TV Signal Analyzer

The 7“ Touch display enables a simultaneous figure of Measurements and spectrum.

SPAROS 777 Touch
Art. No.: 850032

Features:

- All modulation types DVB-S/S2, DVB-C/C2 and DVB-T/T2 are supported.
- Intuitive operation with a 7“ LCD touch screen for an easy change from other devices.
- Split screen for the simultaneous figure of measurements and spectrum.
- Robust metal housing with lateral protection and a total weight of only 1.5 kg.
- Powerful lithium-ion battery with a duration of up to 2 hours.
- TV picture mode for digital (MPEG4 - H.264 and MPEG2) FTA TV programs.
- Ultra fast (almost real - time) spectrum analyses.
- CheckSAT mode with NIT analyses.
- Constellation diagram for all digital types of modulation.
- Real time echoes and pre-echoes measurement in DVB-T/T2 modulation.
- Ethernet and USB interface.
- DiSEqC and SCR (EN 50494 & EN 50607) support.

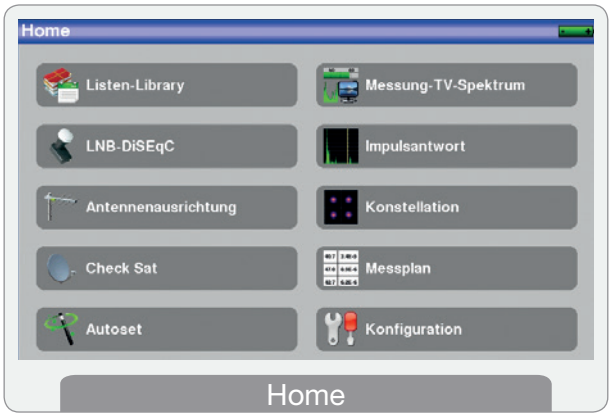
Included in scope of delivery:

- **SPAROS 777 TV Signal Analyzer**
- Protection lid
- AC / DC power unit
- Supplied in a solid metal transport case.
- USB stick with an extensive operating manual (PDF)

Home

Extensive depiction of the various menu items

The home screen displays an overview of various menu items, which may then be selected directly.
This enables the user to operate the measurement device easily.

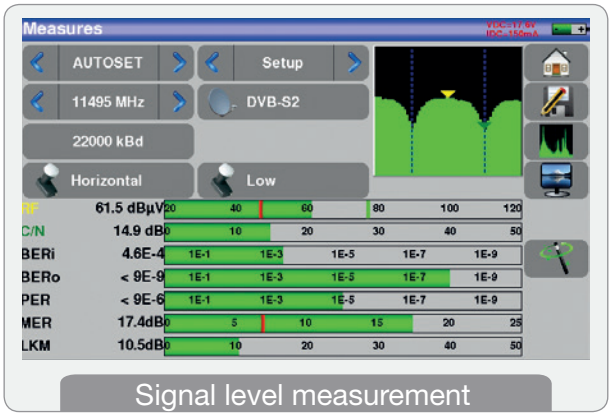


Home

Signal level measurement

Extensive depiction of the measurement results

SPAROS provides the measurement clearly laid out and logically on the 7“ LCD touchscreen. All measurement values are provided to the user at a glance. Level, C/N, bit error rate before and after the correction, lost data packets, and the MER, off course. The system reserve of the system is displayed via the measurement value LKM. Furthermore, the spectrum of the selected measuring transponder is shown in the display. With the help of the „auto lock“ function, the user is able to check the correct symbol rate and modulation type of the measurement device if they need to see this again.

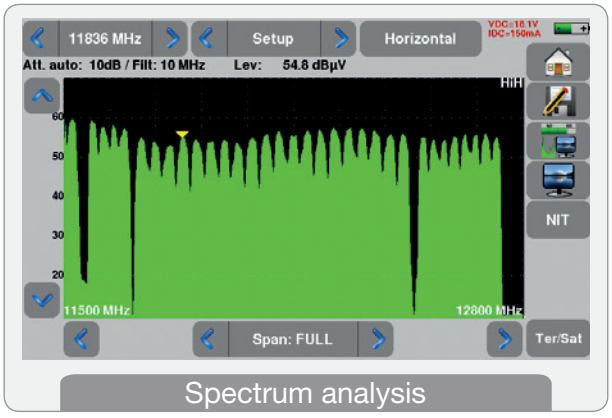


Signal level measurement

Spectrum analysis

Graphic depiction of the signal

Using the spectrum analysis is an extremely helpful function for set-up and troubleshooting within a receiver system. Either the complete bandwidth of the signal or just a certain part of the signal may be viewed here. Different pre-defined zoom factors enable various bandwidths for viewing the signal. This applies to the terrestrial frequency range and for the SAT IF range.

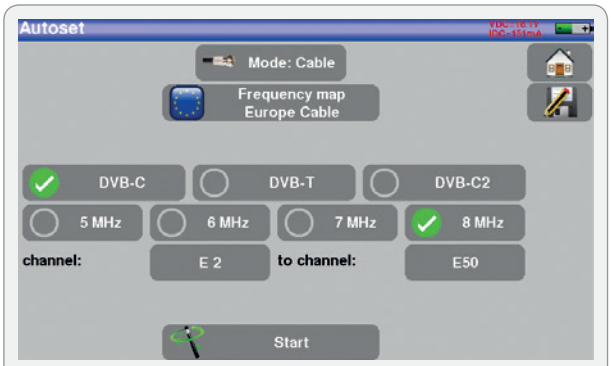


Spectrum analysis

Autoscan

Automatic channel search

The autoscan menu function enables an automatic channel search in the receiver system. After the receiver parameters have been specified by the user, the measurement device only searches for channels that meet the user's specifications. After the search is completed, all of the frequencies detected are saved and are available at any time for measurements.

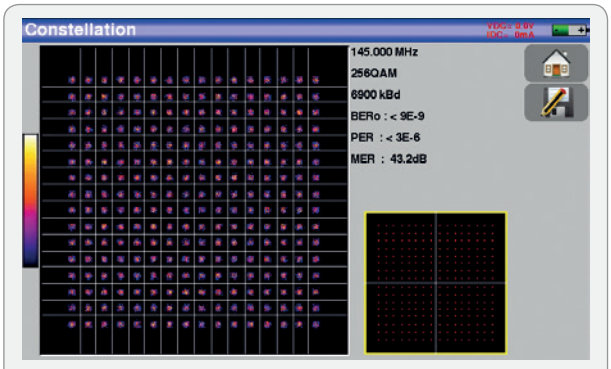


Autoscan

Constellation diagram

Graphic depiction of the digital information

The constellation diagram shows the digital signals graphically across a specific period of times. If no transmission errors are present, the data are recognised by the measurement device without any problems and then appear in the diagram as defined points in the corresponding quadrants.
Transmission errors cause the points to be „scattered" around the centre and not displayed in the centre of the quadrants. The density of the points is displayed via various colours.

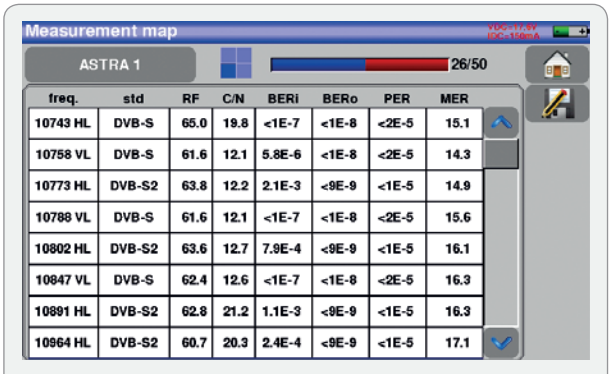


Constellation diagram

Measurement map

Automatic detection of measurement values

The measurement plan function enables measurement values to be provided for documentation within a receiver system reliably, quickly, and easily. SPAROS scans all of the measurement frequencies of the selected memory bank, and the user has the option of saving measurement values internally. Naturally, the user may give any measurement a unique name to access the correct measurement data quickly later. If the measurement data supports multiple frequency ranges, then it is also possible, for example, to create a measurement plan that includes SAT IF transponder data and DVB-T frequencies.



freq.	std	RF	C/N	BERi	BERo	PER	MER
10743 HL	DVB-S	65.0	19.8	<1E-7	<1E-8	<2E-5	15.1
10758 VL	DVB-S	61.6	12.1	5.8E-6	<1E-8	<2E-5	14.3
10773 HL	DVB-S2	63.8	12.2	2.1E-3	<9E-9	<1E-5	14.9
10788 VL	DVB-S	61.6	12.1	<1E-7	<1E-8	<2E-5	15.6
10802 HL	DVB-S2	63.6	12.7	7.9E-4	<9E-9	<1E-5	16.1
10847 VL	DVB-S	62.4	12.6	<1E-7	<1E-8	<2E-5	16.3
10891 HL	DVB-S2	62.8	21.2	1.1E-3	<9E-9	<1E-5	16.3
10964 HL	DVB-S2	60.7	20.3	2.4E-4	<9E-9	<1E-5	17.1

Measurement map

Image display

Visual depiction of a TV program

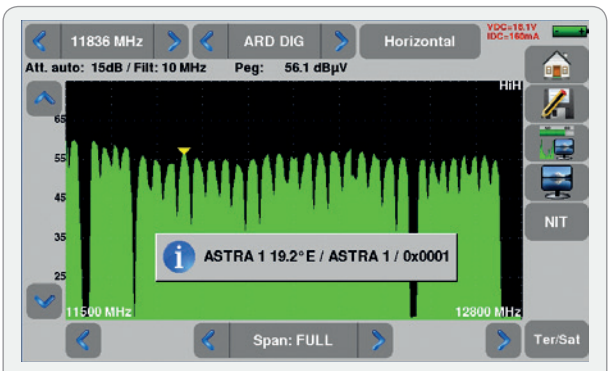
The 7“ 16:9 LCD colour display is provided for optimal display of the image. The measurement device enables image display of freely receivable digital programs in the standard MPEG2 (SD) and MPEG4 (HD).

Image display

NIT evaluation

Fast SAT antenna alignment check

The user has the option of evaluating the NIT within the spectral analysis. In addition to this, the cursor must be placed on the tip of a digital transponder. Next, press the NIT button, and the measurement device checks the transmitted NIT information automatically and then displays it visually.

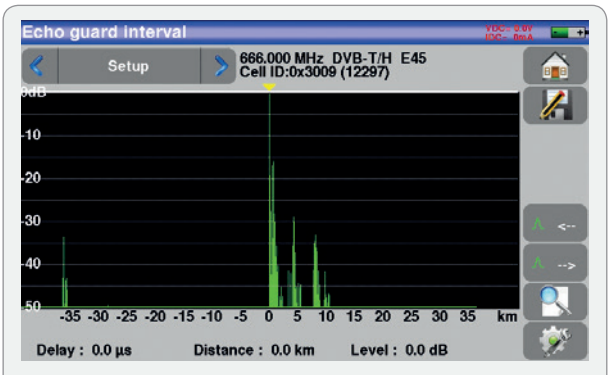


NIT evaluation

Echo measurement

Alignment of DVB-T antennas

With the help of this menu, the user can align a DVB-T antenna quickly and reliably. Due to the multipath reception of DVB-T transmission, the antenna must be aligned at the receiving location so that the reflections do not impair reception. The echo measurement supports the user in this case.

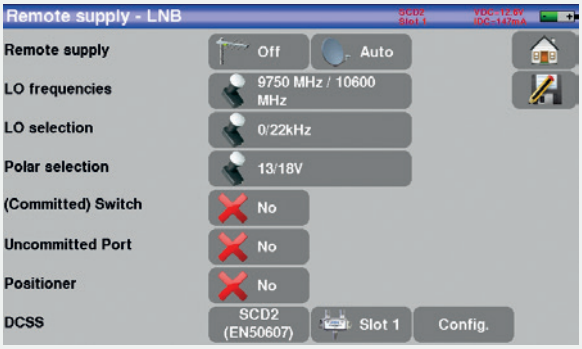


Echo measurement

Remote supply voltage

Setting the reception parameters

The remote supply voltage menu enables the user to set the SPAROS specifically according to the environment of the receiver device. In the SAT range, DiSEqC is supported for reception up to 64 positions. Of course, SCR (single-cable commands) remains as per EN 50494 and the new standard EN 50607 (SCD2). For the terrestrial range, pre-defined direct voltages between 5 and 24 volts are available.

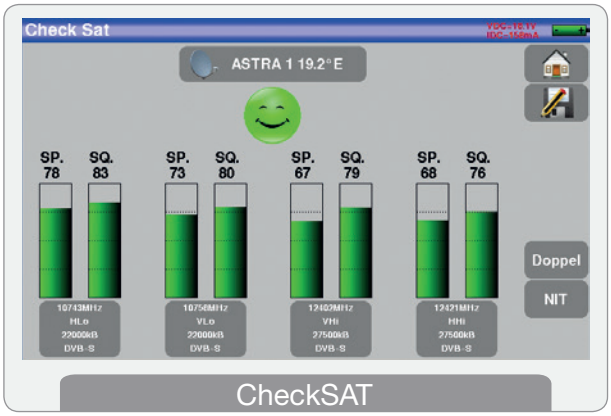


Remote supply voltage

CheckSAT

Alignment of antenna reflectors

The CheckSat function helps during the initial rough alignment of the satellite antenna. In this case, the signal strength and the signal quality are evaluated by four defined measurement transponders for an orbit position and displayed. If all 4 transponders are available, then the user can be sure that the antenna reflectors are aligned with the right orbit position. Follow-up fine adjustments may still be made via the MER.



CheckSAT

Configuration

Basic setting of the measurement device

The configuration menu provides the user access to various settings of the measurement device. Various settings options are available, e.g. setting the menu language, IP settings, and firmware updates.

Configuration

Technical data SPAROS 777

Technical data	Terrestrial band	Satellite band
Frequencies		
Range	5-900 MHz	900-2200 MHz
Resolution	measure 50 kHz, display 1 kHz	measure 1MHz, display 1MHz
Level measurements		
Dynamic range	20-120 dBµV (30-120 dBµV for 5-45MHz)	30-110 dBµV
Noise floor level	10 dBµV typical	20 dBµV typical
Units	dBµV	
Accuracy	±2dB +/- 0.05dB/°C	
Resolution	0,1dB	
Measurement filters	100KHz - 300 kHz - 1MHz	1MHz - 3MHz - 10MHz
Standards	DVB-C/C2, DVB-T/T2/T2lite BG, DK, I, L, MN, carrier	DVB-S/S2, DSS PAL, SECAM, NTSC
Mesures	RF level/power, C/	
Spectrum Analyser		
Fast Mode	350 ms typ. (3 times/s)	
Filters (according to span)	100kHz, 300kHz, 1 MHz	1MHz - 3MHz - 10MHz
Attenuator	automatic or manual (0 to 55 dB with 5 dB step)	
Dynamic range (display)	60 dB (10 dB/div)	
Span	5MHz à full span 1, 2, 5 step	
Pre-echos /Echos DVBT/T2		
Dynamic range	DVB-T : 50 dB, -75km +75km (8k) DVB-T2 : 50 dB, -75km +75km (8k) DVB-C2 : 50 dB, -35km +35km (4k)	
Units	µs, km, miles	
Constellation display		
	yes, standards DVB-T/T2, DVB-C/C2, DVB-S/S2, DSS	
Measurement Map		
Capacity	scanning of 50 setups maximum	
Display	Texte table	
TV MPEG		
Digital Multiplex (not coded)	MPEG2 SD (standard definition) MPEG4 HD (high definition H.264)	
Service table DVB-SI	SDT, LCN	
Sound	MPEG-1, MPEG-2, AAC, HE AAC, Dolby® Digital, Dolby® Digital Plus	
DVB-T/H		
Bit Error Rate (BER)	CBER (before Viterbi BERi) VBER (after Viterbi BERo) UNC (lost packets PER) Noise margin	
Modulation Error Rate (MER)	5 - 35dB	
Bandwidth	6MHz, 7 MHz, 8 MHz	
FFT type	2k, 8k, auto	
Constellation	QPSK, 16QAM, 64QAM, auto	
Viterbi rate	1/2, 2/3, 3/4, 5/6, 7/8, auto	
Guard interval	auto, manual	
Spectrum inversion	auto	
HP/LP – PLP – Data Slice	HP/LP	
Standards	ETS 300-744	

Technical data SPAROS 777

Technical data	
DVB-T2 / T2 Lite	
Bit Error Rate (BER)	LDPC (BERi) BCH (BERo) FER (frame error PER) Noise margin
Modulation Error Rate (MER)	5 - 35dB
Bandwidth	1.7MHz, 5MHz, 6MHz, 7 MHz, 8 MHz
Mode	SISO, MISO, PLP single or multiple
FFT type	1k, 2k, 4k, 8k, 16k, 32k + extended bandwidth, auto
Constellation	QPSK, 16QAM, 64QAM, 256QAM, auto
Viterbi rate	1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 1/3, 2/5, auto
Guard Interval	auto
Spectrum inversion	auto
HP/LP – PLP – Data Slice	PLP
Standards	ETS 302-755
DVB-C J83A	
Bit Error Rate (BER)	BER (before Reed Solomon BERo) UNC (lost packets PER) Noise margin
Modulation Error Rate (MER)	20 - 40dB
Symbol Rate	1 to 7.224 Ms/s
Constellation	16QAM, 32QAM, 64QAM, 128QAM, 256QAM
Spectrum inversion	auto
Standards	ETS 300-429
DVB-C2	
Bit Error Rate (BER)	LDPC (BERi) BCH (BERo) FER (frame error PER) Noise margin
Modulation Error Rate (MER)	5 - 35dB
Symbol Rate	-
Bandwidth	6MHz, 8 MHz
Mode	PLP and data slice, single or multiple
FFT type	4k
Constellation	16QAM, 64QAM, 256QAM, 1024QAM, 4096QAM, auto
Viterbi rate	2/3, 3/4, 4/5, 5/6, 8/9, 9/10
Guard Interval	auto
Spectrum inversion	auto
HP/LP – PLP – Data Slice	PLP+Data Slice
Standards	ETS 302-769
DVB-S, DSS	
Bit Error Rate (BER)	CBER (before Viterbi BERi) VBER (after Viterbi BERo) UNC (lost packets PER) Link margin
Modulation Error Rate (MER)	0 - 20dB
Symbol Rate	1 to 45Ms/s
Constellation	QPSK
Viterbi rate	1/2, 2/3, 3/4, 5/6, 6/7, 7/8, auto
Spectrum inversion	auto
Standards	ETS 300-421

Technical data SPAROS 777

Technical data		
DVB-S2		
Bit Error Rate (BER)	LDPC (BERi) BCH (BERo) PER Link margin	
Modulation Error Rate (MER)	0 - 20dB	
Symbol rate	1 to 45Ms/s	
Constellation	QPSK, 8PSK, 16APSK, 32APSK	
Modulation	CCM, VCM, ACM	
Multistream	stream select ISI 0-99, PL scrambling (Gold code)	
Viterbi rate	2/5, 1/2, 3/5, 2/3, 3/4, 5/6, 8/9, 9/10, auto	
Spectrum inversion	auto	
Standards	ETS 302-307	
Remote supply	**Terrestrial**	**Satellite**
Voltage	5 V / 13 V / 18 V / 24 V 500 mA max (300mA für 24 V)	13 / 18 V 500 mA max
DiSEqC	-	DiSEqC 1.2 control of dish motor switches committed & uncommitted
Mini DiSEqC (22kHz)	-	22 kHz, ToneBurst
SCD /SATCR EN 50494 Single cable satellite distribution	-	8 slots max switch committed
SCD2 EN 50607 Single cable satellite distribution v2	-	32 slots max switchs committed & uncommitted code PIN
Storage		
Memory	Internal on non-volatile memory, or external USB stick (not supplied)	
Data saved	measurements (level, BER/MER, Measurement Maps, Spectrum,…)	
Capacity	512 Ko (about 150 files)	
Inputs / Outputs		
RF input	75 Ohms, F (with adaptor)	
Max permitted voltage	48V RMS / 50Hz	
Interfaces	USB A, USB mini B, Ethernet 10baseT (RJ45)	
DC supply input	jack 5.5 mm 15 V max, 5 A max	
Operating temperature	-5° ... 45 °C	
Dimensions (mm)	250 x 185 x 65	
Weight	1,3 kg without carrying strap	