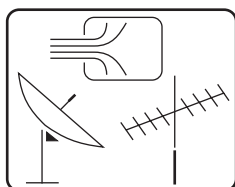
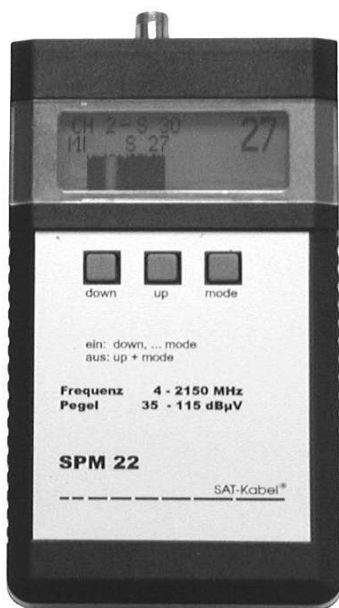


OPERATING INSTRUCTIONS

SPM 22

From V41.83

Signal level measuring instrument



SAT-Kabel®

Satelliten- und Kabelfernsehanlagen/Industrievertretung GmbH
Chemnitzer Straße 11 · 09217 Burgstädt

We thank you for buying a product of the company SAT-Kabel®. This operating instructions shall help you to understand the functions of the instrument and to ease its use. If you have questions about this instrument or suggestions for further improvements, please get in touch with us.

General

This processor controlled level measuring instrument from the SPM 22 series is because of its small size and measuring accuracy an ideal tool for troubleshooting and level checking in single and communal aerial systems, CATV networks as well as SAT systems. It has been extended with the menus DVB-T, WLAN according to the technical progress.

The spectrum display allows the assessment of the slope of amplifiers and serves for the display of disturbing carriers, also in the return path range of CATV networks. This instrument has been designed for the practical man to measure RF signals. By an automatic self calibration of this instrument the measured values are nearly temperature independent.

Delivery volume

- 1 SPM 22 incl. high-quality NiMH accumulator
- 1 plugin charging device AC/AC
- 1 operating instructions

optional available: Imitation leather bag KLT or KLT 2
Measuring cable with adapter MKA 150 HQ
Plastic case

For attention!

- Do not measure at live objects >65V AC !
- Do not expose incident solar radiation, heat and extreme coldness!
- The working temperature range is 0 °C until +40 °C
- avoid shocks by bumps or falling down. We recommend the use of the imitation leather bag.
- The F-measuring socket is a high-quality component. **This one is designed for a maximum diameter of 1.1 mm of the inner conductor.** We recommend for a good care of the socket to use a measuring cable with F-connector plus an according adapter.

Charging:

Connect the plugin charging device (containing in the delivery volume) to the charging socket (ø5.5/2.1 mm, plus pole inside). The power supply voltage (11...28 V) and charging control is shown on the display.

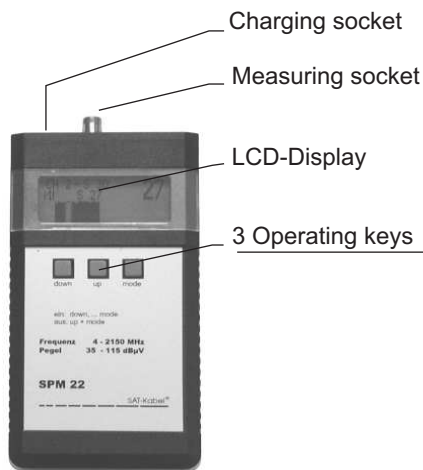
Charging time: ca. 10h at empty accumulator

Charging end: 7.2 – 7.4V accumulator bar stand idle

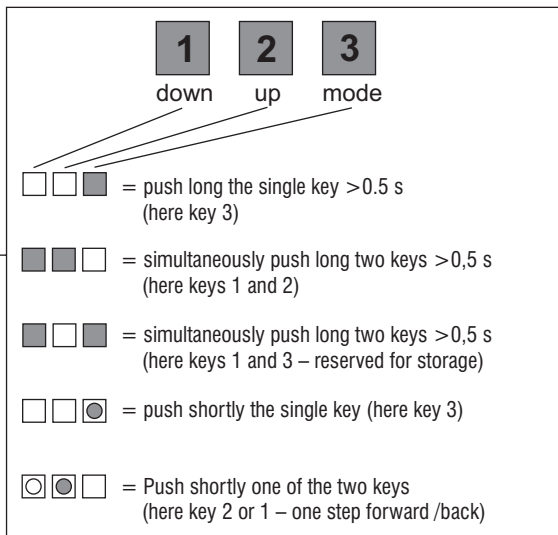
Cleaning and maintenance

The surface of the housing can be cleaned with a dry, soft and lintfree cloth. Do not use aggressive solvents for the cleaning.

Operational elements



SPM 22

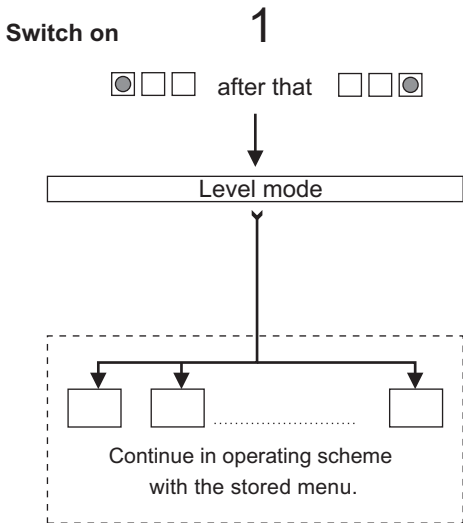


Technical data, features

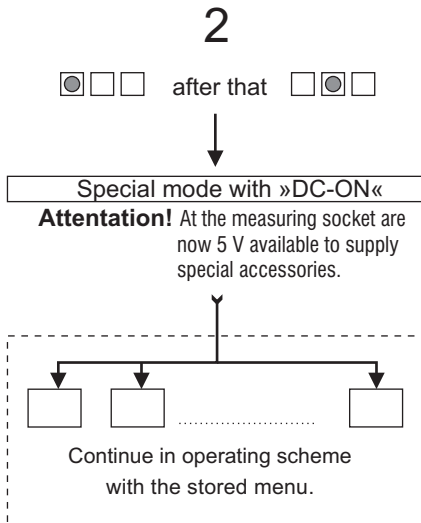
Frequency range standard B/G	4–2150 MHz; 2.4–2.5 GHz with pre-plug converter
Resolution	50 kHz (4–2150 MHz)
Level measuring range analog	35–115 dB(μV), -25–55 dB(mV)
Level measuring range CATV digital	45–115 dB(μV), -15–55 dB(mV)
Level accuracy	±2 dB
Spectrum display	4–2150 MHz und TV channels 86–110 MHz (RF)
Spectrum resolution	Cursor fade in with level display 1, 2, 3 dB/pixel, switchable
Special functions	graphic display of level black outs
Storage places	2× 10 for 3 channels or frequencies each
RF input	F-socket 75 Ohm
Operating	with 3 keys
Displays	LCD Display, 120 × 32 Pixel, illuminated
Power supply	NiMH accumulator 6 V/750 mAh AC/AC Adapter
Power consumption	ca. 110 mA
Dimensions	157 × 84 × 30 [mm]
Weight	ca. 300 g

Operating functions standard

Function	operated from:		
Switch on	Push the key »down« after that key »up« or key »mode« shortly (according of the desired mode)		
Switch off	Push the keys »up« and »mode« simultaneously and shortly		
Cursor move	key »down«	shortly	– one step to left
	key »up«	shortly	– one step to right
Menu	key »mode«	long (>0.5 s)	– one menu point forward
	key »mode«	shortly	– one menu point back



Menu	Display
1 SCAN	dB(μ V)
2 3-KANAL	dB(μ V)
3 BK	dB(μ V)
4 SAT	dB(μ V)
5 DVB-T	dB(μ V) - with antenna



Menu	Display
1 ---	
2 ---	
3 BK	dB(μ V)
4 ---	
5 DVB-T	dB(μ V) -with antenna and VVT 20
6 WLAN	dB(μ V) - with ANT 2,45 and VUW 2,45

After switch on of the instrument the last stored measuring range appears at the display. With the key »up« or the key »down« can be selected another measuring range. At the SPM 22 the following ranges are available:

- 1.) SCAN - 3-KANAL - BK - SAT - DVB-T
- 2.) BK - DVB-T - WLAN

Store switch on measuring range

The measuring range, which shall be available after switch on, can be defined by storage. For it the wanted measuring range has to activate:

SCAN - **3-KANAL** - BK - SAT - DVB-T - WLAN

Push now the keys »down« and »mode«  simultaneously until the storage symbol  appears. At the next switch on of the instrument this measuring range is available at once.

Switch off



Push the keys »up« and »mode« simultaneously. This is general possible in all menu points and by that also a kind »emergency exit«.

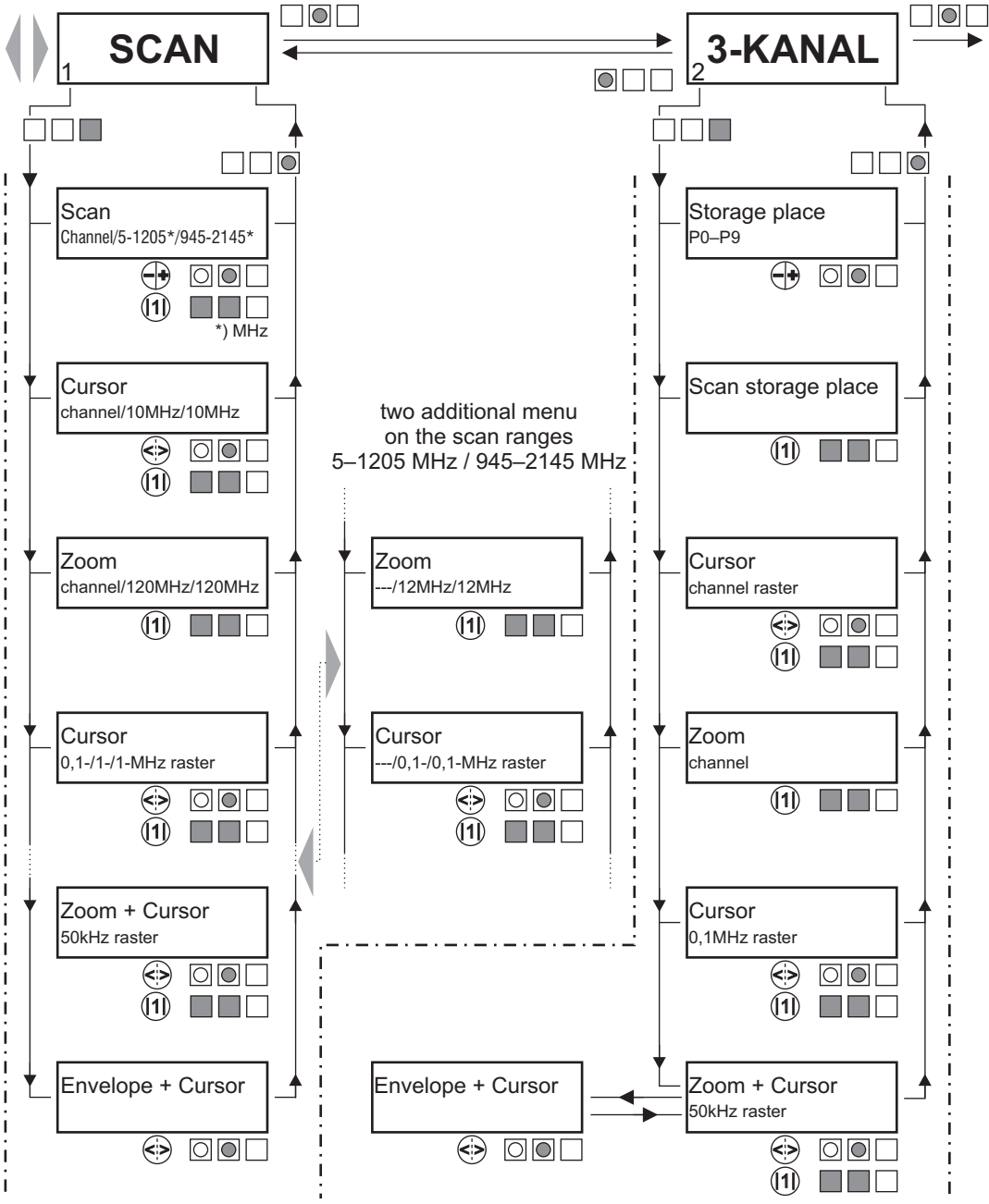
Measuring ranges

- SCAN** Used for quick overview of an existing frequency spectrum. It enables the selection of three ranges: channels in the CATV range, frequencies in an extended CATV range and frequencies in the SAT range. The highest measured level is displayed at channel/frequency (at digital signals are to add the following correction values: +8 dB at QAM, COFDM and +13 dB at QPSK). Now it can be repeatedly zooming the displayed channel or frequency further be analyzed.
- 3-KANAL** This measuring range is suitable for a quick check, e. g. at the system outlets as well as especially for evaluation and adjustment of slopes. Here the levels are measured of every three channels / frequencies / »D« channels, which are placed on one of the storage places. Digital frequencies must be stored at this as »D« channel; otherwise there is no automatic level correction! During the subsequent menu »SCAN« is usually carried out a channel scan. Should be programmed on a channel to be measured a frequency or a digital channel, it will then performed a frequency scan.
- BK** This measuring range is suitable for fast measurements in CATV systems. In this case can go on switched in the channel raster inclusive return path and fm radio. Digital channels are automatically detected and the precise level value is displayed.
Special feature from V 41.83:
If the SPM 22... detect on S2/S3 digital signals, they are considered as 8 MHz channels. (S2: 109–117 MHz; S3: 117–125 MHz)
- SAT** This range is designed for the service of SAT receiving systems. The receiving spectrum can be displayed in several resolutions. At digital QPSK-signals are to add +13 dB to the measured level value. ATTENTION! For the control and power supply of LNB is the additional accumulator AU-SPM necessary. This one must be ordered separately as accessories.

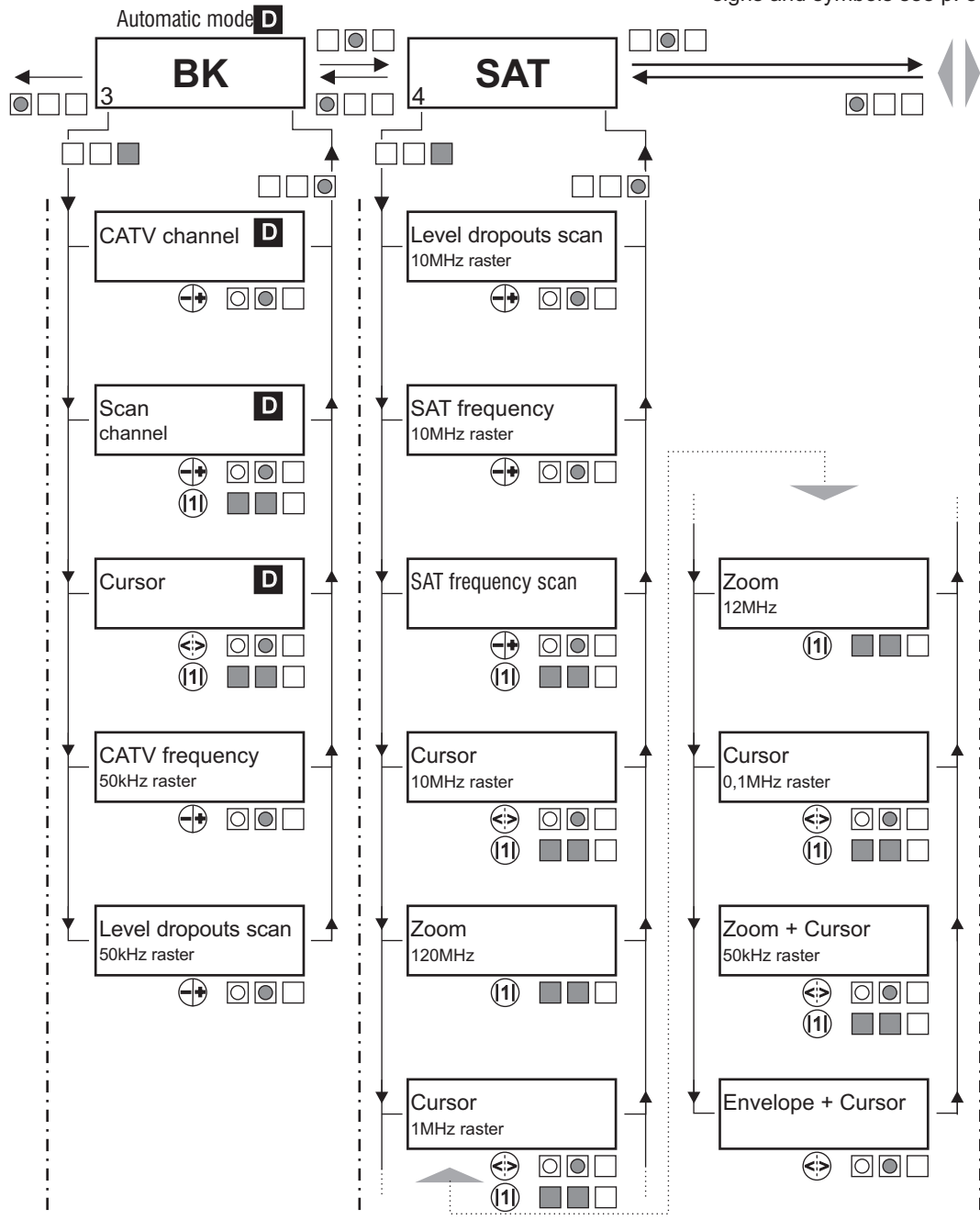
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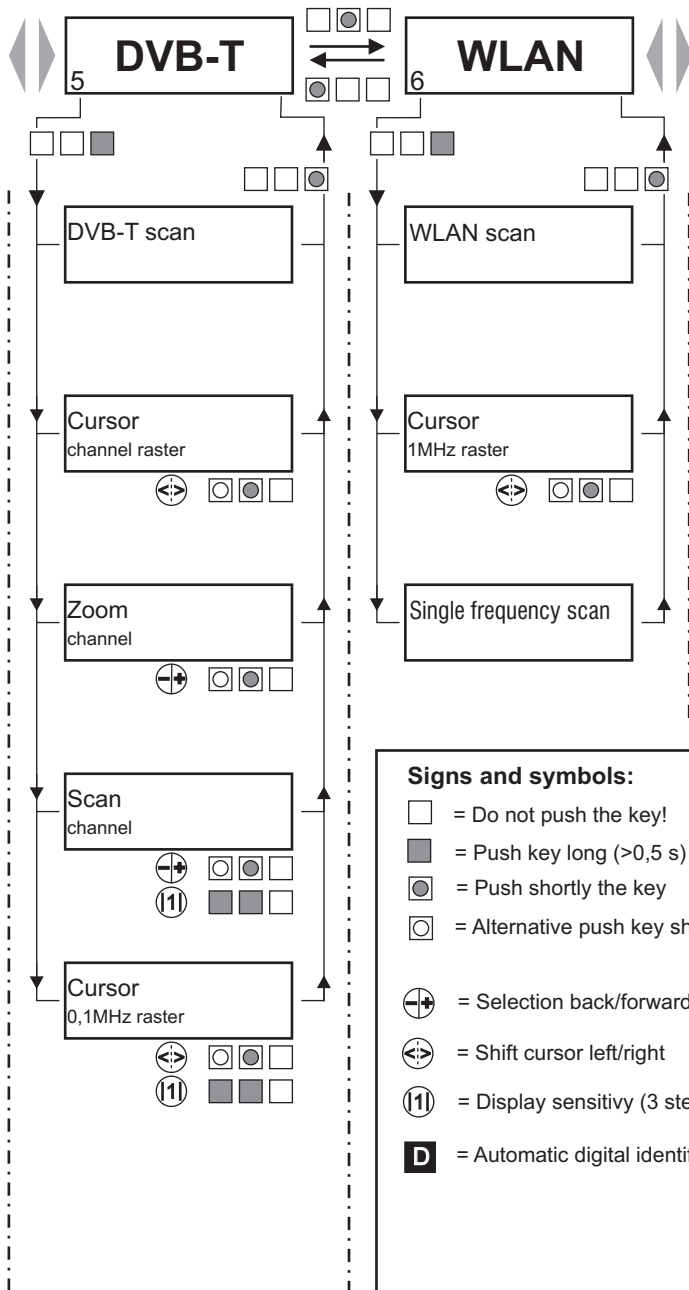
Operating scheme SPM 22 from software version V41.83

After switch on of the instrument a menu point from the highest row will be displayed.



signs and symbols see p. 8





DVB-T Here is measured the special frequency range only. This range contains menus for channel raster and frequency spectrum. As accessories there are several antennas and a preamplifier.

WLAN This is also a special frequency range (2.4–2.5 GHz). For measurements are to use the pre-plug amplifier VUW 2,45 and a special antenna. These ones are to order separately as accessories.

NOTE: In all displayed level values are usually the corresponding correction values calculated. However this is only ensured with the original accessories. Furthermore the voltage on the measuring socket serves exclusive at »DC-ON« for the supply of the original accessories and has to be activated only for this reason!

Extensions already from software version 40.93



Bargraph

Also from version 40.93 all instruments have a bar display (bargraph) for a faster overview in the CATV and SAT ranges for the level.



Digital level in CATV channel

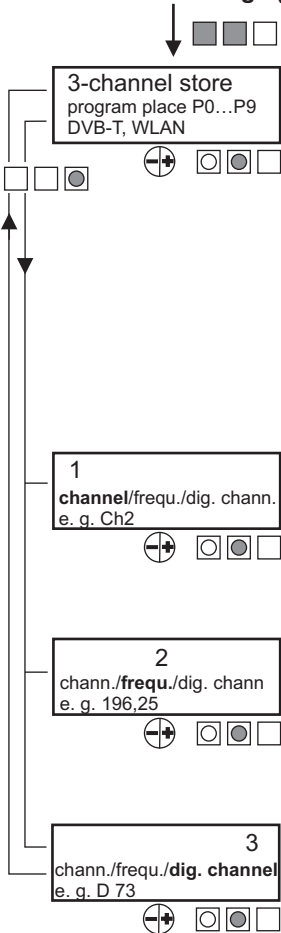
From software version 40.93 it is possible to measure digital level in CATV systems. For identification in the display is additionally displayed a **D**

ATTENTION!

In the range »BK«, these »D«" channels are automatically detected.

If in the measurement of a digital channel a »D« appears in the display, it is NOT a level correction necessary.

3-channel store change (P0...P9)



The instrument is switched off!

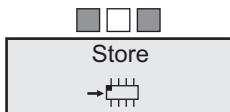
Push the keys »down« und »up« simultaneously until the 3-channel store appears.

NOTE: In case of an incorrect input switch off the instrument with the keys »up« and »mode«. Nothing will be stored and the proceeding can begin new with the switch on of the instrument.

Do not change the storage places for DVB-T und WLAN. On this storage places are correction values considered for the accessories.

Digital channels can be changed in 1 MHz steps with the keys »up« und »down«. A correction of 10 dB is automatically carried out.

DO NOT FORGET!



Push the keys »down« and »mode« simultaneously until the circuit symbol appears. After that with the keys »up« and »mode« switch off the instrument.

Note:

This instruction has been performed to the best of our knowledge. Developments and technical amendments are subject to change without notice.

Topical made operating instructions in a PDF format can also downloaded from our Internet homepage (www.sat-kabel.de).

Guarantee

State July 2006

For this instrument will be granted a service life (in following called guarantee) to following conditions:

- This guarantee is valid for new instruments purchased in Germany.
- New instruments and their components, which are defective because of production faults and/or material faults, are repaired from SAT-Kabel®.
- For wear parts, like accumulators, keyboards, housings, bags, connecting cables this guarantee is valid for 6 month from the purchasing date.
- The guarantee claim expires at matings by the purchaser or third persons.
- At defects, caused by improper handling or operating, by wrong installation or store, by improper connection or mounting, no guarantee is granted .
- For not justified demand of our service we charge for our service the usual payment for material, working hours and forwarding costs.
- Repairs are only made with filled service covering.

(Forms for service coverings and further information are found in the standard form contracts under:

www.sat-kabel.de)

SAT-Kabel®

Satelliten- und Kabelfernsehanlagen/Industrievertretung GmbH

Telephone: +49 3724 6665-0

Telefax: +49 3724 6665-44

E-Mail: info@sat-kabel.de

Internet: www.sat-kabel.de

Errors, technical amendmends and developments are subject to change without notice!

