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USER MANUAL

UPM 1400

Field meter type DVB-T/S/C

Article				Reference
UPM 1400	Portable Field meter DVB-S/T/C			304579
Document Version	V 3.23	**Date**	05/2022	**EN**

Attention! / Achtung! / Consignes de sécurité!

EN

Failure to comply with the specified precautionary measures may cause serious injury to persons or damage to property. The installation and commissioning may only be performed by suitably qualified persons, technicians or installers in compliance with safety regulations.

Damage due to improper installation and commissioning, defective connectors on cables or any other incorrect handling will void the warranty.

CAUTION: The safety requirements are according to EN 60728-11 and must be observed.

- Disconnect mains power before working on electrical systems.
- Any additional electrical wiring requirements should always be installed by a suitably qualified person(s).

Installation or service work should NEVER be undertaken during electrical / thunderstorms.

DE

Gewährleistung

Die gesetzliche Gewährleistung nach Paragraph 437 BGB beträgt 24 Monate.

Bei unsachgemäßer Installation und Handhabung erlischt jeglicher Garantieanspruch.

Bestimmungsgemäße

Und sachwidrige Verwendung

Die Montage und Inbetriebnahme darf nur von eingewiesenen Personen, Technikern

oder Installateuren unter Beachtung der Sicherheitsbestimmungen durchgeführt werden.

Schaden durch falsche Montage und Inbetriebnahme sowie durch unsachgemaβe Handhabung fuhren zum Erlöschen des Garantieanspruchs.

FR

Veillez à bien respecter les consignes de sécurité ci-dessous. Leur non-respect peut provoquer des dommages matériels ou corporels.

L'installation et la mise en route ne peuvent être effectués que par des techniciens ou des installateurs qualifiés en respectant les consignes de sécurité.

La garantie ne sera pas appliquée lors de dégâts causés par une erreur de montage, de mise en route ou par un mauvais raccordement ou toute autre manipulation incorrecte.

PRUDENCE : avant toute intervention, votre installation doit être conforme aux exigences définies par les dispositions Européennes EN 50083 (conformité des installations collectives) et EN 60065 (normes en vigueur pour la protection électrique).

Débranchez l'appareil avant toute intervention, car certains composants sous tension sont dangereux (risque d'électrocution).

Toute intervention sur l'installation ou travaux de maintenance sont à proscrire en cas d'orage.

Introduction

These operating instructions will help you get the most out of your UPM 1400 field meter device.

We assume that the user of this meter device is a trained personal and he/she is in possession of a general knowledge of handling antenna technology components.

Anyone using this filed meter device should be familiar with the entire contents of this manual.
Always keep this manual close to the device.

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Guarantee

We grant a guarantee of 24 months from the date of purchase of the device. Our Warranty will not apply in the event of improper handling, maintenance, and if it is not used in accordance with our written specifications, instructions, recommendations, and technical data sheets. In these cases any warranty claim will expire. Commissioning may only be carried out by trained persons, technicians or installers in accordance with safety regulations. Damage caused by incorrect operation or mishandling will also void the warranty.

Basic safety instructions

- In the event of a malfunction, disconnect the UPM 1400 unit from the power supply or connected signal source.
- To prevent fire or electric shock hazard, do not expose the meter unit to rain or other moisture.
- Never open the units housing, otherwise there is a risk of electric shock (this will also invalidate the warranty).
- The air vent openings of the device shouldn't be covered, otherwise the air circulation may be reduced and lead to an excessive build-up of heat.
- Use only the supplied socket AC adapter with the operating voltage of 100-240V and a mains frequency of 50-60 Hz.
- Avoid charging the device during thunderstorm to prevent eventual current surge may damage the unit.
- Do not bend or crush the power cord.
- Always recur for repair works to qualified specialists, otherwise you put yourself and potentially other people at risk.
- Purchase of spare parts / genuine spare parts, only from the manufacturer.
- Any modifications to the device will result of the void of the warranty

Proper handling of batteries / Rechargeable batteries

- Batteries may contain toxic elements. Keep batteries out of reach of children. Children could put batteries in their mouths and swallow them.
- Batteries may contain toxic materials harmful to the environment. It is, therefore, imperative that you dispose of batteries in accordance with the legal provisions applicable in your country.
- Never expose batteries to flames or extreme heat, otherwise there is a risk of explosion.
- Always replace batteries with the same type.
- In connection with the sale of batteries and accumulators, in accordance with the Batteries Ordinance, we are obliged to inform you as a consumer of the following:



You are legally obliged to recycle batteries and rechargeable batteries, never dispose of batteries with normal household waste. You can return them directly after use, to a municipal collection point or to your local store.

CE marking / Other markings



The device is marked with CE marking and complies with the essential requirements of the European directives

The terms HDMI, HDMI High-Definition Multimedia Interface, and the HDMI logo are trademarks or registered trademarks of HDMI Licensing Administrator, Inc.,

Product cleaning

The housing and the TFT screen should be cleaned with a soft, lint-free cloth. Please do not use solvents such as thinner, acetone or similar, otherwise the coating, the display or plastic parts might be damaged. Ventilation holes should be regularly kept clean of dust to ensure proper air circulation.

Introduction

Description of the UPM 1400 unit

The TRIAX UPM 1400 unit is a COMPACT and ECONOMIC measuring device, combining the measurements of satellite, cable and terrestrial signals. Its compact design and extensive functions make it a reliable aiding tool when installing and pointing terrestrial and satellite antennas. The 5" colour display provides clear menu navigation. The most important functions are arranged in the main menu and allow quick access. Important measurement results can be saved as an image file on an external storage data medium connected via the USB port and thus helps the creation of a document recording the measurement results

Content of the product package delivered

Please make sure your box contains the items listed below

Quantity	Description
1	UPM 1400
1	Mains power supply unit 15 V, 2,0 A
1	Cigarette lighter power supply 15 V, 2,0 A
1	Adapter F
1	Adapter IEC
1	Power cord AV/DC
1	Transport case
1	Instruction manual in English, German and French

Main Features

- Measurement of DVB-S/S2, DVB-T/T2 and DVB-C signal levels
- Compatibility with H.265 / HEVC
- Frequency range from 5 MHz to 2150 MHz
- Measure BER et MER in COFDM, QAM and QPSK
- Spectrum analyzer and constellation (vector) diagrams in DVB-S, DVB-T and DVB-C
- USB interface for software updates and for saving measurement data (screen capture)
- 5 "TFT screen with display of LIVE TV programs
- Automatic satellite detection
- Supports Unicable 1 and 2 (SCR/dSCR) standards

Frontal face



Screen: 5" TFT display for the menu and TV program
LEDs status :
The two color POWER LED displays the charge and operation of the product:

Red : device in operation
Green : device charging
LOCK : indicates received signal
13V/18V : output voltage indication
22K : indication of 22KHz signal emission

Function keys:
FIND : option key for satellite search in TV mode
SCAN : option button for blind scan or auto search in TV mode
Exit : exit from current menu
F keys : multifunction keys (depending on menu)
MENU : entering in main menu

Cursor: The arrow keys and OK, allow navigation in the menus

Numerical keys 1-9: for calling a program or entering values

Right side



1 - Tuner: Input of the signals to be measured
2 - LAN: Network connector
3 - AV IN/DC OUT: To display an external A/V signal on the meter

Left side



1 - HDMI output: HDMI output for connecting external playback device
2 - USB port: USB 2.0 port for software updates and for storing measurement data
3 - ON/OFF switch: turn on/off the device
4 - DC 15V: Connection for power supply

Commissioning (put into operation)

Turn on the meter, charge the battery

Before using your UPM 1400 device for the first time, batteries should be charged for at least 2 hours.

To do this, connect the measuring device to the power supply. Please only use the appropriate power supply included with the product in order to avoid potential damage to the device.

The power indicator light is green when the device is charging. The LED turns off upon the device is fully charged. Use the ON/OFF switch to turn on the device once it has been sufficiently charged.

Functioning



Use the **cursor keys** to navigate through the various device menus. A setting or selecting of a menu item is done with the **OK** button



The function keys (**F1-F4**) have different functions depending on the menu. This topics will be covered later in this manual..

The **EXIT** button takes you back to a previous menu or cancels a particular action.



The FIND button can be used to save screenshots of almost any menu item to an attached USB storage medium. Thus, for example, measurement results can be saved.

Main menu

Description of the menu items



Satellite:

- TP search: search for signals on a satellite, by transponders, etc…
- SAT identification: auto recognition of the received satellite
- Packet control: simultaneous measurements of multiple transponders in real time
- DiSEqC search: identification of received satellites in multi-satellite systems, switched BIS
- Motor: motor parameters for motorized satellite systems
- Spectrum: analysis and evaluation of received signals



Terrestrial:

- TP search: search for DVB-T/T2 multiplexes
- Constellation: graphical representation of the signal
- Packet monitoring: simultaneous measurement of multiple transponders in real time after searching the entire bandwidth
- Spectrum: analysis and evaluation of the received signal



Cable:

- TP search: search for DVB-C multiplexes
- Constellation: graphical representation of the signal
- Packet monitoring: simultaneous measurement of multiple transponders in real time after searching the entire bandwidth
- Spectrum: analysis and evaluation of the received signal



TV:

- Display of live TV images in DVB-S/S2, DVB-T/T2 and DVB-C
- Data display
- Manual search for SAT, TER, Cable programs in the list of channels
- When the program is displayed, pressing MENU gives access to:
    - Silence (mute key)
    - Info: general information on the program received in addition to its video (Signal, Quality, MER, SNR, CBER, VBER, frequency, band received, etc.)
    - PVR: recording



Setting parameters:

- System settings: (language, unit of measurement, …)
- OSD setting: display settings
- Clock
- Reset (allows user to erase the lists of received channels)
- Color settings: brightness, contrast, etc…
- Screen adjustment: backlighting,
- System info: device general information



Advanced:

- USB: access to USB media if connected
- Download FTP and PING: unused network function

Main menu

The image below depicts the main menu. Menu items are selected by using the **cursor keys**. Confirmation is done by pressing the **OK** button, gives access to this menu



For quick adjustment to lighting conditions, various screen adjustments can be made using the function keys.

Function key options:

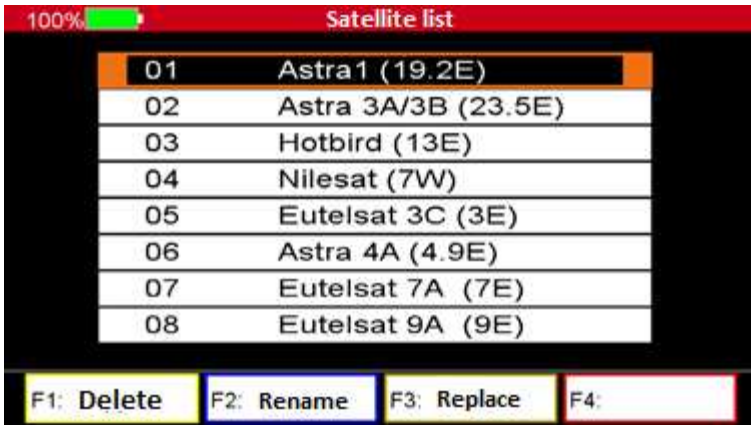
F1 - increase screen brightness
F2 - decrease screen brightness
F3 – increase display contrast
F4 - decrease display contrast

These setting options can also be found in the **terrestrial** and **cable** menu.

Satellite menu

Satellite, TP search: satellite list

You can use the **TP search** menu to measure individual transponders and start channel search.
The following figure shows the **satellite list** as the first selection item in the **TP Search** menu.
41 satellites are pre-programmed in the device. Select the relevant satellite with the arrow keys and confirm with the **OK** key.



Function Key Options:

F1 - deletes the selected satellite
F2 - renames the selected satellite
F3 - moves the selected satellite

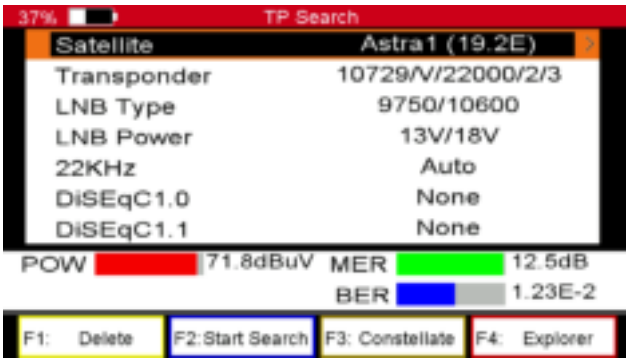
Satellite, TP search: functions and settings

Important parameters such as LNB command and control signals are also permanently set in the TP search menu. Incorrect settings lead to malfunctions !

After selecting the desired satellite from the list of satellites offered, by pressing the OK button, you are now in the **TP search** menu for DVB-S/S2 signals where the reception parameters are specified, the transponders are classified and TV programs can be searched.

The following parameters can be set here:
Satellite - determines the desired satellite
Transponder - determines the desired transponder
LNB type - determines the desired LNB type (standard universal LNB = 9750/10600)
LNB Power - determines the voltage that is sent to the LNB
22KHz - determines if a 22KHz signal is output to receive the high bands
DiSEqC 1.0 - defines DiSEqC commands to receive up to 4 satellite positions
DiSEqC 1.1 - defines DiSEqC commands to receive up to 16 satellite positions

By pressing the **OK** button, you can select the corresponding parameter from a list.



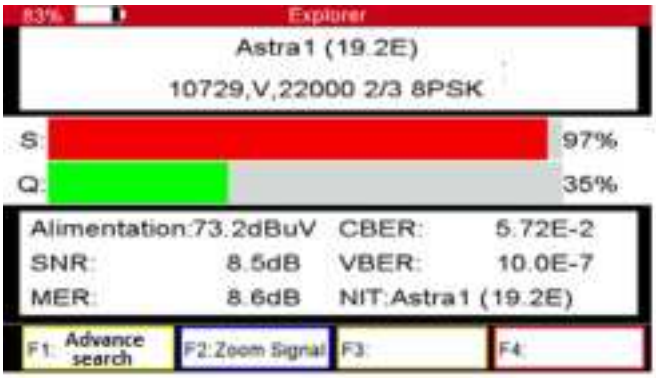
Explanation of signal parameters:
POW (Power) – received signal level in dBµV (can also be set to dBm in the settings menu)
BER - signal quality based on measurement of bit error rate (CBER before error correction)
MER – signal quality based on measurement of modulation error rates
NIT - automatic satellite recognition

Function Key Options:

F1 - Deletes the selected satellite or the selected transponder
F2 - Starts the search with the parameters defined on the selected TP
F3 - Display the constellation diagram of the selected TP
F4 – Open Explorer menu for clear display of signal parameters

Satellite, TP search: explorer menu

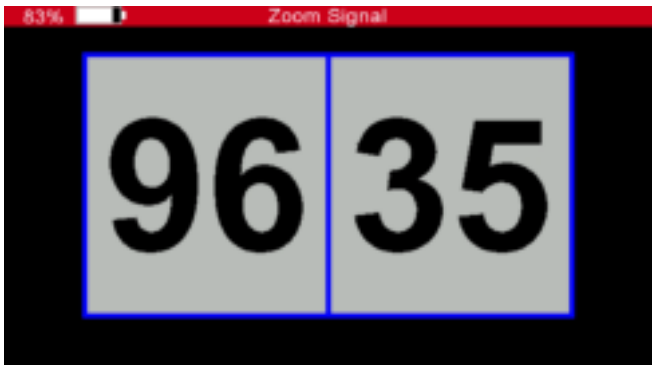
Press the F4 key to switch from the **TP search** menu to the **Explore** menu. Here the most important signal parameters are shown in a larger representation.



Function Key Options:

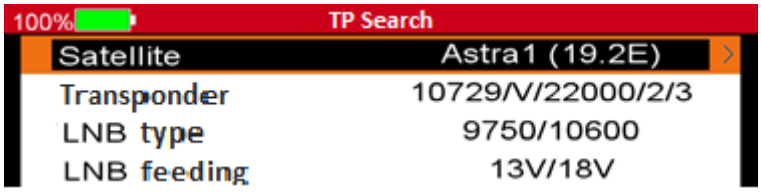
F1 - starts a channel search on the selected transponder
F2 - displays signal level and quality in an enlarged display mode

In the **Zoom Signal** menu, the **signal level** is displayed on the left and the **signal quality** is displayed on the right, both values in very large scale. This makes these values easier to see under difficult light and visibility conditions.

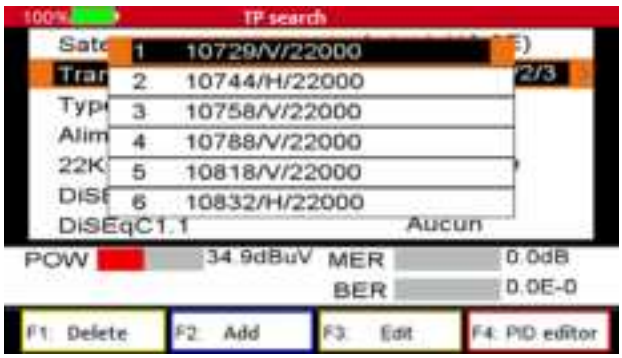


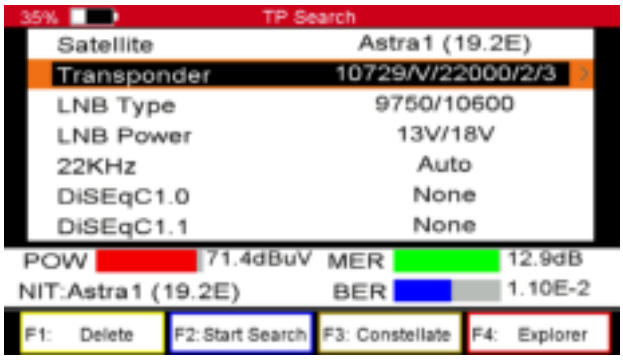
Satellite, TP search: add/edit a transponder

By pressing the OK button next to Transponder opens the list of transponders.
Function keys now offer extended functions to edit the TP or add the TP.
.



The following screenshot shows the list of transponders:
10729 = Transponder Frequency
V = Polarization
22000 = Symbol rate



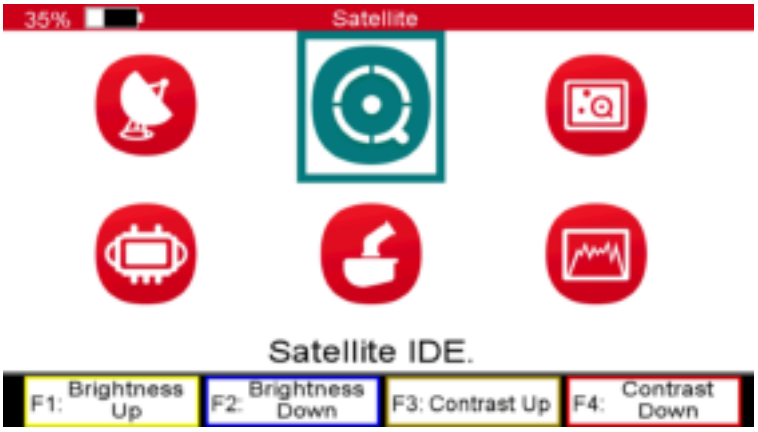


Function Key Options:

F1 - deletes the selected transponder
F2 - add a new transponder
F3 - edit an existing transponder

Satellite, SAT identification

The **SAT Identification** function is used to easily identify satellites. For example, on a BIS switch to which several satellites are connected, this function can be used to identify the connected satellites in the simplest possible way.



The example below shows the automatic identification of satellites during the search. The UPM 1400 searches for all satellites until it receives a signal for LNB 1 with the correct satellite ID. In the example below, the Astra 19.2E satellite has been detected at the DiSEqC LNB1 port. Change the DiSEqC port to LNB2 and the device will start searching from the beginning and display the connected satellites for LNB2 after scanning. You can cancel the search at any time by pressing the EXIT button.

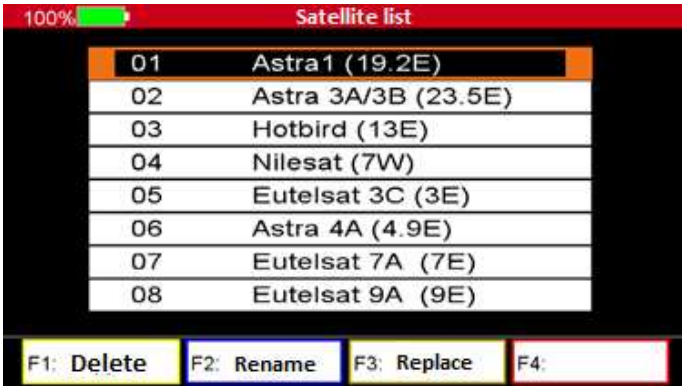


Satellite, packet control: satellite list

With the packet check function received on the TPs, all stored transponders of a respective satellite are measured and evaluated one after the other. By evaluating over a longer period of time, for example, errors can be determined that only occur sporadically.

The following figure shows the list of satellites as the first selection item in the TP control menu
Select the corresponding satellite on which you want to perform your measurement.

The settings that can be made here, have already been explained in section 5.1.



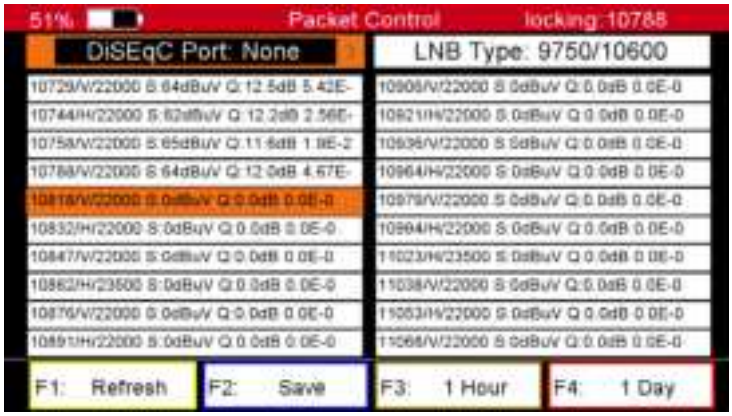
Satellite, TP control: parameters and functions

After selecting the satellite, the measuring device starts to evaluate the corresponding transponder.

The DiSEqC port and LNB type can be selected and changed using the cursor keys.
Press the OK button to open a list, select your configuration.

Explanation of parameters:
10832 = Transponder Frequency
H = Polarization
22000 = Symbolrate
S: **84 dBuV** = Signal Level
Q: **12.1 dB** = Signal Quality (MER)
2.24E-… = Signal quality (CBER)



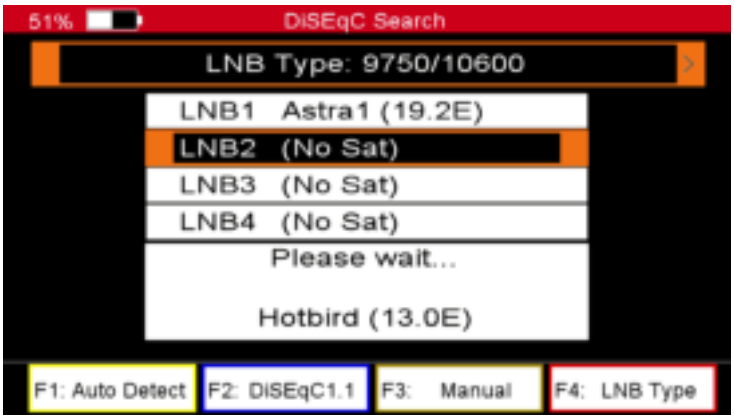


Function Key Options:

F1 - restarts the control and the device starts scanning again
F2 - saves the analysed values over an individual time period to a USB storage medium
F3 - scans transponders for 1 hour and saves results to USB storage
F4 - scans transponders for 24 hours and saves results to USB storage

Satellite, DiSEqC search

If you need to check an existing multi-satellite setup, you can use the DiSEqC search to quickly and easily check the current setup. The UPM 1400 checks all connected satellites, identifies them and displays the corresponding DiSEqC port. The analysis begins as soon as the function has been selected. You can cancel the search at any time by pressing the Exit button. Use left/right cursor keys to change LNB.



Function Key Options:

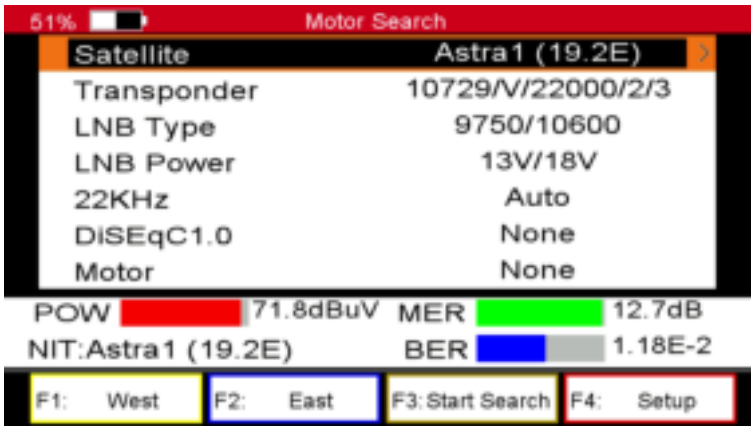
F1 - start scan or restart
F2 - change search mode to DiSEqC 1.1 commands
F3 - opens the list for manual satellite selection
F4 - change LNB type

Satellite, motor/actuator

If your satellite configuration is equipped with an electric motor, the appropriate parameters for the test can be set here.

The following parameters can be set here:

Satellite - determines the desired satellite
Transponder - determines the desired transponder
LNB Type - determines the desired LNB type (Universal LNB Standard = 9750/10600)
LNB power supply – choice of LNB output voltage
22KHz - determines if a 22KHz signal is output to receive the high bands
DiSEqC 1.0 - defines DiSEqC commands to receive up to 4 satellite positions
Motor - sets the control type for the motor



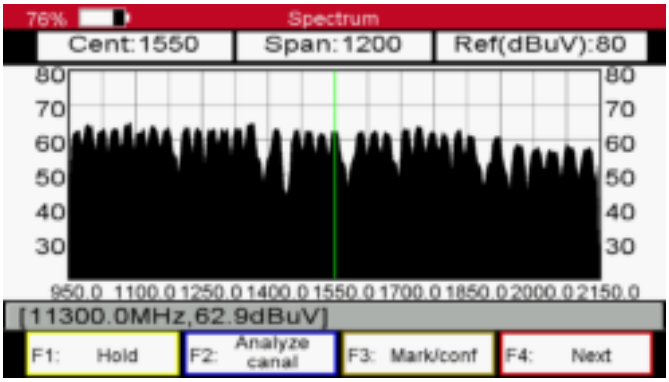
Function Key Options:

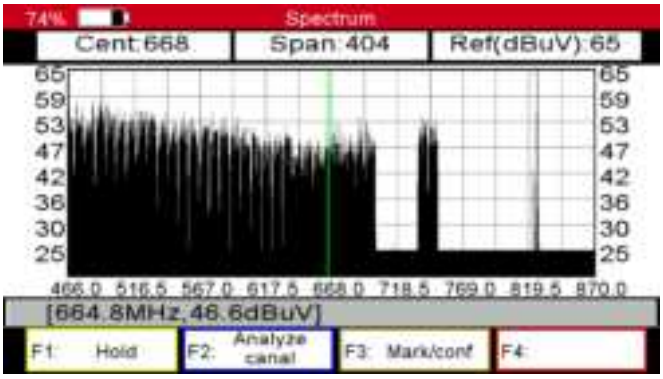
F1 - control command to turn motor west
F2 - control command to turn the motor to the east
F3 - starts searching on the selected transponder
F4 - opens the USALS operating mode settings menu

Satellite, spectrum

The signal spectrum shows a graphical representation of the signal carriers on a certain satellite polarization in a certain frequency band.

The selected frequency is displayed via a cursor in the form of a green line.
The desired carrier or the desired frequency can be selected with the left/right cursor keys. Signal level range can be changed with up/down arrow keys.

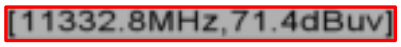






The values on the sides of the graph
Indicate the signal level

The values below the graph represent the transponder frequency and signal level from the cursor positions.



Function Key Options:

F1 - stops real-time analysis (freeze) and displays values when stopped
F2 - connects to the selected transponder (channel analysis) and evaluates the data
F3 - access to setting the center frequency range and the span (analysis width)
F4 - other functions

The F4 key expands setting options as:

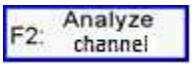


F1 - changes in horizontal or vertical polarization
F2 - activates or deactivates 22 KHz to switch to low or high band

F3 - DiSEqC settings
F4 - return to other functions

Satellite, spectrum: constellation diagram

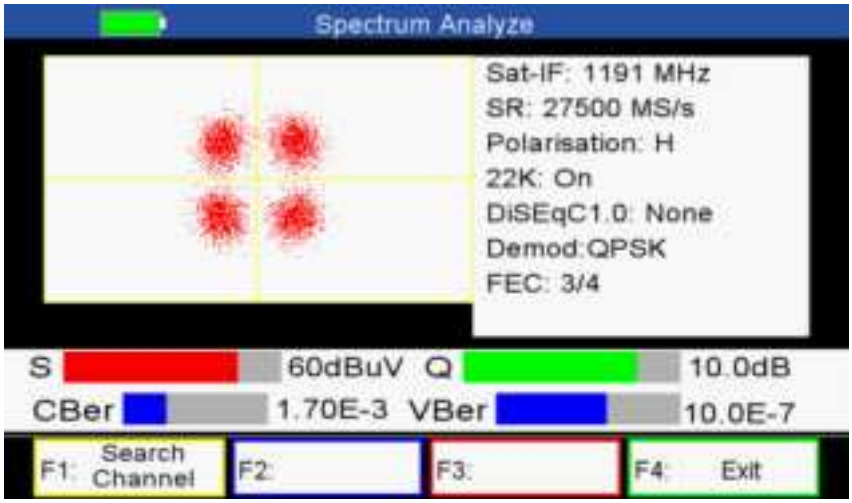
The screen shot below shows the rating and constellation diagram of a QPSK DVB-S modulated transponder by pressing the F2 key



The UPM 1400 evaluates the signal parameters of a channel and displays them graphically using a constellation diagram. Ideally, the device receives a noise-free and interference-free signal. This is shown in 4 quadrants over many small dots which are grouped together and form circles.

If the device receives a bad signal, this has a corresponding effect on the display. The points of the 4 quadrants then no longer group together in structured circles, but spread out in a less structured way.

Explanation of parameters:
Sat-HF - HF Transponder Frequency
NIT - automatic satellite detection
SR - symbol rate
Polarization - transponder polarization
22K - Shows if 22 KHz is enabled
DiSEqC 1.0 - DiSEqC command display
Modulation - Displays the type of modulation
FEC - display of applied error correction
POW - signal level in dBuV (can also be set to dBm in the settings menu)
MER – signal quality based on measurement of modulation error rates
CBer – signal quality based on measurement of bit error rate before error correction
VBer – signal quality based on measurement of bit error rates after error correction



Function Key Options:

F1 - starts searching for stations on the corresponding transponder
F4 - back to spectrum

Satellite plotting, introduction

This tutorial walks you through the complete installation of a satellite reception using the example of the Astra located at 19.2° East.

Always charge the UPM 1400 before using it. Familiarize yourself with the device before making any antenna adjustments, especially if you plan to mount an antenna on a roof. This saves you time and gives you the security you need when setting up the antenna

Preparation and basics:
The antenna mount must be aligned very precisely, i.e. the antenna mast must be level and firmly fixed so that the subsequent installation of the antenna can be carried out without problems.

Mount the antenna on the bracket and tighten the antenna screws so that the antenna can always be aligned and moved.
Adjust the elevation angle according to your location.

Elevation angle

It must be ensured that orientation to the south is possible without obstacles. If there is no clear view, a satellite dish cannot be installed at this stage.



Azimuth angle
The azimuth angle (length angle) defines the horizontal alignment of the antenna. For now, align the antenna exactly south. The azimuth angle (angle of length) defines the horizontal alignment of the antenna. For now, align the antenna exactly south.



Satellite configuration, alignment settings

Now that the antenna is pointing south and the elevation angle has been set to suit your location, the UPM 1400 can be connected to the LNB.

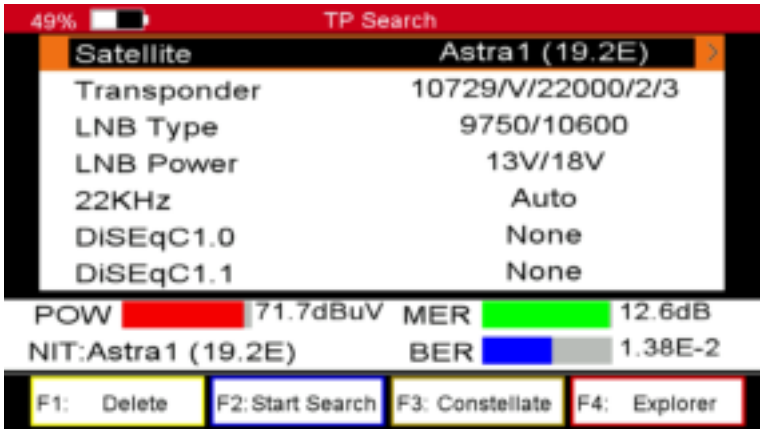
The easiest way to line up is through the TP search menu. The detailed explanation of the different functions of this menu item can be found in chapter 5.1.

From the main menu, select the Satellite menu, then select the TP search menu.
Now you will see the list of satellites and select "Astra1 (19.2E)".

You are now in the TP search menu and should see the same display as in the sample image below. If the LNB is connected, the POW screen should now show at least a signal level of 60 dbµV. Otherwise, the cable is not connected to the LNB, the LNB is defective or the measuring device does not deliver any voltage.

Parameters:
If you're not sure what settings to make, use the values exactly as shown in the example below.

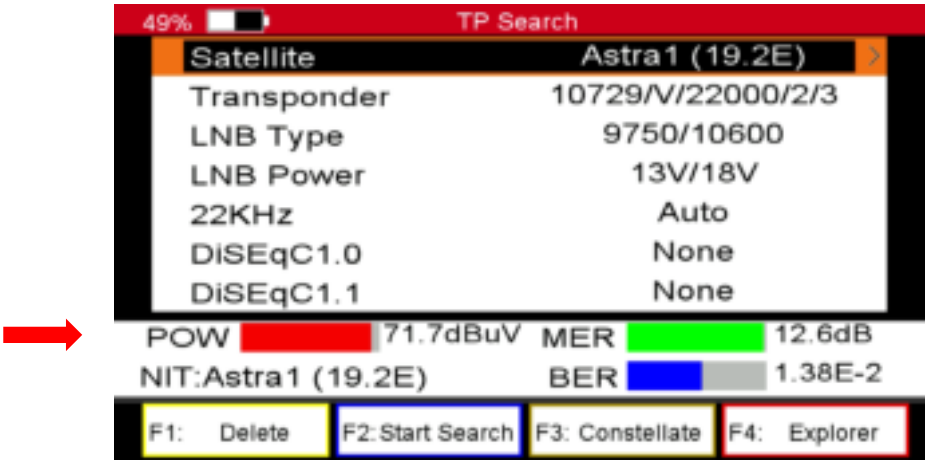
If you are using a Quattro LNB, you must ensure that the signal cable is connected to the correct output on the LNB. The settings of the following example are designed for the measurement of a Horizontal High band transponder (output marked in yellow on a QUATTRO TRIAX LNB



Satellite configuration, pointing using the measuring device

Pointing:
Now turn the antenna carefully, very slowly and never jerkily to the east (to the left when standing behind the antenna).

After only a few centimeters of rotation, the bar graphs showing the MER and BER values of the measuring device deviate. At this point, the measuring device has connected to the transponder and is evaluating the data.
The NIT value now appears and indicates which satellite has been read and is received from the meter.



If no deviation is visible even after turning the antenna for a long time, you may have turned too jerkily or too quickly and "jumped" the satellite. Then slowly and carefully turn the antenna south or repeat from the southern starting point until you receive signals from that satellite.

Fine tuning:
Antenna fine tuning begins now. Adjust the azimuth and elevation angles to get the highest possible MER value. The MER value is the most important parameter in terms of signal quality. Turning the antenna a few millimeters can cause significant signal changes.

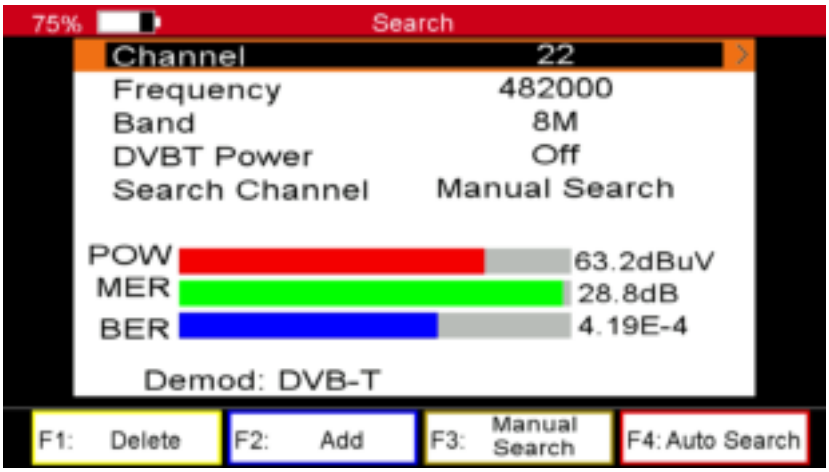
At the end, all antenna screws should be tightened and the antenna pointing is completed successfully.

Terrestrial menu

Terrestrial, TP research

The following screenshot shows the TP search menu for DVB-T/T2 signals where relevant reception parameters are specified, transponders are categorized and programs can be searched.

The following parameters can be set here:
Channel – choose the desired channel
Frequency - determines the desired channel via the entry of its frequency
Band - determines channel bandwidth (default 8)
Antenna supply - supply voltage for antenna, off, 5V, 12V, 24V DC
Search channels - launches an automatic or manual search. Automatically, you will be asked for network search Yes/No



Explanation of signal parameters:
POW - signal level in dBuV (can also be set to dBm in the settings menu)
MER – signal quality based on measurement of modulation error rates
BER - signal quality based on measurement of bit error rate (CBER before error correction)
Signal - Indicates whether DVB-T or T2 signal is received

Function Key Options:
F1 - deletes the selected channel
F2 - add channels (add transponder submenu)
F3 - starts manual channel search on the selected channel
F4 - starts automatic search in the range 470 MHz - 860 MH

Terrestrial, constellation diagram

The screenshot below shows the rating and **constellation diagram** of a 64QAM DVB-T2 modulated transponder.

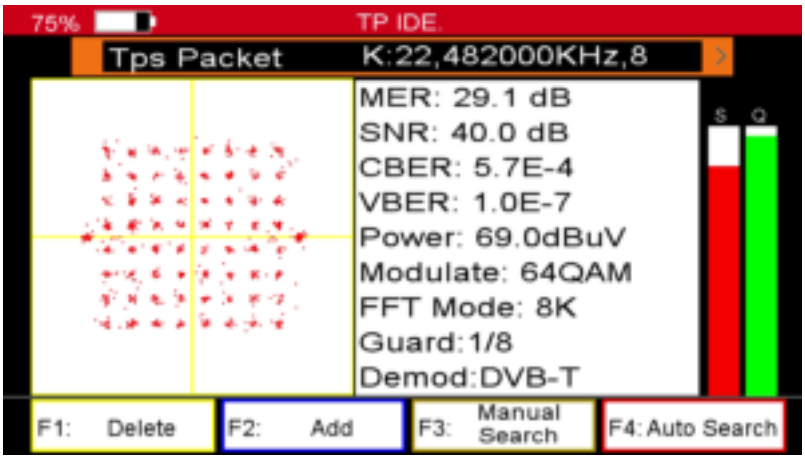
The UPM 1400 evaluates the signal parameters of a channel and displays them graphically using a constellation diagram. Ideally, the device receives a noise-free and interference-free signal. This is shown in 4 quadrants over many small dots which are grouped together and form circles.

If the device receives a bad signal, this has a corresponding effect on the display. The points of the 4 quadrants then no longer group together in structured circles, but spread out.

With the **left / right** cursor keys you can switch between the different received channels, the **OK** key opens a list for channel selection.

Explanation of the parameters:
Packet Tps - displays channel, frequency and bandwidth information
MER – signal quality based on measurement of modulation error rates
SNR - signal to noise ratio
CBER – signal quality based on measurement of bit error rate before error correction
VBER -VBER signal quality based on measurement of bit error rates after error correction
Signal - signal level in dBuV (can also be set to dBm in the settings menu)
Modulation - Displays the type of modulation
FFT Mode - Shows the applied FFT mode of the transponder

Guard - Display of transponder guard interval
Signal - Displays DVB-T/S or C reception type



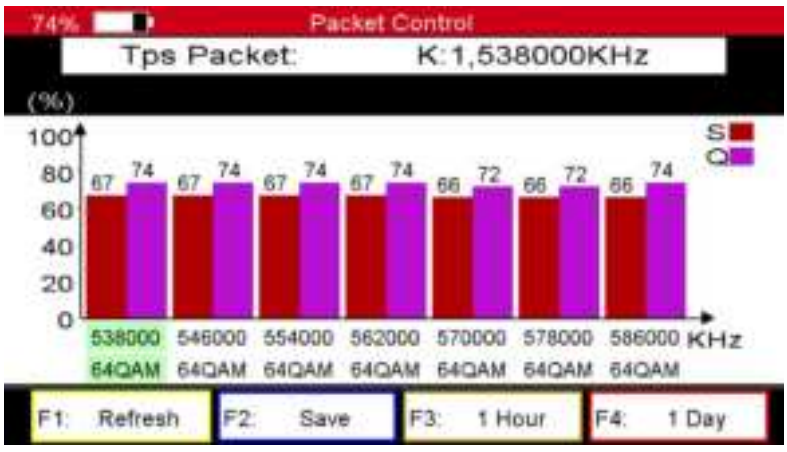
Function Key Options:

F1 - deletes the selected channel
F2 - add channels (add transponder submenu)
F3 - starts manual channel search on the selected channel
F4 - starts automatic search in the range 470 MHz - 860 MHz

Terrestrial, packet control

With the **packet monitoring** function, all stored channels are measured in real time. By evaluating over a longer period of time, for example, errors or phenomena can be highlighted that only occur sporadically.

Only channels / transponders already stored in the UPM 1400 are displayed. Before packet checking can be performed, the DVB-T/T2 channels must be registered via a search



Function Key Options:

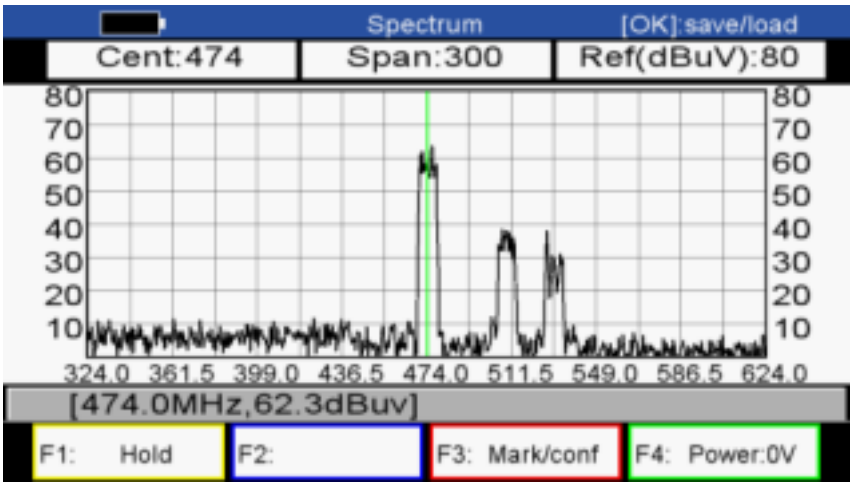
F1 - restarts the control and the device starts scanning again
F2 - saves the analyzed values over an individual time period to a USB storage medium
F3 - scans transponders for 1 hour and saves results to USB storage
F4 - scans transponders for 24 hours and saves results to USB storage

Terrestrial, spectrum

Signal spectrum mode displays a graphical representation of signal carriers within a certain frequency range

The **spectrum mode** of the signal has already been dealt with in chapter 4.10. Please look there for more detailed information. The antenna supply voltage can be adjusted with the F4 function key.

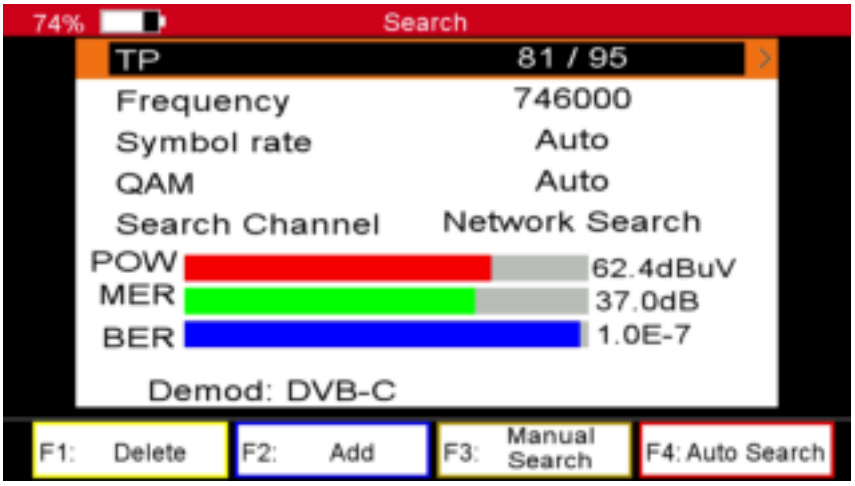
Attention, supplying an antenna with a voltage while no preamplifier is inserted between the UPM 1400 meter and the antenna can irreparably damage the antenna and the meter!



Cable menu (wired network)

Cable, TP search

The following parameters can be set here:
TP – choice of the desired transponder
Frequency - determines the desired channel via the entry of its frequency
Symbol rate: displays the symbol rate of the channel (is determined automatically)
QAM - displays the modulation type of the channel (is determined automatically)
Channel Search - launches an automatic, network, blind or manual search.



Explanation of the signal parameters:
POW - signal level in dBµV (can also be set to dBm in the settings menu)
MER – signal quality based on measurement of modulation error rates
BER - signal quality based on measurement of bit error rate (CBER before error correction)
Signal - Indicates the type of signal received

Function Key Options:

F1 - deletes the selected channel
F2 - add channels (add transponder submenu)
F3 - starts manual channel search on the selected channel

F4 - starts automatic search in the range 470 MHz - 860 MHz

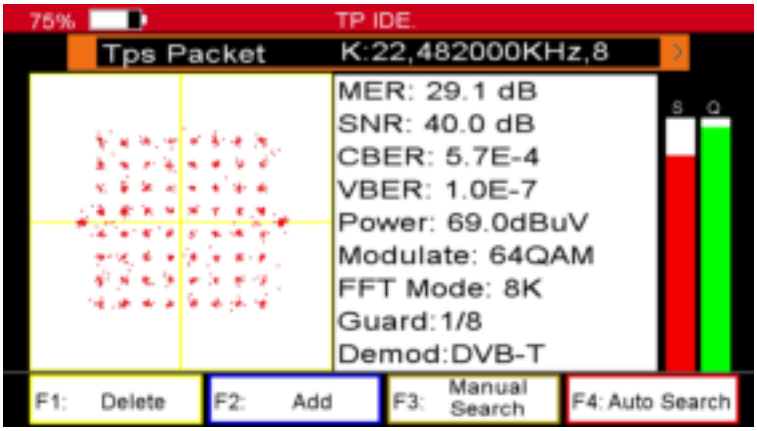
Cable, constellation diagram

The screenshot shows the rating and **constellation diagram** of a 64 QAM DVB-C modulated transponder.

The UPM 1400 evaluates the signal parameters of a channel and displays them graphically using a constellation diagram. Ideally, the device receives a noise-free and interference-free signal. In the diagram, this is shown by many clearly defined points that form a circle.

If the device receives a bad signal, this has a corresponding effect on the display. The points of the 4 quadrants then no longer group together in structured circles, but spread out..
With the **left / right** cursor keys you can switch between channels, the OK key opens a list for channel selection.

Explanation of the parameters:
Packet Tps - displays channel, frequency and bandwidth information
MER – signal quality based on measurement of modulation error rates
BER – signal quality based on measurement of bit error rates before error correction
Signal - signal level in dBuV (can also be set to dBm in the settings menu)
Modulation - Displays the type of modulation
Symbolrate - Displays the symbol rate of the channel
Signal - Displays DVB-T/S or C reception type C



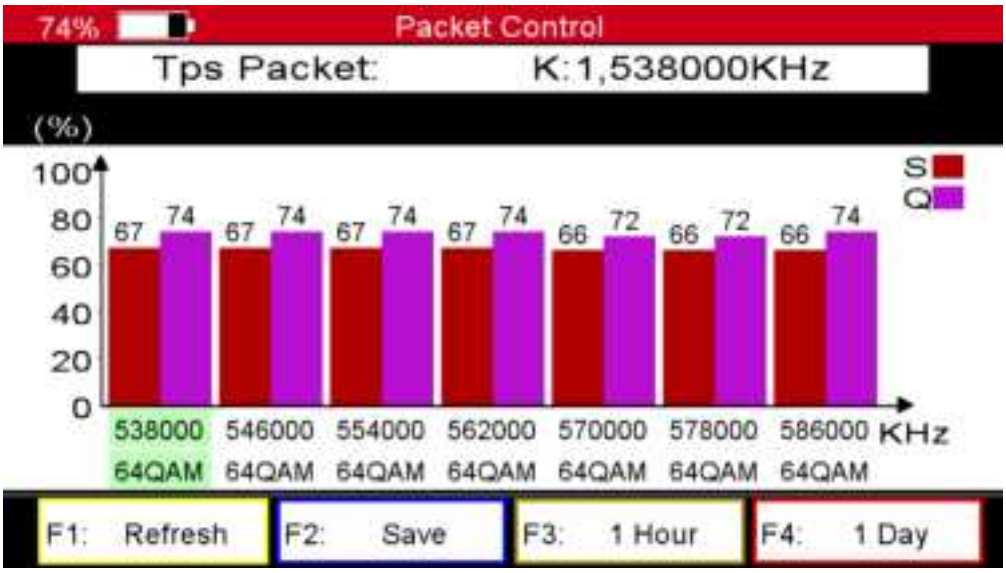
Function Key Options:

F1 - deletes the selected channel
F2 - add channels (add transponder submenu)
F3 - starts manual channel search on the selected channel
F4 - starts automatic search in the range 470 MHz - 860 MHz

Cable, packet control

With the packet monitoring function, all stored channels are measured in real time. By evaluating over a longer period of time, for example, errors or phenomena can be highlighted that only occur sporadically..

Only channels / transponders already stored in the UPM 1400 are displayed. Before packet checking can be performed, the DVB-C channels must be registered via a search.



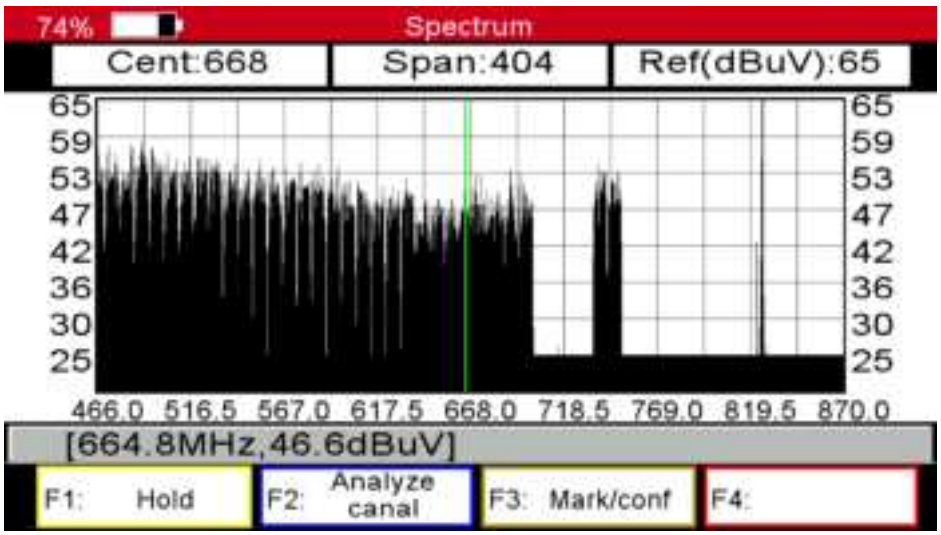
Function Key Options:

F1 - restarts the control and the device starts scanning again
F2 - saves the analyzed values over an individual time period to a USB storage medium
F3 - scans transponders for 1 hour and saves results to USB storage
F4 - scans transponders for 24 hours and saves results to USB storage

Cable, spectrum

The signal spectrum shows a graphical representation of the signal carriers in a certain frequency range.

The **spectrum mode** of the signal has already been dealt with in chapter 4.10. Please look there for more detailed information.



TV mode

TV mode, introduction

The **TV mode** is mainly used to display live TV images, but has various other useful functions which are explained in the following chapters..

In the following example you can see a live television picture transmission of a DVB-T program.



Function Key Options:

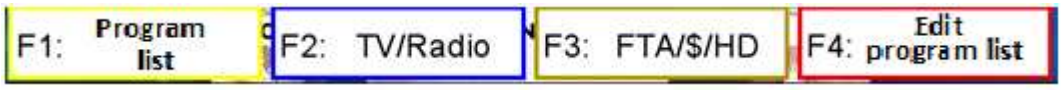
F1 - Selection of program lists for DVB-S, DVB-T or DVB-C channels
F2 - opens the main program list which contains all saved channels of all reception types
F3 - displays live TV image in full screen mode
F4 - displays detailed program information such as audio and video PID

The following figure shows the detailed program information that can be called up via the F4 key.



TV mode, channel lists option

If you opened a program list, the function key options change accordingly.



Function Key Options:

F1 - Selection of program lists for DVB-S, DVB-T or DVB-C channels
F2 - Switches to the radio program list and back to the TV list
F3 - Switch between free, encrypted or HD channels
F4 – Edit the corresponding program list

TV mode, advanced options



The **Menu key** gives access to further options in TV mode, which are explained below

The image shows the advanced options



Silence – allows you to mute the sound output of the meter
Info - displays detailed program and signal information
PVR – access to recording and USB options
The following screenshot shows the parameters that can be displayed for the current program using the info function.



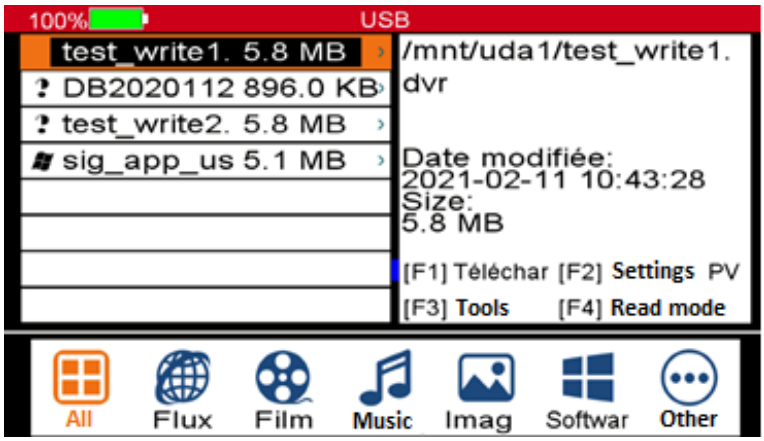
TV mode, advanced PVR options

The figure below shows the PVR/USB options accessible through TV mode.



USB - opens the storage medium directory
PVR - starts recording the viewed program
Save TP - starts saving current transponder
Auto Timeshift – starts the Time shift function

The illustration below shows the USB directory.
The different media can be managed and edited.

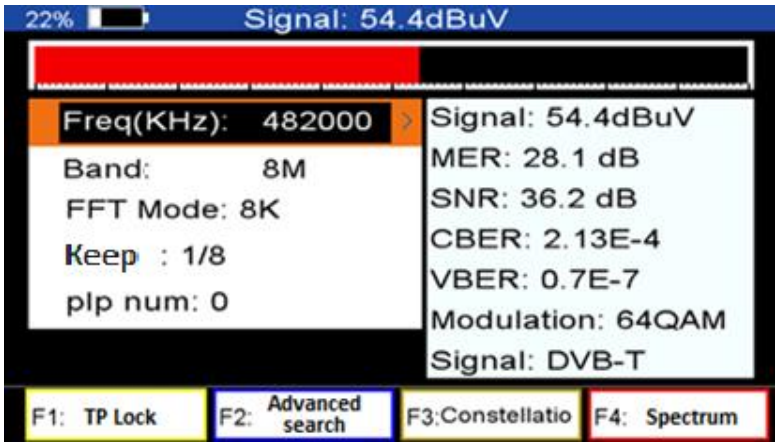


TV mode, signal search and evaluation



Using the **FIND** and **SCAN** buttons, searches can be started in TV mode or individual transponders can be evaluated.

The following illustration shows the evaluation of a DVB-T transponder.
The signal parameters all have to be entered manually in this mode, that's why the mode is only for advanced users.



Function Key Options:

F1 - connect to transponder
F2 - start transponder search
F3 - displays the constellation diagram
F4 - changes the spectrum of the signal at the respective frequency

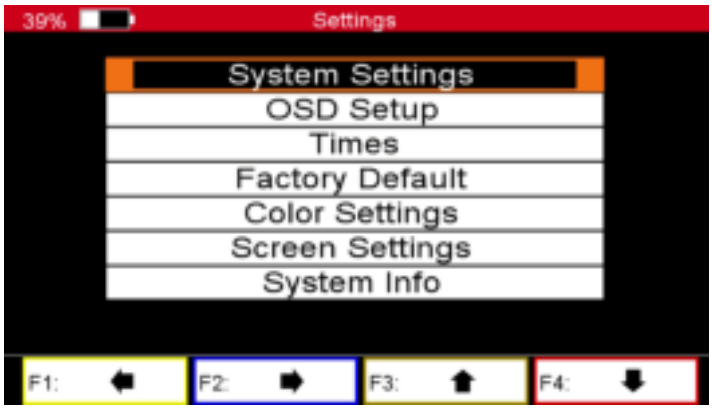


Press the SCAN button from TP mode to quickly start a DVB-S, DVB-T or DVB-C search. The mode supports a quick search function as well as a detailed blind search.

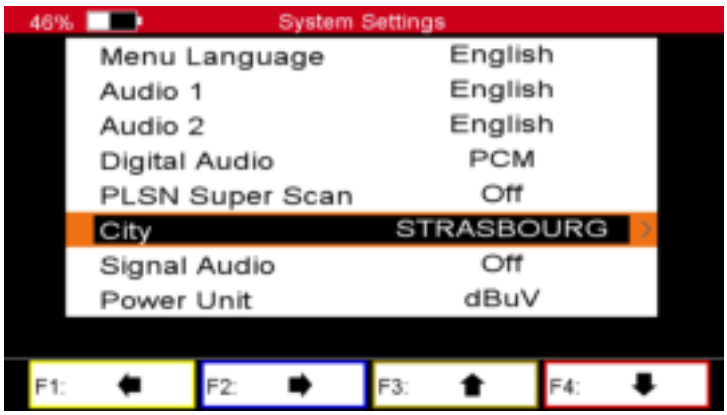
Parameters and advanced menus of the meter

Parameters

The basic UPM 1400 meter settings are set in the **Settings** sub-menu of the menu.



System settings - Sets basic parameters such as language, sound signal, unit of measurement, etc.
An extremely interesting parameter in this menu is the “city”.



We have filled in the channels (R1 to R6) of some French DTT transmitters serving the main French cities. By selecting the city closest to where you are doing your terrestrial measurements, the 6 channels will be pre-selected and displayed during the terrestrial measurement – see chapter 6.1.

Warning: 45 transmitters have been memorized, if your town is not on this list, the spectrum mode is the one that will allow you the most easily to identify the channels received on your reception site.
If you have selected your city, the channels will appear in the “Terrestrial, TP search” menu, starting with the lowest frequency multiplex. Using the “< / >” cursors will allow you to move to the next/previous multiplex.

OSD Adjustment - sets video formats and aspect ratio
Clock - time and date settings, automatic sleep timer
Reset – allows you to reset the device or program list
Color settings - explicitly changes display settings for TV mode
Display settings - change display settings for all other modes
System Info - displays the software and hardware configuration of the meter.

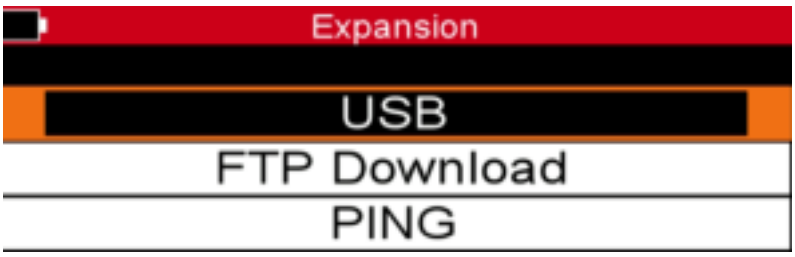
Reset

The device can be reset to factory settings via the reset menu or the various channel lists can be reset. Selecting “All” resets the device and all settings to delivery state.



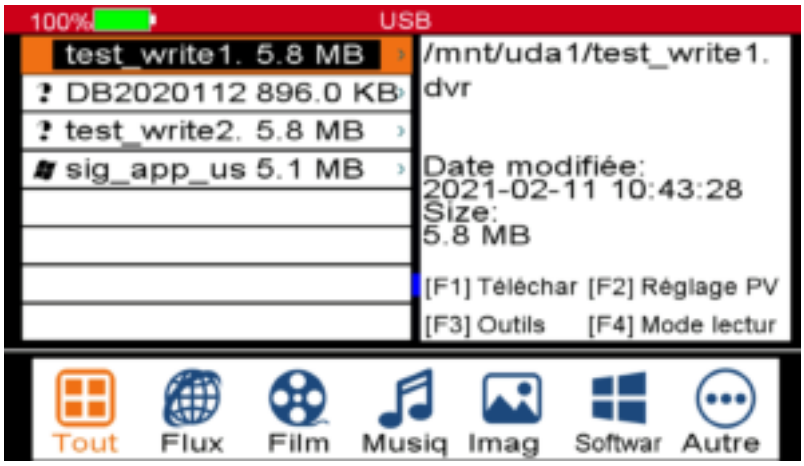
Advanced

The **Advanced** submenu provides access to connected USB storage media and network functions.



USB - opens the storage medium directory
IP Settings - displays network information when the device is connected to a network
Download FTP - allows connection to an FTP server to download software - not used
PING - allows network addresses to be tested to verify connection

The screenshot below shows the directory of a connected USB storage device.



Updating the UPM 1400 software

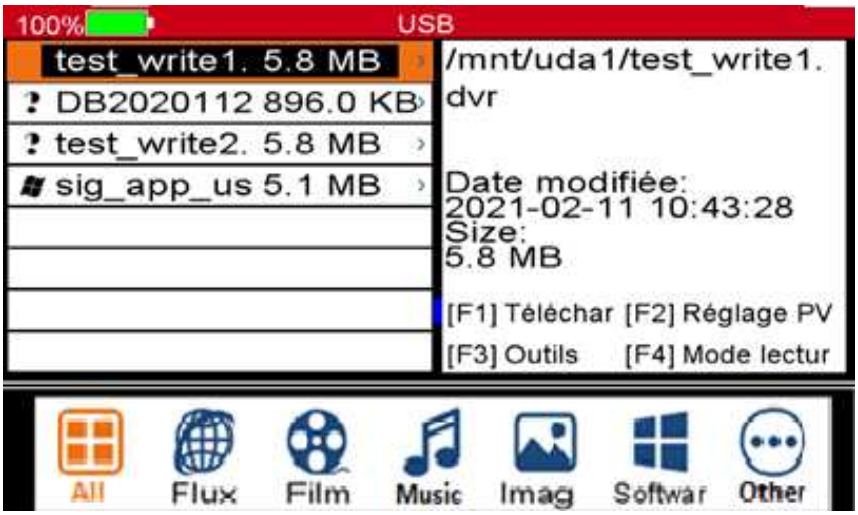
User should regularly check the availability of firmware updates for the UPM 1400.
This can be updated in just a few steps using a USB storage medium with the corresponding update file. You can get software updates from the UPM 1400 page on our website Internet www.triax.fr .

Update procedure:

- Turn on the UPM 1400 and wait for it to boot up completely
- Connect the USB storage medium, after a short while a message appears at the "USB Connected" screen
- Open the USB media directory in "Main Menu/Advanced/USB"
- With the Up/Down cursors, select the update file and confirm with the OK button
- A message appears, confirm the update action and press OK
- The device is now running the update process
- After the device restarts, do a factory reset in "Main Menu/Settings/Reset/All"

Never turn off the meter during the update process! This can lead to irreparable damage to it!

The figure below shows the USB storage directory and the update file.
The file name always consists of the device name, version number and date. The file extension of the software file is always ".bin"!



Additional information

Image reproduction of an external audio/video signal

The UPM 1400 offers the possibility of displaying images from an external AV signal. For example, the menu of a headend can be displayed to perform programming.

To do this, connect the supplied AV/DC cable to the AV IN/DC OUT socket of the UPM 1400 and to the signal source.





By pressing the AV/TV button, the device enters AV playback mode

Technical datasheet

Display	**Type**	5“ TFT
	Resolution	480*800
Control signals and voltages	**Satellite**	13V,18V, LNB Test12V-20V in 0,2V increments
	22KHz	Auto, On, Off
	DiSEqC	DiSEqC1.0/1.1/1.2
	Terrestre	5V, 12-24V
Frequency bands	**Satellite**	950 MHz - 2150MHz
	Terrestre & Cable	50 MHz - 860 MHz
Video	**Decoder**	MPEG1, MPEG-2 MP@ML, H.264, VC1, DV, MPEG-4, H.265 (1080p@60fps)
	Screen format	16:9, 4:3, Pan & Scan, Letter Box
	Video Format	PAL/NTSC
	Resolution	480p, 480i, 576p, 576i, 720p, 1080i, 1080P(HDMI)
Audio	**Decoding**	MPEG-2 layer I et II (Music cam), MPEG4 AAC, E-AAC, Dolby Digital (AC-3)
	HDMI	Mono, Dual Channel, Stéréo, Joint Stéréo
Hardware	**Flash memory**	8 MB
	RAM memory	2 GB
Dimensions (H x L x P)		145 x 220 x 50 mm

Notes

Information and Manuals

Informationen und Bedienungsanleitungen:
Information and Manuals:
Information og brugervejledninger:
Information och manualer:
Informations et modes d'emploi:
Información y manuales:
Lisätietoja ja oppaita:
Információk és útmutatók:

triax.com/support

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