

# MASTERSAT

## Evo

EXTENDED FREQUENCY ANALYZER  
(WIDE BAND & dSCR)

### USER'S GUIDE



**ROVER**

[www.roverinstruments.com](http://www.roverinstruments.com)

# GET TO KNOW YOUR MASTER SAT EVO

## FRONT PANEL



### • POWER



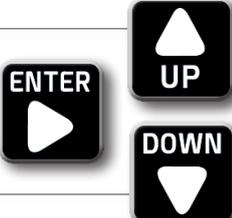
To turn on  
press the  
'HOME' key.



TO TURN OFF  
press and hold  
the 'HOME' key

### • ARROW KEYS

Use the arrow keys to select a function from the menu



Use the  
arrow keys to  
navigate



Press ENTER to  
SELECT



Keep ENTER  
pressed for  
secondary  
functions

### • RESET HARDWARE



Keep the "HOME" key  
pressed for 10" and  
turn on again

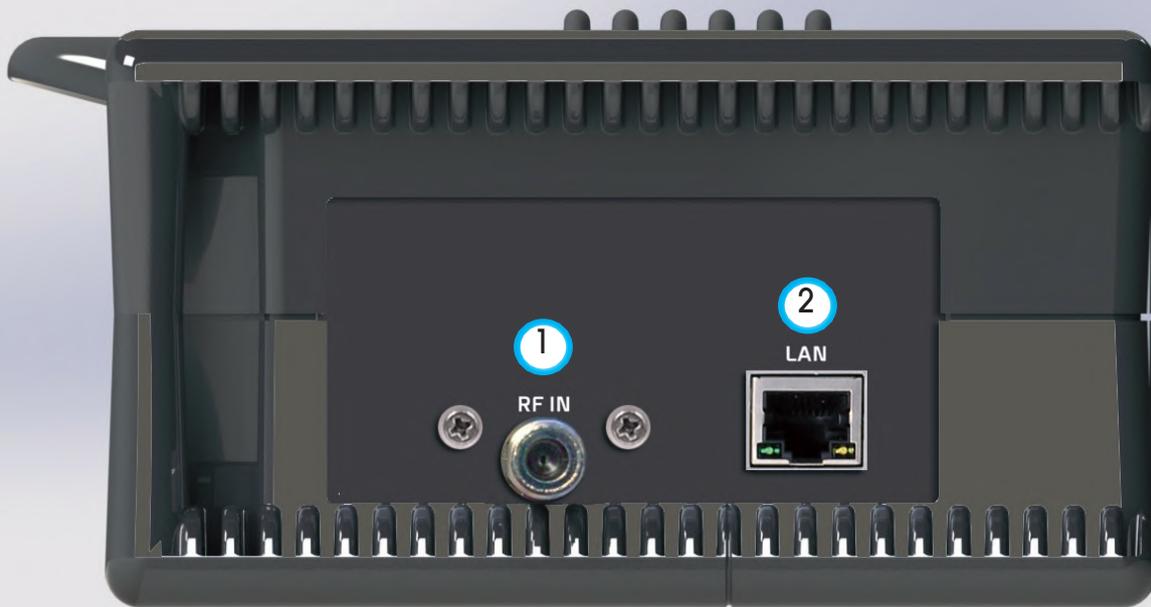
### • RESET SOFTWARE


+


Switch on the meter,  
immediately after keep the  
"volume" key pressed until a  
beep is heard

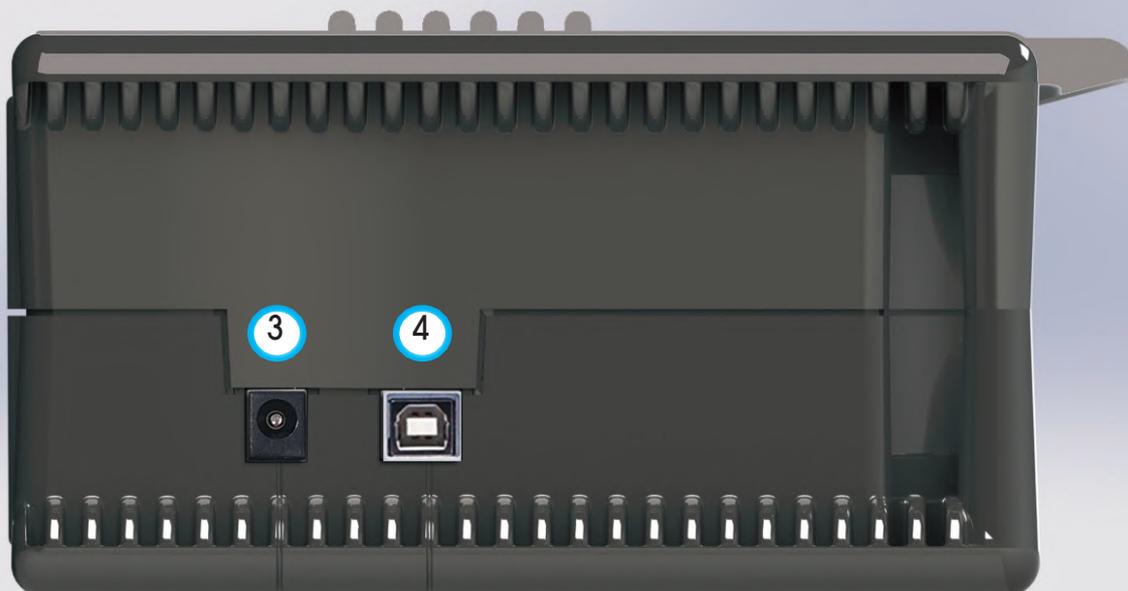
## SIDE PANELS

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- **RIGHT SIDE**

1. IF/RF INPUT CONNECTOR, "F" TYPE, 75  $\Omega$
2. RJ 45 LAN CONNECTOR



- **LEFT SIDE**

3. POWER SUPPLY INPUT CONNECTOR (12 V DC - 1A)
4. USB SOCKET FOR SW UPGRADES AND MEMORY PLANS

# HOME AND NAVIGATION

## 'HOME' SCREEN

Press the 'HOME' key to go to the main menu, use the ARROW keys to navigate to the SAT icon and press ENTER to select the measurement mode required:



Press the 'HOME' key at any time to return to the home screen

## NAVIGATION

use the ARROW keys to navigate in the screens and change values:

### • DISPLAY ZONES

- 1 Tuning parameters
- 2 Live picture
- 3 Measurements
- 4 Transponder info
- 5 Transport Stream info
- 6 Context sensitive menu



### • CHANGING VALUES

 Navigate to an item then select.

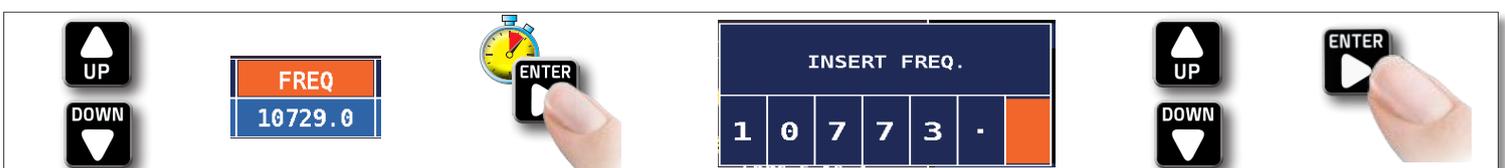
use the ARROW keys to change the value of an item

### • DROP-DOWN MENUS

 Navigate in a drop-down menu then keep pressed

use the ARROW keys to highlight a value and press ENTER to select.

### • NUMERICAL KEYBOARD

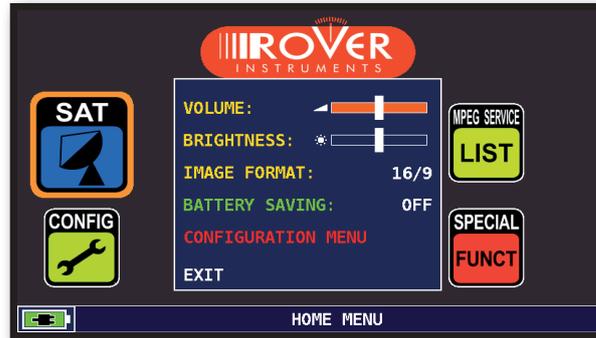
 Navigate in a numerical value and keep ENTER pressed,

Select the keys with the value required to insert a number.



# VOLUME & CONFIGURATION

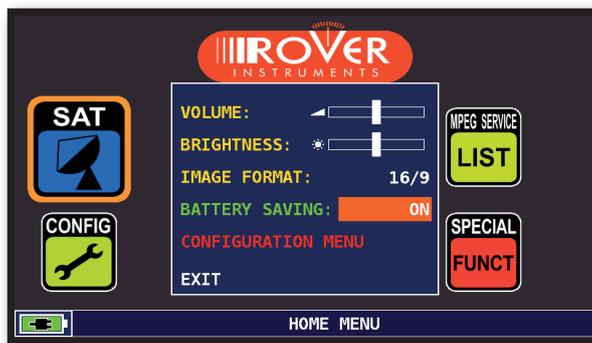
(Configuration also for EXTENDED FREQUENCY WIDE BAND LNB)



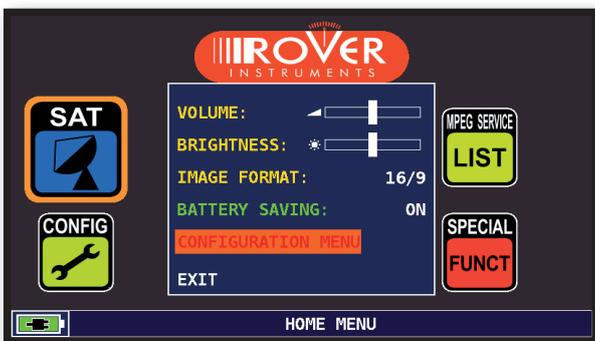
Volume selection is immediately active, press "ENTER" for the Display configuration and other important settings

## BATTERY SAVING AND TIMER OFF

Settings for battery save mode.



Choose "BATTERY SAVING" from the volume screen. In ON mode, if no key is pressed, after 30 seconds, the display brightness is reduced and after 5 minutes the meter automatically turns off. Press any key to temporarily reset the battery save mode.



Navigate in "CONFIGURATION MENU" in the volume screen.



Navigate in "METER" and set the "TIMER OFF" value required. The meter will turn off after 5 or 10 minutes of inactivity. Press any key to interrupt the automatic turn-off.

# SAT CONFIGURATION

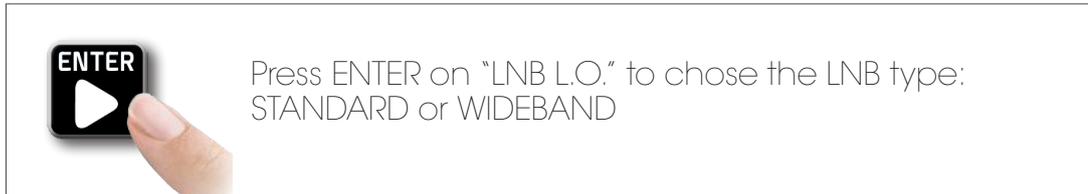


Navigate in "CONFIGURATION MENU" in the volume screen.



Select "SAT" for main settings

## LNB L.O. SELECTION

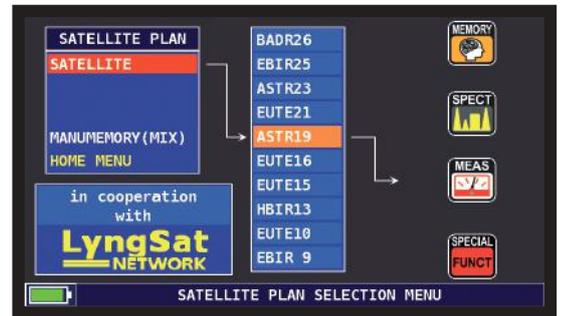


If WIDEBAND (extended frequency) is selected, in all Measurement and Spectrum displays, "V/WB" and "H/WB" will be used in the POL/BND (polarization/band) field. The EXTENDED band LNB has only two polarizations which contain the high and low satellite bands between 230 and 2340 MHz.



# SAT ANALYZE SATELLITE TELEVISION SIGNALS

## SAT MODE



SAT channel plan screen

"Satellite information (mux data) is provided in cooperation with LyngSat [www.lyngsat.com](http://www.lyngsat.com)"

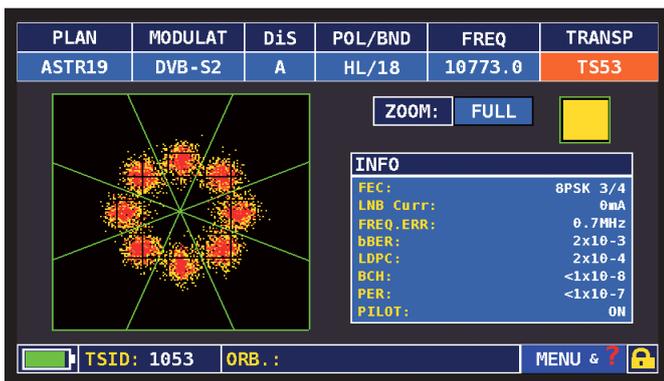
## DIGITAL SAT MEASUREMENT DISPLAYS DVB-S AND DVB-S2



Main measurements & live picture



Navigate in the picture and press ENTER to enlarge, press again to return to measurement mode.



8PSK Constellation

**ZOOM:** Navigate in "ZOOM" and select the constellation square window to enlarge



Press to cycle through the SAT measurement screens

## RELATED FUNCTIONS



SAT Spectrum Analyzer



SAT Channel Plan Selection



MPEG service list

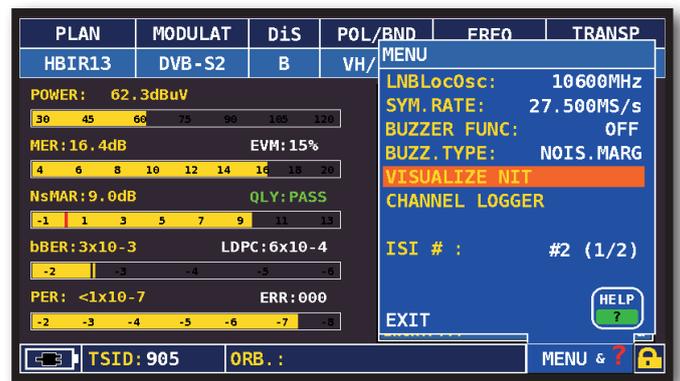


Identifies the tuning parameters of a digital signal

# VISUALIZE NIT



Touch "MENU&?" from the "MAIN MEASUREMENTS & PICTURES".



Touch "VISUALIZE NIT".

## Example 1:

NIT INFO VISUALIZATION					
FREQ	POL	SYM. RATE	MODE	TYPE	FEC
11376.5	vert	22000.00	DVB-S2	8PSK	2/3
11170.8	hor	22000.00	DVB-S2	8PSK	2/3
11597.0	vert	22000.00	DVB-S	QPSK	5/6
11038.0	vert	22000.00	DVB-S	QPSK	5/6
11156.0	vert	22000.00	DVB-S	QPSK	5/6
12692.2	hor	22000.00	DVB-S	QPSK	5/6
12640.0	vert	22000.00	DVB-S	QPSK	5/6
11685.5	vert	22000.00	DVB-S	QPSK	5/6
12581.0	vert	22000.00	DVB-S	QPSK	5/6
10979.0	vert	22000.00	DVB-S	QPSK	5/6
10876.5	vert	22000.00	DVB-S	QPSK	5/6

BACK

"NIT INFO VISUALIZATION" referring to an ASTRA 19 East transponder

## RELATED FUNCTIONS



SAT  
Spectrum  
Analyzer



SAT Channel  
Plan  
Selection



MPEG  
service list

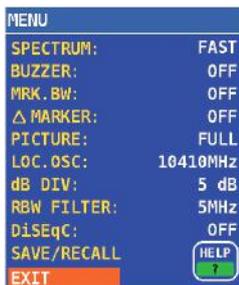
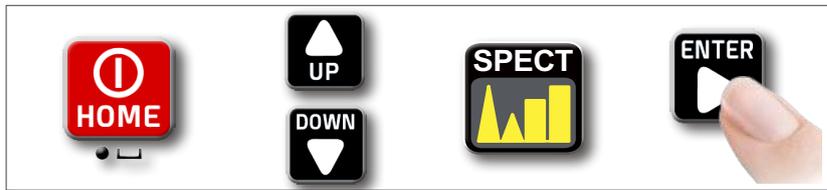


# SPECT SPECTRUM ANALYZERS

## SWITCH TO SPECT MODE



Or

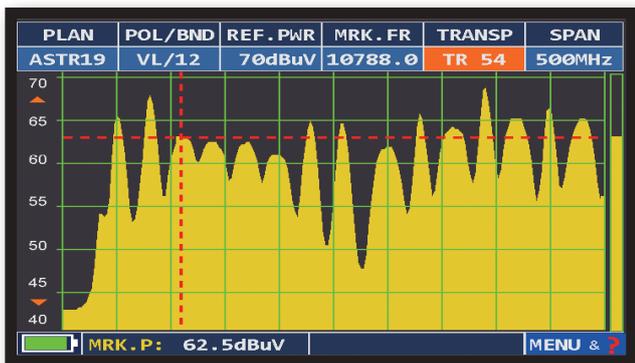


In the spectrum menu, among others, you may set your markers, your grid resolution, the resolution bandwidth filter for more details and save your spectrum picture in the meter's memory.

This spectrum picture may be recalled and used for static analysis and comparison with the live spectrum.

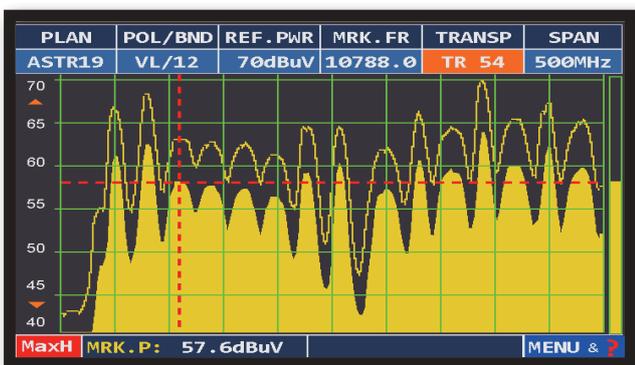
It can also be downloaded to a PC for reporting.

## SPECTRUM ANALYZER SCREENS



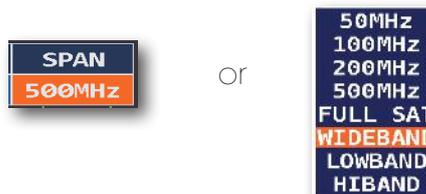
Fast spectrum

Press the spectrum key again to activate the "MAX HOLD" function



Fast spectrum with peak memory "Max H"

Navigate in "SPAN" to modify the value or directly select the active span value



Use the arrow keys to navigate



Enter to confirm



Press to cycle through the spectrum analyzer screens

## RELATED FUNCTIONS



Finds the tuning parameters of a digital signal



Navigate in "MENU" to visualize the additional spectrum functions

# LIST MPEG SERVICE SHOW AND SELECT AVAILABLE MPEG TS SERVICES



Or navigate in Vpid - Apid in the measurement windows and press ENTER twice

PLAN	MODULAT	DiS	POL/BND	FREQ	TRANSP
ASTR19	DVB-S2	A	HL/18	10773.0	TS53
NAME	TYPE	ENC	LCN	HSE24 HD	
ANIXE HD	TV-HD	N			
QVC HD	TV-HD	N			
HSE24 HD	TV-HD	N			
NICK/CC HD	TV-HD	Y			
N24 HD	TV-HD	Y			
ASTRA Portal	TV-HD	N			
NICK/CC HD A	TV-HD	Y			
DATE:	16/07/2012		SERV. ID.: 21104		
VIDEO RATE:	2.43 Mb/s		TELETEXT: YES		
NID: 1		NETW: ASTRA 1		MENU & ?	

Mpeg service list



Use the arrow keys to navigate

Navigate in Vpid - Apid & press enter to return to the measurements or press the "SAT" measurement key

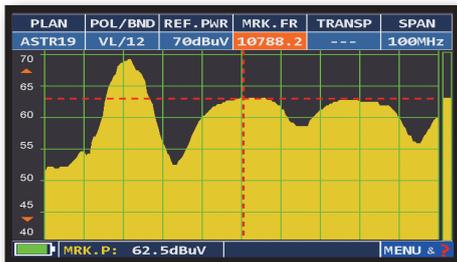


## HELP INSPECT THE PARAMETERS OF AN UNKNOWN SIGNAL

The "help" function identifies the tuning parameters of a digital sat signal.

### HOW TO USE THE "HELP" FUNCTION

Spectrum mode: move the "mrk.Fr" to the center of a digital carrier



or

PLAN	MODULAT	DiS	POL/BND	FREQ	TRANSP
ASTR19	DVBS&S2	A	VL/12	10788.0	TP54
POWER: 64.0dBuV					
MER: ---		EVM: ---			
NsMAR: ---		QLV: ---			
bBER: ---		Vpid: Apid:			
aBER: ---		LNB Curr: 4mA			
		FREQ. ERR: ---			
		ENCRYPT.: ---			
TSID:		ORB.:		MENU & ?	

In measurement mode when the lock icon is open (the signal is not locked)

Navigate in "HELP" on the main menu



Press to start the search



PLAN	MODULAT	DiS	POL/BND	FREQ	TRANSP
ASTR19	DVBS&S2	B	VL/12	10788.2	---
SEARCHING MODULATION		FOUND DVBS&S2			
SEARCHING FREQUENCY		FOUND 10788.2			
SEARCHING SYMBOL RATE		FOUND 22.000MS/s			
HELP FUNCTION					EXIT

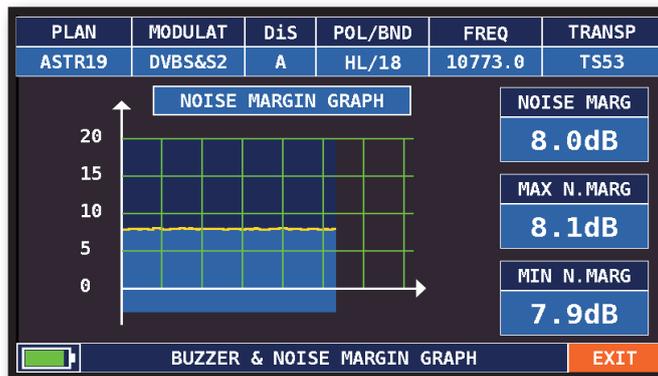
The "help" function will try to identify the tuning parameters of the selected digital carrier

At the end of the search (the word "Found" will be shown in the 3 boxes) the meter automatically shows the measurement display and the picture of the selected carrier (if available).

# SPECIAL FUNCTIONS



## BUZZER & NOISE MARGIN GRAPH



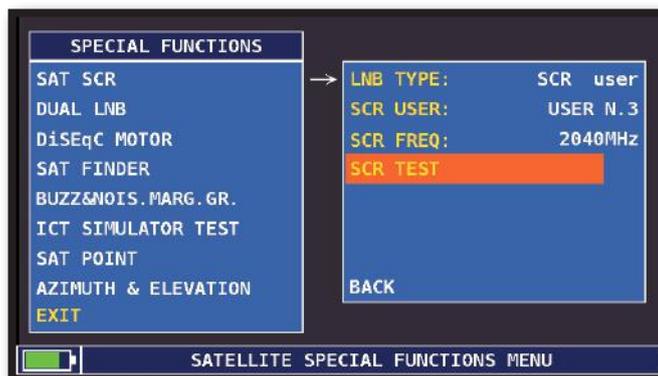
Navigate in:  
BUZZ&NOIS.MARG.GR

Buzzer & Graphic of the progress of the NOISE MARGIN for the tuned channel according to time.

- high tones = the BEST Noise Margin level
- deep tones = the WORST noise margin level
- Noise Marg = real time noise margin
- Max n.marg = maximum stored noise margin

## SAT SCR

SCR, dSCR & daSS LNBS



Navigate in "SAT SCR"

Navigate in "LNB TYPE" and choose the LNB/MULTISWITCH model

Navigate in "SCR USER" and choose the user number to test (USER 1-8)

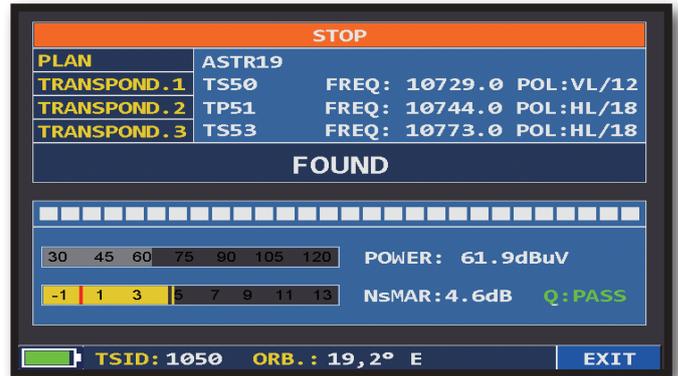
Press "SPECT" to display the spectrum or "MEAS" to start measuring

or navigate in "SCR CABLE TEST" to see the SCR in spectrum mode and check the LNB/MULTISWITCH 8 frequencies (USER 1-8).

# SAT FINDER



Navigate in "SAT FINDER"



To change the displayed transponders manually, touch "stop" and select the wanted tp/ts. Touch "start search" to start.

If the chosen satellite is found the buzzer will start, if this does not happen, continue looking for the right satellite. Optimize the dish alignment and skew to obtain the maximum NsMAR value (noise margin).

N.B.

For a proper use of the "sat finder" function, verify the tuning parameters for all three transponders (frequency, polarity, band and symbol rate) and the type of LNB you are using (universal or quatro)

Go to the [www.Lyngsat.Com](http://www.Lyngsat.Com) site for more information

# AZIMUTH & ELEVATION



Navigate in "AZIMUTH & ELEVATION"



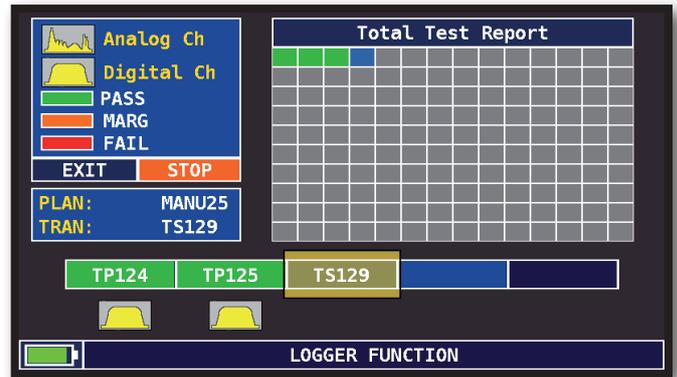
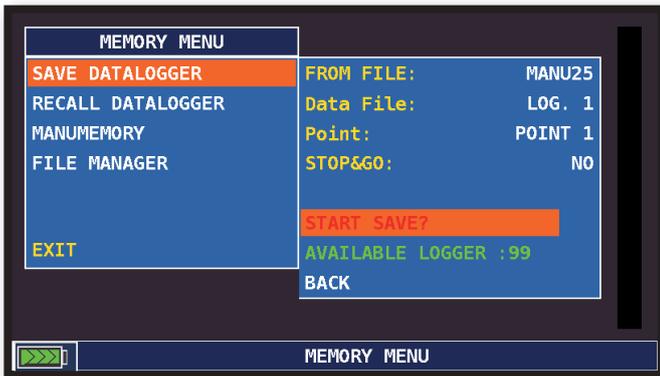
Choose a satellite orbital position and input the latitude and longitude of the dish installation site to compute the azimuth, elevation and tilt for the dish of your installation.



# MEMORY CHANNEL PLANS AND LOG FILES



## LOGGER SAVE



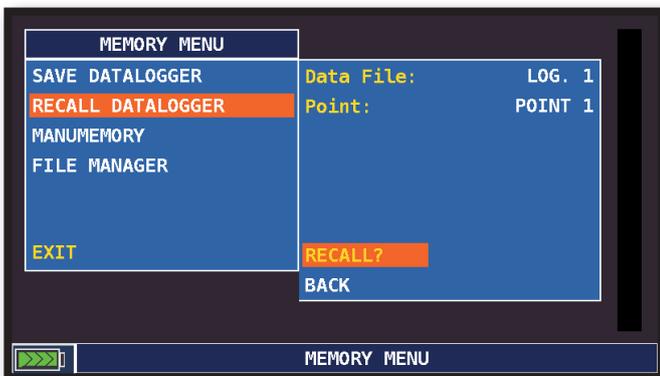
Touch "SAVE DATALOGGER" and set the parameters required. Touch "START SAVE" to create a new log file

DATA LOGGER run

### N.B.:

- 1) The "STOP & GO" function will help you when running a **LOGGER** by asking you to move the cable lead to the appropriate LNB output SAT signal source.
- 2) If **LNB L.O. = WIDE BAND** is chosen in the satellite configuration menu, select for the **STOP&GO = TV&WBand LNB**. During the logger the instrument will ask you to move the RF cable from the H to the V polarization and viceversa following the active memory plan structure.

## LOGGER RECALL



LOG. 1 POINT 1		EXIT			
NAME	TYPE	PWR LVL	MER C/N	bBER A/V	aBER PER
TS123	DVB-S2	69.9	15.8	2.0E-03	<E-07
TP124	DVB-S	64.9	12.0	1.0E-04	<E-08
TP125	DVB-S	68.8	14.8	1.0E-06	<E-08
TS129	DVB-S2	69.4	15.8	2.0E-03	<E-07

Touch "RECALL DATALOGGER" and Set the LOG file parameters. Touch "RECALL?" to see them

Browse through the measurements saved in the log file



Use the arrow keys to navigate

# SERVICE AND SUPPORT WEB REGISTRATION AND SOFTWARE UPGRADES

## FREE SW UPGRADE and NEWSLETTER SERVICE:

- ROVER offers you the possibility of carrying out **Free Software** and **Memory Plan Upgrades** on your Meters, by simply REGISTERING your data in the **Update SW Area**;
- Once you have registered, you can download the **ROVER S.M.A.R.T. program free of charge**, which is necessary for the installation of SW and/or Memory Plan upgrades;
- ROVER also offers you the possibility of registering to our **Newsletter** service, which allows you to receive, by email and **free of charge**, information regarding: New SW upgrades, Technical Communications, Training Courses, Technical Articles, Product News, Invitations to exhibitions and roadshows and much more besides.



## UPDATE SW AREA REGISTRATION:

If you have not already registered, click on the words **“Update SW”** in the menu in the top, right-hand corner of your screen:

- Click on **“Register Now (First Access)”** in the dropdown menu to access the Update SW Area;
- Fill in the electronic form with all **your Personal Information** and the **Username** of your choice;
- After you have completed the form, confirm by pressing the black **“Send”** key at the bottom of the page;
- Once sent, a page will be shown with a summary of your **Registration Data**, where you can modify your data by clicking on the **BLUE “Change Data”** key, print it by clicking on the **BLACK “Print Data”** key or directly access the Update SW Area by clicking on the **RED “Access SW Upgrade Area”** key;
- You will also receive an **e-mail** message, reminding you of your chosen **User Name** and the **Password** assigned by ROVER. Keep it in a safe place for future access to the Update SW Area and so that you can download new SW upgrades and/or Memory Plans;
- If you **lose** your User Name or your Password assigned by ROVER, click on the function **“Forgot User Name or Password? Click here”** in the drop down menu in the **“Update SW”**.

## S.M.A.R.T. PROGRAM

The S.M.A.R.T. program was created by ROVER to enable you to interface your Meter with a PC. After you have accessed the Update SW Area, download and install the S.M.A.R.T. program on your PC. This program enables you to carry out SW upgrades and/or upload Memory Plans (.mem). There are two types of S.M.A.R.T. program: S.M.A.R.T. PRO for all ROVER Meters and S.M.A.R.T. FAST for PDA models only.

The S.M.A.R.T. program has two versions: Standard and PRO. The S.M.A.R.T. PRO is initially functional for 30 days free of charge. The S.M.A.R.T. PRO version (if you have not acquired the respective APP) automatically expires after 30 days and becomes SMART Standard.

To purchase the S.M.A.R.T. PRO APP contact the ROVER Technical Service Department.

- The S.M.A.R.T. Standard program allows you to continuously update your Meter's SW;
- The S.M.A.R.T. PRO program allows you to create mixed SAT-TV-CATV Memory Plans, download Data Loaders and manage your Meter's Memory.

# SOFTWARE UPGRADES

## SOFTWARE UPGRADES:

Once you have identified and downloaded the correct **ROVER S.M.A.R.T.** program on your **PC** ( for more information, read the respective S.M.A.R.T. page in this user guide ) install it on your **PC** in order to upgrade your Meter's **Software ( SW )**. Then proceed as follows:

- In the **Update SW Area** identify the exact **Name/Model** of your Meter and click on the corresponding picture;
- Then click on the corresponding **"SW Upgrade"** file and download it on your PC;
- If you want to see more detailed information about the SW upgrade contents, click on the blue **"i"** icon.

## WARNING:

- Before carrying out your Meter's SW upgrades, we suggest you **close all the applications that are active on your PC**: e-mail messages, internet, management programs, etc.
- Also check that the Meter's batteries are charged and that the Meter is connected to the mains. Most importantly do not turn off or disconnect the Meter from the mains during the upgrade. The Meter will automatically turn off once the SW upgrade has been completed.

**N.B.** If the graphic of your PC bar shows that the upgrade advancement is blocked, do not interrupt the procedure because the SW download is still taking place even if the PC monitor does not correctly show the advancement in sequence.

## PROCEDURE:

1. Connect your Meter to the mains and turn it on;
2. Wait for the Start-Up phase of the Meter to finish correctly;
3. Connect the **USB** cable, **first** to the Meter and **then** to the **PC**;
4. Start up the **ROVER S.M.A.R.T.** program in your PC;
5. In the ROVER S.M.A.R.T. program window, click on **"Instrument"** followed by **"Upgrade Firmware"**;
6. In the **Open** window, select the **"SW Upgrade ( .rvr )"** downloaded from the Update SW Area;
7. Click on **"Open"** and confirm the selection;
- 8. The SW upgrade procedure will automatically start up;**
9. If this does not happen, the **Upgrade Firmware** window will open, select the exact model of your Meter and click on **"Upgrade"** to carry out the Upgrade manually;
10. Wait a few minutes, the ROVER S.M.A.R.T. program will load the new SW in your Meter;
11. Once the download has been completed, the following message on the PC will appear: **Power on the meter to activate FW \*\*PROGRAM SUCCESSFUL\*\***;
12. If the Meter did not automatically turn off, turn it back on again and check, in the Start-Up or Self-Test window ( METER INFO - INFO ABOUT ), the SW version number.

## WARNING:

In the case the update is interrupted or is not successful, check the USB cable connection and repeat the procedure from the beginning.

If the procedure described in this paragraph continues to fail, contact the ROVER After Sales and Service Department:

- e-mail: [wecare@roverinstruments.com](mailto:wecare@roverinstruments.com)
- Fax: +39 030 990 68 94

It is possible to download the Software Upgrade Procedure directly from the ROVER website at the following address: [www.roverinstruments.com](http://www.roverinstruments.com). Please refer to the "F.A.Q." section.

# TV & SAT MEMORY PLAN UPGRADES

## MEM PLANS UPGRADES:

Once you have identified and downloaded the correct ROVER S.M.A.R.T. PRO program on your PC ( for more information, read the respective S.M.A.R.T. page in this user guide ), install it on your PC in order to load the Memory Plans in your Meter. The proceed as follows:

- Once you have accessed the Update SW Area, identify the exact Model/Name of your Meter and click on the corresponding picture;
- Click on the relative file: "Plans and Satellites" and download it on your PC.

## WARNINGS:

- Before carrying out your Meter's Memory Plan upgrades, we suggest you close all the applications that are active on your computer: e-mail messages, internet, management programs, etc.
- Also check that the Meter's batteries are charged and that the Meter is connected to the mains. Most importantly do not turn off or disconnect the Meter from the mains during the upgrade.

**N.B.** If the graphic bar showing the upgrade advancement blocks, do not interrupt the procedure because the Memory Plan Upgrade is still taking place even if the PC monitor does not correctly show the advancement in sequence.

## PROCEDURE:

1. Connect your Meter to the mains and turn it on;
2. Wait for the Start Up phase of the Meter to finish correctly;
3. Connect the USB cable, first to the Meter and then to the PC;
4. Make sure that you have installed the PRO Version and start up the ROVER S.M.A.R.T. program in your PC;
5. In the ROVER S.M.A.R.T. PRO program window, click on "Instrument" followed by "Connect Instrument";
6. Click on "Tools", then "Mem" e and then "Open Mem" In the ROVER S.M.A.R.T. PRO program window;
7. In the Open window, select the "Memory Plan ( .mem )" downloaded from the Update SW Area;
8. Click on "Open" and confirm the selection;
9. Click on "Tools", then "Mem" and then "Write Mem to Instruments";
10. The following message will appear: WARNING: This operation will delete all the previous plans stored in the meter;
11. Click on "OK" and confirm to start the upgrade;
12. Wait a few minutes, the ROVER S.M.A.R.T. PRO program will load the new Memory Plans in your Meter;
13. Once the download has been completed, the following message will appear: Plan Memory download succesfully !.

## WARNING:

In the case the update is interrupted or is not successful, check the USB cable connection and repeat the procedure from the beginning.

If the procedure described in this paragraph continues to fail, contact the ROVER After Sales and Service Department:

- e-mail: [wecare@roverinstruments.com](mailto:wecare@roverinstruments.com)
- Fax: +39 030 990 68 94

It is possible to download the Software Upgrade Procedure directly from the ROVER website at the following address: [www.roverinstruments.com](http://www.roverinstruments.com). Please refer to the section "F.A.Q."

# LI-ION POLIMER BATTERIES

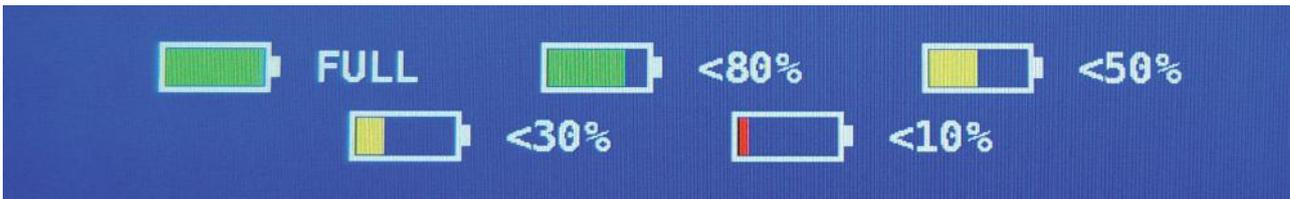
## IMPORTANT:

- ALWAYS TURN THE INSTRUMENT OFF BEFORE CONNECTING THE BATTERY CHARGER;
- DO NOT LEAVE THE BATTERIES DISCHARGED FOR LONG PERIODS;
- ALWAYS CHARGE THE BATTERIES AT NIGHT FOR AT LEAST 7 HOURS, EVEN IF THEY ARE NOT COMPLETELY DISCHARGED.

## USEFUL INFORMATION:

1. The batteries supplied are high quality and tested individually, the autonomy depending on the following conditions:
  - the LNB power consumption: Single, Dual or Quadruple;
  - the external temperature: with temperatures of less than 10°C, 20% of the capacity is lost;
  - the age of the batteries: a 10% loss in efficiency each year;
  - Remember that the TIMER OFF function, that automatically turns off the Meter after 5 or 10 minutes of inactivity saves up to 30%.
2. The battery indicator has a tolerance ( like all battery powered electronic devices ) according to the following factors:
  - the battery's charging percentage;
  - external temperatures;
  - battery wear and tear;
  - +/- 2%.

## ICONS SHOWING THE BATTERY CHARGE STATUS:



## BATTERY AUTONOMY:

The battery autonomy is up to 4 hours maximum.



# WARNINGS



## RECHARGEABLE BATTERY

This device contains a built-in Li-PO (Lithium polimer) battery that can be recharged many times.

The battery contains chemicals that might wear with time even if not used. Please dispose of batteries properly.

Do not take the battery pack apart or expose it to extreme temperatures (over 50°C). If the device has been exposed to very low or high temperatures let it rest at room temperature before use.

## RECHARGING THE BATTERY

The Battery must be recharged at room temperature (about 20°C) with the device turned off.

To avoid premature failure of the battery never leave the device with an empty battery for prolonged periods.

# BATTERY TEST & BATTERY REGENERATION

THIS PROCEDURE EXPLAINS HOW TO REGENERATE/CHECK YOUR BATTERIES AND CALIBRATE THE BATTERY CHARGE INDICATOR

## USEFUL ADVICE:

- Charge the batteries every night after use, even if they are not completely discharged;
- Always use the "battery save" & "timer off" functions to increase your meter's autonomy;
- The maximum capacity of the batteries and battery charge indicator's accuracy improves by up to 20% if you carry out many battery test cycles;
- Do not replace the batteries: first carry out 3 to 5 battery test cycles until you recover the maximum capacity of the batteries.

## "BATTERY TEST" INSTRUCTIONS & PROCEDURE:

1. Before carrying out the test connect the meter to the original battery charger:
  - Turn on the meter;
  - Press the volume key and select "configuration menu" (fig. 1);
  - Select the word "meter" and press "ENTER" (fig. 2) & press "ENTER" to confirm;
  - Select "battery test" and select "on" (fig. 2);
  - Press "enter" to confirm;
  - Carefully read the various screens, pressing "enter" in succession;
  - In the last instructions window, select "start" and press "enter" to start the test.

**WARNING:** the procedure will be cancelled if you select "exit" on any screen.

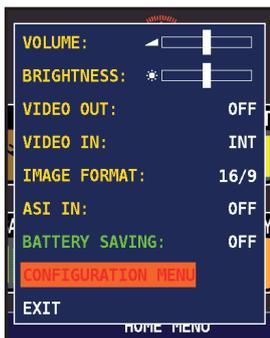


FIG. 1\*

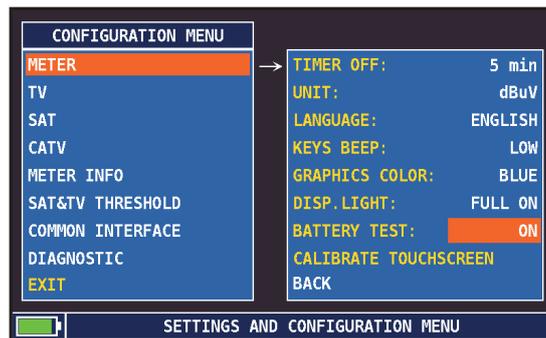


FIG. 2\*



FIG. 3\*

## IMPORTANT ADVICE:

- Do not connect any type of load to the "f" input connector (Inb, tv head-end, amplifiers, etc.).
  - Extract the conditional access module (cam), if it is present in your meter.
2. The battery test takes approx. 12/18 Hours according to the model (charging/discharging/recharging activities and measurement of the battery autonomy), during this time the meter must not be used. At the end of the test the meter will turn off automatically. In order to make sure that the test has been carried out correctly, all the meter's commands are blocked except for the reset function, which remains active so that the meter can be turned off if necessary.
  3. the batteries will be completely charged at the end of the test.
  4. To check the battery test results, enter once again into "meter" in the "configuration menu" and read the results (Fig. 3):
    - for example 265BFEY (fig.3) = 265 minutes.The "Y" of YES confirms that the battery is still good enough, whereas an "N" for NO indicates that it could be faulty, too deteriorated or that the cycle was interrupted.

## IMPORTANT NOTES:

If the test is interrupted using "reset", the battery charge indicator may provide incorrect indications, therefore repeat the battery test procedure.

\* The displays shown in this guide may change according to the model and are subject to change without notice. If you connect your meter, using the s.M.A.R.T. Pro program, from the usb port to the pc, you can download the screens shown above.

# POWER SUPPLY (MAINS) AND BATTERY CHARGE (CHRG) LED STATUS



INSTRUMENT	CONNECTED TO THE MAINS POWER SUPPLY	▼ LED MAINS	▼ LED BATT CHRG	NOTES
OFF	NO	OFF	OFF	Batteries sufficiently charged
ON	NO	OFF	OFF	Battery operation
OFF	NO	OFF	Flashing 2 SECONDS OFF 0.5 SECONDS ON	The meter does not turn on. Recharge the batteries.
OFF	YES	ON	Flashing 0.5 SECONDS OFF 0.5 SECONDS ON	Abnormal battery temperature. The recharge cycle has been suspended temporarily and will automatically reset.
OFF	YES	ON	ON	Batteries in fast charge
OFF	YES	ON	OFF	Battery charge completed
OFF	<b>WITH A POWER SUPPLY NOT FROM ROVER</b>	Flashing 0.5 SECONDS OFF 0.5 SECONDS ON	OFF	<b>The meter does not turn on. Check the mains power adapter, it must be 12 Vdc and not 18 Vdc</b>
turning ON	Indifferent	FLASHES 15 TIMES	OFF	The meter is being turned on
ON	Indifferent	FLASHING SIMULTANEOUSLY 0.5 SECONDS OFF - 0.5 SECONDS ON		The meter detects an error and turns off automatically.
ON	YES	FLASHING ALTERNATIVELY 1 SECOND OFF - 1 SECOND ON		BATTERY TEST being carried out. The meter charges and discharges the batteries AUTOMATICALLY

# METER MAINTENANCE

## 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, damped with a simple water and alcohol solution or a de-greasing not abrasive liquid soap.

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

## MAINTENANCE 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, 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. If possible, contact Rover Laboratories S.p.A. Technical Assistance.

# SERVICE NOTES and GUARANTEE REGULATIONS

(CEE and EXTRA CEE)

ROVER Laboratories. S.p.A. has a standard guarantee period of 12 months.

This is extended to 24 months for countries within the European Community, and in any case, in accordance with the laws and/or possible regulations applied in your country.

## GUARANTEE REGULATIONS:

1. IMPORTANT: the guarantee is valid only upon the presentation of invoice or receipt to ROVER Laboratories S.p.A. The purchase date must be clearly indicated on the invoice/receipt.
2. The guarantee covers the replacement free of charge of parts only, when malfunctioning is solely due to manufacturing faults. The faults must be identified and defined by ROVER personnel only.
3. The guarantee is void if:
  - a. the equipment is tampered with or repaired by non-authorized personnel
  - b. damage is found, caused by the incorrect use of the equipment, without following the advice explained in the User's Guide accompanying the equipment.
  - c. damage is found caused by the use of the equipment in unsuitable working environments.
4. The following parts are not covered by the guarantee:
  - a. Parts subject to wear, such as aesthetic ones, keyboard, plastic chassis, etc.
  - b. Batteries: 3 months from the date of purchase, if original.
  - c. Bags and carrying cases, including shoulder straps.
5. The equipment can not be replaced and the guarantee is extended after the repair of a fault.

## SERVICE NOTES AND PROCEDURES:

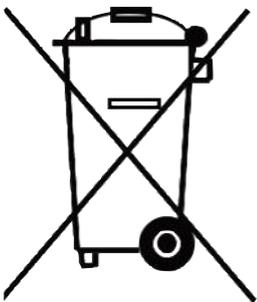
6. The equipment can only be repaired by the manufacturer or by an authorized ROVER Laboratories service center:
  - a. *Before returning the meter for repair, always contact the distributor where you purchased the unit or an authorized service center if present in your area to obtain the return procedure for your analyzer. If no authorised ROVER service centers are available in your area, please contact ROVER Laboratories S.p.A. directly at the following data:*
    - **wecare@roverinstruments.com**
    - **+39 030 990 6894**      **Fax number**
  - b. *Important: please take note that non-authorized returns for repair to ROVER Laboratories S.p.A. will be rejected.*
  - c. *When returning the meter, always send it with the following documentation attached:*
    - *the fully-compiled FAULT IDENTIFICATION FORM*
    - *transport document*
    - *the eventual request for an estimate of repair costs*
  - d. *Please note that the request for an estimate of repair costs must be submitted upon return of the analyzer with a written note. If the repair cost estimate is not accepted, ROVER Laboratories reserves the right to charge the customer for the estimate costs analysis.*

7. Risks and costs for transport to ROVER Laboratories S.p.A. must be sustained by the buyer. After repair, if the equipment is under guarantee, ROVER Laboratories S.p.A. will pay for the transport returning the goods to the customer. If the instrument is not under guarantee, after repair, the equipment will be returned by courier service with the amount to be paid by the customer shown on the invoice.
8. The guarantee does not cover compensation for direct or indirect damages of any kind to people or goods caused by the use of the equipment and/or compensation caused by the suspension of use due to eventual repairs.
9. ROVER Laboratories S.p.A. is not responsible for eventual tampering and/or modifications that may cause the goods to no longer adhere to the European "CE" regulations, especially regarding EMC and safety.
10. ROVER Laboratories instruments is recognised and is fully compliant with DVB regulations and specifications (ETS 300 421-12/94) and is consequently marked with the DVB logo.

## 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.

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

# FAULT IDENTIFICATION FORM (RMA)

To: ROVER INSTRUMENTS SERVICE DEPARTMENT • Fax: +39.030.9906894  
E-mail: [wecare@roverinstruments.com](mailto:wecare@roverinstruments.com) • Subject: FAULT Identification Form

## PLEASE FILL IN ALL AREAS. CUSTOMER INFORMATION:

- Date ..... Company: .....
- Name and surname of the holder \* : .....
- Company address \* : .....
- City \* : ..... ZIP code \* : .....
- Address delivery/pickup, a subsidiary of \* : .....
- City \* : ..... ZIP code \* : .....
- VAT \* : .....
- Tax code \* : .....
- Telephone: .....
- E-mail \* : .....
- Reference person: .....
- Bank support \* : .....
- IBAN code \* : .....

\* Fields NOT required for official ROVER dealers (required for any end customer).

N.B. Please enter the TAX CODE even if it the same as your VAT number. In the case of sole proprietorship, please communicate the name and surname of the owner.

## METER INFORMATION:

- Meter Model: .....
- Purchase date: .....
- Copy and invoice number (if under warranty): .....
- Bought from: .....
- Software Version (SW): ..... (optional)
- Hardware Version (HW): ..... (optional)
- Serial Number (S.NO): .....

**NOTE:** the information relevant to: model, serial number, firmware/hardware version are shown on the first display after you switch on (start up), or on the meter's information display in the configuration menu. If the meter does not switch on, you can find the meter's serial number on the label placed on the back of the meter.

## DETAILED and ACCURATE DESCRIPTION OF FAULT:

Please describe and attach the fault, especially if OCCASIONAL, or if it occurs ONLY under certain conditions: for example "cool instrument" or "warm instrument", after no. minutes of operation, etc.

We suggest you provide photographs of the damaged parts or attach a movie that shows the problem on the display. If descriptions of the fault are incomplete and we are unable to reproduce the fault in our laboratories, we may have to resend you the instrument unrepaired.

.....  
.....  
.....  
.....  
.....  
.....

(\* ) add lines if more space is needed for your description.

TIMING OF REPAIRS: The applicable Repair times are 10 working days (barring unforeseen circumstances).

WARRANTY REPAIRS: Repairs are guaranteed for 3 months on the same intervention.

**DO NOT SEND ROVER YOUR INSTRUMENT UNTIL YOU HAVE REQUESTED AND RECEIVED OUR "RMA" AND BAR CODE, WITH SHIPMENT INSTRUCTIONS, OTHERWISE THE INSTRUMENT WILL BE REJECTED ON ARRIVAL AT ROVER.**

To receive information regarding the status of your authorization, write to: [wecare@roverinstruments.com](mailto:wecare@roverinstruments.com) quoting your "RMA" number



# SUGGESTED VALUES

This table shows the suggested measurements at a user's socket for the main digital modulations.



**SUGGESTED VALUE TO:** SUBSCRIBER SOCKET, KUNDEN ANTENNEN DOSE, PRESA UTENTE, PRISE DE L'ABONNE', TOMA FINAL DE USUARIO, АБОНЕНТСКИЙ РАЗЪЕМ

DVB-S QPSK			DVB-S2 8PSK			DVB-T-H & GB COFDM			DVB-T2 & GB COFDM			ATSC (USA) 8VSB		
PARAM.	MIN	TYP.	PARAM.	MIN	TYP.	PARAM.	MIN	TYP.	PARAM.	MIN	TYP.	PARAM.	MIN	TYP.
AVG PWR	40 dB $\mu$ V	50 dB $\mu$ V	AVG PWR	40 dB $\mu$ V	50 dB $\mu$ V	AVG PWR	40 dB $\mu$ V	50 dB $\mu$ V	AVG PWR	40 dB $\mu$ V	50 dB $\mu$ V	AVG PWR	-15 dBmV	-5 dBmV
NOISE MARG.	3 dB	6 dB	NOISE MARG.	3 dB	6 dB	NOISE MARG.	6 dB	9 dB	NOISE MARG.	6 dB	9 dB	NOISE MARG.	2 dB	9 dB
aBER post Viterbi	2x10 <sup>-6</sup>	2x10 <sup>-8</sup>	PER 8PSK	<1x10 <sup>-7</sup>	<1x10 <sup>-8</sup>	aBER post Viterbi	2x10 <sup>-6</sup>	2x10 <sup>-8</sup>	PER	1x10 <sup>-7</sup>	1x10 <sup>-8</sup>	bBER pre Trellis	1x10 <sup>-3</sup>	<1x10 <sup>-6</sup>
MER QPSK 2/3 FEC	9 dB	12 dB	MER 8PSK 2/3 FEC	11 dB	14 dB	MER 64 QAM 2/3 FEC	25 dB	28 dB	MER 256 QAM 2/3 FEC	25 dB	28 dB	bBER post Trellis	3x10 <sup>-6</sup>	<1x10 <sup>-8</sup>
MER QPSK 3/4 FEC	10 dB	13 dB	MER 8PSK 3/4 FEC	12 dB	15 dB	MER 16 QAM 2/3 FEC	20 dB	23 dB	MER 256 QAM 3/4 FEC	26,5 dB	29,5 dB	aBER pre R.S.	3x10 <sup>-6</sup>	<1x10 <sup>-8</sup>
MER QPSK 5/6 FEC	11 dB	14 dB	MER 8PSK 5/6 FEC	13 dB	16 dB	MER QPSK 2/3 FEC	14 dB	17 dB	MER 256 QAM 5/6 FEC	28,5 dB	31,5 dB	MER	16 dB	23 dB



made in Italy



# ACCESSORIES SUPPLIED

## LIST OF ACCESSORIES SUPPLIED:

- Soft BAG
- Removeable side pocket for tools and accessories
- Shoulder strap
- Battery charger power supply
- User guide (CD)
- F Female - F Female connector
- QUICK F Male - F Female connector

**NOTE:** This list of accessories is subject to change without notice and depends on the meter's configuration.

# NOTES

A series of horizontal dashed lines for writing notes.

# INDEX

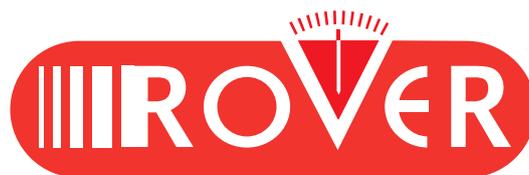
- 2 – Get to know your MASTER SAT EVO
- 4 – Home and Navigation
- 5  Volume and Configuration
- 7  SAT: Analyze Satellite Television Signals
- 9  SPECT: Spectrum Analyzer
- 10  LIST: Show and select available MPEG TS services
- 10  HELP: **inspect the parameters of an unknown signal**
- 11  Special functions
- 13  MEMORY: channel plans and log files
- 14 – S.M.A.R.T. program
- 14 – Service & support web registration & SW upgrades
- 15 – Procedure to upgrade software
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- 17 – LHON POLIMER BATTERIES
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- 23 – Fault identification form
- 24 – Suggested values
- 25 – Accessories

# Customer Support

wecare@roverinstruments.com

+39 030 9198 299

skype® only for call  
wecare.roverinstruments



UG-MASTERSATEVO-EN-V1

Designed in Europe, Assembled in Europe

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