HD Field Strength Meter

TSF-1

240001

User's Manual



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1 TSF 1 – USER MANUAL



1.1 Safety Instructions

Thank you for having chosen this product. It is recommended to you carefully read the following safety instructions prior to use:

- Please carefully read this manual prior to using the equipment for the first time
- When the equipment switches suddenly from a warm to a cold temperature area, certain problems may appear due to

the sudden change in temperature. In this case turn the meter off and turn on again after 1 - 2 hours

- Keep the equipment in clean and well ventilated areas
- Do not cover or place the meter next to or on heat sources
- Clean the meter with a soft cloth or rag
- Under no circumstances whatsoever remove the plastic shell casing from the meter
- Do not expose the meter for long periods to extreme sources of heat or cold, or excessive humidity

Do not wet the meter

WARNING: the instructions refer to the firmware version installed on the meter at the time of purchase. The right to make modifications and improvements as regards the firmware without prior notice is hereby reserved.

1.2 Contents

Open the box and check that the following accessories are included:

- 1. Field strength meter
- 2. Silicone protection
- 3. Battery
- 4. Charger feeder
- 5. 12Vdc in-car charger
- 6. DC out power cable
- 7. HDMI-HDMI Cable
- 8. Cable jack 3xRCA for A/V input and output
- 9. BNC RCA Adapter
- 10. F female F quick-connect male adapter
- 11. Optical fibre adapters (x2)
- 12. Fixed Attenuator
- 13. User Manual
- 14. Carrying bag



1.3 General Description



5

No.	Description	Function
1	DC Connector	Power supply to/charges the meter
2	ON/OFF Button	Turns on and off the meter
3	AV Output	Connects the meter to a monitor via an analogical A/V
4	HDMI Output	Connect s the meter to a monitor via the HDMI
5	USB Port	Connects data memory
6	HDMI Input	Connects the meter to an external source via the HDMI
7	AV Input	Connects the meter to an external source via the analogue A/V
8	12V DC Output	12V DC Output to supply power to an external device
9	Optical Fibre Connector	Connects an optical device
10	Speaker	Built-in speaker
11	SAT Input	Connect cable for DVB-S / DVB-S2 measurements
12	Flashlight	LED Flashlight
13	TER Entry	Connect cable for DVB-T / DVB-T2 measurements
14	PW	LED power on indicator
15	22KHZ	22 KHz LED tone indicator
16	13V/18V	13Vdc / 18Vdc LED power on indicator
17	LOCK	Signal locked LED indicator for carrying out measurements
18	12V	12Vdc LED power on indicator
19	СНБ	LED charge indicator
20	F1-F4	Ancillary functions
21	MENU	Access the main menu or return to the previous menu
22	EXIT	Exiting the menu saving the configuration
23	▲ ▲	Arrow keys and menu navigation
24	INFO	Displays the status of the channel or program information displayed
25	MUTE	Activates / deactivates audio
26	TTXT (<mark>red</mark> button)	Accesses teletext (plus additional colour functions in each menu)
27	SUBT (green button)	Activates / deactivates subtitles
28	EPG (blue button)	Changes the audio channel of a program
29	TV/R (orange button)	Switches from a television program to a radio program
30	Numbers 0 through 9	Channel or program selection
31	SCAN	Program Search
32	AV-S	Activates / deactivates AV (7) or HDMI (6) input

33	•===	Indicates battery level	EK
34	Screen	LCD Screen	

2. Main Menu

Pressing the MENU button to access the main menu which is shown as follows:



To scroll through the menu options, use the arrow keys ▲ ▼ ◀ ► and confirm the selected choice pressing the OK button.



To access this section, select the DVB-S2 option and press the OK button. The following screen will appear:

Enco	Encontrar Satellite		
Satélite	- 2	Ku-Astra1 1	
Frecuencia local		9750/10600	
Transpondedor	-	001	
Frecuencia	-	12266	
Tipo de Símbolo	-	27500	
Polaridad	-	н	
Tono	-	AUTO	
Tono beep	-	ON	
DISEqC Modo	-	DiseqC 1.0/1.1	
THE PROFESSIONAL EQUIP	MENT		- Marks



To scroll through the menu options, use the arrow keys $\blacktriangle \nabla$ and confirm the selected choice pressing the OK button. Scroll downwards using the arrow key ∇ until reaching the second screen within the DVB-S2 menu with the following options:

Enc	Encontrar Satellite			
DiSEqC 1.0	4	None		
DISEqC 1.1		None		
THE PROFESSIONAL EQUI	PMENT			

3.1.1 Satellite

Press the arrow key \blacktriangleright to access the pre-programmed satellite list. Using the arrow keys \blacktriangle \lor one can stroll through the various satellites available. Press OK to select the desired satellite.

Er	ncontrar Satellite	
Satélite Frecuencia local Transpondedor Frecuencia Tipo de Símbolo Polaridad	38: E 019.2 Ku-Astral 1 39: E 020.0 C-Arabsat 5C 40: E 021.5 Ku-Eutelsat 21B 41: E 023.5 Ku-Astra 3B 42: E 025.5 Ku-Eutelsat 25B 43: E 026.0 Ku-Badr 26 44: E 028.2 Ku-Astra 28.2 45: E 028.5 Ku-Eutelsat 28A	
Tono Tono beep DiSEqC Modo	AUTO ON DiseqC 1.0/1.1	
THE PROFESSIONAL EQU	JIPMENT	and the second second

3.1.2 Local Frequency

Using the arrow key \blacktriangleright one can access the list of the LNB types which can be used. Select the option for the installation in question via the arrow keys \blacktriangle \checkmark and press OK.



Encontrar Satellite				
Satélite				
Frecuencia local				
Transpondedor	5: 10700			
Frecuencia				
Tipo de Símbolo	8: 11475			
Polaridad	-1 10: Universal(9750/10600)			
Tono	-11: Universal(9750/10750)			
Tono beep	el ON			
DISEqC Modo	DiseqC 1.0/1.1			
HE PROFESSIONAL EQUIP	PMENT			

3.1.3 Transponder

Using the arrow key \blacktriangleright one access the pre-programmed transponders list of the selected satellite. Select the option to be used in the installation via the arrow keys $\blacktriangle \forall$ and press OK.

Encontrar Satellite		
Satélite	Ku-Astral 1	
Frecuencia local	9750/10600	
Transpondedor	-1: 12266 / 27500 / H	
Frecuencia	2: 11739 / 27500 / V 3: 10729 / 22000 / V	
Tipo de Símbolo	-4: 10773 / 22000 / H	
Polaridad	5: 10803 / 22000 / H 6: 10832 / 22000 / H	
Tono		
Tono beep	8: 10921 / 22000 / H	
DISEqC Modo	DiseqC 1.0/1.1	
THE PROFESSIONAL EQUIP	MENT	

3.1.4 Frequency

In the event of wishing to enter a certain frequency, enter the value in the MHz through the numerical keys of the keypad.

3.1.5 Symbol Rate

To change the symbol rate of the signal, enter the value using the numerical keys of the keypad.

3.1.6 Polarity

To change the polarity (V = Vertical / H = Horizontal) use the arrow keys $\triangleleft \triangleright$.



3.1.7 Tone

Press the arrow keys ◀ ► to activate or deactivate the 22 KHz tone.

Enco	Encontrar Satellite			
Satélite		Ku-Astra1 1		
Frecuencia local	-	9750/10600		
Transpondedor		001		
Frecuencia	-	12266		
Tipo de Símbolo		27500		
Polaridad		(H)		
Tono	2	AUTO	5	
Tono beep		ON		
DISEqC Modo		DiseqC 1.0/1.1		
THE PROFESSIONAL EQUIP	MENT			

3.1.8 Beep Tone

Press the arrow keys ◀► to activate or deactivate the "beep" tone. If activated, the meter will beep when accessing the Quick Search satellite screen once that access has been detected.

3.1.9 DiSEqC Mode

Select using the arrow keys ◀► the DiSEqC selector switch type if necessary: DISEQC 1.0/DISEQC 1.1/ Unicable (for LNBs SatCR).

Encontrar Satellite			010
Satélite		Ku-Astra1 1	
Frecuencia local		9750/10600	
Transpondedor	-	001	
Frecuencia	-	12266	
Tipo de Símbolo	-	27500	
Polaridad	-	н	
Tono	-	Αυτο	
Tono beep	-	ON	
DiSEqC Modo	- 2	DiseqC 1.0/1.1	5
HE PROFESSIONAL EQUIP	MENT	The second second	and the second



3.1.10 DiSEqC & Input

In the event of selecting the DiSEqC 1.0/1.1, using the arrow keys ◀► one can select the port number. In the event of selecting the Unicable option, the selection will change and using the arrow keys ◀► the "IF Channel" SCR Channel and centre frequency of each can be selected.

Enc	(III)		
DiSEqC 1.0	-	1/4	
DISEqC 1.1		1/16	4
HE PROFESSIONAL EQUI	PMENT		

3.1.11 Quick Search

From any of the above options, pressing the OK button one can access the "Quick Satellite Search" function, a screen as shown below will be displayed which includes the comprehensive digital quality measurement (power, CN, BER and MER) values.

IMPORTANT NOTE: The equipment can measure up to 100dBµV. When measuring power values to the output of a main amplifier, it is necessary to add the supplied fixed attenuator to the input of the meter.

38: Ku-Astra1 1 LNB: 9750/10600 Power: 13/18V Freq: 10729 MHz Symb: 22000 K DiSEqC1.0: 1/4 DiSEqC1.1: 1/16 Polar: V 22K: AUTO		Longitud : Mi longitu Mi latitud:	SAT : E 019.2 d: W 000.0 S 000.0
		270.0	067.5 +000.0
PWR: 60 dBu		49%	
CN: 14.4 dB		50%	
BER: 1.0E-9		100%	
MER: 15.1 dE		52%	
Escaneo TP	utoescaneo	S/Q	Constelación

Specifying the latitude and longitude in the general menu options of the equipment (See Section 3.6.14 of this



manual), the orientation and the elevation of the satellite will appear on the top right hand corner of this screen. This can be useful when installing the antenna.

From this screen one can access the various submenus by pressing the coloured buttons on the keyboard:

TP Scan: Press the red button to scan the current transponder programs.

Escanear SAT TP					
Nombre Satélite Buscando Transp	Ku-Astra 1KR onder				
Frecuenci Lista BOING Total	Conseguir 12 TV, 0 Radio	Uni-Ku P 0000 Canal			
ENERGY BARÇA TV MÊXICOTRAVEL	2				
C.ESTRELLAS MOTORS TV PR29862					

•Auto-Scan: Press the green button to search for all satellite channels targeted (the search will be based on the transponders included in the meter's database).

S/Q: press the orange button to access the following screen which shows the power and quality of the signal measurement.



•Constellation: press the blue button to access the representation of the constellation of the selected transponder.

LNB: 9750/10 Power: 13/18 Polar: V	0600 Freq: 10 V Symb: 2 22K: NO	758 MHz DiS 2000 K DiS NE	EqC1.0: None EqC1.1: None	34	83
Modo DVB-S	Constelación QPSK				
Tasa Cód. 5/6	RollOff 0p35		-192		
PWR:	46 dBuV	. 26	- Ale		
CN: BER:	12.5 dB 1.0E-9		1.1989		
MER:	13.2 dB			S	Q





Espectro	m
Espectro satélite	
Espectro terrestre	
THE PROFESSIONAL EQUIPMENT	

Through this option one can access the satellite and terrestrial signals spectrum analyser.

Select the desired option from the two possible options.

3.2.1 Satellite Spectrum

Using this option the satellite spectrum can be displayed. Once selected the following satellite options screen will appear.

Ajus	stes Esp	ectro	(11
Satélite		Ku-Astra1 1	5
Frecuencia local	-	9750/10600	
DISEqC Modo	-	DiseqC 1.0/1.1	
Transpondedor	-	001	
Frecuencia central	-	12266	
Polaridad	-	н	
Tono		AUTO	
DISEqC 1.0	-	1/4	
DISEQC 1.1	_	1/16	
PROFESSIONAL EQUIP	MENT		

On this screen one can directly set the specific transponder parameters to be displayed and to measure the access to the spectrum. In the event if one wishes to display the selected satellite spectrum via the DVB-S2 option from the main menu, simply press the OK button to directly access it without needing to change any of these options.

To find a transponder in particular, select the desired values in the various options which are displayed:

• Satellite: selection of the desired satellite from the pre-configured meter list



- Local Frequency: selection of the local oscillator of the LNB
- DiSEqC Mode: selection of the DiSEqC or LNB SatCR (Unicable) selector switch if available
- Transponder: selection of transponder which is desired to be represented in the spectrum directly
- Centre Frequency: frequency of the transponder selected in the previous option
- Polarity: Indication of the polarity which belongs to the selected transponder
- Tone: activation of the 22 KHz tone
- **DiSEqC 1.0 and 1.1:** selection of the DiSEqC values if any

IMPORTANT NOTE: Once the values are selected, press OK from any option so as to bring up the spectrum.



In the spectrum:

Press horizontal arrow keys ◀ ► to scroll through the frequencies

Press the red button to change the bandwidth (150 MHz, 600 MHz and complete spectrum - full)

Press the green button to change the polarity (Vertical / Horizontal)

Press the orange button to activate or deactivate the 22KHz tone.

Press the **blue button** to select the frequency representation mode (RF for the satellite or IF for the intermediate frequency)

Positioning the marker on a transponder and pressing the OK button, a search of the programs of the transponder in question shall be performed. Once the programs are displayed, press the Info button to obtain additional information as regards both the program as well as the digital quality of the selected transponder.

3.2.2 Terrestrial Spectrum

By selecting this option, the spectrum of the terrestrial band is displayed directly. To scroll the marker through the different



channels / frequencies in the band, use the horizontal scroll arrow keys \blacktriangleleft .



Press the red button to change the bandwidth of the spectrum display.

Press the green button to magnify the representation of a particular multiplex.



Press the orange button so as, once a multiplex is selected, lock its screen and display all digital measurement values (power,

CN, BER and MER).



Press the **blue button** to scan the selected multiplex and download the programs contained in it. Once finished, the download the first program of the multiplex is displayed. Once the channel is displayed, pressing the info button twice, the information as regards both of the selected program and the quality of the multiplex in question will be displayed.

_	Esc Manu	al m
Canal cons Nº de Cana	eguido I CH 31	
Frecuencia Lista La 1	Total Conseguir 5 TV, 4	a banda 9 MHz Radio Canal aluny
La 2 24h Clan La 1 HD.	Ràd Ràd	io 4 io Exterior RNE
	T	

3.3 DVB-T2

To access this section, select the DVB-T2 option and press the OK button. The following screen will appear:

Co	Conf Escan		
Ajustes de pals	-	Españ	
Nº de Canal		CH - 31	5
Frecuencia		554.000 MHz	
Ancho banda	-	8 MHz	
Modo		T	
LCN		ON	
Tono beep		ON	
Alimentación antena	-	5V	
Alimentación antena THE PROFESSIONAL EQUIPM	ENT	OFF	

3.3.1 Country Settings

Using the arrow keys \blacktriangleleft select the desired country.

3.3.2 Channel Number

Using the horizontal scroll arrow keys ◀► select the specific terrestrial channel which is to be measured.

3.3.3 Frecuency

This displays the centre frequency of the terrestrial channel selected in the previous option. The frequency value in MHz

may be changed using the numeric keypad on the meter.



Using the scroll arrow keys < > one can select the transponder bandwidth to be measured (5 / 6 / 7 / 8 MHz).

3.3.5 Mode

Select using the arrow keys ◀► the digital terrestrial television standard: DVB-T, DVB-T2 or both in the event that in the spectrum the multiplex of both standards is found.

3.3.6 LCN

Activation and deactivation of the LCN (Logic Channel Number) system. This option can be always activated.

3.3.7 Beep Tone

Using the arrow keys ◀► select the activation (ON) or deactivation (OFF) of the "beep" tone. If the ON is selected a beep on the quick channel scan screen will be emitted. (Point 3.3.10).

3.3.7 Antenna Power Supply

Select using the horizontal scroll arrow keys $\blacktriangleleft \triangleright$ the power voltage of the active terrestrial antenna or signal preamplifier (5 V / 12 V / 24 V).

3.3.8 Antenna Power Supply (activation/deactivation)

This option is used to activate or deactivate the power supply of an antenna or a signal preamplifier. The voltage sent by the meter shall be as specified in the preceding point.

3.3.10 Quick Search

From any of the above options, pressing the OK button one can access the "Quick Search" function, the following screen will be displayed which includes the comprehensive digital quality measurement values:

IMPORTANT NOTE: The equipment can measure up to 100dBµV. When measuring power values to the output of a main amplifier, it is necessary to add the supplied fixed attenuator to the input of the meter.

		Conf Es	can	(111)
PWR:	72 dBuV		74%	
CN:	30.7 dB		92%	
BER:	1.0E-9		100%	
MER:	33.8 dB		100%	
Nivel R	F:	Constelación	QAM64	DVB-T
7	2 dBuV	Interv. Guard.	1/4	CH - 31
Errores	no correg.	FFT	8K	Freq: 554.000 M
	0	Tasa Cód. HP	2/3	BW: 6 M
	Lock	Tasa Cód. LP	1/2	ANT: OFF
Est	canear //	Autoescaneo	S/Q	Constelación





Scan: Press the red button to search the programs of the selected terrestrial multiplex.

	-	sc Manual	(111)
Canal con Nº de Can	seguido al CH	31	
Frecuencia Lista La 1	Total Conseg	uir 5 TV, 4 Radio Canal	MHz 17 0004 aluny
La 2 24h Clan La 1 HD.		Ràdio 4 Radio Exterior RM	VE
т		,	

Auto-Scan: press the green button to perform a search of all programs in the terrestrial spectrum.

Autoescaneo 🗰					
Detectar Canal Progreso	Bloq To 45%	tal s			
Frecuencia 618	.00 MHz	Ancho banda	8	MHz	
Lista TV RAC105 Telecinco Definitivo FDF Definitivo Divinity Definitivo Telecinco HD De Cuatro HD Defini	N° 0022 ivo finitiv itivo	Lista de Radio MELODIA FM Radio Nacional Radio 5 Ràdio 4 Radio Exterior RAC1 RAC105	N° I Catalı RNE	uny	

•S/Q: press the orange button to access the following screen which shows the power and quality of the signal of the selected terrestrial multiplex.



Constellation: Press the blue button to access the representation of the constellation of the selected terrestrial m



Tuner System DVB-T 69 dBuV PWR: 72 85 Frecuencia 490.000 Ancho banda 8 MHz MER: 35.2 dB 64QAM Constelación Interv. Guard. 1/4 FFT 8K Tasa Cód. HP 2/3 Tasa Cód. LP 1/2 Modo Jerárquico S

3.4 Optical power



This menu allows one to measure the power of an optical signal. To that end, it will be necessary to specify the wavelength of the signal.

	Potencia óptica					
	Longitud de onda	-	850	5		
	Unidad de medida	-	W			
		LO				
			W			
THE	PROFESSIONAL EQUIP	MENT				

The power value can be displayed in W or dBm.

3.5 Miscellaneous



In this menu option there are several additional options offered by the meter. By selecting this option the following screen will be displayed:



	Varios	(111)
	Info Programa	
	Canal	
	EPG	
	Film	
	Música	
	Foto	
	Ajustes Satélite	
	Autoescaneo	
THE PROFES	Transpondedor SIONAL EQUIPMENT	

3.5.1 Program information

This option provides comprehensive information on the terrestrial TV programs downloaded via the DVB-T2 option menu as well as the digital quality digital values of the multiplex belonging to the selected program at any given moment.

Int	fo Programa	(111)
DVB-T2-T Todos Servic. I ^a NombreProgr.	CH-31 Freq: 554.0 MHz BW: 8	73 99 M
004 Programa 4 1005 GolT Definitivo 1006 Energy Definitivo 1007 Boing Definitivo 1008 La 1	Video PID:0101 MPEG2 720X Audio PID:0103 MPEG2 192K	576 *
Jo. Uh	PCR: 0101 ONID: 891 NID: 65535 TSID: 1008	5 3 -
	PWR: 73 dBuV CN: 31.5 dB BER: 1.0E-9	
C REAL	MER: 34.7 dB	ຣີ ຊ

3.5.2 Channel

This option displays all television programs downloaded into the meter. The image as well as the PID audio values and current PID video are displayed.





- S2<<>>T2: pressing the red button will move quickly through the DVB-T2 programs to those of the DVB-S2 downloaded into the meter.
- Lock: pressing the green button the selected program will be locked.
- Del: pressing the orange button the selected program (Select Delete) or all programs (Delete All) will be deleted

3.5.3 EPG

With this option the programming guide of the selected programs will be displayed.

3.5.4 Film, Music and Photographs Options

Plays videos and music and displays pictures which are included in the USB pen drive connected to the equipment. The screen will display the files contained in the USB pen drive. Select the desired option by pressing OK.



3.5.5 Satellite Settings

Adjustment screen of the general pre-programmed satellite parameters in the meter.

Aju	stes Satélite	
N° Nombre Satélite 3/038.2 Ku-Astra1 1	Satélite LNB	Ku-Astra1 1 9750/10600
039 E 020.0 C-Arabsat 5 040 E 021.5 Ku-Eutelsat	Transponder DISEqC 1.0	12266 / 27500 / H 1/4
☎ 041 E 023.5 Ku-Astra 3B ☎ 042 E 025.5 Ku-Eutelsat	DiSEqC 1.1 22K Tone	1/16 AUTO
043 E 026.0 Ku-Badr 26 044 E 028.2 Ku-Astra 28	Polaridad Motor	13/18V
2 045 E 028.5 Ku-Eutelsat	Unicable	None
Potencia 05%	(5%)	and the second second
Calidad 00%	0%	



Using this option it is possible to select a satellite from the list to orientate a satellite dish, graphically displaying the power and signal quality values.

- TP Manager: pressing the red button the information from the pre-programmed satellites can be edited, as well as adding new satellites. <u>IMPORTANT:</u> It is recommended not to access this option or modify the specified above information unless one is absolutely sure that it is correct. Otherwise the meter will delete the information through which the identification of satellites in the quick-search system is made.
- Auto-Scan: pressing the green button a search of the selected satellite transponders on the previous screen will be performed.
- Select All: Press the orange button to select all the satellites from the pre-programmed list.
- Clear All: press the blue button to cancel the selection made of pre-programmed satellites..

3.5.6 Auto scan

Carries out a search for the selected satellite.

3.5.7 Transponder

This option corresponds to TP Manager as specified in Point 3.5.5.

3.6 System Settings



Contains general information on the meter settings.

Aju	stes sis	tema	
Ajustes de país		Españ	
Idioma OSD		Español	
Formato TV		16:9 FIT	
Salida Vídeo		RCA(CVBS)	
Resolución TV		576i	
Salida Audio Digital	-	LPCM	
Zona temporal		+ 01:00	
Bloqueo de Canal		OFF	
Unidad de medida		dBµV	
THE PROFESSIONAL EQUIP	MENT		

3.6.1 Country Settings



Using the arrow keys ◀► select the desired country.

3.6.2 OSD Language

Using the arrow keys \blacktriangleleft select the desired language.

3.6.3 TV Format

Using the arrow keys select the image format which is displayed in the meter (4: 3 or 19: 9).

3.6.4 Video Output

Using the arrow keys ◀► select the video output: RCA if the A/V or HDMI output is connected, or if it were connected.

3.6.5 TV Resolution

Using the arrow keys ◀► select the image resolution of the meter's monitor (576i, 576p, 720p_50Hz, 1080i_50Hz).

3.6.6 Digital audio output

Using the arrow keys ◀► select the digital audio quality output (LCPM, RAW).

3.6.7 Time Zone

Using the arrow keys \blacktriangleleft select the time zone.

3.6.8 Channel lock

Using the arrow keys ◀► select the lock (ON) or release (OFF) of the meter. In the event of locking it, the default password for the unlocking is 0000.

3.6.9 Measurement Unit

Using the arrow keys **I** select the measurement unit with which one wishes to display the digital power (dBmV, dBm, dBmV)

Altavoz		ON	18
Linterna		OFF	
12V	-	OFF	
Luz teclado		OFF	
Ajustar Localización		Seleccionar	
Mejorado	-	Seleccionar	
Valores de fábrica		Seleccionar	



3.6.10 Speaker

Using the arrow keys ◀► select the activation or deactivation of the speaker integrated in the meter.

3.6.11 Flashlight

Using the arrow keys ◀▶ turn on or off the flashlight integrated into the back of the meter.

3.6.12 12V

Using the arrow keys ◀► activate or deactivate the 12V power supply.

3.6.13 Keyboard Light

Using the arrow keys ◀▶ turn on or off the feedback of the keys on the equipment keyboard.

3.6.14 Location Settings

Using this option the location values are specified (longitude and latitude) in the location where it is found. These data will be used to help orientate a satellite dish (See Point 3.1.11 of this manual).

3.6.15 Improvement (firmware update)

Updating of the meter's firmware. To that end, connect a USB pen drive with the new firmware version, select the file and follow the steps specified on the screen.

3.6.16 Default Values

Reset the meter option. Any information stored on the equipment will be lost (downloaded programs, location information ...)



4 TECHNICAL SPECIFICATIONS

REFERENCE	TSF 1	
Code	240001	
Measurements	DVB-T/T2	DVB-S/S2
Connectors	IEC FEMALE 9.5 mm	F FEMALE
Input frequency	48÷-862 MHz	950÷2150 MHz
Input Signal Level	-79.5 dBm (MAX)	-65÷25 dBm
Antenna power supply	5V/12V/17V, MAX 100 mA	-
Demodulation	QPSK, 16QAM, 64QAM, 256QAM	-
Symbol Rate	LCN on/off	-
Values	LEVEL, C/N, BER, MER,	LEVEL, C/N, BER, MER,
	CONSTELLATION T/T2	CONSTELLATION S/S2
Selector Switch Tone	-	22 KHz
LNB Power Supply	-	13v/18V, MAX 400 mA, SCR,
		UNIVERSAL
Symbol rate	-	2 <rs<45 (scpc="" band="" m="" mcpc)<="" td=""></rs<45>
AV Inputs/Outputs	HDMI JACK 3.5 mm	
Video	CVBS	
Video Output	Up to 1080	
Audio	STEREO	
Video Decompression	MPEG-2, MPEG 4- H.264	
Video Format	4:3 / 16:9	
Audio Decompression	MPEG-1LAYER I/II,PEG, MPGEG-2 LAYER I/II	
Image Demodulation	PAL - 25 FRAME@720*579, NTSC -30 FRAME@720*480	
Audio Output Mode	Stereo, Mono, R/L	
Data port	USB	
Protocol	2.0 USB Interface	
File management system	NTFS, FAT32, FAT16	
File Format	wma, mp3, mp4, avi, jpg, jpeg, bmp, img	
OPTICAL FIBRE		
Optical detector	InGaAs	
Wavelengths	800 - 1700 NM	

Optical power values	-70dB a + 10 dBm@1550 nm	
Accuracy	0.01	
Compatible connectors	FC / SC	
GENERAL		
Feed and consumption	7.4V/3000MAH / MAX 10W Lithium Battery	
Dimensions and weight	9.5X15X4.5 cm / 0.5 Kg	



REFERENCIA	TSF 1	
Código	240001	
Medidas	DVB-T / T2	DVB-S / S2
Conectores	IEC HEMBRA 9,5 mm	F HEMBRA
Frecuencia de entrada	48÷862 MHz	950÷2150 MHz
Nível señal de entrada	-79,5 dBm (MAX)	-65÷-25 dBm
Alimentación de antena	5V/12V/17V, MAX 100 mA	-
Demodulación	QPSK, 16QAM, 64QAM, 256QAM	-
Tipo sintonia	LCN on/off	-
Valores	NIVEL, C/N, BER, MER, CONSTELACIÓN T/T2	NIVEL, C/N, BER, MER, CONSTELACIÓN S/S2
Tono de conmutación	-	22 KHz
Alimentación LNB	-	13V / 18V, MAX 400 mA, SCR, UNIVERSAL
Symbol rate	-	2 <rs<45 (scpc="" band="" m="" mcpc)<="" td=""></rs<45>
Entradas/salidas AV	HDMI JAC	K 3,5 mm
Video	CV	BS
Salida de video	Hasta 1080	
Audio	STEREO	
Descompresión de video	MPEG-2, MPEG 4 - H.264	
Formato de video	4:3 / 16:9	
Descompresión de audio	MPEG-1Layer I/II, MPEG-2 Layer I/II	
Demodulación de imagen	PAL - 25 frame@720*576, NTSC -30 frame@720*480	
Modo salida de audio	Stereo, Mono, R/L	
Puerto datos	USB	
Protocolo	Interfaz USB 2.0	
Sistema gestión archivos	NTFS, FAT32, FAT16	
Formato de archivos	wma, mp3, mp4, avi	, jpg, jpeg, bmp, img
FIBRA ÓPTICA		
Detector óptico	InGaAs	
Longitudes de onda	800 - 1700 nm	
Valores de potencia óptica	-70dB a +10 dBm@1550 nm	
Precisión	0,01	
Conectores compatibles	FC / SC	
	GENERAL	
Alimentación y consumo	Bateria litio 7,4V/3000mAh / max 10W	
Dimensiones y peso	9,5x15x4,5 cm /0,5 Kg	



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