
TechniSat®

DIGITAL

DAS ORIGINAL

Field strength Meter DigiMeter M3



**Professional field strength Meter with
four digital Modulations**

DVB-S, DVB-S2, DVB-C, DVB-T

Thank you, that you have chosen our DigiMeter M3.

We hope you are satisfied with your decision, but if you do have any problem or Suggestions which could lead to an improvement of our field strength meters please write to

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Kunden- und Logistikzentrum
St. Laurentiusstraße 45

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www.technisat.com

**Attention before you start the first time, do not forget to charge the
Battery !!!!!
Charging time approx. 6 .. 8 hours.**

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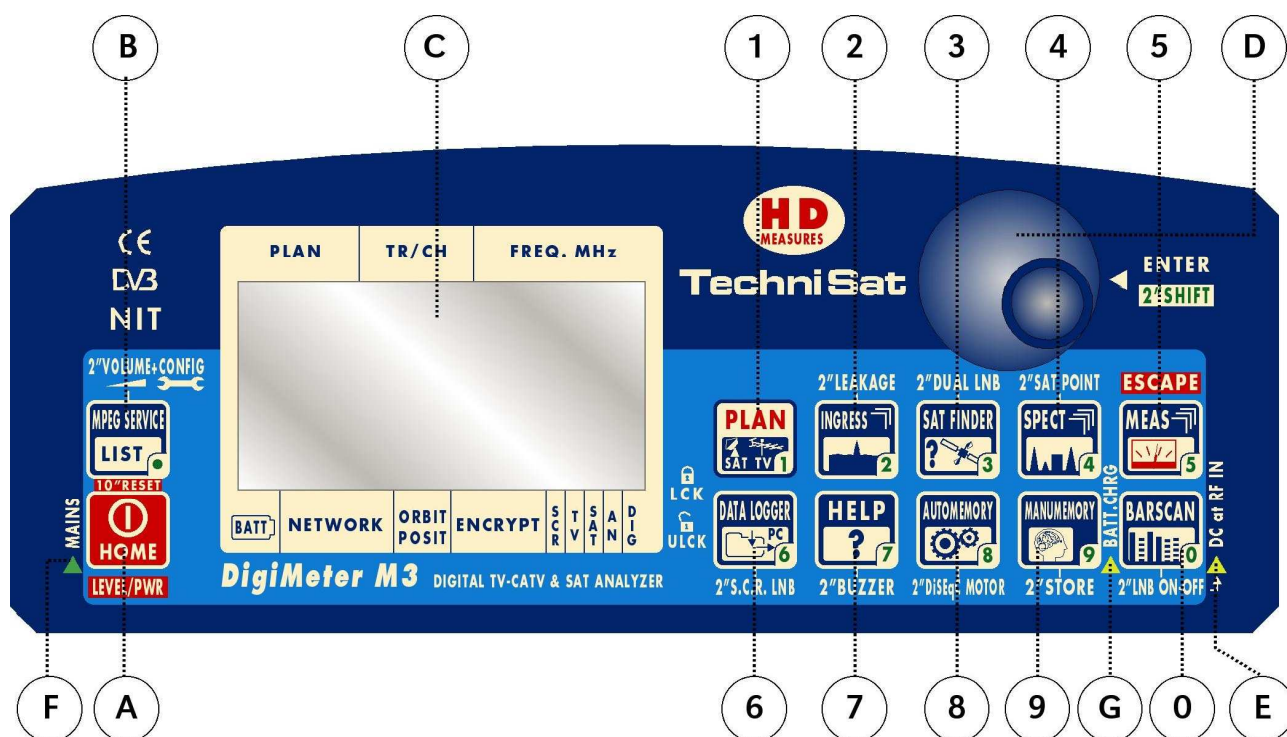
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OVERVIEW

1 FRONT PANEL & KEYBOARD DESCRIPTION

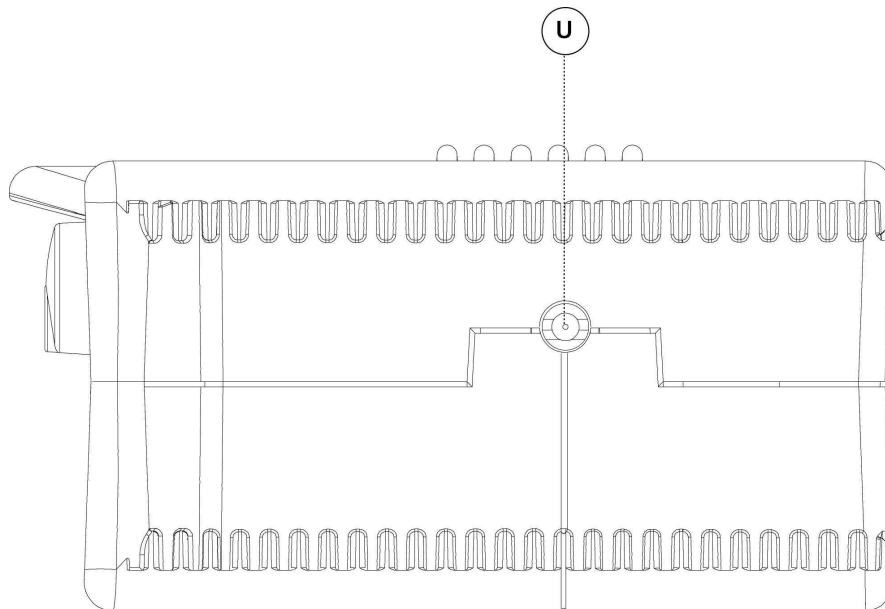


	MAIN FUNCTION	SECONDARY FUNCTION (press and hold for 2s)	Bloc Num
A	Main switch (ON/OFF)	Level/Ch. Power meas. (press once) RESET (press and hold for 10")	
B	MPEG SERVICE LIST	Setup menu configuration key	.
C	Graphic Display LCD		
D	Select (rotate) and confirm (press)	Direct Frequency Input	
E	RF feed LED indicator		
F	External Power supplier/adaptor LED indicator		
G	Built-in battery CHARGE IN PROGRESS		
1	PLAN (channel plan, memory plan)		1
2	INGRESS MODE	LEAKAGE	2
3	SAT FINDER	DUAL LNB	3
4	SPECT	SAT POINT	4
5	MEAS (activates the measurements options)	ESCAPE	5
6	DATA LOGGER	S.C.R. LNB	6
7	HELP (automatic identification of the satellite/signal)	BUZZER (antenna pointing aid)	7
8	AUTOMEMORY (automatic search and storage)	DiSeqC MOTOR	8
9	MANUMEMORY (manual storage)	STORE	9
0	BARSCAN	Enable/Disable the RF power feed	0

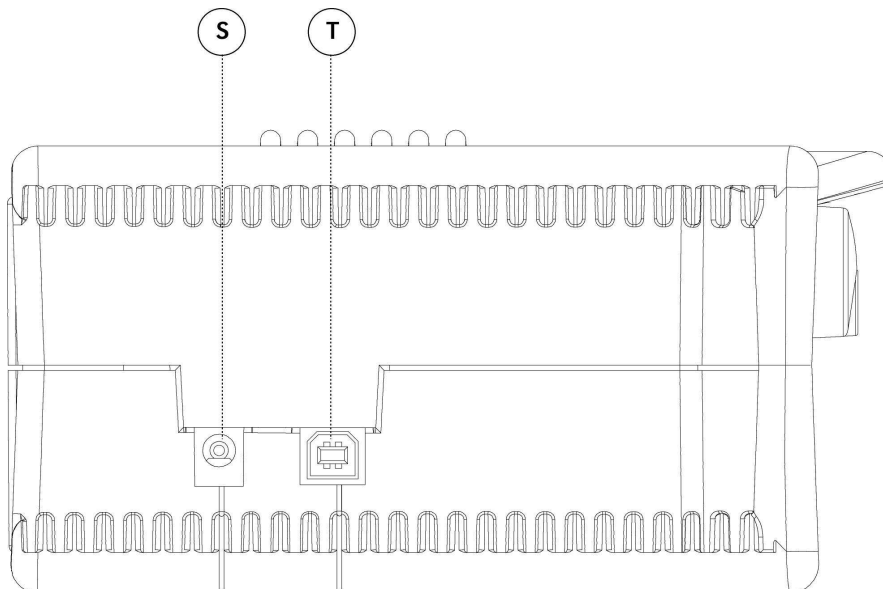
The keys labeled through a number can also be used for direct frequency input.

2 SIDE BODYPANELS

2.1 RIGHTSIDE BODYPANEL



2.2 LEFTSIDE BODYPANEL



S	External power supply
T	USB socket
U	RF connector, type "F", 75 ohm

SPEEDY MEASUREMENTS ?

The DIGIMETER M3 is a really complete instrument: you will be able to perform a wide variety of measurements on an extensive range of frequencies and of signal kinds.

This user manual will guide you throughout all the functionalities of your meter.

Should you need a brief shortcut to manage a specific kind of signal, please refer to the content of this paragraph.

3 ONE TOUCH AND GO

3.1 ANALOGUE TV, DIGITAL (COFDM) TV AND QAM (CATV) SIGNALS

- 1 Connect the signal cable to the F-type connector [U] on the meter.

- 2 Press once and release the PLAN  [1] key. Highlight the item TELEVISION and select the proper Country Channel Plan.

- 3 Press once and release the MEAS  [5] key.

- 4 Rotate the encoder [D] to navigate the selected Country Channel Plan. The AUTODISCOVERY ® feature will automatically detect the signal type (analogue, digital, QAM, ...) as well as the related parameters (bandwidth, symbol rate, ...) and will properly tune it.

- 5 Press and release the MEAS  [5] key to display the various measurements screens. Each pulse on the MEAS [5] key will display a further measurement screen, on a round-robin basis.

3.2 ANALOGUE SATELLITE SIGNALS, DIGITAL QPSK & 8PSK SATELLITE SIGNALS

- 1 Connect the signal cable to the F-type connector [U] on the meter.

- 2 Press once and release the PLAN  [1] key. Highlight the item SATELLITE and select the required Satellite.

- 3 Press once and release the MEAS  [5] key.

- 4 Rotate the encoder [D] to surf the various transponders of the selected satellite. The AUTODISCOVERY ® feature will automatically detect the signal type (analogue, digital, ...) as well as the related parameters (bandwidth, symbol rate, ...) and will properly tune it.

- 5 Press and release the MEAS  [5] key to display the various measurements screens. Each pulse on the MEAS [5] key will display a further measurement screen, on a round-robin basis.

3.3 FM / FM RADIO SIGNALS [87,5 – 108 MHz]

- 1 Connect the signal cable to the F-type connector [U] on the meter.
- 2 Press once and release the PLAN  [1] key. Highlight the item MANUAL MEMORY and select one of the MANU Memory Plans.
- 3 Press once and release the MEAS  [5] key.
- 4 Rotate the encoder [D] and select a channel where no signal or an Analogue TV signal is received.
- 5 Press and release repeatedly the MEAS  [5] key up to display the main Audio peak level measurement screen.
- 6 Using the Standard navigation Mode, highlight the tuned signal type (TV ANALOG / TV COFDM DVB-T/H) and select the item FM RADIO.
- 7 Rotate the encoder [D] and select the desired frequency. The signal level is displayed and the received audio signal can be listened through the meter built-in loudspeaker

3.4 SPECTRUM ANALYZER FEATURE (ANY FREQUENCY)

- 1 Connect the signal cable to the F-type connector [U] on the meter.
- 2 Tune the desired frequency (no matter if TV or Satellite).
- 3 Press once and release the SPECT  [4] key to display the spectrum of the current signal.

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4 TURN THE METER ON



Press and release the HOME [A] key.

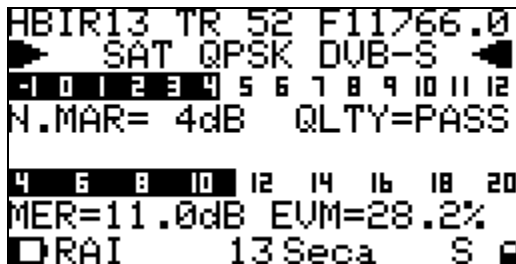
5 TURN THE METER OFF



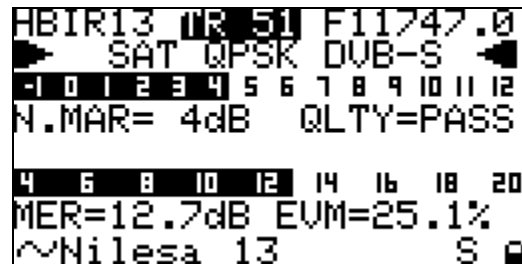
Press and hold for 2" the HOME [A] key.

6 CHECK THE BATTERY CHARGE STATUS

When the meter is on, at the bottom left corner of the LCD display [C] an icon will show the current power source of the meter: built-in battery or mains external feed.



Build-in battery feed



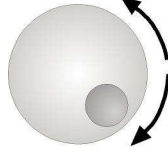
Mains external feed

Connect the supplied AC adaptor or the supplied cigarette lighter adaptor to the [S7] inlet (located on the left side of the meter) to recharge the built-in battery. When the meter is connected to an external power supply, the LED indicator [F] (located on the meter front panel) turns on. When the external power connection is suitable to re-charge the built-in battery, the LED indicator "CHARGE" [G] (located on the meter front panel) also turns on. When the meter is off, but it is still connected to an external power supply, the built-in battery fast charge mode is activated, and the LED indicators [F] and "CHARGE"[G] turn on brighter.

Don't leave the instrument in LOW BATTERY conditions (1/4 charge or less) for more than 2 months to preserve the capabilities of the built-in battery. Should the instruments be stored for longer periods, it is required to periodically charge its battery.

7 THE ENCODER – STANDARD NAVIGATION MODE

Navigate into the various functions and menus of the DIGIMETER M3 is quick and easy. A



multi-function continuous encoder

[D] allows the user to surf all the meter functions, easily selecting the required function and quickly setting the desired values, by simply rotating and pressing the encoder itself. Thanks to the ergonomic design of the encoder knob just one hand is required.

When an item in the LCD [C] is black-highlighted, rotating the encoder [D] one step clockwise will highlight the next item; rotating the encoder [D] one step counter-clockwise will highlight the previous item.

Once black-highlighted the desired item, press and release the encoder knob, and the black highlight will start blinking. When the black highlight is blinking, rotating the encoder [D] one step clockwise will raise the value of the selected (highlighted) item; rotating the encoder [D] one step counter-clockwise will decrease the value of the selected (highlighted) item. Once set the appropriate value, just press and release the encoder knob, and the black highlight will stop blinking, allowing you to move to a different item by simply rotating the encoder knob.

These features will from now on be referred to as “Standard Navigation Mode”

8 METER CONFIGURATION

2" VOLUME+CONFIG



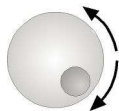
Press and hold for 2s the MPEG SERVICE LIST [B] key.

```
METER CONFIGUR. MENU
- VOLUME : 20%
- METER SETUP
- TV CONFIG.&COUNTRY
- SAT CONFIG.
- FILE MANAGER
- LEAKAGE SETUP
- ATT&IFsim TEST
```

8.1 METER LOUDSPEAKER VOLUME SETUP

Using the Standard Navigation Mode, highlight the item VOLUME and adjust the volume level of the built-in loudspeaker: you can highlight one level among: 0% (loudspeaker off), 20%, 40%, 60%, 80%, 100% (max. volume).

8.2 METER SETUP



Rotate the encoder [D] to highlight the item METER SETUP.
Press the encoder [D] to enter the meter setup menu.

```
METER SETUP MENU
TIMER OFF : OFF
UNIT : dBuV
LANGUAGE : ENGLISH
KEYS BEEP : LOW
DISP.LIGHT: Full ON
```



⦿ BATTERY SAVING – SELF POWER OFF (TIMER OFF)

If no key of the meter is pressed within the self power off time herein sat, the meter automatically turns itself off in order to save battery life. To set up the auto power off time, rotate the encoder [D] to highlight the item TIMER OFF, then press it. The black icon which highlights the item POWER OFF starts blinking. Rotate the encoder [D] and select: OFF (meter always on), 5 min (meter turns off in 5 minutes), 10 min (meter turns off in 10 minutes). OFF (meter always on). Press the encoder [D] to enter your selection.

⊙ FIELD AND CHANNEL POWER MEASUREMENT UNIT

Using the Standard Navigation Mode, highlight the item UNIT and select the requested measurement unit: dBm, dBmV (dBmillivolt) dBuV (dBmicrovolt)

⊙ LANGUAGE

Using the Standard Navigation Mode, highlight the item LANGUAGE and select the required language. In some releases of the meter English language only might be available.

⊙ KEYS BEEP

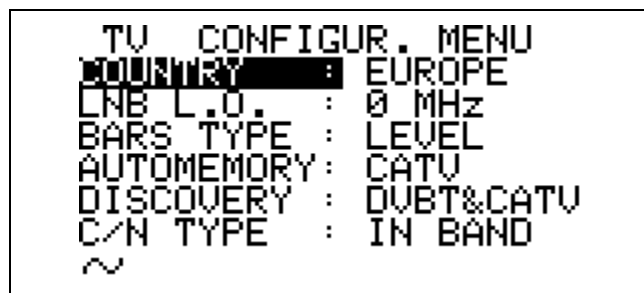
Using the Standard Navigation Mode, highlight the item KEYS BEEP and select the desired keys beep volume: OFF, LOW, MEDIUM, HIGH (max.).

⊙ DISPLAY BACKLIGHT

If no key of the meter is pressed within the backlight power off time herein sat, the display backlight automatically turns itself off in order to save battery life.
To set up the auto backlight power off time, highlight the item DISP.LIGHT using the Standard Navigation Mode, then select FullON (backlight always on) or 30 sec (backlight turns off within 30 sec).

8.3 MAIN RECEPTION PARAMETER SETUP

Using the Standard Navigation Mode, highlight the item TV CONFIG.& COUNTRY.
Press the encoder [D] to enter the reception parameters setup menu.



⊙ COUNTRY CHANNEL PLAN

Rotate the encoder [D] to highlight the item COUNTRY.
Press the encoder [D] once. Then, using the Standard Navigation Mode, select the relevant Country Channel Plan (for example: ITALY)

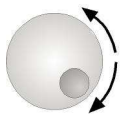
⊙ LOCAL OSCILLATOR (FREQUENCY)

Set up the appropriate local oscillator frequency value in case a frequency conversion of the received signals is required, .
Highlight the item LNB L.O. using the Standard Navigation Mode, then set the required frequency (rate) of the local oscillator. The default value is 0MHz (no frequency conversion).

⊙ RF INPUT SIGNAL TYPE (CABLE OR OFF AIR)

Using the Standard Navigation Mode, highlight the AUTOMEMORY item select the RF band, terrestrial analogue and digital, (TV ONLY) or cable (CATV).

8.4 SATELLITE RECEPTION SETUP

Rotate the encoder  [D] to highlight the item SAT CONFIG, then press it to enter the selection menu.

```

SAT CONFIGUR. MENU
LOC.OSC. : STANDARD
KU BAND  : DEFAULT
C BAND   : DEFAULT
LNB1 DiSEqC: A
LNB2 DiSEqC: B
DUAL LNB  : VARIABLE
~

```

⊙ LOCAL OSCILLATOR SETUP

Using the Standard Navigation Mode, highlight the item LOC.OSC. and select STANDARD (signal coming directly from the antenna, down-conversion required) or 0MHz(IF) (intermediate frequency signal, e.g. from a LNB).

⊙ LNB 1 ALLOWED POLARIZATION SETUP

Using the Standard Navigation Mode, highlight the item LNB1 DiSEqC and select the required polarization for the LNB1 (A=4 polarizations, B=8 polarizations, C=12 polarizations, D=16 polarizations).

⊙ LNB 2 ALLOWED POLARIZATIONS SETUP

Using the Standard Navigation Mode, highlight the item LNB1 DiSEqC and select the required polarization for the LNB2 (A=4 polarizations, B=8 polarizations, C=12 polarizations, D=16 polarizations).

⊙ SINGLE-CABLE SCR COMPLIANT LNB OR MULTISWITCH SETUP : SAT SCR MENU

This function allows the user to check and manage single cable multi-users satellite installations.

Press and hold for 2s the DATA LOGGER  [6] key. The LCD [C] will display the SAT SCR configuration menu:



○ SatSCR USER:

Using the Standard Navigation Mode, highlight the item SatSCR USER, and select the appropriate user. Up to 8 different users can be set up together with their relevant SCR frequency value.

To manually enter each frequency value, proceed as described at paragraph SatSCR FREQ at page 17. If the SatSCR USER item is set to NONE, it won't be possible to set up any frequency value.

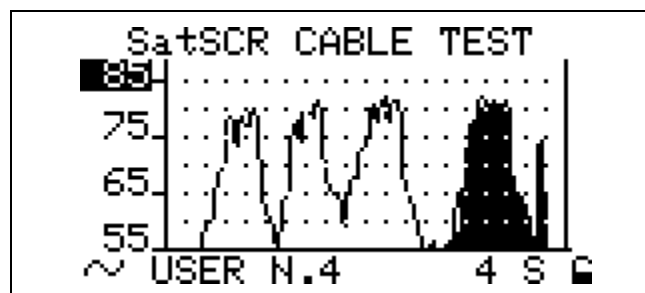
○ SatSCR FREQ:

Using the Standard Navigation Mode, highlight the SatSCR USER item and select the User whose SCR frequency value has to be set up.

Using the Standard Navigation Mode, highlight the SatSCR FREQ item and set up the required frequency value. If the SatSCR USER item is set to NONE, it won't be possible to set any frequency value.

○ SatSCR CABLE

Using the Standard Navigation Mode, highlight the item SatSCR CABLE. Then press the encoder [D] knob once and the LCD [C] will display:



The meter will perform the spectrum analysis for each user (from USER N.1 to USER N.8).

The black-filled spectrum is referred to the currently selected user; the other users' signals appears as a shape.

Using the Standard Navigation Mode, you can set up the signal level end-of-scale.

8.5 ADVANCED SETTINGS

The patented Autodiscovery feature is capable to automatically detect the standard of the tuned signal (analogue TV, DVB-T, DVB-S, QAM, ...), the relevant bandwidth as well as the appropriate Symbol Rate (where applicable). This feature allows the user to navigate any

frequency band by simply surfing the selected frequency band or by simply adjusting the frequency value to be tuned; from time to time and with no action by the user required the meter will detect the proper standard for the received signal, and will set the meter accordingly to it, together with the appropriate measurements set.

Under rare and very critical conditions (like a co-channel interference caused on a DVB-T signal by an analogue TV signal receivable on the same channel and with a comparable signal strength), the Autodiscovery system could set the meter to manage the analogue signal (the interfering one) instead of the digital one.

In these conditions it is possible to manually select the signal standard and the relevant measurements set.

⊙ MANUAL SIGNAL STANDARD SELECTION

Select a User Defined (MANU) Memory Plan, as described at Chapter 10.2 “NAVIGATE INTO THE CHANNEL PLAN (USER DEFINED CHANNEL PLAN)” at page 20. Using the Standard Navigation Mode tune the desired channel or the desired frequency value. From the channel power (or signal level) measurement screen, using the Standard Navigation Mode, highlight the signal standard (TV ANALOG / TV COFDM DVB-T/H / ...) and select the requested one. Then press the encoder [D] knob to enter your selection.



Press once and release the MEAS [5] key to quit the menu.

9 DC AT RF IN



Press and hold for 2" the 2" LNB ON-OFF [0] key to activate the DC AT RF IN function
When the DC power at RF in is on, the yellow led DC at RF IN [E] will be on.

WARNING: BEFORE ACTIVATING THE RF FEED, PLEASE CHECK WHETHER THE RECEPTION SYSTEM (ANTENNA AND ACTIVE PARTS) CONNECTED TO THE METER CAN BEAR AN RF POWER FEED.

Press and hold the BARSCAN [0] key for 2" to switch the DC at RF IN off. When the RF feed is disabled, the yellow led DC at RF in [E] will be off.

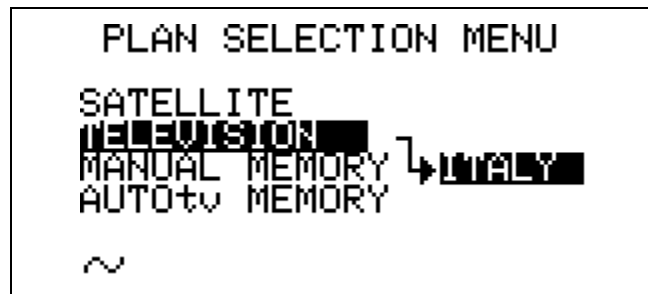
TV SIGNALS – AUDIO FM – FM RADIO SIGNALS ANALYZER

10 SIGNAL TUNING: PLAN

Connect the signal cable to the F-type connector [U] on the meter.



Press once and release the PLAN [1] key.



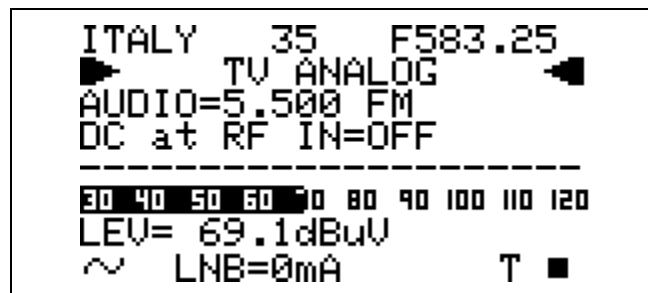
10.1 NAVIGATE INTO THE SELECTED COUNTRY CHANNEL PLAN

Using the Standard Navigation Mode, highlight the item TELEVISION.

Check the highlighted Country Channel Plan is the required one. If not, proceed as described in Chapter 8.3 MAIN RECEPTION PARAMETER SETUP at page 15.



Press once and release the MEAS [5] key.



The LCD [C] top row will display (from left to right): the selected Country Channel Plan, the channel currently tuned and the related frequency value.

Press the encoder [D] to highlight the current channel ID and rotate the encoder [D] to surf the channels. Each step of the encoder moves the channel ID one step forward or backward. To speed up the channel ID selection, rotate the encoder [D] continuously.

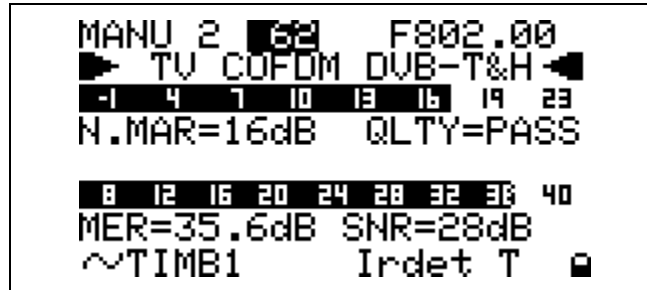
10.2 NAVIGATE INTO THE CHANNEL PLAN (USER DEFINED CHANNEL PLAN)

To create an User Defined Channel Plan, proceed as described at Chapter 15.2 "MANUALLY CREATING A MEMORY PLAN: MANUMEMORY" at page 47 .

Using the Standard Navigation Mode, highlight the item MANUAL MEMORY, then select the required channels group (MANUxx plan).



Press once and release the MEAS [5] key.



The LCD [C] top row will display (from left to right): the selected channel plan, the currently tuned channel and the corresponding frequency value.

Press the encoder [D] to highlight the current channel ID and rotate it to surf the channels within the selected memory plan. Each step of the encoder moves the channel ID one step forward or backward. To speed up the channel ID selection, rotate the encoder [D] continuously.

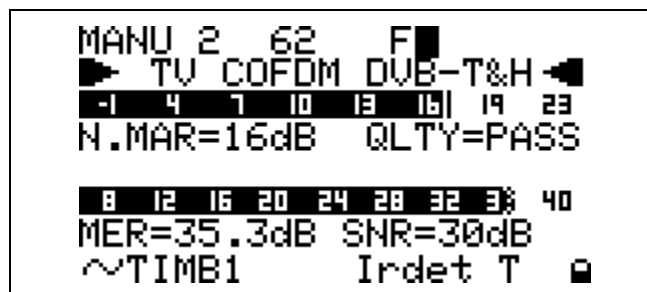
THE METER WILL TUNE ONLY THE CHANNELS INCLUDED IN THE SELECTED CHANNEL PLAN. To explore/navigate into a new user defined channel plan, press once and release the PLAN key and, using the Standard Navigation Mode, highlight the MANUAL MEMORY item to select the required channel plan.

○ FINE-TUNING THE FREQUENCY VALUE

Should you need to change the frequency value, using the Standard Navigation Mode highlight the current frequency value and set the desired frequency value (Frequency range: 45 – 878 MHz).

○ DIRECT FREQUENCY INPUT

Using the Standard Navigation Mode, highlight the current frequency value, and then press and hold the encoder knob [D] for 3". The frequency value will be reset and a black icon will appear to right of the "F" indicator.



This way, the BLOC NUM function is active. Enter the desired Frequency Value (in MHz) using the numerical keys on the front panel (as described into the chart FRONT PANEL AND KEYBOARD at page 8). To insert the comma (e.g. frequency value:

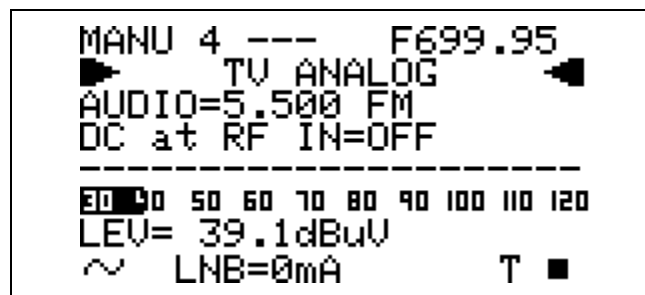
839,25 MHz), press the SAT FINDER [3] key. Once entered the desired frequency value, press the encoder knob[D] to confirm the selection.

in case the frequency value is not applicable or invalid in the TV service range (e.g. 48354 MHz), the "OUT OF RANGE" warning will be displayed and the entered value will be voided.

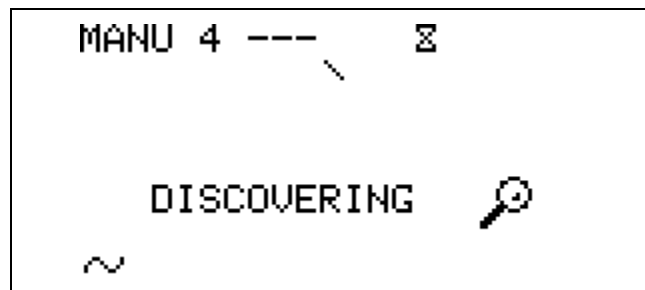
○ WHO IS THERE?AUTODISCOVERY®

Once selected or fine-tuned the desired frequency value, the meter can provide the user with the Autodiscovery® function to self-detect and tune the received signal, both analogue and digital, and to set the appropriate signal bandwidth.

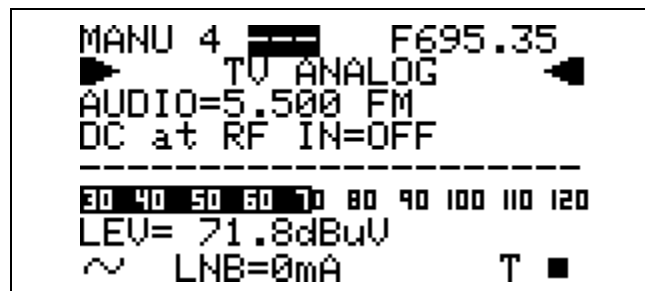
Suppose you are starting from the frequency value 699,95 MHz, which has no correspondence with any significant frequency value in any country channel plan:



Press once and release the HELP [7] key. The meter will start the Autodiscovery® process and will display a rotating bar as an "in progress" indicator.



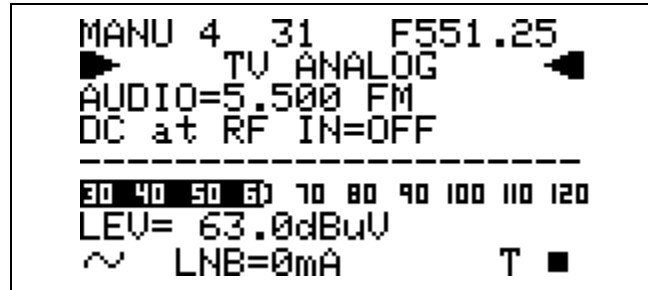
When terminated, the meter displays the Autodiscovery® results. In this case the received signal was detected as analogue TV type at 695,35 MHz (as) video carrier frequency.



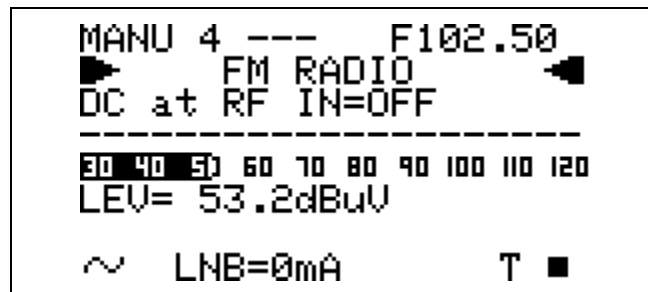
In this case the meter was receiving an on-air analogue TV signal on EU channel 49, thus corresponding to a 695,25 video carrier frequency. From the practical point of view, as well as from the end user one, the meter has correctly detected the received signal even if the start frequency (699,95) was 4,6 MHz far from the correct one.

⊙ FM /FM RADIO SIGNALS TUNING [87,5 – 108 MHz]

When in the main Audio peak level measurement screen, using the Standard navigation Mode, highlight the tuned signal type (TV ANALOG / TV COFDM DVB-T/H).



Using the encoder [D], select the item FM RADIO.



On the right handside of the F icon the tuned frequency is displayed, and the received audio signal can be listened through the meter built-in loudspeaker. Change the frequency value using the Standard Navigation Mode, or proceed as described at page 21 DIRECT FREQUENCY INPUT

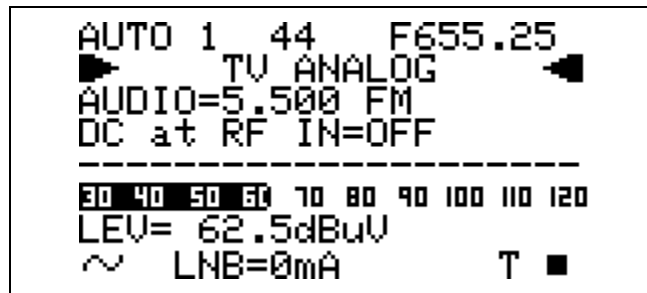
10.3 EXPLORE USER DEFINED CHANNEL

To create a channel plan (user defined list of channels), proceed as described in Chapter 15 CREATE MEMORY PLANS at page 46.

Using the Standard navigation Mode, highlight the AUTOfv MEMORY item, and press the encoder knob [D] once. The black icon of the AUTO memory plans will start blinking. Rotate the encoder [D] to select the required channel groups.



Press once and release the MEAS [5] key.



Proceed as described in Chapter 10.2 NAVIGATE INTO THE CHANNEL PLAN (USER DEFINED CHANNEL PLAN) at page 20.

11 PERFORMING MEASURES: MEAS

The DIGIMETER M3 is equipped with one LCD [C] display; at the same time, all the measurement values can be displayed on a high brightness screen and their reading is immediate and intuitive, also under direct sunlight and in any weather condition.

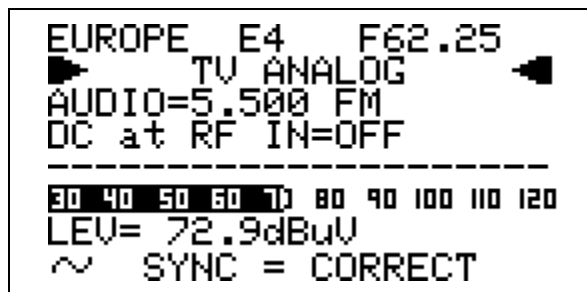
Refer to the Chapter 10 SIGNAL TUNING: PLAN at page 20 to tune the desired channel.

11.1 THE SELECTED CHANNEL CARRIERS ON AN ANALOGUE TV SIGNAL

⊙ VIDEO SIGNAL PEAK LEVEL MEASUREMENT

The LCD second row (from the top) displays "TV ANALOG".

On the bottom right side of the screen, the letter "T" will be displayed above the TV icon marked on the display frame, and a black filled quadrangle will be displayed above the AN icon marked on the display frame.

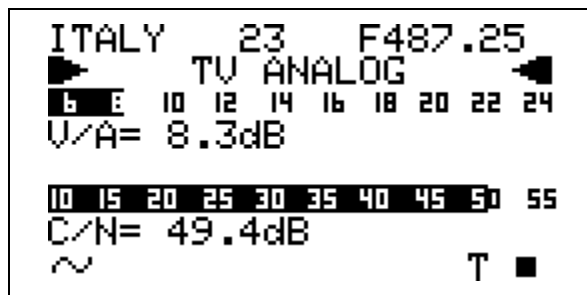


The current video signal peak level will be displayed on the bottom of the screen, together with the relevant measurement unit. The video signal peak level real time value is also displayed on a level bar with peak level memory.

The last line in the display will show the video sync status.

⊙ VIDEO Vs. AUDIO PEAK LEVEL RATIO AND SIGNAL TO NOISE RATIO

From the previous measurement screen, press once and release the MEAS [5] key. The Video Vs. Audio peak level ratio and the signal to noise ratio will be displayed.



The meter will display the Video peak level Vs. Audio peak level Ratio (V/A, in dB) and the Signal to Noise Ratio (C/N, in dB). Both the real time Ratios are also displayed on level bars with peak level memory.

By repeatedly pressing and releasing the MEAS  [5] key the above mentioned screens will appear in sequence. Press once and release the  [A] key once to directly enter the Video signal peak level measurement.

◎ SPECTRUM ANALYSIS OF THE TUNED CHANNEL

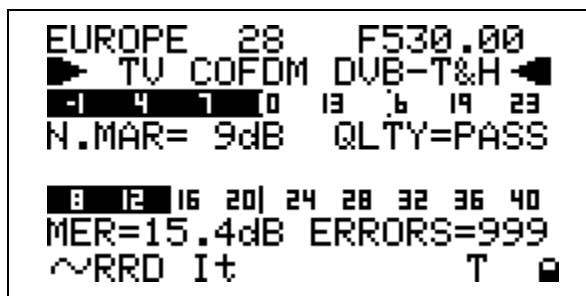
Proceed as described in Chapter 12 SPECTRUM ANALYZER MODE at page 38.

11.2 THE SELECTED CHANNEL CARRIERS ON A DTT (COFDM) SIGNAL

⊙ THE CHANNEL IS SUCCESSFULLY LOCKED (THE LOCK ON THE LCD BOTTOM-RIGHT CORNER IS CLOSED)

○ NOISE MARGIN, QUALITY TEST, MER AND ERROR COUNT MEASUREMENTS

The second row of the LCD [C] displays TV COFDM DVB-T&H.



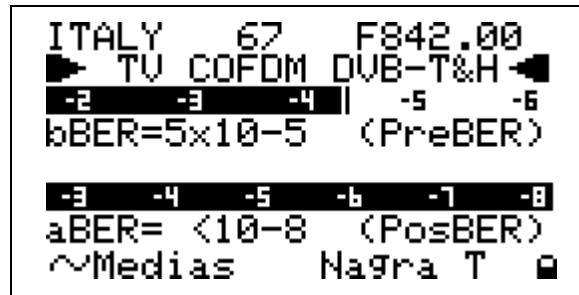
When the channel is properly locked, the first screen of the meter shows the Noise Margin value (N.MARG), the result of the real time quality test (QLTY, FAIL, MARG. and PASS), and the MER and ERROR COUNT measurements. The Noise Margin and the MER measurements are also displayed on level bars with peak level memory.

Furthermore, the bottom row of the LCD will display the main information of the tuned bouquet:

- Bouquet name (network name), after some seconds and under acceptable receiving conditions.
- Encryption system (encrypt), if there is at least one encrypted program in the bouquet, after some seconds and in acceptable receiving conditions.
- T, above the TV icon on the LCD [C] frame
- A closed lock in the bottom right corner of the LCD [C]

○ BER MEASUREMENTS BEFORE AND AFTER ERROR CORRECTION VITERBI

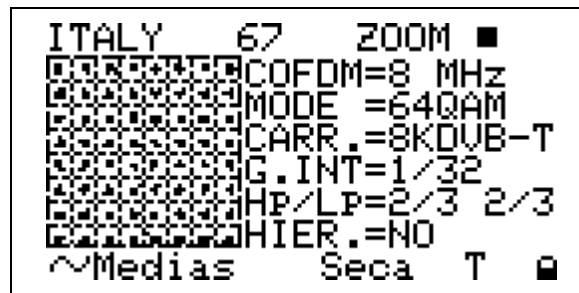
From the previous measurement screen, press once and release the MEAS [5] key once. The BER before Viterbi error correction (in this meter labeled as bBER or preBER) and the BER after Viterbi error correction (in this meter labeled as aBER or posBER) parameters will be displayed.



These measurements are also displayed on a level bar with peak level memory.

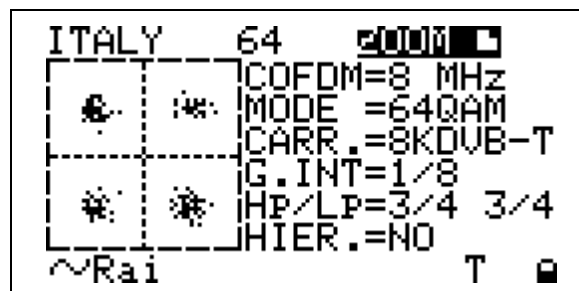
○ CONSTITUTION CHART AND OFDM PARAMETER

From the previous measurement screen, press once and release the MEAS [5] key. The constellation will be displayed together with the following parameters:



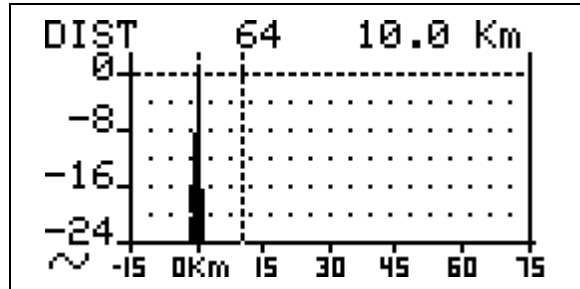
- Bandwidth of the tuned signal (COFDM)
- Modulation / Order of QAM (MODE)
- Number of Carriers and modulation system (CARR)
- Guard Interval (G.INT)
- High and Low Priority stream code rate (HP / LP)
- Hierarchic modulation mode active (HIER)

This meter allows to zoom-in the upper-right quadrant of the constellation chart. Using the Standard Navigation Mode, highlight the ZOOM item and select the zoom level: just the upper-right quadrant of the complete constellation (both I and Q positive), the top right section of the first quadrant, or the whole constellation chart.



○ IMPULSE RESPONSE OF THE SELECTED CHANNEL

From the previous measurement screen, press once and release the MEAS [5] key. The impulse response of the tuned channel will be displayed.



The meter assumes as main signal (i.e. the signal with zero delay) the “echo” with the highest level among all the detected signals.

To tune a different channel, using the Standard Navigation Mode, highlight the channel ID item and select the required channel.

WARNING: only the channels included into the Channels Plan (PLAN) in use will be displayed.

Refer to Chapter 10 SIGNAL TUNING: PLAN at page 20

To switch from the time to space domain for the echoes measurement, using the Standard Navigation Mode highlight the (DIST or TIME) item at the top of the vertical axis and select the required domain. To change the marker position, using the Standard Navigation Mode highlight the echoes position item located at the top right side of the display and sweep the marker position. The current marker position is shown on the display through a vertical dotted row.

The marker can also be moved in the negative portion of the selected domain (both time and space). Into the negative portion the echoes:

- occurring before the main signal (PRE ECHOES) and
 - whose level is below the main signal level
- can be found.

○ BOUQUET DATA ID

From the previous measurement screen, press once and release the MEAS [5] key.

```
EUROPE 34 F578.00
▶ TV COFDM DVB-T&H ◀
NETW.NAME =RRD Italy
BOUQ.NAME =
DATE =23Apr2008
SNR =19dB

~RRD It T
```

In case the tuned bouquet contains the relevant information, the LCD will display:

- the network name (NETW. NAME)
- the bouquet name (BOUQ. NAME)
- the current date (DATE), as stated in the bouquet itself
- the signal / noise ratio (SNR)

Any information missing not included in the bouquet will result in a blank field. Anyway, the signal is properly locked even when one or all of said information is missing provided that the lock at the LCD bottom right corner is closed.

○ CHANNEL POWER MEASUREMENT

From the previous measurement screen, either Press once and release the MEAS [5] key once or under any circumstance press the HOME [A] key once to enter the channel power measurement.

```
ITALY 64 F842.00
▶ TV COFDM DVB-T&H ◀
BW = 8MHz
DC at RF IN=OFF
-----
30 40 50 60 70 80 90 100 110 120
PWR= 55.0dBuV
~ LNB=0mA T
```

On the LCD bottom row, the channel power measurement, together with the relevant measurement unit will be displayed. This real time value is also displayed on a level bar with peak level memory.

WHILE PERFORMING SUCH MEASUREMENTS, THE LOCK DISPLAYED AT BOTTOM RIGHT SIDE OF THE SCREEN WILL BE OPEN. THIS IS BECAUSE THE METER EXPLORES THE WHOLE CHANNEL BAND IN ORDER TO DETECT THE TRUE CHANNELPOWER.

However in the following measurement screens, the signal will be displayed as correctly locked. All the six measurements screens above described, and related to DTT (COFDM) signals

will be cyclically displayed by repeatedly pressing the MEAS  [5] key.



Press once and release the HOME [A] key to directly switch to the channel power measurement.

○ DISPLAYING THE SERVICE LIST OF THE CURRENT BOUQUET



Press once and release the MPEG SERVICE LIST [B] key once.

PROG NAME	Vpid	Apid	Enc
Class New	514	670	N
Coming So	515	680	N
BBC World	516	690	N
Boing	517	700	N
Mediaset	301	410	Y
Mediaset	302	420	Y
~Medias	Seca	T	■

The LCD [C] will display:

- the full program list of the currently tuned bouquet;
- the relevant video (Vpid) and audio (Apid) PIDs, and
- the encryption status key (Y= encrypted, N= not encrypted/free to air).

It might take few second to get the full information displayed.

Rotate the encoder [D] to scroll down the program list (up to 64).

Press once and release the MEAS [5] key to quit to the previous measurement screen.

○ BUZZER FUNCTION (ASSISTED ANTENNA ALIGNMENT)



Press and hold for 2" the HELP 2"BUZZER [7] key. You can hear a beep whose duty cycle is proportionally to the signal Noise Margin.

This is an antenna alignment aid feature. The buzzer tone can be activated only when the received digital signal is correctly locked. The LCD [C] will display:

BUZZER FUNCTION			
ITALY	67	7842.000	
TV COFDM	DVB-T		

-1	4	7	10 13 16 19 23
N.MAR=14dB		QLTY=PASS	
~Medias	Nagra		T ■

The LCD [C] second row shows (from the left): the memory plan in use, the currently tuned channel ID and the relevant frequency value. The frequency value can be changed using the Standard Navigation Mode.

The bottom section of the display shows the Noise Margin measurement (also on a level bar with peak memory display) and the result of the signal quality test (PASS, MARGINAL, FAIL).

Press any key to deactivate the buzzer tone and to quit this function.

WARNING: the buzzer function is active only with digital signals.

It cannot be activated for analogue signals

○ SPECTRUM ANALYZER MODE

Proceed as described in Chapter 12 SPECTRUM ANALYZER MODE at page 38.

⊙ THE CHANNEL IS NOT SUCCESSFULLY LOCKED (THE LOCK ON THE LCD BOTTOM-RIGHT CORNER IS OPEN)

The meter will display as first measurement screen the channel power measurement (see the Chapter CHANNEL POWER MEASUREMENT at page 35).

The further measurement screens, related to DTT (COFDM) signals will be cyclically

displayed by repeatedly pressing the MEAS  [5] key.

From any measurement screen press once and release the HOME  [A] key to directly perform the channel power measurement.

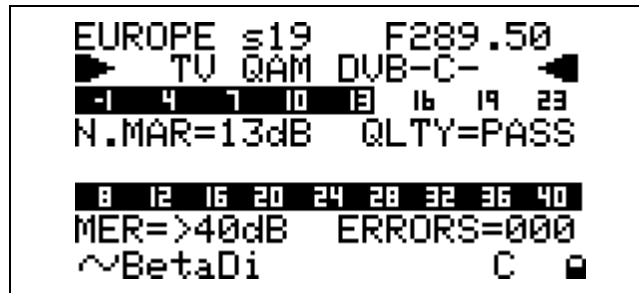
11.3 THE SELECTED CHANNEL CARRIES ON A QAM (CATV) SIGNAL

- ⊙ THE CHANNEL IS SUCCESSFULLY LOCKED (THE LOCK ON THE LCD BOTTOM-RIGHT CORNER IS CLOSED)

The Autodiscovery will automatically detect the QAM signal type. The second row of the LCD [C] displays TV QAM, together with the relevant standard (e.g.: DVB-C).

- NOISE MARGIN, QUALITY TEST, MER AND ERROR COUNT MEASUREMENTS

The second row of the LCD [C] displays TV QAM and the relevant standard.



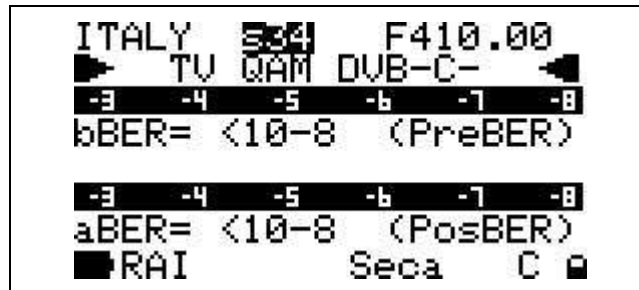
When the channel is properly locked, the first screen of the meter shows the Noise Margin value (N.MARG), the result of the real time quality test (QLTY, FAIL, MARG. and PASS), and the MER and ERROR COUNT (ERRORS) measurements. The Noise Margin and the MER measurements are also displayed on level bars with peak level memory.

Furthermore, the bottom row of the LCD will display the main information of the tuned bouquet:

- Bouquet name (network name), after some seconds and under acceptable receiving conditions.
- Encryption system (encrypt), if there is at least one encrypted program in the bouquet, after some seconds and in acceptable receiving conditions.
- C, above the TV icon on the LCD [C] frame
- A closed lock in the bottom right corner of the LCD [C]

- BER MEASUREMENTS BEFORE AND AFTER VITERBI ERROR CORRECTION

From the previous measurement screen, press once and release the MEAS [5] key once. The BER before Viterbi error correction (in this meter labeled as bBER or preBER) and the BER after Viterbi error correction (in this meter labeled as aBER or posBER) parameters will be displayed.

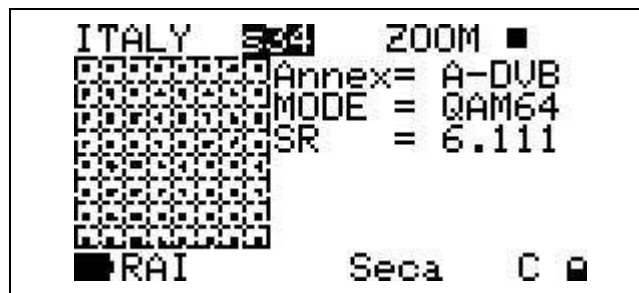


These measurements are also displayed on a level bar with peak level memory.

○ CONSTELLATION CHART AND QAM PARAMETER

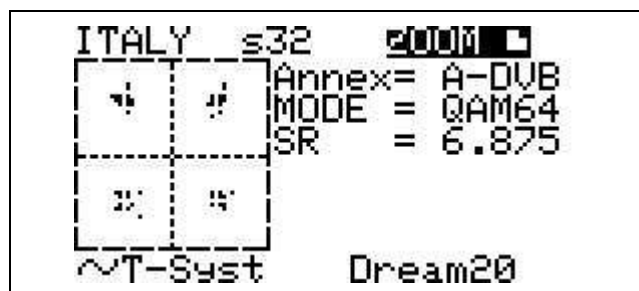
From the previous measurement screen, press once and release the MEAS [5] key.

The constellation will be displayed together with the following parameters:



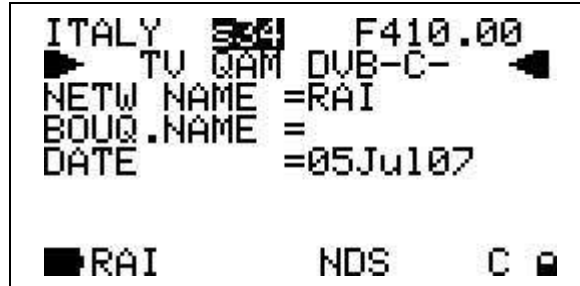
- The broadcasting standard of the tuned signal (Annex)
- The QAM modulation mode (MODE)
- The signal Symbol Rate (SR)

This meter allows to zoom-in the upper-right quadrant of the constellation chart. Using the Standard Navigation Mode, highlight the ZOOM item and select the zoom level: just the upper-right quadrant of the complete constellation (both I and Q positive), the top right section of the first quadrant, or the whole constellation chart.



○ BOUQUET DATA ID

From the previous measurement screen, press once and release the MEAS [5] key.



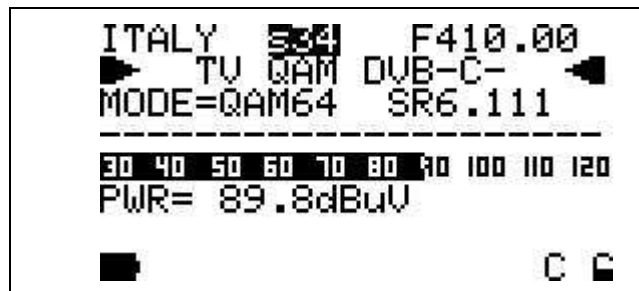
In case the tuned bouquet contains the relevant information, the LCD will display:

- the network name (NETW. NAME)
- the bouquet name (BOUQ. NAME)
- the current date (DATE), as stated in the bouquet itself

Any information missing not included in the bouquet will result in a blank field. Anyway, the signal is properly locked even when one or all of said information is missing provided that the lock at the LCD bottom right corner is closed.

○ CHANNEL POWER MEASUREMENT

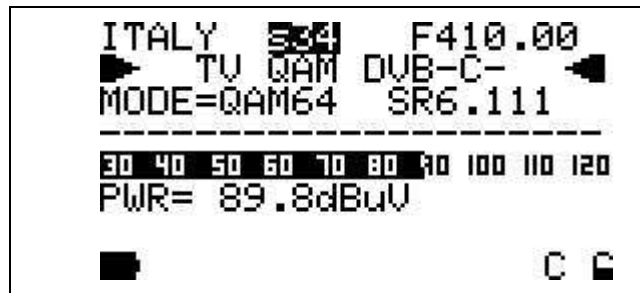
From the previous measurement screen, either Press once and release the MEAS [5] key once or under any circumstance press the HOME [A] key once to enter the channel power measurement.



On the LCD bottom row, the channel power measurement, together with the relevant measurement unit will be displayed. This real time value is also displayed on a level bar with peak level memory.

WHILE PERFORMING SUCH MEASUREMENTS, THE LOCK DISPLAYED AT BOTTOM RIGHT SIDE OF THE SCREEN WILL BE OPEN. THIS IS BECAUSE THE METER EXPLORES THE WHOLE CHANNEL BAND IN ORDER TO DETECT THE TRUE CHANNELPOWER.

From the previous measurement screen, either Press once and release the MEAS [5] key once or under any circumstance press the HOME [A] key once to enter the channel power measurement.



On the LCD bottom row, the channel power measurement, together with the relevant measurement unit will be displayed. This real time value is also displayed on a level bar with peak level memory.

WHILE PERFORMING SUCH MEASUREMENTS, THE LOCK DISPLAYED AT BOTTOM RIGHT SIDE OF THE SCREEN WILL BE OPEN. THIS IS BECAUSE THE METER EXPLORES THE WHOLE CHANNEL BAND IN ORDER TO DETECT THE TRUE CHANNELPOWER.

However in the next measurement screens, the signal will be displayed as correctly locked.

All the various measurements screens above described, and related to QAM (CATV) signals will

be cyclically displayed by repeatedly pressing the MEAS  [5] key. Press once and release

the HOME  [A] key to directly switch to the channel power measurement.

○ DISPLAYING THE SERVICE LIST OF THE CURRENT BOUQUET

Press once and release the MPEG SERVICE LIST  [B] key once.

PROG NAME	Vpid	Apid	~
Class New	514	620	N
Coming So	515	680	N
BBC World	516	690	N
Boing	517	700	N
Mediaset	301	410	Y
Mediaset	302	420	Y
~Medias	Seca	T	■

The LCD [C] will display:

- the full program list of the currently tuned bouquet;
- the relevant video (Vpid) and audio (Apid) PIDs, and
- the encryption status key (Y= encrypted, N= not encrypted/free to air).

It might take few second to get the full information displayed.

Rotate the encoder [D] to scroll down the program list (up to 64).

Press once and release the MEAS [5] key to quit to the previous measurement screen.

○ SPECTRUM ANALYZER MODE

Proceed as described in Chapter 12 SPECTRUM ANALYZER MODE at page 38.

⊙ THE CHANNEL IS NOT SUCCESSFULLY LOCKED (THE LOCK ON THE LCD BOTTOM-RIGHT CORNER IS OPEN)

The meter will display as first measurement screen the channel power measurement (see the Chapter CHANNEL POWER MEASUREMENT at page 35).

The further measurement screens, related to DTT (COFDM) signals will be cyclically

displayed by repeatedly pressing the MEAS  [5] key.

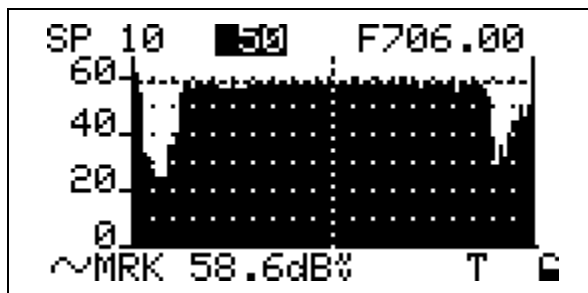
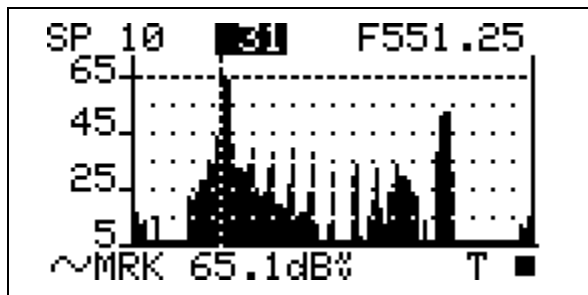
From any measurement screen press once and release the HOME  [A] key to directly perform the channel power measurement

12 SPECTRUM ANALYZER MODE



Press once and release the SPECT [4] key to display the spectrum of the current signal.

In case the tuned signal is analogue, the marker will be positioned by default on the frequency value corresponding to the analogue Video signal peak level. The relevant level is displayed in the LCD bottom row (MRK), together with the relevant measurement unit.



12.1 SURFING THE CHANNELS

Using the Standard Navigation Mode, highlight the currently tuned channel ID, then select the desired channel ID.

WARNING: only the channels included into the channel plan (PLAN) currently in use will be displayed.

Refer to Chapter 10 SIGNAL TUNING: PLAN at page 20

12.2 MOVING THE MARKER (FREQUENCY VALUE)

Using the Standard Navigation Mode, highlight the frequency item, then move the marker position (current frequency value).

The meter LCD will at any time display the current frequency value (first row, top right) and the relevant signal level measurement (bottom row, MRK).

12.3 EDITING THE SIGNAL LEVEL END OF SCALE

Using the Standard Navigation Mode, highlight the top level (end of scale) value on the y-axis, then select the desired end of scale value.

12.4 EDITING THE SPAN VALUE

Using the Standard Navigation Mode, highlight the span (SP) value. Then select the desired span value. Only pre-defined span values (from 2 MHz to FULL) can be set. No fine adjustment is possible.

12.5 ACTIVATE THE MAX HOLD FUNCTION

Press once and release the SPECT [4] key. The MaxH icon will be displayed on the bottom row in correspondence with the "ENCRYPT" item on the right edge of the display. Press once and release the SPECT [4] key again to quit the MaxHold function.

12.6 FULL BAND MAPPING

The meter can display a bar diagram in which each bar displays the signal level detected on a specific channel into the whole selected frequency band. The bar diagram, the marker, and the display bottom row can display several parameters, depending on the meter configuration.

⊙ FULL BAND MAPPING DISPLAY CONFIGURATION

Press and hold for 2" the MPEG SERVICE LIST [B] key. Using the Standard Navigation Mode, highlight the TV CONFIG.& COUNTRY item, then press the encoder knob to enter the configuration menu. Using the Standard Navigation Mode, highlight the BARS TYPE item and select the required display mode as described below.

○ SIGNAL LEVEL / CHANNEL POWER DETECTED INTO EACH CHANNEL (BARSCAN)

Using the Standard Navigation Mode, select the LEVEL item. Each bar will display the real time video signal peak level (analogue signals) or the real time channel power (digital signals) detected in the corresponding frequency channel.

○ AUDIO AND VIDEO PEAK LEVEL DETECTED INTO EACH CHANNEL

Using the Standard Navigation Mode, select AUD/LEV. Each bar will display at the same time the real time audio peak level and the real time video peak level measured in the corresponding channel. This display mode make sense only when performed on analogue signals.

○ SIGNAL LEVEL COMPARISON (TILT) BETWEEN TWO USERS-DEFINED CHANNEL

Using the Standard Navigation Mode, select TILT. The meter will display the signal level difference between two user-defined channels. These two channels can be

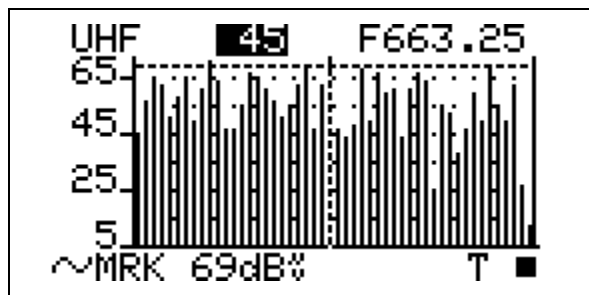
directly set while this measurement function is active.

④ **ACTIVATE THE FULL BAND MAPPING**

Select one channel ID in the band (VHF, UHF, or CATV) to be analyzed (refer to Chapter 12.1 SURFING THE CHANNELS at page 38).

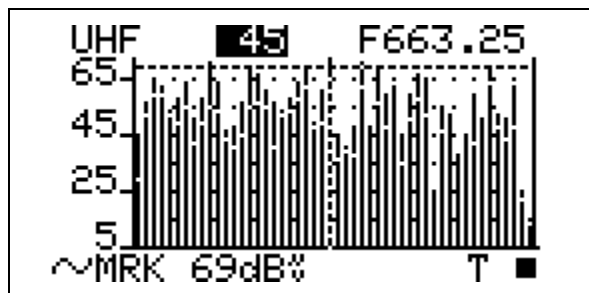
Press once and release the BARSCAN  [0] key. Depending on the selected configuration a specific bar diagram will be displayed.

○ FULL BAND SIGNAL LEVEL ANALYSIS IN EACH CHANNEL (LEVEL)



The marker (the vertical dotted line) is positioned on the channel which is currently displayed in the centre field of the LCD top row and whose frequency is displayed in the LCD top right edge. The LCD bottom row displays the signal level measured in the currently selected channel (MRK) together with the measurement unit currently set for the meter. An horizontal dotted line shows the real time signal level value measured in the currently selected channel.

○ FULL BAND AUDIO AND VIDEO PEAK LEVEL ANALYSIS INTO EACH CHANNEL (AUD/VID)



Each black bar will contain a white pixel in it.

The overall height of each bar displays the video peak level measured in the relevant channel.

The height of the bar segment between the x-axis and the above white pixel displays the audio peak level measured in the relevant channel.

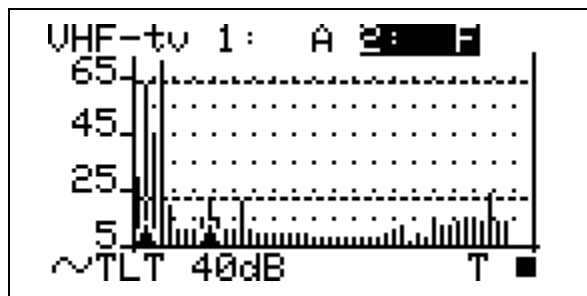
The marker (the vertical dotted line) is positioned on the channel which is currently displayed in the centre field of the LCD top row and whose frequency is displayed in

the LCD top right edge. The LCD bottom row displays the video peak level measured in the currently selected channel (MRK) together with the measurement unit currently set for the meter. An horizontal dotted line shows the real time video peak level measured in the currently selected channel.

This measure makes sense when performed on analogue signals only.

○ FULL BAND SIGNAL LEVEL COMPARISON BETWEEN TWO USER-DEFINED CHANNELS (TILT)

Two triangle - shaped markers on the x-axis locate the two channels whose signal level is under comparison.



Each bar displays the signal level measured in the relevant channel.

The LCD top row displays the two channels (1: and 2:) whose signal level has to be compared. The LCD bottom row displays (TLT, tilt) the difference between the signal level value measured in channel 1: and the one measured in channel 2:

To select the channels whose signal level has to be compared, using the Standard Navigation Mode highlight the channel (1:A; 2:F) to be edited. Then rotate the encoder [D] to select the desired channel.

QAM CATV SIGNAL ANALYZER

13 TUNING QAM CATV SIGNALS

The patented Autodiscovery feature is capable to automatically detect both the modulation type and the standard of the received signal. Thus no need for the user to operate any specific setup in order to perform measurements on CATV signals, both analogue and digital (QAM) ones.

To perform measurements on QAM signals just procede as described in Chapter 0 “

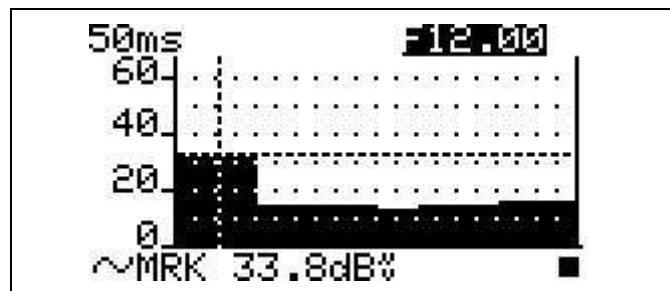
THE SELECTED CHANNEL CARRIES ON A QAM (CATV) SIGNAL

” at page 33.

14 CABLE SYSTEM MEASUREMENTS

14.1 INGRESS MODE (MEASUREMENTS ON THE FREQUENCY RANGE 4 ÷ 66 MHz)

Press and release the INGRESS  [2] key to enter the Ingress Mode.
The LCD will display the real time spectrum monitoring in the frequency band 4 ÷ 66 MHz.



A dotted vertical line (marker) displays the frequency value whose signal level is currently displayed in the LCD bottom row (MRK) together with the relevant measurement unit. In the top right edge the LCD displays frequency value corresponding to the current marker position (E, highlighted in the above screenshot, in MHz) An horizontal dotted line shows the real time signal level value at the current marker position (current frequency value).

⊙ MOVING THE MARKER (FREQUENCY VALUE)

Using the standard navigation mode, highlight the current frequency value and modify the marker position (current frequency value). The meter displays will at any time display the current frequency value (first row, top right) and the relevant signal level measurement (bottom row, MRK). **Please note: while in INGRESS Mode you cannot set up a specific frequency using the Direct Frequency input**

⊙ EDITING THE SWEEP TIME

Using the standard navigation mode, highlight the sweep time on the display top left corner of the y-axis. and select the desired sweep time. Only pre-defined sweep times (from 50 ms to 50 s) can be set.

⊙ EDITING THE END-OF-SCALE VALUE

Using the standard navigation mode, highlight the end-of-scale value and select the desired value

⊙ SETTING THE START FREQUENCY AND THE STOP FREQUENCY IN INGRESS MODE

Once entered the INGRESS MODE, press and release the INGRESS [2] key.



○ SETTING THE START FREQUENCY

Using the Standard navigation mode, highlight the Start F.: item and set the desired Start Frequency value.

○ SETTING THE STOP FREQUENCY

Using the Standard navigation mode, highlight the Stop F.: item and set the desired Stop Frequency value.

○ INGRESS MODE MAX HOLD ON/OFF

Using the Standard Navigation Mode, highlight the Hold item and select Enable or Disable.

Press once and release the INGRESS [2] key to return to the INGRESS MODE.

14.2 CABLE LEAKAGE MEASUREMENTS

⊙ LEAKAGE SETUP

Press and hold for at least two seconds the MPEG SERVICE LIST [B] key. Using the Standard Navigation Mode highlight the LEAKAGE SETUP item and press the encoder [D] knob to enter the setup menu.

Press once and release the MEAS [5] key to quit the CABLE LEAKAGE setup menu.



○ AREA AND MEASUREMENT UNIT STANDARD SETUP

Using the Standard Navigation Mode highlight the field AREA and select the appropriate area. The meter will then accordingly set the appropriate measurement units and antenna sets

○ ANTENNA TYPE SETUP (USA ONLY)

Using the Standard Navigation Mode highlight the field ANT.TYPE and select the appropriate antenna type in use.

○ ANTENNA FACTOR SETUP

Using the Standard Navigation Mode highlight the field ANT.FACT. and select the appropriate antenna factor.

○ DISTANCE SETUP

Using the Standard Navigation Mode highlight the field DISTANCE and set the appropriate distance according to the cable network on test.

○ THRESHOLD SETUP

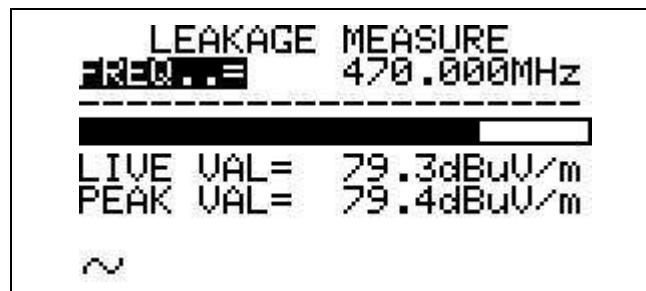
Using the Standard Navigation Mode highlight the field THRESH and set up the appropriate threshold value expressed in the measurement unit which is currently displayed by the meter.

⊙ PERFORMING CABLE LEAKAGE MEASUREMENTS

2"LEAKAGE

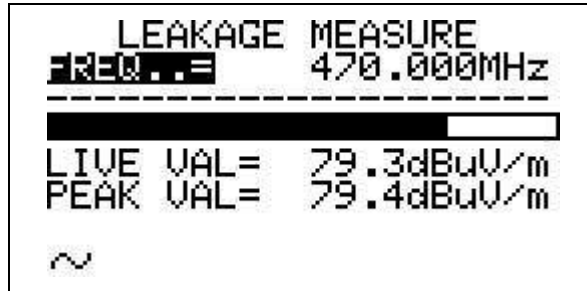


Press and hold for at least 2s the INGRESS [2] key to activate a cable leakage measurement session using the parameters set up as per Chapter LEAKAGE SETUP at page 43.



Use the Standard Navigation Mode to edit the test frequency. The meter will display both the real time cable leakage factor (LIVE VAL) and the maximum leakage factor detected during the same measurement session (PEAK VAL). A measurement session does NOT get stopped when editing the test frequency, therefore the PEAK VAL displays the maximum value of the cable leakage factor detected by the meter on all the test frequencies set on the meter by the user while performing the same measurement session.

Press and release the MEAS [5] key to stop the current measurement session; this will also quit the Cable Leakage measurement.



MEMORY FEATURES FOR TV (ANALOGUE, COFDM, QAM) AND FM RADIO SIGNALS

15 CREATE MEMORY PLANS

15.1 CREATING A MEMORY PLAN BY AUTO SEEK & STORE OF ANY RECEIVABLE CHANNEL: AUTOSCAN

Press once and release the AUTOMEMORY  [8] key.



```
AUTOTV MEMORY MENU
FROM PLAN: EUROPE
VIDEO FILE N: AUTO 1
LEVEL      : > 55 dBuV
POWER      : > 45 dBuV
DISCOVERY  : CATV ONLY
START?
```

⦿ SELECT A TARGET AUTOMEMORY CHANNEL PLAN

The target destination plan is the channel plan where the result of the seek&store operation will be stored.

Right to the DESTINAT. item, the name of the current target automemory plan is displayed. If the current target plan is void, the LCD bottom row will display START?. In case the current target plan already exists and contains data, the LCD bottom row will display OVERWRITE?.

Using the Standard Navigation Mode, highlight the DESTINAT. item and select the desired target Automemory channel plan (AUTO 1, AUTO 2, ...).

⦿ ANALOGUE SIGNALS: VIDEO SIGNAL LEVEL THRESHOLD SETUP

Using the Standard Navigation Mode, highlight the LEVEL item and set the video level threshold. Only the channels whose video signal level is above this threshold will be saved to the target Automemory plan.

○ DIGITAL SIGNALS: CHANNEL POWER LEVEL THRESHOLD SETUP

Using the Standard Navigation Mode, highlight the POWER L item and set the channel power threshold. Only the channels whose channel power is above this threshold will be saved to the target Automemory plan.

⦿ SEEK&STORE (SCAN) START

Using the Standard Navigation Mode, highlight the display bottom row.

If START? appears a brand new memory plan will be stored. Should OVERWRITE? appear, the selected target Automemory plan already contains data, and will be overwritten without further notice.

Press the encoder [D] knob once and the auto seek & store will start. The display will also give information on the status of the research. When finished, the total number of both analogue and digital found and stored channels will be displayed.

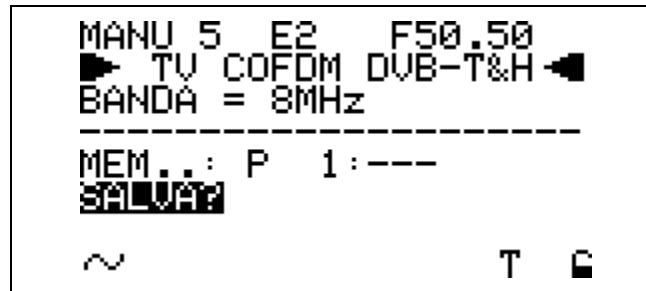
15.2 MANUALLY CREATING A MEMORY PLAN: MANUMEMORY



Press and release the MANUMEMORY [9] key.

⊙ CREATE A BRAND NEW MEMORY PLAN

Using the Standard Navigation Mode, highlight the MANUxx item of the LCD display top row on the left and select the desired target memory plan. When the current target plan is void, the LCD row under the dotted line bottom row displays MEM P1: ---.



- Select a void memory plan (the LCD row under the dotted line bottom row displays MEM P1: ---)
- Using the Standard Navigation Mode, highlight the channel ID item in the first row of the LCD display. Then select the channel ID to be stored into the target memory plan.
- Using the Standard Navigation Mode, highlight the SAVE? item.
- Press the encoder knob. The selected channel will be stored.

To add further channels to the current memory plan:

- Using the Standard Navigation Mode, highlight the channel ID item in the first row of the LCD display. Then select the new channel ID to be stored.
- Using the Standard Navigation Mode, highlight the MEM.:P item, and select a void memory position (the LCD row under the dotted line will displays, e.g. MEM: P 5: ---).
- Highlight the SAVE? item.
- Press the knob. The selected channel has now been stored.

Press once and release the MEAS [5] key to quit the memory menu.

⊙ ADDING A FURTHER CHANNEL TO AN EXISTING MEMORY PLAN

Using the Standard navigation Mode, highlight the MANUxx item in the LCD top row on the left, then select the desired target memory plan (in which a new channel has to be added). Then:

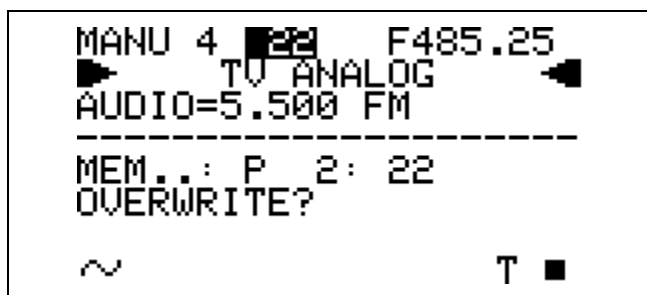
- Using the Standard navigation Mode, highlight the channel ID item on the first row of the display and select a new channel ID to be stored.

- Highlight the MEM.:P item, and select a void memory position (the first LCD row under the dotted line displays, e.g., MEM: P 6: ---).
- Highlight the SAVE? Item and press the encoder knob. The selected channel ID has now been stored.

Further channels may be added by repeating the above steps.
Press once and release the MEAS [5] key to quit this menu.

④ ADDING A FURTHER CHANNEL TO A MEMORY PLAN CURRENTLY IN USE

When the channel ID to be added to the memory plan in use is already correctly tuned (proceed as described in Chapter 10 SIGNAL TUNING: PLAN at page 20), press and hold for 2" the MANUMEMORY [9] key.
The tuned channel will be automatically stored in the first void position of the current memory plan. The LCD [C] will display:



Press and release the MEAS [5] key to quit this menu.

15.3 DELETING A MEMORY PLAN

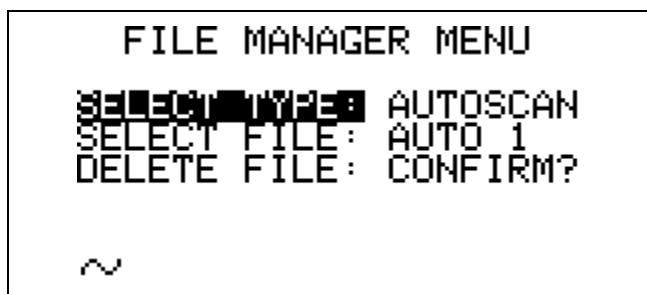
Press and hold for 2s the MPEG SERVICE LIST [B] key. Using the Standard navigation Mode, highlight the FILE MANAGER item, then press the encoder knob [D] to enter the configuration menu.

THE MEMORY PLAN CURRENTLY IN USE CANNOT BE DELETED.

To change the memory plan currently in use, proceed as described in Chapter 10 SIGNAL TUNING: PLAN at page 20.

④ DELETING AN AUTOMEMORY CHANNEL PLAN

Using the Standard navigation Mode, highlight the SELECT TYPE item and select AUTOSCAN.

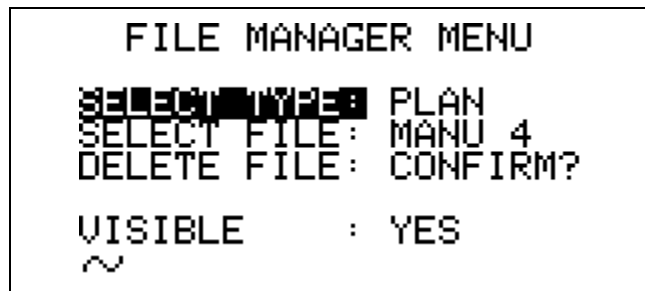


- Using the Standard navigation Mode, highlight SELECT FILE and select the memory plan to be deleted (AUTO 1, AUTO 2, ...).
- Highlight the item DELETE FILE and press the encoder knob [D] to permanently delete the above selected memory plan.

The meter will confirm the selected plan has been deleted (DELETED!). The warning message VOIDED! means you have tried to delete a permanent and not erasable memory plan (e.g.: ITALY).

④ DELETING A MANUAL MEMORY CHANNEL PLAN

Using the Standard navigation Mode, highlight the item SELECT TYPE, then select the item PLAN.



- Highlight the item SELECT FILE and select the memory plan to be deleted (MANU1, MANU2, ...).
- Highlight the item DELETE FILE and press the encoder knob [D] to permanently delete the above selected memory plan.

The meter will confirm the selected plan has been deleted (DELETED!). The warning message VOIDED! means you have tried to delete a permanent and not erasable memory plan (e.g.: ITALY).

16 TV AND COFDM AUTO MEAS&STORE (DATA LOGGER)

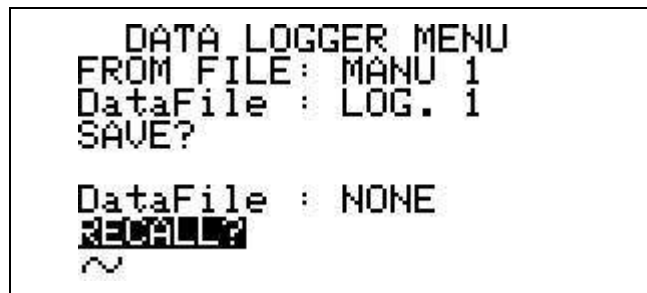
The meter can automatically tune all of the channels included in any memory plan (whichever the type) and automatically perform all the available measurements on each of the tuned channels. The measurements results are stored into a user selected target file (LOGGER files).

Any LOGGER file can be downloaded to a PC in MS Excel ® format using the connection software Technisat TECHNITOOL.

The meter is capable to store up to 99 different LOGGER files, thus allowing the user to perform a complete auto Meas&Store at almost every end-user socket in a building, and to archive the results only when back home, without any need to stop the field activity to free memory space for allowing further measurements.

16.1 AUTO MEAS&STORE

Press once and release the DATA LOGGER  [6] key; the LCD will display:



```
DATA LOGGER MENU
FROM FILE: MANU 1
DataFile : LOG. 1
SAVE?

DataFile : NONE
RECALL?
~
```

⦿ PERFORMING AUTO MEAS&STORE

In the second row from the top [PLAN], the LCD will display the group of channels (Memory Plan) whose channels will be automatically tuned to perform the Auto Meas&Store feature. Country Memory Plans (e.g.: ITALY) cannot be selected for Auto Meas&Store.

Using the Standard Navigation Mode, highlight the item PLAN and select the Memory Plan on which the Auto Meas&Store will be performed.

Please be careful not to select a Memory Plan including Satellite Transponders.

For TV signals, only user defined memory plans (Manual Memory or AutoMemory) can be selected.

Into the LCD third row from the top the current target LOGGER file [DataFile] is displayed. Into this LOGGER file the measurement data will be stored. To edit the target LOGGER file, using the Standard Navigation Mode highlight the item DataFile and select the desired target file. Target LOGGER file names can be selected from LOG.1 to LOG.99.

In case the current target Logger file is void, the LCD bottom row will display SAVE? In case the current target Logger file already contains data from a previous Auto Meas&Store, the LCD bottom row will display OVERWRITE? In this case, should you proceed to a new Meas&Store, the former data will be deleted without further notice.

To start the auto Meas&Store, using the Standard Navigation Mode, highlight the item SAVE? or, resp., OVERWRITE? and press the encoder knob [D]. In the lowest part of the LCD a progress bar will display the status of the running Meas&Store as well as the message WAIT!. When the auto Meas&Store is completed the LCD will display STORED!

⊙ RECALL A PREVIOUSLY STORED LOGGER MEMORY PLAN

The meter allows the user to recall the required measurement files (LOGGER type) and display all the measurement previously performed and stored. While in the previous screen:

```

DATA LOGGER MENU
FROM FILE: MANU 1
DataFile : LOG. 1
SAVE?

DataFile : NONE
RECALL?
~

```

In the second row from the bottom, the display shows the LOGGER file [DataFile] which will be recalled. To select the desired file, using the Standard Navigation Mode highlight the item DataFile and select the required LOGGER file.

The meter will let you select only previously created files. If the LOG.45 is void, i.e. no automatic measurements have been ever stored, the meter will not allow you to select this file.

When the required DataFile has been chosen, highlight the item RECALL and press the encoder knob [D]. The LCD will display a resume screen showing the stored measurement data for each channel:

```

NOME | TIPO | IL/POT | QLTA
-----|-----|-----|-----
27   | AntV | 59.7   | PASS
28   | DVBH | 61.6   | PASS
29   | AntV | 64.8   | PASS
31   | DVBH | 77.0   | PASS
32   | AntV | 73.3   | PASS
33   | AntV | 65.5   | PASS
~

```

The LCD will report (from the left): the channel ID, channel type, channel level (analogue signal) or power (digital signal) and the quality test results.

Rotate the encoder to scroll (up or down) the complete channel list.

Press once and release the MEAS [5] key to quit the menu.

SATELLITE SIGNAL ANALYZER

17 SATELLITE DISH ALIGNMENT

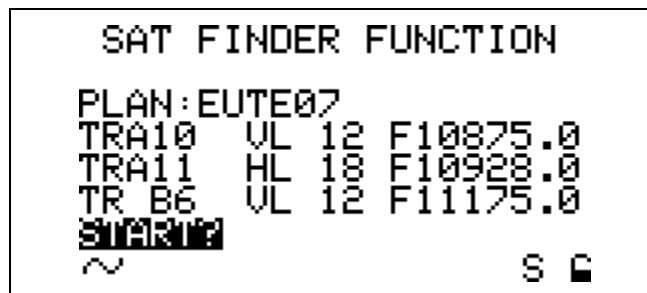
17.1 DISH ALIGNMENT TO A SPECIFIC SATELLITE WITH AUTOMATIC SATELLITE IDENTIFICATION: (SAT FINDER)

The meter can assist you in aligning the satellite dish to a specific satellite. Just mount and briefly align the dish to the desired satellite. The meter can detect if you are really pointing to the desired satellite by looking for three user-defined reference transponders within any received satellite signal, then it can support you in fine-aligning the dish.

Set up the desired satellite (refer to Chapter 18 METER CONFIGURATION : PLAN at page 56, and above all to Chapter 18.1 EXPLORING ALL THE TRANSPONDERS OF A SATELLITE at page 56) or a Transponder Memory Plan including one or more transponders carried by the desired satellite (Refer to Chapter 18 METER CONFIGURATION : PLAN at page 56, and above all to paragraph 18.3 NAVIGATE THE SOLE TRANSPONDERS INCLUDED IN A USER DEFINED TRANSPONDER MEMORY PLAN. at page 58).



Press once and release the SAT FINDER [3] key. The LCD will display (this screenshot is related to EUTELSAT 7E satellite):



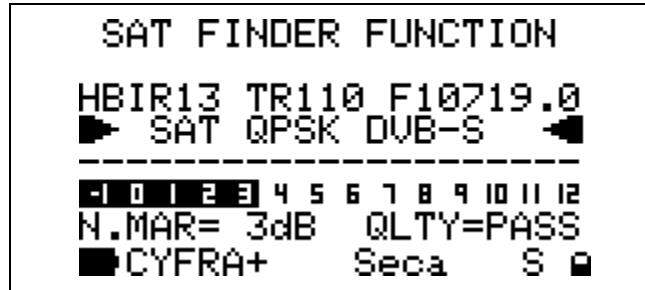
If the displayed transponders do not match with the appropriate ones, using the Standard Navigation Mode highlight the transponder name to be modified, and select the required transponder.

In case you wish to indicate less than three reference transponders, just set up the one or the two reference ones you like, and set into the unused field(s) the reference transponder set up as the first one.

Then highlight the item START? and press the encoder knob [D] to activate the SAT FINDER function.

During the identification process, the START icon will be replaced by the item SATLOOKING and a rotating bar will be displayed as an "in progress" indicator.

When the satellite will be correctly found, the meter will start the buzzer (refer to Chapter 17.4 ANTENNA POINTING AID: BUZZER at page 55) . The Noise Margin value (also displayed on a level bar with peak level) and the Quality Test results will be displayed on the LCD:



Proceed to fine align the dish until the level bar will be to its peak. The buzzer sound will also help you while performing this fine-alignment.

17.2 "DUAL FEED" DISH ALIGNMENT

The meter allows the alignment of Dual LNB satellite dishes by performing simultaneous measurements on both LNB, with no need to continuously switch between RF cables and to set different frequencies.

⊙ DiSEqC SWITCH

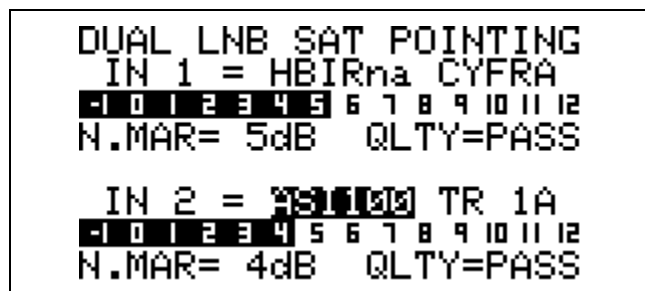
Before performing Dual Feed measurements, connect the two RF cables from the two LNBs to a DiSEqC switch (a suitable DiSEqC switch is included in the meter accessories).

⊙ SATELLITE DISH POINTING AND FINE ALIGNMENT

2"DUAL LNB



Press and hold for at least 2s the SAT FINDER [3] key. The LCD will display:



○ LNB 1: SATELLITE SETUP

Using the Standard navigation Mode, select the satellite (satellite name) or the Transponder Memory Plan (PLAN) to which the LNB1 has to be aligned. Right to the satellite name or, resp. the Transponder Memory Plan, the reference transponder for the LNB1 alignment is displayed. If required, use the Standard Navigation Mode to select a different reference transponder .

○ LNB 2: SATELLITE SETUP.

Using the Standard navigation Mode, select the satellite (satellite name) or the Transponder Memory Plan (PLAN) to which the LNB2 has to be aligned. Right to the satellite name or, resp. the Transponder Memory Plan, the reference transponder for the LNB2 alignment is displayed.

If required, use the Standard Navigation Mode to select a different reference transponder.

○ DISH ALIGNMENT & FINE DISH ALIGNMENT

Once selected the desired satellites, the LCD will display the Noise Margin and the Quality Test results (FAIL, MARGIN, PASS) for each LNB. Each Noise Margin value (LNB1 and LNB2) will be also displayed on a level bar with peak level memory. Move the antenna dish till you get the maximum Noise Margin value on both LNB at the same time. The peak level memory of each level bar displays a vertical bar showing the maximum Noise Margin level reached by the relevant LNB while pointing.

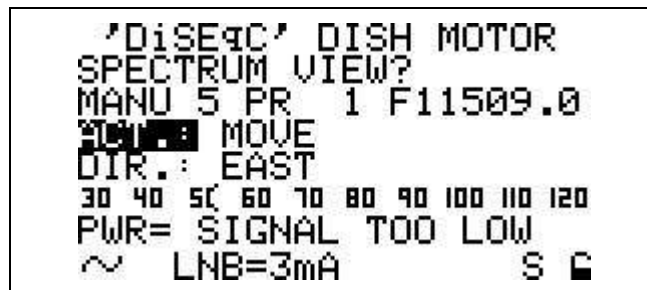
In some cases it won't be possible to maximize the Noise Margin value for both LNBs, depending on the signal receiving conditions. In this case the antenna should be set to get the best compromise between the Noise Margin value of the two LNBs.

Press once and release the MEAS [5] key to quit this function.

17.3 POINTING AND MOVING A MOTORIZED DISH (DiSEqC MOTOR)

Select the satellite (proceed as described in Chapter 18.1 EXPLORING ALL THE TRANSPONDERS OF A SATELLITE at page 56) or the transponder included in the satellite to which the antenna must be aligned (refer to the paragraph 18.2 MANUALLY TUNING THE TRANSPONDER at page 57).

Press and hold for 2s the AUTOMEMORY  [8] key. The LCD will display:



```
'DiSEqC' DISH MOTOR
SPECTRUM VIEW?
MANU 5 PR 1 F11509.0
ACT.: MOVE
DIR.: EAST
30 40 50 60 70 80 90 100 110 120
PWR= SIGNAL TOO LOW
~ LNB=3mA S C
```

The LCD third row from the top displays (left to right): the selected satellite name (or the Transponder Channel Plan), the selected transponder and the relevant frequency value. The LCD bottom rows display (bottom to top, left to right): the name of the selected bouquet, the encryption system in use, the Noise Margin value (also displayed on the level bar with peak memory level), and the result of the Quality Test.

In the previous screenshot, the ACT.: item is highlighted: this item indicates the command which will be sent to the motorized antenna.

Using the Standard Navigation Mode, select one of the available commands:

⊙ SPECTRUM VIEW?

This command will enable the user to send ACT. and DIR commands while displaying on the LCD [C] the currently received spectrum

⊙ MOVE

This command moves the antenna to the direction mentioned in the DIR item (EAST o WEST).

Select the movement direction. The measurement values reported by the meter before the satellite or the transponder identification (while the dish is moving) have to be neglected.

⊙ GOTO

This command selects one of the 99 pre-stored antenna positions.

Highlight the item POS.: and select the required pre-stored position, then highlight the item APPLY? and press the encoder knob [D] to send the command to the dish.

⊙ STORE

This command allows to store the current motor position. Up to 99 different antenna positions can be stored in the meter (POS.: 1 to 99).

Highlight the item POS.: and select the memory location where the current antenna position will be stored.

Highlight the item STORE? and press the encoder knob [D] to confirm.

⊙ RESET

In case some no-go zones (banned sectors) were previously set up on the concerned motor antenna system, this command removes any previously set limitation.

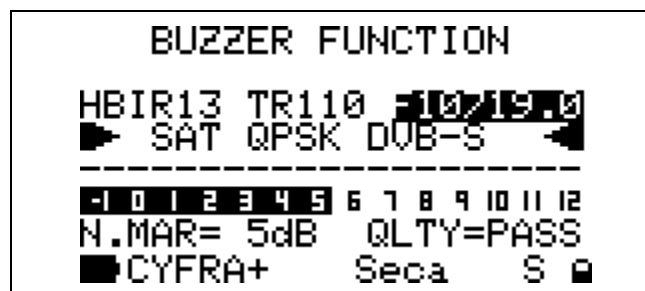
Highlight the item APPLY? and press the encoder knob [D] to reset any banned sector.

17.4 ANTENNA POINTING AID: BUZZER



Press and hold for 2s the HELP ²BUZZER [7] key.

You can hear a beep whose duty cycle is proportional to the signal Noise Margin. This is a dish alignment aid feature: when the satellite transponder is locked (satellite is found) the meter will start the Buzzer and at the same time the LCD will display:



The LCD second row displays (left to right) the selected Satellite or the selected Transponder Memory Plan, the currently tuned transponder and the relevant frequency value. The frequency value can be modified using the encoder [D].

The two bottom rows display the Noise Margin measurement (also on a level bar with peak memory function) and the Quality Test result.

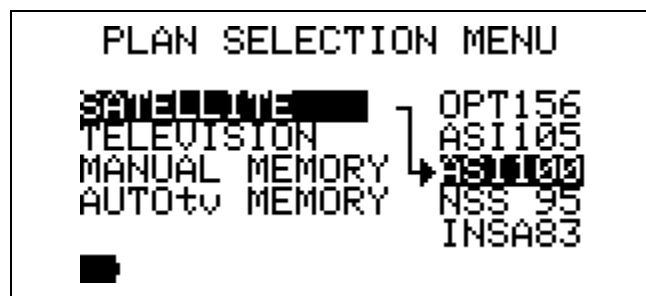
Press any key to quit this function. The buzzer function is active with digital signals ONLY

18 METER CONFIGURATION : PLAN

Connect the coax cable to the connector F [U] on the meter.



Press once and release the PLAN [1] key.



18.1 EXPLORING ALL THE TRANSPONDERS OF A SATELLITE

Using the Standard Navigation Mode, highlight the item SATELLITE and select the required satellite.



Press once and release the MEAS [5] key.



The LCD first row displays (left to right) the selected satellite, the transponder and the relevant frequency value.

⦿ CHANGING THE SATELLITE

Press once and release the PLAN [1] key. Highlight the item SATELLITE and select the desired satellite. Press once and release the MEAS [5] key to return to the current measurement screen.

⦿ CHANGE THE TRANSPONDER

Highlight the transponder currently in use. Select the required transponder. Each encoder step moves the transponder one step forward or backward. To speed up the surfing, rotate the encoder quickly.

⦿ MANUALLY CHANGE THE FREQUENCY VALUE

Should you need to manually change the frequency value, highlight the frequency item and setup the desired frequency value.

Each encoder step increase or decrease the frequency value by 0,1 MHz.

To speed up the surfing, rotate the encoder quickly.

18.2 MANUALLY TUNING THE TRANSPONDER

ALL THE TRANSPONDER DISTINCTIVE PARAMETERS MUST BE KNOWN.

Select a Transponder Memory Plan (refer to Chapter 18.3 NAVIGATE THE SOLE TRANSPONDERS INCLUDED IN A USER DEFINED TRANSPONDER MEMORY PLAN. at page 58).

Starting from any measurement screen, repeatedly Press once and release the MEAS



[5] to highlight the level measurement screen (analogue signals) or the power measurement (digital signals).

```
MANU 1 PR 4 F10719.0
▶ SAT QPSK DVB-S ◀
LNB=UL 12 DiSEqC=OFF
L.O. 9750 SR27.500
-----
30 40 50 60 70 80 90 100 110 120
PWR= 71.5dBuV
LNB=17mA S C
```

Using the Standard Navigation Mode, highlight the display second row (the signal type to be tuned).

WARNING: the frequency value is the last item to be modified.

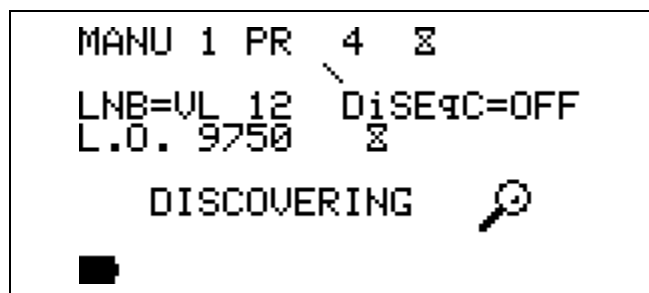
Select the required signal type to be tuned (SAT ANALOG, SAT QPSK DVB-S, SAT QPSK DSS).

IT MIGHT BE NECESSARY TO GO BACK TO THE LEVEL/POWER MEASUREMENT SCREEN (REPEATEDLY PRESS THE MEAS KEY) TO COMPLETE THE SIGNAL TYPE SELECTION. THE SIGNAL TYPE CANNOT BE MODIFIED IN OTHER MEASUREMENT SCREENS.

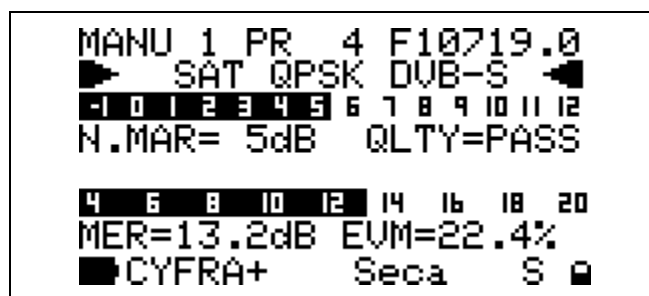
Highlight the item LNB and set the required polarization and the high/low band.
Highlight the item DiSEqC and set the required value.
Highlight the item L.O. and select the required frequency value. To speed up the surfing, rotate the encoder quickly.
Highlight the item S.R. (Symbol Rate) and select the required value. To speed up the surfing, rotate the encoder quickly.

Highlight the frequency value item and select the required value. To speed up the surfing, rotate the encoder quickly.

Press once and release the HELP [7] key to start the automatic tuning of the selected transponder. While processing, the following screen will be displayed:



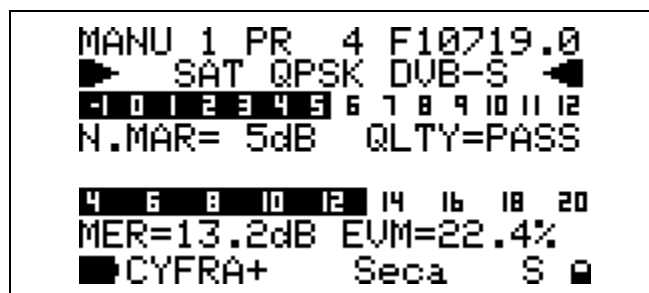
When completed, the LCD will display:



18.3 NAVIGATE THE SOLE TRANSPONDERS INCLUDED IN A USER DEFINED TRANSPONDER MEMORY PLAN.

To create a Transponder Memory Plan, refer to the Chapter 22 CREATING A TRANSPONDER MEMORY PLAN at page 68.
A Transponder Memory Plan can contain transponders from different satellites.
Highlight the item MANUAL MEMORY and select the required Transponder Memory Plan (MANU...).

Press once and release the MEAS  [5] key.



The LCD first row displays (left to right) the selected Transponder Memory Plan, the transponder currently in use, the relevant frequency value.

⦿ SELECT THE REQUIRED TRANSPONDER

Highlight the currently tuned transponder and select the required transponder. Each encoder step selects the previous or the next transponder. To speed up the surfing, rotate the encoder quickly.

ONLY A TRANSPONDER INCLUDED IN THE SELECTED TRANSPONDER MEMORY PLAN CAN BE SELECTED.

⦿ MANUALLY MODIFY THE FREQUENCY VALUE

Should you need to manually modify the frequency value, highlight the current frequency value item. Each encoder step increase or decrease the frequency value by 0,1 MHz. To speed up the surfing, rotate the encoder quickly.

⦿ MODIFY THE TRANSPONDERS GROUP TO BE EXPLORED

The transponders group can be modified only from the main screen. Press once and release the PLAN [1] key and select the item MANUAL MEMORY to enter the main screen.

WARNING: After showing the user defined Transponder Memory Plans, the meter will display the pre-stored groups of transponder (refer to Chapter 18.1 EXPLORING ALL THE TRANSPONDERS OF A SATELLITE at page 56)

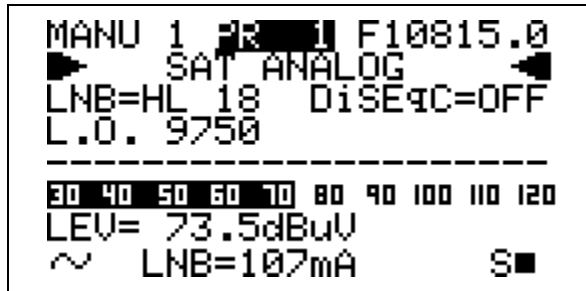
19 PERFORMING MEASURES: MEAS

The DIGIMETER M3 is equipped with one LCD [C] display.

Refer to the Chapter 10 SIGNAL TUNING: PLAN at page 20 to tune the desired channel.

19.1 ANALOGUE TRANSPONDERS

The LCD second row shows the item SAT ANALOG.



On the next rows :

- Polarization and high/low band (third row, on the left)
- DiSEqC status (third, on the right)
- Local Oscillator frequency (fourth row, on the right) are displayed.

The LCD bottom row displays on the left the power supplied to the antenna LNB ; on the right, a “S” icon and a black filled quadrangle are displayed in correspondence to the items SAT and AN.

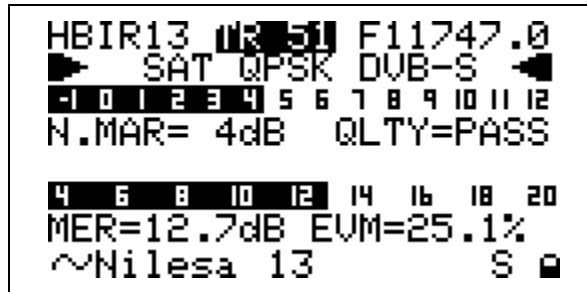
⦿ VIDEO SIGNAL PEAK LEVEL MEASUREMENT

The LCD bottom row shows the current video signal peak level together with the relevant measurement unit. The video signal peak level real time value is also displayed on a level bar with peak level memory. The level bar displays an horizontal bar showing the maximum level (peak level) reached by signal during the measurements.

⦿ SPECTRUM ANALYSIS OF THE TUNED CHANNEL

Refer to Chapter 20 SPECTRUM ANALYZER MODE at page 65.

19.2 DIGITAL TRANSPONDER



The LCD second row displays the standard of the tuned signal (SAT QPSK DVB-S, DVB-S2, or SAT QPSK DSS).

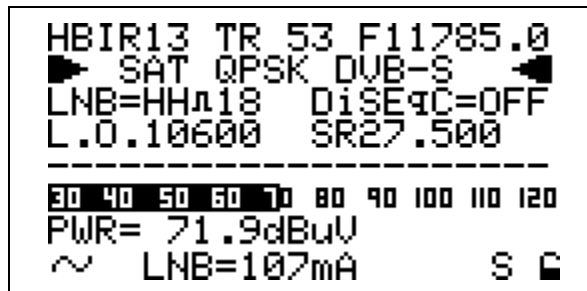
The LCD bottom row displays the main information of the relevant bouquet:

- Bouquet name (network name), after some seconds and under acceptable receiving conditions.
- Orbital position of the detected satellite.
- Encryption system (encrypt), if there is at least one encrypted program in the bouquet, after some seconds and in acceptable receiving conditions.
- An S icon in correspondence with the SAT icon on the LCD frame

A lock in correspondence with the DIG icon on the LCD frame. The lock is closed when the received signal has been correctly locked, otherwise it appears open.

⊙ CHANNEL POWER MEASUREMENT

Press and release the MEAS [5] key up to display the following screen:



The LCD second row displays the items SAT QPSK DVB-S or SAT QPSK DSS.

In the next rows, the:

- Polarization and high/low band (third row on the left)
- DiSEqC status (third row on the right)
- Local oscillator frequency (fourth row on the left)
- Symbol Rate (fourth row on the right)

information are displayed on the screen. On the LCD bottom right corner, the icon “S” and a open lock will be displayed in correspondence with SAT and “DIG” respectively.

WHILE PERFORMING SUCH MEASUREMENTS, THE LOCK DISPLAYED AT BOTTOM RIGHT SIDE OF THE SCREEN WILL BE OPEN. THIS IS BECAUSE THE METER EXPLORES THE WHOLE CHANNEL BAND IN ORDER TO DETECT THE TRUE CHANNEL POWER.

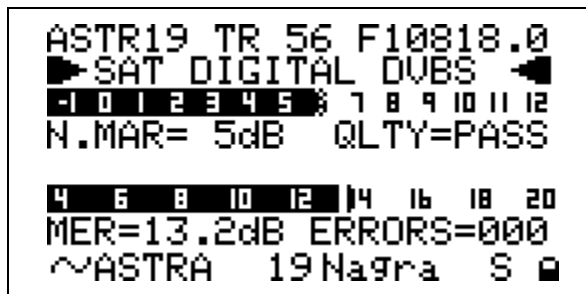
The LCD bottom row displays the power of the detected signal together with the relevant measurement unit.

The real time video signal peak level value is displayed also on a level bar with peak level memory: a vertical bar is showing the maximum level (peak level) reached by signal during the measurements.

⊙ NOISE MARGIN, QUALITY TEST, MER AND ERROR COUNT MEASUREMENTS

From the previous measurement screen, press once and release the MEAS [5] key.

In case the signal is properly locked, the LCD displays the Noise Margin (Noise Margin, N.MAR), quality test (QLTY), MER and ERROR COUNT measurements.



The Noise Margin and MER values are also displayed on a level bar with peak level memory.

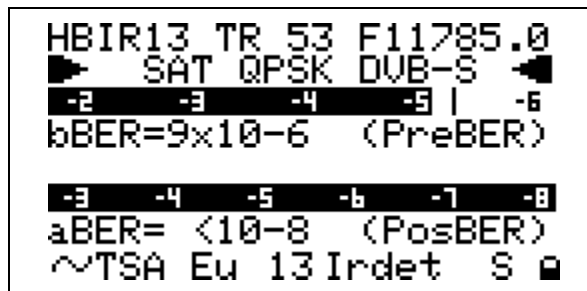
Furthermore, the bottom row of the screen displays the main information of the relevant bouquet:

- Bouquet name (network name), after some seconds and under acceptable receiving conditions.
- Orbital position of the detected satellite.
- Encryption system (encrypt), if there is at least one encrypted program in the bouquet, after some seconds and under acceptable receiving conditions.
- An S icon, in correspondence with the SAT icon on the LCD frame

A lock in correspondence with the DIG icon on the LCD frame. The lock is closed when the received signal has been correctly locked, otherwise it appears open.

⊙ BER MEASUREMENTS BEFORE AND AFTER VITERBI ERROR CORRECTION

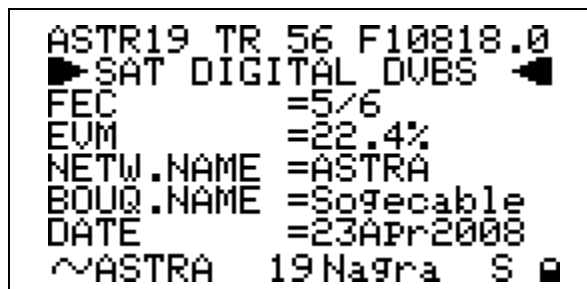
From the previous measurement screen, press once and release the MEAS [5] key. The BER before Viterbi error correction (appointed as bBER or preBER) and the BER after Viterbi error correction (appointed as aBER or posBER) parameters will be displayed.



The measurements are also displayed on a level bar with peak level memory.

⊙ FEC AND BOUQUET MAIN DATA

Form the previous measurement screen, press once and release the MEAS [5] key. The FEC and the EVM value of the selected bouquet will be displayed.



In case the tuned bouquet contains the relevant information, the LCD will display:

- the network name (NETW. NAME)
- the bouquet name (BOUQ. NAME)
- the current date (DATE), as stated in the bouquet itself

Any information missing (not included in the bouquet) will result in a blank field. Anyway, the signal is properly locked even when one or all of said information is missing provided that the lock at the LCD bottom right corner is closed.

Press once and release the MEAS [5] key repeatedly to cyclically display the above

mentioned measurement screen. Press once and release the HOME  [A] key to directly switch to the level / channel power measurements.

⊙ DISPLAYING THE SERVICE LIST OF THE CURRENT BOUQUET

Press once and release the MPEG SERVICE LIST  [B] key.

PROG NAME	Vpid	Apid	~
MCT FREE	4097	4098	Y
MCT FULL	4353	4354	Y
MCT DREAM	4609	4610	Y
TVE Inter	3521	3522	N
Canal 24	3569	3570	N
TVE Inter	3553	3554	N
~TSA Eu 13 Indet S			

The following information will be displayed: the full program list of the currently tuned bouquet, the relevant video (Vpid) and audio (Apid) PIDs and the encryption status key (Y= encrypted, N= not encrypted/free to air). It might take a few second to get the full information displayed.

Rotate the encoder [D] to scroll down the program list (up to 64).

Press MEAS [5] key to go back to the previous screen.

⊙ SPECTRUM ANALYZER MODE

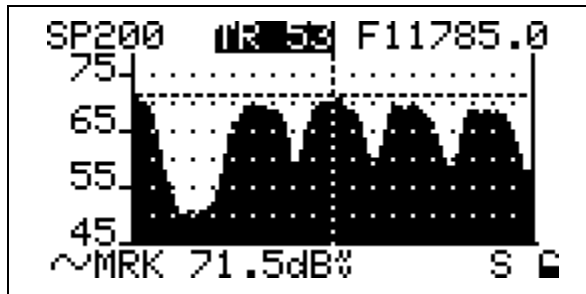
Please refer to Chapter 20.

20 SPECTRUM ANALYZER MODE



Press once and release the SPECT [4] key. The spectrum of the tuned signal will be displayed.

The relevant level or channel power is displayed in the LCD bottom row next to the item MRK, together with the relevant measurement unit.



20.1 MODIFY/CHANGE THE TRANSPONDER

Using the Standard Navigation Mode, highlight the transponder item and select the desired transponder.

WARNING: only the transponder in the selected Satellite or Memory Plan can be selected. Refer to the Chapter 18 METER CONFIGURATION : PLAN at page 56 to change the selected Satellite or Transponder Memory Plan.

20.2 MOVING THE MARKER (FREQUENCY VALUE)

Using the Standard Navigation Mode, highlight the frequency value and move the marker. The relevant level/channel power value will be displayed on the bottom row on the left (MRK).

While pointing the antenna, the meter might detect the transponder pattern of an unidentified satellite. Press once and release the HELP [7] key to tune the relevant signal (refer to Chapter 18.2 MANUALLY TUNING THE TRANSPONDER at page 57).

20.3 EDITING THE LEVEL END OF SCALE

Highlight the top level (end of scale) value on the y-axis and rotate the encoder [D] to increase or decrease the end of scale value.

20.4 EDITING THE SPAN VALUE

Highlight the span (SP...) value and set the desired one.

Only the pre-defined span values (from 50 MHz to FULL) can be set. No fine adjustment is possible.

20.5 ACTIVATE THE MAX HOLD FUNCTION

Press once and release the SPECT [4] key again.

The MaxH icon will be displayed on the display bottom row in correspondence with the "ENCRYPT" item on the right edge of the display.

Press once and release the SPECT [4] key again to quit the MaxHold function.

21 SATELLITE AUTO MEAS&STORE (DATA LOGGER)

This meter can automatically tune all of the transponder of a specific satellite, or included in any Transponder Memory Plan (whichever the type), and to automatically perform all the available measurements on each of the tuned transponders. The measurements results are stored into a user selected target file (LOGGER files).

Any LOGGER file can be downloaded to a PC in MS Excel ® format using the connection software Technisat TECHNITOOL.

The meter is capable to store up to 99 different LOGGER files, thus allowing the user to perform a complete auto Meas&Store at almost every end-user socket in a building, and to archive the results only when back home, without any need to stop the field activity to free memory space for allowing further measurements.

21.1 AUTO MEAS&STORE

Refer to the Chapter 16.1 AUTO MEAS&STORE at page 50

21.2 RECALL A PREVIOUSLY STORED LOGGER MEMORY PLAN

Refer to the Chapter RECALL A PREVIOUSLY STORED LOGGER MEMORY PLAN at page 51.

21.3 DELETING A MEMORY PLAN

Refer to Chapter 22.3 DELETING A MEMORY PLAN at page 69 to delete the useless files.

MEMORY FEATURES FOR SATELLITE SIGNALS

22 CREATING A TRANSPONDER MEMORY PLAN

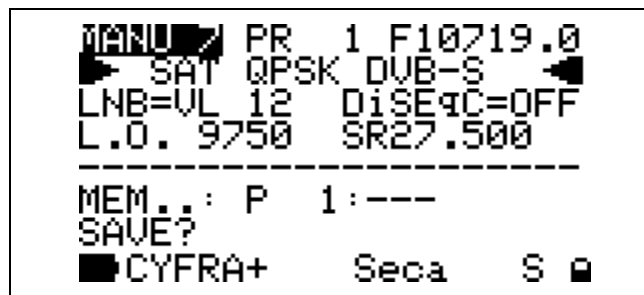
22.1 MANUALLY CREATING A TRANSPONDER MEMORY PLAN: MANUMEMORY



Press and release the MANUMEMORY [9] key.

⊙ CREATE A BRAND NEW MEMORY PLAN

Using the Standard navigation Mode, highlight the MANUxx item in the LCD top left corner. Select the memory plan to be created (target memory plan). When the current target memory plan is void, the LCD displays (top row, right to the MANUxx item) PR 1; otherwise, a number greater than 1 will appear to the right hand-side of item PR.



Using the Standard Navigation Mode, highlight the MANUxx item and then select a void memory plan.

- Highlight the signal type item displayed on the LCD second row (analogue, digital DVB-S, digital DSS) and select the required signal type. Then proceed in the same way with the LNB high/low band and polarization, DiSEqC, Local oscillator (L.O.) and Symbol rate (SR).
- Highlight the frequency value displayed on the LCD top right corner, and select the desired value. Rotate the encoder [D] quickly to speed up the frequency surfing.
- Highlight the item STORE? AND press the encoder knob [D] to store the selected transponder.

To add further transponders to the memory plan, highlight the signal type icon and proceed as described above.

Press once and release the MEAS [5] key to quit this function.

⊙ ADDING A FURTHER TRANSPONDER TO AN EXISTING MEMORY PLAN

Using the Standard Navigation Mode, highlight the MANUxx item (MANU 1, MANU 2, ...) in the LCD top left corner, and select the desired memory plan. On the right hand-side to the highlighted item, the first available memory position (PR...) will be displayed. Should you need To add a new transponder to the current target memory plan, proceed as described into the next chapter.

To replace a transponder previously stored in the current target memory plan:

- Highlight the memory plan position item (PR...) and select the transponder to be replaced.
- Highlight the signal type (analogue, digital DVB-S and DSS) item displayed on the LCD second row and select the required signal type.
- Highlight the LNB high/low band and polarization, DiSEqC, Local oscillator (L.O.) and Symbol rate (SR) items. Select the required value for each item.
- Highlight the frequency value displayed on the LCD top right corner, and select the required value. Rotate the encoder [D] quickly to speed up the surfing of the desired frequency value.
- Highlight the item STORE? or the item OVERWRITE? to replace the transponder, and press the encoder knob [D] .

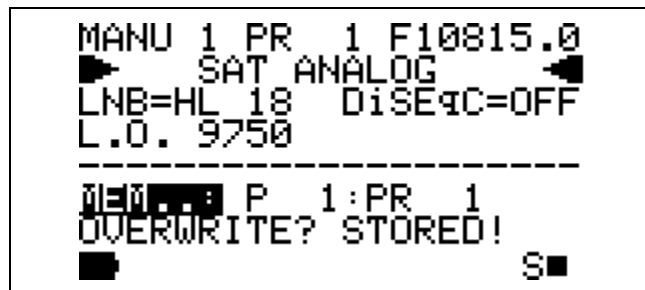
The selected transponder will be stored in the current target memory plan.
To add and/or replace further channels to the memory plan, highlight the memory position item (PRxxx) on the display top row and proceed as above described.

Press once and release the MEAS [5] key to quit this menu.

22.2 ADDING A FURTHER TRANSPONDER TO A MEMORY PLAN CURRENTLY IN USE

Refer to Chapter 18.2 MANUALLY TUNING THE TRANSPONDER at page 57 to tune the transponder.

- Press and hold for 2" the MANUMEMORY [9] key.
- The transponder will be automatically stored in the first void position of the current target memory plan. The LCD will display:



Press once and release the MEAS [5] key to quit the menu.

22.3 DELETING A MEMORY PLAN

THE MEMORY PLAN CURRENTLY USED CANNOT BE DELETED. THE SATELLITE MEMORY PLANS PROGRAMMED EX FACTORY (EUTE70, PANS68, ...), CANNOT BE DELETED.

To modify the memory plan currently in use, refer to the Chapter 18 METER CONFIGURATION : PLAN at page 56.



Press and hold for 2" the MPEG SERVICE LIST [B] key. Using the Standard Navigation Mode, highlight the item FILE MANAGER and press the encoder knob [D] to enter the FILE MANAGER menu.

⦿ DELETING A USER DEFINED TRANSPONDER MEMORY PLAN

Highlight the item SELECT TYPE and select PLAN.

Then highlight the item SELECT FILE and select the memory plan to be deleted (PLAN 1, PLAN 2, ...).

Highlight the item DELETE. Press the encoder knob [D] to delete the selected memory plan.

The meter will confirm the selected plan has been deleted (DELETED!). The warning message VOIDED! means you have tried to delete a permanent and not erasable memory plan (e.g.: EUTE70).

⦿ DELETING A LOGGER FILE (LOGGER MEMORY PLAN)

When an auto Meas&Store procedure has been completed (see Chapter 21 SATELLITE AUTO MEAS&STORE (DATA LOGGER) at page 67), the relevant data are stored into a user defined target Logger Memory Plan.

To delete a logger memory plan, highlight the item SELECT TYPE and select the item LOGGER.

Then highlight the item SELECT FILE and select the Logger File to be deleted (LOG.01, LOG.02,...).



Highlight the item DELETE FILE. Press the encoder knob [D] to delete the selected Logger Memory Plan.

The LCD will confirm the Memory Plan deletion (DELETED!).

[illegible]

TECHNICAL SPECIFICATIONS

Analogue and Digital (COFDM) TV, FM Radio, QAM and Satellite Signal Analyzer

Frequency range: TV: 4 ÷ 1.000 MHz (FM radio included)
SAT: 930 ÷ 2.250 MHz

Digital Modulation types: QPSK – 8PSK – COFDM – QAM

Measurement capabilities:

Analogue TV e CATV

Measurement Range

Field Level	5 ÷ 125 dBμV
Video Peak Level	5 ÷ 125 dBμV
Audio Peak Level	5 ÷ 125 dBμV
Video/Audio Level Ratio	60 dB (in spectrum)

Digital TV

Channel Power	5 ÷ 125 dBμV
Pre-Viterbi BER	up to 1*10-5
After-Viterbi BER	up to 1*10-8
MER	up to 38 dB
SNR	up to 38 dB
Constellation Diagram	4 – 16 – 64
Impulse response	YES, time and distance (μs/km)

CATV (QAM)

Channel Power	5 ÷ 125 dBμV
MER	40 dB
C/N	60 dB in spectrum
Error Count	YES
BER	up to 1*10-9

FM RADIO

Field level	5 ÷ 125 dBμV
-------------	--------------

Analogue Satellite

Field level	30 ÷ 125 dBμV
-------------	---------------

Digital Satellite

Channel Power	30 ÷ 125 dBμV
Pre-Viterbi BER	up to 1*10-4
After-Viterbi BER (QPSK)	up to 1*10-8
MER	up to 25 dB
EVM	10 to 50%
PER (8PSK)	up to 1*10-7

Complementary/Common Measurements

Noise Margin	From -1 dB to
Automatic Signal Quality Test	FAIL – MARG – PASS
RF Spectrum Analysis	YES – TV & SAT

MPEG-2 Special Features:

Bouquet ID & CELL-ID identification
Modulation parameters identification
Service encryption status indicator
Encryption/CA system detection Bouquet
Service List with Audio and Video associated
PID table

Audio Special Features:

Analogue TV, FM and FM radio audio playback

TV Special Features:

TV Auto seek&store
TV channel surfing
Antenna pointing aid (DVB-T) device: buzzer
Full band mapping display
Signal level comparison (tilt) between two
users-defined channel

SAT Special Features:

Exploring Satellite
Exploring Transponders (SAT)
LNB S.C.R. Driver
DiSEqC motors Driver
Dual LNB dish alignment
"Sat finder" function
DiSEqC Standard

RF Feed:

5 – 12 – 13 – 18 – 24 V

Main Specifications:

TV measurement accuracy: 1,0 dB
SAT measurement accuracy: 1,5 dB

Signal Tuning/Surfing:
(measurement and spectrum analysis)

By transponders
By frequency value (also Direct Frequency
Input)
By program
By channel

Memory Plans:

99 total with 199 Transponders per Plan
99 Logger-type Plans

Other Features:

Graphic, DOT-matrix LCD (64 x 128)
User upgradable Firmware (also via web)
USB 2.0 data connection
Built-in battery operation: 2 to 4 H

Standard package includes:

Soft case + Shock-proof ABS carrying case
AC adaptor & Battery charger
12V lighter adaptor & Battery charger
USB 2.0 Cable

TECHNISATs everyday efforts constantly aim at developing better and better instruments, more reliable and easier to use. Thus, we know you will be on our side when we update the core software powering our instruments before being able to update our user manuals too. This way, you will always be entitled to rely on having in your hands the best available version of the instrument you have chosen. Thank-you for choosing us.

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www.technisat.de

You have purchased a top quality TechniSat product, which has undergone several quality checks at all of the production stages as well as strict outgoing goods checks. If, despite all this, your unit develops a fault, TechniSat Digital GmbH still gives a full 2-year TechniSat guarantee on all TechniSat receiving systems and separate components that starts from the date that you purchased the unit from your dealer, provided that you have registered the product with us.

Neither are you obliged to prove that the fault existed when you purchased the unit. You must also ensure that only original TechniSat accessories such as cables, plugs, etc., are used during the installation in order to enjoy the benefits of the full guarantee. This guarantee includes the repair of defective parts (normal case) or exchanging parts at our discretion for commercial reasons. All guarantee claims will be invalidated if the unit is opened by anyone other than by TechniSat or if modifications are made to the unit (i.e. hardware or software modifications).

Guarantee claims cannot be made for any damage caused by incorrect installation, incorrect operation or if the product serial number is altered or rendered unreadable and mechanical damage resulting from an accident or from being dropped.

The guarantee does not cover damage claims resulting from use, especially for any loss of data, e.g. station lists or recordings saved in the Instrument. If your unit develops a fault despite our ultramodern production methods and permanent quality testing, we would ask you to contact our technical hotline at

+49 (0) 180/500 59 07

(0.14 €/min on the German network, mobile telephone charges and foreign call charges will differ) first. If we are unable to clear the problem over the phone we would ask you to contact your dealer or supplier.

Guarantee card:	Instrument Type: TechniPlus / TechniPlus HD
Error description:	Serial Nr. : _____

Customer / Dealer Address:

Dear Customer please fill in Your Name, Address and purchasing Date:

☐ Already TechniSat Customer ☐ New TechniSat Customer

Customer Nr.:

Name: _____

Street: _____

ZIP Code: _____ City: _____

Purchasing Date: _____

Telephone: _____

Fax: _____

e-mail: _____

☐ Yes I agree, that TechniSat Digital GmbH can save my Data listed above for their own advertising / direct Marketing purpose.

Yes I know, that in addition to my name and address as well as Telephone, Fax and e-mail TechniSat Digital GmbH will also store the Instrument Type and number.

Customer Signature: _____

The warranty registration will be independent of the above agreement for Advertising / mailing purpose. The Warranty information will be stored in a separate, protected area at TechniSat. This Data will be used exclusively for the warranty purpose and will not be given to third party. For further information contact our Data security Department under email: datenschutz@technisat.de

MANTAINING THE METER

CLEANING THE METER

Cleaning the meter from dust and dirt is easy and helps maintaining it in optimal work conditions through the years. The cleaning procedure is simple and quick and requires only minor attention.

Never use chemical aggressive products (diluent) and/or abrasive or rough clothes which may damage plastics and displays.

Always use a soft cloth, dampened with some simple water and alcohol solution or a degreasing not abrasive liquid soap.

Keyboard and display should be gently cleaned. Rubbing the keyboard and/or the display(s) may seriously damage their functions.

MANTEINANCE AND CARE OF THE METER

This meter has been designed to withstand severe conditions of use. Even so, its life may be prolonged by respecting some simple and effective rules:

- The meter has not been designed to withstand high temperatures (over 60°C or 140°F). Those temperatures can be easily reached when the meter is left in a car, especially behind the windshield, or in the trunk. The LCD display and/or other details may easily be damaged by the extreme temperature.
- The internal battery may rapidly lose its efficiency if exposed to high or low temperatures. This will result in reduced autonomy of the meter when powered by internal battery.
- When recharging the internal battery, do allow a good air circulation around the meter and the adapter: do not cover it with clothes and do not recharge the battery when the meter is contained in its transport case
- The meter is not waterproof, even if it is protected against incidental water drops. In case of contact with water, when electronic circuits may be damaged, allow the meter to dry thoroughly before trying to turn it on. Do not use hairdryer or other strong heating sources, but just leave the meter in quiet air. Contact as soon as possible TechniSat for Technical Assistance.
- The graphic display is protected by a special glass screen. If hit, this protective screen may adhere to the actual display, causing a "stain" effect. The result will be a reduced visibility and blind spots on the screen. It is possible to solve this inconvenient by applying a strip of mild paper-masking tape to the display and gently pulling it out. Do not use any kind of strong adhesive tape (electrical tape, duct tape or even scotch tape) which may leave glue stains on the display. In case of doubt, please contact TechniSat for Technical Assistance.

DISPOSAL OF ELECTRONIC EQUIPMENT



Disposal of electric / electronic equipment (applicable in all CEE countries and wherever separate waste collection system is applied).

This symbol on the packaging indicates that the product should not be considered as domestic waste. The product, at the moment of disposal, should be brought to a waste collection point with the proper facilities to manage electrical/electronic appliances. Electric/electronic appliances, if not disposed of correctly, may have negative consequences on your health and environment.

Furthermore, a proper recycling procedure helps maintaining natural resources.

To have more information about proper disposal of this product, please refer to your local waste management offices or the shop where this product was bought.

[illegible]

[illegible]

MADE IN EUROPE