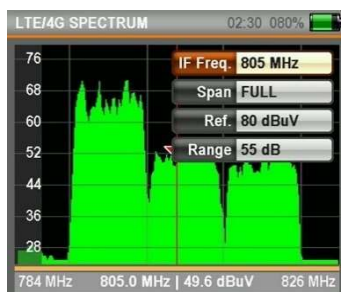


Fig. 194

IF FREQ: it is possible to see the frequency on which the marker is positioned.

SPAN: you can select the desired frequency range on the screen.

REF .: it is possible to select the highest measuring point.

RANGE: it is possible to select the level range of the signal to be measured.

9.4 SPECTRUM UMTS2100 - Band 2100 MHz



Fig. 195

To measure the 2100 MHz band select UMTS 2100 SPECTRUM and press the ENTER button (fig. 195). Make sure the instrument is connected to an antenna suitable for the reception of the 2100 MHz band.

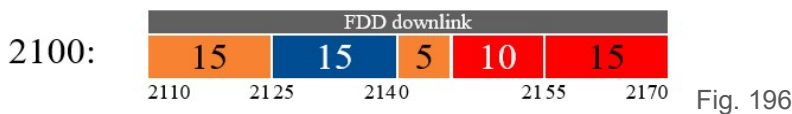


Fig. 196

In the above ranges of the UMTS2100 display it is possible to see the downlink signals of the operators (fig. 196). To measure the signal levels move the red marker with the RIGHT / LEFT buttons. It is possible to complete the measurement after capturing the cleanest and highest signal level in the entire spectrum band.

LEVEL KEY: in this screen, once the LEVEL button is pressed, the C / N value will be displayed (fig. 198).

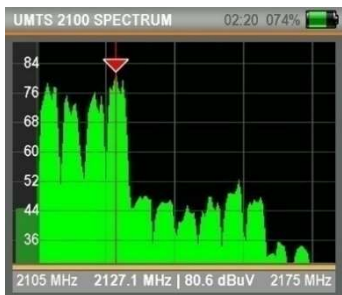


Fig. 197

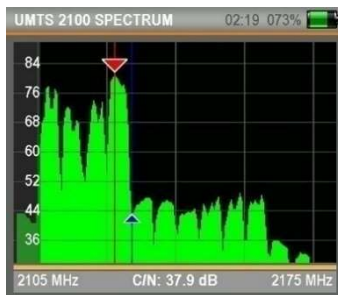


Fig. 198

MENU KEY: when the MENU button is pressed, on the SPECTRUM screen it is possible to easily perform measurements with the functions on the screen (fig. 199).

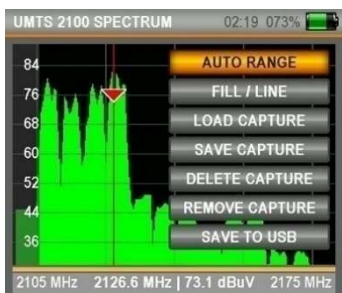


Fig. 199

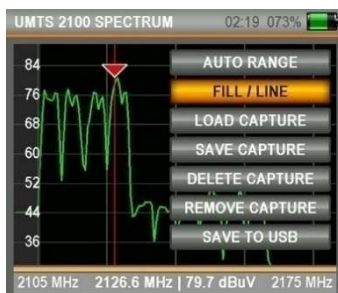


Fig. 200

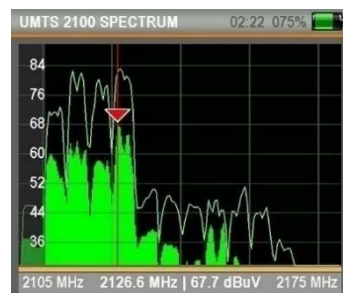


Fig. 201

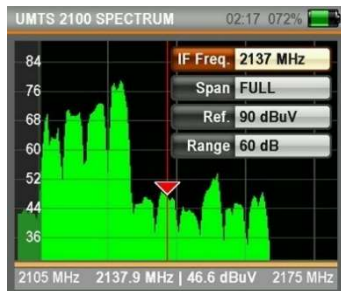
AUTO RANGE: automatically determines the measurement range based on the highest and lowest signal level on the SPECTRUM screen.

FULL / EMPTY: you can see the levels in the SPECTRUM screen as full or empty (fig. 200).

MASK SAVE: it is possible to save the measurement with the MASK SAVE function when measuring the spectrum, then use the MASK LOAD function to recall it and use it as a reference (fig. 201).

SAVE TO USB: it is possible to save the measured values as a table * .CSV on USB.

EDIT BUTTON: in the SPECTRUM screen it is possible to manually change the display parameters by pressing the EDIT button (fig. 202).



IF FREQ: it is possible to see the frequency on which the marker is positioned.
SPAN: you can select the desired frequency range on the screen.
REF.: it is possible to select the highest measuring point.
RANGE: it is possible to select the level range of the signal to be measured.

Fig. 202

9.5 MOBILE SETTINGS

With these settings you can make the device easier to use (fig. 204).

POWER UNIT: it is possible to modify the display of the signal levels in dBuV, dBmV and dBm.

CALIBRATION: it is possible to acquire the calibration value of the device by selecting the difference in unexpected changes in the signal levels of the device.



Fig. 203

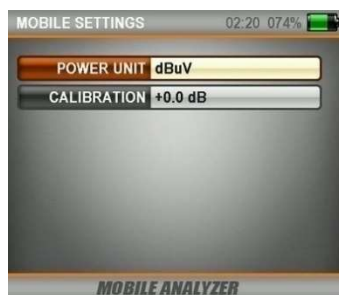


Fig. 204

AHD / CVI / TVI / CVBS:

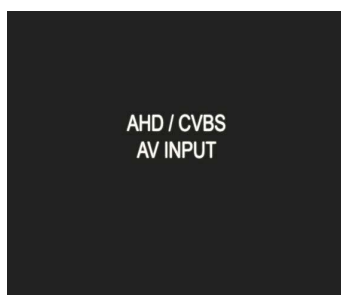


Fig. 205

When the AV IN button is pressed for 1 second while in any other menu, the device will switch to video input mode and the test in fig. Will appear on the screen. 205.

In this way it is possible to install cameras and test the quality of the videos.

10 MAIN DEVICE SETTINGS MENU

In the device settings menu it is possible to enter the optimal settings to speed up operations (fig. 207).



Fig. 206

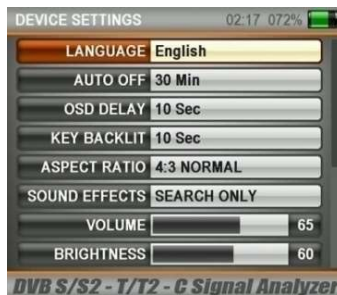


Fig. 207

LANGUAGE: it is possible to choose the menu language from Italian, English, French, German, Spanish, Portuguese, Greek, Polish, Turkish.

AUTOMATIC SWITCH-OFF: 5/10/20/30/60 minutes / OFF. When the device is accidentally forgotten on, it switches off automatically by the end of the time selected in AUTOMATIC SHUTDOWN. It is however possible to deactivate this function as desired.

OSD DELAY: 1/2/3/4/5/10 seconds. Thanks to this setting it is possible to determine the visibility time of some of the OSD menus on the screen.

KEYBOARD LIGHT: 5/10/15/30 seconds / OFF. You can determine the keyboard backlight time.

SIZE: 16: 9 WIDE SCREEN / 4: 3 NORMAL / AUTOMATIC.

SOUND EFFECTS: MUTE / RESEARCH ONLY / RESEARCH + SHORT SOUNDS / RESEARCH + LONG SOUNDS

You can then change the **VOLUME**, **BRIGHTNESS**, **COLOR**, **CONTRAST** and **TRANSPARENCY** settings to facilitate the use of the device. In addition to this, you can check the installed **SOFTWARE** and **HARDWARE** versions.

FIRMWARE UPDATE: in this menu you can download the new software from time to time (fig. 209) through the use of a USB pen drive.

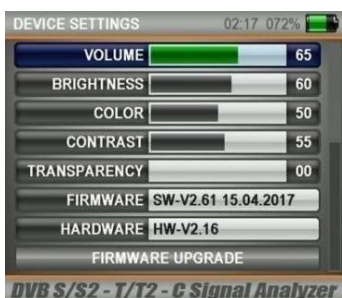


Fig. 208

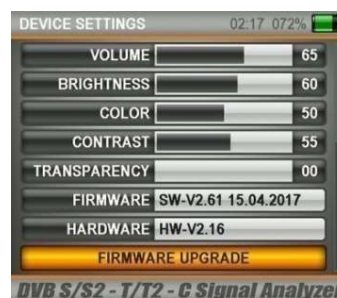


Fig. 209

FREQUENCY DATABASE: it is possible to store the list of channels present on the device in a USB memory thanks to the **SAVE DB ON USB** function. Subsequently, thanks to the **CHARGE DB BY USB** function it is possible to load this list of channels on the instrument again (fig. 210).



Fig. 210

PHOTO DISPLAY: when the USB memory card is connected, it is possible to capture a screenshot by simultaneously pressing ON / OFF and MENU in any menu while using the device. You can then return to the device settings menu and view the captured screenshot or images on the USB memory card (fig. 211).



Fig. 211

BATTERY INFORMATION: it is possible to display on the screen the state of charge of the battery and the remaining time (fig. 212).

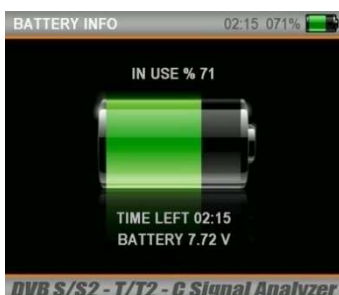


Fig. 212

VOLTAGE TEST: in this screen it is possible to view the supply voltages of the electronic circuits of the device (fig. 213). When the voltages are in the required values, OK will be displayed in the green boxes.

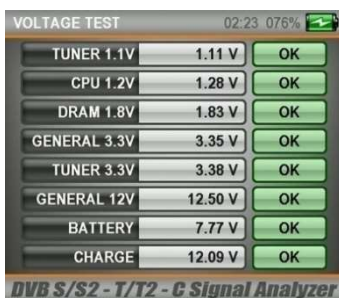


Fig. 213

FACTORY SETTINGS: it is finally possible to restore the device with the factory settings (fig. 214). This operation will cancel all the transponders and delete all the channels.



Fig. 214

SUPPORTED RESOLUTIONS

Resolution		TVI	CVI	AHD
8M12	3840x2160@12.5	√	√	√
8M15	3840x2160@15	√	-	√
6M10	3200x1800@10	√	-	-
5M20	2592x1944@20	√	-	√
5M12	2592x1944@12.5	√	-	√
QHD30	2560x1440@30	√	√	√
QHD25	2560x1440@25	√	√	√
QHD15	2560x1440@15	√	-	√
4M15	2688x1520@15	√	-	-
4M12	2688x1520@12	√	-	-
QXGA30	2048x1536@30	√	-	-
QXGA25	2048x1536@25	√	-	-
QXGA18	2048x1536@18	√	-	√
3M20	2048x1536@20	√	-	-
3M18	2048x1536@18	√	-	-
1080P60	1920x1080@60	√	-	-
1080P30	1920x1080@30	√	√	√
1080p25	1920x1080@25	√	√	√
720P25		√	-	-
720P30		√	-	-
720P50		√	√	-
720P60		√	√	√
720P30V2		√	√	√
720P25V2		√	√	√
PAL			√	
NTSC			√	

DECLARATION OF CONFORMITY

The company Offel Srl hereby declares that the 55-106 M101 device complies with the requirements of Directive 1999/5 / EC, RoHS 2011/65 / EU directive and reports the brand



Applied standards:

Safety

-EN 60950-1: 2006 / A2: 2013: information technology equipment

Electromagnetic compatibility (EMC)

- EN 301489-1 V1.9.2: common technical requirements.

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