SPAUN™

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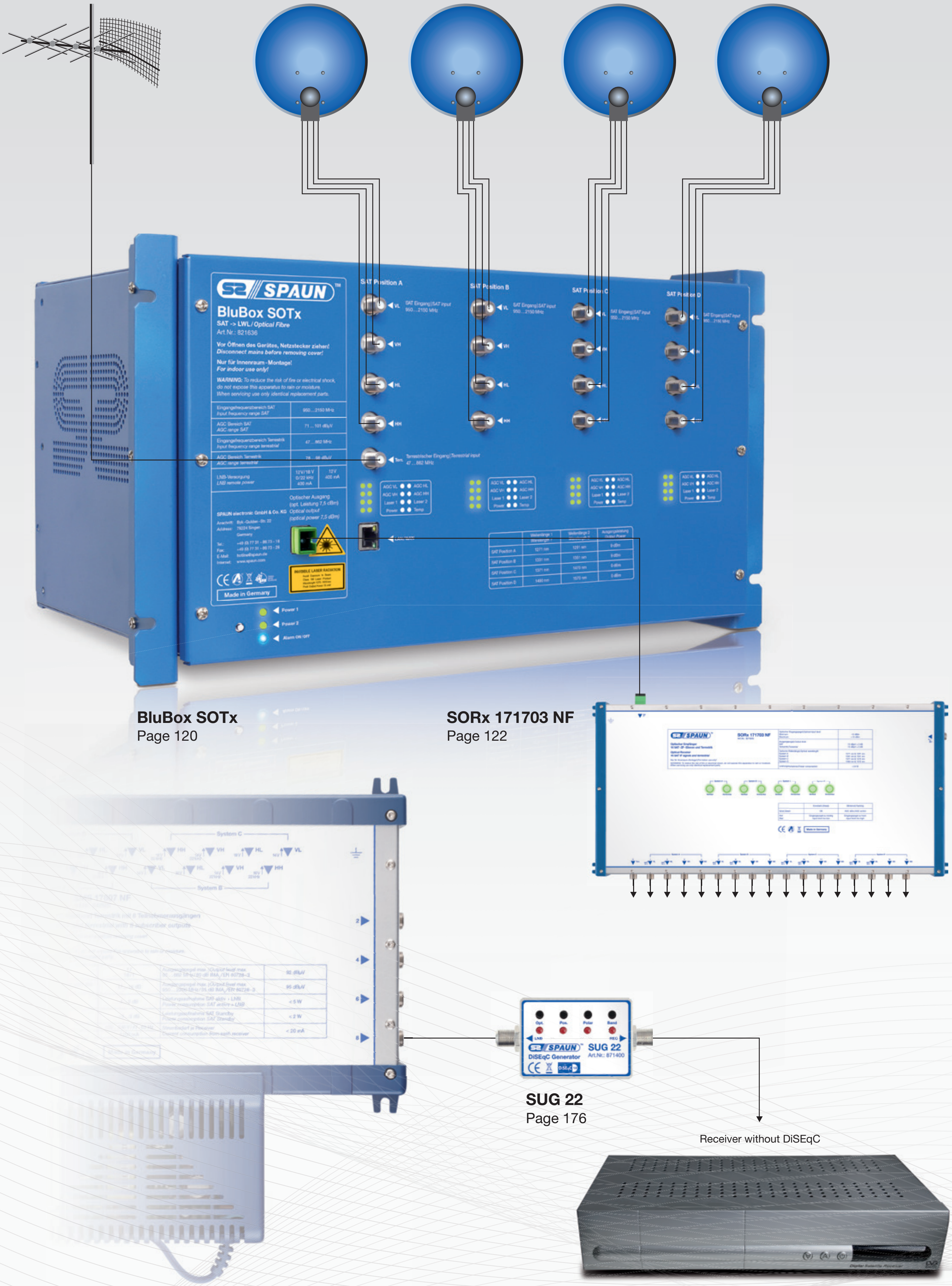
Product Catalogue

EDITION **17**

New Products in 2014




SUS 9942/8 NF LEGACY
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High Quality and Future Proof ...

... distribution components made by SPAUN.

What makes SPAUN products so reliable?

1. 98 % in-house production and development
2. Made in Germany
3. Using most modern SMT machines
4. Energy-saving switched-mode power supplies made by SPAUN
5. 100 % computer-aided testing (CAT)
6. Mechanical components made by SPAUN
7. In-house EMC measurement possibilities
8. Standby functionality

Key benefits of SPAUN system components:

1. Fast and trouble-free installation
2. Outstanding signal quality
3. Minimal failure rate
4. Fast and accommodating help in service case
5. Technical hotline free of charge
6. Excellent cost-performance ratio
7. 5 years warranty for specialist shops and wholesalers*

* According to our General Terms and Conditions.

1

SPAUN multiswitches and home amplifiers are equipped with energy saving switched - mode power supplies.

Power supplies made by SPAUN indicate a high level of efficiency (low power consumption) and high tolerance ranges regarding the scope of input voltage.

All SPAUN multiswitches have a well thought out standby concept since many years. When all satellite receivers connected to the multiswitch are switched off the SAT IF amplifier and the LNB supply voltage is shut down.

The power consumption of the device drops considerably which relieves the yearly power bill. The receipt of terrestrial programs with activated standby function is still possible.

2

The new housing concept allows the installer:

1. Flexible installation position of the multiswitches.
2. Greater utilisation of the available space.
3. Even more extended life time of the switched - mode power supply as a result of an improved cooling - effect.

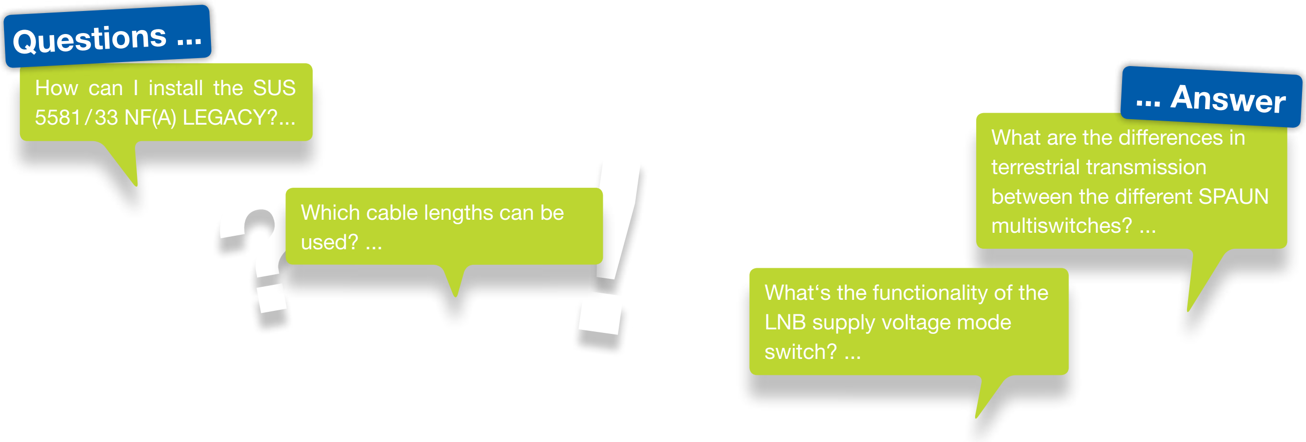
3

SPAUN designs and produces all mechanical components in - house with focus on optimal EMC results as well as great mechanical stability and thermal conductivity.

4

Easy installation due to intelligent housing concept.

Frequently Asked Questions (FAQ)



What does SCR mean?

SCR stands for **S**atellite **C**hannel **R**outer.
This technology enables the delivery of broadcast programs to multiple users over a single coaxial cable. This standard allows a tree topology instead of the standard star topology which is commonly used in the SAT IF distribution. SCR technology enables to connect up to 8 receivers on a single coaxial cable. Compared with headends SCR allows to receive the entire variety of channels of up to two satellite positions.

How can I install the SUS 5581/33 NF(A) LEGACY?

The SUS 5581/33 NF(A) LEGACY can be used as a stand-alone device or within a cascadable system. This makes a mixed system possible with SCR devices and common cascadable multiswitches for instance SMK 55xx3 F(A). The launch amplifier of a cascadable system remote powers the devices via terrestrial trunk line SBK 5502/03, NF(I). If the SUS 5581/33 NF(A) LEGACY is used as a stand-alone device please use the wall power supply which is included in scope of delivery.

Why does the SUS 5581/33 NF(A) LEGACY have two different operating modes?

The SUS 5581/33 NF(A) LEGACY allows to switch between two different operation modes:
In position 1x8 (1 output, 8 receivers) up to 8 receivers can be connected to the single output port.
In position 3x3 (3 outputs, 3 receivers) up to 3 receivers can be connected to each of the 3 output ports.

What kind of sockets shall I use for the SUS 5581/33 NF(A) LEGACY?

Generally, the SPAUN SUS 5581/33 NF(A) LEGACY can be used in combination with all available wall through sockets which have a DC-power pass. In order to obtain the best performance of a SCR system we recommend to use the UNiSockets. These sockets are available with optimized through loss for the use with the SPAUN UNiSEqC product line.

How can the SUS 21 F be used?

With the SUS 21 F it is possible to connect 2 receivers or one PVR (Dual Tuner) receiver through a single coaxial cable. It is necessary that the connected receivers support the SCR command set according to EN 50494. The signals from max. 2 SAT positions (8 SAT IF signals) and terrestrial can be received. For instance if the SUS 21 F is used in combination with a SMS 17089 NF the user can receive the first two satellite positions (8 SAT IF signals, position A & B). The position C and D (SAT IF signals from 9 to 16) are not available. The input jacks of the SUS 21 F have a margin of 20 mm therefore the SUS 21 F can be directly connected to almost all available SPAUN multiswitches. Naturally the SUS 21 F can be also combined with non SPAUN devices. The Universal AC Adapter SNG 18/1000 can be used to feed the system if the used receiver is not able to power the distribution system.

What is the difference between SUS 21 F and the Stacker / De - Stacker system?

Both systems are used to transmit 2 independent SAT signals and terrestrial over a single coaxial cable.

The SUS 21 F uses SCR technology, that means the receiver must support DiSEqC commands according to EN 50494 (see previous page).

The Stacker / De - Stacker system uses a different philosophy. In the Stacker unit the two different SAT IF signals are stacked together and in the De - Stacker the signal is restacked. This system has two advantages against the SUS 21 F.
1. Can work to up to 16 SAT IF polarities.
2. No special receivers are required.

Which cable lengths can be used?

This question can‘t be answered in general. However, there are factors that must be considered in principle and based on these factors it is also possible to determine whether a desired cable length can be realized or not.
For the calculation the following specifications are needed: The attenuation of the used coaxial cable at 2000 MHz. A typical value for a standard 7 mm coaxial cable is approx. 30dB / 100 m. SPAUN´s SPOAX cable is a high quality cable and has an excellent attenuation of 27.8 dB / 100 m at a frequency of 2150 MHz. Furthermore, the signal level from the LNB is required (typically 78 dBµV). Finally, the technical specifications of the used multiswitch is needed to do the calculation.

Example:

The LNB provides a signal level of 78 dBµV. The distance from the LNB to the multiswitch (SMS 51603 NF) is 30 m. This cable length indicates an attenuation of approx. 9 dB. Therefore the input level of the SMS 51603 NF should be approx. 69 dBµV. The SMS 51603 NF has a gain of 9 dB so an output level of 78 dBµV can be reached.
The signal level at the sockets should be at least 55 dBµV. This means that we have a signal budget of 78 dBµV - 55 dBµV = 23 dBµV. A budget of 23 dBµV is equivalent to a cable length of 70 m and additionally the used TV socket outlet (ASE 5 F).

What are the differences in terrestrial transmission between the different SPAUN multiswitches?

SPAUN offers three different solutions for the terrestrial transmission:

First version:
The terrestrial path has an active forward path in the frequency range of 85 … 862 MHz and a passive return path in the range of 5 … 65 MHz. It is possible to use Triple Play applications (Premium Class SMS 5xx03 NF series).

Second version:
The terrestrial path is completely passive in the frequency range from 5 … 862 MHz.
It is also possible to use Triple Play applications but without amplification in forward path (Light Class SMS 5xx07 NF series).

Third version:
The terrestrial path is completely active and has a fixed frequency range from 47 … 862 MHz.
It is not possible to use Triple Play applications (Standard Class SMS 5xx08 NF series).

What‘s the functionality of the LNB supply voltage mode switch?

Several SPAUN products have a switch which allows to adjust the supply voltage of the connected LNBs.

There are three possible modes:

12 V: All 4 SAT IF inputs supply a voltage of 12 volts. This setting is necessary to run a Quattro LNB.
18 V: The vertical SAT IF inputs supply 14 volts and the horizontal SAT IF inputs supply 18 volts.
22 kHz: The vertical SAT IF inputs supply 14 volts and the horizontal SAT IF inputs supply 18 volts. Additionally the two High - Band inputs are modulated with a 22 kHz tone. With this setting the use of a QUAD LNB (included multi-switch) is possible.

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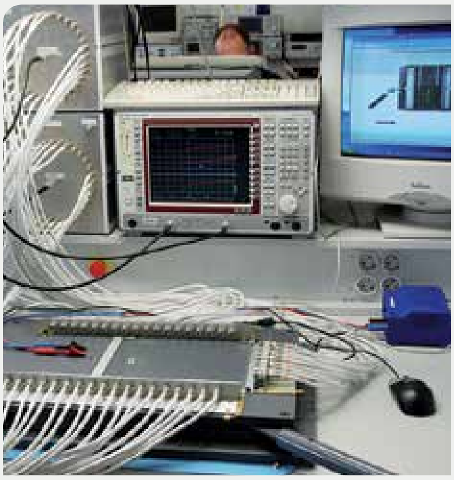
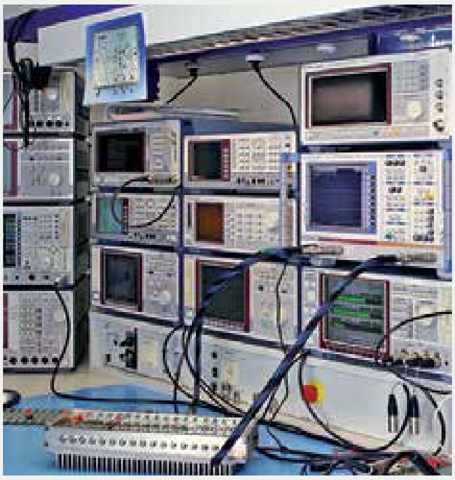
Impressions


Categories

Electromagnetic Shielding (EMC)

Products in accordance with the shielding requirements Class A of the EN 50083 - 2, are labelled with this logo.

EU directive

With CE labeling SPAUN confirms the conformity of the corresponding products with the applicable standards.

Declaration of Conformity

We hereby inform about our compliance in accordance with regulation (EC) No 1907/2006 (REACH), Article 33. SPAUN electronic is a manufacturer of products according to the above regulation and a „downstream user“ of small quantities and therefore not subject to registration.

SPAUN provides only non - chemical products. These include no substances according to REACH Article 7 which has the intention to release under normal or reasonably foreseeable conditions of use.

Information about the ingredients are based on the information provided by the suppliers of SPAUN electronic. Accordingly, based on our current knowledge there are no substances in our products of more than 0.1% by mass, which are called in the candidate list (SVHC) of the European Chemicals Agency (ECHA).

This list (available under http://echa.europa.eu) is monitored by SPAUN electronic.

Declaration of Conformity

For implementing the RoHS directive also all suppliers were involved. The corresponding compliance certifications are available.

Thus, we hereby confirm that all of SPAUN electronic GmbH & Co. KG manufactured products correspond to the EU Directive 2002/95/EC from 01/06/2006.

WEEE Directive

WEEE - Reg. - Nr. DE 18925686

By the European WEEE directive 2002/96/EC (Waste Electrical and Electronic Equipment directive) the recycling of waste in consumer electronics is controlled. The symbol indicates that a product according to the WEEE 2002/96/EC and national laws must be disposed of designated public collection points.

The required measures for WEEE have been inplemented and completed in 2005. Our WEEE registration number: WEEE - Reg. - No. DE 18925686.

SPAUN electronic is contractor of the Interseroh system „detecting, sorting and recycling of packaging“.
The disposal of sales packaging takes place via a participation in the Interseroh dual system.

The Interseroh registration is confirmed with manufacturer number **80412**.

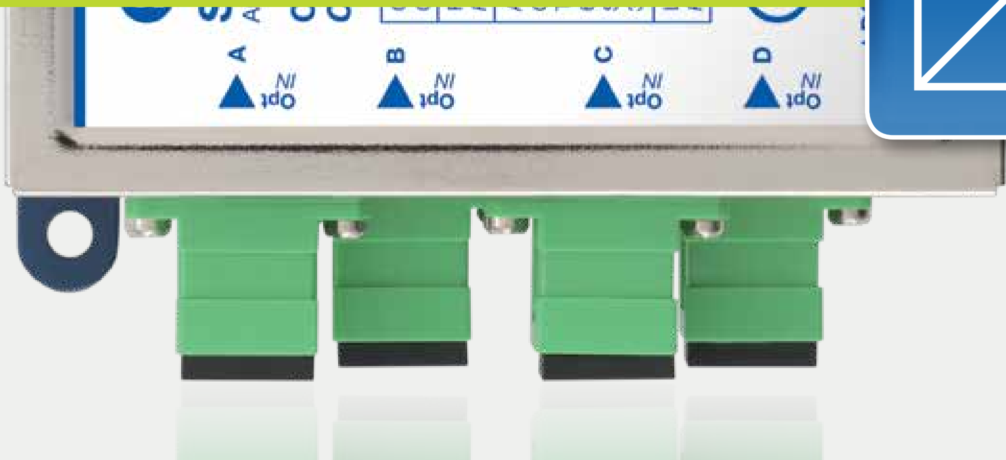
Optical Headend DVB - S / S2 to Fibre

(page 120)

BluBox SOTx

- **Up to 16 SAT IF signals and terrestrial onto a single fibre optic cable.**
- 19" Base Unit with redundant switched - mode power supplies.
- Distribution to up to 32 optical nodes possible.
- Configuration and monitoring via LAN / IP.

Optical Systems



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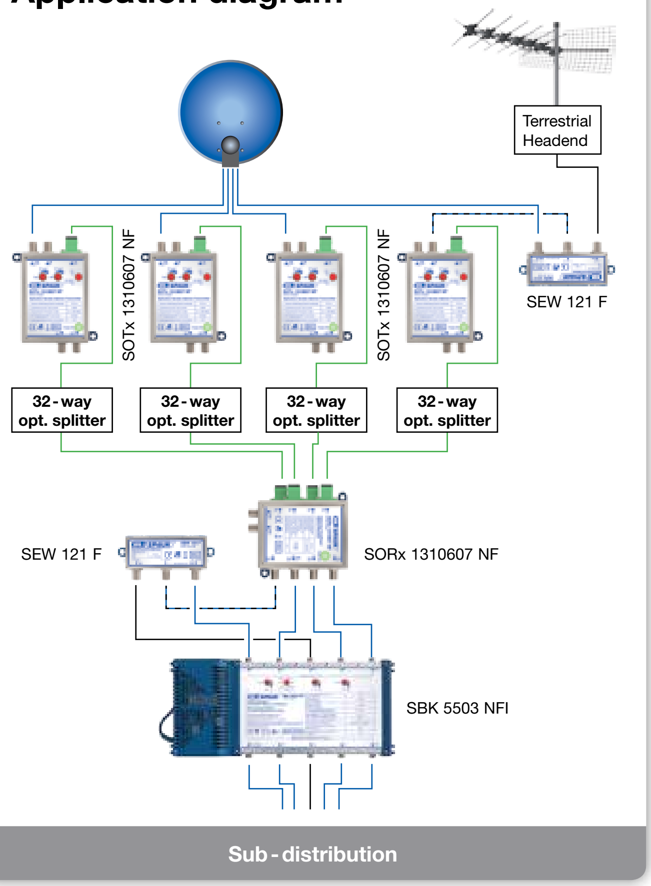
Optical Transmitter

SOTx 1310607 NF

- Single-mode DFB-Laser.
- Optical output power: +6 dBm.
- Integrated amplifier stages using split band technology for terrestrial and SAT IF signals.
- Level adjuster for terrestrial and SAT IF (0 … -12 dB).
- Remote power to LNB possible (Quattro or QUAD).
- 5 dB slope pre-compensation for the SAT IF range.
- Optical connector: SC/APC.
- Power LED.

Model Art. No.	SOTx 1310607 NF 815000
EAN	4040326150009
Inputs Outputs	1 F connector 1 optical
Optical connector	SC/APC
Frequency range	47 … 2200 MHz
Optical wavelength	1310 nm
Optical output power	6 dBm
Gain 47 … 862 MHz 950 … 2200 MHz	 14 dB 16 … 21 dB
Input level max. Terr. 47 … 862 MHz 60 dB IMA_3/EN 60728-3	95 dBµV
Input level max. SAT 950 … 2200 MHz 35 dB IMA_3/EN 60728-3	95 dBµV
Level adjuster	0 … -12 dB
LNB remote power feed	400 mA
Wall power supply SNG 18/1000	100 … 240 V, 47-63 Hz DC 18 V/1000 mA
Power consumption	6 W
Ambient temperature	-20 … + 50°C
Dimensions in mm	70 x 120 x 50

Application diagram



Optical Receivers

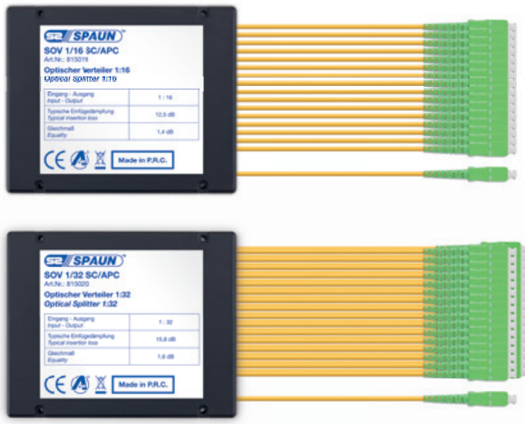
SORx 1310607 NF
SORx 1310607 / 1 NF

- 4-way/1-way receiver in a compact housing.
- High output power level using Push-Pull output stage.
- Input sensitivity in the range of 0 … -12 dBm.
- Remote power for the receiver possible through one coaxial output.
- Optional remote power with SNG 18/1000 wall power supply (not in the scope of delivery).
- Optical connector: SC/APC.
- Power LED.
- SORx 1310607/1 NF has just one optical input.

Model Art. No.	SORx 1310607 NF 815001
EAN	4040326150016
Inputs Outputs	4 optical 4 F connectors
Optical connector	SC/APC
Frequency range	47 … 2200 MHz
Optical wavelength	1310 … 1550 nm
Optical input power max.	0 dBm
Optical input power min.	-12 dBm
Output level max. Terr. 47 … 862 MHz 60 dB IMA_3/EN 60728-3	100 dBµV
Output level max. SAT 950 … 2200 MHz 35 dB IMA_3/EN 60728-3	110 dBµV
Power consumption	6 W
Ambient temperature	-20 … +50°C
Dimensions (mm)	100 x 100 x 50

Model Art. No.	SORx 1310607/1 NF 814999
EAN	4040326149997
Input Output	1 optical 1 F connector
Optical connector	SC/APC
Frequency range	47 … 2200 MHz
Optical wavelength	1310 … 1550 nm
Optical input power max.	0 dBm
Optical input power min.	-12 dBm
Output level max. Terr. 47 … 862 MHz 60 dB IMA_3/EN 60728-3	100 dBµV
Output level max. SAT 950 … 2200 MHz 35 dB IMA_3/EN 60728-3	110 dBµV
Power consumption	6 W
Ambient temperature	-20 … +50°C
Dimensions (mm)	100 x 100 x 50

Optical Splitters



SOV 1/2 SC/APC, SOV 1/3 SC/APC SOV 1/4 SC/APC, SOV 1/8 SC/APC SOV 1/16 SC/APC, SOV 1/32 SC/APC

- Useable for a wavelength of 1310 and 1550 nm.
- Low insertion loss.
- Optical connector: SC/APC.
- Compact design.

Model Art. No.	SOV 1/2 SC/APC 815002	SOV 1/3 SC/APC 815003	SOV 1/4 SC/APC 815004	SOV 1/8 SC/APC 815005	SOV /16 SC/APC 815019	SOV 1/32 SC/APC 815020
EAN	4040326150023	4040326150030	4040326150047	4040326150054	4040326150191	4040326150207
Optical wavelength	1310 & 1550 nm					
Optical connector	Input and output SC/APC					
Input/output	1:2	1:3	1:4	1:8	1:16	1:32
Typical insertion loss*	3,2 dB	4,9 dB	6,3 dB	9,5 dB	12,5 dB	15,8 dB
Insertion loss* max.	4,3 dB	6,2 dB	7,4 dB	10,7 dB	13,9 dB	17,2 dB
Equality	0,5 dB	0,6 dB	0,8 dB	1,0 dB	1,4 dB	1,6 dB
Optical output isolation	50 dB					

* Without connectors.

SOV 1/2 FC/PC, SOV 1/3 FC/PC SOV 1/4 FC/PC, SOV 1/8 FC/PC SOV 1/16 FC/PC, SOV 1/32 FC/PC

- Useable for a wavelength of 1310 and 1550 nm.
- Low insertion loss.
- Optical connector: FC/PC.
- Compact design.

Model Art. No.	SOV 1/2 FC/PC 815035	SOV 1/3 FC/PC 815036	SOV 1/4 FC/PC 815037	SOV 1/8 FC/PC 815038	SOV 1/16 FC/PC 815039	SOV 1/32 FC/PC 815040
EAN	4040326150351	4040326150368	4040326150375	4040326150382	4040326150399	4040326150405
Optical wavelength	1310 & 1550 nm					
Optical connector	Input and output FC/PC					
Input/output	1:2	1:3	1:4	1:8	1:16	1:32
Typical insertion loss*	3,2 dB	4,9 dB	6,3 dB	9,5 dB	12,5 dB	15,8 dB
Insertion loss* max.	4,3 dB	6,2 dB	7,4 dB	10,7 dB	13,9 dB	17,2 dB
Equality	0,5 dB	0,6 dB	0,8 dB	1,0 dB	1,4 dB	1,6 dB
Optical output isolation	50 dB					

* Without connectors.

Optical Taps

SOC 10/90 SC/APC, SOC 20/80 SC/APC
SOC 30/70 SC/APC, SOC 40/60 SC/APC

- Useable for a wavelength of 1310 and 1550 nm.
- Low insertion loss.
- Optical connector: SC/APC.
- Compact design.

Model Art. No.	SOC 10/90 SC/APC 815044	SOC 20/80 SC/APC 815045	SOC 30/70 SC/APC 815046	SOC 40/60 SC/APC 815047
EAN	4040326150443	4040326150450	4040326150467	4040326150474
Optical wavelength	1310 & 1550 nm			
Optical connector	Input and output SC/APC			
Input/output	1:2	1:2	1:2	1:2
Typical insertion loss signal	< 0,6 dB	< 1,2 dB	< 1,8 dB	< 2,5 dB
Typical insertion loss tap	11 dB	7,5 dB	5,5 dB	4 dB
Coupling ratio	10:90	20:80	30:70	40:60
Directivity	≥ 55			

Optical Splitter 19" housing

SOV 19 1/8 SC/APC, SOV 19 1/16 SC/APC
SOV 19 1/32 SC/APC

- Useable from wavelength of 1310 to 1550 nm.
- Stable 19" housing with 1 HU.
- The splitters do have a low insertion loss and a compact housing.

Model Art. No.	SOV 19 1/8 SC/APC 821647	SOV 19 1/16 SC/APC 821648	SOV 19 1/32 SC/APC 821649
EAN	4040326216477	4040326216484	4040326216491
Optical wavelength	1310 & 1550 nm		
Optical connector	Input and output SC/APC		
Input/output	1:8	1:16	1:32
Typical insertion loss*	9,5 dB	12,5 dB	15,8 dB
Insertion loss* max.	10,7 dB	13,9 dB	17,2 dB
Equality	1,0 dB	1,4 dB	1,6 dB
Optical output isolation	50 dB		

* Without connectors.

Optical Couplers

SOK SC/APC

Optical coupler for universal purposes.

SOK FC/PC

Optical coupler for universal purposes.

Model Art. No.	SOK SC/APC 815006
EAN	4040326150061
Connector	SC/APC

Model Art. No.	SOK FC/PC 815027
EAN	4040326150276
Connector	FC/PC

Optical Attenuation Units

SODE 3 SC/APC, SODE 6 SC/APC
SODE 10 SC/APC, SODE 15 SC/APC

SODE 3 FC/PC, SODE 6 FC/PC
SODE 10 FC/PC, SODE 15 FC/PC

To adjust an optical transmission network normally an attenuation unit is used. These units should prevent damages to an optical network in case that too much light energy is feeded to the sensitive receiver diodes.

Model Art. No.	SODE 3 SC/APC 815015	SODE 6 SC/APC 815016	SODE 10 SC/APC 815013	SODE 15 SC/APC 815017
EAN	4040326150155	4040326150162	4040326150139	4040326150179
Loss	3 dB	6 dB	10 dB	15 dB
Optical connector	SC/APC	SC/APC	SC/APC	SC/APC
Optical wavelength	1310 & 1550 nm			

Model Art. No.	SODE 3 FC/PC 815028	SODE 6 FC/PC 815029	SODE 10 FC/PC 815021	SODE 15 FC/PC 815031
EAN	4040326150283	4040326150290	4040326150214	4040326150313
Loss	3 dB	6 dB	10 dB	15 dB
Optical connector	FC/PC	FC/PC	FC/PC	FC/PC
Optical wavelength	1310 & 1550 nm			

Optical Patch Cables

SOP 1 SC/APC, SOP 2 SC/APC
SOP 4 SC/APC

SOP 1 FC/PC, SOP 2 FC/PC
SOP 4 FC/PC

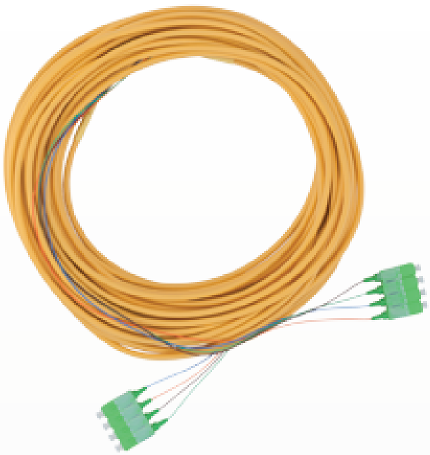
Optical patch cable with one fibre.

Model Art. No.	SOP 1 SC/APC 815007	SOP 2 SC/APC 815008	SOP 4 SC/APC 815009	
EAN	4040326150078	4040326150087	4040326150094	Further lengths on demand
Length	1 m	2 m	4 m	
Fibre-type	Single-mode	Single-mode	Single-mode	
Optical connector	SC/APC	SC/APC	SC/APC	

Model Art. No.	SOP 1 FC/PC 815032	SOP 2 FC/AP 815033	SOP 4 FC/PC 815034	
EAN	4040326150320	4040326150337	4040326150344	Further lengths on demand
Length	1 m	2 m	4 m	
Fibre-type	Single-mode	Single-mode	Single-mode	
Optical connector	FC/PC	FC/PC	FC/PC	

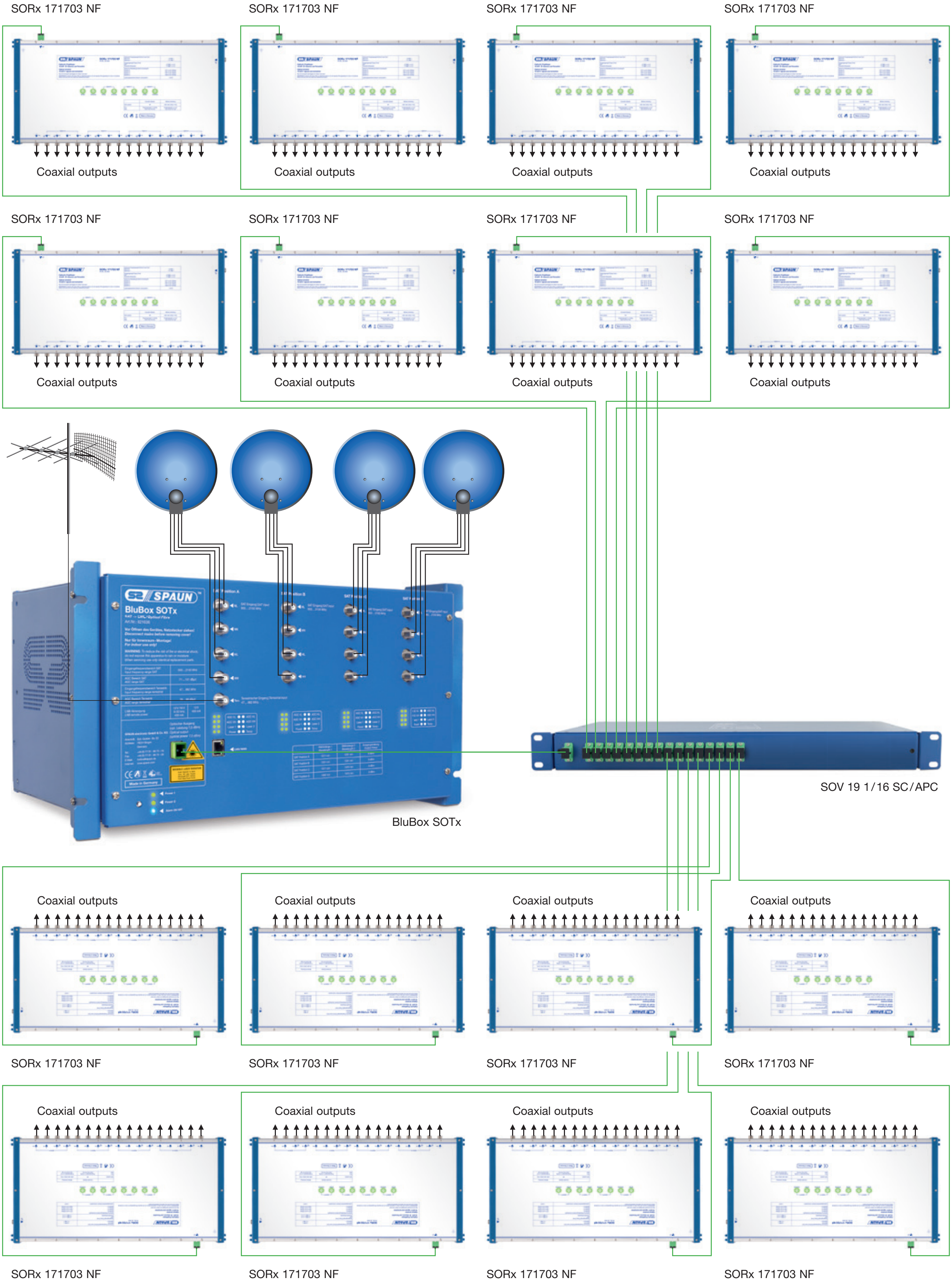
SOP 4/20 SC/APC, SOP 4/100 SC/APC
SOP 4/500 SC/APC

Optical patch cable with 4 fibres.



Model Art. No.	SOP 4/20 SC/APC 871457	SOP 4/100 SC/APC 871455	SOP 4/500 SC/APC 871456	
EAN	4040326714577	4040326714553	4040326714560	Further lengths on demand
Length	20 m	100 m	500 m	
Fibre-type	Single-mode	Single-mode	Single-mode	
Optical connector	SC/APC	SC/APC	SC/APC	

Application diagram



SAT IF Distribution

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Light Class

Compact Multiswitch with active terrestrial 17 in 8 and 16

Energy Saver!
Standby Function and Switch-Mode Power Supply

DiSEqC 2.0

SMS 17807 NF
SMS 171607 NF

For 8 and 16 subscribers.

Both devices feature 16 active SAT IF inputs and an active terrestrial input. The SMS 17807 NF offers 8 subscriber outputs and the SMS 171607 NF has 16 subscriber outputs. Both devices are supplied with an integrated energy-saving switched-mode power supply and the SPAUN typical standby function.

SAT IF:

- Can be used with Quattro or QUAD LNBs.
- A special amplifier/filter design improves the intermodulation properties of the compact multiswitch considerably.
- The high selective input filter guarantees that interference products of the LNBs can‘t drive the amplifiers into saturation.
- The multiswitch supports standby mode.
  Both the SAT IF amplifier, as well as the remote power supply of the LNBs are only active if at least one receiver provides a supply voltage to its multiswitch outlet.

Terrestrial:

- Active forward path 85 … 862 MHz.
- Passive return path 5 … 65 MHz for the use of interactive signals (Triple Play).

Miscellaneous:

- Ground clamp.
- The devices are equipped with an energy-saving switched-mode power supply.

Model Art. No.		SMS 17807 NF 842500	SMS 171607 NF 842501
EAN		4040326425008	4040326425015
Inputs SAT / terrestrial		17 16 / 1	
Subscriber outputs		8	16
Tap loss Terr. passive 5 … 65 MHz		17 … 19 dB	22 … 24 dB
Tap loss Terr. active 85 … 862 MHz		4 … 2 dB	8 … 4 dB
Tap gain SAT IF 950 … 2200 MHz		-3 … 3 dB	-5 … 0 dB
Output level max. 85 … 862 MHz 60 dB IMA$_3$ / EN 60728 - 3		92 dBµV	88 dBµV
Output level max. 950 … 2200 MHz 35 dB IMA$_3$ / EN 60728 - 3		95 dBµV	95 dBµV
Selection	SAT / terrestrial	> 40 dB	
	Terrestrial / SAT	> 40 dB	
Isolation	Switching isolation	> 35 dB	
	Receiver / receiver	> 35 dB	
Mains power supply U~		100 … 240 V / 47 - 63 Hz	
Power consumption Terrestrial active / SAT active + LNB		< 5 W	< 8 W
Power consumption SAT standby		< 2 W	< 2 W
LNB remote current		1200 mA	
LNB single port current		300 mA	
Current consumption from receiver		< 20 mA	
Ambient temperature		-20 … + 50 °C	
Dimensions (mm)		240 x 266 x 68	318 x 266 x 68

Premium Class

Launch Amplifier 17 in 8

DiSEqC 2.0

Energy Saver!
Standby Function and Switched-Mode Power Supply

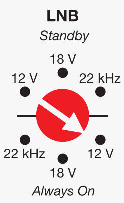
LED control

Green = active

Yellow = standby

Red = DC-error

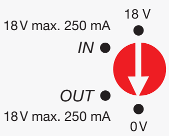
LNB supply voltage



Selectable for Quattro or QUAD LNB.

Standby or continuous operation mode selectable.

Supply voltage



0 V / 18 V selectable.

Synchronous level adjuster

For each SAT IF system.

The SMS 17089 NF multiswitch received the ratings „Ausgezeichnet“ („excellent“) and „Sehr gut“ („very good“) in the comparative tests of the professional magazines *Digitalfernsehen* and *SATVISION.*

17 DC-decoupled terminating resistors are shipped with the SMS 17089 NF to terminate the trunk lines.
ZFR 75 DC / Set (Art.No.: 871511)

SMS 17089 NF

Useable as stand-alone switch for 8 subscribers; for cascading with SMK 17xx9 F(A); as post amplifier or to terminate a cascadable system.

SAT IF:

- Synchronous level adjuster for each SAT IF system.
- LNB supply voltage selectable for the use of Quattro or QUAD LNBs.

Terrestrial:

- The terrestrial input is passive and return path compatible with the possibility of a 18 V (250 mA) remote power in both directions for an external amplifier.

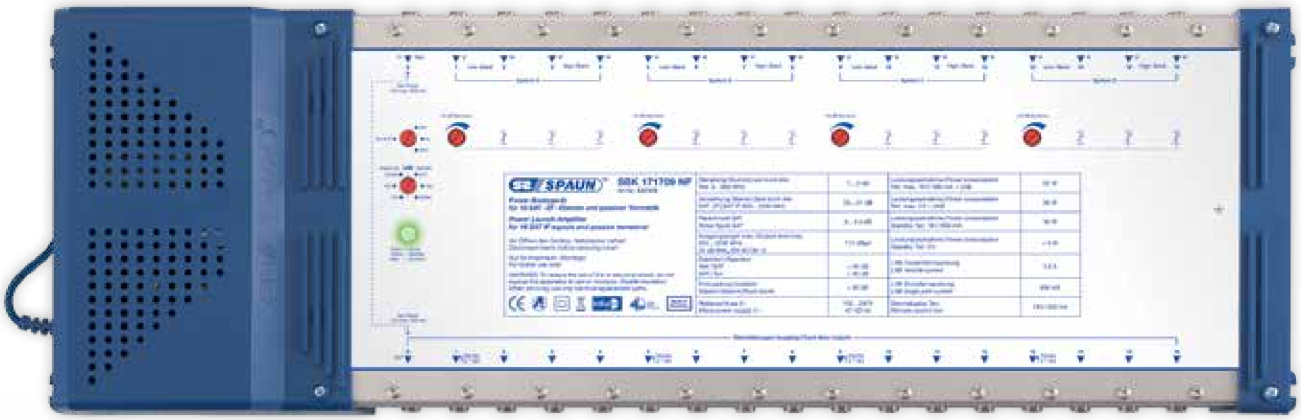
Miscellaneous:

- Selective standby function:
  If all subscribers watch TV programms of SAT system A only the appropriate LNB is supplied with power.
  The internal logic turns off the power supply of all other LNBs as well as for the integrated amplifiers.
  This process results in significant energy-savings.
- Ground clamp.
- The device is equipped with an energy-saving switched-mode power supply.

Model Art. No.	SMS 17089 NF 842425
EAN	4040326424254
Inputs / outputs SAT / terrestrial	17 / 17 16 / 1
Subscriber outputs	8
Tap loss Terr. 5 … 862 MHz	20 … 23 dB
Tap gain SAT 950 … 2200 MHz	-3 … 3 dB
Loss trunk line Terr. 5 … 862 MHz	5 dB
Gain trunk line SAT 950 … 2200 MHz	18 … 21 dB
Output level max. SAT 950 … 2200 MHz 35 dB IMA_3 / EN 60728-3	110 dBµV
Rejection SAT / terrestrial Terrestrial / SAT	 > 35 dB > 40 dB
Isolation Trunk / trunk	> 30 dB
Isolation Receiver / receiver	> 28 dB
Mains power supply U~	100 … 240 V / 47 - 63 Hz
Power consumption Terrestrial 18 V / 250 mA + LNB	< 26 W
Power consumption Terrestrial 0 V + LNB	< 23 W
Power consumption Standby / terrestrial 18 V / 250 mA	< 8 W
Power consumption Terrestrial 0 V	< 3 W
LNB remote current	1,2 A
Single port current	300 mA
Remote current terrestrial	18 V / 250 mA
Current consumption from receiver	25 mA
Ambient temperature	-20 … +50 °C
Dimensions (mm)	490 x 211 x 56

Power Class

Power Launch Amplifier for large distribution networks / 17 inputs



Energy Saver!
Standby Function and Switched-Mode Power Supply

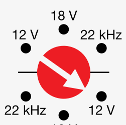
LED control

Green = active

Yellow = standby

Red = DC - error

LNB supply voltage



Selectable for Quattro or QUAD LNB.

Standby or continuous operation mode selectable.

Supply voltage

0 V / 18 V selectable.

Synchronous level adjuster

For each SAT IF system.

SBK 171709 NF

17 DC - decoupled terminating resistors are shipped with the SBK 171709 NF to terminate the trunk lines.
ZFR 75 DC / Set (Art.No.: 871511)

Power Launch Amplifier for cascading with SMK 17xx9 F(A).

SAT IF:

- High amplification for huge distribution networks.
- Synchronous level adjuster for each SAT IF system.
- A special amplifier / filter design improves the intermodulation properties of the launch amplifier considerably.
- The high selective input filter guarantees that interference products of the LNBs can‘t drive the amplifiers into saturation.

Terrestrial:

- The terrestrial input is passive and return path compatible with the possibility of a 18 V (250 mA) remote power in both directions for an external amplifier.
- An additional output filter ensures that intermodulation properties and noise effects do not degrade the terrestrial signal.

Miscellaneous:

- Selective standby function:
  If all subscribers watch TV programms of SAT system A, only the appropriate LNB is supplied with power.
  The internal logic turns off the power supply of all other LNBs as well as that of the integrated amplifiers.
  This process results in significant energy - savings.
- Ground clamp.
- The device is equipped with an energy - saving switched- mode power supply.

Model Art. No.		SBK 171709 NF 842428
EAN		4040326424285
Inputs / outputs SAT / terrestrial		17 / 17 16 / 1
Loss Terr. 5 … 862 MHz		1 … 3 dB
Gain SAT IF 950 … 2200 MHz		25 … 31 dB
Output level max. 950 … 2200 MHz 35 dB IMA_3 / EN 60728 - 3		117 dBµV
Rejection	Terrestrial / SAT	> 45 dB
	SAT / terrestrial	> 40 dB
Isolation Trunk / trunk		> 30 dB
Power supply U~		100 … 240 V / 47 - 63 Hz
Power consumption Terr. 18 V / 500 mA + LNB		62 W
Power consumption Terr. 0 V + LNB		50 W
Power consumption Standby / terrestrial 18 V / 500 mA		18 W
Power consumption Standby / terrestrial 0 V		5 W
LNB remote current		1,6 A
Single port current		400 mA
Remote current terrestrial		18 V / 500 mA
Ambient temperature		-20 … + 50 °C
Dimensions (mm)		540 x 170 x 100

Premium Class

Cascadable Multiswitches 17 in 8, 12 ,16

! Only useable in combination with the Launch Amplifiers **SMS 17089 NF** or **SBK 171709 NF**.

DiSEqC 2.0

Energy Saver!
Standby Function

SMK 17xx9 F
SMK 17xx9 FA (active)

For 8, 12 or 16 subscribers either as an active version with amplification in the SAT IF path (SMK 17xx9 FA) or as a completely passive version (SMK 17xx9 F).

satellit EMPFANG + TECHNIK 3.2011 sehr gut www.satdigital.de

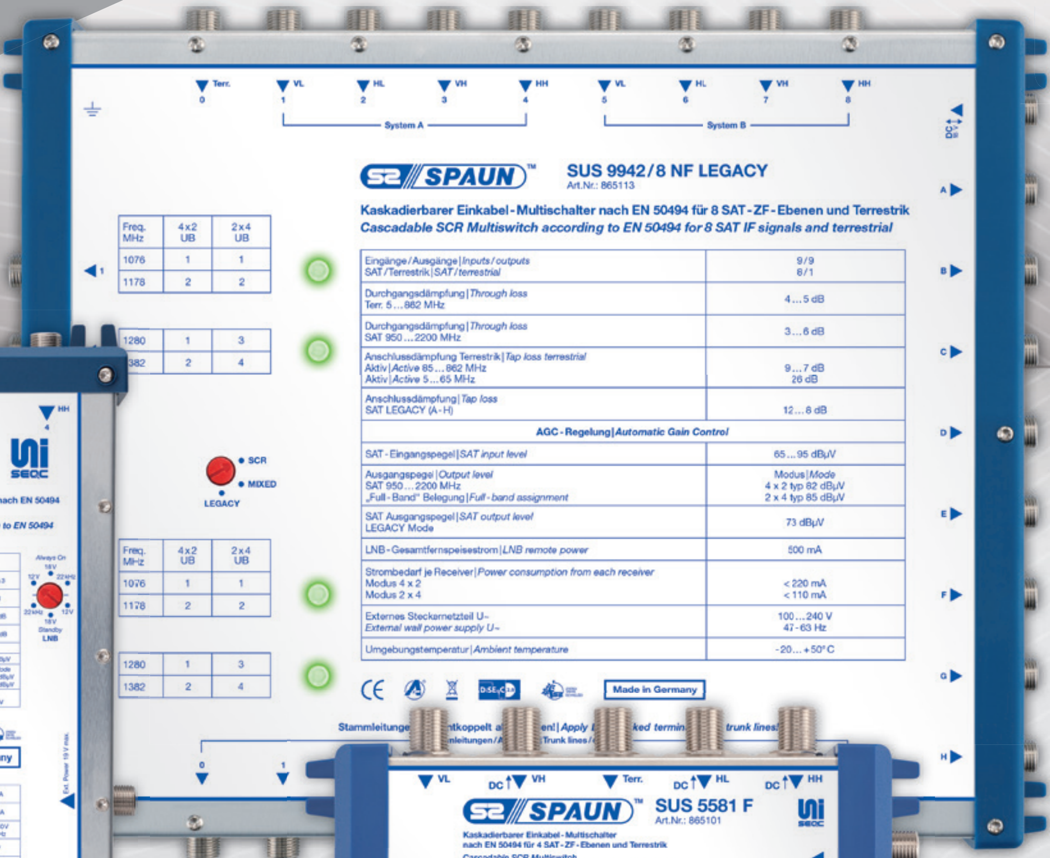
SMK 17129 F multiswitch received the rating of „sehr gut" („very good").

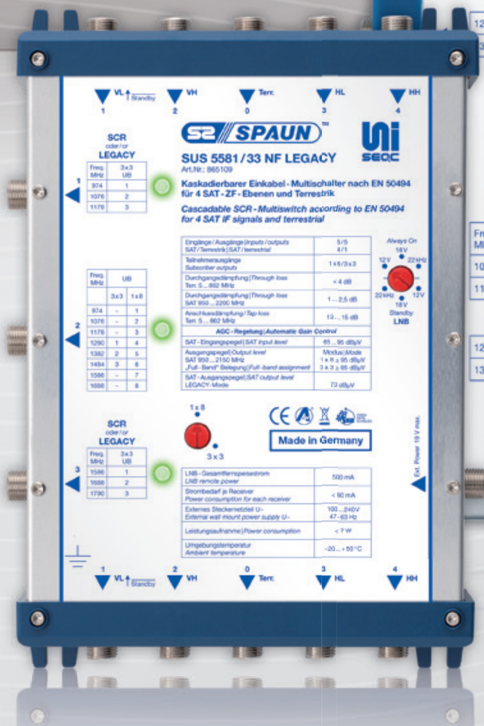
Model Art. No.	SMK 17089 F 842423	SMK 17129 F 842426	SMK 17169 F 842424	SMK 17089 FA 842469	SMK 17129 FA 842470	SMK 17169 FA 842471
EAN	4040326424230	4040326424261	4040326424247	4040326424698	4040326424704	4040326424711
Inputs/outputs SAT/terrestrial	17/17 16/1					
Frequency range	5…862 MHz 950…2200 MHz					
Subscriber outputs	8	12	16	8	12	16
Through loss terr. trunk	6 dB	6 dB	6 dB	6 dB	6 dB	6 dB
Through loss SAT trunk	2…5 dB	3…7 dB	3…7 dB	2…5 dB	3…7 dB	3…7 dB
Tap loss terrestrial	22…25 dB	25…27 dB	27…29 dB	22…25 dB	25…27 dB	27…29 dB
Tap loss SAT	20…19 dB	22…20 dB	22…20 dB	7…0 dB	7…1 dB	7…1 dB
Output level max. 950…2200 MHz 35 dB IMA$_3$/EN 60728-3	-	-	-	110 dBµV	110 dBµV	110 dBµV
Current consumption from receiver	25 mA			75 mA		
Isolation Trunk/trunk	> 30 dB	> 30 dB	> 30 dB	> 30 dB	> 30 dB	> 30 dB
Isolation Receiver/receiver	> 30 dB	> 30 dB	> 30 dB	> 30 dB	> 30 dB	> 30 dB
DC-pass through Trunk line 0; 2…16 *	1 A					
Ambient temperature	-20…+50 °C					
Dimensions (mm)	425 x 130 x 40	425 x 210 x 40	425 x 210 x 40	425 x 130 x 40	425 x 210 x 40	425 x 210 x 40

* Selective Standby mode. Activation via trunk lines 1, 5, 9 and 13.

The UNiSEqC product series according to EN 50494

SUS 9942/8 NF(A) LEGACY
(page 46)

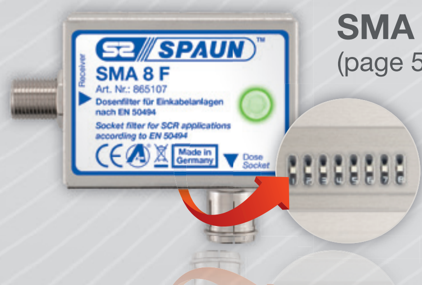




SUS 5581/33 NF(A) LEGACY
(page 50)

SUS 55x1 F(A) und SUS 44x1 F
(page 54)

SUS 21 F
(page 60)



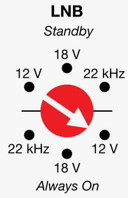
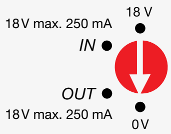
SMA 8 F
(page 58)

Premium Class

Launch Amplifier 13 in 8

DiSEqC 2.0

Energy Saver!
Standby Function and Switched-Mode Power Supply

LED control	LNB supply voltage		Supply voltage	Synchronous level adjuster
Green = active Yellow = standby Red = DC-error		Selectable for Quattro or QUAD LNB. Standby or continuous operation mode selectable.	 0 V / 18 V selectable.	 For each SAT IF system.

13 DC-decoupled terminating resistors are shipped with the SMS 13089 NF to terminate the trunk lines.
ZFR 75 DC/Set (Art.No.: 871511)

SMS 13089 NF

Useable as stand-alone switch for 8 subscribers; for cascading with SMK 13xx9 F(A); as post amplifier or to terminate a cascadable system.

SAT IF:

- Synchronous level adjuster for each SAT IF system.
- LNB supply voltage selectable for the use of 12V, Quattro or QUAD LNBs.
- The cascadable multiswitches are delivered with 13 DC-decoupled terminating resistors to terminate the unused trunk lines.

Terrestrial:

- Passive return path 5 … 65 MHz for the use of interactive signals (Triple Play).
- Active forward path 85 … 862 MHz.
- InGap-HBT Push-Pull output stage.

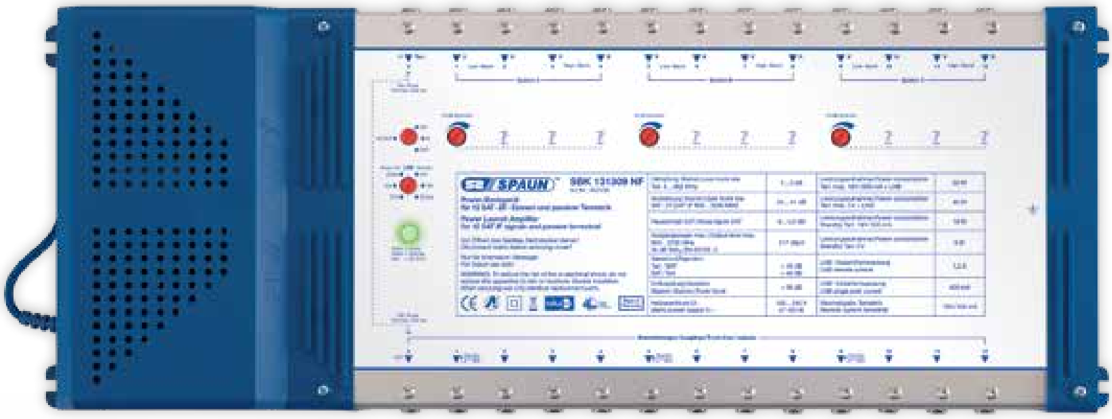
Miscellaneous:

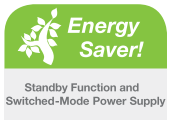
- Selective standby function:
  If all subscribers watch TV programms of SAT system A, only the appropriate LNB is supplied with power. The internal logic turns off the power supply of all other LNBs as well as that of the integrated amplifiers. This process results in significant energy-savings.
- Ground clamp.
- The device is equipped with an energy-saving switched-mode power supply.

Model Art. Nr.	SMS 13089 NF 842430
EAN	4040326424308
Inputs/outputs SAT/terrestrial	13/13 12/1
Subscriber outputs	8
Tap gain Terr. 85…862 MHz	5 dB
Tap loss Terr. return path 5…65 MHz	18…20 dB
Tap gain SAT 950…2200 MHz	0…4 dB
Gain trunk line SAT 950…2200 MHz	20…21 dB
Loss trunk line Terrestrial 5…65 MHz	5 dB
Gain trunk line Terr. 85…862 MHz	20 dB
Output level max. Terr. 85…862 MHz 60 dB IMA_3/EN 60728-3	103 dBµV
Output level max. SAT 950…2200 MHz 35 dB IMA_3/EN 60728-3	110 dBµV
Rejection SAT/terrestrial Terrestrial/SAT	> 35 dB > 40 dB
Isolation Trunk/trunk	> 30 dB
Isolation Receiver/receiver	> 28 dB
Mains power supply U~	100…240V/47-63 Hz
Power consumption Terrestrial 18V/250 mA 1+ LNB	< 22 W
Power consumption Terrestrial 0V + LNB	< 21 W
Power consumption Standby/terr. 18V/250 mA	< 8 W
Power consumption Terrestrial 0V	< 7 W
LNB remote current	900 mA
Single port current	300 mA
Remote current terrestrial	18V/250 mA
Current consumption from receiver	25 mA
Ambient temperature	-20…+50 °C
Dimensions (mm)	430 x 211 x 56

Power Class

Power Launch Amplifier for large distribution networks / 13 inputs

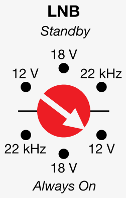




LED control

- Green = active
- Yellow = standby
- Red = DC - error

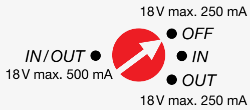
LNB supply voltage



Selectable for Quattro or QUAD LNB.

Standby or continuous operation mode selectable.

Supply voltage



0 V / 18 V selectable.

Synchronous level adjuster

For each SAT IF system.

13 DC - decoupled terminating resistors are shipped with the SBK 131309 NF to terminate the trunk lines.
ZFR 75 DC / Set (Art.No.: 871511)

SBK 131309 NF

Power Launch Amplifier for cascading with SMK 13xx3 F(A).

SAT IF:

- High amplification for huge distribution networks.
- Synchronous level adjuster for each SAT IF system.
- A special amplifier / filter design improves the intermodulation properties of the launch amplifier considerably.
- The high selective input filter guarantees that interference products of the LNBs can‘t drive the amplifiers into saturation.

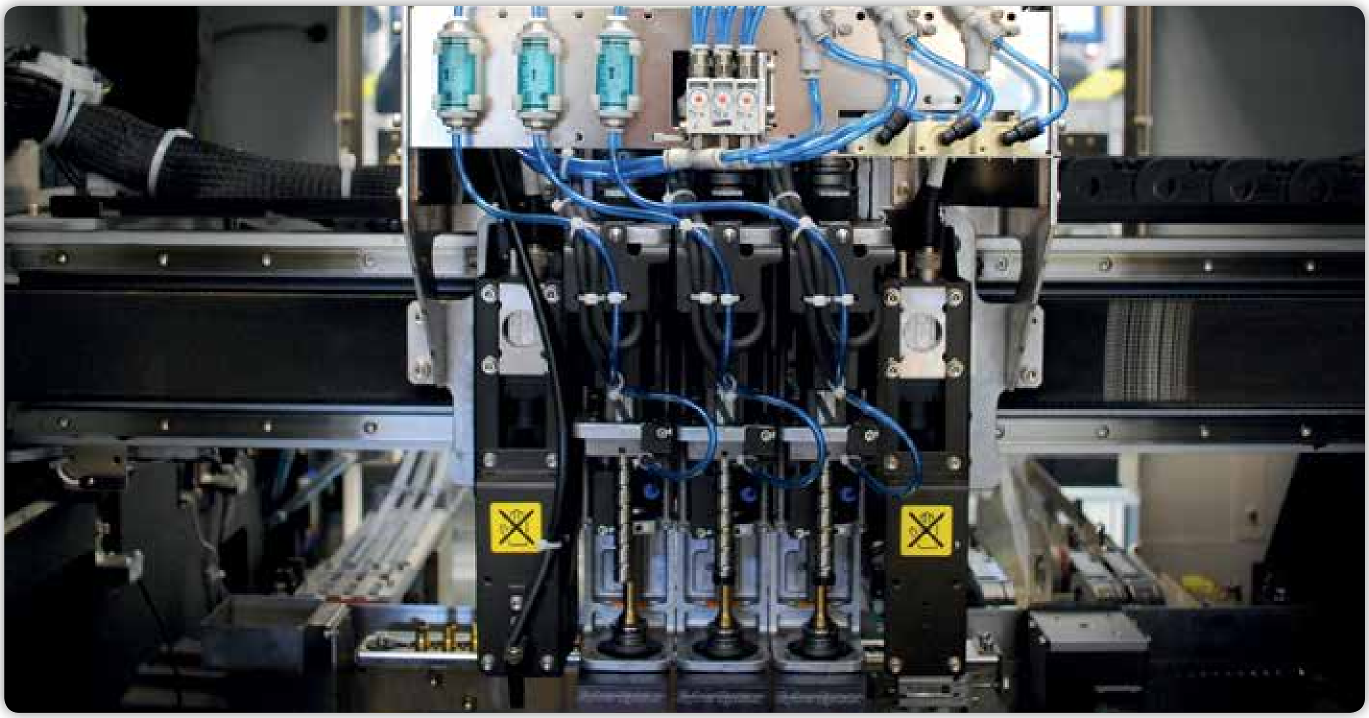
Terrestrial:

- The terrestrial input is return path compatible. Supply voltage selectable in both directions: 0 V / 18 V (500 mA).

Miscellaneous:

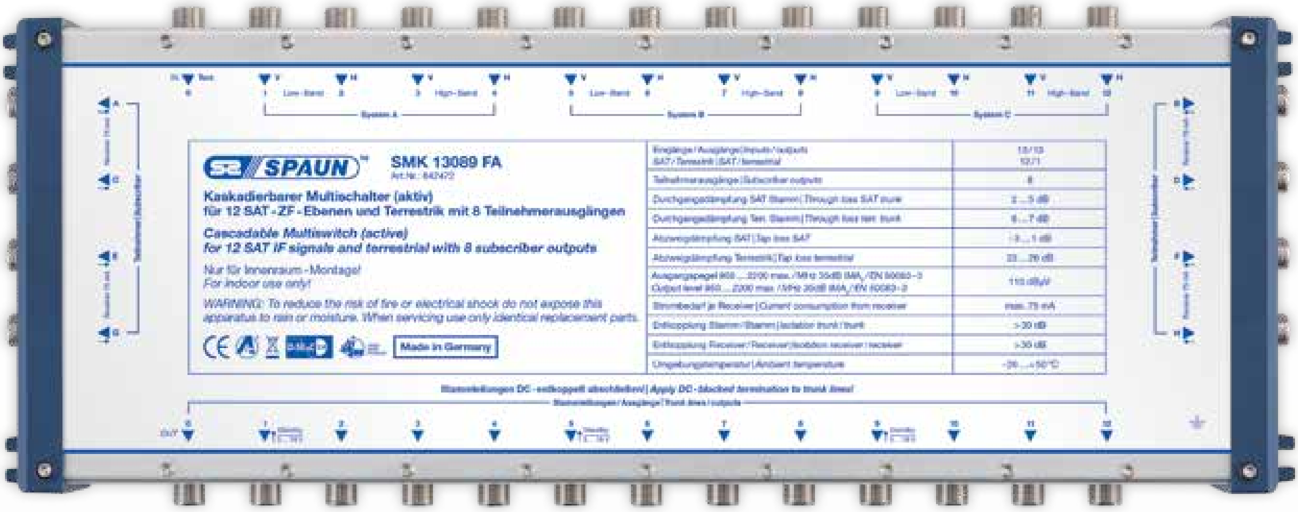
- Selective standby function:
  If all subscribers watch TV programms of SAT system A, only the appropriate LNB is supplied with power.
  The internal logic turns off the power supply of all other LNBs as well as that of the integrated amplifiers.
  This process results in significant energy - savings.
- Ground clamp.
- The device is equipped with an energy - saving switched- mode power supply.

Model Art. No.		SBK 131309 NF 842450
EAN		4040326424506
Inputs / outputs SAT / terrestrial		13 / 13 12 / 1
Loss Terrestrial 5 … 862 MHz		1 … 3 dB
Gain SAT IF 950 … 2200 MHz		25 … 31 dB
Output level max. 950 … 2200 MHz 35 dB IMA_3 / EN 60728-3		117 dBµV
Rejection	Terrerstrial / SAT	> 45 dB
	SAT / terrestrial	> 40 dB
Isolation Trunk / trunk		> 30 dB
Power supply U ~		100 … 240 V / 47 - 63 Hz
Power consumption Terrestrial 18 V / 500 mA + LNB		50 W
Power consumption Terrestrial 0 V + LNB		40 W
Power consumption Standby / terr. 18 V / 500 mA + LNB		18 W
Power consumption Standby / terrestrial 0 V		5 W
LNB remote current		1,2 A
Single port current		400 mA
Remote current terrestrial		18 V / 500 mA
Ambient temperature		-20 … +50 °C
Dimensions (mm)		460 x 170 x 100



Premium Class

Cascadable Multiswitches 13 in 8, 12, 16



Only useable in combination with the Launch Amplifiers **SBK 131309 NF** or **SMS 13089 NF**.

DiSEqC 2.0

Energy Saver! Standby Function

SMK 13xx9 F
SMK 13xx9 FA (active)

For 8, 12 or 16 subscribers either as an active version with amplification in the SAT IF path (SMK 13xx9 FA) or as a completely passive version (SMK 13xx9 F).

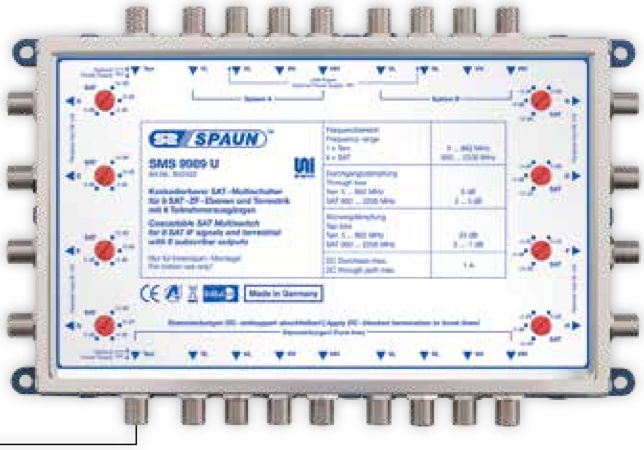
Model Art. No.	SMK 13089 F 842466	SMK 13129 F 842467	SMK 13169 F 842468	SMK 13089 FA 842472	SMK 13129 FA 842473	SMK 13169 FA 842474
EAN	4040326424667	4040326424674	4040326424681	4040326424728	4040326424735	4040326424742
Inputs/outputs SAT/terrestrial	13/13 12/1					
Frequency range	5...862 MHz und 950...2200 MHz					
Subscriber outputs	8	12	16	8	12	16
Through loss terr. trunk	6 dB	6 dB	6 dB	6 dB	6 dB	6 dB
Through loss SAT trunk	2...5 dB	3...7 dB	3...7 dB	2...5 dB	3...7 dB	3...7 dB
Tap loss terrestrial	22...25 dB	25...27 dB	27...29 dB	22...25 dB	22...25 dB	27...29 dB
Tap loss SAT	20...19 dB	22...20 dB	22...20 dB	3...-1 dB	4...1 dB	4...1 dB
Output level max. 950...2200 MHz 35 dB IMA_3/EN 60728-3	-	-	-	110 dBµV	110 dBµV	110 dBµV
Current consumption from receiver max.	25 mA			75 mA		
Isolation Trunk/trunk	> 30 dB	> 30 dB	> 30 dB	> 30 dB	> 30 dB	> 30 dB
Isolation Receiver/receiver	> 30 dB	> 30 dB	> 30 dB	> 30 dB	> 30 dB	> 30 dB
DC-pass through Trunk line 0; 2...16*	1 A					
Ambient temperature	-20...+50 °C					
Dimensions (mm)	345 x 130 x 40	345 x 210 x 40	345 x 210 x 40	345 x 130 x 40	345 x 210 x 40	345 x 210 x 40

* Selektive Standby mode. Activation via trunk lines 1, 5, 9.

UniSystem - Flexible Multiswitch System 9 … 17 in 8

9 DC - decoupled terminating resistors are shipped with the multiswitch to terminate the trunk lines.
ZFR 75 DC / Set (Art.No.: 871511)

Optional:
Universal AC Adapter
SNG 18 / 1000 (Art. No.: 832114)
in combination with Line Power Injection Filter
FSW 30 F (Art. No.: 815018)



SMS 9989 U, SMS 9987 U

DiSEqC 2.0

For 8 … 16 SAT IF signals.

The UniSystem multiswitches can be used as stand - alone devices or can be cascaded with themselves for an easy extension of the number of subscribers. The UniSystem is also extendable to up to 16 SAT IF levels.

Special features:

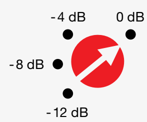
- After the SAT IF signal has been decoupled by microstripline directional couplers, it is amplified on each receiver output which produces a tap loss of 3 … + 1 dB.

Possible applications:

- As a single multiswitch for 8 SAT IF signals.
- In „piggyback" mode in conjunction with a multiswitch relay extensible for 16 SAT IF signals. The wall mounting frame supplied is designed to support also the „piggyback" assembly.
- Due to the 9 trunk line outputs it is possible to cascade the devices with themselfes for an esay extension of the number of subscribers. Without amplifying the signal, it is possible (depending on cable quality and length) to feed up to 24 receiver.

Model Art. No.	SMS 9989 U 842432	SMS 9987 U 842439
EAN	4040326424322	4040326424391
Inputs / outputs SAT / terrestrial	9 … 17 / 9 … 17 8 … 16 / 1	
Frequency range	5 … 862 MHz 950 … 2200 MHz	
Subscriber outputs	8	
Through loss terrestrial	6 dB	
Through loss SAT	2 … 5 dB	
Tap loss terrestrial	24 dB	
Tap gain SAT	-3 … 1 dB	
Output level SAT max. 35 dB IMA_3 / EN 60728 - 3	96 dBµV	
Switchable attenuator	> 26 dB	
Rejection receiver / receiver	> 26 dB	
Current from receiver max.	95 mA	
DC - pass per trunk line	1 A	
Ambient temperature	-20 … + 50 °C	
Dimensions (mm)	225 x 146 x 32	

Switchable level



Each receiver output has an integrated switchable attenuator (except SMS 9987 U).

Light Class

Compact Multiswitch with active terrestrial 9 in 8, 16, 24, 32

Energy Saver!
Standby Function and Switched-Mode Power Supply

SMS 9807 NF, SMS 91607 NF
SMS 92407 NF, SMS 93207 NF

For 8, 16, 24 and 32 subscribers.

SAT IF:
- Can be used with Quattro or QUAD LNBs.
- A special amplifier/filter design improves the intermodulation properties of the compact multiswitch considerably.
- The high selective input filter guarantees that interference products of the LNBs cannot drive the amplifiers into saturation.

Terrestrial:
- Active forward path 85…862 MHz.
- Passive return path 5…65 MHz for the use of interactive signals (Triple Play).

Miscellaneous:
- The multiswitch supports standby mode. Both the SAT IF amplifier, as well as the remote power supply of the LNBs are only active if at least one receiver provides a supply voltage to its multiswitch outlet.
- Ground clamp.
- The devices are supplied with an energy-saving switched-mode power supply.

Model Art. No.		SMS 9807 NF 842495	SMS 91607 NF 842496	SMS 92407 NF 842498	SMS 93207 NF 842499
EAN		4040326424957	4040326424964	4040326424988	4040326424995
Inputs SAT / terrestrial		9 8 / 1			
Subscriber outputs		8	16	24	32
Tap loss Terr. passive 5 ... 65 MHz		17 ... 19 dB	22 ... 24 dB	24 ... 26 dB	25 ... 27 dB
Tap loss Terr. active 85 ... 862 MHz		4 ... 2 dB	8 ... 4 dB	8 ... 5 dB	9 ... 6 dB
Tap gain SAT IF 950 ... 2200 MHz		-3 ... 3 dB	-5 ... 0 dB	-5 ... 2 dB	-6 ... 0 dB
Output level max. 85 ... 862 MHz 60 dB IMA_3 / EN 60728-3		92 dBµV	88 dBµV	92 dBµV	90 dBµV
Output level max. 950 ... 2200 MHz 35 dB IMA_3 / EN 60728-3		95 dBµV	95 dBµV	95 dBµV	95 dBµV
Selection	SAT / terrestrial	> 40 dB			
	Terrestrial / SAT	> 40 dB			
Isolation	Switching isolation	> 35 dB			
	Receiver / receiver	> 35 dB			
Mains power supply U~		100 ... 240 V / 47 - 63 Hz			
Power consumption Terrestrial active / SAT active + LNB		< 5 W	< 6 W	< 7 W	< 8 W
Power consumption SAT standby		< 3 W	< 3 W	< 3 W	< 3 W
LNB remote current		600 mA			
LNB single port current		300 mA			
Current consumption from receiver		< 20 mA			
Ambient temperature		-20 ... +50 °C			
Dimensions (mm)		230 x 211 x 56	330 x 211 x 56	410 x 211 x 56	490 x 211 x 56

Premium Class

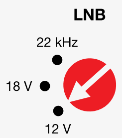
Cascadable Multiswitch 9 in 8

DiSEqC 2.0

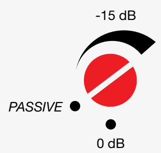
Energy Saver!

Standby Function and Switched-Mode Power Supply

LNB supply voltage



Selectable for Quattro or QUAD LNB.



This attenuator allows the stepless reduction of the terrestrial signal. After the minimum level is reached the next step is to turn the terrestrial path to passive.

Level attenuator

For each IF input to adjust different input levels.

SMS 9982 NFI

For 8 subscribers with trunk lines.

9 DC-decoupled terminating resistors are shipped with the SMS 9982 NFI to terminate the trunk lines.
ZFR 75 DC/Set (Art.No.: 871511)

SAT IF:

- SAT IF amplifiers with precompensating slope.
- SAT IF selection logic: Using the analogue control signals 14/18V, 0/22 kHz and ToneBurst or the DiSEqC commands Polarity, Band and Position.
- The multiswitch supports standby mode. Both the SAT IF amplifier, as well as the remote power supply of the LNBs are only active if at least one receiver provides a supply voltage to its multiswitch outlet.
- The multiswitche support DiSEqC 2.0. That means bidirectional communication between receiver and multiswitch is possible.

Terrestrial:

- Terrestrial input selectable active/passive.
- Return path for the use of interactive signals (Triple Play).

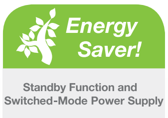
Miscellaneous:

- Standby function.
- Ground clamp.
- The device is equipped with an energy-saving switched-mode power supply.

Model Art. No.		SMS 9982 NFI 842257
EAN		4040326422571
Inputs/outputs SAT/terrestrial		9/9 8/1
Subscriber outputs		8
Tap loss Terrestrial passive 5…862 MHz		18…21,5 dB
Tap gain Terrestrial active 47…862 MHz		3.5…0,5 dB
Tap gain SAT 950…2200 MHz		-2.5…6,5 dB
Loss trunk lines Terrestrial passive 5…862 MHz		5,5 dB
Gain trunk lines Terrestrial active 47… 862 MHz		18 dB
Gain trunk lines SAT IF 950…2200 MHz		13…17 dB
Output level max. 47…862 MHz 60 dB IMA_3/EN 60728-3		105 dBµV
Output level max. 950…2200 MHz 35 dB IMA_3/EN 60728-3		109 dBµV
Rejection	Terrestrial passive/SAT	> 26 dB
	Terrestrial active/SAT	> 30 dB
	SAT/terrestrial	> 36 dB
Isolation Trunk/trunk		> 30 dB
Isolation Receiver/receiver		> 28 dB
Mains power supply U~		100…240V/47-63 Hz
Power consumption Terrestrial 18V/250 mA + LNB		27 W
Power consumption Terrestrial 0V + LNB		20 W
Power consumption Standby/terrestrial 18V/250 mA		6 W
Power consumption Standby/terrestrial 0V		3 W
LNB remote current		800 mA
Single port current		400 mA
Current consumption from receiver		25 mA
Ambient temperature		-20…+50 °C
Dimensions (mm)		330 x 211 x 56

Power Class

Launch Amplifier for large distribution networks/9 inputs



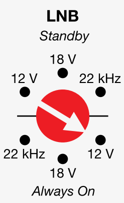
LED control

Green = active

Yellow = standby

Red = DC-error

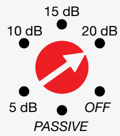
LNB supply voltage



Selectable for Quattro or QUAD LNB.

Standby or continuous operation mode selectable.

Return path



Selectable, off, passive, active. Gain selectable: 20, 15, 10 or 5 dB.

Synchronous level adjuster

For each SAT IF position.

SBK 9935 NF
SBK 9965 NF

9 DC-decoupled terminating resistors are shipped with the SBK 99x5 NF to terminate the trunk lines.
ZFR 75 DC/Set (Art.No.: 871511)

Launch- and post amplifier for cascading with SMK 99xx F.

SAT IF:

- A special amplifier/filter design improves the intermodulation properties of the launch amplifiers considerably.
- The high selective input filter guarantees that interference products of the LNBs can not drive the amplifiers into saturation.
- An additional output filter ensures that intermodulation products and noise effects do not degrade the terrestrial signal.

Terrestrial:

- **Forward path:**
  Terrestrial amplifier with pre-emphasis.
- **Return path:**
  Selectable: off, passive, active.
  Gain selectable: 20, 15, 10 or 5 dB.
- CATV compatible.
- Push pull technology.
- Level adjuster range: 0…-15 dB.

Miscellaneous:

- Selective standby function:
  If all subscribers watch TV programms of SAT system A, only the appropriate LNB is supplied with power.
  The internal logic turns off the power supply of all other LNBs as well as that of the integrated amplifiers.
  This process results in significant energy-savings.
- Ground clamp.
- The devices are supplied with an energy-saving switched-mode power supply.

Model Art. No.		SBK 9935 NF 842379	SBK 9965 NF 842400
EAN		4040326423790	4040326424001
Inputs/outputs SAT/terrestrial		9/9 8/1	
Return path loss Terrestrial passive 5…30 MHz		-2,5 dB	-
Return path loss Terrestrial passive 5…65 MHz		-	-2,5 dB
Return path gain Terrestrial active 5…30 MHz		5, 10, 15, 20 dB	-
Return path gain Terrestrial active 5…65 MHz		-	5, 10, 15, 20 dB
Gain Terrestrial 47…862 MHz		26…30 dB	-
Gain Terrestrial 85…862 MHz		-	26…30 dB
Gain SAT IF 950…2200 MHz		27…31 dB	27…31 dB
Output level return path 5…30 MHz max. 60 dB IMA_3/EN 60728-3		110 dBµV	-
Output level return path 5…65 MHz max. 60 dB IMA_3/EN 60728-3		-	110 dBµV
Output level 47... 862 MHz max. 60 dB IMA_3/EN 60728-3		116 dBµV	-
Output level 85…862 MHz max. 60 dB IMA_3/EN 60728-3		-	116 dBµV
Output level 950…2200 MHz max. 35 dB IMA_3/EN 60728-3		117 dBµV	117 dBµV
Rejection	Terrestrial active/SAT	> 42 dB	> 42 dB
	SAT/terrestrial	> 40 dB	> 40 dB
Isolation Trunk/trunk		≥ 35 dB	
Mains power supply U~		100… 240V/47-63 Hz	
Power consumption Terrestrial active/SAT active		55 W	
Power consumption standby		< 15 W	
LNB remote current		1 A	
Single port current		500 mA	
Ambient temperature		-20 …+50 °C	
Dimensions (mm)		445 x 190 x 100	

SAT IF

Light Class

Launch Amplifier 9 in 4

DiSEqC 2.0

Energy Saver!

Standby Function and Switched-Mode Power Supply

9 DC-decoupled terminating resistors are shipped with the SMS 9949 NFI to terminate the trunk lines.
ZFR 75 DC/Set (Art.No.: 871511)

SMS 9949 NFI

As stand-alone switch for 4 subscribers; for cascading with SMK 99xx F; as post amplifier or to terminate a cascadable system.

SAT IF:

- The SMS 9949 NFI provides improved maximum output level as well as an increased gain of the SAT IF trunk lines.
- 8 SAT IF inputs and 1 passive terrestrial input, 4 receiver outputs and 9 trunk line outputs.
- Standby mode, even with cascaded sub devices SMK 99x9 F, activation via trunk line.
- A special amplifier/filter design improves the intermodulation properties of the multiswitch considerably.
- The multiswitch supports DiSEqC 2.0. That means bidirectional communication between receiver and multiswitch is possible.
- Can be used with Quattro or QUAD LNBs.

Terrestrial:

- Return path compatible.
- Remote power over terrestrial for active cascade components 18 V/150 mA.

Miscellaneous:

- Ground clamp.
- The device is supplied with an energy-saving switched-mode power supply.

Model Art. No.	SMS 9949 NFI 842431
EAN	4040326424315
Inputs/outputs SAT/terrestrial	9/9 8/1
Subscriber outputs	4
Tap loss Terrestrial 5 … 862 MHz	16 … 18 dB
Tap gain SAT 950 … 2200 MHz	-3 … 2,5 dB
Loss trunk lines Terrestrial 5 … 862 MHz	4,5 … 6 dB
Gain trunk lines SAT IF 950 … 2200 MHz	15 dB
Output level max. 950 … 2200 MHz 35 dB IMA_3/EN 60728 -3	116 dBµV
Selection: Terrestrial/SAT	> 35 dB
Selection: SAT/terrestrial	> 35 dB
Isolation Trunk/trunk	> 30 dB
Isolation Receiver/receiver	> 35 dB
Mains power supply U~	100 … 240 V/47-63 Hz
Power consumption + LNB	< 8,5 W
Power consumption standby	< 2 W
LNB remote current	500 mA
Single port current	250 mA
Current consumption from receiver	25 mA
Ambient temperature	-20 … +50 °C
Dimensions (mm)	340 x 130 x 56

Premium Class

Cascadable Multiswitch 9 in 8, 12, 16

SMK 9989 F, SMK 99129 F, SMK 99169 F

For 8, 12, 16 subscribers.

SAT IF:

- Standby control.
- Ground clamp.

Terrestrial:

- Return path compatible.

Energie Sparer!

Standby-Funktion

DiSEqC 2.0

SMK 9989 FA, SMK 99129 FA, SMK 99169 FA

For 8, 12, 16 subscribers.

SAT IF:

- SAT IF signals amplified.
- The active cascades have a DC jack for remote power, if the launch amplifier does not provide remote power voltage.
- LED operation display.

Terrestrial:

- Terrestrial (85 … 862 MHz) signals amplified.
- Return path (5 … 65 MHz) passive.
- The supply of the active terrestrial path is possible via trunk line 0 (18 V / 90 mA), from the launch amplifier or the optional wall power supply (SNG 18 / 1000).
- Ground clamp.

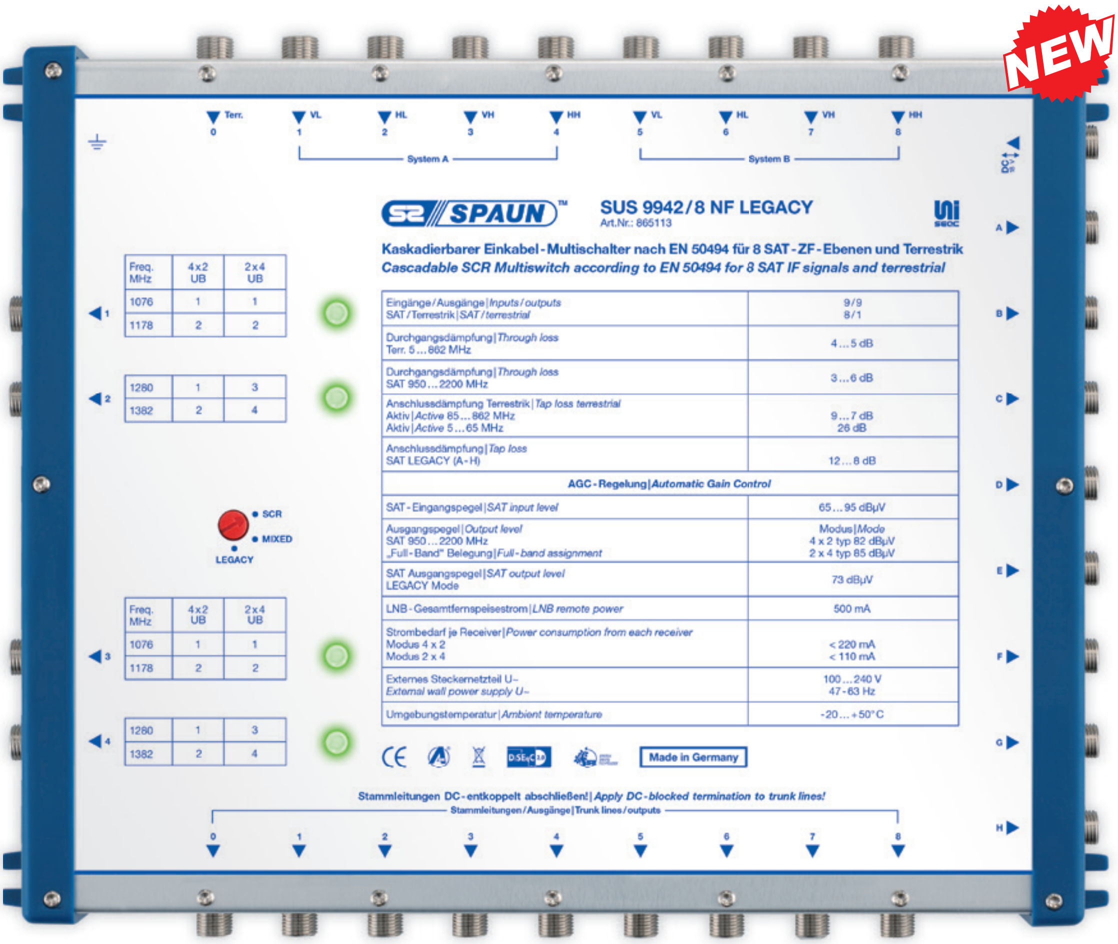
! Only useable in combination with Launch Amplifiers **SMS 9949 NFI** or Launch Amplifiers **SMS 9982 NFI, SBK 99x5 NF**.

Model Art. No.	SMK 9989 F 842383	SMK 99129 F 842409	SMK 99169 F 842410	SMK 9989 FA 842510	SMK 99129 FA 842512	SMK 99169 FA 842514
EAN	4040326423837	4040326424094	4040326424100	4040326425107	4040326425121	4040326425145
Inputs / outputs SAT / terrestrial	9 / 9 8 / 1					
Subscriber outputs	8	12	16	8	12	16
Through loss terrestrial	4 dB	5 dB	5 dB	4 dB	5 dB	5 dB
Through loss SAT	2 ... 4 dB	3 ... 7 dB	3 ... 7 dB	2 ... 4 dB	3 ... 7 dB	3 ... 7 dB
Tap loss terrestrial 5 ... 65 MHz	20 dB	22 dB	24 dB	20 dB	22 dB	24 dB
Tap loss terrestrial 85 ... 862 MHz	20 dB	22 dB	24 dB	6 … 5 dB	8 … 7 dB	10 … 9 dB
Tap gain SAT 950 ... 2200 MHz	-18 … -14 dB	-20 … -16 dB	-20 … -16 dB	2 … 6 dB	0 … 4 dB	0 … 4 dB
Output level max. Terrestrial 85 ... 862 MHz 60 dB IMA_3 / EN 60728 - 3	-	-	-	92 dBµV	90 dBµV	88 dBµV
Output level max. SAT 950 ... 2200 MHz 35 dB IMA_3 / EN 60728 - 3	-	-	-	110 dBµV	110 dBµV	110 dBµV
Switching isolation	$\geq$ 30 dB					
Isolation trunk / trunk	> 30 dB					
Isolation Receiver / receiver	$\geq$ 30 dB					
DC - through trunk 0; 2; 3 und 4	1 A					
Current consumption for each receiver max.	25 mA			75 mA		
Ambient temperature	- 20 ... + 50 °C					
Dimensions (mm	265 x 130 x 40	265 x 211 x 40	265 x 211 x 40	265 x 130 x 40	265 x 211 x 40	265 x 211 x 40

SAT IF

Premium Class

UNiSEqC SCR Multiswitch for 8 SAT IF lines and terrestrial according to EN 50494



SUS 9942/8 NF LEGACY
SUS 9942/8 NFA LEGACY

The SCR multiswitch SUS 9942/8 NF LEGACY offers a mix between single cable operation according to EN 50494 and LEGACY mode. Thanks to a mode selector the outputs can be switched between SCR and LEGACY operation mode (see application diagrams). The SUS 9941/8 NFA LEGACY additionally does have active SAT trunk lines.

SAT IF:

- The selection of the SAT IF polarity is affected with a SCR command according to EN 50494.
- No limitation on the transponder reception.
- Suitable for Quattro LNB.
- Multipurpose LED status notification (page 47).
- SCR outputs are AGC controlled.
- External wall power supply SNG 18/1000 is included in scope of delivery.

Terrestrial:

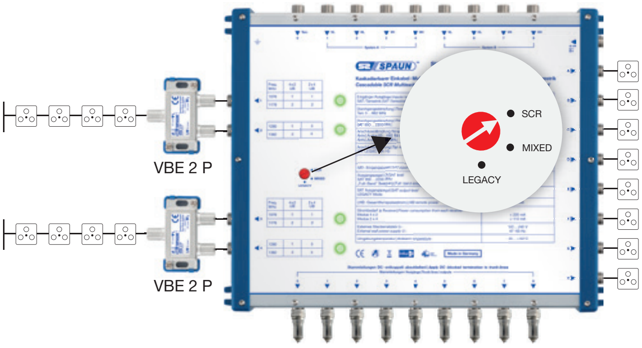
- Terrestrial path is active and return path passive (Triple Play).
- The reception of the terrestrial signal is possible even when the receiver is switched off.
- Remote power over the terrestrial trunk line is possible.

LED	Meaning
Green	Remote voltage 13 V
Green flashing	Valid command being executed
Red flashing	Remote voltage 5 … 10 V
Orange	Remote voltage > 15 V
Orange flashing	Band

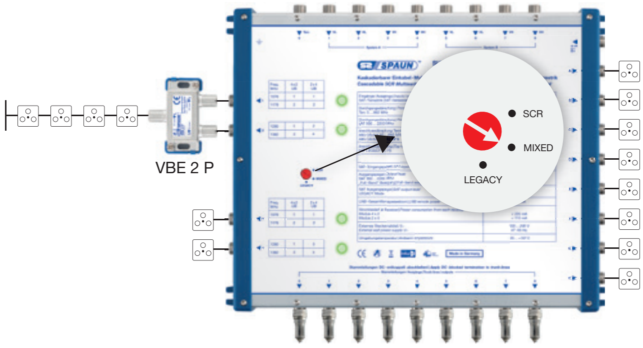
Model Art. No.	SUS 9942/8 NF LEGACY NEW 865113			SUS 9942/8 NFA LEGACY NEW 865118		
EAN	4040326651131			4040326651186		
Inputs SAT/terrestrial	9 8/1			9 8/1		
Through loss terrestrial 5 … 862 MHz	4 … 5 dB			4 … 5 dB		
Through loss SAT 950 … 2200 MHz	3 … 6 dB			-		
Through gain SAT 950 … 2200 MHz	-			12 … 10 dB		
Tap loss terrestrial 85 … 862 MHz 5 … 65 MHz	9 ... 7 dB 26 dB			9 … 7 dB 26 dB		
Tap loss LEGACY outputs SAT 950 … 2200 MHz	12 … 8 dB			-		
Tap gain LEGACY outputs SAT 950 … 2200 MHz	-			2 … 7 dB		
Automatic Gain Control						
SAT input level	65 … 95 dBµV			50 … 80 dBµV		
Output level SAT 950 … 2200 MHz „Full-band“ assignment	Mode 4 x 2 typ 82 dBµV 2 x 4 typ 85 dBµV			Mode 4 x 2 typ 82 dBµV 2 x 4 typ 85 dBµV		
Output level SAT 950 … 2200 MHz LEGACY mode	73 dBµV			73 dBµV		
Subscriber - frequency/ UB	Frequency MHz	4 x 2 UB	2 x 4 UB	Frequency MHz	4 x 2 UB	2 x 4 UB
Receiver 1	1076	1	1	1076	1	1
Receiver 2	1178	2	2	1178	2	2
Receiver 3	1280	1	3	1280	1	3
Receiver 4	1382	2	4	1382	2	4
Receiver 1	1076	1	1	1076	1	1
Receiver 2	1178	2	2	1178	2	2
Receiver 3	1280	1	3	1280	1	3
Receiver 4	1382	2	4	1382	2	4
LNB remote current max.	500 mA			500 mA		
Remote current terrestrial trunk line max.	250 mA			250 mA		
Current consumption per SCR outputs 1-4 4 x 2 Mode 2 x 4 Mode	< 220 mA < 110 mA			< 220 mA < 110 mA		
Current consumption for each receiver	< 50 mA			< 50 mA		
Current consumption from power supply Terrestrial passive Terrestrial active	< 20 mA < 120 mA			< 90 mA < 190 mA		
Power consumption SAT standby/terrestrial passive	< 1 W			< 1 W		
Power consumption SAT active/terrestrial active + LNB	< 3 W			< 5 W		
Ambient temperature	-20 ... +50 °C			-20 ... +50 °C		

Application diagrams

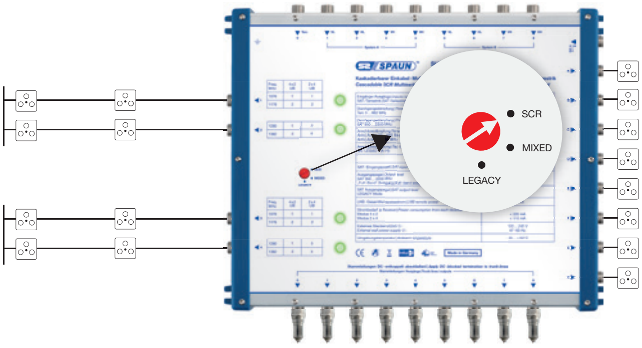
SUS 9942/8 NF LEGACY



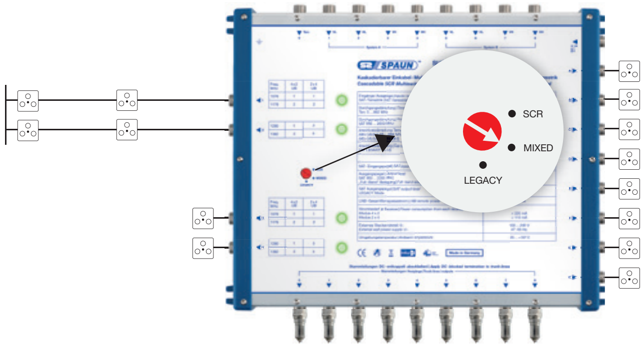
SUS 9942/8 NF LEGACY



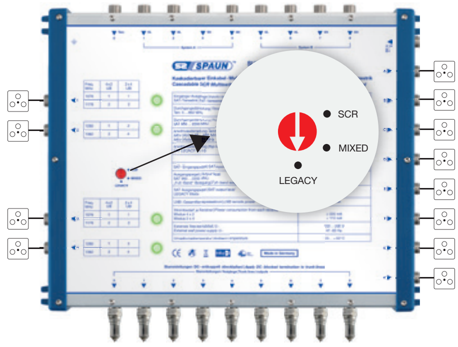
SUS 9942/8 NF LEGACY



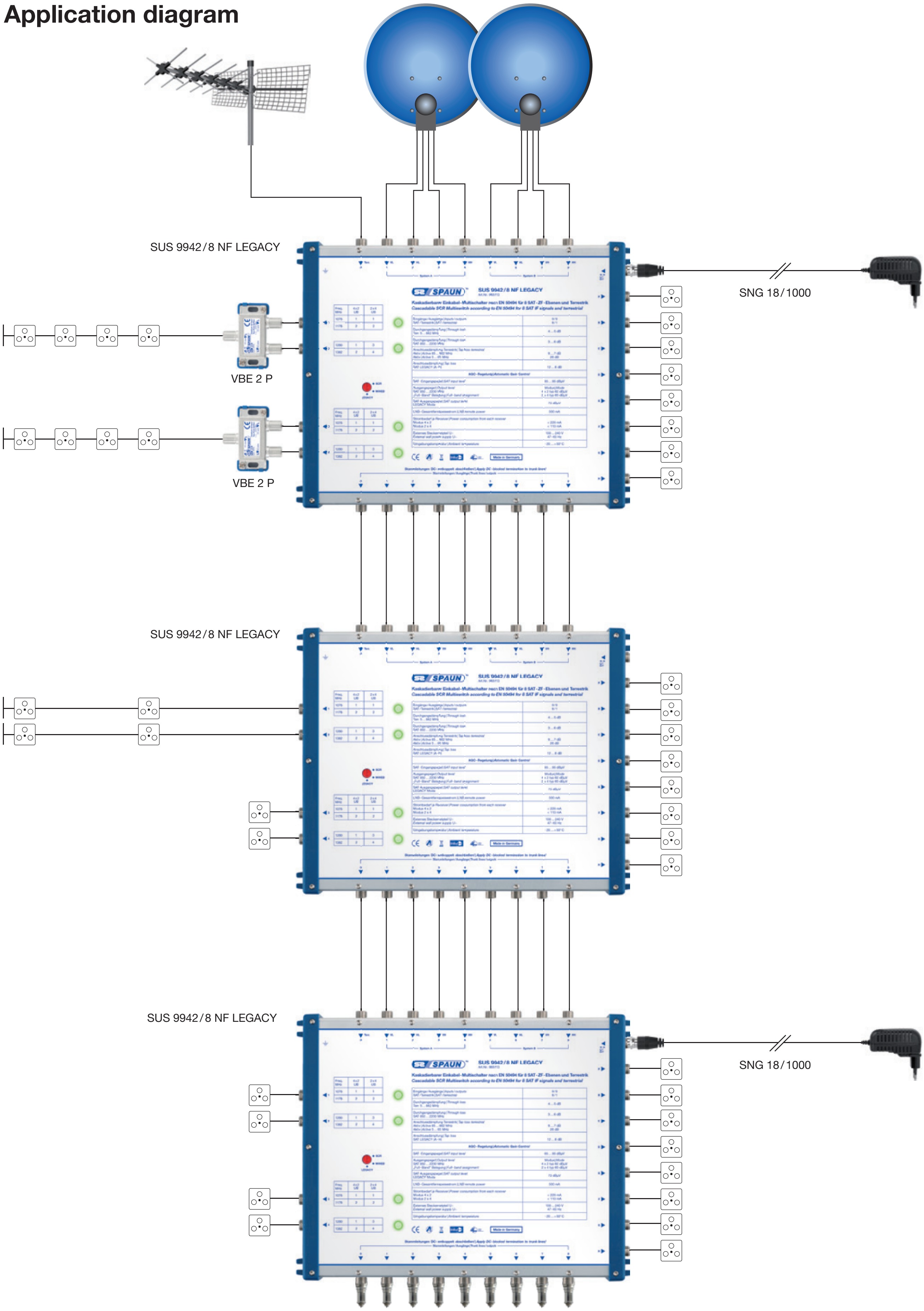
SUS 9942/8 NF LEGACY



SUS 9942/8 NF LEGACY



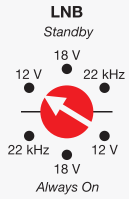
Application diagram



Premium Class

UNiSEqC SCR Multiswitch 5 in 3x3 or 1x8 according to EN 50494

LNB supply voltage



Selectable for Quattro or QUAD LNB.

Standby or continuous operation mode selectable.

Output mode switch

- 1x8 (1 output with 8 receiver) (LEGACY Mode for unused outputs)
- 3x3 (3 outputs with 3 receiver)

Energy Saver!
Standby Function and Switched-Mode Power Supply

Tech hint

The device has an internal protection circuit to shut down if no DiSEqC command according to EN 50494 is sent. The use of special TV socket outlets with such a protection circuit is not necessary.

Active SAT trunk lines (only SUS 5581/33 NFA LEGACY).
Unused outputs useable in LEGACY Mode (1x8).

SUS 5581/33 NF LEGACY
SUS 5581/33 NFA LEGACY

The SUS 5581/33 NF LEGACY offers users single cable operation according to EN 50494, with an option of 1x8 or 3x3 subscribers. In the 1x8 operation mode, the two unused outputs are now available as LEGACY outputs. This means that the device can also be used as a conventional multiswitch.
Thanks to the SUS 5581/33 NFA LEGACY design, the device additionally provides active SAT trunk lines. This allows the realisation of cost-effective cascade distribution systems that operate without a launch amplifier in good reception conditions.

SAT IF:

- SCR multiswitch for the distribution of 4 SAT IF signals and terrestrial with one output to max. 8 receivers or with 3 outputs to max. 3 receivers.
- In the 1x8 operation mode the two unused outputs can be used as standard multiswitch outputs (LEGACY mode).
- The selection of the SAT IF position is affected by the receiver with a SCR command according to EN 50494.
- No limitation on transponder reception.
- LNB mode selectable for use with Quattro or a QUAD LNB.
- The SCR outputs are AGC controlled.
- Multipurpose LED status notification (page 51).
- Active SAT trunk lines (only SUS 5581/33 NFA LEGACY).
- Delivery including wall power supply SNG 18/1000.

Terrestrial:

- The terrestrial input is passive.
- The reception of the terrestrial signal is also possible when all SAT receivers are switched off.
- Remote powering by terrestrial trunk line is possible.

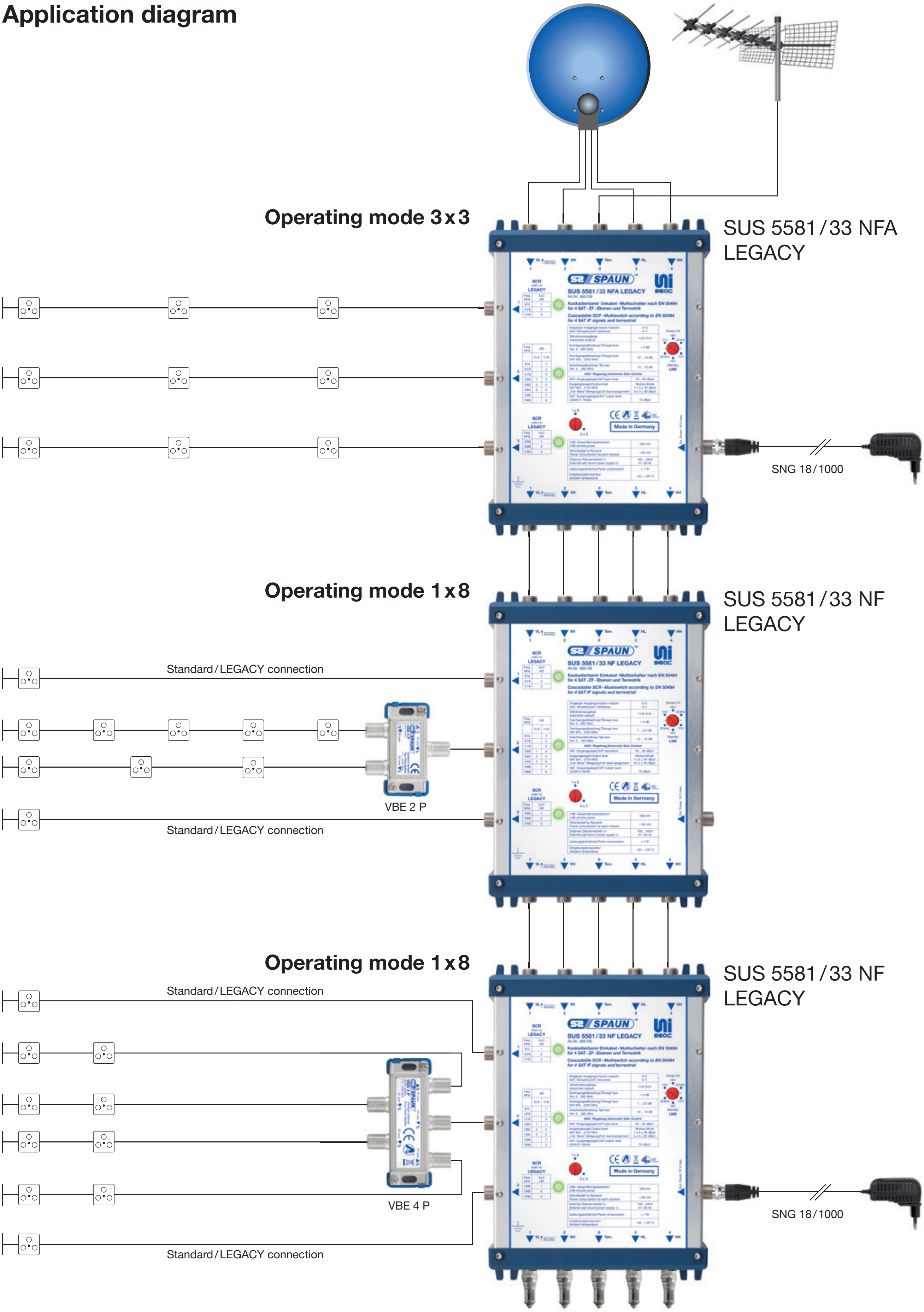
LED	Meaning
Green	Remote voltage 13 V
Green flashing	Valid command being executed
Red	Short circuit
Red flashing	Remote voltage 5 … 10 V
Orange	Remote voltage > 15 V
Orange flashing	Band

Model Art. No.	SUS 5581/33 NF LEGACY 865109	SUS 5581/33 NFA LEGACY 865108
EAN	4040326651094	4040326651087
Inputs SAT/terrestrial	5 4/1	5 4/1
Through loss Terrestrial 5 … 862 MHz	< 4 dB	< 4 dB
Through loss SAT 950 … 2200 MHz	1 … 2,5 dB	-
Through gain SAT 950 … 2200 MHz	-	12 … 14 dB
Tap loss Terrestrial 5 … 862 MHz	13 … 15 dB	13 … 15 dB
Isolation	≥ 35 dB	
Automatic Gain Control		
SAT input level	65 … 95 dBµV	50 … 80 dBµV
Output level SAT 950 … 2200 MHz LEGACY mode	73 dBµV	73 dBµV
Output level SAT 950 … 2200 MHz „Full-band“ assignment	Mode: 1 x 8 ≥ 95 dBµV 3 x 3 ≥ 82 dBµV	Mode: 1 x 8 ≥ 95 dBµV 3 x 3 ≥ 82 dBµV
Mains supply U~	Incl. power supply 100 … 240 V/47-63 Hz	Incl. power supply 100 … 240 V/47-63 Hz
Power consumption	< 7 W	< 7 W

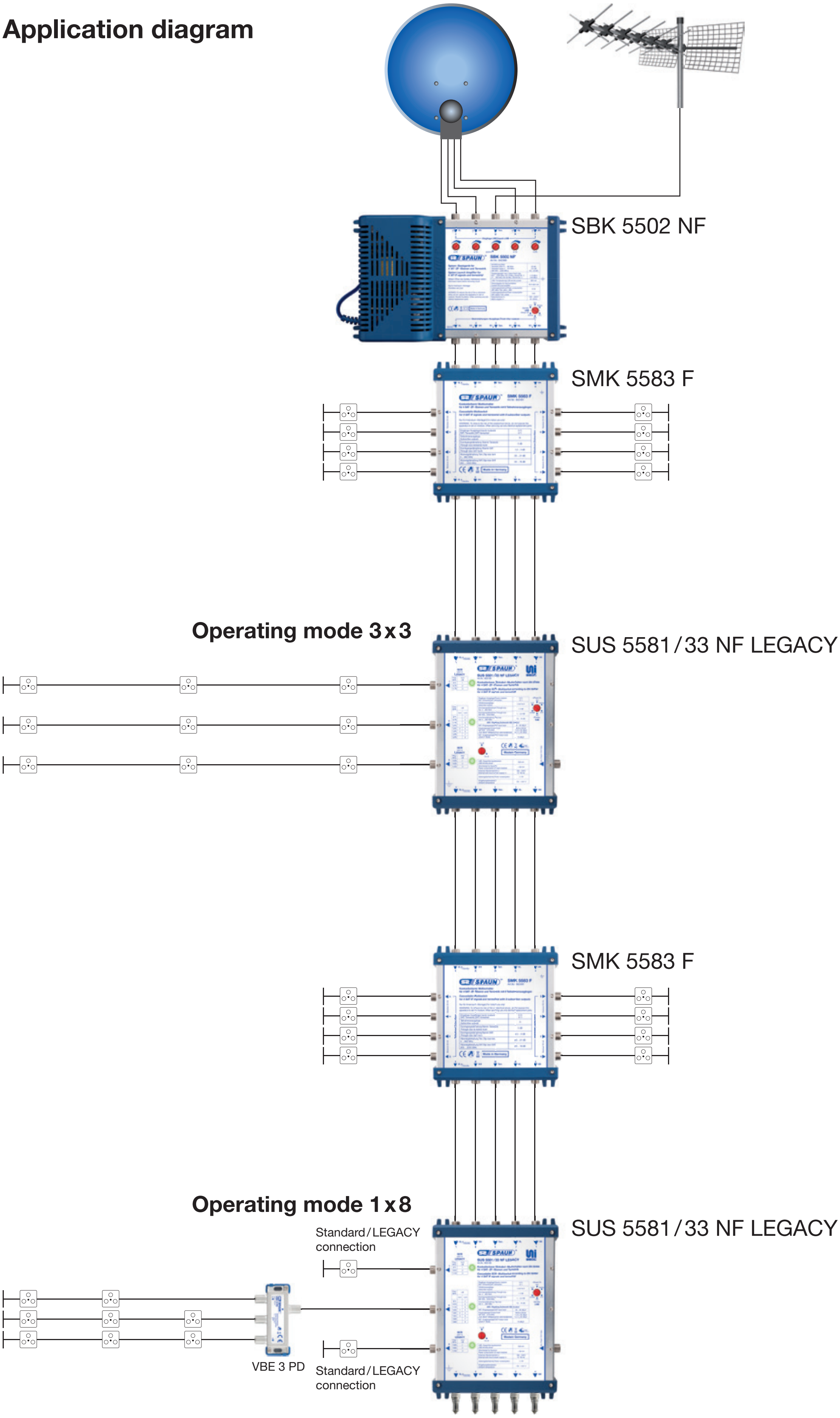
Receiver frequency/ SCR address	Frequency MHz	3x3 UB	1x8 UB	Frequency MHz	3x3 UB	1x8 UB
Receiver 1	974	1	1	974	1	1
Receiver 2	1076	2	2	1076	2	2
Receiver 3	1178	3	3	1178	3	3
Receiver 4	1280	1	4	1280	1	4
Receiver 5	1382	2	5	1382	2	5
Receiver 6	1484	3	6	1484	3	6
Receiver 7	1586	1	7	1586	1	7
Receiver 8	1688	2	8	1688	2	8
Receiver 9 (3 outputs only)	1790	3	-	1790	3	-

LNB remote current	500 mA	500 mA
Current consumption for each receiver	< 60 mA	< 60 mA
Ambient temperature	-20 … +50 °C	-20 … +50 °C
Dimensions (mm)	185 x 131 x 40	185 x 131 x 40

Application diagram



Application diagram



Light Class

UNiSEqC SCR Multiswitches 4/5 in 1x4 or 1x8 according to EN 50494

Optional:
Universal AC Adapter
SNG 18 /1000 (Art. No.: 832114)
Wall power supply is included in scope of delivery of **SUS 5581 NFA** and **SUS 5541 NFA.**

Energy Saver!
Standby Function and Switched-Mode Power Supply

Tech hint

The device has an internal protection circuit to shut down if no DiSEqC command according to EN 50494 is sent. The use of special TV socket outlets with such a protection circuit is not necessary.

SUS 4441 F, SUS 4481 F
SUS 5541 F, SUS 5541 NFA, SUS 5581 F, SUS 5581 NFA

Cascadable SCR multiswitches according to EN 50494 for the reception of 4 SAT IF signals and terrestrial*.

These Light Class products are based on the same high level technology as the Premium Class product SUS 5581/33 NF LEGACY, but do not feature an option for switching in respect of operation and LNB modes.

SAT IF:

- The selection of the SAT IF position is affected by the receiver with a SCR command according to EN 50494.
- No limitation on transponder reception.
- Quattro LNB capable.
- All subscriber outputs are automatic gain controlled.
- Multipurpose status LED notification (page 55).
- F input for optional wall power supply (SNG 18/1000, Art.No. 832114).

Terrestrial*:

- The terrestrial input is passive.
- The reception of the terrestrial signal is possible if all SAT receivers are switched off.

SUS 5541 NF, SUS 5581 NF:

- SCR multiswitches for the distribution of 4 SAT IF positions and terrestrial for 1x4 or 1x8 receivers.

SUS 5541 NFA, SUS 5581 NFA:

- Like SUS 5541 F and SUS 5581 F but with gain in SAT trunk line.

SUS 4441 F, SUS 4481 F:

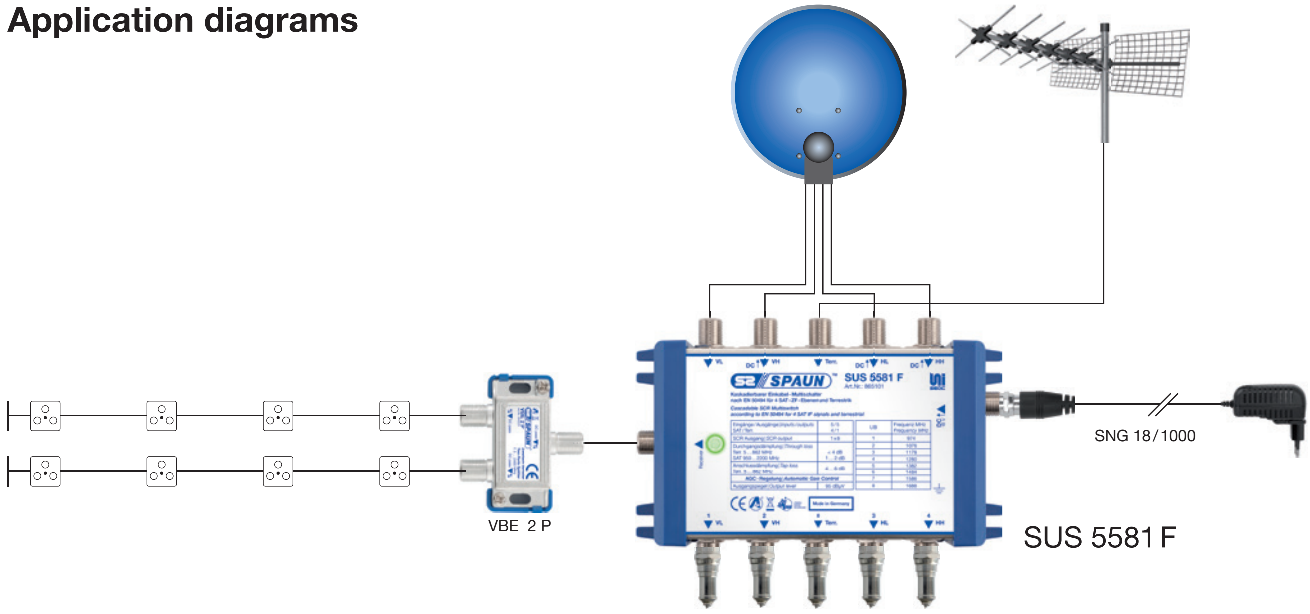
- Receiver powered SCR multiswitches for the distribution of 4 SAT IF positions without terrestrial for 1x4 or 1x8 receivers.

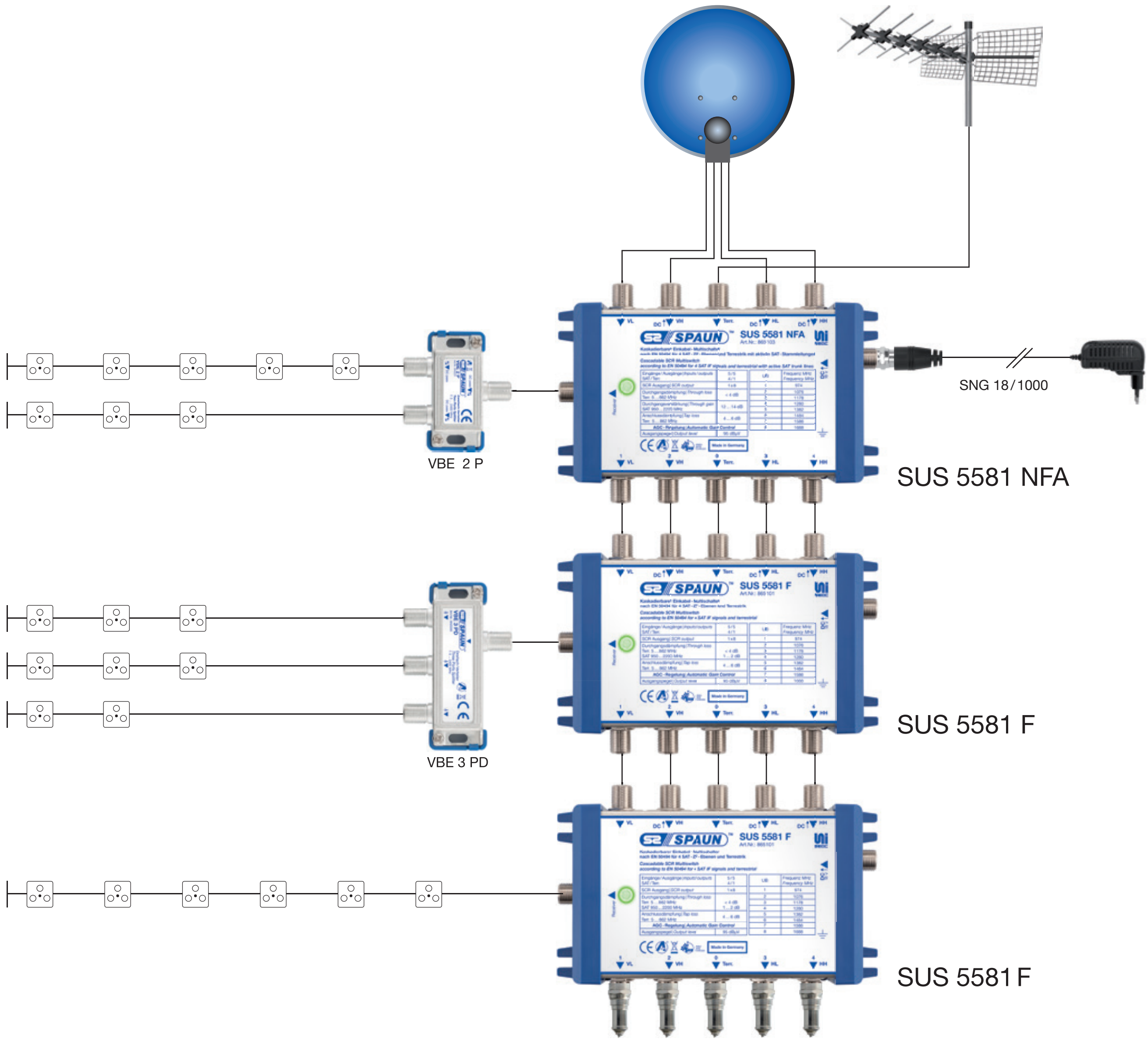
* not SUS 4441 F and SUS 4481 F.

LED	Meaning
Green	Remote voltage 13 V
Green flashing	Valid command being executed
Red	Short circuit
Red flashing	Remote voltage 5 … 10 V
Orange	Remote voltage > 15 V
Orange flashing	Band

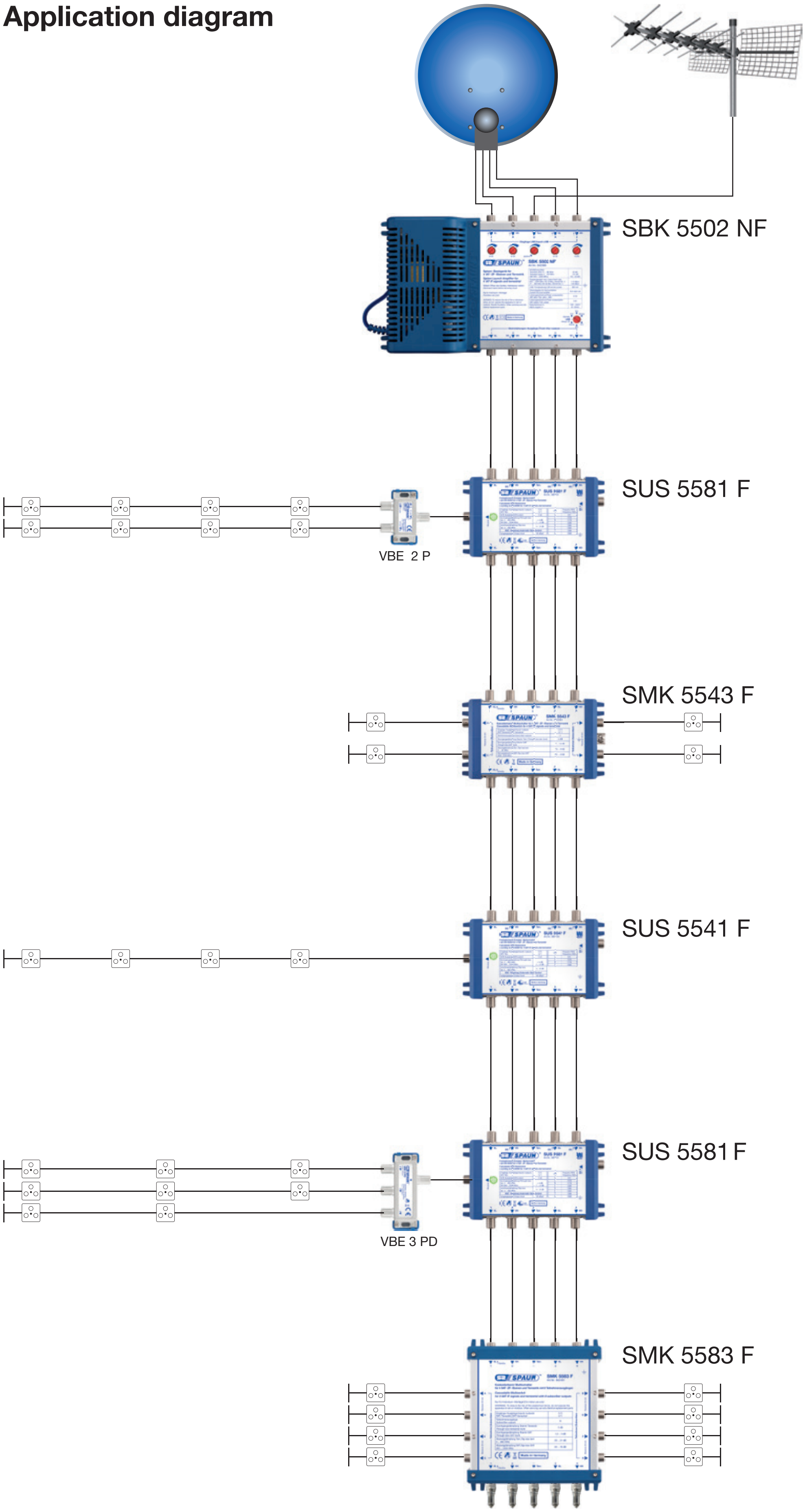
Model Art. No.	SUS 5541 F 865100	SUS 5541 NFA 865102	SUS 5581 F 865101	SUS 5581 NFA 865103	SUS 4441 F 865105	SUS 4481 F 865106
EAN	4040326651001	4040326651025	4040326651018	4040326651032	4040326651056	4040326651063
Inputs / outputs SAT / terrestrial	5 / 5 4 / 1	5 / 5 4 / 1	5 / 5 4 / 1	5 / 5 4 / 1	4 / 4 4 / -	4 / 4 4 / -
Through loss Terrestrial 5 … 862 MHz	< 4 dB	< 4 dB	< 4 dB	< 4 dB	-	-
Through loss SAT 950 … 2200 MHz	1 … 2 dB	-	1 … 2 dB	-	1 … 2 dB	1 … 2 dB
Through gain SAT 950 … 2200 MHz	-	12 … 14 dB	-	12 … 14 dB	-	-
Tap loss Terrestrial 5 … 862 MHz	4 … 6 dB	4 … 6 dB	4 … 6 dB	4 … 6 dB	-	-
Isolation	≥ 35 dB					
Automatic Gain Control						
SAT input level	65 … 95 dBµV	50 … 80 dBµV	65 … 95 dBµV	50 … 80 dBµV	65 … 95 dBµV	65 … 95 dBµV
Output level SAT 950 … 2200 MHz „Full - band“ assignment	95 dBµV	95 dBµV	95 dBµV	95 dBµV	95 dBµV	95 dBµV
Mains supply U~	Optional SNG 18 / 1000 100 … 240 V 47 - 63 Hz	Includes SNG 18 / 1000 100 … 240 V 47 - 63 Hz	Optional SNG 18 / 1000 100 … 240 V 47 - 63 Hz	Includes SNG 18 / 1000 100 … 240 V 47 - 63 Hz	Optional SNG 18 / 1000 100 … 240 V 47 - 63 Hz	Optional SNG 18 / 1000 100 … 240 V 47 - 63 Hz
Power consumption	-	< 7 W	-	< 7 W	-	-
Receiver frequency / UB Receiver 1 Receiver 2 Receiver 3 Receiver 4 Receiver 5 Receiver 6 Receiver 7 Receiver 8	Frequency MHz 974 1076 1178 1280	Frequency MHz 974 1076 1178 1280	Frequency MHz 974 1076 1178 1280 1382 1484 1586 1688	Frequency MHz 974 1076 1178 1280 1382 1484 1586 1688	Frequency MHz 1210 1420 1680 2040	Frequency MHz 974 1076 1178 1280 1382 1484 1585 1688
LNB remote current	-	300 mA	-	300 mA	-	-
Current consumption for each receiver	< 230 mA	< 40 mA	< 320 mA	< 40 mA	< 230 mA	< 320 mA
Ambient temperature	-20 … +50 °C	-20 … +50 °C	-20 … +50 °C	-20 … +50 °C	-20 … +50 °C	-20 … +50 °C
Dimensions (mm)	140 x 92 x 38	140 x 92 x 38	140 x 92 x 38	140 x 92 x 38	140 x 92 x 38	140 x 92 x 38

Application diagrams





Application diagram



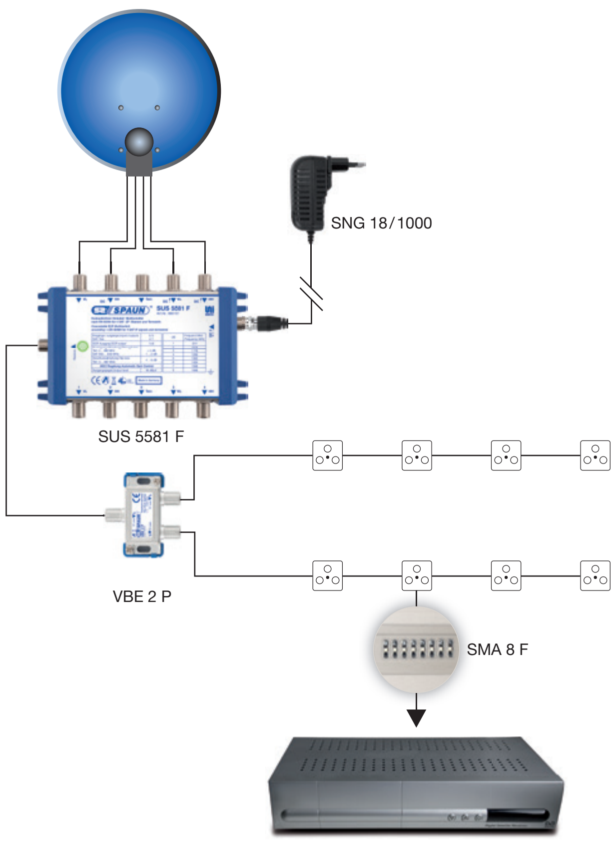
UNiSEqC Socket Filter for SCR Systems according to EN 50494

SMA 8 F

For the first time ever SPAUN offers a socket attachment in the SMA 8 F, which significantly reduces the susceptibility to interference in SCR distribution systems. The SMA 8 F can be mounted on any commercially available SCR antenna socket. The product can be programmed in such a manner that only permitted instruction sequences reach the distribution system from the receiver, thereby preventing interferences caused by use of a receiver that does not comply with EN 50494 or a receiver that has been incorrectly programmed. No PC or programmer is required for programming the SMA 8 F. Any specialist can perform the programming by using switching logic on the back side of the device.

Model Art. No.	SMA 8 F 865107
EAN	4040326651070
Inputs/outputs	1/1
Through loss	1 dB
Ambient temperature	-20…+50 °C
Dimensions (mm)	61 x 49 x 19

Application diagram



WhiteBox

Modular Headend System for diverse conversions.

Features:

- 19" Base Unit with redundant switched-mode power supply.
- Modular extendable with up to 8 WhiteCards.
- LNB voltage switchable with 14 V.
- Configuration and monitoring via LAN/IP.
- Modular headend for multiple conversions.

UNiSEqC SCR Multiswitch 2 in 1 x 2 according to EN 50494

Energy Saver!
Standby Function

Optional:
Universal AC Adapter
SNG 18 / 1000 (Art. No.: 832114)

Application diagram

SUS 21 F
SUS 21 FI with SCR addresses for Sky Italia (1210 / 1420 MHz)

Another innovation is the SUS 21 F, which enables two receivers or a dual tuner receiver (PVR) to be connected via a single coaxial cable. The device is simply plugged onto a conventional multiswitch. For this, the SUS 21 F uses two subscriber outputs of the multiswitch or of a QUAD LNB, which serve as its input signals. A single coaxial cable can then be led into the dwelling, and used to supply either two separate receivers or a PVR (dual tuner) receiver. The receivers used must however support the SCR protocol according EN 50494. The SUS 21 F is supplied with either power via the receiver, or via a wall power supply (not in scope of delivery).

SAT IF:

- SCR multiswitch for the distribution of up to 8 SAT IF signals and terrestrial.
- The selection of the SAT IF position is affected by the receiver with a SCR command according to EN 50494.
- No limitation on transponder reception.
- The subscriber output is automatic gain controlled.
- Multipurpose LED status notification (page 61).
- F connector for optional wall power supply (SNG 18 / 1000, Art.Nr.: 832114).
- The SUS 21 F has a connector distance of 20 mm and can therefore be directly connected to almost every SPAUN multiswitch / cascade.

Terrestrial:

- The terrestrial signal (FM, DVB-T, CATV) is looped through.
- The reception of the terrestrial signal is possible if all SAT receivers are switched off.

LED	Meaning
Green	Remote voltage 13 V
Green flashing	Valid command being executed
Red	Short circuit
Red flashing	Remote voltage 5 … 10 V
Orange	Remote voltage > 15 V
Orange flashing	Band

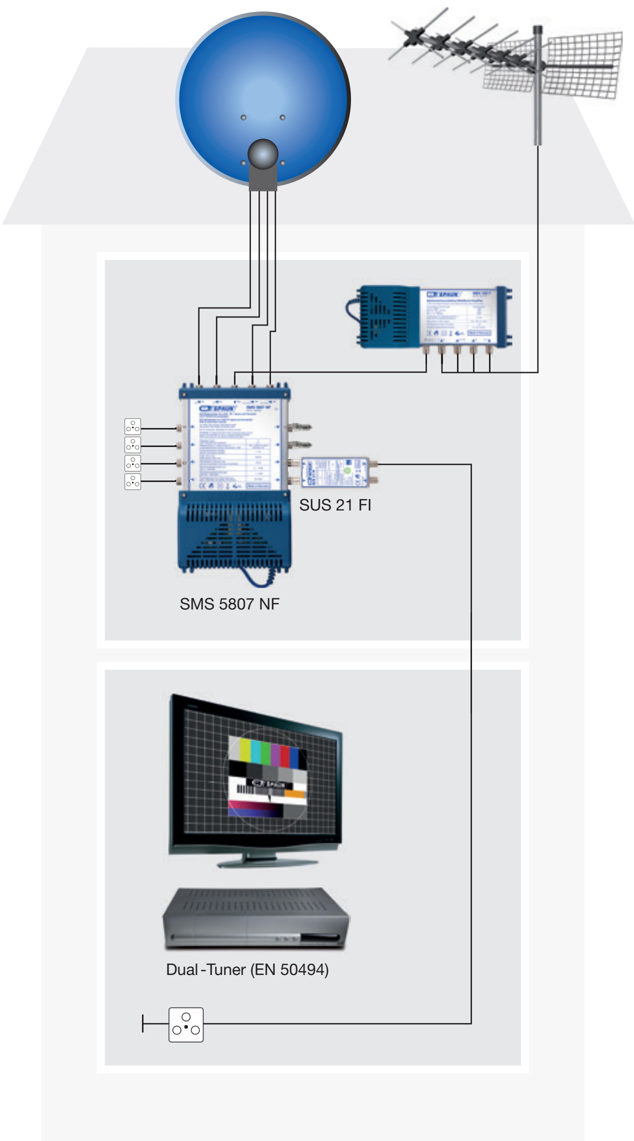
Frequency	UB
1076 MHz	1
1178 MHz	2

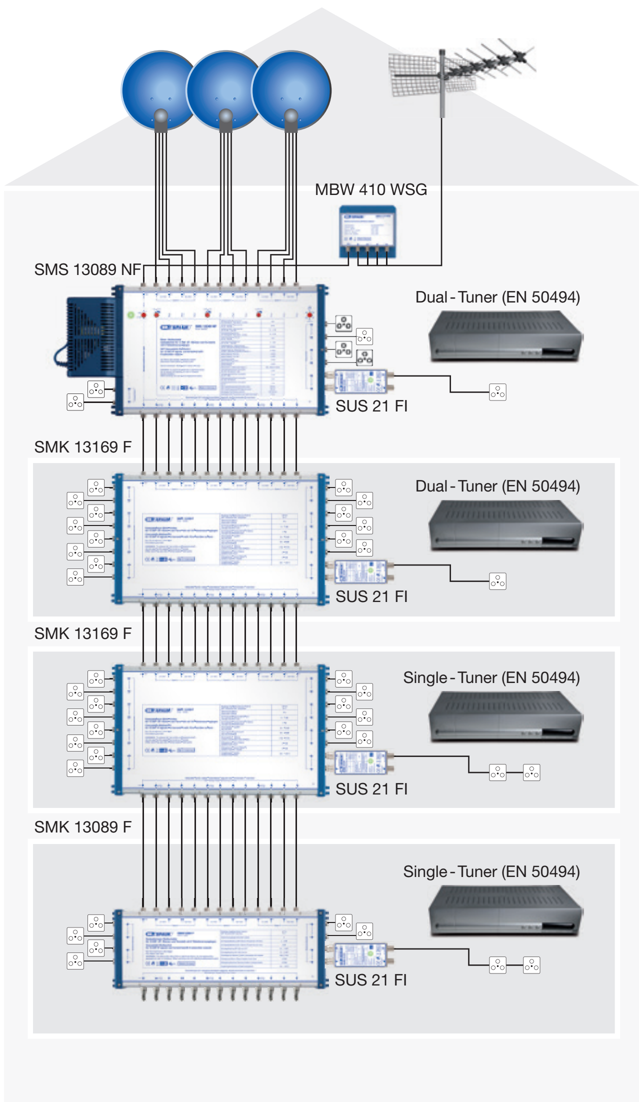
NEW

Model Art. No.	SUS 21 F 865104
EAN	4040326651049
Inputs	2
SAT input level	65 … 95 dBµV
Tap loss Terrestrial 5 … 862 MHz	2 dB
SAT output level	75 dBµV
Isolation	≥ 35 dB
Current consumption + LNB	130 mA
Ambient temperature	-20 … +50 °C
Dimensions (mm)	39 x 107 x 26

Application diagrams

In the application diagrams below just the first two SAT positions (A und B) are transmitted through the **SUS 21 F.**





Stacker / De-Stacker

SS 3550
SDS 3550

The Stacker / De - Stacker solution allows two satellite bands (frequency range between 950 ... 2150 MHz) to be transmitted via a single coaxial cable.

The Stacker combines two SAT signals by using frequency UP conversion to one SAT signal. One SAT signal uses the frequency range above 2150 MHz. The system is also capable to transmit terrestrial signals.

The combined signals are transmitted over a single coaxial cable to the De - Stacker. This unit is using a DOWN conversion to convert the two signals back to the original frequency range. At the output of the De - Stacker the two original SAT signals and the terrestrial signal are available.

An integrated slope correction allows the user to cover cable lengths of up to 60 meters.

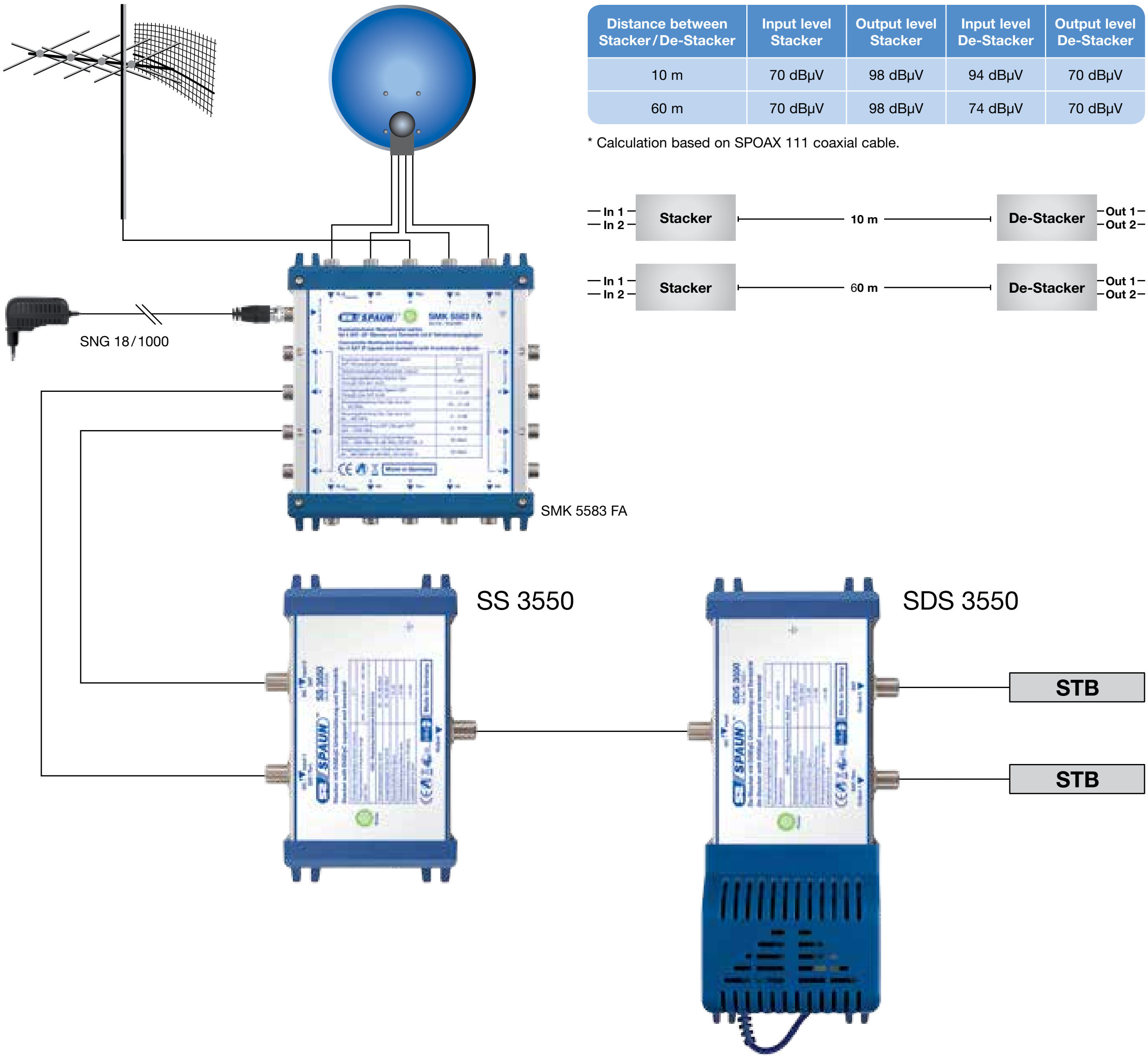
The complete Stacker / De - Stacker is powered by an internal power supply which is connected to the De - Stacker. This is done to avoid any switching problems caused by overload from the receiver.
The Stacker does have a green Power LED.

The De - Stacker does have a LED. During AGC is adjusting the LED flashes green. After successful adjustment the LED illuminates permanently green.

Model Art. No.	NEW SS 3550 872020
EAN	4040326720202
Input frequency range SAT	950 ... 2150 MHz
Input frequency range terr.	47 ... 862 MHz
Output frequency range Stacker	47 ... 3550 MHz
Input signal level AGC controlled	60 ... 95 dBµV
Output signal level AGC controlled	94 ... 98 dBµV
Return loss	> 10 dB
Isolation port to port	> 40 dB
LNB remote current	max. 400 mA
Power consumption	180 mA

Model Art. No.	NEW SDS 3550 872021
EAN	4040326720219
Input frequency range De - Stacker	47 ... 3550 MHz
Output frequency range SAT	950 ... 2150 MHz
Output frequency range terr.	47 ... 862 MHz
Input signal level AGC controlled	63 ... 98 dBµV
Output signal level AGC controlled	70 dBµV
Return loss	> 10 dB
Isolation port to port	> 40 dB
Mains power supply U~	100 ... 240 V / 47 - 63 Hz
Power consumption	130 mA
Switching commands	DiSEqC 1.0 Voltage, tone

Application diagram



Distance between Stacker/De-Stacker	Input level Stacker	Output level Stacker	Input level De-Stacker	Output level De-Stacker
10 m	70 dBµV	98 dBµV	94 dBµV	70 dBµV
60 m	70 dBµV	98 dBµV	74 dBµV	70 dBµV

* Calculation based on SPOAX 111 coaxial cable.

SVF 12 FW

Amplfier for the Stacker/De-Stacker solution with integrated slope correction.

NEW

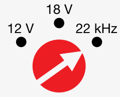
Model Art. No.	SVF 12 FW 872022
EAN	4040326720226
Frequency range	47 ... 862 MHz 950 ... 3550 MHz
Insertion gain	Terrestrial: 47 MHz -2 dB ± 1 dB 862 MHz +2 dB ± 1 dB Satellite: 950 MHz +2,5 dB ± 1 dB 2150 MHz +7,5 dB ± 1 dB 2500 MHz +8,0 dB ± 1 dB 3550 MHz +12 dB ± 1 dB
Supply voltage	18 V
Current passed	Max. 650 mA including the SVF 12 FW current draw

Premium Class

Compact Multiswitch with active terrestrial, 5 in 6, 8, 12, 16 and 24

Energy Saver!
Standby Function and Switched-Mode Power Supply

LNB supply voltage



Selectable for
Quattro or QUAD LNB.
12 V = Quattro LNB,
22 kHz = QUAD LNB.

Level adjuster terrestrial

This adjuster allows the reduction of the terrestrial signal.

Synchronous level adjuster

For Low- and High-Band.

SMS 5603 NF, SMS 5803 NF
SMS 51203 NF, SMS 51603 NF, SMS 52403 NF

For 6, 8, 12, 16 or 24 subscribers.

SAT IF:

- The new SAT IF amplifiers assure high output levels.
  Depending on the unit the max. output level according to EN 60728-3 differs between 102 and 108 dBμV.
- Synchronous level adjuster for Low- and High-Band (0 … -12dB).
- The multiswitch supports standby mode. Both the SAT IF amplifier, as well as the remote power supply of the LNB is only active if at least one receiver provides a supply voltage to its multiswitch outlet.
- The SAT IF amplifiers have a slope correction of 6 dB.
- LNB supply voltage selectable for Quattro or QUAD LNB.

Terrestrial:

- Based on a new terrestrial concept the Premium Class multiswitches are coming with a passive return path for interactive applications (Triple Play).
- Active CATV compatible forward path including InGaP Push-Pull output stage.
- By using sharp cut-off input filter a perfect selection performance is reached:
  Terrestrial / SAT > 40 dB and SAT / terrestrial > 45 dB.
- The high receiver/receiver isolation is reached by using the latest directional coupler technology > 36dB/VHF and > 32 dB/UHF.
- Level adjuster (0 … -12 dB) for the terrestrial forward path.

Miscellaneous:

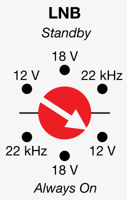
- Ground clamp.
- The devices are equipped with an energy-saving switched-mode power supply.

Model Art. No.		SMS 5603 NF 842479	SMS 5803 NF 842480	SMS 51203 NF 842481	SMS 51603 NF 842482	SMS 52403 NF 842489
EAN		4040326423790	4040326424803	4040326424810	4040326424827	4040326424896
Inputs SAT / terrestrial		5 4 / 1				
Subscriber outputs		6	8	12	16	24
Tap loss Terr. passive 5 … 65 MHz		16 … 19 dB	16 … 19 dB	18 … 22 dB	21 … 23 dB	26 … 28 dB
Tap gain Terr. active 85 … 862 MHz		10 … 12 dB	10 … 12 dB	9 … 11 dB	8 … 10 dB	4 … 6 dB
Tap gain SAT IF 950 … 2200 MHz		5 … 11 dB	6 … 12 dB	4 … 10 dB	3 … 9 dB	0 … 6 dB
Output level max. 85 … 862 MHz 60 dB IMA$_3$ / EN 60728 - 3		93 dBµV	93 dBµV	90 dBµV	88 dBµV	84 dBµV
Output level max. 950 … 2200 MHz 35 dB IMA$_3$ / EN 60728 -3		108 dBµV	108 dBµV	106 dBµV	105 dBµV	102 dBµV
Selection	SAT / terrestrial	> 45 dB				
Selection	Terrestrial / SAT	> 40 dB				
Rejection	Switching isolation	> 35 dB				
Rejection	Receiver / receiver	> 36 dB / VHF, > 32 dB / UHF, > 35 dB / SAT				
Mains power supply U~		100 … 240 V / 47 - 63 Hz				
Power consumption Terrestrial active / SAT active + LNB		< 10 W				
Power consumption SAT standby		< 5 W				
Current consumption LNB max.		500 mA				
Current consumption from each receiver		55 mA				
Ambient temperature		-20 … + 50 °C				
Dimensions (mm)		240 x 130 x 56	260 x 130 x 56	300 x 130 x 56	340 x 130 x 56	420 x 130 x 56

Standard Class

Compact Multiswitch with active terrestrial 5 in 6, 8, 12, 18, 22

LNB supply voltage



Switch for Quattro or QUAD LNB.
12 V = Quattro LNB, 22 kHz = QUAD LNB.

Standby or normal operation mode selectable for SAT reception.

SMS 5808 NF multiswitch received the rating „sehr gut“ („excellent“) and is winner of the *Digitalfernsehen* comparative test.

SMS 5608 NF, SMS 5808 NF
SMS 51208 NF, SMS 51808 NF, SMS 52208 NF

For 6, 8, 12, 18 or 22 subscribers.

SAT IF:

- Special amplifier/filter design to improve the intermodulation quality of the multiswitch.
- Steep pre-filter to suppress outband distortions from LNB.
- LNB supply voltage selectable for Quattro and QUAD LNB.
- The multiswitch supports standby mode. Both the SAT IF amplifier, as well as the remote power supply of the LNB is only active if at least one receiver provides a supply voltage to its multiswitch outlet.
- Amplifier stages with > 5 dB slope.

Terrestrial:

- Active terrestrial 47 … 862 MHz.
- Active terrestrial stage with an tap loss between 3 and 10 dB (depends on the device).

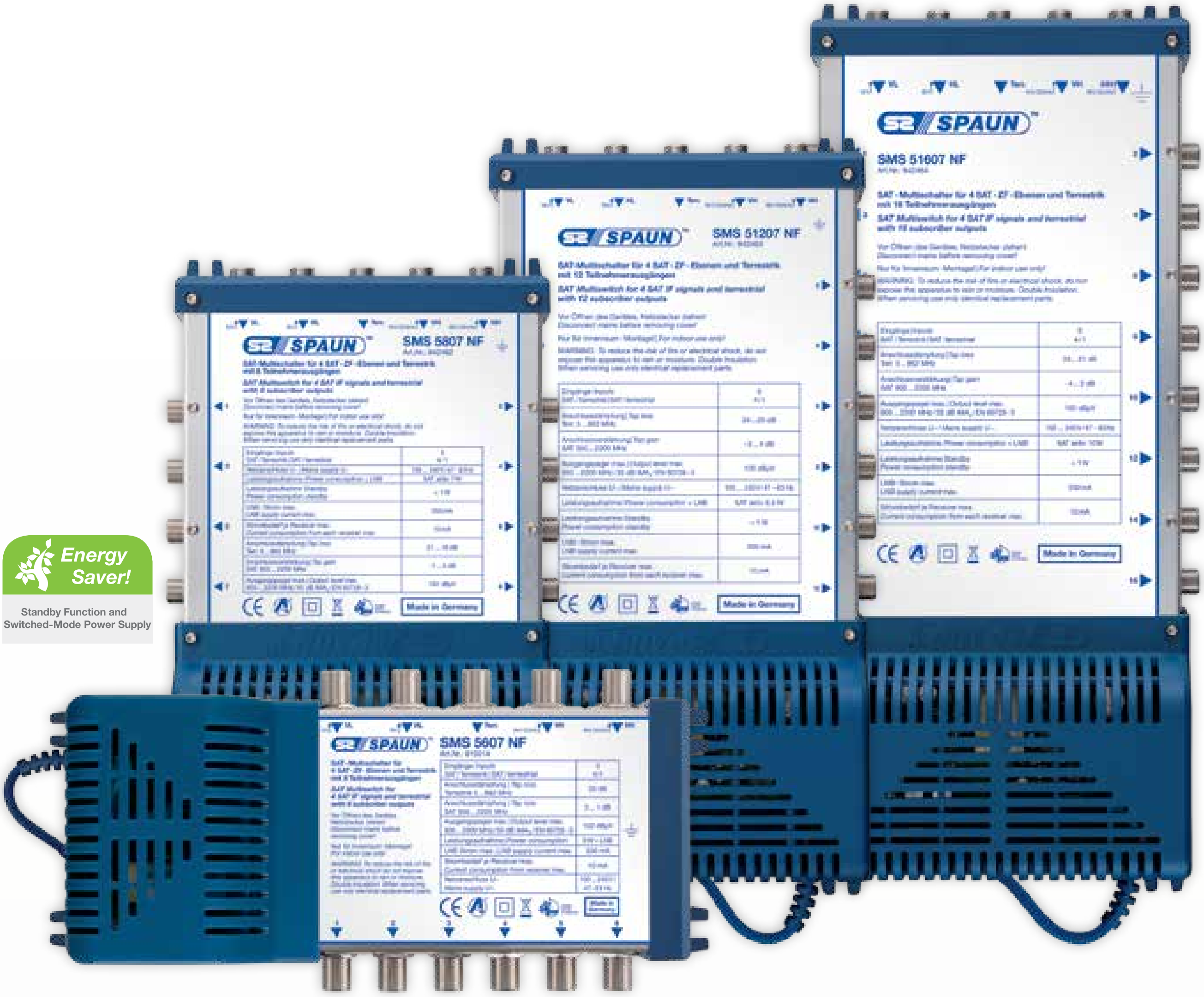
Miscellaneous:

- Ground clamp.
- The devices are equipped with an energy-saving switched-mode power supply.

Model Art. Nr.		SMS 5608 NF 842444	SMS 5808 NF 842445	SMS 51208 NF 842443	SMS 51808 NF 842441	SMS 52208 NF 842442
EAN		4040326424445	4040326424452	4040326424438	4040326424414	4040326424421
Inputs SAT/terrestrial		5 4/1				
Subscriber outputs		6	8	12	18	22
Tap loss Terrestrial 47… 862 MHz		0…2 dB	1…0 dB	8…9 dB	9…11 dB	9…11 dB
Tap gain SAT IF 950…2200 MHz		-4…1 dB	-4…1 dB	-4…1 dB	-4…0 dB	1-12: -5 …1 dB 13-22: -6…-3 dB
Output level max. 47…862 MHz 60 dB IMA_3/EN 60728-3		83 dBµV				
Output level max. 950…2200 MHz 35 dB IMA_3/EN 60728-3		93 dBµV				
Selection	Terrestrial/SAT	≥ 30 dB				
Selection	SAT/terrestrial	≥ 30 dB				
Rejection	Isolation	≥ 30 dB				
Rejection	Receiver/receiver	> 36 dB/VHF, > 32 dB/UHF, > 30 dB/SAT				
Mains power supply U~		100…240V/47-63 Hz				
Power consumption SAT active + LNB		10 W		11 W		
Power consumption SAT standby		3,5 W		4,5 W		
Current consumption LNB max.		300 mA				
Current consumption from each receiver		40 mA				
Ambient temperature		-20…+50 °C				
Dimensions (mm)		220 x 130 x 56	260 x 130 x 56	280 x 130 x 56	340 x 130 x 56	380 x 130 x 56

Light Class

Compact Multiswitch 5 in 6, 8, 12, 16



SMS 5607 NF, SMS 5807 NF
SMS 51207 NF, SMS 51607 NF

For 6, 8, 12, or 16 subscribers.

SAT IF:

- Special amplifier / filter design to improve the intermodulation quality of the multiswitch.
- LNB supply voltage selectable for Quattro and QUAD LNB.
- Due to a new design concept the units offers a high output level.
- The multiswitches support standby mode. Both the SAT IF amplifier, as well as the remote power supply of the LNB is only active if at least one receiver provides a supply voltage to its multiswitch outlet.

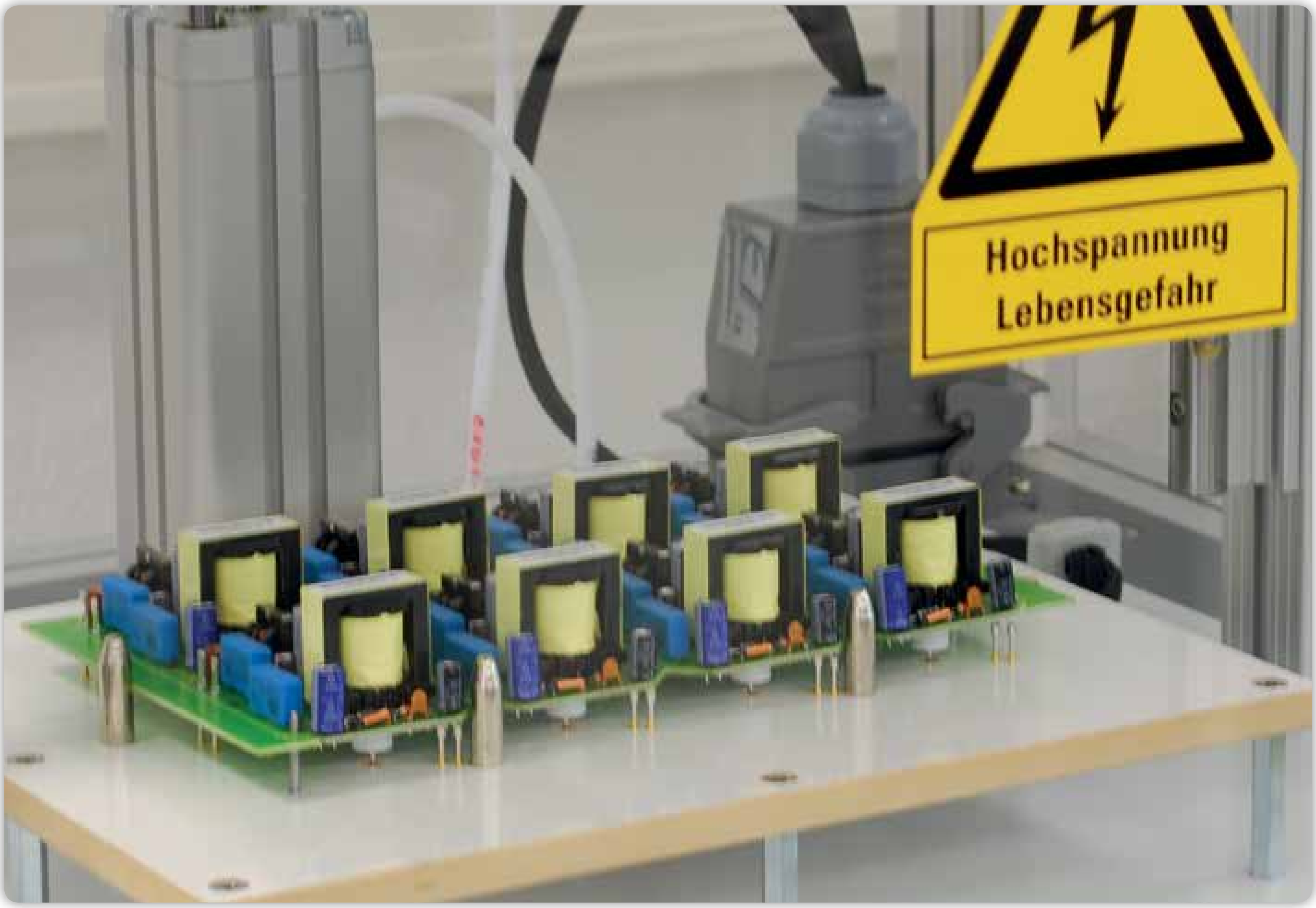
Terrestrial:

- Passive terrestrial path in the frequency range of 5 … 862 MHz (Triple Play).

Miscellaneous:

- Ground clamp.
- The devices are equipped with an energy - saving switched - mode power supply.

Model Art. No.	SMS 5607 NF 815014	SMS 5807 NF 842462	SMS 51207 NF 842463	SMS 51607 NF 842464
EAN	4040326150146	4040326424629	4040326424636	4040326424643
Inputs SAT / terrestrial	5 4 / 1			
Subscriber outputs	6	8	12	16
Tap loss Terrestrial 5 … 862 MHz	20 dB	21 … 16 dB	24 … 20 dB	25 … 21 dB
Tap gain SAT IF 950 … 2200 MHz	-2 … -1 dB	-1 … 5 dB	-2 … 4 dB	-4 … 2 dB
Output level max. 950 … 2200 MHz 35 dB IMA_3 / EN 60728 - 3	102 dBµV	102 dBµV	100 dBµV	100 dBµV
Isolation receiver / receiver Terrestrial / SAT	≥ 26 dB			
Mains supply U~	100 … 240 V / 47 - 63 Hz			
Power consumption + LNB	5 W	7 W	8,5 W	10 W
Power consumption Standby	< 1 W			
LNB supply current max.	350 mA			
Current consumption from each receiver	10 mA			
Ambient temperature	-20 … +50 °C			
Dimensions (mm)	194 x 90 x 52	220 x 132 x 56	260 x 132 x 56	300 x 132 x 56



SPAROS 711 Touch Series

- Intuitive operating thanks to a 10" touch screen.
- DVB-S/S2, DVB-T/T2, DVB-C, HDTV TV displaying.
- DiSEqC and SCR (EN 50494) support.
- Compact and robust aluminium die-cast housing.
- Supplied in a stable metal carrying case.
- Powerful lithium-ion battery with a duration of up to 4 hours.
- Real time echoes and pre-echoes measurement.
- ASI-TS input/output (not applicable to SPAROS 711 Touch Light).

UniSystem - Flexible Multiswitch System 5 in 4, 8

The multiswitch comes with 5 DC - decoupled terminating resistors to terminate the trunk lines.
ZFR 75 DC (Art. No.: 871511)

Optional:
Universal AC Adapter
SNG 18 / 1000 (Art. No.: 832114)
in combination with Line Power Injection Filter
FSW 30 F (Art. No.: 815018).

SMS 5547 UI
SMS 5587 UI

For 4 … 16 SAT IF signals.

The UniSystem multiswitches can be used as stand - alone device or can be cascaded with themselves for an easy extension of the number of subscribers. The UniSystem is extendable to up to 16 SAT IF levels.

SAT IF:

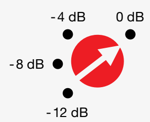
- After the SAT signal has been decoupled by microstripline directional couplers, it is amplified for each receiver output, which produces a tap gain of - 4 … 2 dB. (SMS 5547 UI).

Possible applications:

- As a single multiswitch for 4 SAT IF signals.
- In „piggyback“ mode in conjunction with a multiswitch relay extensible for 8, 12 or 16 SAT IF signals.
  In addition to the wall mounting frame, the „piggyback“ assembly also includes an adapter frame in delivery.
- The master outputs also facilitate cascading, so that the number of receivers can be increased. Without amplifying the signal, it is possible (depending on cable quality and length) to feed up to 24 receiver.

Model Art. No.	SMS 5547 UI 815010	SM 5587 UI 815011
EAN	4040326150108	4040326150115
Inputs SAT / terrestrial	5 4 / 1	
Frequency range	5 … 862 MHz and 950 … 2200 MHz	
Subscriber outputs	4	8
Through loss terrestrial	4,5 dB	4,5 dB
Through loss SAT	1 … 2 dB	2 … 4 dB
Tap loss terrestrial	16 … 17 dB	20 … 21 dB
Tap gain SAT	-4 … 2 dB	-6 … 0 dB
Output level max. 950 … 2200 MHz 35 dB IMA$_3$/EN 60728 - 3	96 dBµV	
Switching isolation	> 26 dB	
Rejection receiver / receiver	> 26 dB	
Current from receiver max.	40 mA	
Current per trunk line	1 A	
Ambient temperature	-20 … +50 °C	
Dimensions (mm)	160 x 95 x 32	160 x 146 x 32

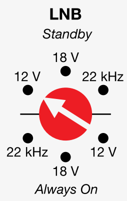
Level adjustment



Output level selectable individually for left and right subscriber outputs.

Launch Amplifier for large distribution networks / 5 inputs

LNB supply voltage



Switch for Quattro or QUAD LNB.

Standby or normal operation mode selectable for SAT reception.

Synchronous level adjuster

For each Low- and High-Band to adjust different input levels.

Only SBK 5502 NF / -8 dB and SBK 5503 NFI / -10 dB.

All the amplifiers are: Energy Saver! Standby Function and Switched-Mode Power Supply

SBK 5501 NFI, SBK 5502 NF
SBK 5509 NF, SBK 5503 NFI

5 DC-decoupled terminating resistors are shipped with the SBK 55xx NFx to terminate the trunk lines.
ZFR 75 DC /Set (Art.No.: 871511)

SAT IF:

- Amplifiers have precompensating 4 dB slope
- The SAT IF amplifier units are equipped with two filters: One at the input and one at the output to perform excellent noise rejection and out-of-band immunity.

SBK 5501 NFI: Light Class
- Passive return path compatible terrestrial.
- 18 V / 200 mA remote power for the active cascades (SMK 55xx3 FA).
- Only useable for Quattro LNB.

SBK 5502 NF: Standard Class
- Integrated level adjuster (0 … -8 dB) switchable to passive mode (5 … 862 MHz).
- Push-Pull-Technology.
- LNB supply voltage selectable for the use of Quattro or QUAD LNB.

SBK 5503 NFI: Power Class
- Passive return path 5 … 65 MHz.
- CATV compatible forward path in Push-Pull-Technology.
- Integrated level adjuster (0 … -10 dB).
- LNB supply voltage selectable for the use of Quattro or QUAD LNB.

Miscellaneous:

- Ground Clamp.
- The devices are supplied with an energy-saving switched-mode power supply.

Remote supply for one post amplifier (except SBK 5501 NFI):
- SBK 5502 NF 18 V / 650 mA
- SBK 5503 NFI 18 V / 1000 mA

Model Art. No.	SBK 5502 NF 842389	SBK 5503 NFI 842488	SBK 5509 NFI 842420	SBK 5501 NFI 842437
EAN	4040326423899	4040326424889	4040326424209	4040326424377
Inputs/outputs SAT/terrestrial	5/5 4/1			
Loss Terr. passive 5…862 MHz	3,5 dB	-	3,5 dB	2 dB
Loss Terr. passive 5…65 MHz	-	4 dB	-	-
Gain Terr. active 47…862 MHz	22 dB	-	-	-
Gain Terr. active 85…862 MHz	-	27…30 dB	-	-
Gain SAT IF 950…2200 MHz	19…23 dB	24…30 dB	19…23 dB	21…25 dB
Output level max. 47…862 MHz 60 dB IMA_3/EN 60728-3	109 dBµV	118 dBµV	-	-
Output level max. 950…2200 MHz 35 dB IMA_3/EN 60728-3	110 dBµV	118 dBµV	110 dBµV	110 dBµV
Rejection Terrestrial active/SAT	> 30 dB	> 50 dB	-	-
Terrestrial passive/SAT	> 30 dB	-	-	> 22 dB
SAT/terrestrial	> 35 dB	> 55 dB	> 22 dB	> 50 dB
Isolation Trunk line/trunk line	≥ 30 dB			≥ 26 dB
Mains power supply U~	100…240 V/47-63 Hz			
Power consumption Terr. active/SAT active +LNB	15 W	15,5 W	-	-
Power consumption Terr. passive/SAT active +LNB	11 W	-	11 W	< 8 W
Power consumption Terrestrial active/SAT standby	7 W	9 W	-	-
Power consumption Terrestrial passive/SAT standby	3 W	-	-	< 1,5 W
Total single port current	400 mA	500 mA	400 mA	12 V/350 mA
Current for post amplifier max.	18 V/650 mA	18 V/1 A	-	-
Ambient temperature	-20…+50 °C			
Dimensions (mm)	220 x 130 x 52	300 x 130 x 52	220 x 130 x 52	195 x 90 x 52

Tech hint

For connections between SBK 5501 NFI/SBK 5502 NF and cascade please use **ZSV 2 S/Set (set of 5 pcs., Art. No. 871508)** and for connections between SBK 5503 NFI and cascade please use **ZVK 250 F/Set. (set of 5 pcs., Art. No. 871505)** or **ZVK 500 F/Set. (set of 5 pcs., Art. No. 871507)**

Post Amplifier for cascadable distribution systems

Synchronous level adjuster

-8 dB

For all SAT IF amplifier.

-10 dB

PASSIVE ●

With the integrated variable level adjuster active or passive distribution can be selected.

Tech hint

When planning, please take into consideration that the post amplifier NVF 5522 SR can only be supplied by the launch amplifiers SBK 5502 NF or SBK 5503 NFI.

NVF 5522 SR

SAT IF:

- SAT IF amplifier with precompensating slope.
- Synchronous level adjuster for all SAT IF amplifiers.

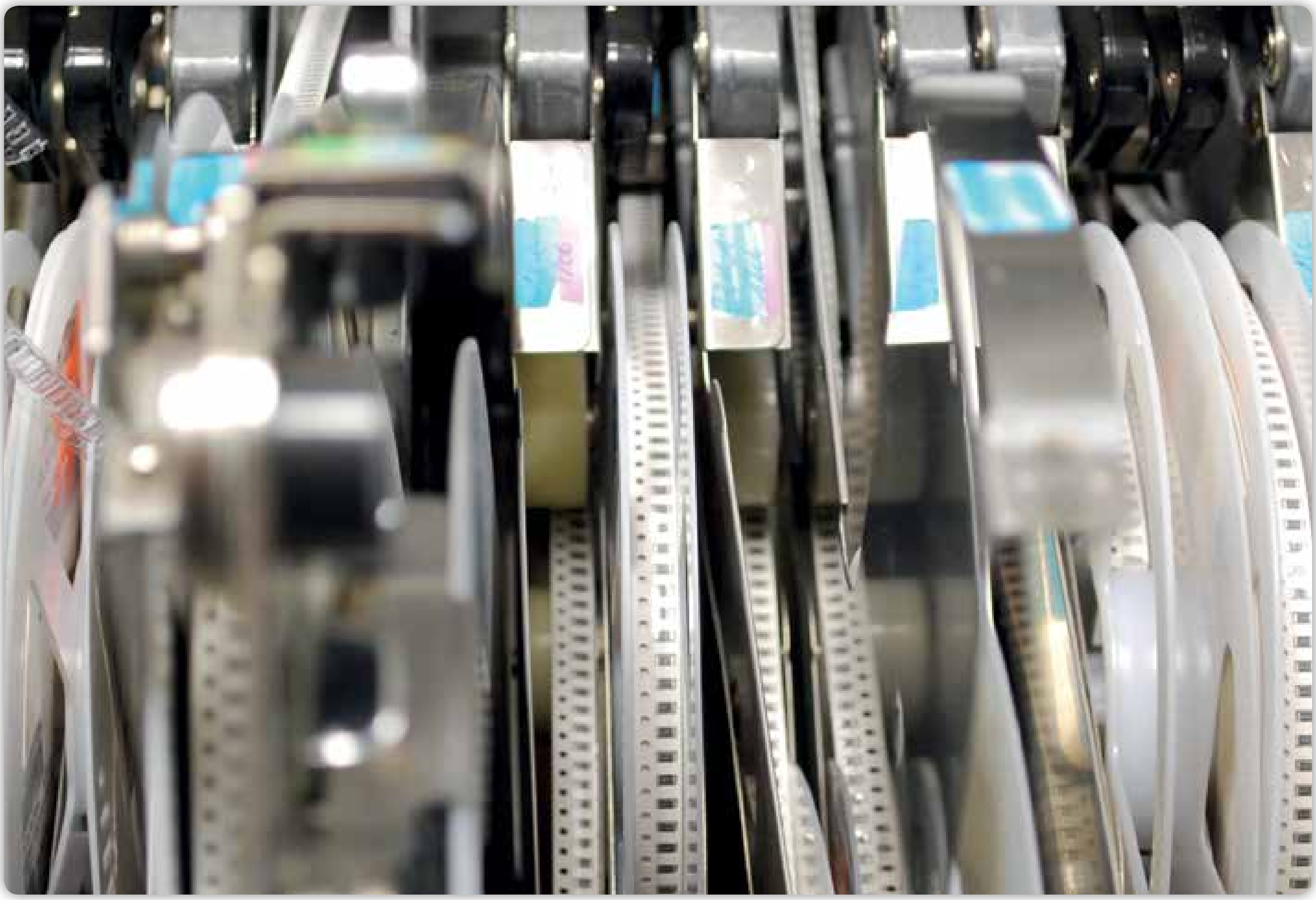
Terrestrial:

- Terrestrial amplifier made for CATV using Push - Pull - Technology.
- With the integrated level adjuster active or passive distribution can be selected.
- Integrated level adjuster (0 … - 10 dB).
- With max. attenuation the amplifier is turned off and the terrestrial path is return path compatible (5 … 862 MHz).

Miscellaneous:

- Ground clamp.

Model Art. No.		NVF 5522 SR 814219
EAN		4040326142196
Inputs/outputs SAT/terrestrial		5/5 4/1
Loss Terrestrial passive 5 … 862 MHz		4 dB
Gain Terrestrial active 47 … 862 MHz		22 dB
Gain SAT IF 950 … 2200 MHz		15 … 18 dB
Output level max. 47 … 862 MHz 60 dB IMA_3/EN 60728-3		108 dBµV
Output level max. 950 … 2200 MHz 35 dB IMA_3/EN 60728-3		110 dBµV
Rejection	Terrestrial active/SAT	> 22 dB
	Terrestrial passive/SAT	> 20 dB
	Terrestrial/SAT	> 30 dB
Isolation Trunk line/trunk line		≥ 26 dB
Current per trunk line 0; 2; 3 and 4		1 A
Ambient temperature		-20 … +50 °C
Dimensions (mm)		145 x 130 x 39



Cascadable Multiswitch (passive) 5 in 4, 8, 12, 16, 24

SMK 5543 F, SMK 5583 F, SMK 55123 F
SMK 55163 F, SMK 55243 F

Energy Saver!
Standby Function

For 4, 8, 12, 16 or 24 subscribers.

- Return path compatible.
- The SAT IF polarity selection is controlled by remote voltage, < 14 V ≅ Vert. / > 16 V ≅ Hor. and the 22 kHz tone provided by the receiver.
- Standby control on trunk line 1.
- Ground clamp.

! Only useable in combination with launch amplifier **SBK 55xx NFx.**

Model Art. No.	SMK 5543 F 842490	SMK 5583 F 842491	SMK 55123 F 842492	SMK 55163 F 842493	SMK 55243 F 842494
EAN	4040326424902	4040326424919	4040326424926	4040326424933	4040326424940
Inputs / outputs SAT / terrestrial	5 / 5 4 / 1				
Subscriber outputs	4	8	12	16	24
Through loss terrestrial	4 dB	5 dB	5 dB	5 dB	5 dB
Through loss SAT	1 … 1,5 dB	1,5 … 3 dB	2 … 4 dB	2 … 6 dB	3 … 7 dB
Tap loss terrestrial	17 … 18 dB	20 … 19 dB	25 … 23 dB	25 … 24 dB	29 … 27 dB
Tap loss SAT	22 … 18 dB	22 … 18 dB	22 … 18 dB	21 … 17 dB	23 … 20 dB
Switching isolation	≥ 30 dB				
Isolation trunk line / trunk line	> 30 dB				
Isolation receiver / receiver	≥ 30 dB				
Current per trunk line 0; 2; 3 and 4	1 A				
Current consumption for each receiver max.	20 mA				
Ambient temperature	-20 … +50 °C				
Dimensions (mm)	90 x 140 x 40	145 x 130 x 40	185 x 130 x 40	225 x 130 x 40	305 x 130 x 40

Cascadable Multiswitch (active) 5 in 4, 8, 12, 16, 24

Stand-alone capable

Energy Saver!
Standby Function

Optional:
Universal AC Adapter
SNG 18/1000 (Art. No.: 832114)
Wall power supply
U~: 100…240/47-63 Hz

Maximum trunk line input level of the active cascade is 83…77 dBµV.

SMK 5543 FA, SMK 5583 FA, SMK 55123 FA SMK 55163 FA, SMK 55243 FA

For 4, 8, 12, 16 or 24 subscribers.

- SAT IF signals amplified.
- Terrestrial (85…862 MHz) signals amplified.
- Return path (5…65 MHz) passive.
- The SAT IF polarity selection is controlled by remote voltage, < 14 V ≅ Vert./> 16 V ≅ Hor. and the 22 kHz tone provided by the receiver.
- SMK 5583 FA, SMK 55123 FA, SMK 55163 FA, SMK 55243 FA have a DC jack for remote power, if the launch amplifier would not provide remote power voltage.
- LED operation display (not on SMK 5543 FA).
- The supply of the active terrestrial is possible via trunk line 0 (18 V/90 mA), from the launch amplifier or the optional wall power supply (SNG 18/1000).
- Ground clamp.

Model Art. No.	SMK 5543 FA 842484	SMK 5583 FA 842486	SMK 55123 FA 842418	SMK 55163 FA 842419	SMK 55243 FA 842487
EAN	4040326424841	40403264248652	4040326424186	4040326424193	4040326424872
Inputs/outputs SAT/terrestrial	5/5 4/1				
Subscribers outputs	4	8	12	16	24
Through loss terrestrial	4 dB	5 dB	5 dB	5 dB	5 dB
Through loss SAT	1…1,5 dB	1,5…3 dB	2…4 dB	2…6 dB	3…7 dB
Tap loss terrestrial 5…65 MHz	20…21 dB	21…22 dB	22…23 dB	26…27 dB	27…28 dB
Tap loss terrestrial 85…862 MHz	6…3 dB	5…4 dB	5…3 dB	10…6 dB	10…6 dB
Tap gain SAT 950…2200 MHz	2…7 dB	0…6 dB	0…6 dB	0…6 dB	0…6 dB
Output level max. Terrestrial 85…862 MHz 60 dB IMA_3/EN 60728-3	92 dBµV	92 dBµV	90 dBµV	88 dBµV	86 dBµV
Output level max. SAT 950…2200 MHz 35 dB IMA_3/EN 60728-3	95 dBµV	95 dBµV	95 dBµV	95 dBµV	95 dBµV
Switching isolation	≥ 30 dB				
Isolation trunk line/trunk line	> 30 dB				
Isolation receiver/receiver	≥ 30 dB				
Current per trunk line 0; 2; 3 and 4	1 A				
Current consumption for each receiver max.	75 mA				
Ambient temperature	-20…+50 °C				
Dimensions (mm)	90 x 140 x40	145 x 130 x 40	185 x 130 x 40	225 x 130 x 40	305 x 130 x 40

Mini Class

Launch/Inline Amplifier with 4 SAT IF inputs

If the termination resistor is plugged on the amplifier turns into inline amplifier mode (DC-pass on all 4 trunk lines).

4 DC-decoupled terminating resistors are shipped with the SBK 4416 NF to terminate the trunk lines.
ZFR 75 DC/Set (Art.No.: 871511)

SBK 4416 NF

Launch Amplifier for SMS 4447 F and SMS 4487 F.

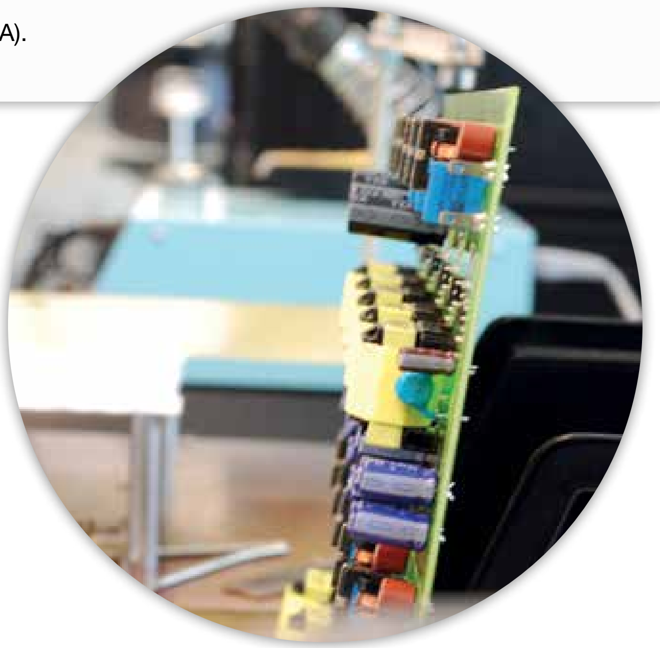
SAT IF:

- LNB supply voltage can be switched off (by using the included decoupled terminating resistor) to use the device as inline amplifier.

Miscellaneous:

- Including external wall power supply **SNG 18/1000** (18V/1A).
- Wall mounting adapter included.

Model Art. No.	SBK 4416 NF 842502
EAN	4040326425022
Inputs/outputs	4/4
Gain SAT 950...2200 MHz	15...20 dB
Output level max. 950...2200 MHz 35 dB IMA_3/EN 60728-3	112 dBµV
Isolation Trunk/trunk	> 35 dB
LNB remote current	12V/400 mA
Mains power supply U~	Incl. wall power supply 100...240V/47-63 Hz
Power consumption	< 4 W
Ambient temperature	-20...+50 °C
Dimensions (mm)	90 x 71 x 27



Mini Class

Cascadable Multiswitch / stand - alone Multiswitch 4 in 4, 8

SMS 4447 F
SMS 4487 F

For 4 and 8 subscribers.

SAT IF:

- Cascadable multiswitch.
- Also useable as receiver powered stand - alone device.
- For Quattro LNB only.

Miscellaneous:

- Wall mounting adapter included.
- Useable without mains power.

Model Art. No.	SMS 4447 F 842475	SMS 4487 F 842476
EAN	4040326424759	4040326424766
Inputs / outputs	4 / 4	4 / 8
Subscriber outputs	4	8
Through loss	< 2 dB	< 3 dB
Tap gain	0 … 5 dB	-3 … 2 dB
Output level max. 950 … 2200 MHz 35 dB IMA_3 / EN 60728 - 3	95 dBµV	
Switching isolation	≥ 26 dB	
Isolation Trunk / trunk Receiver / receiver	≥ 35 dB ≥ 26 dB	
Current from receiver max.	75 mA	
Ambient temperature	-20 … + 50 °C	
Dimensions (mm)	90 x 71 x 27	90 x 113 x 27

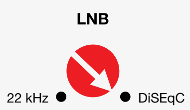
Premium Class

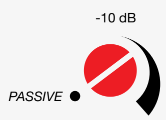
Compact Multiswitch with active terrestrial 5 in 16

Energy Saver!
Standby Function and Switch-Mode Power Supply

DiSEqC 2.0

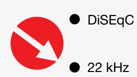
LNB supply voltage





Stepless level attenuation 0…10 dB or switch off to passive mode.

Mode selector



Switching logic to select analogue or DiSEqC switching criterias.

DMS 51602 NF

For 16 subscribers.

SAT IF:

- A special amplifier/filter design improves the intermodulation properties of the multiswitch considerably.
- The high selective input filter guarantees that interference products of the LNB can‘t drive the amplifiers into saturation.
- LNB supply voltage selectable. TWIN, SMATV and universal TWIN LNB can be connected.
- The multiswitch supports standby mode. Both the SAT IF amplifier, as well as the remote power supply of the LNB is only active if at least one receiver provides a supply voltage to its multiswitch outlet.
- Amplifier has precompensating $\geq$ 5 dB slope.

Terrestrial:

- Push-Pull-Technology.
- Stepless level anttenuation 0…10 dB or switch off to passive mode (return path capable).

Miscellaneous:

- The device is supplied with an energy-saving switched-mode power supply.
- Groud clamp.

Model Art. No.	DMS 51602 NF 842407
EAN	4040326424070
Inputs SAT / terrestrial	5 4 / 1
Subscriber outputs	16
Tap loss Terr. passive 5 … 862 MHz	21 … 23 dB
Tap gain Terr. active 47 … 862 MHz	-2 … 0 dB
Tap gain SAT IF 950 … 2200 MHz	2 … -4 dB
Output level max. 47 … 862 MHz 60 dB IMA_3 / EN 60728 - 3	86 dBµV
Output level max. 950 … 2200 MHz 35 dB IMA_3 / EN 60728 - 3	88 dBµV
Isolation receiver / receiver Terrestrial / SAT	≥ 24 dB
Mains power supply U~	100 … 240 V / 47 - 63 Hz
Power consumption Terrestrial active / SAT active	26 W
Power consumption Terrestrial passive / SAT active	20 W
Power consumption Terrestrial active / SAT standby	6,5 W
Power consumption Terrestrial passive / SAT standby	2,5 W
LNB remote current	500 mA
LNB single port current	500 mA
Current consumption for each receiver	70 mA
Ambient temperature	-20 … +50 °C
Dimensions (mm)	380 x 130 x 52

Cascadable Multiswitches 5 in 8, 12, 16

Mode selector

Mode	Select
1	Band
2	Position
3	Option / DiSEqC
4	Band 22 kHz / no DiSEqC

DiSEqC 2.0

Energy Saver!
Standby Function

DMK 5582 F, DMK 55122 F
DMK 55162 F

For 8, 12 or 16 subscribers.

- Return path capable.
- Switching logic to select analogue or DiSEqC switching criterias, especially adapted to digital receivers.

Miscellaneous:

- Ground clamp.

! Only useable in combination with launch amplifier **SBK 55xx NFx.**

Model Art. No.	DMK 5582 F 842395	DMK 55122 F 842436	DMK 55162 F 842433
EAN	4040326423950	4040326424360	4040326424339
Inputs / outputs SAT / terrestrial		5 / 5 4 / 1	
Subscriber outputs	8	12	16
Through loss terrestrial	6 dB	5 … 6 dB	5 … 6 dB
Through loss SAT	2 … 4,5 dB	4 … 7,5 dB	5 … 9 dB
Tap loss terrestrial	20 … 18 dB	23 … 26 dB	25 … 26 dB
Tap loss SAT	18 … 15 dB	18 … 15,5 dB	18.5 … 16,5 dB
Switching isolation		> 26 dB	
Isolation trunk line / trunk line		> 30 dB	
Isolation receiver / receiver		26 dB	
Current per trunk line 0; 2; 3 and 4		1 A	
Current consumption for each receiver max.		60 mA	
Ambient temperature		-20 … +50 °C	
Dimensions (mm)	140 x 153 x 38	130 x 240 x 38	130 x 240 x 38

Cascadable Multiswitch 2 in 12

SMS 2212 F

For 12 subscribers.

- Remote powered by satellite receiver.
- The IF polarity selection is controlled by the remote voltage, < 14 V ≅ Vert. / > 16 V ≅ Hor. provided by the receiver.

Model Art. No.	SMS 2212 F 842344
EAN	4040326423448
Inputs / outputs	2 / 2
Subscriber outputs	12
Through loss SAT IF 950 … 2200 MHz	0 dB
Tap loss SAT	0 dB
Output level max. 950 … 2150 MHz 35 dB IMA_3 / EN 60728 - 3	94 dBµV
Isolation Receiver / receiver	≥ 23 dB
Isolation Trunk line / trunk line	≥ 30 dB
Current consumption	75 mA
Capacity (IF ports) max.	500 mA
Ambient temperature	-20 … +50 °C
Dimensions (mm)	145 x 130 x 39

Compact Multiswitch 2 in 8

SMS 287 F

For 8 subscribers.

- Remote powered by satellite receiver.
- Compact multiswitch for distribution of 2 SAT IF signals for 8 subscribers.
  The IF polarity selection is controlled by the remote voltage, < 14 V ≅ Vert. / > 16 V ≅ Hor. provided by the receiver.

Model Art. No.	SMS 287 F 842497
EAN	4040326424971
Inputs	2
Subscriber outputs	8
Through gain SAT IF 950 … 2200 MHz	0 … 3 dB
Output level max. 950 … 2150 MHz 35 dB IMA_3 / EN 60728 - 3	98 dBµV
Isolation Receiver / receiver	≥ 26 dB
Current consumption	-
Current consumption from each receiver	75 mA
Current (IF ports) max.	500 mA
Ambient temperature	-20 … +50 °C
Dimensions (mm)	90 x 139 x 38

SAT IF

Wideband Multiswitches 4 in 12, 16

SMS 41209 WBP
SMS 41609 WBP

For 12 and 16 subscribers.

- Wideband device designed for DirecTV™ applications.
- For the distribution of the new HD channel signals in Ka/Ku bands.
- All wideband switches can be used as a stand-alone device or as active terminating tap in a cascadable system.
- Especially for DirecTV™ 5 LNB system.
- Remote power supply to LNB.
- To power the wideband multiswitch and the DirecTV™ 5 LNB please use our wall power supply **SNG 18/1000** in scope of delivery.

Energy Saver!
Standby Function and Switched-Mode Power Supply

Application example	14 V	18 V	14 V + 22 kHz	18 V + 22 kHz
Stack plan Ka-Low Ku Ka-High	99° L 101° L 99° L	99° R 101° R 99° R	103° L 119° L 103° L	103° R 110°/119° R 103° R
SAT IF frequencies Ka-Low Ku Ka-High	250 … 750 MHz 950 … 1450 MHz 1650 … 2150 MHz			

Model Art. No.	SMS 41209 WBP 842446	SMS 41609 WBP 842447
EAN	4040326424469	4040326424476
Inputs SAT	4	
Subscriber outputs	12	16
Tap gain SAT IF 250 … 2200 MHz	-2 … 7 dB	
Output level max. 250 … 2200 MHz 35 dB IMA_3/EN 60728-3	-14 dBm	
Isolation of taps	> 26 dB	
LNB supply current max.	400 mA	
Current consumption from each receiver	50 mA	
Ambient temperature	-4 … 122 °F	
Dimensions (inch)	8.31 x 5.71 x 1.54	
External power supply SNG 18/1000	100 … 240 V/47-63 Hz DC 18 V/1000 mA	

Wideband Multiswitches 5 in 8, 12, 16

GMS 5809 WBP
GMS 51209 WBP, GMS 51609 WBP

For 8, 12 and 16 subscribers.

- Wideband device designed for DirecTV™ applications.
- Die-cast metal housing.
- For the distribution of the new HD channels in Ka/Ku bands.
- All wideband switches can be used as a stand-alone device or as active terminating tap in a cascadable system.
- Especially for DirecTV™ 5 LNB.
- To power the wideband multiswitch and the DirecTV™ 5 LNB please use our wall power supply **SNG 18/1000** included in scope of delivery.

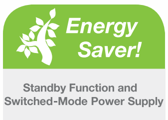
Energy Saver!
Standby Function and Switched-Mode Power Supply

Application example	14 V	18 V	14 V + 22 kHz	18 V + 22 kHz
Stack plan Ka-Low Ku Ka-High	99° L 101° L 99° L	99° R 101° R 99° R	103° L 119° L 103° L	103° R 110°/119° R 103° R
SAT IF frequencies Ka-Low Ku Ka-High	250 … 750 MHz 950 … 1450 MHz 1650 … 2150 MHz			

Model Art. No.	GMS 5809 WBP 842461	GMS 51209 WBP 842452	GMS 51609 WBP 842453
EAN	4040326424612	4040326424520	4040326424537
Inputs SAT/terrestrial	5 4/1		
Subscriber outputs	8	12	16
Tap loss Terrestrial 5...160 MHz	20 … 22 dB		
Tap gain SAT IF 250 … 2200 MHz	2 … 6 dB	-7 … 2 dB	
Output level max. 250 … 2200 MHz 35 dB IMA_3/EN 60728-3	-13 dBm		
Isolation of taps	> 26 dB		
LNB supply current max.	400 mA		
Current consumption from each receiver	50 mA		
Ambient temperature	-4 … 122 °F		
Dimensions (inch)	6.14 x 6.02 x 1.46	9.29 x 6.02 x 1.46	
External power supply SNG 18/1000	100 … 240 V, 47-63 Hz DC 18 V/1000 mA		

Launch Amplifier for large distribution networks 4 SAT IF inputs

5 DC-decoupled terminating resistors are shipped with the GBK 5500 WBP to terminate the trunk lines.
ZFR 75 DC /Set (Art.No.: 871511)



GBK 5500 WBP

- Wideband device designed for DirecTV™ applications.
- For the distribution of the new HD channels in Ka/Ku bands.
- Passive terrestrial.
- The SAT IF amplifiers have precompensating 9 dB slope.
- Wall power supply **SNG 18/1000** included in scope of delivery.

Application example	14V	18V	14V+22 kHz	18V+22 kHz
Stack plan Ka-Low Ku Ka-High	99° L 101° L 99° L	99° R 101° R 99° R	103° L 119° L 103° L	103° R 110°/119° R 103° R
SAT IF frequencies Ka-Low Ku Ka-High	250…750 MHz 950…1450 MHz 1650…2150 MHz			

Model Art. No.	GBK 5500 WBP 842451
EAN	4040326424513
Inputs SAT/terrestrial	5 4/1
Gain Terr. 5…160 MHz	-2 dB
Gain SAT IF 250…2200 MHz	13…22 dB
Output level max. 250…2200 MHz 35 dB IMA_3/EN 60728-3	4.25 dBm
Isolation of trunk lines	> 26 dB
LNB supply current max.	450 mA
Ambient temperature	-4…122 °F
Dimensions (inch)	3.75 x 6.02 x 1.46
External power supply SNG 18/1000	100…240V, 47-63 Hz DC 18V/1000 mA

Penta Splitter SAT and terrestrial for wideband distribution systems

GTS 525 WB

The Penta Splitter GTS 525 WB reduces the installation expenditure of distribution networks substantially as it combines five two-way splitters in one device.

The RF energy of the terrestrial trunk line and the 4 SAT IF trunk lines are distributed in each case on two trunk lines.

Each trunk line has a separate DC-pass, which is connected with the respective output ports. It is possible to supply a post amplifier from the trunk line to each output.

It is possible to connect the GTS 525 WB directly to the GMS 5xx09 WBP multiswitch series by using the quick connectors ZSV 2/SET.

Energy Saver!
Standby Function

Application example	14V	18V	14V+22 kHz	18V+22 kHz
Stack plan Ka-Low Ku Ka-High	99° L 101° L 99° L	99° R 101° R 99° R	103° L 119° L 103° L	103° R 110°/119° R 103° R
SAT IF frequencies Ka-Low Ku Ka-High	250…750 MHz 950…1450 MHz 1650…2150 MHz			

Model Art. No.	GTS 525 WB 842233
EAN	4040326422335
Inputs SAT/terrestrial	5 4/1
Outputs	2 x 5
Through loss Terr. 5…160 MHz	5 dB
Through loss SAT IF 250…2200 MHz	6 dB
Isolation Input/input	> 26 dB
Isolation Output terrestrial	> 20 dB
Isolation Output SAT	> 15 dB
Isolation of taps	> 26 dB
LNB supply current max.	450 mA
DC-pass max.	30V/1 A
Ambient temperature	-4…122 °F
Dimensions (inch)	6.14 x 6.02 x 1.46

Penta Tap SAT and terrestrial for wideband distribution systems

GZR 5550/15 WB

The tap GZR 5550/15 WB is equipped with 5 trunk lines and 5 tap outlets (4 SAT IF and terrestrial).

It is possible to connect the GZR 5550/15 WB directly to the GMS 5xx09 WBP multiswitch series by using the quick connector ZSV 2/Set.

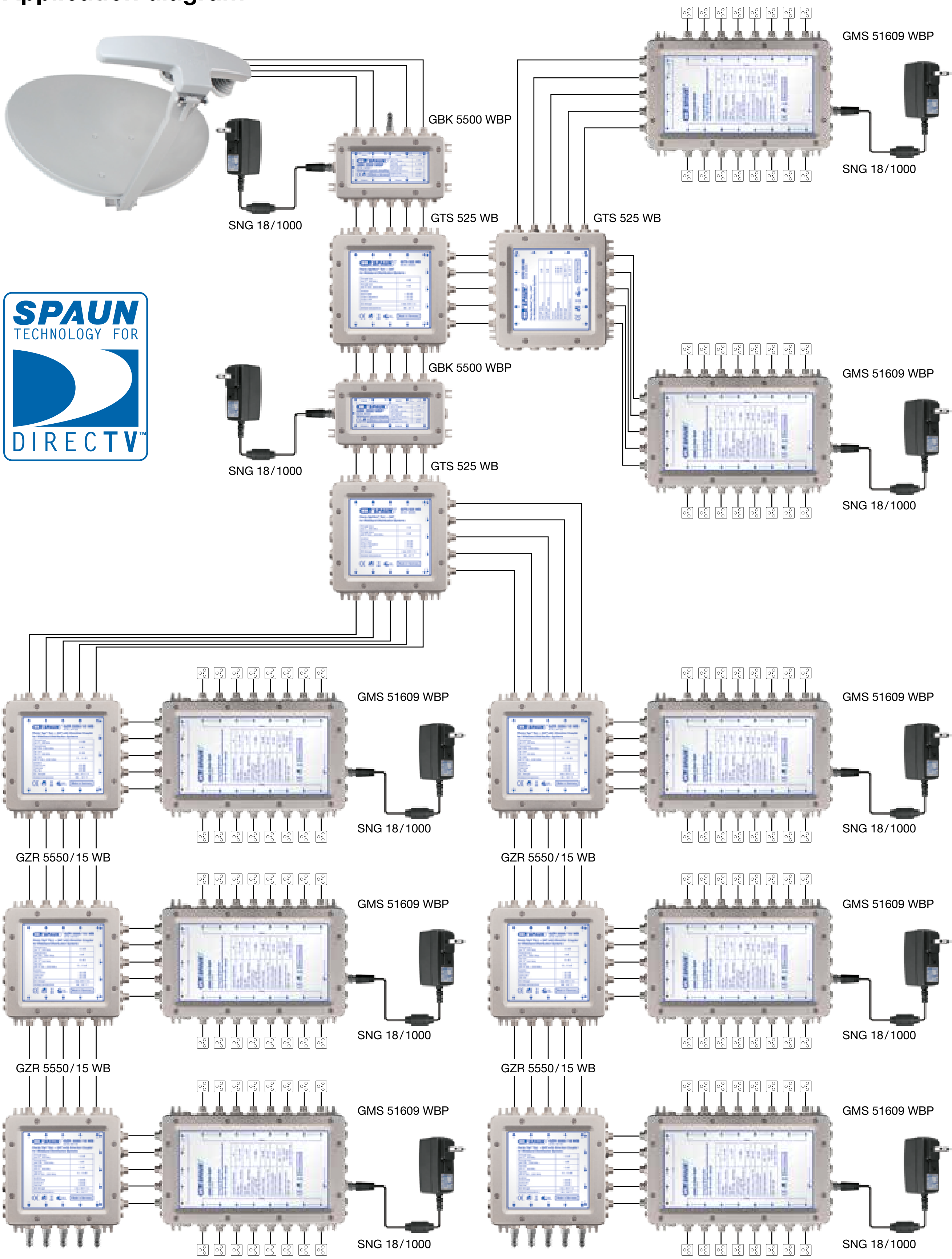
The trunk line DC path is linked to the tap outlet. This offers remote power to a line powered post amplifier at any location.

Energy Saver!
Standby Function

Application example	14 V	18 V	14 V + 22 kHz	18 V + 22 kHz
Stack plan Ka-Low Ku Ka-High	99° L 101° L 99° L	99° R 101° R 99° R	103° L 119° L 103° L	103° R 110°/119° R 103° R
SAT IF frequencies Ka-Low Ku Ka-High	250 … 750 MHz 950 … 1450 MHz 1650 … 2150 MHz			

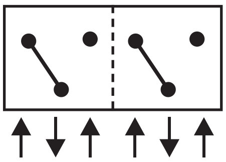
Model Art. No.	GZR 5550/15 WB 841155
EAN	4040326411551
Inputs SAT/terrestrial	5 4/1
Outputs	2 x 5
Through loss Terrestrial 5 … 160 MHz	3 dB
Through loss SAT 250 … 2200 MHz	5 dB
Tap loss Terrestrial 5 … 160 MHz	10 dB
Tap loss SAT IF 250 … 2200 MHz	15 … 13 dB
Isolation Trunk/trunk Trunk/tap Tap/tap	 > 26 dB > 26 dB > 26 dB
DC-pass max.	30 V/1 A
Ambient temperature	-4 … 122 °F
Dimensions (inch)	6.14 x 6.02 x 1.46

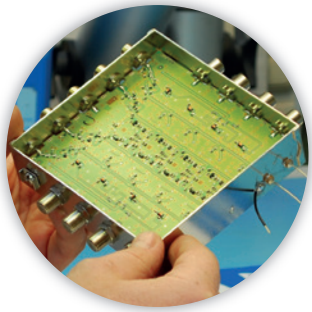
Application diagram



4 SAT IF signals for 128 subscribers.

SAT Antenna Relay





DiSEqC 2.0

SAR 422 WSG

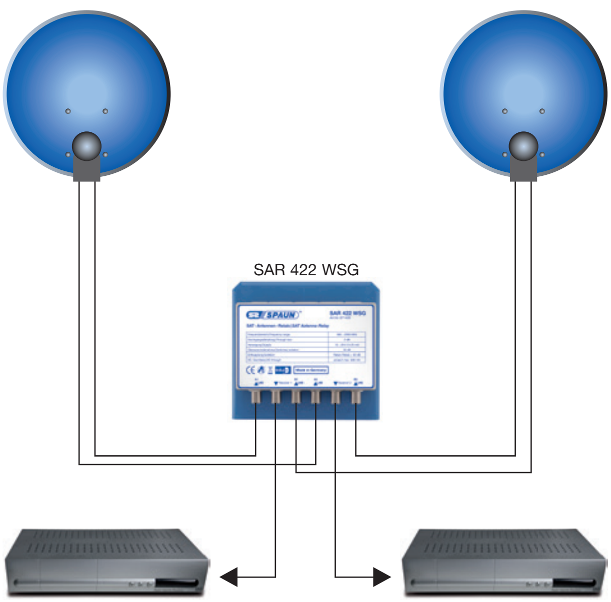
SAT IF:

- For 2 TWIN LNBs onto 2 receivers.
- Feed-through of the 22 kHz tone and the DiSEqC command.
- The satellite system (east/west) is selected using the DiSEqC command „Position“ or the analogue Tone Burst.

Model Art. No.	SAR 422 WSG 871426
EAN	4040326714263
Inputs/outputs	4/2
Outdoor case	✓
Frequency range	950…2200 MHz
Through loss max.	2 dB
Switching isolation	> 35 dB
Isolation relays/relays	> 30 dB
DC-pass per trunk line max.	600 mA
System switching using DiSEqC-commands	Position
Current from receiver max.	2 x 25 mA
Ambient temperature	-20…+50 °C
Dimensions (mm)	124 x 112 x 40

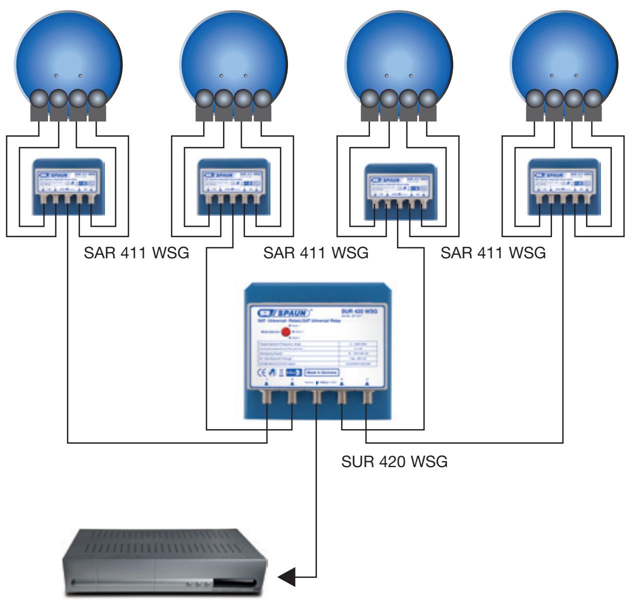
Application diagram

SAR 422 WSG



Application diagram

SUR 420 WSG (page 91)

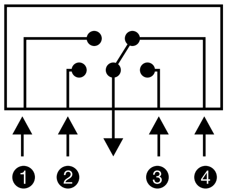


SAT Antenna Relay

SUR 420 WSG

SAT IF:

- To be used as „Uncommitted Switch".
- For individual reception systems.
- Feed-through of the 22 kHz tone and the DiSEqC command.
- To multiplex 4 down lead cables.
- Cascadable for up to 256 IF signals.



Application diagram

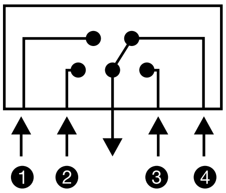
for SUR 420 WSG (refer to page 90)

DiSEqC 1.1/2.1 receiver required!

Model Art. No.	SUR 420 WSG 871417
EAN	4040326714171
Inputs/outputs	4/1
Outdoor case	✓
Frequency range	5…2200 MHz
Through loss max.	2,5 dB
Switching isolation terrestrial	> 40 dB
Switching isolation SAT	> 26 dB
DC-pass per trunk line max.	500 mA
System switching using DiSEqC-commands	Uncommitted
Current from receiver max.	60 mA
Ambient temperature	-20…+50 °C
Dimensions (mm)	124 x 112 x 40

MODE selector	SMATV	START Byte	ADDRESS Byte	COMMAND Byte	DATA Byte	Mode 1	Mode 2	Mode 3
	1	E0	18	39	F0	Input 1	Input 1	Input 1
	2	E0	18	39	F1	Input 2		
	3	E0	18	39	F2	Input 3	Input 2	
	4	E0	18	39	F3	Input 4		
	5	E0	18	39	F4	Input 1	Input 3	Input 2
	6	E0	18	39	F5	Input 2		
	7	E0	18	39	F6	Input 3	Input 4	
Mode 1 Mode 2 Mode 3	8	E0	18	39	F7	Input 4		
	9	E0	18	39	F8	Input 1	Input 1	Input 3
	10	E0	18	39	F9	Input 2		
	11	E0	18	39	FA	Input 3	Input 2	
	12	E0	18	39	FB	Input 4		
	13	E0	18	39	FC	Input 1	Input 3	Input 4
	14	E0	18	39	FD	Input 2		
	15	E0	18	39	FE	Input 3	Input 4	
	16	E0	18	39	FF	Input 4		

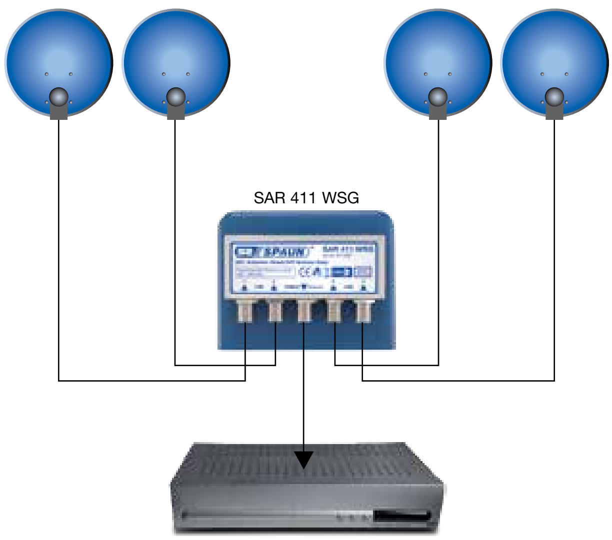
SAT Antenna Relay



SPAUN SAR 411F relay received the rating „sehr gut"(„excellent").

SPAUN SAR 411F relay received the rating „gut" („good") in the *SATVISION* comparative test.

Application diagram



SAR 411 WSG
SAR 212 WSG

For 2 single SAT LNBs onto 1 receiver **(SAR 212 WSG).**

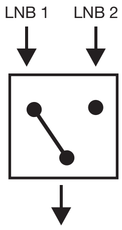
For 4 single SAT LNBs onto 1 receiver **(SAR 411 WSG).**

SAT IF:

- Feed-through of the 22 kHz tone and the DiSEqC command.
- To multiplex 2 or 4 down lead cables.
- The satellite system (east/west) is selected using the DiSEqC command „Position" or the analogue Tone Burst.

Model Art. No.	SAR 411 WSG 871432	SAR 212 WSG 871430
EAN	4040326714324	4040326714300
Inputs/outputs	4/1	2/1
Outdoor case	✓	✓
Frequency range	950…2200 MHz	
Through loss max.	2 dB	1,5 dB
Switching isolation	> 26/typ. 30 dB	> 30/typ. 40 dB
DC-pass per trunk line max.	500 mA	500 mA
System switching using DiSEqC-commands	Option, position	Position
Current from receiver max.	36 mA	30 mA
Ambient temperature	-20…+50 °C	
Dimensions (mm)	94 x 73 x 26	64 x 73 x 26

SAT Antenna Relay



Application diagram

for **SUR 411 WSG** (refer to page 94)

SUR 211 WSG

SAT IF:

- Feed-through of the 22 kHz tone and the DiSEqC command.
- Mode selector offers 3 different operation modes:
  1. Position
  2. Option
  3. 1st Uncommitted switch

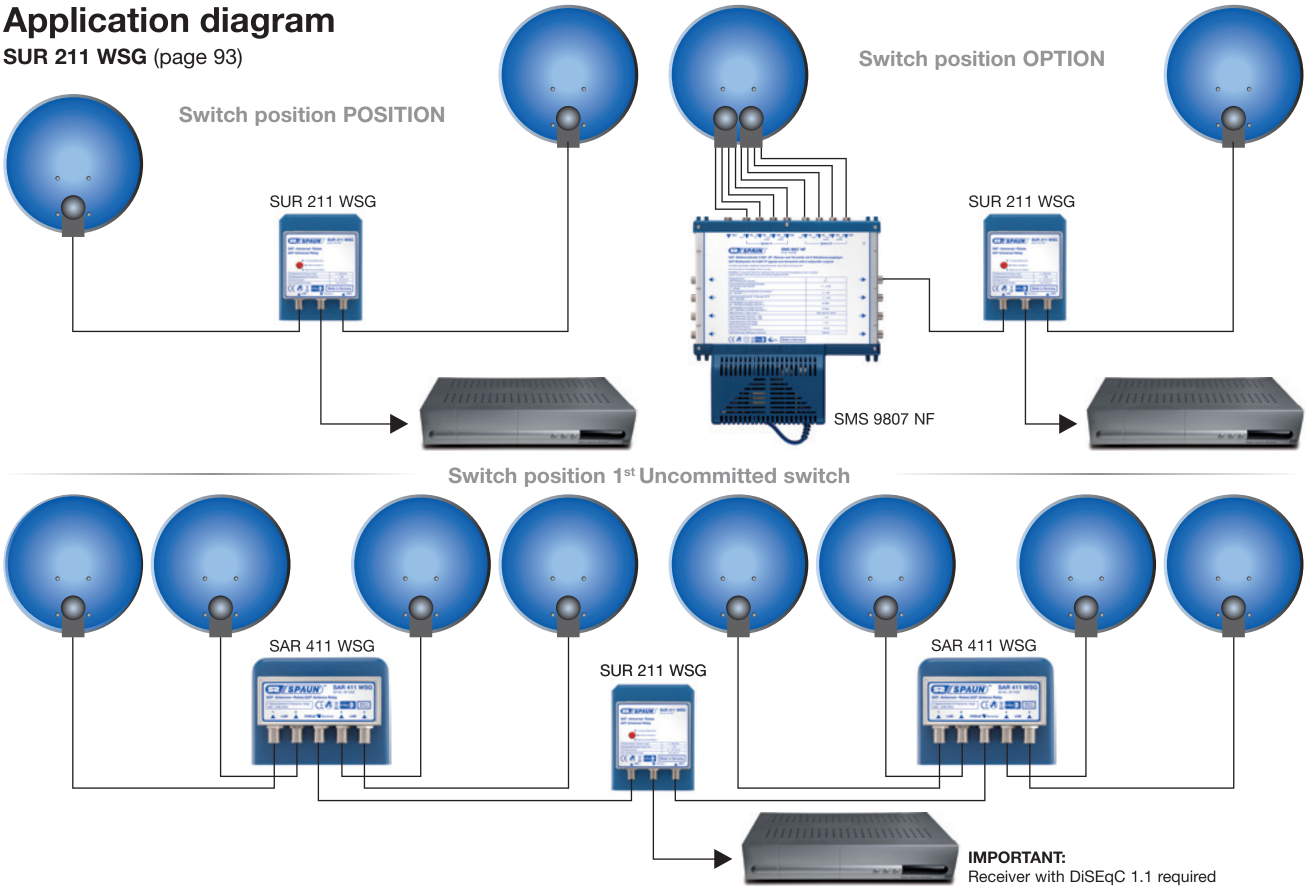
Model Art. No.	SUR 211 WSG 871437
EAN	4040326714379
Inputs/outputs	2/1
Outdoor case	✓
Frequency range	5…2200 MHz
Through loss max.	1 dB
Switching isolation terrestrial	> 40 dB
Switching isolation SAT	> 26 dB
DC-pass per trunk line max.	500 mA
System switching using DiSEqC-commands	1st Uncommitted, Option, position
Current from receiver max.	35 mA
Ambient temperature	-20…+50 °C
Dimensions (mm)	90 x 112 x 40

MODE Selector	SMATV	Option	Satellite Position System	Polari-sation	Band	START Byte	AD-DRESS Byte	COM-MAND Byte	DATA Byte	Switch setting 1st Ucom-mitted	Switch setting Position	Switch setting Option
1st Uncommitted Switch Position (Tone Burst) Option (nur DiSEqC)	1	A	A	Vert.	Low	E0	00*/18**	38*/39**	F0	LNB 1	LNB 1	LNB 1
	2				High	E0	00*/18**	38*/39**	F1	LNB 2		
	3			Hor.	Low	E0	00*/18**	38*/39**	F2	LNB 1		
	4				High	E0	00*/18**	38*/39**	F3	LNB 2		
	5		B	Vert.	Low	E0	00*/18**	38*/39**	F4	LNB 1	LNB 2	
	6				High	E0	00*/18**	38*/39**	F5	LNB 2		
	7			Hor.	Low	E0	00*/18**	38*/39**	F6	LNB 1		
	8				High	E0	00*/18**	38*/39**	F7	LNB 2		
	9	B	C	Vert.	Low	E0	00*/18**	38*/39**	F8	LNB 1	LNB 1	LNB 2
	10				High	E0	00*/18**	38*/39**	F9	LNB 2		
	11			Hor.	Low	E0	00*/18**	38*/39**	FA	LNB 1		
	12				High	E0	00*/18**	38*/39**	FB	LNB 2		
	13		D	Vert.	Low	E0	00*/18**	38*/39**	FC	LNB1	LNB 2	
	14				High	E0	00*/18**	38*/39**	FD	LNB 2		
	15			Hor.	Low	E0	00*/18**	38*/39**	FE	LNB 1		
	16				High	E0	00*/18**	38*/39**	FF	LNB 2		

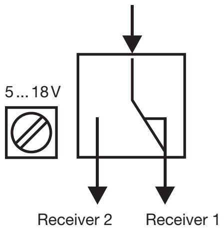
*Committed, **Uncommitted

Application diagram

SUR 211 WSG (page 93)



SAT Antenna Relay



External switching voltage (5 … 18V) is required to switch-over to receiver 2.

SAR 12 F

To switch between 2 SAT IF systems.

Model Art. No.	SAR 12 F 871406
EAN	4040326714065
Inputs/outputs	1/2
Frequency range	47 … 2200 MHz
Through loss	0,8 dB
Switching isolation terrestrial	> 40 dB
Switching isolation SAT	> 25 dB
DC-pass per trunk line max.	500 mA
Control voltage	5 … 18 V
Control current	< 0,5 … 1,5 mA
Current from receiver max.	35 mA
Ambient temperature	-20 … +50 °C
Dimensions (mm)	105 x 82 x 38

UniSystem - Multiswitch Relay

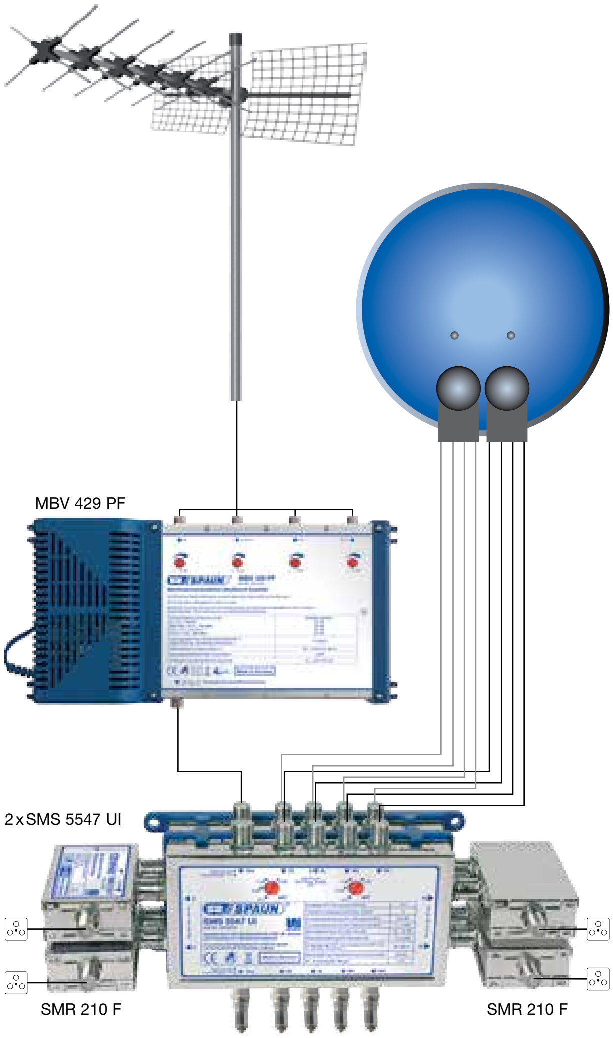
SMR 410 F, SMR 210 F
SMR 9210 F

For 8 … 16 SAT IF signals.

SAT IF:

- For combining the signal of 2, 3 or 4 SAT systems and terrestrial on one subscriber output. The relays have to be connected to the right and left housing side of the UniSystem multiswitches.
- SMR 210 F for connection of 2 satellites, such as 2 x SMS 5547 UI.
- SMR 410 F for connection of 3 - 4 satellites, such as 3 x SMS 5587 UI.
- SMR 9210 F for connection of 4 satellites such as SMS 9987 U or SMS 9989 U.

Application diagram

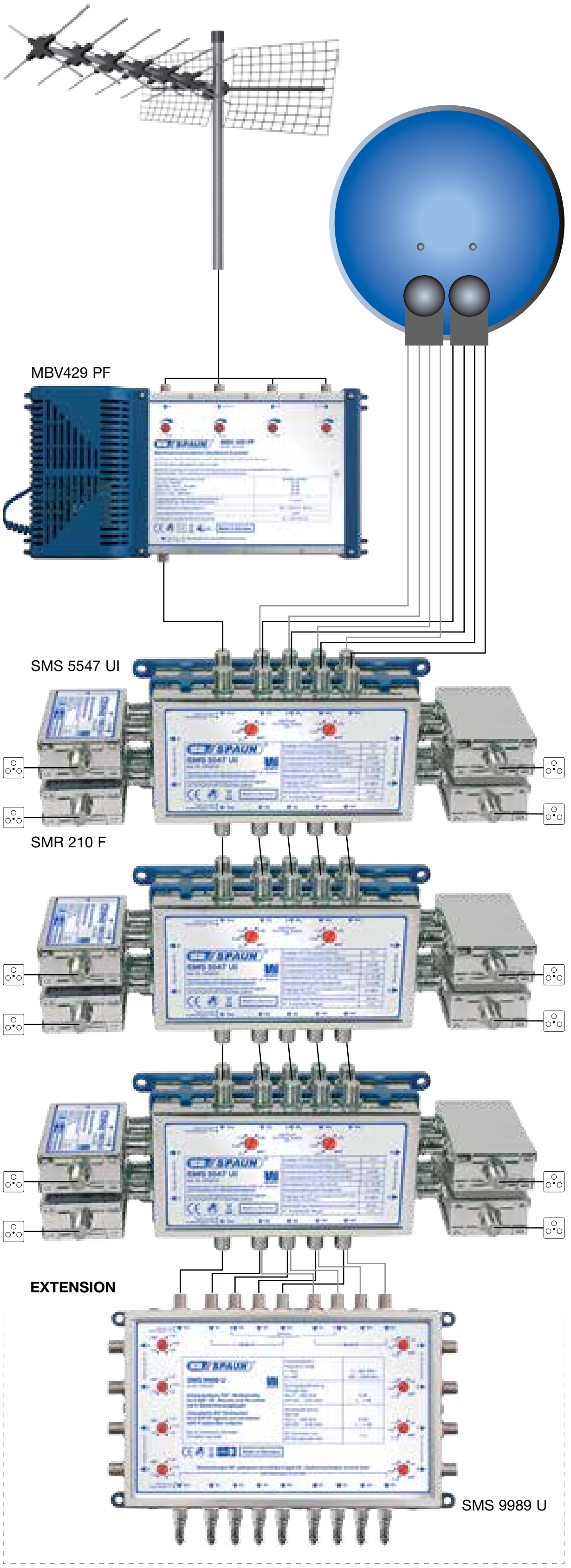


8 SAT IF signals with passive terrestrial for 4 subscribers.

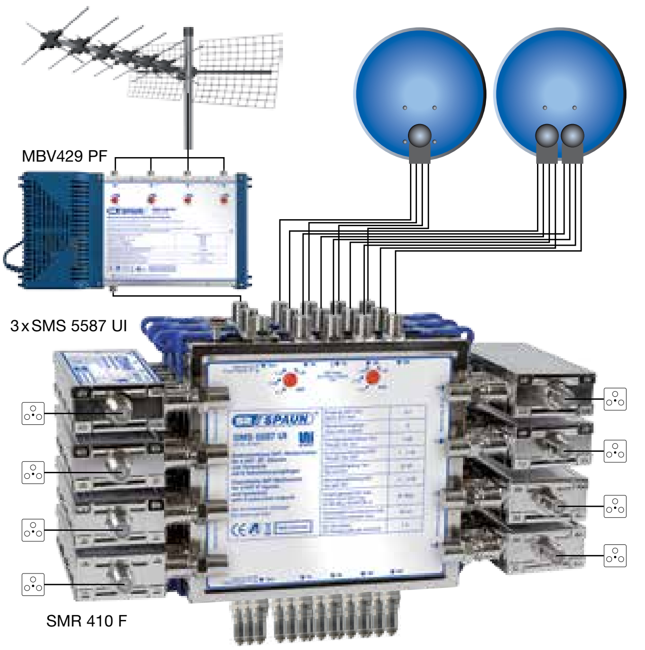
Model Art. No.	SMR 410 F 871436	SMR 210 F 871435	SMR 9210 F 871438
EAN	4040326714362	4040326714355	4040326714386
Inputs SAT / terrestrial	4	2	
Frequency range	5 … 862 MHz and 950 … 2200 MHz		
Outputs / receivers	1		
Combination of SAT systems	2 … 4	2	4
Through loss terrestrial	4 dB	3 dB	
Through loss SAT	3,5 dB	3 dB	
System switching using DiSEqC - commands	Option and position	Position	Option
Current from receiver max.	20 mA		
Ambient temperature	-20 … +50 °C		
Dimensions (mm)	102 x 54 x 22	80 x 54 x 22	

Application diagram

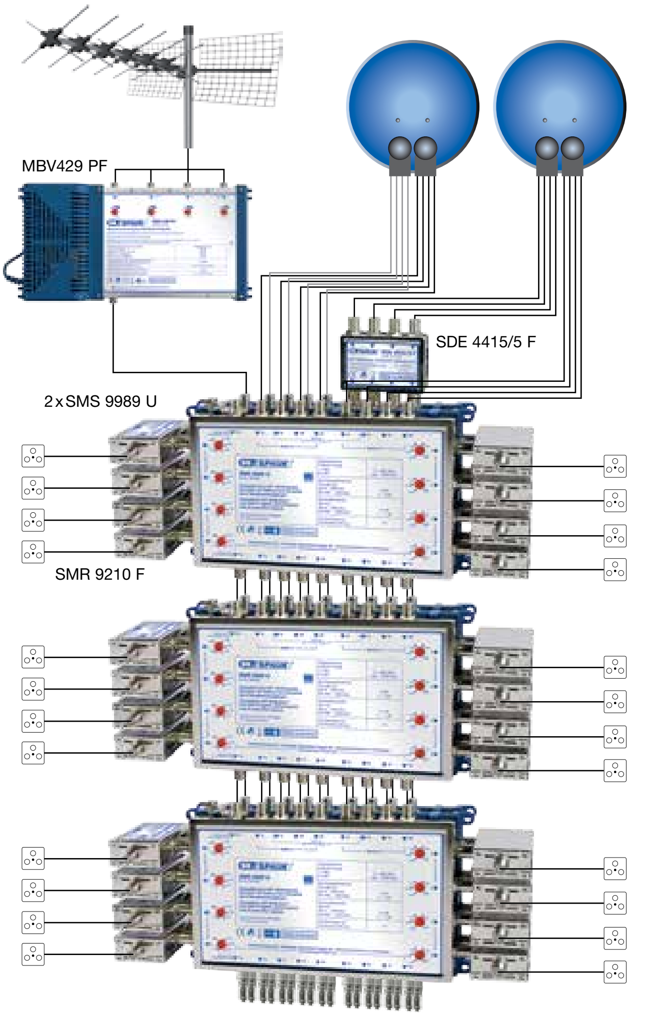
SMR 410 F, SMR 210 F and SMR 9210 F (page 93)



8 SAT IF signals with passive terrestrial for 12 to 20 subscribers.



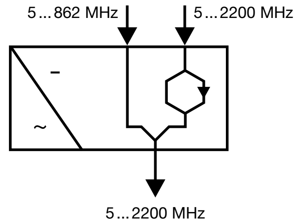
12 SAT IF signals with passive terrestrial for 8 subscribers.



16 SAT IF signals with passive terrestrial for 24 subscribers.

Power Class

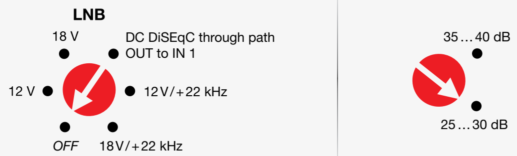
Power SAT IF Amplifier



Energy Saver!
Standby Function and
Switched-Mode Power Supply

Integrated level adjuster and slope correction

LNB supply voltage **Gain**



GBV 3809 U

SAT IF:

- For large distribution networks or long cable runs.
- Wideband output.
- LED operation display.
- Suitable for SCR systems according to EN 50494.

Input 1:

- Passive terrestrial.
- Active SAT IF with extremly high output level.
- Splitband technology.

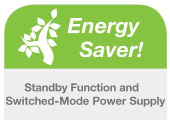
Input 2:

- Useable as headend amplifier or CATV line amplifier.

Model Art. No.	GBV 3809 U 814112
EAN	4040326141120
Inputs/outputs	2/1
Gain: SAT IF 950 ... 2200 MHz	25 ... 30 dB or 35 ... 40 dB
Input 1 5 ... 862 MHz terrestrial passive + SAT	-1 ... -6 dB
Input 2 5 ... 862 MHz terrestrial passive	-1 ... -4 dB
Output level max. 950 ... 2200 MHz 35 dB IMA$_3$/EN 60728-3	125 dBµV
Rejection: Terrestrial/SAT	$\geq$ 25 dB
Rejection: SAT/terrestrial	$\geq$ 35 dB
Level adjusting range/SAT	0 ... -10 dB
Slope correction range/SAT	0 ... -12 dB
Mains power supply U~	100 ... 240 V/47-63 Hz
Power consumption + LNB	9,5 W
LNB supply voltage	12/18 V/350 mA
Ambient temperature	-20 ... +50 °C
Dimensions (mm)	250 x 190 x 77

Mains Powered SAT IF Amplifier

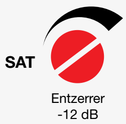
Suitable for SCR systems according to EN 50494.



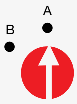
DC power supply 18V

DiSEqC No DC
1 DC SAT + OUT
2 DC terrestrial
3 DC SAT + OUT + Ter.

Slope correction

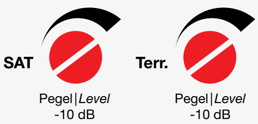


Operation mode



A 2 inputs SAT/terrestrial
B 1 input SAT/terrestrial

Level adjuster



The SVN 231 F received the *TELE satellite* AWARD from the international magazine *TELE satellite* in March 2010.

SVN 231 F

With active terrestrial feed.

SAT IF:

- LNB remote power (18V/400 mA).
- Integrated level adjusting.
- Integrated slope adjusting.
- Suitable for SCR systems according to EN 50494.

Terrestrial:

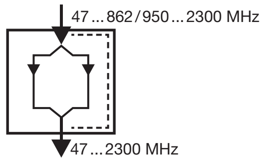
- Integrated level adjusting.

Miscellaneous

- Amplifier with plitband technology.
- Useable as inline amplifier (feed-through of the 22 kHz tone and the DiSEqC™ command).
- The device is supplied with an energy-saving switched-mode power supply.
- Groud clamp.

	Model Art. No.	SVN 231 F 814118
EAN		4040326141182
Inputs terrestrial/SAT Outputs		1 1/1
Gain Terrestrial 47…862 MHz		20 dB
Gain SAT IF 950…2200 MHz		30 dB
Output level max. 47…862 MHz 60 dB IMA$_3$/EN 60728-3		108 dBµV
Output level max. 950…220 MHz 35 dB IMA$_3$/EN 60728-3		111 dBµV
Rejection	Terrestrial/SAT	≥ 25 dB
Rejection	SAT/terrestrial	≥ 35 dB
Level adjusting range		0…-10 dB
Slope correction range/SAT		0…-12 dB
Mains power supply U~		100…240V/47-63 Hz
Power consumption		12 W
Ambient temperature		-20…+50 °C
Dimensions (mm)		250 x 190 x 77

Remote Powered Post Amplifier



Model Art. No.	NVF 115 F 814117
EAN	4040326141175
Inputs/outputs	1/1
Gain Terrestrial 47 ... 862 MHz	7 ... 10 dB
Gain SAT IF 950 ... 2300 MHz	10 ... 15 dB
Output level max. 47 ... 862 MHz 60 dB IMA_3/EN 60728-3	106 dBµV
Output level max. 950 ... 2300 MHz 35 dB IMA_3/EN 60728-3	112 dBµV
Power supply	14 ... 20 V/200 mA
DC-pass per trunk line max.	1 A
Ambient temperature	-20 ... +50 °C
Dimensions (mm)	150 x 90 x 35

NVF 115 F

- For the amplification of SAT IF and terrestrial.
- Splitband technology.
- Wideband input and output.
- Feed-through of the 22 kHz tone and the DiSEqC command.

SAT IF

Remote Powered
Wideband Post Amplifier

Model Art. No.	NVF 120 F 814115
EAN	4040326141151
Inputs/outputs	1/1
Gain Terrestrial 5 ... 160 MHz	7 ... 10 dB
Gain SAT IF 250 ... 2200 MHz	12 ... 20 dB
Output level max. 5 ... 160 MHz 35 dB IMA_3/EN 60728 -3	108 dBµV
Output level max. 250 ... 2200 MHz 35 dB IMA_3/EN 60728-3	106 dBµV
Power supply	14 ... 20 V/120 mA
DC-pass per trunk line max.	1 A
Ambient temperature	-4 ... 122 °F
Dimensions (inch)	5.9 x 3.5 x 1.4

NVF 120 F

- For the amplification of SAT IF and terrestrial.
- Splitband technology.
- Wideband input and output.
- Feed-through of the 22 kHz tone and the DiSEqC command.

Remote Powered SAT IF Amplifier

Level adjuster

SVF 128 F

- Feed-through of the 22 kHz tone and the DiSEqC command.
- Integrated level adjuster.
- Integrated precompensating slope.

Model Art. No.	SVF 128 F 814207
EAN	4040326142073
Frequency range	950…2200 MHz
Inputs/outputs	1/1
Gain	21…28 dB
Output level max. 950…2200 MHz 35 dB IMA_3/EN 60728-3	110 dBµV
Power supply	75 mA
DC-pass per trunk line max.	600 mA
Ambient temperature	-20…+50 °C
Dimensions (mm)	77 x 49 x 33

Remote Powered SAT IF Amplifiers

SVF 10 F, SVF 20 F, SVF 20 LE

SAT IF:

- All DC through paths are both 22 kHz tone and DiSEqC capable.
- Perfect to compensate loss of long LNB down lead cables due to precompensating slope of SAT IF amplifier.

Only SVF 20 LE

- Ideal for compensating the attenuation of long cable runs between LNB and amplifier because of precompensating slope.

Model Art. No.	SVF 10 F 814210	SVF 20 F 814208	SVF 20 LE 814209
EAN	4040326142103	4040326142080	4040326142097
Frequency range	950 … 2200 MHz		
Inputs / outputs	1 / 1		
Gain	9 … 10 dB	20 dB	13 … 20 dB
Output level max. 35 dB IMA_3 / EN 60728 - 3	112 dBµV		
Power supply	11,5 … 20 V / 55 mA	11,5 … 20 V / 75 mA	
DC - pass per trunk line max.	1 A		
Ambient temperature	-20 … + 50 °C		
Dimensions (mm)	35 x 72 x 21		

Active Slope Equalizer

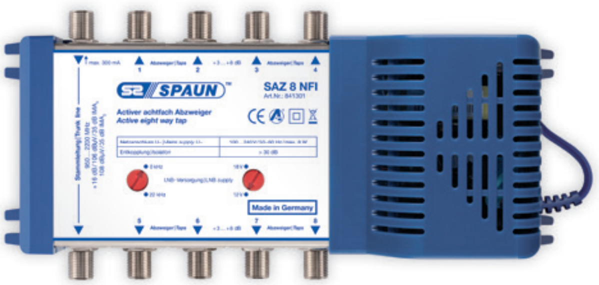
SLA 10 F

- With integrated slope precompensation and gain.
- Feed - through of the 22 kHz tone and DiSEqC commands.

Model Art. No.	SLA 10 F 871317
EAN	4040326713174
Frequency range	950 … 2200 MHz
Inputs / outputs	1 / 1
Gain	5 … 10 dB
Output level max. 35 dB IMA_3 / EN 60728 - 3	112 dBµV
Power supply	11,5 … 20 V / 50 mA
DC - pass per trunk line max.	1 A
Ambient temperature	-20 … + 50 °C
Dimensions (mm)	35 x 72 x 21

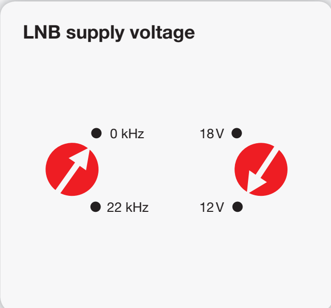
SAT IF

8 Way Active SAT IF Splitter



Energy Saver!

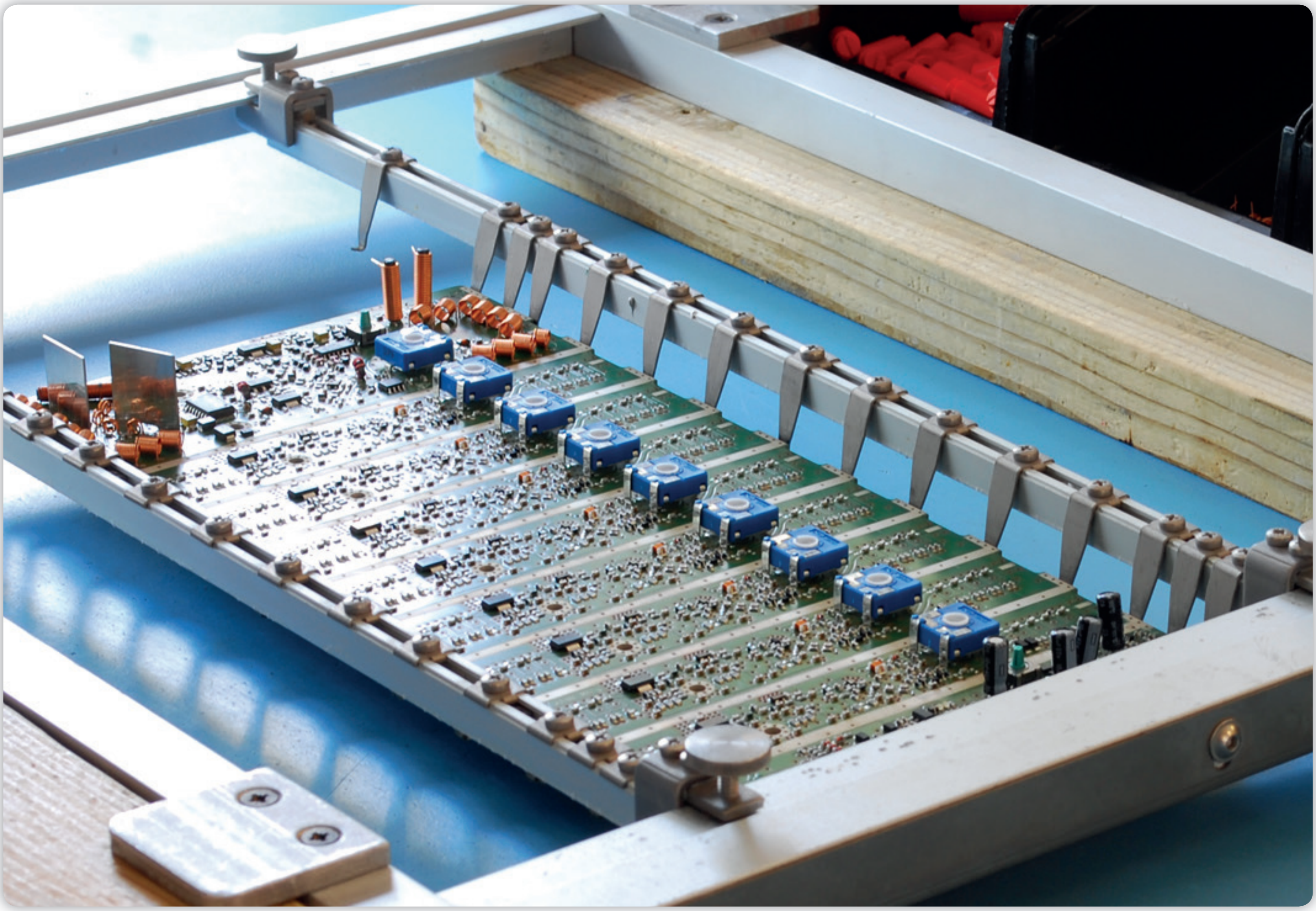
Standby Function and Switched-Mode Power Supply



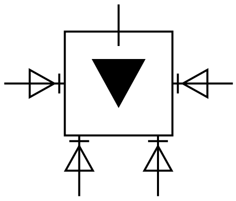
SAZ 8 NFI

Distribution of one SAT IF input signal into 8 trunk lines.

Model Art. No.	SAZ 8 NFI 841301
EAN	4040326413012
Frequency range	950 … 2200 MHz
Inputs / outputs	1 / 9
Gain Trunk Tap	 16 dB 3 … 8 dB
Output level max. 35 dB IMA_3 / EN 60728 - 3	106 dBµV
Isolation	> 30 dB
Mains power supply U~	100 … 240 V / 47 - 63 Hz
Power consumption	8 W
LNB remote current	300 mA
Ambient temperature	-20 … + 50 °C
Dimensions (mm)	105 x 90 x 35



4 Way Active SAT IF Splitter



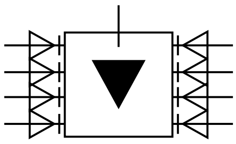
SVA 4 F

Distribution of one SAT IF signal into 4 trunk lines.

- DC-pass from all output ports via diodes.

Model Art. No.	SVA 4 F 842103
EAN	4040326421031
Inputs/outputs	1/4
Frequency range	950...2200 MHz
Gain	1 dB
Output level max. 35 dB IMA_3/EN 60728-3	106 dBµV
Power supply	10,5...20 V/40 mA
DC-pass per trunk line max.	500 mA
Ambient temperature	-20...+50 °C
Dimensions (mm)	105 x 90 x 35

8 Way Active SAT IF Splitter



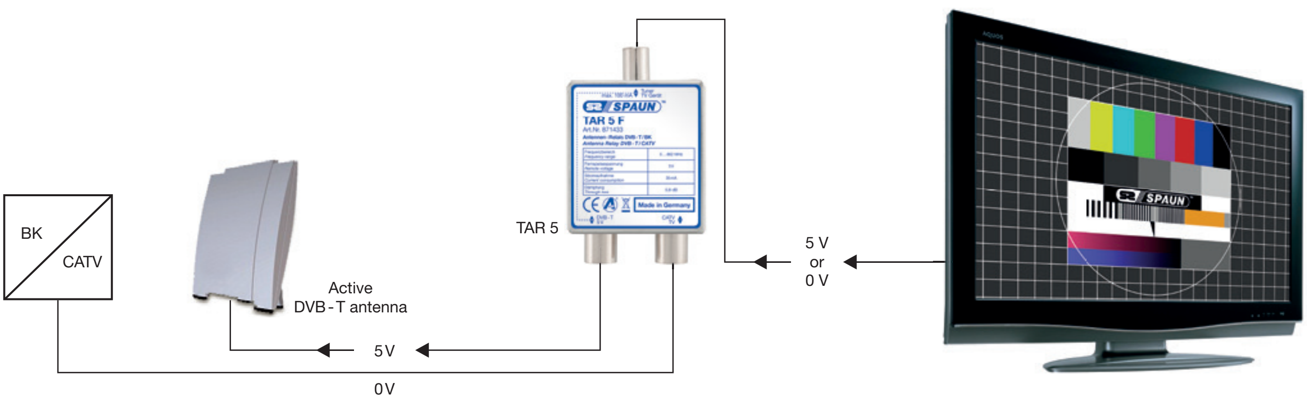
SVA 8 F

Distribution of one SAT IF signal into 8 trunk lines.

- DC-pass from all output ports via diodes.

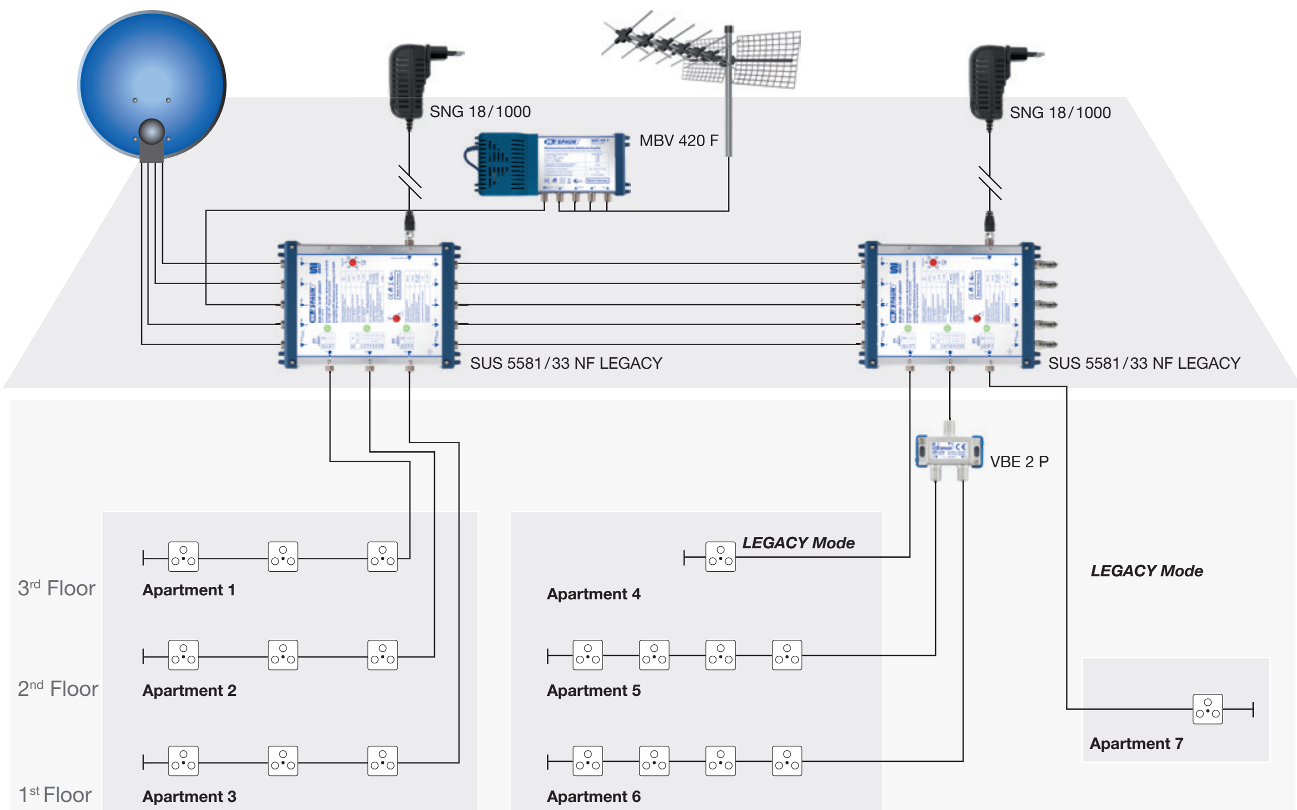
Model Art. No.	SVA 8 F 850002
EAN	4040326500026
Inputs/outputs	1/8
Frequency range	950...2200 MHz
Gain	-3 dB
Output level max. 35 dB IMA_3/EN 60728-3	102 dBµV
Power supply	10,5...20V/40 mA
DC-pass per trunk line max.	500 mA
Ambient temperature	-20...+50 °C
Dimensions (mm)	145 x 131 x 40

SAT IF

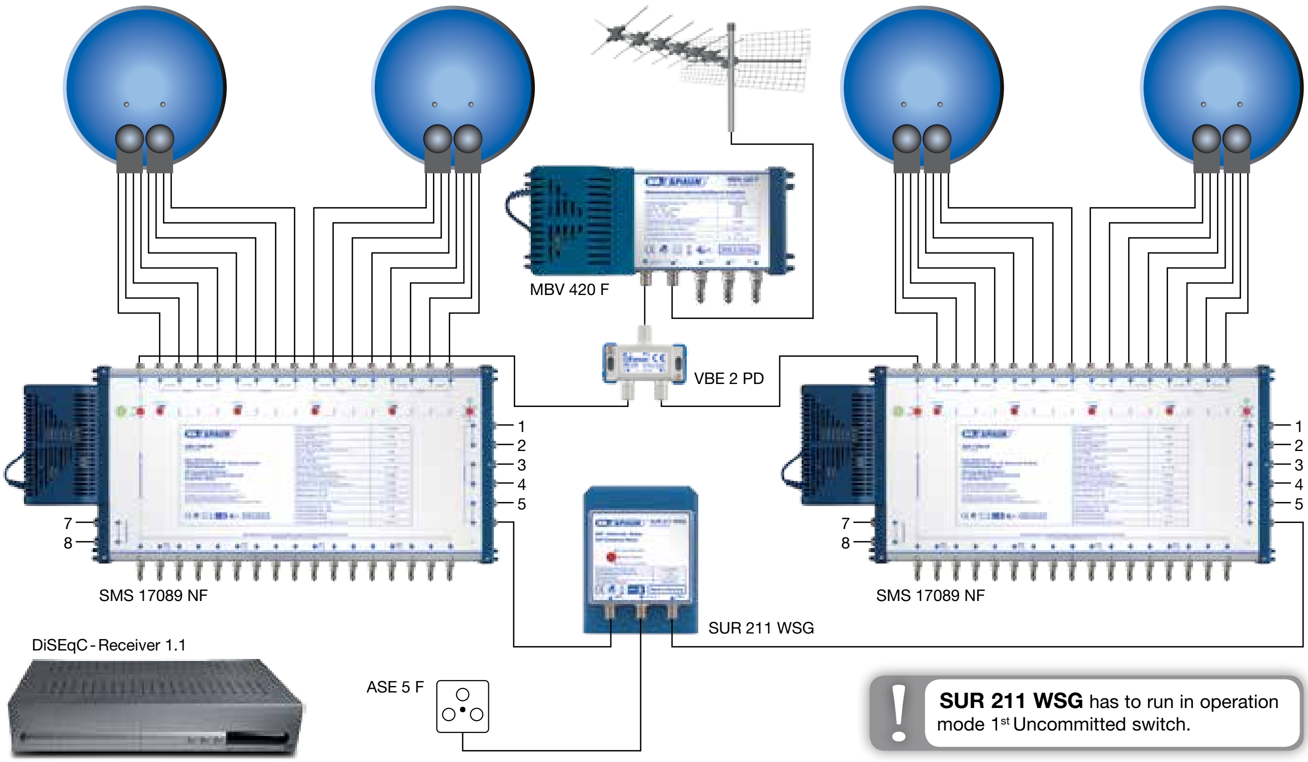


When using a non DC capable DVB-T antenna you have to install a DC blocker DCF **500/Set** between TAR 5 and the DVB-T antenna.

DVB-T reception and CATV into one downlead.

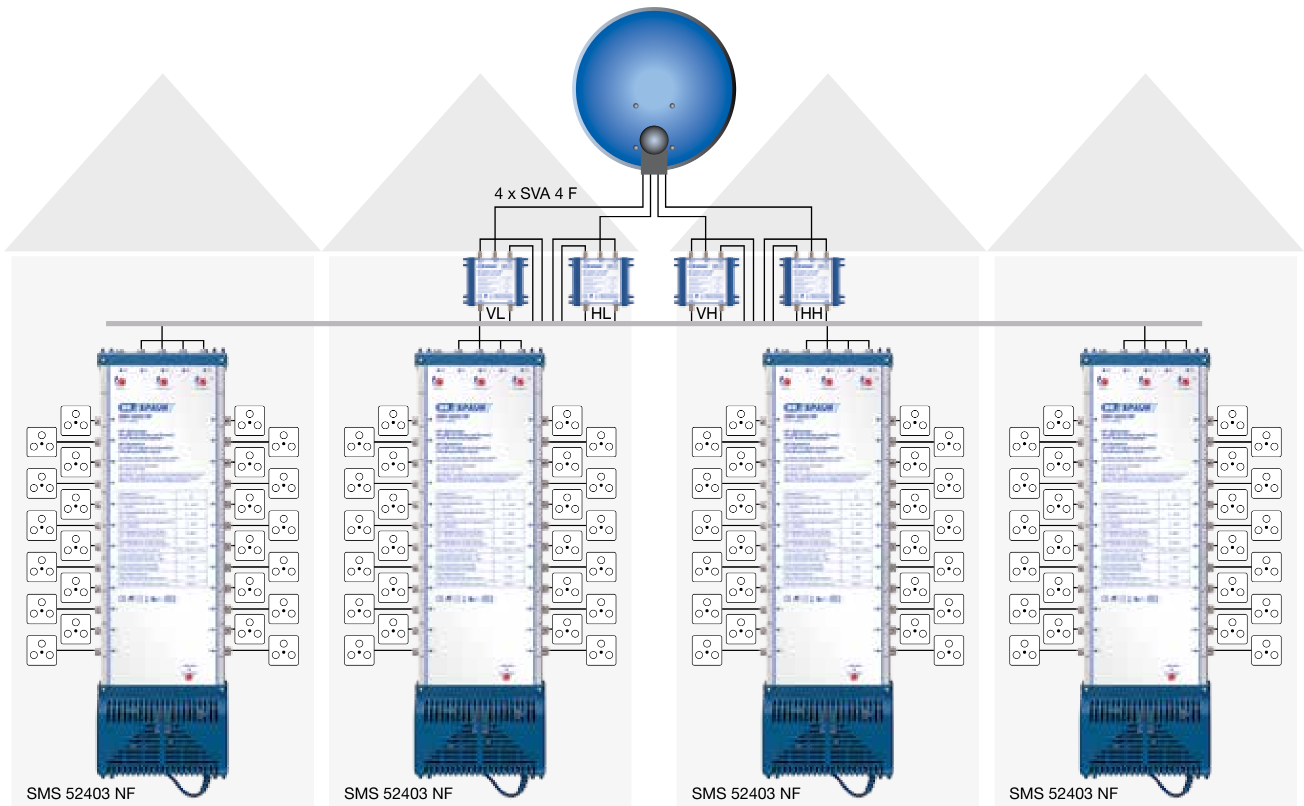


1 SAT position (4 SAT IF signals)
and terrestrial for 19 subscribers SCR (single cable router).

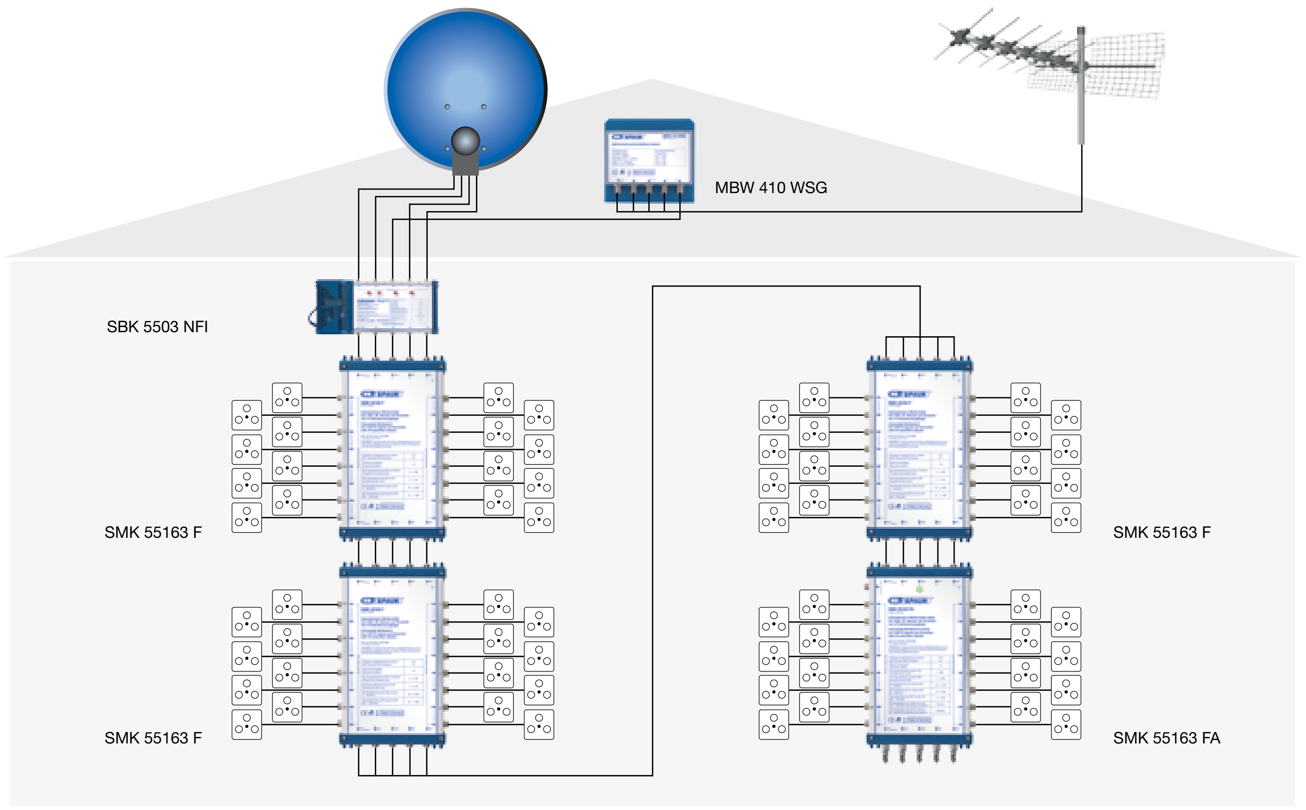


SUR 211 WSG has to run in operation mode 1st Uncommitted switch.

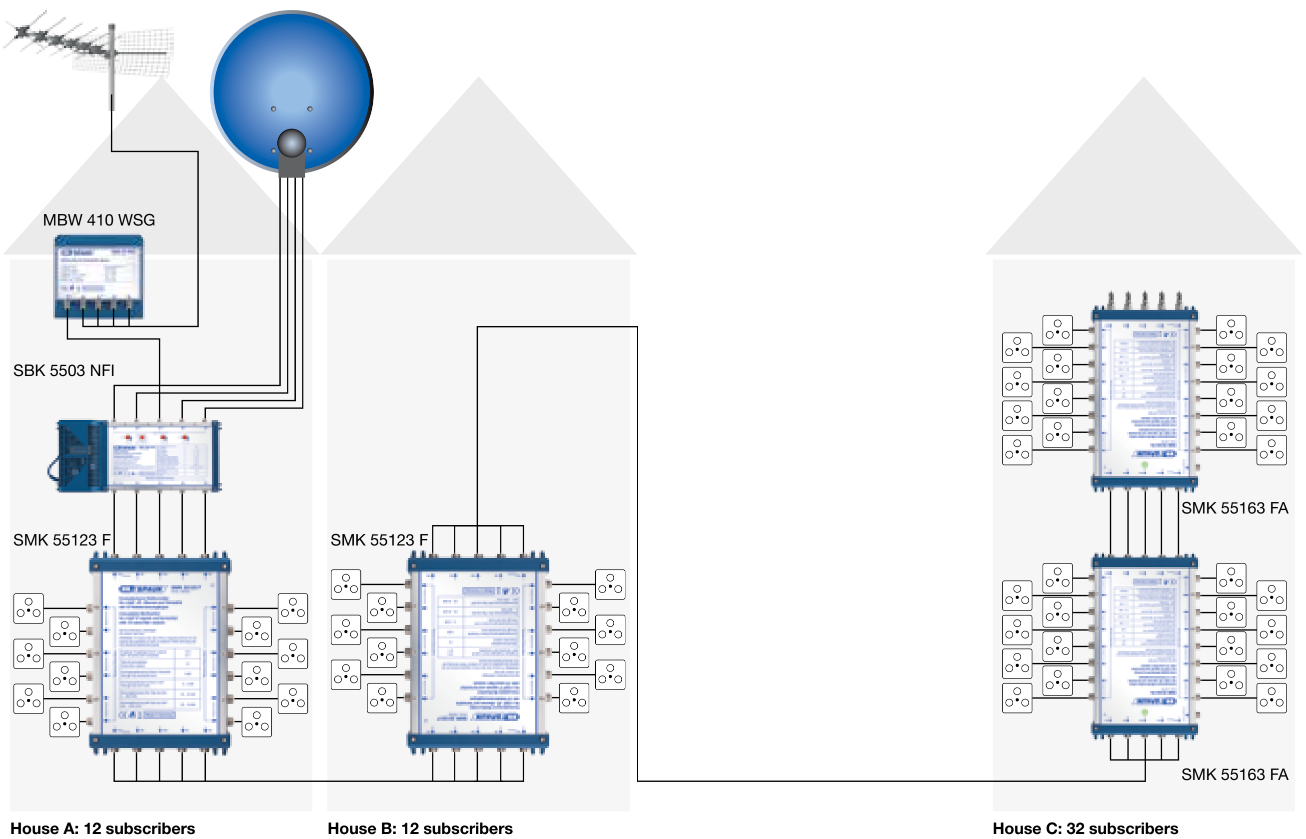
8 SAT positions (32 SAT IF signals) and terrestrial for 8 subscribers.



1 SAT position (4 SAT IF signals) for 4 x 24 subscribers.



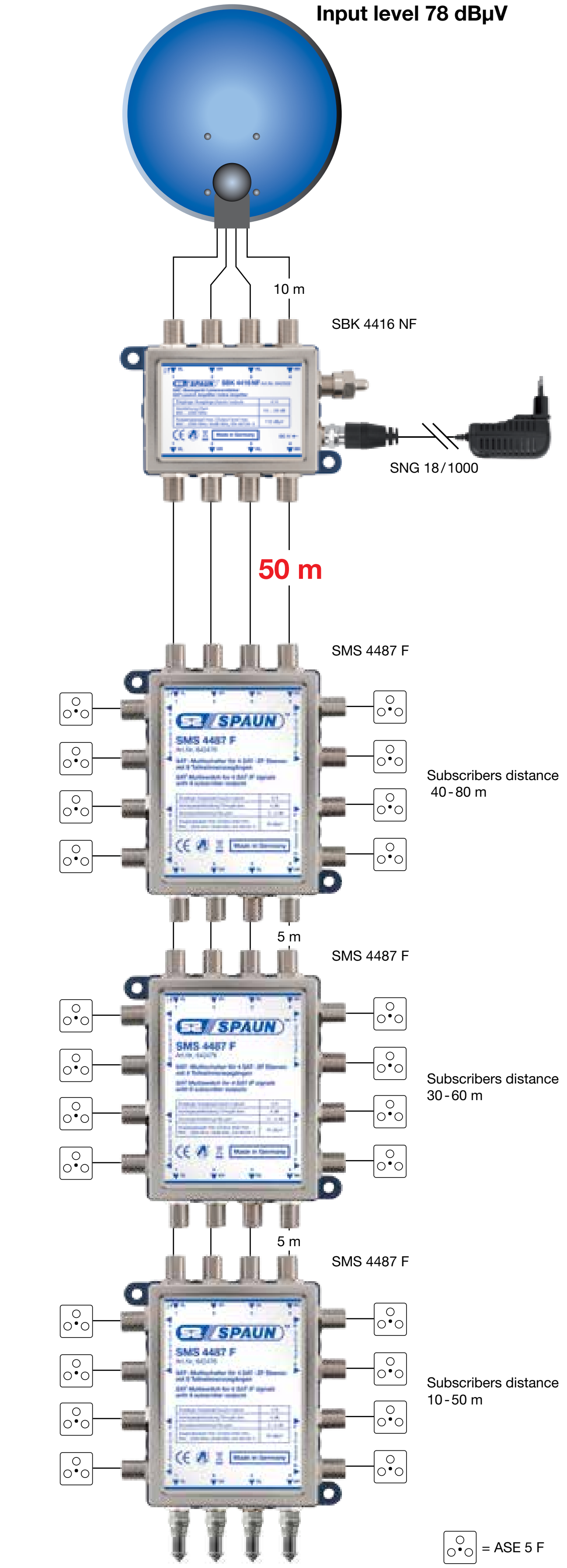
1 SAT position (4 SAT IF signals)
and terrestrial for 64 subscribers, decentral distribution.



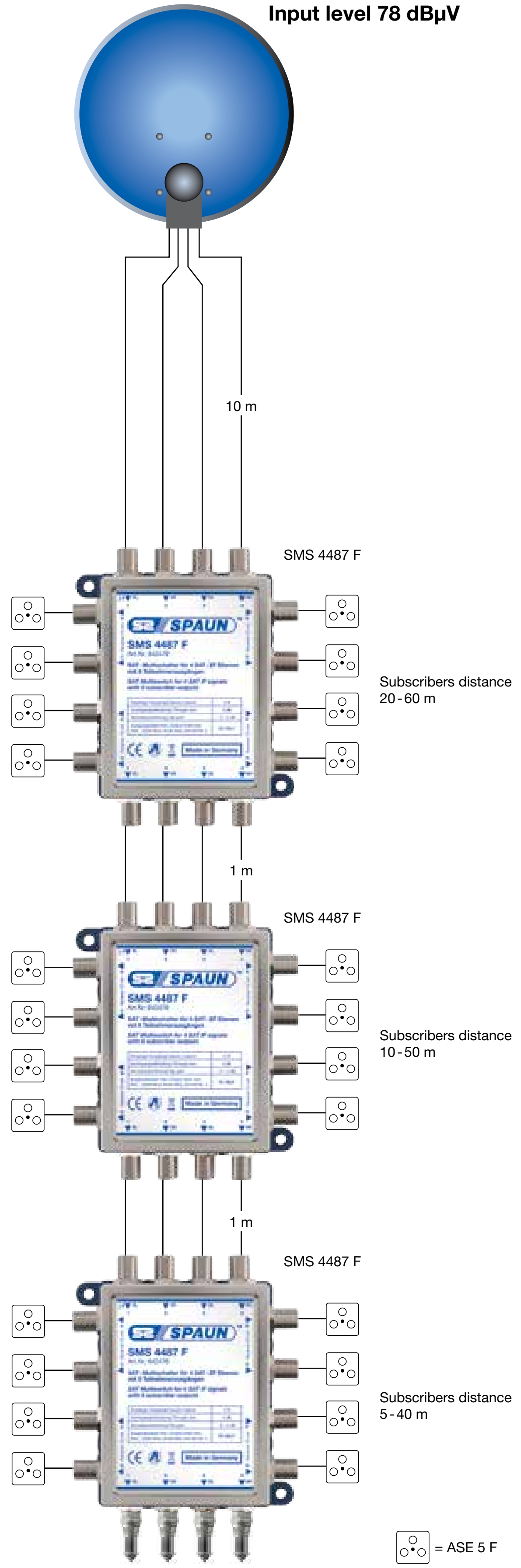
1 SAT position (4 SAT IF signals)
and terrestrial for 56 subscribers, decentral distribution (3 houses).

**1 SAT position (4 SAT IF signals)
and terrestrial for 528 subscribers, decentral distribution.**

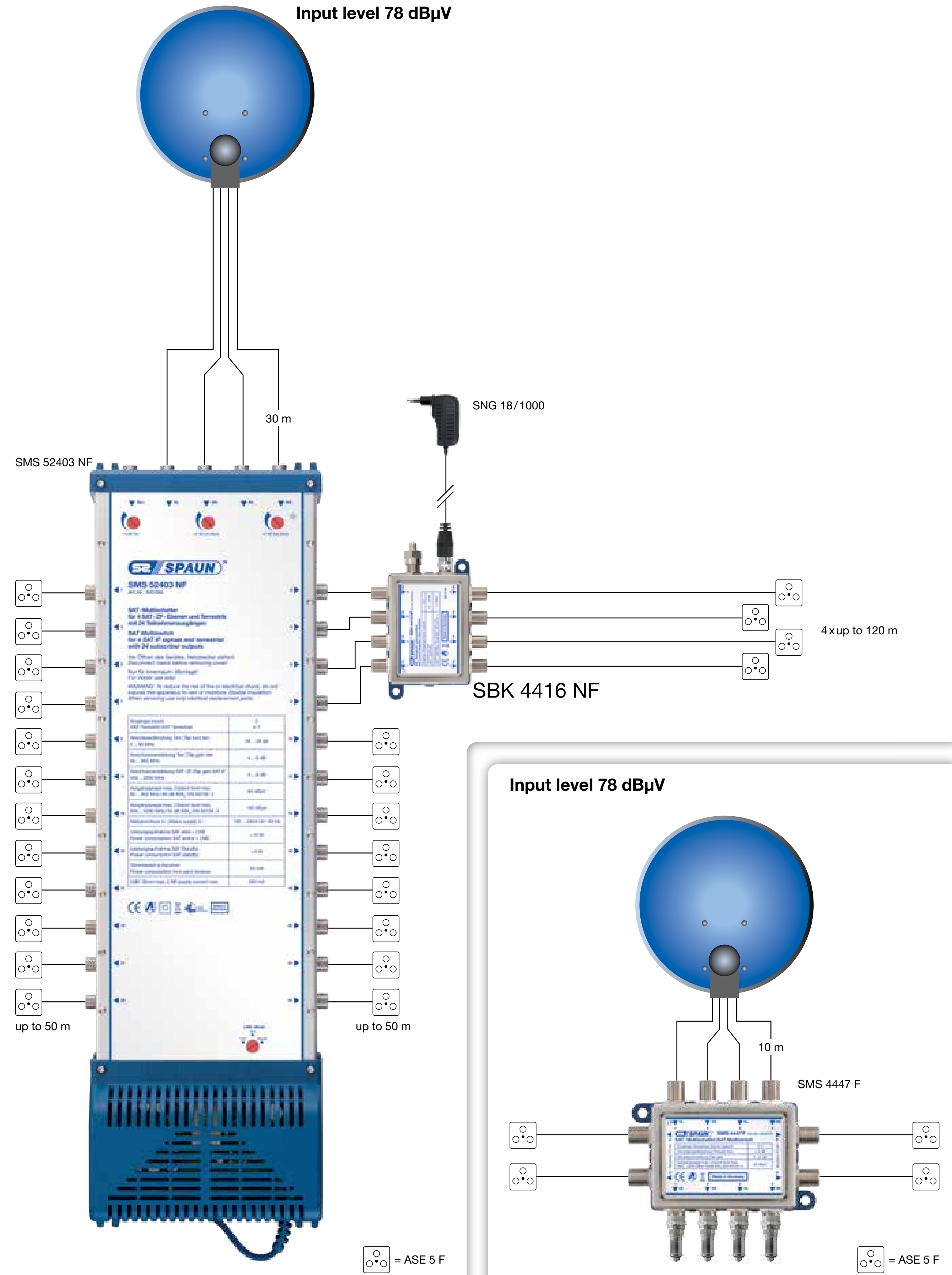
SAT IF



Only in combination with SPOAX cable.

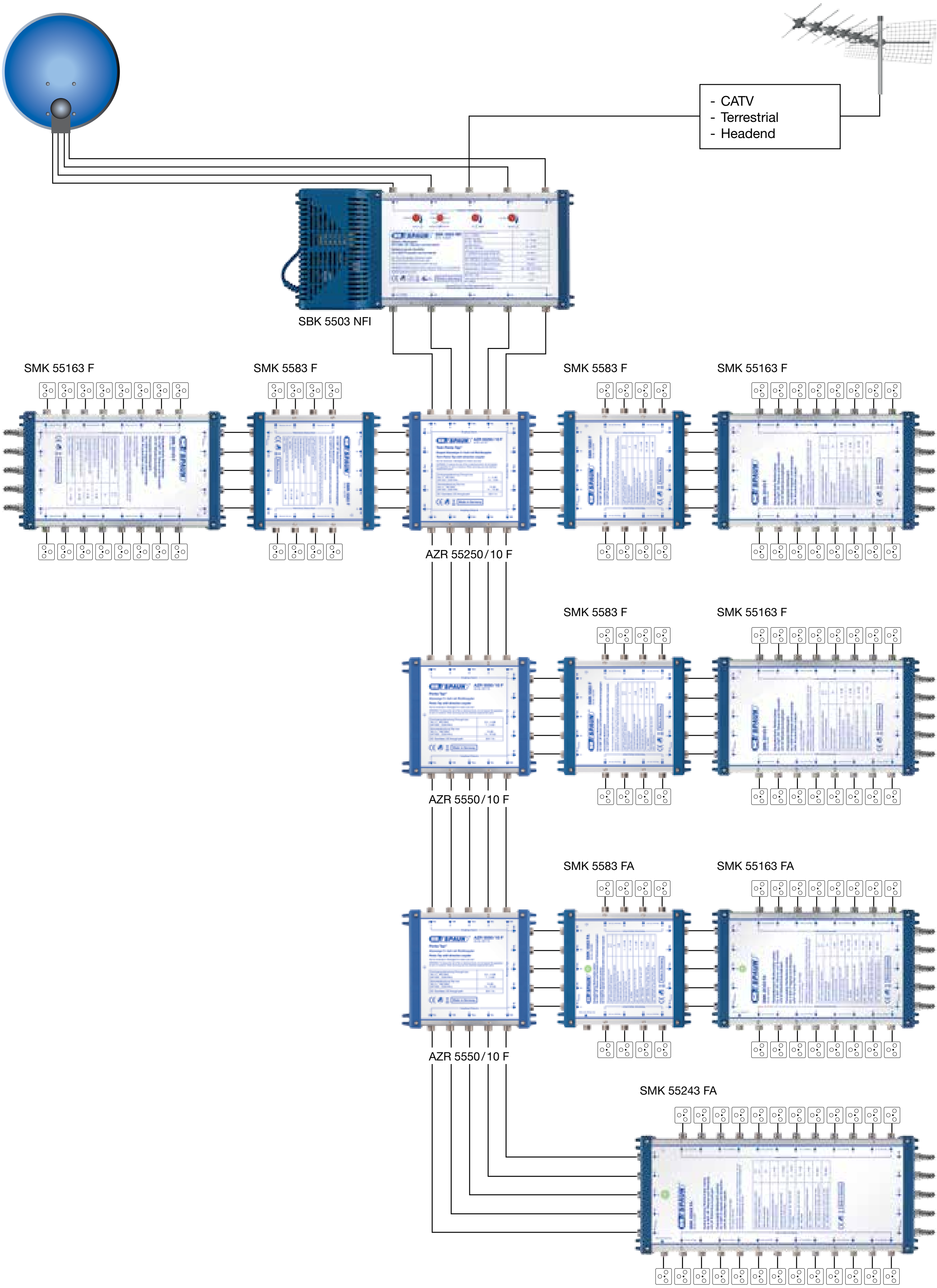


Only in combination with SPOAX cable
No mains power necessary!

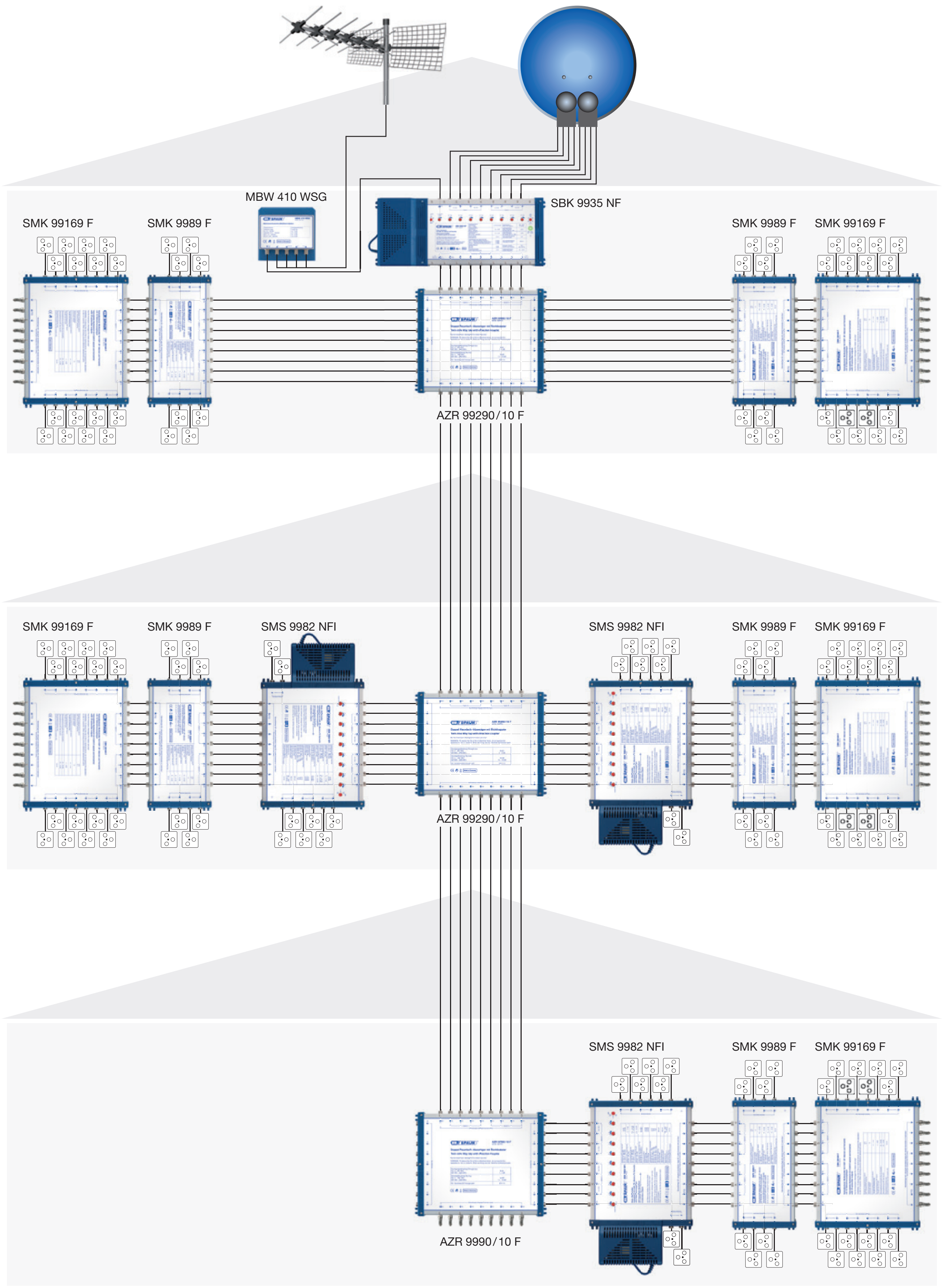


Only in combination with SPOAX cable

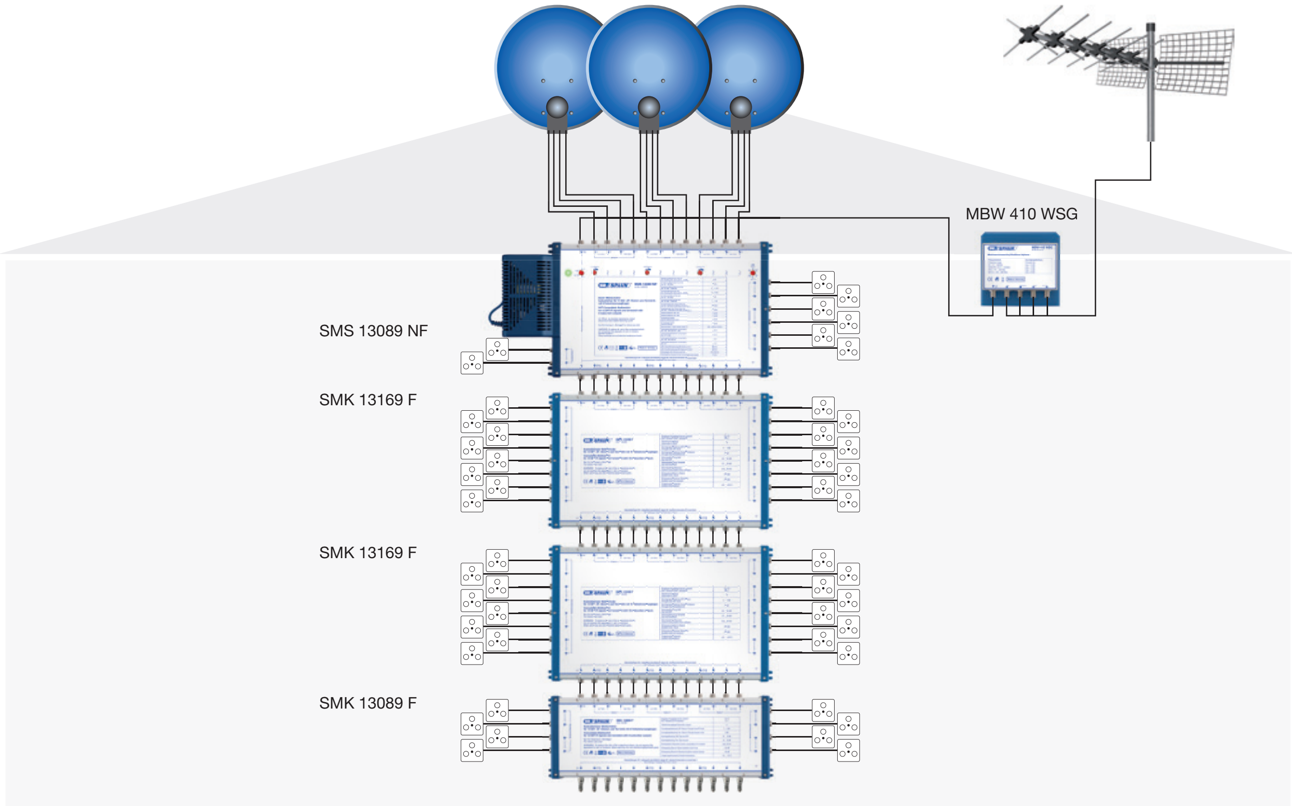
Subscribers distances of 20 - 70 m.
Only with combination with SPOAX cable



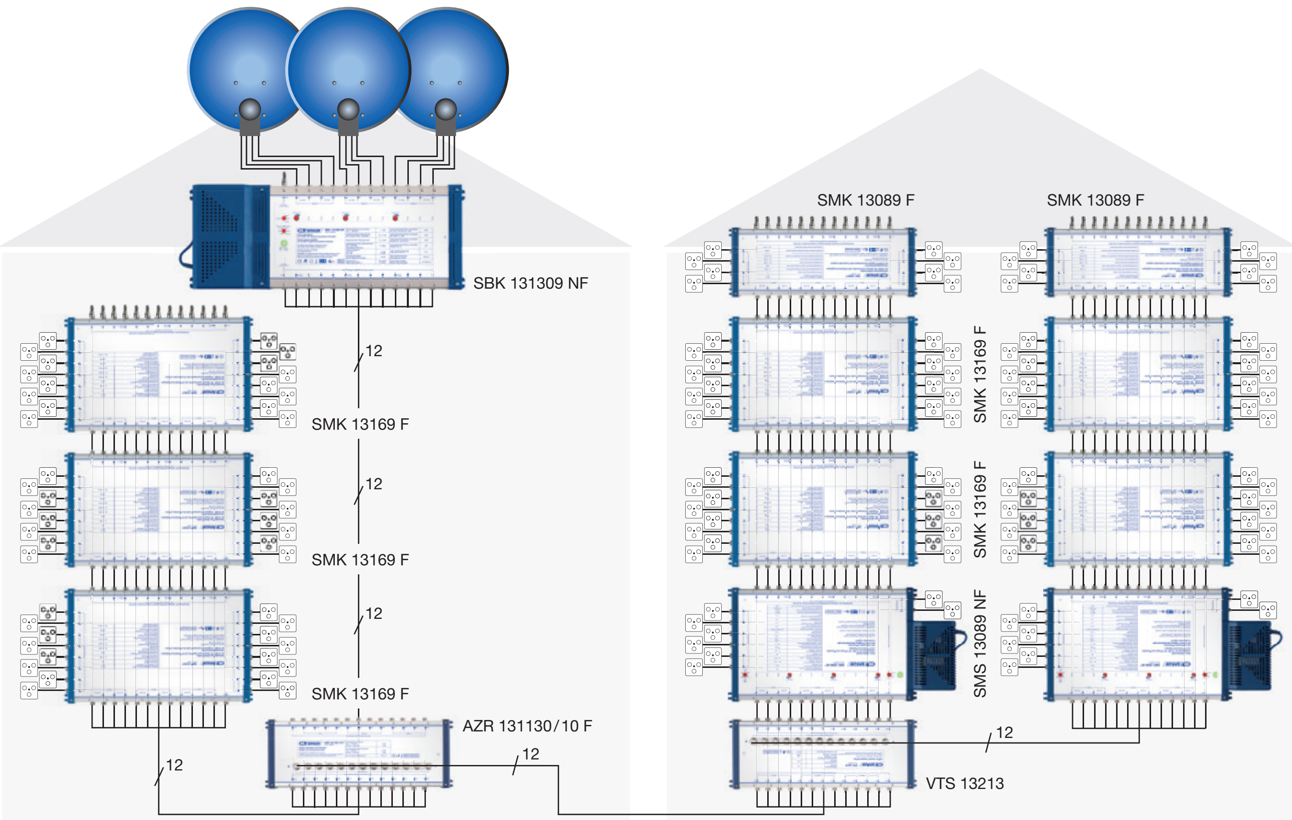
1 SAT position (4 SAT IF signals)
and terrestrial for 120 subscribers, decentral distribution.



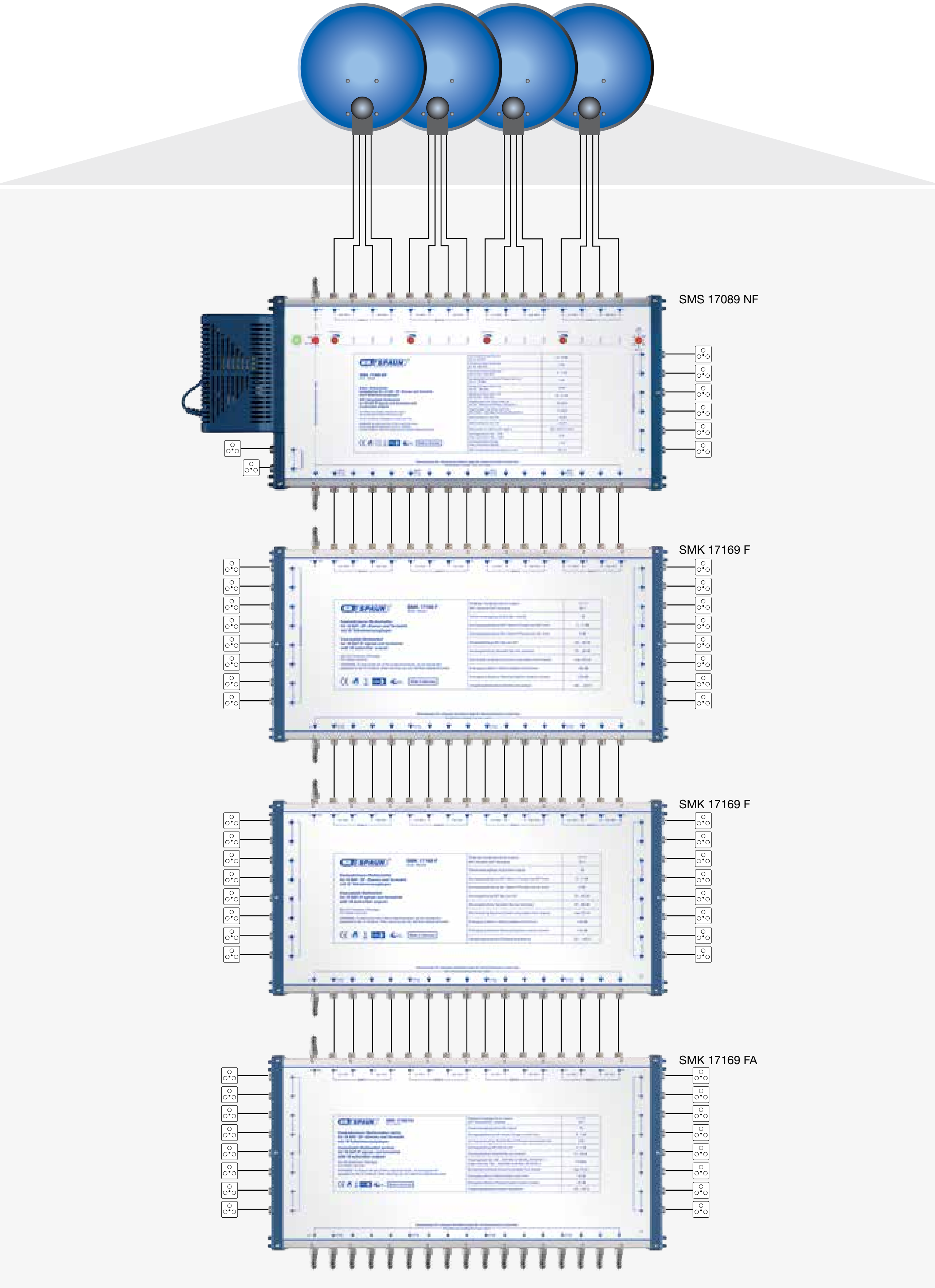
**2 SAT positions (8 SAT IF signals)
and terrestrial for 144 subscribers, decentral distribution (3 houses).**



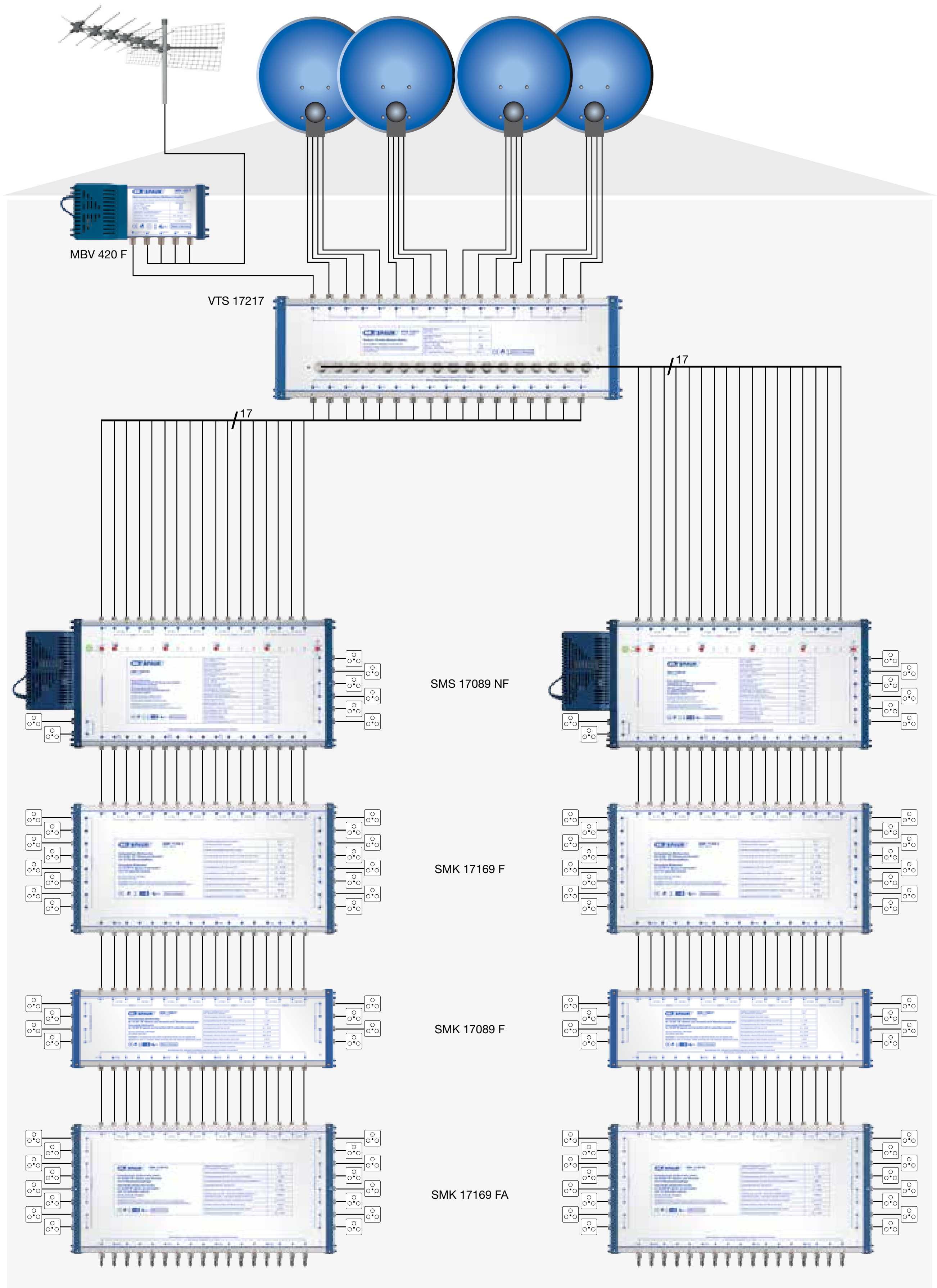
3 SAT positions (12 SAT IF signals)
and terrestrial for 48 subscribers



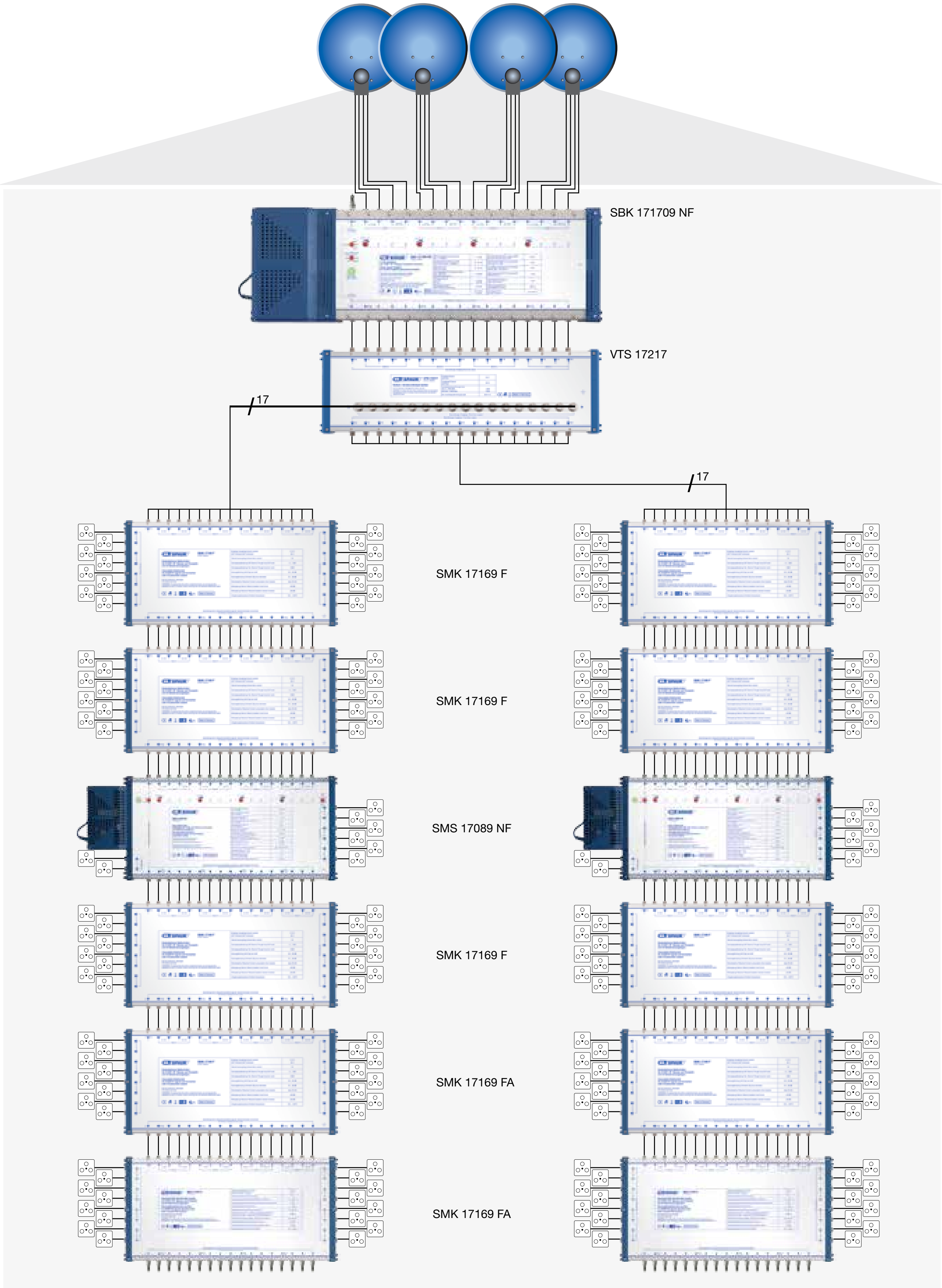
3 SAT positions (12 SAT IF signals)
for 144 subscribers, decentral distribution (2 houses).



4 SAT position (16 SAT IF signals)
for 56 subscribers.



4 SAT positions (16 SAT IF signals)
and terrestrial for 96 subscribers.



4 SAT position (16 SAT IF signals)
for 176 subscribers, with active cascades.

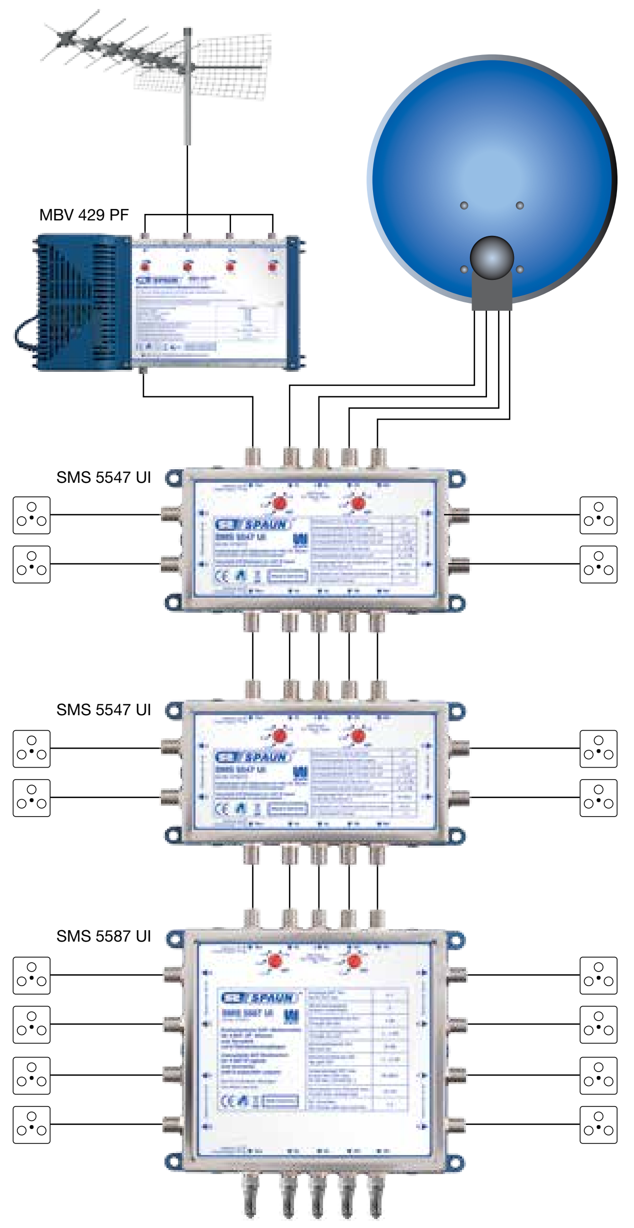
UNi SYSTEM

FEATURES:

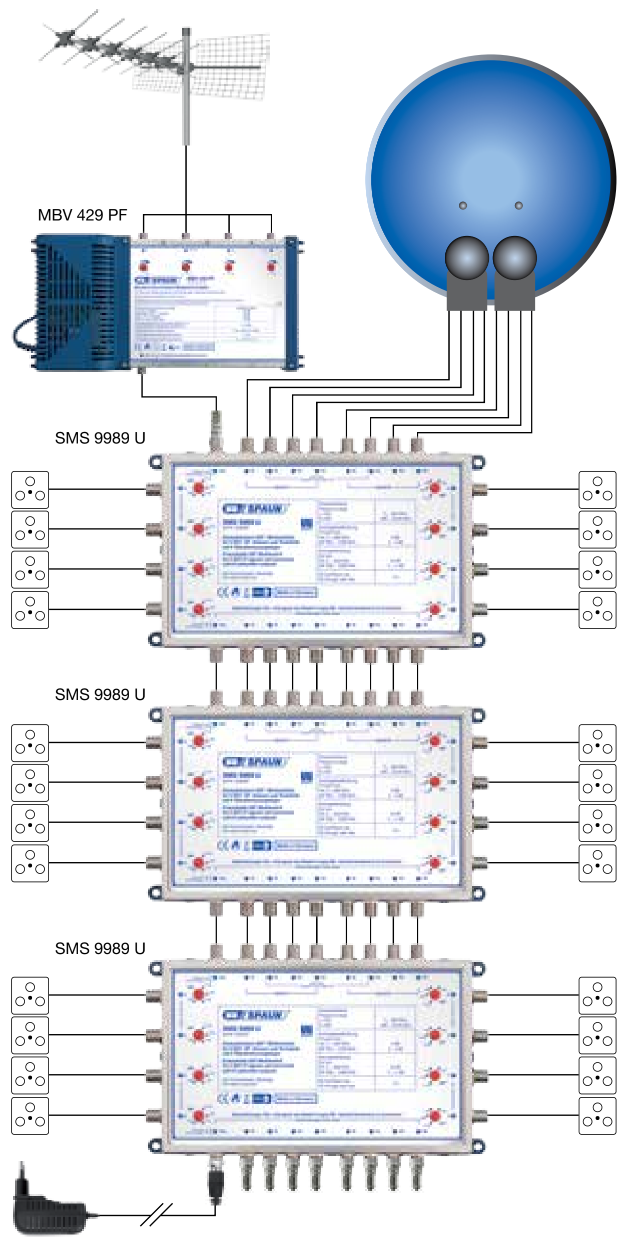
- Extandable for further subscribers and SAT signals
- No mains power supply required
- Compact dimensions
- Terrestrial path included

AVAILABLE RELAYS:

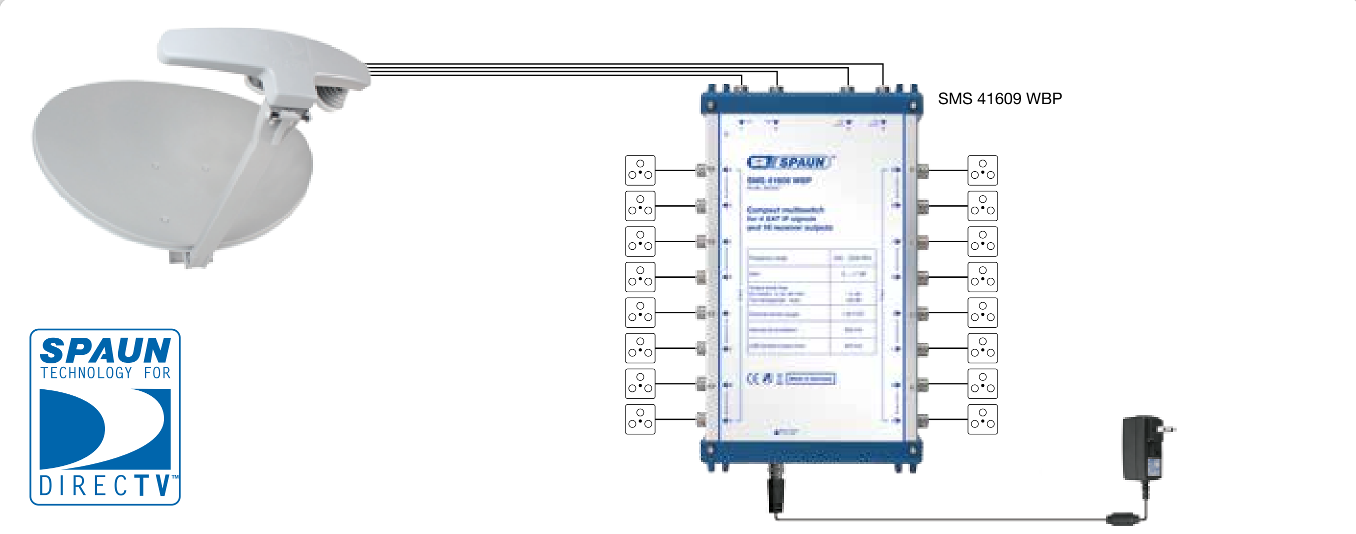
- **SMR 210 F**
  for 2 SAT positions
- **SMR 410 F**
  for 3 - 4 SAT positions
- **SMR 9210 F**
  for 4 SAT positions



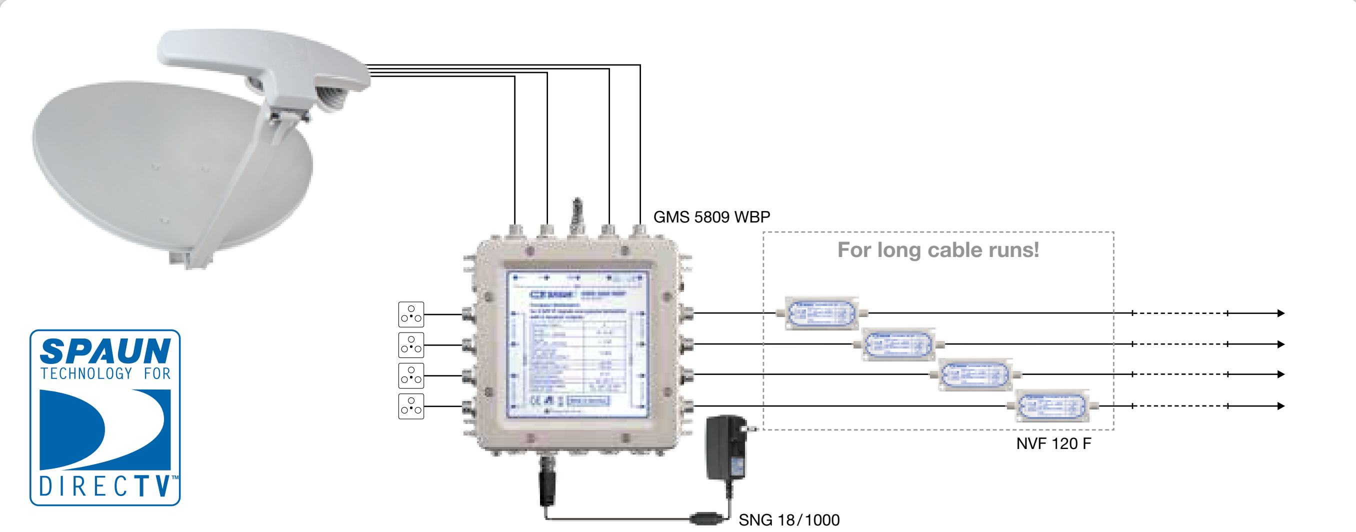
4 SAT IF signals with passive terrestrial for 16 subscribers



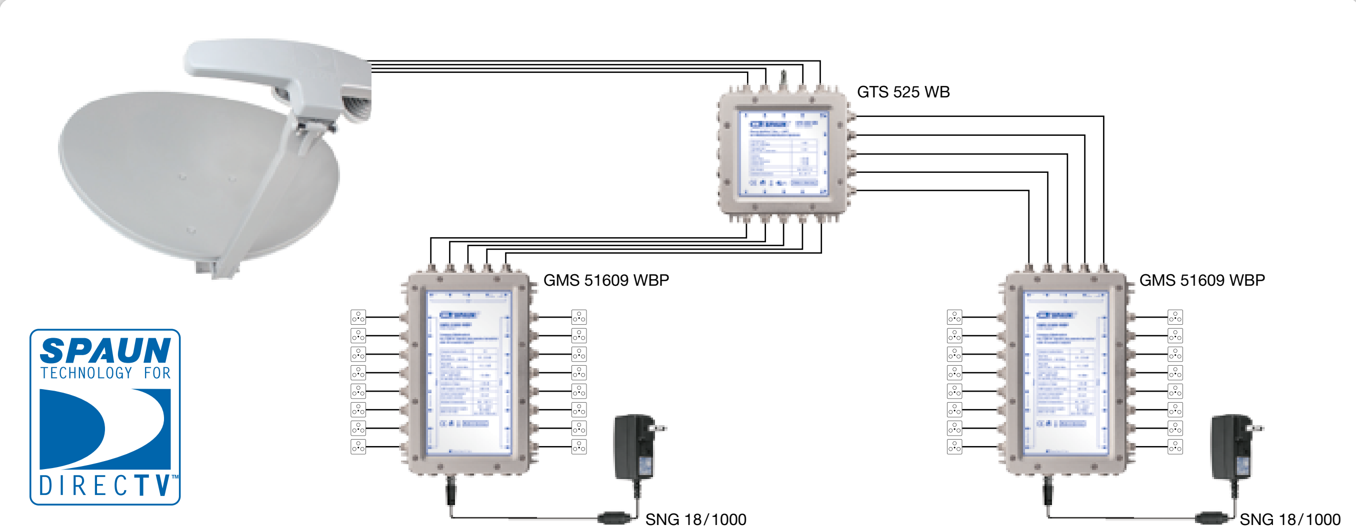
8 SAT IF signals with passive terrestrial for 24 subscribers



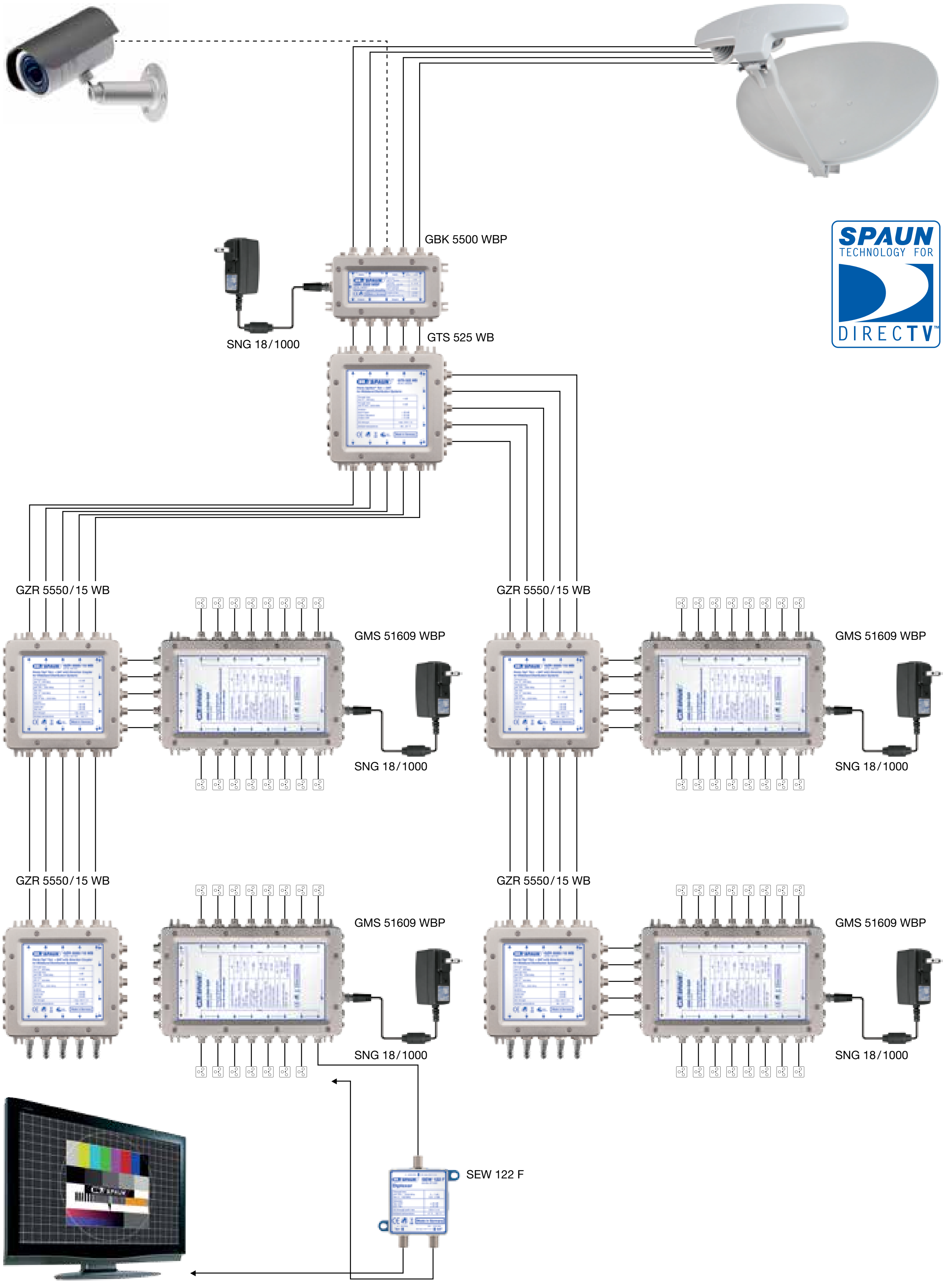
4 SAT IF signals for 16 subscribers



4 SAT IF signals for 8 subscribers with long cable runs



4 SAT IF signals for 32 subscribers

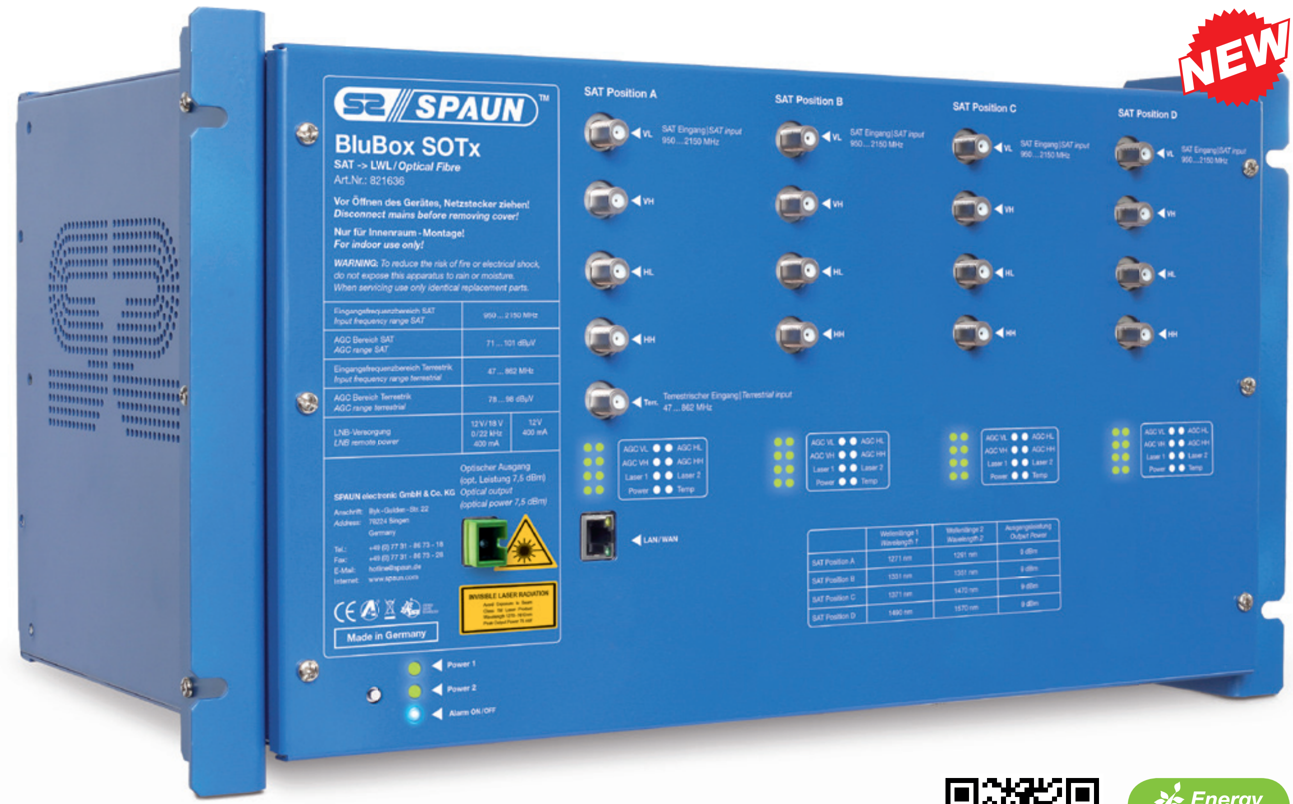


4 SAT IF signals for 64 subscribers (AV signal in addition)

Headends

TABLE OF CONTENTS

Optical Headend DVB-S/S2 into Optical Fibre



Promotional Video

Energy Saver!
Standby Function and Switched-Mode Power Supply

BluBox SOTx

The brand new optical BluBox SOTx offers the possibility to convert the signals of up to 16 SAT IF signals + DTT (DVB-T) to a single optical fibre.
Hence the distribution of the trunk lines in huge distribution networks are considerably simplified because it's not necessary to install 17 coaxial cables.

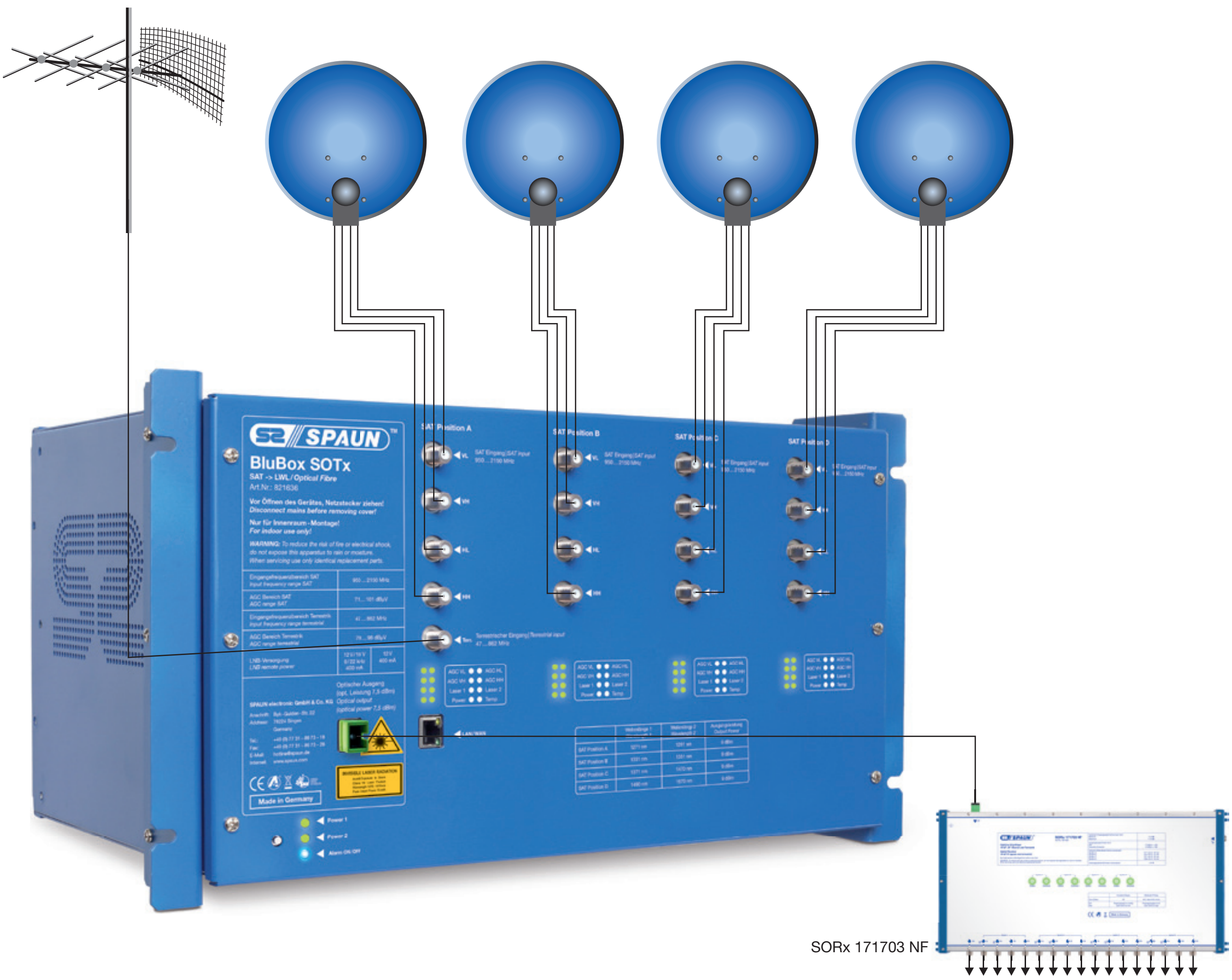
Features:
- 19" housing for wall or rack mounting with redundant switched-mode power supplies.
- Per SAT system (4 SAT IF input lines) one transmitter card is required.
- LNB control with 12/18V + 22 kHz or 12V.
- Configuration and monitoring via LAN/IP.
- The BluBox SOTx has an optical SC/APC output.
- Distribution to up to 32 optical nodes is possible.

Model Art. No.	BluBox SOTx 19" Base Unit 821636
EAN	4040326216361
Mains power U~	100 … 240V/47-63 Hz
Redundant power supplies	✓
Ambient temperature	-10 … +50 °C
Dimensions (mm)	486 x 361 x 265

Model Art. No.	BluCard SOTx 5103 NEW 821637	BluCard SOTx 4203 NEW 821638	BluCard SOTx 4303 NEW 821639	BluCard SOTx 4403 NEW 821640
EAN	4040326216378	4040326216385	4040326216392	4040326216408
Inputs SAT / terrestrial	5 4 / 1	4 4 / 0	4 4 / 0	4 4 / 0
Input frequency range SAT	950 … 2150 MHz	950 … 2150 MHz	950 … 2150 MHz	950 … 2150 MHz
AGC level range SAT	75 … 95 dBµV	75 … 95 dBµV	75 … 95 dBµV	75 … 95 dBµV
Input frequency range terrestrial	47 - 862 MHz	-	-	-
AGC level range terrestrial	78 … 98 dBµV	-	-	-
LNB remote power	12 / 18 V 22kHz or 12 V	12 / 18 V 22kHz or 12 V	12 / 18 V 22kHz or 12 V	12 / 18 V 22kHz or 12 V
LNB current max.	400 mA	400 mA	400 mA	400 mA
Optical output power	9 dBm	9 dBm	9 dBm	9 dBm
Optical wavelength*	1271 & 1291 nm*	1331 & 1351 nm*	1371 & 1470 nm*	1490 & 1570 nm*

*On request a modifikation to customer specific laser wavelengths is possible.

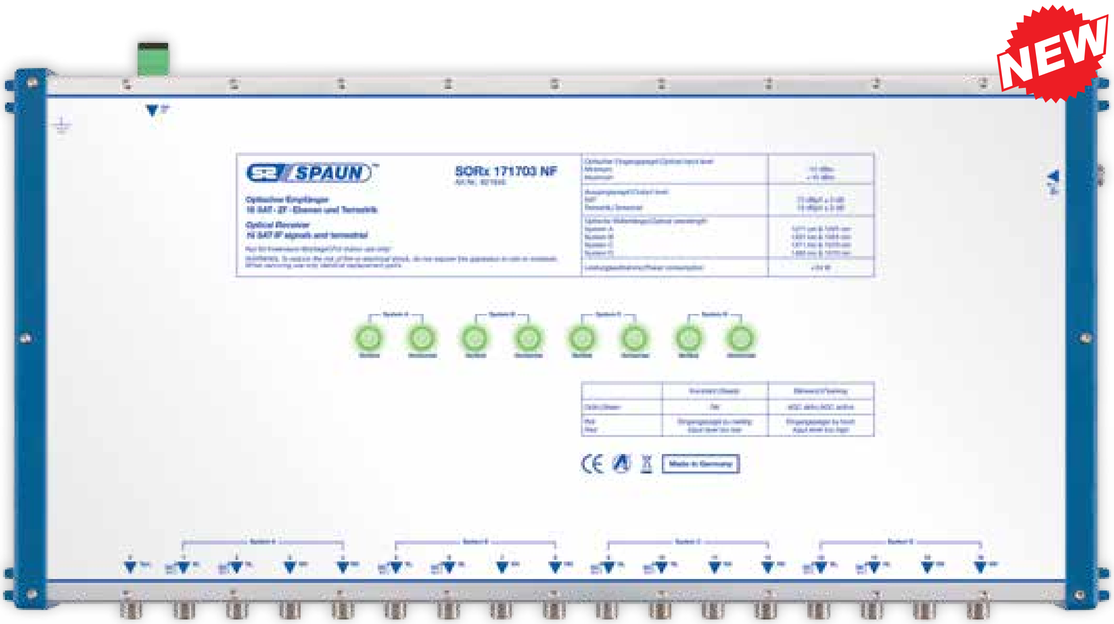
Application example

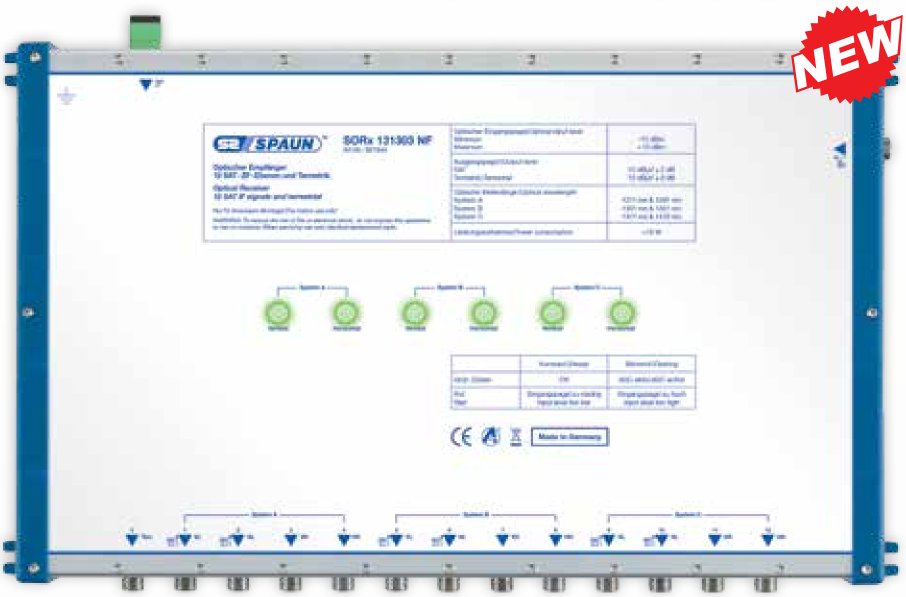


16 x SAT IF and 1 x terrestrial trunk line outputs

Headends

Optical Receiver LWL into DVB - S / S2





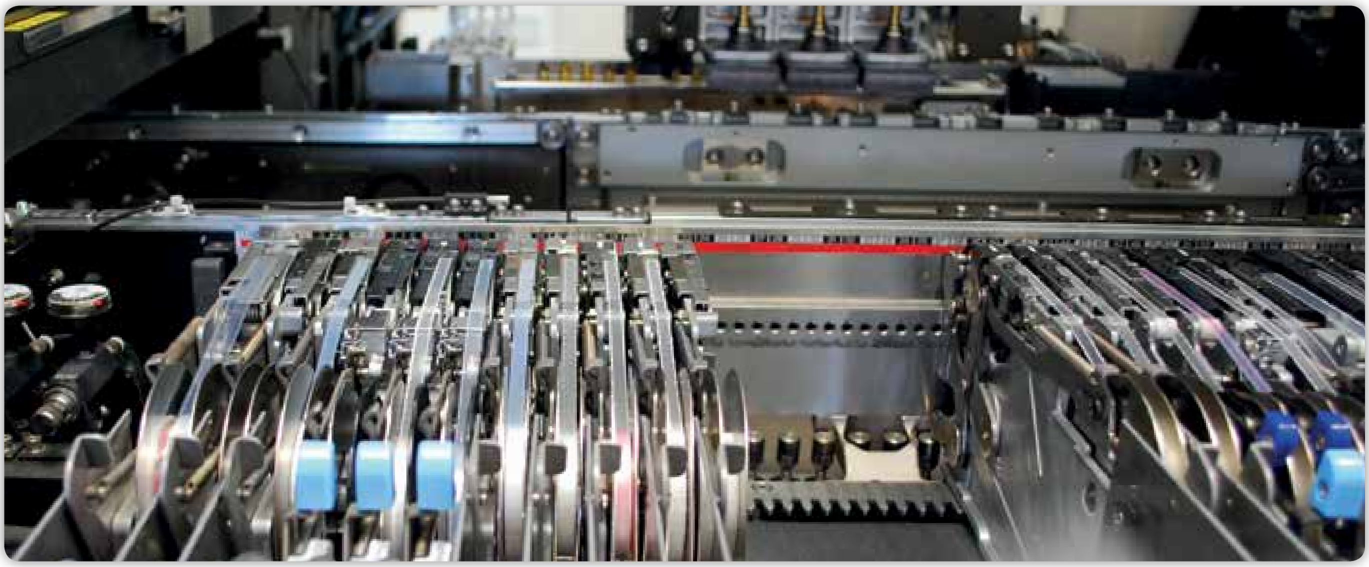
SORx 5503 NF, SORx 9903 NF, SORx 131303 NF, SORx 171703 NF

To convert the optical signal from the BluBox SOTx back to an electrical coaxial signal there are 4 optical receivers. Starting from the SORx 5503 NF when only 4 SAT IF lines are required to the SORx 171703 NF if 16 SAT IF signals are necessary.

Features:

- The optical input level range of the optical receiver is between - 12 dBm and + 10 dBm.
- The electrical output level is typ. 72 dBµV ± 2dB.
- LEDs were used for status notification:
  - Green LED: AGC is leveled, everything is OK.
  - Red LED: The optical input level is too low.
  - Red flashing LED: The optical input level is too high.
- The optical receiver could either be powered via an external wall power supply SNG 18/1000 or by the trunk line of the connected launch amplifier.
- Compact housing for an easy and direct connection with SPAUN cascadable multiswitches.

Model Art. No.	NEW SORx 5503 NF 821642	NEW SORx 9903 NF 821643	NEW SORx 131303 NF 821644	NEW SORx 171703 NF 821645
EAN	4040326216422	4040326216439	4040326216446	4040326216453
Optical input power Minimum Maximum	-12 dBm +10 dBm	-12 dBm +10 dBm	-12 dBm +10 dBm	-12 dBm +10 dBm
Output level SAT/terrestrial	72 dBµV ± 2 dB	72 dBµV ± 2 dB	72 dBµV ± 2 dB	72 dBµV ± 2 dB
Optical wavelength System A System B System C System D	1271 & 1291 nm - - -	1271 & 1291 nm 1331 & 1351 nm - -	1271 & 1291 nm 1331 & 1351 nm 1371 & 1470 nm -	1271 & 1291 nm 1331 & 1351 nm 1371 & 1470 nm 1490 & 1570 nm
Power supply	External AC adapter (SNG 18/1000) or remote powered via trunk line			
Power consumption	< 7 W	< 13 W	< 19 W	< 24 W
Ambient temperature	-10 … + 50 °C	-10 … + 50 °C	-10 … + 50 °C	-10 … + 50 °C
Dimensions (mm)	185 x 130 x 40	265 x 211 x 40	345 x 210 x 40	425 x 210 x 40



Headends

Professional Headend 8/16/24/32 x DVB-S/S2 into QAM

DiSEqC 1.0

Energy Saver!
Standby Function and Switched-Mode Power Supply

BluBox

The proven BluBox headend system offers a high quality modulation from DVB-S/S2 into DVB-C (QAM).
The system consists of a 19" Base Unit and the two different BluCard types: BluCard 8 and BluCard 4 CI. It's possible to install to up to 4 BluCards in one BluBox Base Unit.

Features:

- 19" Base Unit with redundant switched-mode power supply and 4 slots for BluCard 8 or BluCard 4 CI cards.
- Modular extendable to up to 32 QAM transponders.
- LNB remote power with 14/18V + 22 kHz, DiSEqC 1.0 or SCR EN 50494.
- Configuration and monitoring via LAN/IP.
- Complete processing of the transport streams possible.
- Each of up to 32 output channels can be placed individually in the spectrum.
- Two independent input ports per BluCard 8/4 CI.
- **BluCard 4 CI with 4 CI slots for the extension with Pay-TV programs.**

NEW

Model Art. No.	BluBox 19" Base Unit 821634
EAN	4040326216347
Mains power U~	100…240 V/47-63 Hz
Redundant power supply	✓
Ambient temperature	-10…+50 °C
Dimensions (mm)	486 x 361 x 265

SAT TV Transmodulator

BluCard 8
BluCard 4 CI

BluCard 8

- This transmodulator allows the modulation from up to 8 DVB-S/S2 transponder into DVB-C (QAM) signals.
- The BluCard 8 has two RF inputs, which either support DiSEqC 1.0 command or the SCR command according to EN 50494. Because of this it is possbile to use more than two polarities on a single BluCard.
- All output channels can be placed individually in the spectrum.
- Program filter function (pass or stop band).
- LCN (logical channel numbering) functionality.

BluCard 4 CI

- This transmodulator has the same functions as the BluCard 8 and aditionally 4 CI slots.
- It's possible to configure each CI slot individually via web interface.

Model Art. No.			BluCard 8 (NEW) 821627	BluCard 4 CI (NEW) 821628
		EAN	4040326216279	4040326216286
		Transponder/number of CI slots	8/0	8/4
SAT IF input		Frequency range	950…2150 MHz	
		AFC range	1 MHz	
		AGC level range	64…94 dBµV	
		Through loss	≤ 2,5 dB	
		LNB supply voltage	14/18 V (400 mA), DiSEqC 1.0 + SCR single cable	
Demodulator/decoder	DVB-S	Modulation	QPSK	
		Symbol rate	1…45 MSps	
		Code rate (Viterbi)	1/2, 2/3, 3/4, 5/6, 7/8	
		Signal processing	ETS 300 421 (DVB-S)	
	DVB-S/S2	Modulation	QPSK, 8PSK	
		Symbol rate	2…47 MSps (QPSK); 2…31,5 MSps (8PSK)	
		Code rate (LDPC)	QPSK = 1/4, 1/3, 2/5, 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10	
			8 PSK = 3/5, 2/3, 3/4, 5/6, 8/9, 9/10	
		Signal processing	ETS 302 307 (DVB-S2)	
QAM-output		Symbol rate	1,0…7,2 MSps	
		QAM constellation	64, 256 QAM	
		Output level max.	80 dBµV	
		Sum level setting	1 dB (± 3dB)	
		Individual level setting	0,5 dB (± 3 dB)	
		Channel allocation	Adjacent channel compatible (IEDGE)	
		Connector	F connector, 75 Ω	
		Through loss	1 dB	
		Output frequency range	47…862 MHz	

Professional Headend for multiple conversion

WhiteBox

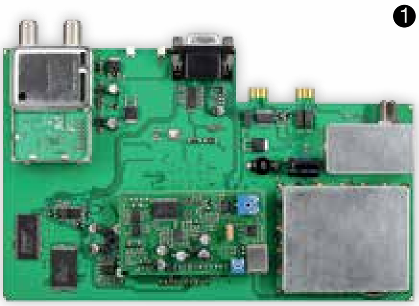
The WhiteBox is the right product choice if various modulation types are required. Please have a look at the list of available modulator card types on the next pages.

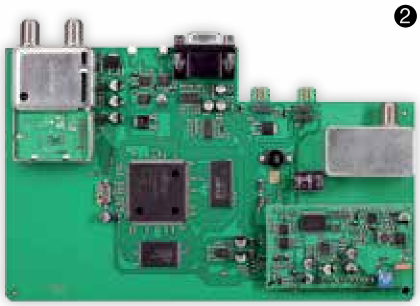
Features:
- WhiteBox 19" Base Unit with redundant switched-mode power supply.
- Modular extendable for up to 8 WhiteCards with different types of modulation.
- LNB remote power 14 V switchable.
- Configuration and monitoring via LAN / IP.

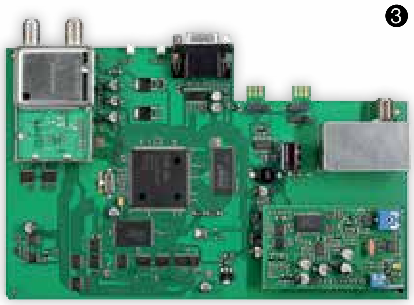
NEW

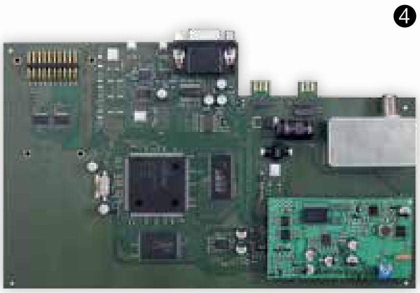
Model Art. No.	WhiteBox 19" Base Unit 821660
EAN	4040326216606
Input frequency range	47 … 862 MHz & 950 … 2150 MHz
Output frequency range	47 - 862 MHz
Output level	typ. 90 dBµV
Ambient temperature	-10 … + 50 °C
Dimensions (mm)	486 x 361 x 265

WhiteCards with analogue PAL output signal

❶ 

❷ 

❸ 

❹ 

❺ 

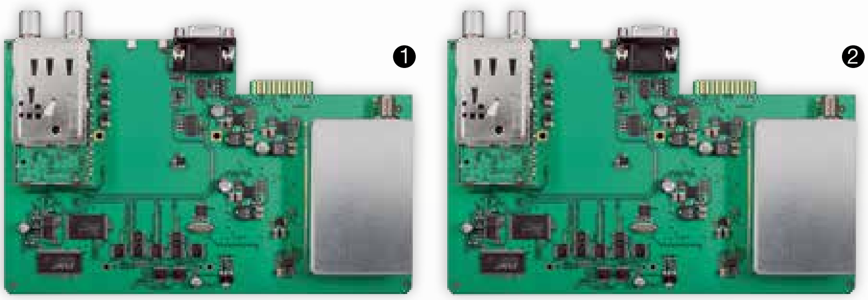
❶ 821661
❷ 821662
❸ 821663
❹ 821664
❺ 821665

Art. No.	Description
821661	**DVB-S into PAL, TWIN, VSB, Stereo, adjacent channel compatible** TWIN = Master/Slave function > both TV programs must be from the same transponder
821662	**DVB-S into PAL, SINGLE, VSB, Stereo, adjacent channel compatible**
821663	**DVB-S into PAL with CI-Interface, VSB, Stereo, adjacent channel compatible** Master Unit > in combination with 821664 Slave Module
821664	**Slave module for 821663, no stand-alone functionality, adjacent channel compatible** It's possible to connect up to 7 Slave Modules to one Master Module
821665	**DVB-T into PAL, TWIN, VSB, adjacent channel compatible** TWIN = Master/Slave function > both TV programs must be from the same transponder

Art. No.	821661	821662	821663	821664	821665
Input frequency	950-2150 MHz	950-2150 MHz	950-2150 MHz	Transport stream	146-862 MHz
Input level	40-74 dBµV	40-74 dBµV	40-74 dBµV	/	40-74 dBµV
Output frequency	47-862 MHz	47-862 MHz	47-862 MHz	47-862 MHz	47-862 MHz
Output channel	E2-C69	E2-C69	E2-C69	E2-C69	E2-C69
Output level typ.	90 dBµV	90 dBµV	90 dBµV	90 dBµV	90 dBµV
Level adjuster	15 dB	15 dB	15 dB	15 dB	15 dB
Modulator type	VSB	VSB	VSB	VSB	VSB
RF connector	F-female	F-female	F-female	F-female	F-female
TV standard	B/G, L, I, DK	B/G, L, I, DK	B/G, L, I, DK	B/G, L, I, DK	B/G, L, I, DK
LNB power	0/14 V	0/14 V	0/14 V	0/14 V	0/14 V
Audio mode	Stereo	Stereo	Stereo	Stereo	Stereo
Power consumption	9,8 W	4,5 W	6,7 W	3,6 W	7,5 W
Ambient temperature	-10...+50°C	-10...+50°C	-10...+50°C	-10...+50°C	-10...+50°C

Headends

WhiteCards with digital output signal

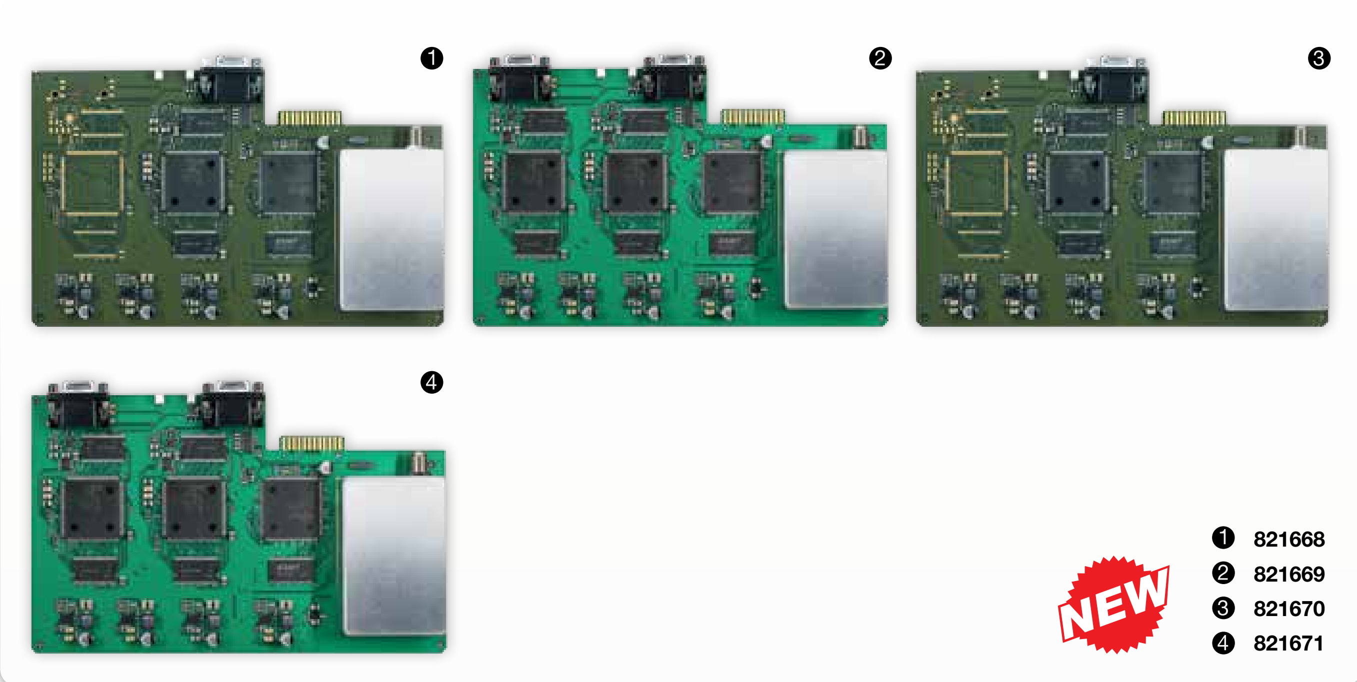


❶ 821666
❷ 821667

Art. No.	Description
821666	**DVB-T into DVB-T, SINGLE, adjacent channel compatible**
821667	**DVB-T into DVB-C, SINGLE, adjacent channel compatible**

Art. Nr.	821666 NEW	821667 NEW
Input frequency	146-862 MHz	146-862 MHz
TV standard	DVB-T	DVB-T
Input level	40...74 dBµV	40...74 dBµV
Input connector type	DIN IEC female	DIN IEC female
Output connector type	DIN IEC male	DIN IEC male
Symbol rate	1-32 Mbps (SCPC/MCPC)	1-32 Mbps (SCPC/MCPC)
Modulator		
Modulation	COFDM	QAM
Constellation	QPSK, QAM 16, 64,/2k, 8k	QAM 16, 32, 64, 128, 256
Output control	Normal, inverted	Normal, inverted
Output channel	E02-C69	E02-C69
Output level	94 dBµV	94 dBµV
Symbol rate	4-31 Mbps (SCPC/MCPC)	4-51 Mbps (SCPC/MCPC)
MER	> 34 dB	> 36 dB
Impedance	75 Ω	75 Ω
Ambient temperature	-10...+50 °C	-10...+50 °C
Current consumption	550 mA	540 mA
Power typ.	12 V DC	12 V DC
Power consumption	6,6 W	6,5 W

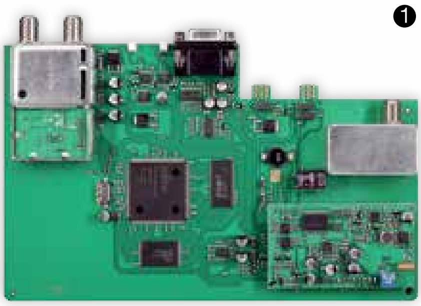
WhiteCards Audio / Video with digital output signal DVB - C / DVB - T



Art. No.	Description
821668	A / V into DVB - T, SINGLE, VSB, Stereo, adjacent channel compatible
821669	A / V into DVB - T, TWIN, VSB, Stereo, adjacent channel compatible
821670	A / V into DVB - C, SINGLE, VSB, Stereo, adjacent channel compatible
821671	A / V into DVB - C, TWIN, VSB, Stereo, adjacent channel compatible

Art. No.	821668 NEW	821669 NEW	821670 NEW	821671 NEW
Input	1 x AV signal	2 x AV signal	1 x AV signal	2 x AV signal
Connector IN	1 x 15 Sub - D	2 x 15 Sub - D	1 x 15 Sub - D	2 x 15 Sub - D
Modulator				
Modulation	COFDM	COFDM	QAM	QAM
Constellations	QPSK, QAM 16, 64, / 2k, 8k	QPSK, QAM 16, 64, / 2k, 8k	QAM 16, 32, 64, 128, 256	QAM 16, 32, 64, 128, 256
Output control	Normal, inverted	Normal, inverted	Normal, inverted	Normal, inverted
Output channel	E2 - C69	E2 - C69	E2 - C69	E2 - C69
Output level	93 dBµV	93 dBµV	93 dBµV	93 dBµV
Symbol rate	4 - 30 Mbps (SCPC / MCPC)	4 - 30 Mbps (SCPC / MCPC)	4 - 30 Mbps (SCPC / MCPC)	4 - 30 Mbps (SCPC / MCPC)
MER	> 32 dB	> 32 dB	> 38 dB	> 38 dB
Impedance	75 Ω	75 Ω	75 Ω	75 Ω
Power consumption	5,4 W	6,8 W	5,7 W	7,1 W
Ambient temperature	- 10 ... + 50 °C	- 10 ... + 50 °C	- 10 ... + 50 °C	- 10 ... + 50 °C

WhiteCards DVB-S/S2 in QAM (DVB-C)

❶

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❸

❹

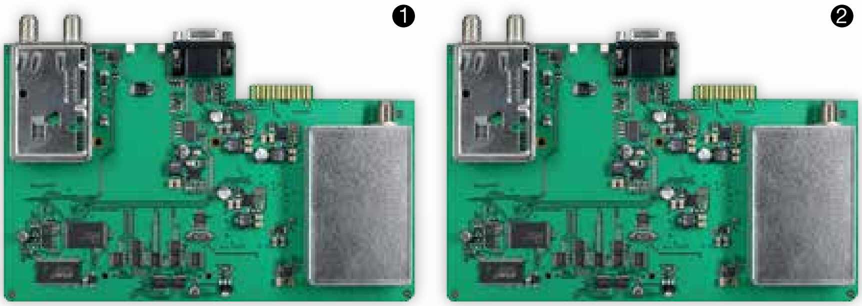

NEW

❶ 821672
❷ 821673
❸ 821676
❹ 821677

Art. No.	Description
821672	**DVB-S/S2 into DVB-C, SINGLE, VSB, Stereo, adjacent channel compatible**
821673	**DVB-S/S2 into DVB-C with CI-Interface, SINGLE, VSB, Stereo, adjacent channel compatible**
821676	**DVB-S/S2 into DVB-C, QUAD, VSB, Stereo, adjacent channel compatible** The first output channel can be selected, the other three are automatically adjacent channels
821677	**DVB-S/S2 into DVB-C with CI-Interface, QUAD, VSB, Stereo, adjacent channel compatible** The first output channel can be selected, the other three are automatically adjacent channels

Art. No.	821672 NEW	821673 NEW	821676 NEW	821677 NEW
Input frequency	950-2150 MHz	950-2150 MHz	950-2150 MHz	950-2150 MHz
TV standard	DVB-S/S2	DVB-S/S2	DVB-S/S2	DVB-S/S2
Input level	40...74 dBµV	40...74 dBµV	40...85 dBµV	40...85 dBµV
Input SAT	F-female	F-female	F-female	F-female
Demodulation type	QPSK/8PSK	QPSK/8PSK	QPSK/8PSK	QPSK/8PSK
Symbol rate	1-45 Mbps (SCPC/MCPC)	1-45 Mbps (SCPC/MCPC)	2-40 Mbps (SCPC/MCPC)	2-40 Mbps (SCPC/MCPC)
Modulator				
Modulation	QAM	QAM	QAM	QAM
Constellations	QAM 16, 32, 64, 128, 256	QAM 16, 32, 64, 128, 256	QAM 16, 32, 64, 128, 256	QAM 16, 32, 64, 128, 256
Output control	Normal, inverted	Normal, inverted	Normal, inverted	Normal, inverted
Output channel	E02-C69	E02-C69	S2-C69	S2-C69
Output level	93 dBµV	93 dBµV	94 dBµV	94 dBµV
Symbol rate	4-30 Mbps (SCPC/MCPC)	4-30 Mbps (SCPC/MCPC)	4-50 Mbps (SCPC/MCPC)	4-50 Mbps (SCPC/MCPC)
MER	> 37 dB	> 37 dB	> 37 dB	> 37 dB
Impedance	75 Ω	75 Ω	75 Ω	75 Ω
Power consumption	6,8 W	8,8 W	13 W	13 W
Ambient temperature	-10...+50 °C	-10...+50 °C	0...+45 °C	0...+45 °C

WhiteCards DVB-S/S2 in COFDM (DVB-T)



NEW

❶ 821674
❷ 821675

Art. No.	Description
821674	**DVB-S/S2 into DVB-T, SINGLE, one RF-output, VSB, Stereo, adjacent channel compatible**
821675	**DVB-S/S2 into DVB-T, SINGLE, two RF-outputs, VSB, Stereo, adjacent channel compatible** The second output channel are the adjacent channel from the first output channel

Art. No.	821674 (NEW)	821675 (NEW)
Input frequency	950-2150 MHz	950-2150 MHz
Input level	40...74 dBµV	40...74 dBµV
Input SAT	F-female	F-female
Demodulation typ.	QPSK/8PSK	QPSK/8PSK
Symbol rates	5	1-45 Mbps (SCPC/MCPC)
Viterbi decoder	1/2, 2/3, 3/4, 5/6, 7/8	1/2, 2/3, 3/4, 5/6, 7/8
Modulator		
Modulation	COFDM	COFDM
Constellations	QPSK, QAM 16, 64,/2k, 8k	QPSK, QAM 16, 64,/2k
Output control	Normal, inverted	Normal, inverted
Output channel	E02-C69	E02 - C69 adjacent channel
Output level	93 dBµV	93 dBµV
Symbol rate	4-30 Mbps (SCPC/MCPC)	4-30 Mbps (SCPC/MCPC)
MER	> 32 dB	> 32 dB
Impedance	75 Ω	75 Ω
Power consumption	5,7 W	6,3 W
Ambient temperature	-10...+50 °C	-10...+50 °C

Headends

SpaceBox Video-/Audio into PAL

Stand-alone modulator VAM 420 NG PAL (page 148).

SpaceBox VAM PAL

The SpaceBox VAM PAL offers a solution to convert analogue video signals (FBAS) into analogue PAL signals. The output channels can be placed between S3 and CH69 in the spectrum. It's possible to install up to 10 modulators into one 19" Base Unit. The modulators are TWIN devices and thus, up to 20 signals at full extension can be converted.

Features:

- SpaceBox VAM PAL 19" Base Unit with switched-mode power supply.
- Analogue PAL output signal.
- Base Unit extendable to up to 10 PAL modulators.
- For use between video camera and the TV.
- The modulator is adjacent channel compatible.
- Internal test pattern generator can be activated.
- Possibility to connect an additional terrestrial signal.
- **VAM 420 NG PAL can be used as stand-alone solution with DIN-rail mounting or wall mounting.**

Video feed of:

- Event programs in hotels or guesthouses.
- Digital TV programs via DVB receiver.
- Information channels in large CATV systems.

NEW

Model Art. No.	SpaceBox VAM PAL 19" Base Unit 865120
EAN	4040326651209
Mains power U~	100…240 V/47-63 Hz
Operating temperature	-10…+50 °C
Dimensions (mm)	483 x 276 x 266

SpaceBox Video - /Audio in DVB - T

Stand - alone modulator
VAM 420 NG DVB - T (page 149).

SpaceBox VAM DVB - T

The SpaceBox VAM DVB - T is the digital alternative to the SpaceBox VAM PAL. With this device it's possible to convert the analogue video signals (FBAS) into a digital DVB - T (COFDM) signals. It's possible to install up to 7 modulators into one 19" Base Unit. The modulators are TWIN devices and thus, up to 14 signals can be converted. The output channels could be placed between S3 and CH69.

Features:

- SpaceBox VAM DVB - T 19" Base Unit with switched - mode power supply.
- Digital DVB -T output signal.
- Base Unit extendable to up to 7 DVB - T modulators.
- The modulator is adjacent channel compatible.
- Internal test pattern generator can be activated.
- Possibility to connect an additional terrestrial signal.
- **VAM 420 NG DVB - T can be used as stand - alone solution with DIN - rail mounting or wall mounting.**

Video feed of:

- Event programs in hotels or guesthouses.
- Digital TV programs via DVB receiver.
- Information channels in large CATV systems.

Model Art. No.	SpaceBox VAM DVB - T 19" Base Unit 865121 (NEW)
EAN	4040326651216
Mains power U~	100 … 240 V / 47 - 63 Hz
Operating temperature	-10 … + 50 °C
Dimensions (mm)	483 x 276 x 266

SPOAX - Don‘t call it Coax!

The premium SAT IF cables.

CATV

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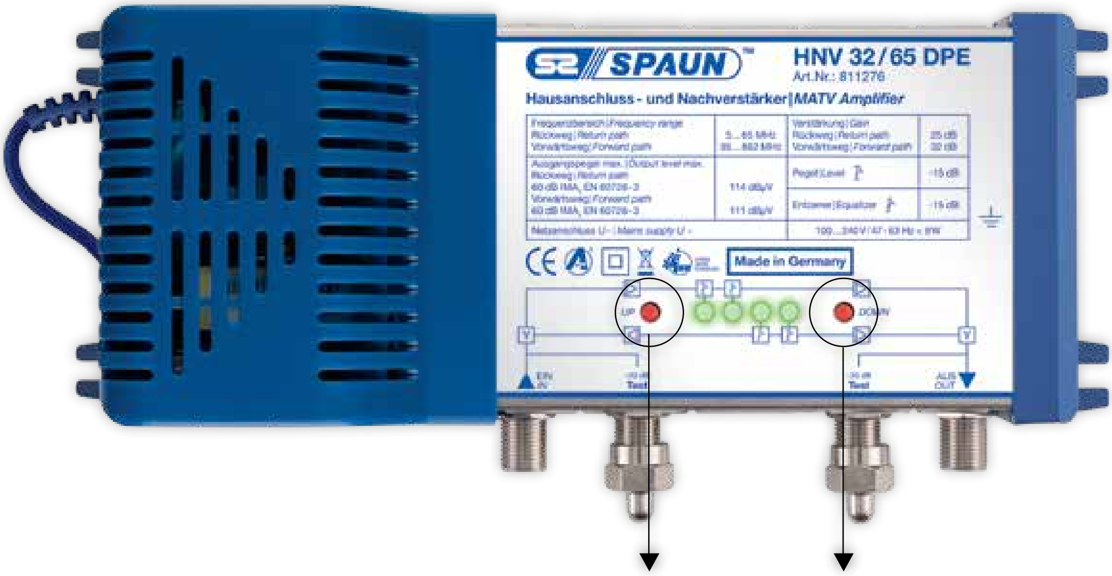
CATV

Line Amplifier and Home Distribution Amplifier



Energy Saver!
Standby Function and Switched-Mode Power Supply

Digital signal level adjuster (1 dB steps) for level and slope correction (forward and return path).

HNV 32/65 DPE

- Complete solution with an integrated forward path amplifier, return path amplifier, digital adjuster.
- 4 LEDs showing the digital level adjustment.
- Two buttons for easy configuration with integrated key-lock option against unauthorised manipulation.
- Test ports (-20 dB) at input and output.
- Developed in accordance with the KDG 1 classification TS 140: Class C.

Miscellaneous:

- The device is equipped with an energy-saving switched-mode power supply.
- Groud clamp.

Model Art. No.	HNV 32/65 DPE 811276
EAN	4040326112762
Inputs/outputs	1/1
Gain return path 5…65 MHz	25 dB
Gain forward path 85…862 MHz	32 dB
Output level return path max. 5… 65 MHz 60 dB IMA_3/EN 60728-3	114 dBµV
Output level forward path max. 85…862 MHz 60 dB IMA_3/EN 60728-3	111 dBµV
Level adjusting range	0…-15 dB (1 dB steps)
Slope correction range	0…-15 dB (1 dB steps)
Mains power supply U~	100…240V/47-63 Hz
Power consumption	< 8 W
Ambient temperature	-20…+50 °C
Dimensions (mm)	194 x 86 x 52

CATV and Line Amplifier

Energy Saver!
Standby Function and Switched-Mode Power Supply

HLV 40/30 FPE, HLV 40/65 FPE

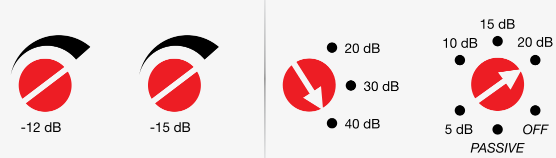
- Active and passive return path.
- For medium sized distribution systems.
- External test ports (-30 dB) at input and output.
- LED indicator for power supply.
- Protection class IP 20.

Miscellaneous:

- The devices are equipped with an energy-saving switched-mode power supply.
- Groud clamp.

Integrated attenuator and slope control

Forward path and return path



Model Art. No.	HLV 40/30 FPE 813128	HLV 40/65 FPE 813129
EAN	4040326131282	4040326131299
Inputs/outputs	1/1	1/1
Gain forward path	47…862 MHz/40, 30, 20 dB	85…862 MHz/40, 30, 20 dB
Gain return path	5…30 MHz/20, 15, 10, 5 dB	5…65 MHz/20, 15, 10, 5 dB
Output level return path max. 60 dB IMA_3/EN 60728-3	110 dBµV	110 dBµV
Output level forward path max. 60 dB IMA_3/EN 60728-3	113 dBµV	113 dBµV
Level adjusting range	0…-12 dB	0…-12 dB
Slope correction range	0…-16 dB	0…-16 dB
Mains power supply U~	100…240V/47-63 Hz	100…240V/47-63 Hz
Power consumption max.	13 W	13 W
Ambient temperature	-20…+50 °C	-20…+50 °C
Dimensions (mm)	260 x 130 x 52	260 x 130 x 52

MATV and Home Distribution Amplifier

Energy Saver!
Standby Function and Switched-Mode Power Supply

Optional:
Universal AC Adapter
SNG 18/1000 (Art. No.: 832114)
in combination with Line Power Injection Filter
FSW 30 F (Art. No.: 815018).

Integrated attenuator and slope control

Forward gain switchable

HNV 30/30 UPE
HNV 30/65 UPE

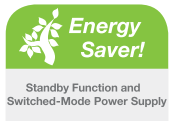
- Passive return path.
- For medium sized distribution systems.
- Protection class IP 20.
- Remote power through input or output possible.

Miscellaneous:

- The devices are equipped with an energy-saving switched-mode power supply.
- Groud clamp.

Model Art. No.	HNV 30/30 UPE 811267	HNV 30/65 UPE 811268
EAN	4040326112670	4040326112687
Inputs/outputs	1/1	1/1
Gain	47…862 MHz/30 or 20 dB	85…862 MHz/30 or 20 dB
Output level forward path max. 60 dB IMA_3/EN 60728-3	108 dBµV	108 dBµV
Level adjusting range	0…-12 dB	0…-12 dB
Slope correction range	0…-15 dB	0…-15 dB
Mains power supply U~	100…240V/47-63 Hz	100…240V/47-63 Hz
Remote powering	15…20V/210 mA	15…20V/210 mA
Power consumption	< 4 W	< 4 W
Ambient temperature	-20…+50 °C	-20…+50 °C
Dimensions (mm)	194 x 86 x 52	194 x 86 x 52

MATV and Home Distribution Amplifiers



Integrated attenuator and slope control

Forward gain switchable

Optional:
Universal AC Adapter
SNG 18/1000 (Art. No.: 832114)
in combination with Line Power Injection **Filter FSW 30 F (Art. No.: 815018).**

HNV 30 UPE, HNF 30 URP

- For MATV and CATV systems.
- Protection class IP 20.
- Remote powering on input and output side (only HNF 30 URP).

Miscellaneous:

- The devices are equipped with an energy-saving switched-mode power supply.
- Groud clamp.

Tech hint HNF 30 URP

The remote power is available on the input and output side. This has the advantage that another remote powered amplifier can be supplied with voltage. On ports where it is not desired, a **DCF 500 (set of 2 pcs. Art.No.: 871506**) must be used.

Model Art. No.	HNV 30 UPE 811269	HNF 30 URP 811304
EAN	4040326112694	4040326113042
Inputs/outputs	1/1	1/1
Gain 47...862 MHz	30 or 20 dB	30 or 20 dB
Output level max. 60 dB IMA_3/EN 60728-3	108 dBµV	108 dBµV
Level adjusting range	0...-12 dB	0...-12 dB
Slope correction range	0...-15 dB	0...-15 dB
Mains power supply U~	100...240V/47-63 Hz	15...20V/210 mA
Power consumption	< 4 W	-
Ambient temperature	-20...+50 °C	-20...+50 °C
Dimensions (mm)	194 x 86 x 52	138 x 83 x 52

CATV

MATV and Home Distribution Amplifiers

Energy Saver!
Standby Function and Switched-Mode Power Supply

Forward gain

HNV 20 U

- For MATV and CATV systems.
- Slope precompensating.
- Protection class IP 20.

Miscellaneous:

- The device is supplied with an energy-saving switched-mode power supply.
- Groud clamp.

Model Art. No.	HNV 20 U 811273
EAN	4040326112731
Inputs/outputs	1/1
Screening factor	> 85 dB
Gain 47…862 MHz	20 or 10 dB
Output level max. 60 dB IMA_3/EN 60728-3	109 dBµV
Slope precompensating	4 dB
Mains power supply U~	230 V/50 Hz
Power consumption	< 4 W
Ambient temperature	-20…+50 °C
Dimensions (mm)	160 x 86 x 52

Terrestrial

TABLE OF CONTENTS

Multiband Amplifiers

MBV 429 PF, MBV 420 F

- Selective input frequency range.
- Optimized for reception of DVB-T (DTT).
- Ground clamp.
- Protection class IP 20.
- Remote powering possible via output.

	Light Class	*Premium Class*
Model **Art. No.**	**MBV 420 F** **812117**	**MBV 429 PF** **812118**
EAN	4040326121177	4040326121184
Inputs/outputs	4/1	
Gain B **I**	10 dB	30 dB
Gain FM	10 dB	30 dB
Gain B **III**	20 dB	30 dB
Gain B **IV/V**	20 dB	30 dB
Output level max. 60 dB IMA_2/EN 60728-3	103 dBµV	114 dBµV
Output level max. 66 dB KMA/EN 60728-5	112 dBµV	114 dBµV
Level adjusting range FM	-	0…-15 dB
Level adjusting range B **I**, B **III**, B **IV/V**	-	0…-10 dB
Mains supply U~	100…240V/47-63 Hz	100…240V/47-63 Hz
Remote powering	15…24V/370 mA	15…20V/460 mA
Power consumption	< 4 W	< 8 W
Ambient temperature	-20…+50 °C	
Dimensions (mm)	194 x 82 x 52	260 x 130 x 52

Multiband Diplexer

MBW 410 WSG

- Selective input frequency range.
- Preferably as a supplement for components with an active terrestrial input (multiband amplifiers, multiswitches or launch amplifiers).

Model Art. No.	MBW 410 WSG 871113
EAN	4040326711132
Inputs/outputs	4/1
Through loss B I	1,5 dB
Through loss FM	1 dB
Through loss B III	1,5 dB
Through loss B IV/V	2 dB
Ambient temperature	-20…+50 °C
Dimensions (mm)	140 x 82 x 38

Terrestrial

FM Amplifier

VFM 25 F

Preferably as a supplement for components with a wideband terrestrial input.

- Ground clamp.
- Protection class IP 20.

Miscellaneous:

- The devices are supplied with an energy-saving switched-mode power supply.

Energy Saver!
Standby Function and Switched-Mode Power Supply

Model Art. No.	VFM 25 F 810202
EAN	4040326102022
Inputs/outputs	1/1
Frequency range	87,5…108 MHz
Gain	25 dB
60 dB KMA/EN 60728-5	115 dBµV
Level adjusting range	0…-10 dB
Mains supply U~	100…240V/47-63 Hz
Power consumption	< 4 W
Ambient temperature	-20…+50 °C
Dimensions (mm)	160 x 86 x 52

FM Band - Pass

FMP 30

Selective reception of FM channels. Preferably as a supplement for components with a wideband terrestrial input.

Tech hint

Broadband antennas may never be directly connected with the non-selective terrestrial input of a multiswitch or CATV amplifier, as adjacent frequencies of radio and TV services may interfere.

Model Art. No.	FMP 30 871202
EAN	4040326712023
Inputs/outputs	1/1
Frequency range	87,5 ... 108 MHz
Through loss	1 dB
Selection	30 dB
Ambient temperature	-20 ... +50 °C
Dimensions (mm)	77 x 49 x 30

Terrestrial Antenna Relay

TAR 5

To multiplex a CATV- and a DVB-T antenna. Switching is done automatically by the remote power.

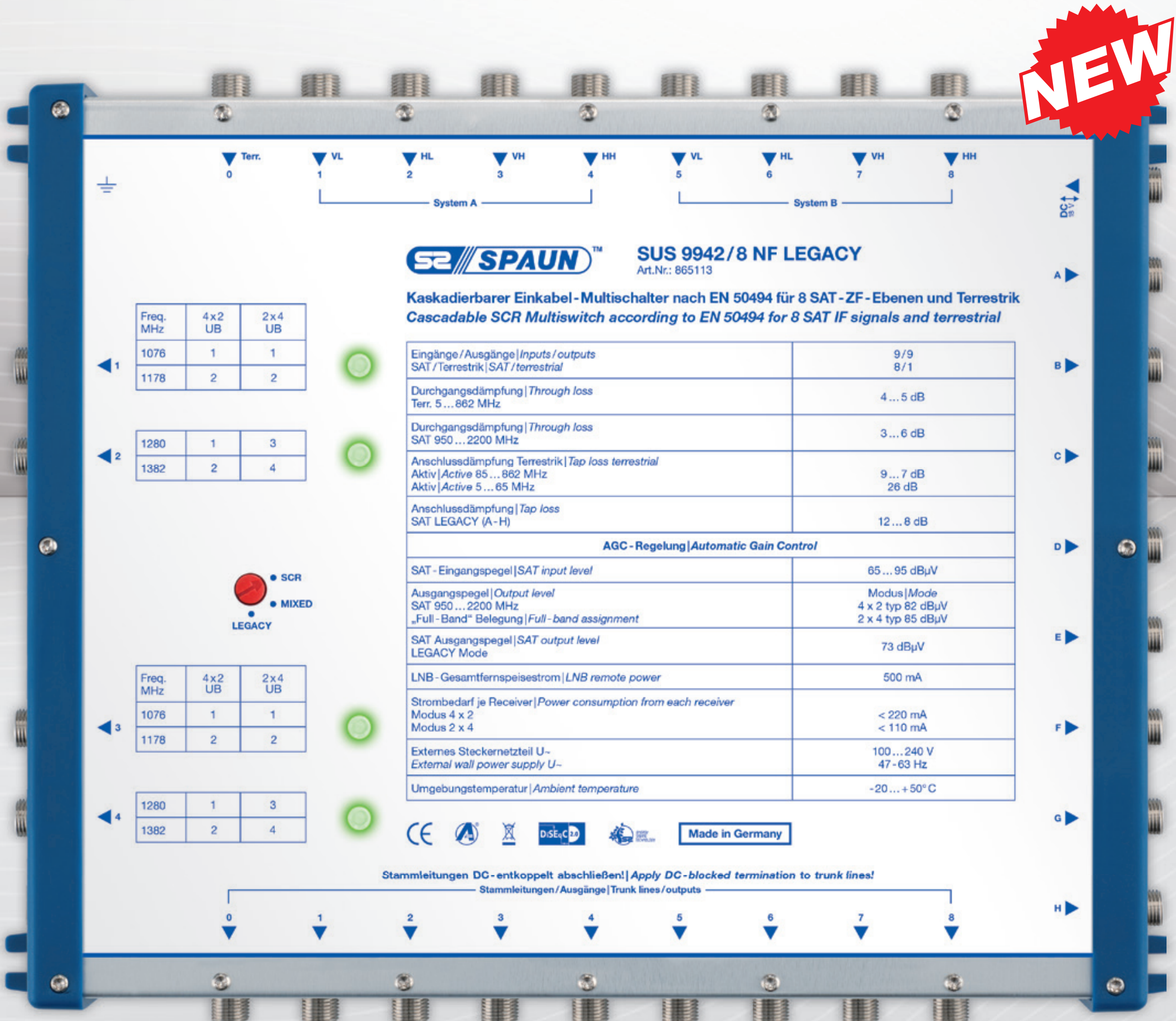
Note: It is necessary for the functionality of the TAR 5 that the TV has an output of 5V as a switching criteria (DVB-T).

Relay recommended by: LOEWE.

Model Art. No.	TAR 5 871433
EAN	4040326714331
Inputs/outputs	1/2
Frequency range	5 ... 862 MHz
Through loss	0,8 dB
Remote voltage	5V
DC-pass max.	500 mA
Current consumption max.	35 mA
Ambient temperature	-20 ... +50 °C
Dimensions (mm)	75 x 47 x 30

SUS 9942/8 NF(A) LEGACY

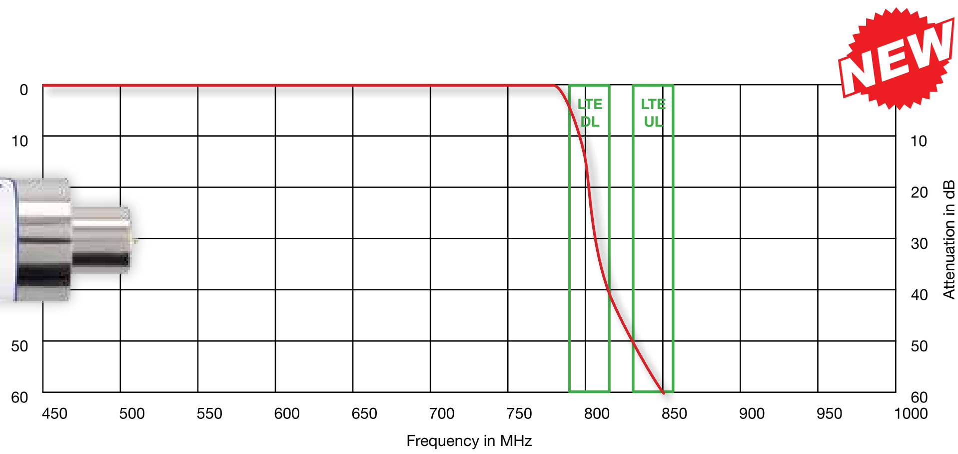
Flexible SCR Multiswitch



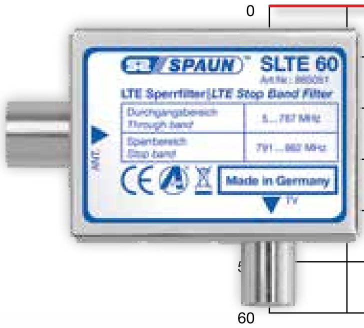
The new Premium SCR multiswitch SUS 9942/8 LEGACY offers a mix between single cable operation according to EN 50494 and common LEGACY ports.

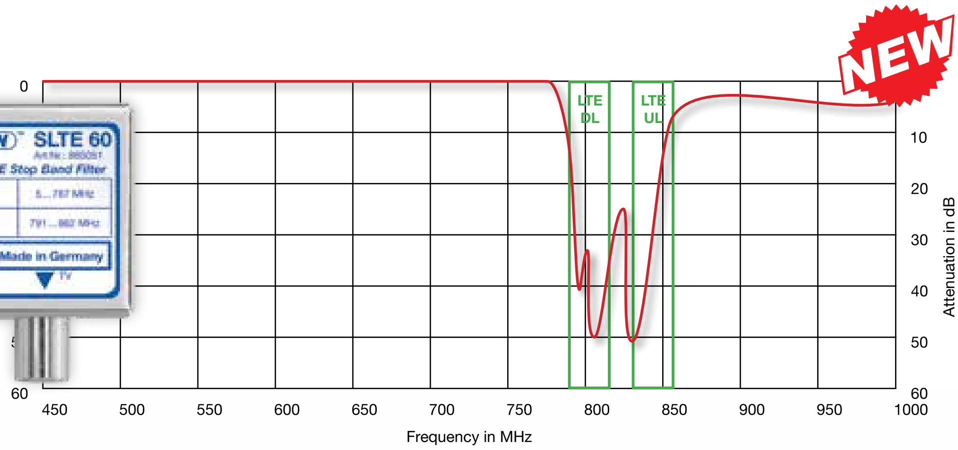
LTE Filter

SLTE 30 Light

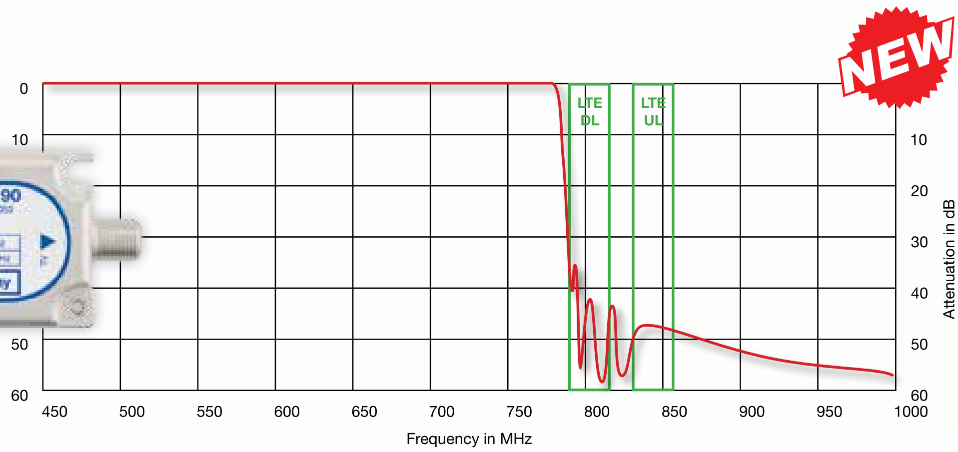


SLTE 60 Standard





SLTE 90 Premium



Terrestrial

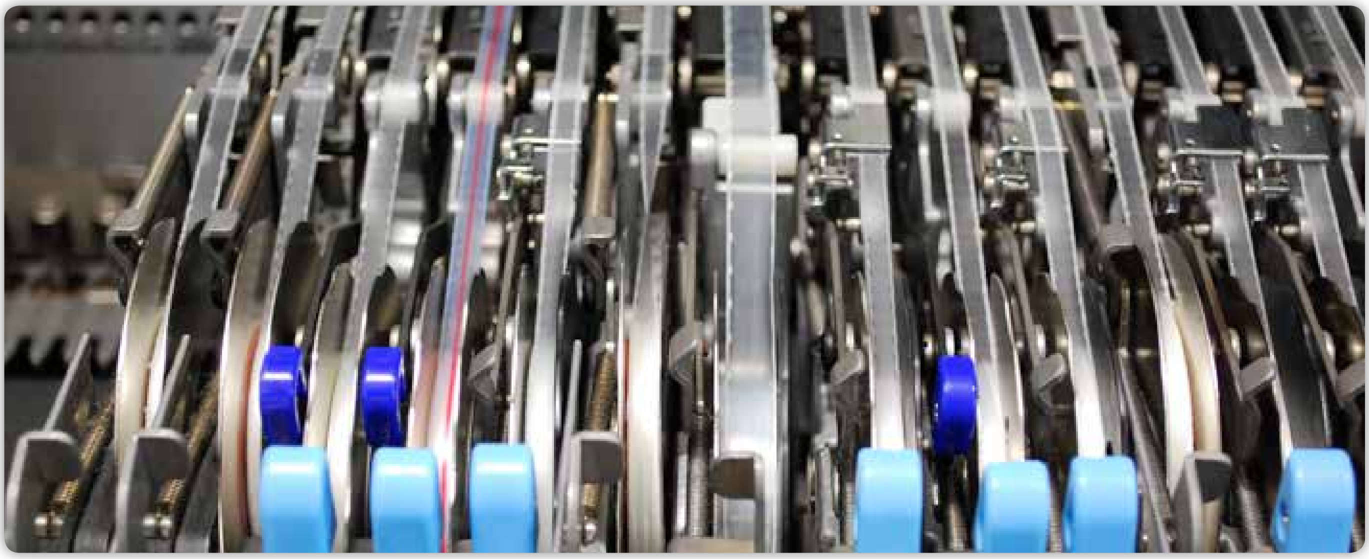
SLTE 30, SLTE 60, SLTE 90

The frequency range of commercial DVB-T receivers is the complete UHF-band up to channel 69. The frequency range of 790 MHz up to 862 MHz (channels 61 to 69) is in some areas used for wireless broadband services. It may be the case that these services have interference in the reception of DVB-T signals. By using the SPAUN LTE Stop Band Filters the LTE 800 signal is blocked and this increases the quality of DVB-T reception.
The three different SPAUN filter types blocks the LTE 800 signals in different ways. The SLTE 30 and SLTE 90 are Low Pass Filters and the SLTE 60 is a band rejection filter.
The premium filter SLTE 90 is a very steep-edged filter compared to the SLTE 30. The SLTE 60 uses IEC connectors (Belling-Lee) for direct plug on TV and also provides a very steep-edged signal curve.

Special characteristics:

- SLTE 60 and SLTE 90 with a very steep-edged signal curve in border areas between the DVB-T and LTE 800 signal.
- Pass band frequency range up to 790 MHz.
- Strong attenuation from the first LTE block (channel 61).
- Compact design for connection of various DVB-T devices.

Model Art. No.	SLTE 30 865050 NEW	SLTE 60 865051 NEW	SLTE 90 865053 NEW
EAN	4040326650509	4040326650516	4040326650530
Filter type	Low pass filter	Band rejection filter	Low pass filter
Pass band	5 ... 790 MHz	5 ... 790 MHz	5 ... 790 MHz
Stopp band	791 ... 862 MHz	791 ... 862 MHz	791 ... 862 MHz
Insertion loss max. 3 dB	5 ... 785 MHz	5 ... 787 MHz	5 ... 782 MHz
Attenuation			
@ 787 MHz	3,2 dB	3 dB	5 dB
@ 791 MHz	3,9 dB	13,4 dB	17 dB
@ 793 MHz	4,6 dB	23,3 dB	33,8 dB
@ 823 MHz	35 dB	25 dB	45 dB
Impedance	75 Ω	75 Ω	75 Ω
Connectors	F-type male/female	IEC-type male/female	F-type male/male
Ambient temperature	-40 ... +85 °C	-40 ... +85 °C	-40 ... +85 °C
Dimensions (mm)	75, 25 Ø	46 x 60 x 20	38 x 102 x 25



Terrestrial

Audio / Video - Modulator

Audio/Video modulation refer to page 132.

VAM 420 NG PAL

- Stand - alone audio/video modulator into PAL.
- For use between video camera and the TV.
- Wide range of applications in the private or commercial sector.
- The modulator output is adjacent channel compatible.
- Wall or DIN rail mounting possible.
- Internal test pattern generator can be activated by function key.
- Possibility to connect an additional terrestrial signal.

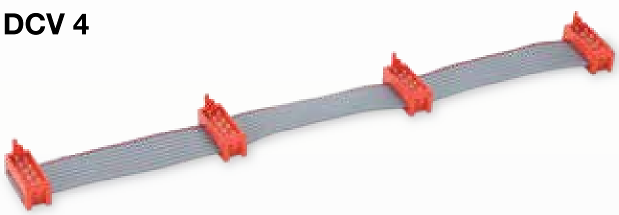
Video feed of:

- Event programs in hotels or guesthouses.
- Digital TV programs via DVB receiver.
- Information channels in large CATV systems.

	Model Art. No.	VAM 420 NG PAL 821705
	EAN	4040326217054
	Video - /Audio - Inputs	2 / 2
	Frequency range	110 … 862 MHz
	TV standard	B / G / D / K / Au Stereo 2
RF output	Input impedance	75 Ω F connector
RF output	Output level max.	90 dBµV
RF output	Output level adjusting range	0 … - 6 dB (by 1 dB step)
RF output	Spurious level IMD2 / IMD3	< - 60 dB
RF output	C/N ratio	≥ 55 dB
RF output	Output impedance	75 Ω
RF output	Return loss	≤ 10 dB
RF output	Connector type RF	F
RF output	Connector type audio, video	RCA socket
Video	Input level	1 ± 0,1 Vp - p
Video	Input impedance	RCA 75 Ω
Video	S / N ratio	≥ 55 dB
Audio	Frequency range	40 Hz … 15 kHz
Audio	Input impedance	> 10 kΩ
Audio	Preemphasis	50 µs
Audio	Audio level adjusting range	+6 … - 6 dB (by 2 dB step)
Audio	Audio signal / noise ratio FM (FM = 1 kHz: + f = 50 kHz)	≥ 50 dB
Audio	Audio signal / noise ratio AM (AM = 1 kHz: m = 60%)	≥ 47 dB
Power	Supply voltage	12V ± 1V
Power	Current consumption	430 mA
Power	Ambient temperature	0 … + 50 °C
	Dimensions (mm)	196 x 106 x 35

DC Link Cable

DCV 4



Model Art. No.	DCV 4 821707
EAN	4040326217078

Terrestrial

Audio / Video Modulator

Audio/Video modulation
refer to page 133.

VAM 420 NG DVB - T

- Stand - alone audio / video modulator into DVB - T.
- TWIN input for two independent AV sources.
- Wide range of applications in the private and commercial sector.
- The modulator output is adjacent channel compatible.
- Wall or DIN rail mounting possible.
- Internal test pattern generator can be activated by function key.
- Possibility to connect an additional terrestrial signal.

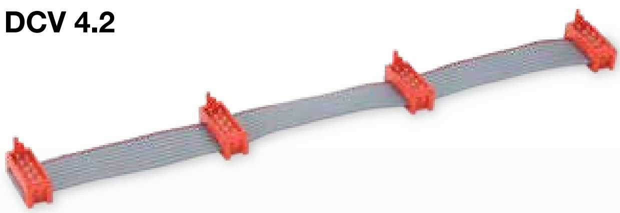
Video feed of:

- Event programs in hotels or guesthouses.
- Digital TV programs via DVB receiver.
- Information channels in large CATV systems.

	Model Art. No.	VAM 420 NG DVB-T 821708
	EAN	4040326217085
	Video - /Audio - Inputs	2 / 2
	Frequency range	110 ... 862 MHz
	TV standard	PAL (B / G / D / H / I / M / N / 60) SECAM NTSC (M, 4.43)
HF Ausgang	Input impedance	75 Ω F connector
HF Ausgang	Output level	85 dBµV + 2dB
HF Ausgang	Output level adjusting range	0 ... 15,5 dB (in 0,5 dB steps)
HF Ausgang	C / N ratio	≥ 50 dB
HF Ausgang	Output impedance	75 Ω
HF Ausgang	Return loss	≥ 10 dB
HF Ausgang	Connector type RF	F
HF Ausgang	Connector type audio, video	RCA
Video	Input level	1± 0,1 Vp - p
Video	Input impedance	RCA 75 Ω
Audio Processing	Encoding	ISO / IEC11172 - 3 (MPEG1 audio) layer 2 compliant
Audio Processing	Sample rate	44,1 kHz
Audio Processing	Compressed bit rate	256 Kbps
Audio Processing	Audio mode	Stereo
Video Processing	Encoding	ISO / IEC13818 - 2 MPEG - 2 MP@ML
Video Processing	Resolution	720 x 576 (at 25 fps), 720 x 480 (at 30 fps)
Video Processing	Frame rate	25 max. PAL, SECAM, 30 max. NTSC
Video Processing	Compressed system bit rate	2 … 9 Mbps
Modulation	MER	≥ 35 dB
Modulation	Modulation	QPSK, QAM 16, QAM 64
Modulation	Channel bandwidth	7/8 MHz
Modulation	GUARD Interval	1 / 4, 1 / 8, 1 / 16, 1 / 32
Power	Supply voltage	12V ± 1V
Power	Current consumption	650 mA
Power	Ambient temperature	0 … + 50 °C
	Dimensions (mm)	196 x 106 x 48

DC Link Cable

DCV 4.2



Model Art. No.	DCV 4.2 821709
EAN	4040326217092

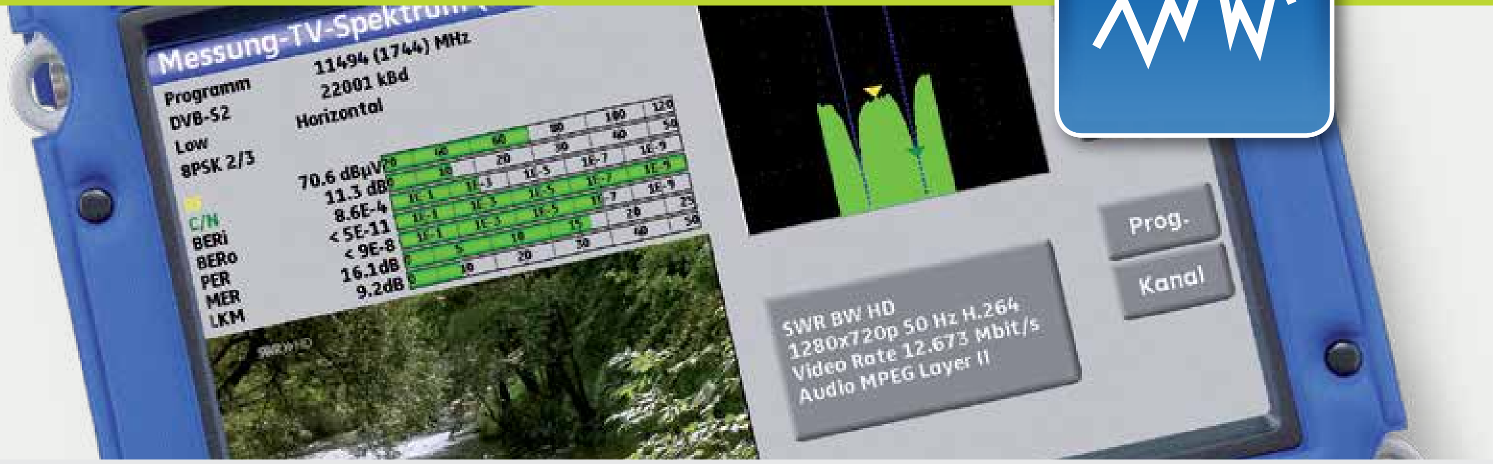
Terrestrial

DiSEqC Generator

SUG 22

- To convert the standard switching commands (14/18 V, 0/22 kHz) into DiSEqC 1.0 commands.
- To be looped into receiver downlead cable.
- Enable the access to 4,8,12 or 16 SAT IF polarities in combination with DiSEqC switches.
- Last switching state is maintained even after switch off the device.

Measurement



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Intuitive operable TV - Meter series with large 10" touch screen

The large 10" display enables a simultaneous figure of measurements, spectrum and TV picture.

DVB-S / S2
SAT

DVB-C
Cabel

DVB-T / T2 / H
Terrestrial

TV Mode
HDTV

SPAROS 711 Touch Light
SPAROS 711 Touch Standard
SPAROS 711 Touch Premium

Features:

- All modulation types DVB - S / S2, DVB-C and DVB-T / T2 are supported.
- Intuitive operable with large 10" LCD touch screen for an easy change from other devices.
- Split screen for the simultaneous figure of measurements, spectrum and TV picture.
- Very robust aluminium housing with a total weight of just 2,9 kg.
- Powerful lithium - ion battery with a duration of up to 4 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 with zoom functionality.
- Real time echoes and pre - echoes measurement.
- HDMI, Ethernet and USB interface.
- DiSEqC and SCR (EN 50494) support.
- MER per carrier measurements in DVB-T / T2 mode.
- ASI - TS input / output (not applicable to SPAROS 711 Touch Light).
- Expert mode for spectrum analyses (not applicable to SPAROS 711 Touch Light).
- PVR mode - TV picture recording (not applicable to SPAROS 711 Touch Light).
- Optical power measurement and WiFi networks measurements as upgrade available.

Promotional Video

Included in scope of delivery:

- **SPAROS 711 Touch TV Signal Analyser**
- Water-repellent rugged carrying bag
- AC/DC power unit
- Stable carrying case made of metal
- USB stick with extensive operating manual (PDF)
- Miscellaneous RF connector

Home

Detailed description of the different menu items

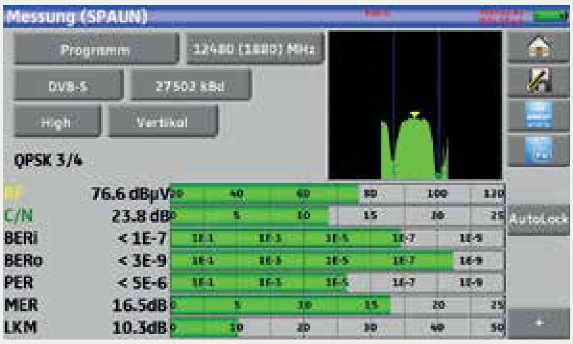
The Home screen does show an overview of the different menu items, which can be selected directly. This offers the user an fast and easy use of the meter.

Home

Level measurement

Detailed description of the measurements

The SPAROS does indicate the measurement data clearly and logical on the large 10" LCD color display. All measurements can be checked in just one screen. Signal level, C/N, BER before and after correction, lost packages and of course the MER. The LKM value is an information about the system reserve. Furthermore a small mini spectrum of the selected transponder is displayed.
The „AutoLock“ function does help the user to find the correct symbol rate or type of modulation.

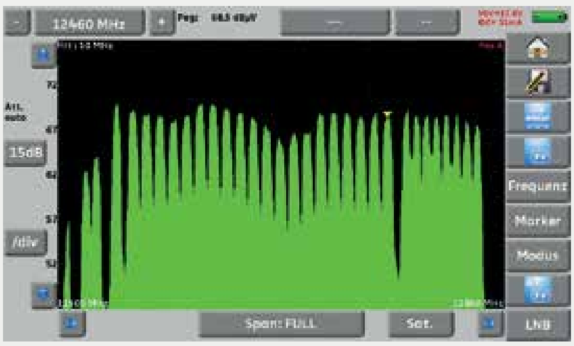


Level measurement

Spectrum analyses

Graphic display of the signal

A very helpful function when installing or troubleshooting inside the antenna system is the use of the spectrum analyses. It‘s possible to watch the complete bandwidth or just a special portion of the signal. Variant resolutions offers an individual view of the signal. Especially the „Expert Mode“ for SPAROS type „Standard & Premium“ offers deeper analyses for the SAT IF and terrestrial signals.



Spectrum analyses

Autoscan

The automatic scan

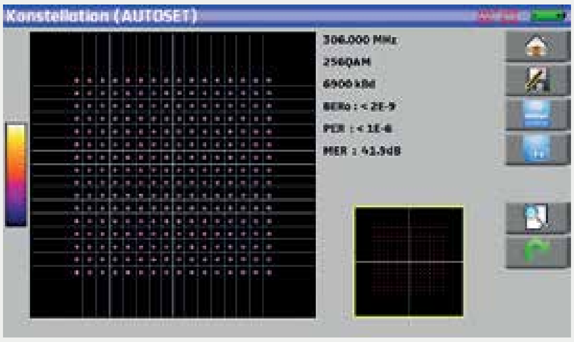
The menu item Autoscan offers an automatic scan over the antenna system. The user has the possibilty to select different pre-sets, so the meter searches for signals which are matching the pre-sets defined by the user.
After the scan is done the SPAROS automatically saves all frequencies.

Autoscan

Constellation diagram

Graphic display of the digital signal

The constellation diagram displays the digital signals. In ideal case you can see the data within the correct quadrants. In case of transmission errors the data is not shown in the correct position. Thanks to a zoom function it is possible to look more precisely into the signal. Beside this it's possible to check the data for a predefined time span.

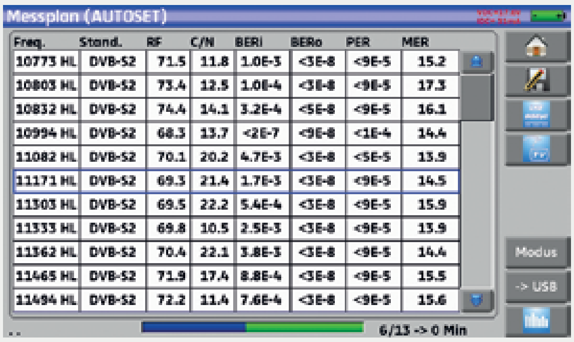


Constellation diagram

Measurement map

Automatic determination of the measurements

The measurement map function enables the user to check the different measurements inside the antenna system very quickly. The SPAROS performs a scan over all frequencies that are pre-defined in the SPAROS. It takes approx. 5 seconds for measuring one frequency. After SPAROS scanned all frequencies it's possible to save the results for documentation purposes.



Measurement map

Measurement

SPAROS Comparisation Sheet

Function overview	SPAROS 711 Light (NEW)	SPAROS 711 Standard (NEW)	SPAROS 711 Premium (NEW)
Art. No.	850028	850029	850030
LCD Display dimensions (format: 16:9)	10"	10"	10"
Signal measurements			
DVB-S2 (HDTV)/DVB-S	✔	✔	✔
DVB-C	✔	✔	✔
DVB-T/T 2 & H	✔	✔	✔
Analogue TV	✔	✔	✔
FM	✔	✔	✔
Return path measuring (from 5 MHz)	✔	✔	✔
Display			
Analogue terrestrial	-	-	-
Digital TV FTA (MPEG2) & (MPEG4 H.264)	✔	✔	✔
Digital TV with CA-module (MPEG2)	✔	✔	✔
Digital TV with CA-module (MPEG4 H.264)	✔	✔	✔
Spectrum analyser	✔	✔	✔
Expert-Mode in spectrum analyses	-	✔	✔
ASI-TS input/output	-	✔	✔
Constellation diagram	for all DVB standards	for all DVB standards	for all DVB standards
SAT identification/NIT analyses	✔	✔	✔
EXPLORER function	✔	✔	✔
DVB-T echoes measurement	✔	✔	✔
Data-Logger-Function (long term measuring)	✔	✔	✔
Automated measuring protocols	✔	✔	✔
Measuring data memory (screenshots)	✔	✔	✔
Acoustic signal for antenna adjustment	-	-	-
PVR function (recording TV picture)	-	✔	✔
GPS & Multistream Decoding	-	-	✔
DiSEqC-control 1.0/1.1/1.2	✔	✔	✔
SCR commands EN 50494	✔	✔	✔
Ethernet	RJ45	RJ45	RJ45
PC-interface	USB	USB	USB
HDMI-interface	✔	✔	✔
Mains or battery operation possible	✔	✔	✔
Lithium-ion battery operating time	ca. 4 hours	ca. 4 hours	ca. 4 hours
Weight (including battery and carrying bag)	2,9 kg	2,9 kg	2,9 kg
Warranty*	24 months (battery 12 months)	24 months (battery 12 months)	36 months (battery 12 months)

*According to our Gerneral Terms & Conditions.

Measurement

SPAROS 609 CA HD	SPAROS SAT HD	SPAROS SAT HD DVB-C	SPAROS SAT HD DVB-T/T2
850021	850023	850025	850026
7"	4,3"	4,3"	4,3"
✔	✔	✔	✔
✔	-	✔	-
✔ T2 optional	-	-	✔
✔	-	✔	✔
✔	-	✔	✔
-	-	-	-
✔	-	-	-
✔	✔	✔	✔
✔	-	-	-
✔	-	-	-
✔	✔	✔	✔
-	-	-	-
-	-	-	-
only DVB-S/S2	DVB-S/S2	DVB-S/S2 & DVB-C	DVB-S/S2 & DVB-T/T2
✔	✔	✔	✔
✔	✔	✔	✔
✔	-	-	✔
✔	✔	✔	✔
✔	✔	✔	✔
✔	✔	✔	✔
✔	-	-	-
-	-	-	-
-	-	-	-
✔	✔	✔	✔
✔	✔	✔	✔
RJ45	-	-	-
USB	USB	USB	USB
-	-	-	-
✔	✔	✔	✔
ca. 3 hours	ca. 2 hours	ca. 2 hours	ca. 2 hours
2,1 kg	1,5 kg	1,5 kg	1,5 kg
24 months (battery 12 months)	24 months (battery 12 months)	24 months (battery 12 months)	24 months (battery 6 months)

Standard Class

The SPAUN expert for digital and analogue measurements

SPAROS 609 CA HD

The innovative operation concept enables a simple and fast navigation with direct access function keys.

The **SPAROS 609 CA HD** is equipped with **water-repellent buttons,** as well as an **extraordinary large 7" LCD color screen in 16:9 wide-screen format.**

The weight of the **SPAROS 609 CA HD** including battery and a rugged carrying bag is only 2,1 kg.
Due to the compact dimensions and the low weight it can be transported comfortable.

The **lithium-ion battery** provides a long operation time, with an estimated duration of 3 hours. After charging of approx. 1 hour an uncharged **SPAROS** is already operational because of its intelligent charging electronics.

With an optional **mobile charger** the unit can also be charged in the car.

SPAROS Highlights

Simple handling

Direct function keys

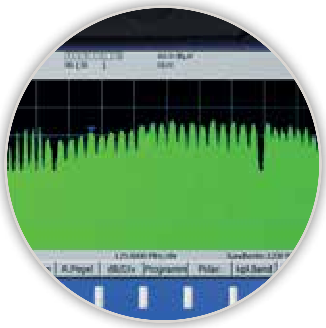
With nine direct function keys, it‘s possible to immediately access different menus. Just a simple keystroke and the selected menu is active.

Always up to date

Firmware updates per USB stick

Firmware updates can be downloaded from our website (www.spaun.com)

The scope of delivery includes a USB stick which can be used for the firmware updates.



Brillant presentation

7" LCD color display (16:9) widescreen

Despite its compact dimensions the SPAROS has one of the largest displays in its class. A resolution of 800 x 480 pixel and a high contrast ratio ensures an excellent readability.

Unfettered mobility

Compact, easily and tough

With a weight of only 2.1 kg (including battery and carrying bag) and dimensions of 215 x 100 x 300 mm SPAROS is one of the lightest and compact antenna field meters in the market.
Thanks to a lithium-ion battery SPAROS is perfectly suitable for the mobile use. With the optional mobile car charger the meter can also be charged in the car. The included rugged transport bag protects the meter in all situations. The keyboard is water-repellent.

Included in scope of delivery:

- **SPAROS 609 CA HD TV Signal Analyser**
- Water-repellent rugged carrying bag
- AC/DC power unit
- Printed quick guide
- USB stick with
  - extensive operating manual (PDF)
  - SPS 609 PC software
  - SpaunSat Software
- Adaptor F-Coupler/F-Coupler
- USB cable

Light Class

SPAROS SAT HD Series

SPAROS SAT HD, SPAROS SAT HD DVB-C,
SPAROS SAT HD DVB - T / T2

Robust and easy to use
With only eight function keys and one sensor wheel on the keypad direct access to the various menus are fast and easy. The robust plastic housing is designed for mobile use and protects all the sensitive components of the device.

SPAROS SAT HD is capable for measurements in DVB - S and DVB - S2

SPAROS SAT HD DVB - T / T2 is additionally capable for measurements in DVB - T / T2

SPAROS SAT HD DVB - C is additionally capable for measurements in DVB - C.

Fast Check SAT mode
All devices are equipped with CheckSAT mode for a fast alignment of the satellite antenna through visual and audio information.

High quality color LCD
The bright and 4.3" LCD TFT display show all measurements and FTA TV channels (MPEG2 & MPEG4).

USB interface
The whole series comes with two USB ports for the transfer of measurement data to the computer.
In addition, firmware updates can be installed with the included USB stick.

Features:

- High quality and bright display 4.3"
- MPEG4 TV picture and measuring
- SCR commands according to EN 50494
- DiSEqC control 1.0 / 1.1 / 1.2
- Spectrum analyses
- Robust, impact - resistant plastic housing
- Splash - proof keypad

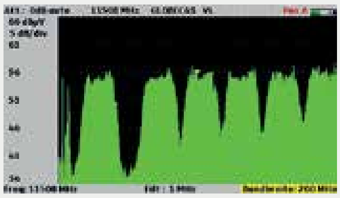
TV picture

The 4.3" LCD color display is able to show unencrypted MPEG2 (SD) and MPEG4 (HD) programs for visual quality checks.

TV picture

Spectrum

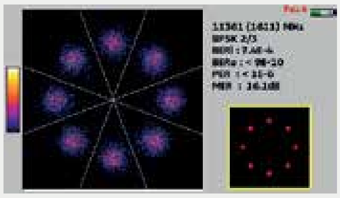
The ultra fast (almost real time) spectrum analyses enables a fast and easy analyses of the signal. Even the adjustment of the satellite dish is quite easy, because as soon as the dish is moved there is an immediate change in the spectrum.



Spectrum

Constellation diagram

Depending on the selected DVB standard the SPAROS is able to show the corres-ponding constellation diagram.



Constellation diagram

Signal level measurement

The SPAROS indicates the measurement data clearly and logically on the color screen. In a first step the „analogue values“ (level, C/N, etc.) are indicated as well as a mini spectrum of the selected transponder. In the second step the „digital values“ (BER before and after correction, lost packages and MER) are shown.

Signal level measurement

CheckSAT

The CheckSAT function supports the user for the first pre-adjustment of the satellite dish. The meter checks and shows the signal strength and signal quality from 4 diffe-rent transponders. As soon as one of four transponders are synchronized it‘s possible to check the NIT.

CheckSAT

Technical specifications SPAROS 711

Technical specifications	SAT IF	
Frequency range	900 … 2200 MHz	
Resolution	1 MHz	
Analogue measurements		
Dynamic range	30 … 110 dBµV	
Noise floor level	typ. 20 dB	
Units	dBµV, dBmV, dBm, V	
Accuracy	+/- 0,05 dB/°C	
Resolution	0,1 dB	
Measurement filters	Automatic: 1 MHz, 3 MHz, 10 MHz	
Standards	PAL, SECAM, NTSC, DVB-S, DVB-S2, DSS	
Measurements	Signal level, C/N	
Digital measurements	**DVB-S, DSS**	**DVB-S2**
Bit error rate (BER)	CBER (before Viterbi) VBER (after Viterbi) UNC (lost packages) Link margin	LDPC BCH PER Link margin
Modulation error rate (MER)	0 … 20 dB	
Symbol rate	1-45 Ms/s	1-45 Ms/s
Constellation	QPSK	QPSK, 8PSK, 16APSK, 32APSK
Viterbi rate	1/2, 2/3, 3/4, 5/6, 7/8 (auto)	2/5, 1/2, 3/5, 2/3, 3/4, 5/6, 8/9, 9/10 (auto)
Inverted spectrum	Automatic	Automatic
Standards	ETS 300-421	ETS 302-307
Spectrum analyses		
Ultra fast mode	typ. 350 ms	
Filter (automatic selected span)	1 MHz, 3 MHz, 10 MHz	
Attenuator	Automatic or manual (0 … 50 dB in 10 dB steps)	
Dynamic (display)	60 dB (10 dB/division)	
With NIT and TV picture	✔	
Remote power	Terrestrial	SAT IF
Voltage	5/13/18/24 Volt 500 mA (300 mA/24 V)	13/18 V, 500 mA
DiSEqC	-	1.0/1.1/1.2
ToneBurst	-	✔
SCR (EN 50494)	-	✔
Measurement map		
Capacity	Automatic scan of max. 50 programs	
Display	Graphical bargraph	
Memory		
Internal memory	Non volatile memory chip, or external USB-stick	
Data	Configuration, measurement, spectra,...	
Capacity	512 kb (max. 1000 files/directory)	
TV picture and audio		
FTA programs	SD (standard) and HD (High Definition H.264)	
Audio	MPEG-1, MPEG-2, AAC, HE AAC, Dolby® Digital, Dolby® Digital Plus	
CI slot	✔	
RF input		
Input	75 Ω, F-female	
Max. permessive voltage	50 V DC, 80 V rms/50 Hz	
AUX Inputs/outputs		
Interfaces	USB a, USB mini B, Ethernet 10baseT (RJ45)	
DC supply max.	5,5 mm connector, 15 V/5 A	
ASI TS input/output	Only Standard and Premium model, I/O with BNC connector	
HDMI output	✔	
WiFi input	Option	

Measurement

Technical specifications	Terrestrial		
Frequency range	5…900 MHz		
Resolution	Measurements: 50 kHz, Display: 1 kHz		
Analogue measurements			
Dynamic range	20…120 dBµV (30…120 dBµV in range of 5…45 MHz)		
Noise floor level typ.	10 dBµV		
Units	dBµV, dBmV, dBm, V		
Accuracy	+/- 0,05 dB/°C		
Resolution	0,1 dB		
Measurement filters	Automatic according to 100 kHz-300 kHz - 1MHz		
Standards	BG, DK, I, L, MN, FM, carrier, DVB-C, DVB-T/H, DVB-T2		
Measurements	Level, C/N		
Digital measurements	**DVB-T/H**	**DVB-T2**	**DVB-C**
Bit error rate (BER)	CBER (before Viterbi) VBER (after Viterbi) UNC (lost packages) Link margin	LDPC BCH FER Link margin	BER (before Reed Solomon) UNC (lost packages) Link margin
Modulation error rate (MER)	5…35 dB	5…35 dB	20…40 dB
Symbol rate	-	-	1 to 7224 MS/s (J.83A)
Bandwidth	6/7/8 MHz	5/6/7/8 MHz	-
Mode	-	SISO, MISO, PLP single or multiple	-
FFT type	2k and 8k	1k, 2k, 4k, 8k,16k and 32k	-
Constellation	5…35 dB	5…35 dB	20…40 dB
Viterbi rate	-	-	1 to 7224 MS/s (J.83A)
Guard interval	6/7/8 MHz	5/6/7/8 MHz	-
Inverted spectrum	-	SISO, MISO, PLP Single or Multiple	-
HP/LP	✔	-	-
PLP choice	-	✔	-
Standards	ETS 301-701	ETS 302-755	ITU J.83-Annex A
Pre-echos and impulse response			
Dynamic range	30 dB, 75 km (8k)	50 dB -75km + 75 km (8k)	-
Units	ms, km, miles	ms, km, miles	-
Spectrum analyses			
Ultra fast mode typ.	350 ms.		
Filter (automatic selected span)	100 kHz, 300 kHz, 1 MHz		
Attenuator	Automatic or manual (0…50 dB in 10 dB steps)		
Dynamic (display)	60 dB (10 dB/divisions)		
With NIT and TV picture	✔		
Bandwidth	5 , 10 , 20 , 50 , 100 , 200 , 500 MHz, and complete		
Frequency range	900…2200 MHz		
Resolution	1 MHz		
General specifications			
Display	Capacitive touch pad, 10 inch, 16:9 Widescreen, 1000 cd/m², 1280 x 800 pixel		
External supply	AC/DC converter 110/230 VAC, with 5,5 mm connecter, 15V/6 A		
Battery	Lithium-ion 70 W		
Battery operation time	ca. 4 hours		
Charging time	Approx. 1,5 hours charging time for 80% capacity		
Operating temperature	-5° C to 45° C		
Storage temperature	-10° C to 60° C		
EMS and safety	EN 61362-1/EN 61326-3/EN 61010-1		
Dimensions (mm)	280 x 230 x 85		
Weight	2,9 kg (including battery and protection bag)		

Technical specifications SPAROS 609 CA HD:

Technical specifications	Terrestrial	SAT
Frequenz		
Frequency range	45 - 865 MHz	950 - 2150 MHz
Resolution	50 kHz; Display 1 kHz	1 MHz; Display 1 kHz
Analogue measurements		
Dynamic range	20 … 120 dBµV	30 … 110 dBµV
Noise floor level typ.	5 dBµV	-
Units	dBµV, dBmV, dBm, V	
Accuracy	± 0,05 dB / C°	± 0,05 dB / C°
Resolution	0,1 dB	
Measurement filters	Auto. according to 100 / 300 kHz	1 MHz
Input	BNC 75 Ω	
Permissive voltage max.	80 V DC, 80 Vrms / 50 Hz	
Standard	BG, D, K, I, L, M, N, FM, carrier, COFDM, QAM	PAL, SECAM, NTSC, DVB - S, DVB - S2, DSS
Measurements	V, C / N, V / A1, V / A2 according to standard	RF, C / N
Spectrum analyses		
Filter	Automatic (100 / 300 / 1000 kHz)	1 / 3 / 10 MHz
Attenuator	Automatic (0 … 50 dB, 10 dB steps)	Automatic (0 … 50 dB, 10 dB steps)
Dynamic range	60 dB (10 dB / div), 30 dB (5 dB / div)	
Span	5 / 10 / 20 / 50 / 100 / 200 / 500 / complete	10 / 20 / 50 / 100 / 200 / 500 / 1000 / complete
Memory		
Memory	Internal memory	
Data	Bank, measurement (level, BER/MER, frequency, spectrum analyses...)	
Capacity	312 kb (max. 1000 files per bank)	
Interfaces		
USB interface	Mini USB interface + USB standard	
RF - input	F - female with BNC - adapter (75 Ω)	
Ethernet	RJ - 45	
AV - input / output	RCA connectors	
Power supply	Connector 5,5 mm, 15 V / 5 A	
Remote power and DiSEqC		
Voltage	5 / 13 / 18 V, 500 mA	13 / 18 V, 500 mA
DiSEqC	-	1.0 / 1.1 / 1.2 & SCR EN 50494
22 kHz	-	22 kHz, MiniDiSEqC, ToneBurst
TV- Display		
Analouge programs	✔	-
Digital free programs (FTA) MPEG2	✔	✔
MPEG4 H.264 FTA	Optional	Optional

Digital measurements	**DVB - T / H**	**DVB - C**	**DVB - S**	**DVB - S2**
Bit error rate	CBER (before Viterbi) VBER (after Viterbi) UNC (lost packages)	BER (before Reed Solomon) UNC (lost packages)	CBER, VBER, UNC	LDPC, BCH, PER
Modulation error rate (MER)	0 ... 35 dB	20 … 40 dB	0 … 20 dB	
Symbol rate	-	1 … 7 Ms / s	1 … 45 Ms / s	
Bandwidth	5 / 6 / 7 / 8 MHz	-	-	
Modulation type	Auto	Auto	QPSK and 8PSK	
Code rate	Auto	-	1 / 2, 2 / 3, 3 / 4, 5 / 6, 7 / 8, 8 / 9, 9 / 10 (auto)	

General specifications	
Display	7“ LCD TFT color display 16 : 9, backlighted 800 x 480 pixel
Power supply	110 - 240 VAC, 15 V / 4,5 A output
Battery	Lithium - ion 10,8 V / 6,5 Ah
Battery operation time	Approx. 3 hours
Charging time	1 hour charging time for 80% capacity
Operation temperature	0 C° … 40 C°
Storage temperature	- 10 C° … 60 C°
EMS and safety	NF - EN 61362 - 1 / NF - EN 61326 - 3 / NF - EN 61010 - 1
Dimensions	215 mm x 300 mm x 100 mm
Weight	2,1 kg (incl. battery and bag)

Technical specifications SPAROS SAT HD series:

Technical specifications			
Spezifications	**SPAROS SAT HD**	**SPAROS SAT HD DVH-C**	**SPAROS SAT HD DVB-T/T2**
Frequency range	950…2150 MHz	5…865 & 950…2150 MHz	45…865 & 950…2150 MHz
Resolution	1 MHz	50 kHz resp. 1 MHz	50 kHz resp. 1 MHz
Analogue measurements			
Dynamic range	40-110 dBµV	20-120 resp. 40-110 dBµV	20-120 resp. 40-110 dBµV
Units	dBµV, dBmV, dBm, V		
Accuracy	+/- 0,05 dB/°C		
Resolution	0,1 dB		
Measurement filters	1 MHz	300 kHz resp. 1 MHz	300 kHz resp.1 MHz
Standards	PAL, SECAM, NTSC DVB-S/S2, DVB-S2, DSS	B, G, D, K, I, L, M, N, FM DVB-S/S2, DSS, DVB-C	B, G, D, K, I, L, M, N, FM DVB-S/S2, DSS, DVB-T/T2
Digital measurements			
Bit error rate	Before and after Viterbi	Before correction & SAT	Before correction & SAT
Modulation error rate	0…20 dB	20…40 dB & SAT	0…35 dB & SAT
Constellation diagram	Graphical interface	Graphical interface	Graphical interface
Spectrum analyses			
Ultra fast mode typ.	350 ms	150 ms resp. 350 ms	150 ms resp. 350 ms
Measurement filters	1 MHz	1 MHz	300 kHz resp. 1 MHz
Attenuator	Automatic (0-60 dB)		
Dynamic range	60 dB (10 dB/division)		
Span	5, 10, 20, 50, 100, 200, 500 and complete bandwidth		
Measurement map			
Capacity	Up to 50 frequencies		
Memory			
Memory	Measurement map, signal level, constellation diagram, spectrum		
Capacity	Approx. 1000 measurement data		
RF Input			
Connector type	75 Ω F-female		
Permissive voltage max.	80V DC, 80V rms/50 Hz		
Inputs/outputs			
Interface	USB A and USB mini B		
Power connector	Connector 5.5 mm 15V/1 A		
Audio and Video Decoding			
Audio	AAC, HE-AAC, Dolby Digital, Dolby Digital Plus		
Video	MPEG2, MPEG4, 576i, 720p, 1080i free to air		
General specifications			
Display	4,3“ LCD TFT color display in 16:9 widescreen		
AC/DC adapter	100-240V AC, 15V DC/1A		
Battery	Lithium-ion 10,8V/2,25 Ah		
Battery operation time	Approx. 2 hours		
Charging time	Approx. 2,5 hours		
Operation temperature	-5 °C…45 °C		
Storage temperature	-10 °C…60 °C		
EMS and safety	EN-61010-1, EN 61326-A1 & A2, EN 55022 (B)		
Dimensions (mm)	200 x 190 x 100		
Weight	ca. 1,5 kg		

SPAROS 609/611 Upgrades

SPAROS HD Upgrade
SPAROS DVB-T2 Upgrade

Please note that not all devices are upgradable.

Please contact the SPAUN hotline for upgrade possibility of your SPAROS 609/611 device:

Phone: +49 (0) 7731 - 8673 - 18
Email: hotline@spaun.de

Model Art. No.	SPAROS HD upgrade 871522	SPAROS DVB-T2 upgrade 871528
EAN	4040326715222	4040326715284
Available	SPAROS 609	SPAROS 609 CA HD SPAROS 611 CA HD
Additional functionality	DVB-S2 FTA-Display	DVB-T2 Measuring and FTA-Display

SPAROS Tool Bag

SPAROS Tool Bag for SPAROS 609 CA HD and SPAROS 611 CA HD

This practical tool bag offers additional storage. The tool bag can be fixed directly to the device.

Model Art. No.	SPAROS Tool Bag 871525
EAN	4040326715253

SPAROS Mobile Charger

SPAROS BC for SPAROS 711 Touch, SPAROS 609 CA HD, SPAROS 611 CA HD and SPAROS SAT HD

For the cars cigar lighter.

With this mobile charger it is possible to charge the SPAROS series through the cigar lighter of a vehicle.

Model Art. No.	SPAROS BC 871527
EAN	4040326715276

SPAROS 711 Touch Series Upgrades

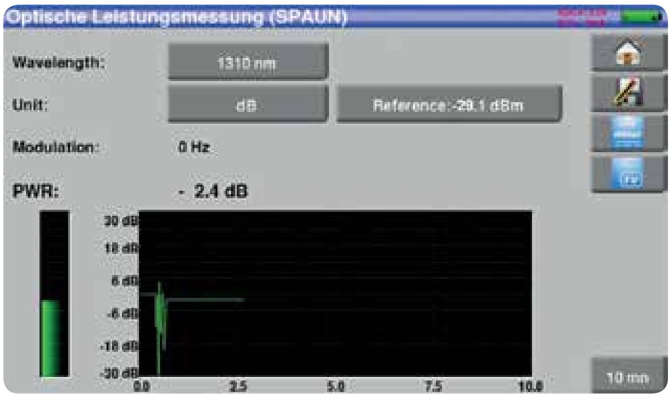
SPAROS Optical Power Measurement
SPAROS WiFi Networks Measurement

Please note that the WiFi Option is only available as factory option.

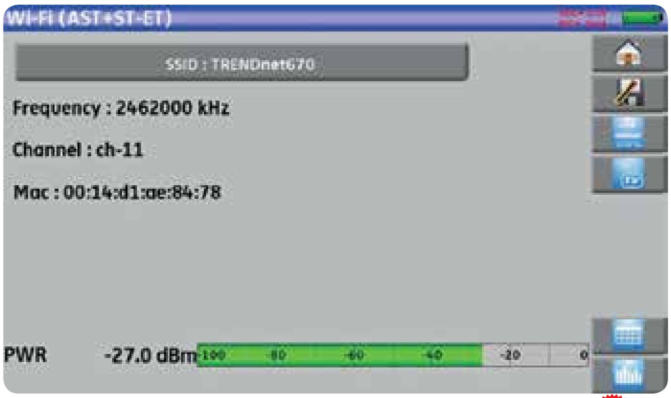
Please contact the SPAUN hotline for upgrade possibility of your SPAROS 711 device:

Phone: +49 (0) 7731 - 8673 - 18
Email: hotline@spaun.de

SPAROS Optical Power Measurement



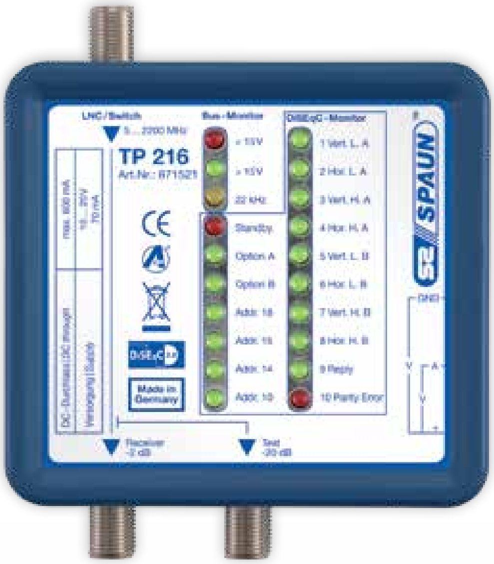
SPAROS WiFi Networks Measurement



Model Art. No.	SPAROS 711 Touch Optical Power Measurement 850041
EAN	4040326500415
Measurement units	Optical power in dB, dBm or mW
Wavelenghts	850 nm, 1300 nm, 1310 nm, 1490 nm, 1550 nm
Dynamic range	- 50 … +10 dBm (1300 nm, 1310 nm, 1490nm, 1550 nm) - 45 … +10 dBm (850 nm)
Measurement accuracy	± 0,2 dB (±5%)
Interface	USB 2.0
Dimensions (mm)	86 x 25 x 19

Model Art. No.	SPAROS 711 Touch WiFi Messung 850040
EAN	4040326500408
Interface	SMA connector

DiSEqC Monitor



TP 216

Useful DiSEqC test tool and bus monitor to ease systematic troubleshooting in distribution networks. Loads and terminations of the networks do not change by using this test tool.

New features:
- Address indicator.
- Identification of the reply from the target device by DiSEqC 2.0 commands.
- Display of transmission errors.
- Test connector for LNB power and voltage.

Tech hint

By sending the DiSEqC commands E00002, the standby LED turns on and by sending the power on command E00003 the standby LED turns off.

If the receiver sends DiSEqC 2.0 commands, the target devices have to confirm the reception of these commands. The reply of the target device is displayed by the reply LED (9).

A transmission error in the DiSEqC protocol is displayed by the LED „Parity- Error“ (10).

Model Art. No.	TP 216 871521
EAN	4040326715215
Frequency range	5…2200 MHz
Through loss	2 dB
Test connector	-20 dB
DC-pass max.	600 mA
Power requirements	10…220 V DC/70 mA
Ambient temperature	-20…+50 °C
Dimensions (mm)	77 x 90 x 31

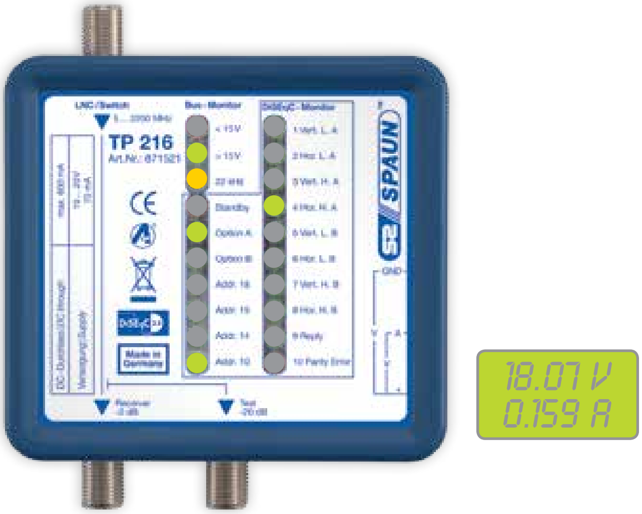
Function List

No.	DiSEqC™ commands	Option		Monitor
		A	B	
1	E21038F0	on	off	Vert. L.A.
2	E21038F2	on	off	Hor. L.A.
3	E21038F1	on	off	Vert. H.A.
4	E21038F3	on	off	Hor. H.A.
5	E21038F4	on	off	Vert. L.B.
6	E21038F6	on	off	Hor. L.B.
7	E21038F5	on	off	Vert. H.B.
8	E21038F7	on	off	Hor. H.B.
9	E21038F8	off	on	Vert. L.A.
10	E21038FA	off	on	Hor. L.A.
11	E21038F9	off	on	Vert. H.A.
12	E21038FB	off	on	Hor. H.A.
13	E21038FC	off	on	Vert. L.B.
14	E21038FE	off	on	Hor. L.B.
15	E21038FD	off	on	Vert. H.B.
16	E21038FF	off	on	Hor. H.B.

Voltage	22 kHz continous tone	ToneBurst	Bus			Monitor
			< 15V	> 15V	22 kHz	
13	0	0	on	off	off	Vert. L.A.
18	0	0	off	on	off	Hor. L.A.
13	1	0	on	off	on	Vert. H.A.
18	1	0	off	on	on	Hor. H.A.
13	0	1	on	off	off	Vert. L.B.
18	0	1	off	on	off	Hor. L.B.
13	1	1	on	off	on	Vert. H.B.
18	1	1	off	on	on	Hor. H.B.

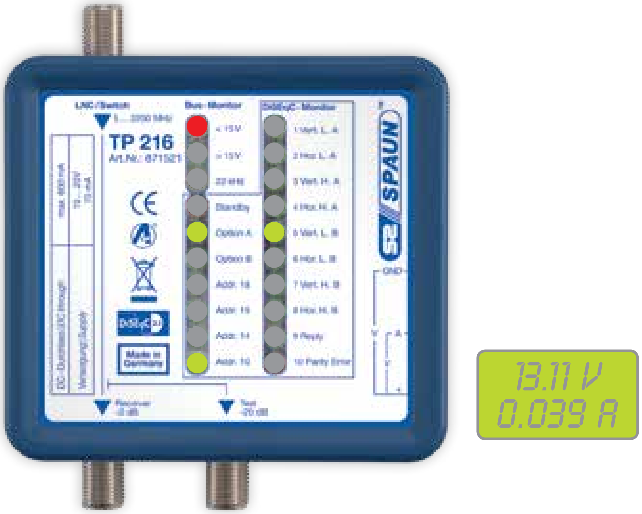
No.	Address byte	Address LEDs			
		10	14	15	18
1	10	on	off	off	off
2	14	off	on	off	off
3	15	off	off	on	off
4	18	off	off	off	on
5	optional	on	on	on	on

Functions of DiSEqC Monitor TP 216



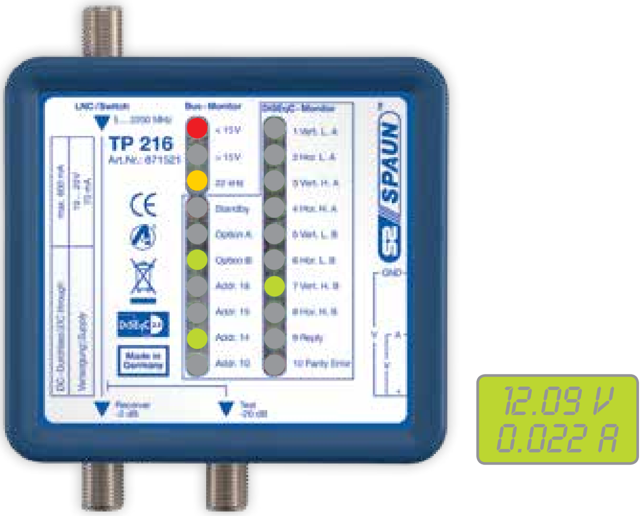
The receiver sends the DiSEqC command Option A, Position A and Horizontal High-Band.

Address 10 contains the command for all switching components like multiswitches, corresponding relays or LNBs for the execution of the receiver commands.



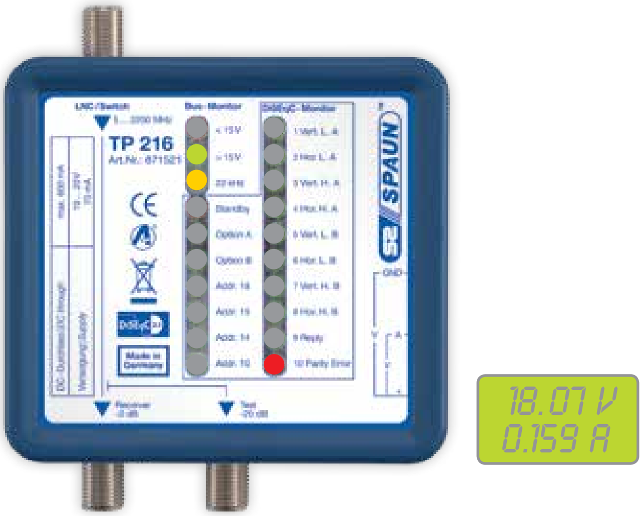
The receiver sends the DiSEqC command Option A, Position B and Vertical Low-Band.

Address 10 contains the command for all switching components like multiswitches, corresponding relays or LNBs for the execution of the receiver commands.



The receiver sends the DiSEqC command Option B, Position B and Vertical High-Band.

Address 14 solely responds to a multiswitch.



A transmission error in the DiSEqC-Protocol is displayed by the LED „Parity-Error".

Tech hint

You have the possibility to check the voltage and the current consumption (indirect current metering) of a LNB, relays by using a multimeter. In addition to that it is possible to meter the level at the test connector (-20 dB) by using SPAROS meters.

POWER SAT IF Amplifier

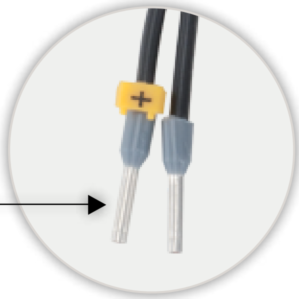
For major distribution networks and long cable runs.

- Aluminum die-cast housing.
- Energy saving switched-mode power supply.
- Extremely high output level.
- Splitband technology.
- Protection class IP 54 in combination with suitable connectors.
- F connectors optional with PG 11.

Accessories

TABLE OF CONTENTS

Universal AC Adapter



SNG 18/1000, SNG 12/2000

To power SPAUN devices which are designed for an external wall power supply.

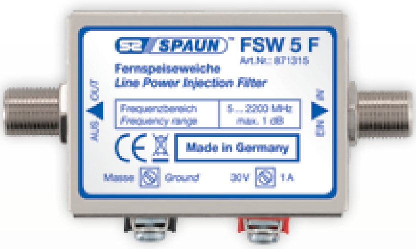
- International adapters.
- Meets EU directive 2005/32/EG.

Energy Saver!
Standby Function and Switched-Mode Power Supply

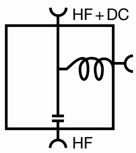
c UL us
LISTED
E163743
8F35

Model Art. No.	SNG 18/1000 832114	SNG 12/2000 832115
EAN	4040326321140	4040326321157
Mains power supply U~	100…240 V/47 - 63 Hz	100…240 V/47 - 63 Hz
Power consumption (unloaded)	≤ 0,3 W	≤ 0,3 W
Remote voltage	18 V	12 V
Connector type	F connector	Open lead
Total current	1 A	2 A
Ambient temperature	0…40 °C	0…40 °C

Line Power Injection Filter



FSW 5 F, FSW 30 F, FSW 40 F

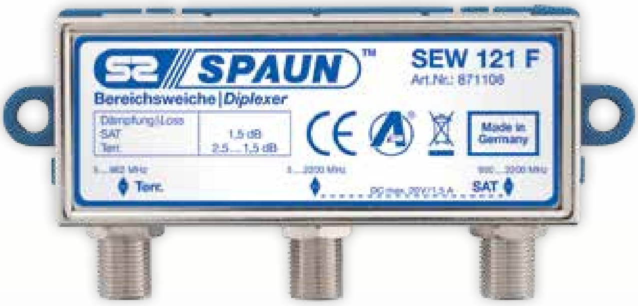


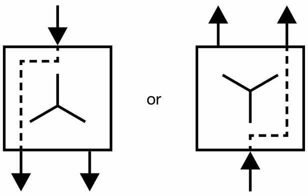
To add or remove remote power.

Applications:
- Remote powering of amplifiers (HNV, SVF, NVF, MBV).
- To bypass non DC resistent RF components.

Model Art. No.	FSW 5 F 871315	FSW 30 F 815018	FSW 40 F 871333
EAN	4040326713150	4040326150184	4040326713334
Frequency range	5…2200 MHz	5…2200 MHz	5…2200 MHz
Through loss max.	1 dB	1 dB	1 dB
DC-pass	1 A	1 A	1 A
Remote power voltage max.	30 V	30 V	20 V
Ambient temperature	-20…+50 °C	-20…+50 °C	-20…+50 °C
Dimensions (mm)	40 x 74 x 21	40 x 74 x 21	40 x 74 x 21

Diplexer





SEW 122 F:
Please note the frequency range of 5 … 160 MHz and 250 … 2200 MHz.

SEW 121 F, SEW 122 F
SEW 123 F

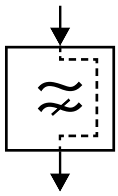
- To combine / separate the terrestrial and SAT IF signals.
- DC-pass for LNB remote power.

! For wall or mast mounting: please use UV resistant outdoor case type **WSG 94 (Art. No.: 872009)** (only available for SEW 121 F).

Model Art. No.	SEW 121 F 871108	SEW 122 F 871439	SEW 123 F 871109
EAN	4040326711088	4040326714393	4040326711095
Frequency range	5 … 862 MHz 950 … 2200 MHz	5 … 160 MHz 250 … 2200 MHz	5 … 862 MHz 950 … 2200 MHz
Through loss SAT Terrestrial	1.5 dB 2,5 … 1,5 dB	2 … 1 dB 0,5 … 2 dB	1.5 dB 0,5 … 2 dB
Rejection Terrestrial / SAT SAT / terrestrial	≥ 32 dB ≥ 32 dB	≥ 40 dB ≥ 40 dB	≥ 30 dB ≥ 30 dB
DC-pass max.	20 V / 1 A		
Ambient temperature	-20 … +50 °C		
Dimensions (mm)	101 x 46 x 18	102 x 46 x 18	52 x 53 x 17

Accessories

SAT High Pass Filter



SHP 45

- To remove IM interferences caused by the LNB in the terrestrial frequency range.

Model Art. No.	SHP 45 871203
EAN	4040326712030
Frequency range	950 … 2200 MHz
Through loss	2,5 … 1,5 dB
Rejection SAT / terrestrial	> 45 dB
DC - pass	max. 1 A
Ambient temperature	- 20 … + 50 °C
Dimensions (mm)	35 x 74 x 21

SAT Filter for Digiturk™ application

SDF 22

- For special application in the Turkish market.

Model Art. No.	SDF 865080
EAN	4040326650806
Frequency range	950 … 2200 MHz
DC - pass max.	1 A
Ambient temperature	- 20 … + 50 °C
Dimensions (mm)	35 x 74 x 21

Wideband Devices for DirecTV™ applications.

GMS 51209 WBP
Page 85

GBK 5500 WBP
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GZR 5550 / 15 WB
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SMS 41209 WBP
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DiSEqC Generator

SUG 22

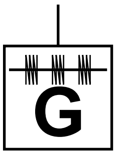
- To convert the standard switching commands (14/18 V, 0/22 kHz) into DiSEqC 1.0 commands.
- To be fitted into receiver download cable.
- Enable the access to 4, 8, 12 or 16 SAT IF polarities in combination with DiSEqC switches.
- Last switching state is maintained even after switch off the device.

Model Art. No.	SUG 22 (NEW) 871400
EAN	4040326714003
Frequency range	950 … 2200 MHz
RF input/RF output	1/1
Through loss	2.5 dB
Power consumption	< 50 mA
Push button	S1 = Band/S2 = Polarisation/ S3 = Position/S4 = Option
LEDs	LED1 = Band/LED2 = Polarisation/ LED3 = Position/LED4 = Option
Dimensions (mm)	76 x 36 x 27

22 kHz Generator

SG 22 F

- To generate a continuous 22 kHz tone.
- Input: F connector (male) for direct connection. Output: F connector (female).



Model Art. No.	SG 22 F 871419
EAN	4040326714195
Frequency range	950 … 2200 MHz
Through loss	1 dB
Supply voltage	10 … 20 V/17 mA
DC-pass max.	500 mA
Ambient temperature	-20 … +50 °C
Dimensions (mm)	35 x 74 x 21

SAT Attenuator Unit

SDE 4415/5 F, SDE 4420/5 F

- To attenuate RF levels of one SAT system.
- In order to increase the usability of this attenuator unit, it has this built-in F-male/F-female connectors.

Tech hint

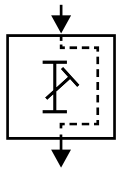
Please note that the SAT attenuator units have different connector distances. Thus the attenuator unit **SDE 4415/5 F** with a connector distance of 15 mm is suitable e.g. for the multiswitches **SMS 9989 U, SMS 9807 NF, SMS 91607 NF, SMS 92407 NF, SMS 93207 NF** and the attenuator unit **SDE 4420/5 F** with a connector distance of 20 mm e.g. for the multi-switch **SMS 9949 NFI**.

Model Art. No.	SDE 4415/5 F 871319	SDE 4420/5 F 871320
EAN	4040326713198	4040326713204
Frequency range	950 … 2200 MHz	
Loss/fix	Each connector 5 dB	
DC-pass max.	1 A	
Ambient temperature	-20 … +50 °C	
Connector distance (mm)	15	20
Dimensions (mm)	62 x 64 x 21	77 x 64 x 21

Level Adjuster

PS 2200 F

- To attenuate RF levels.



Model Art. No.	PS 2200 F 871312
EAN	4040326713129
Frequency range	0,15 … 2200 MHz
Through loss terrestrial	0,5 dB
Through loss SAT	1 … 2 dB
Attenuation range	0 … -20 dB
DC-pass max.	1 A
Ambient temperature	-20 … +50 °C
Dimensions (mm)	77 x 49 x 30

SAT Slope Equalizer Unit

SLE 4420/6 F

- To compensate the slope of distribution networks.

Tech hint

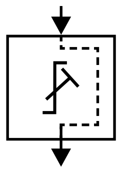
The slope equalizer unit **SLE 4420/6 F** has built-in F-male/F-female connectors. The unit is designed for a direct connection with multiswitches with 20 mm F connector distance. e.g.: Multiswitch **SMS 9949 NFI**.

Model Art. No.	SLE 4420/6 F 871321
EAN	4040326713211
Frequency range	950 … 2200 MHz
Through loss	1,5 dB
Slope control (fixed value)	-6 dB
DC-pass max.	1 A
Ambient temperature	-20 … +50 °C
Dimensions (mm)	77 x 64 x 21

SAT Slope Equalizer Unit

SLR 2200 F

- To compensate the slope of distribution networks.



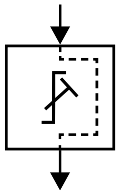
Model Art. No.	SLR 2200 F 871316
EAN	4040326713167
Through loss	1,5 dB
Loss 950 MHz 2200 MHz	 14 dB 3 dB
Slope control	0 … -12 dB
DC-pass max.	1 A
Supply	11 … 20V DC/5 mA
Ambient temperature	-20 … +50 °C
Dimensions (mm)	35 x 74 x 21

Accessories

Slope Equalizer for SAT and Terrestrial

LE 2200

- To compensate the slope of distribution networks.

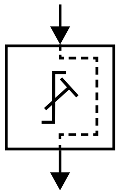


Model Art. No.	LE 2200 871318
EAN	4040326713181
Frequency range	5…2200 MHz
Through loss	1,5 dB
Loss 47 MHz 862 MHz 2200 MHz	 12 dB 10 dB 2 dB
Slope control (fixed value)	-10 dB
DC-pass max.	1 A
Ambient temperature	-20…+50 °C
Dimensions (mm)	35 x 74 x 21

Terrestrial Slope Equalizer

LE 862 F

- To compensate the slope of distribution networks.
- F-male and F-female jack for direct connection.



! For DC compatibility use **DCF 500 (Art. No. 871506)**.

Model Art. No.	LE 862 F 871311
EAN	4040326713112
Frequency range	47…862 MHz
Through loss	1 dB
Slope control	-1…-18 dB
Ambient temperature	-20…+50 °C
Dimensions (mm)	77 x 49 x 30

Tech hint

Slope equalizers are used in distribution networks where long cable runs cause a higher through loss in the upper frequency range.

Slope equalizers compensate this higher through loss by having a higher loss in the lower frequency range compared to the upper frequency range.

SPAUN offers different slope equalizers as adjustable and non-adjustable models for the terrestrial and the SAT range to give an installer the possibility to customize every installation individually corresponding to the distribution network.

Taps

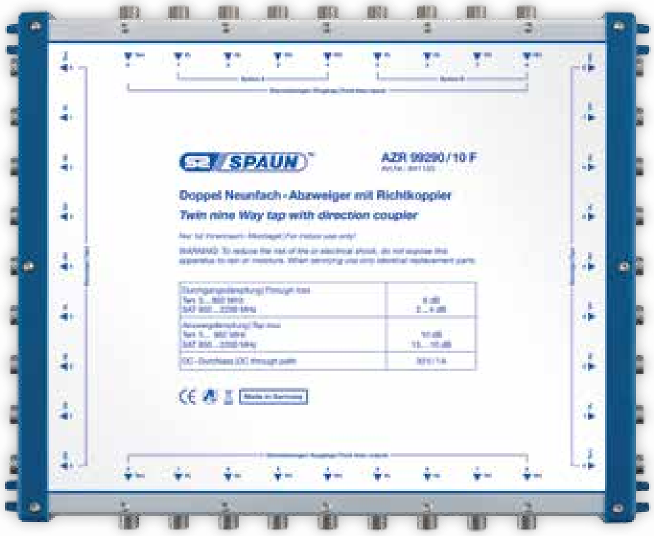
AZR 171170/10 F, AZR 171170/15 F
AZR 172170/10 F, AZR 172170/15 F

- To be used in large distribution networks with multiple supply lines, these devices reduce the installation cost significantly.
- For each tap series, there are two different models with different tap loss.
- The terrestrial line is return path compatible. The trunk line DC-path is linked to the tap outlet.

Model Art. No.	AZR 171170/10 F 841134	AZR 171170/15 F 841135	AZR 172170/10 F 841136	AZR 172170/15 F 841137
EAN	4040326411346	4040326411353	4040326411360	4040326411377
Inputs SAT/terrestrial	16/1			
Outputs SAT/terrestrial	16/1+16/1		16/1+16/1+16/1	
Frequency range	5…862 MHz 16 x 950…2200 MHz			
Tap loss tap 1 Terrestrial SAT	11 dB 13…10 dB	15 dB 18…15 dB	10 dB 14…10 dB	15 dB 18…15 dB
Tap loss tap 2 Terrestrial SAT	-	-	10 dB 14…10 dB	15 dB 18…15 dB
Through loss trunk Terrestrial SAT	3,5 dB 1,5 dB	2,5 dB 1,5 dB	4 dB 3 dB	3,5 dB 3 dB
Isolation: Trunk line/trunk line	26 dB			
Isolation: Trunk line/tap	26 dB			
Isolation: Tap/tap	26 dB			
DC-pass max.	30V/1 A			
Ambient temperature	-20…+50 °C			
Dimensions (mm)	426 x 132 x 46			

Accessories

Taps



AZR 131130/10 F, AZR 9990/10 F
AZR 99290/10 F, AZR 99290/15 F

- To be used in large distribution networks with multiple supply lines, these devices reduce the installation cost significantly.
- The terrestrial line is return path compatible. The trunk line DC-path is linked to the tap outlet.

Model Art. No.	AZR 131130/10 F 850020	AZR 9990/10 F 841131	AZR 99290/10 F 841153	AZR 99290/15 F 841154
EAN	4040326500200	4040326411315	4040326411537	4040326411544
Inputs SAT/terrestrial	12/1	8/1		
Outputs SAT/terrestrial	12/1+12/1	8/1+8/1	8/1+8/1+8/1	
Frequency range	5…862 MHz and 12 x 950…2200 MHz	5…862 MHz and 8 x 950…2200 MHz		
Tap loss tap 1 Terrestrial SAT	10 dB 11 dB	11 dB 14…10 dB	10 dB 13…10 dB	15 dB 18…15 dB
Tap loss tap 2 Terrestrial SAT	-	-	10 dB 13…10 dB	15 dB 18 …15 dB
Through loss trunk Terrestrial SAT	2,5 dB 1,5 dB	< 3,5 dB < 1…2,5 dB	6 dB 2…4 dB	6 dB 2 …4 dB
Isolation: Trunk line/trunk line	26 dB	26 dB		
Trunk line/tap	26 dB	26 dB		
Tap/tap	26 dB	26 dB		
DC-pass max.	30 V/1 A	30 V/1 A		
Ambient temperature	-20…+50 °C	-20…+50 °C		
Dimensions (mm)	345 x 132 x 48	264 x 211 x 39		

Taps

Penta Tap®

Twin Penta Tap®

AZR 5550/10 F, AZR 5550/15 F
AZR 5550/20 F AZR 55250/10 F

- The installation expenditure of major distribution networks can be reduced substantially.
- Easy installation, just one device instead of five.
- The trunk line DC-path is also linked to the tap outlets. This offers remote power to post amplifiers in tap lines.

Model Art. No.	AZR 5550/10 F 841113	AZR 5550/15 F 841114	AZR 5550/20 F 841115	AZR 55250/10 F 841151
EAN	4040326411131	4040326411148	4040326411155	4040326411513
Inputs SAT/terrestrial	4/1			
Outputs SAT/terrestrial	4/1+4/1			4/1+4/1+4/1
Frequency range	5…862 MHz 4 x 950…2200 MHz			
Tap loss Tap 1 Terrestrial SAT	10 dB 13…10 dB	16 dB 19…15 dB	20…17,5 dB 24…20 dB	10 dB 14…10 dB
Tap loss Tap 2 Terrestrial SAT	-	-	-	10 dB 14…10 dB
Through loss trunk Terrestrial SAT	2,5…4 dB 1…2 dB	1…2 dB 1…2 dB	0,5…1,5 dB 1…2 dB	4…5 dB 1,5…3 dB
Isolation: Trunk line/trunk line	26 dB			
Isolation: Trunk line/tap	26 dB			
Isolation: Tap/tap	26 dB			
DC-pass max.	30V/1 A			
Ambient temperature	-20…+50 °C			
Dimensions (mm)	145 x 130 x 39			

Accessories

Taps

ABE 1/10 P, ABE 1/15 P, ABE 2/10 P
ABE 2/15 P, ABE 4/10 P, ABE 4/15 P, ABE 6/15 P

- To tap ports from a trunk line.
- CATV compatible.
- Remote power passes only through trunk line.
- Unused trunk line output must be terminated.
- Die-cast metal housing protection class IP 54 (using suitable connectors).

Model Art. No.	ABE 1/10 P 841138	ABE 1/15 P 841139	ABE 2/10 P 841141	ABE 2/15 P 841142	ABE 4/10 P 841147	ABE 4/15 P 841148	ABE 6/15 P 841150
EAN	4040326411384	4040326411391	4040326411414	4040326411421	4040326411476	4040326411483	4040326411506
Tap	1-way		2-way		4-way		6-way
Tap loss 5…40 MHz 40…1000 MHz 1000…2400 MHz	 11 dB 10 dB 10 dB	 15 dB 15 dB 15 dB	 11 dB 11 dB 11 dB	 15 dB 15 dB 15 dB	 10,5 dB 11,5 dB 13 dB	 15 dB 15 dB 15,5 dB	 15,5 dB 16 dB 18 dB
Tap loss trunk 5 ... 40 MHz 40 ... 1000 MHz 1000…2400 MHz	 2,0 dB 2,5 dB 3,2 dB	 1,5 dB 1,5 dB 2,2 dB	 3,5 dB 4,5 dB 4,5 dB	 3 dB 3 dB 4 dB	 5 dB 5 dB 6 dB	 3 dB 3,5 dB 5 dB	 4 dB 4,5 dB 7 dB
Ambient temperature	-20…+50 °C						
Dimensions (mm)	56 x 50 x 28		78 x 50 x 28				122 x 58 x 29

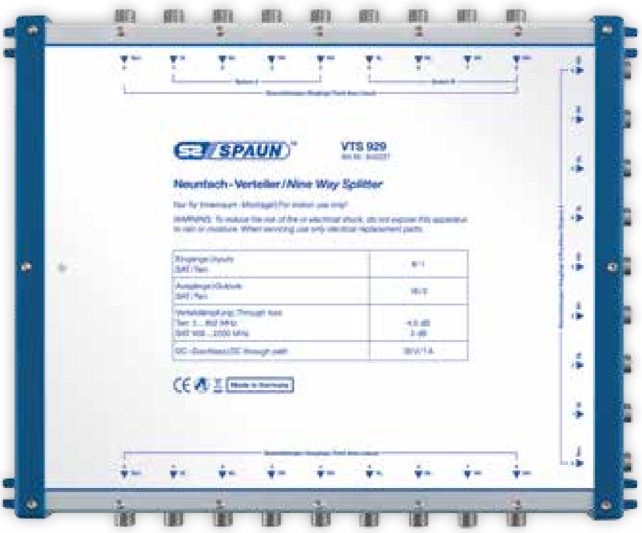
UNiTap

UNiTap

- Suitable for SCR applications.
- DC-pass in all directions.

Model Art. No.	UNiTap 841156
EAN	4040326411568
Tap	1-way
Frequency range	5…2400 MHz
Insertion loss typ.	2 dB
Tap loss typ.	10 dB
Ambient temperature	-20…+50 °C
Dimensions (mm)	55 x 48 x 27

Splitters



VTS 17217, VTS 13213
VTS 929, VTS 525, VTS 545

- To be used in large distribution networks with multiple supply lines, these splitters reduce the installation expenditures substantially. This means the RF signal of the terrestrial trunk line and the 16/12/8/4 SAT IF trunk line is divided in each case into two trunk lines. Each trunk line has a separate DC-pass, which is connected with the respective output ports.
- **The VTS 545 offers 4 x 5 outputs.**

Model Art. No.		VTS 17217 842222	VTS 13213 850019	VTS 929 842221	VTS 525 842218	NEW VTS 545 842235
EAN		4040326422229	4040326500194	4040326422212	4040326422182	4040326422359
Inputs SAT/terrestrial		16/1	12/1	8/1	4/1	4/1
Outputs SAT/terrestrial		16/1+16/1	12/1+12/1	8/1+8/1	4/1+4/1	4 x 4/1
Frequency range		5…862 MHz and 950…2200 MHz				
Through loss Terrestrial typ. SAT typ.		4 dB 5 dB				7 dB 8,5 dB
Isolation	Input/input	> 26 dB				> 35 dB
	Output/output terrestrial	> 20 dB				> 25 dB
	Output/output SAT	> 15 dB				> 18 dB
DC-pass max.		30V/1 A				
Ambient temperature		-20…+50 °C				
Dimensions (mm)		426 x 132 x 46	345 x 132 x 48	264 x 211 x 39	145 x 130 x 46	305 x 130 x 40

Splitters

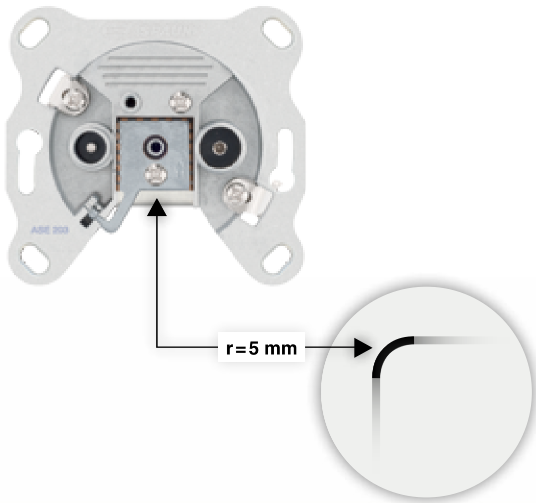
VBE 2 P, VBE 4 P
VBE 2 PD, VBE 3 PD, VBE 4 PD, VBE 6 PD, VBE 8 PD

- To split signals into 2 - 8 outputs.
- CATV compatible.
- Return loss and isolation meets the requirements of the EN 60728 - 4 / Class A.
- Die - cast metal housing protection class IP 54 (using suitable connectors).
- DC - pass from all output ports via diodes.
- **Feature VBE 2 P and VBE 4 P: Remote power pass in all directions.**

Model Art. No.	VBE 2 P 842223	VBE 4 P 842234
EAN	4040326422236	4040326422342
Tap	2 - way	4 - way
Through loss 5 ... 40 MHz 40 ... 1000 MHz 1000 ... 2400 MHz	 4,5 dB 4,5 dB 5 dB	 8,5 dB 9 dB 11 dB
Return loss 5 ... 40 MHz 40 ... 1000 MHz 1000 ... 2400 MHz	 18 dB 20 dB 20 dB	 22 dB 20 dB 20 dB
DC - pass max.	30 V / 1 A	
Ambient temperature	- 20 … + 50 °C	
Dimensions (mm)	56 x 50 x 28	78 x 50 x 28

Model Art. No.	VBE 2 PD 842224	VBE 3 PD 842226	VBE 4 PD 842228	VBE 6 PD 842230	VBE 8 PD 842232
EAN	4040326422243	4040326422267	4040326422281	4040326422304	4040326422328
Tap	2 - way	3 - way	4 - way	6 - way	8 - way
Through loss 5 ... 40 MHz 40 ... 1000 MHz 1000 ... 2400 MHz	 4,5 dB 5 dB 6,2 dB	 7,5 dB 8 dB 10,5 dB	 8,5 dB 9 dB 11 dB	 11,5 dB 13 dB 16,5 dB	 12 dB 14 dB 16 dB
Return loss 5 ... 40 MHz 40 ... 1000 MHz 1000 ... 2400 MHz	 18 dB 20 dB 20 dB	 20 dB 20 dB 20 dB	 22 dB 20 dB 20 dB	 22 dB 21 dB 20 dB	 22 dB 21 dB 20 dB
DC - pass max.	30 V / 1 A				
Ambient temperature	- 20 … + 50 °C				
Dimensions (mm)	56 x 50 x 28	78 x 50 x 28		122 x 58 x 29	

TV Socket Outlets (CATV)



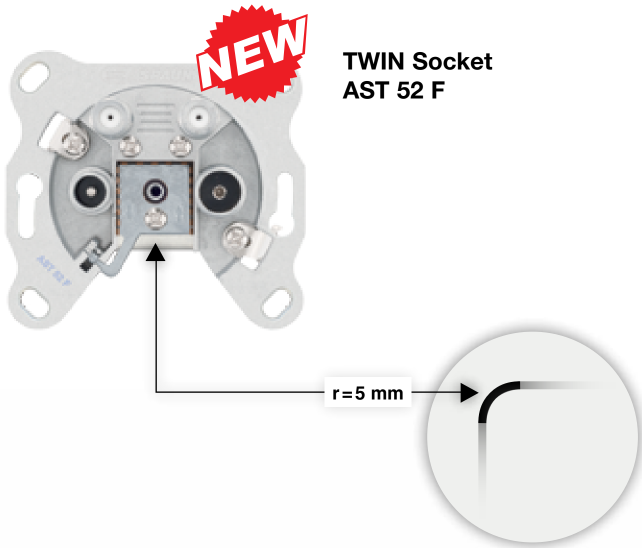
ASE 203, ASD 210
ASD 214, ASD 218

- To be used in CATV networks or terrestrial distribution systems.
- For surface and flush-mounting with screw and claw-fixing.
- With nearly all installation programs combinable (DIN 45330).
- Delivery without hole cover.

Model Art. No.	ASE 203 850016	ASD 210 821104	ASD 214 821105	ASD 218 821106
EAN	4040326500163	4040326211045	4040326211052	4040326211069
Type	Stubline Socket	Through Socket	Through Socket	Through Socket
Frequency range TV	5 … 862 MHz			
Frequency range FM	5 … 108 MHz*			
Insertion loss IN-TV	3 dB ± 0,5 dB	10 dB ± 1 dB	14 dB ± 1 dB	18 dB ± 1 dB
Insertion loss IN-FM	6 dB ± 0,5 dB	12 dB ± 1 dB	14 dB ± 1 dB	18 dB ± 1 dB
Through loss	-	2,5 dB ± 0,5 dB	2 dB ± 0,5 dB	1,5 dB ± 0,5 dB
Isolation TV-FM	25 dB			
Ambient temperature	-20 … +50 °C			

* The frequency range for the FM port will be extended to 5 … 230 MHz. Thus the sockets are DAB+ capable. The new socket design and the DAB+ extension are available in the 4th quarter 2014.

TV Socket Outlets (SMATV)



TWIN Socket
AST 52 F

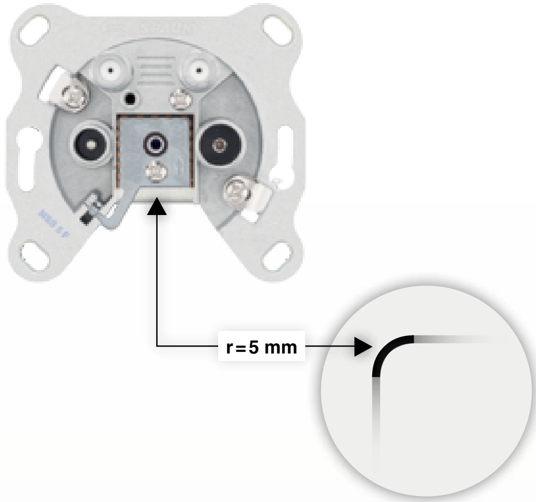
ASE 5 F
UNiSocket 310
UNiSocket 314
UNiSocket 318
AST 52 F

- To be used in SMATV networks.
- For selective separation of the broadband frequency range 5 … 2250 MHz.
- For surface and flush-mounting with screw and claw-fixing.
- With nearly all installation programs combinable (DIN 45330).
- Delivery without cover plate.

Model Art. No.	NEW ASE 5 F 850006	NEW UNiSocket 310 852106	NEW UNiSocket 314 852107	NEW UNiSocket 318 852108	NEW AST 52 F 850004
EAN	4040326500064	4040326521069	4040326521076	4040326521083	4040326500040
Type	Stubline Socket	Through Socket	Through Socket	Through Socket	TWIN Socket
Frequency range SAT	950 … 2250 MHz				950 … 2200 MHz
Frequency range TV	5 … 862 MHz	5 … 68 MHz 118 … 862 MHz			5 … 862 MHz
Frequency range FM	5 … 139 MHz*	87,5 … 108 MHz*			87,5 … 230 MHz*
Tap loss IN-SAT	2 dB ± 0,5 dB	10 dB ± 2 dB	14 dB ± 2 dB	18 dB ± 2 dB	3 dB
Tap loss IN-TV	2,5 dB ± 0,5 dB	10 dB ± 2 dB	14 dB ± 2 dB	18 dB ± 2 dB	3,5 dB
Tap loss IN-FM	6 dB ± 0,5 dB	10 dB ± 2 dB	14 dB ± 2 dB	18 dB ± 2 dB	6 dB
Through loss typ.	-	3 dB	2 dB	1,5 dB	-
Isolation TV-SAT	25 dB				20 dB
Isolation FM-SAT	22 dB				25 dB
Isolation TV-FM	20 dB				12 dB
SAT power pass max.	1 A				1 A
Ambient temperature	-20 … +50 °C				

* The frequency range for the FM port will be extended to 5 … 230 MHz. Thus the sockets are DAB+ capable.
The new socket design and the DAB+ extension are available in the 4th quarter 2014.

Multimedia Sockets (SAT)



MSS 5 F, MediaSocket 410
MediaSocket 414, MediaSocket 419

- To be used in SMATV networks combined with multimedia application.
- Separate data port for connecting a cable modem.
- For surface and flush-mounting with screw and claw-fixing.
- With nearly all installation programs combinable (DIN 45330).
- Delivery without cover plate.

Model Art. No.	MSS 5 F (NEW) 852112	MediaSocket 410 (NEW) 852109	MediaSocket 414 (NEW) 852110	MediaSocket 419 (NEW) 852111
EAN	4040326521120	4040326521090	4040326521106	4040326521113
Type	Stubline Socket	Through Socket	Through Socket	Through Socket
Frequency range SAT	950 … 2250 MHz			
Frequency range TV	87,5 … 862 MHz			
Frequency range FM	87,5 … 862 MHz*			
Frequency range Data	5 … 862 MHz			
Tap loss IN-SAT	3 dB ± 0.5 dB	10 dB ± 2,5 dB	14 dB ± 2,5 dB	19 dB ± 2,5 dB
Tap loss IN-TV	4 dB ± 2 dB	10 dB ± 2,5 dB	14 dB ± 2,5 dB	19 dB ± 2,5 dB
Tap loss IN-FM	8 dB ± 2 dB	10 dB ± 2,5 dB	14 dB ± 2,5 dB	19 dB ± 2,5 dB
Tap loss IN-Data	9 dB ± 2,5 dB	10 dB ± 2,5 dB	14 dB ± 2,5 dB	19 dB ± 2,5 dB
Through loss typ.	-	5 … 1750 MHz 6,5 dB 1750 … 2250 MHz 8 dB	5 … 1750 MHz 5 dB 1750 … 2250 MHz 7 dB	5 … 1750 MHz 6 dB 1750 … 2250 MHz 6,5 dB
Isolation TV-SAT	25 dB			
Isolation FM-SAT	22 dB			
Isolation TV-FM	20 dB			
SAT power pass max.	1 A			
Ambient temperature	-20 … +50 °C			

* The frequency range for the FM port will be extended to 5 … 230 MHz. Thus the sockets are DAB+ capable.
The new socket design and the DAB+ extension are available in the 4th quarter 2014.

SpaceBox VAM DVB - T

Conversion of A / V in COFDM

Features:

- SpaceBox VAM DVB - T 19" Base Unit with switched - mode power supply.
- Digital DVB -T output signal.
- Base Unit extendable to up to 7 DVB - T modulators.
- The modulator is adjacent channel compatible.
- Internal test pattern generator can be activated.
- Possibility to connect an additional terrestrial signal.
- VAM 420 NG DVB - T can be used as stand - alone solution with DIN - rail mounting or wall mounting.

Surface Mount Cover Plate

AMR U/Set

- For TV socket outlets according to DIN 45330.
- Can be used with all SMATV and CATV sockets.
- Includes cover plates (2, 3 and 4 hole).
- RAL 9010 pure white.

Model Art. No.	AMR U/Set 850005
EAN	4040326500057

Terminating Resistors

❶ ❷

ASR 75/Set, DCR 75/Set

❶ Terminating resistors 75 Ω

❷ Terminating resistors 75 Ω for UNiSocket 310/314/318, MediaSocket 410/414/419, DC decoupled

Model Art. No.	ASR 75/Set 871512	DCR 75/Set 871513
EAN	4040326715123	4040326715130
Dimensions (mm)	18,5, 3,5 ∅	18,5, 3,5 ∅

Earth Bonding Bars

EW4, EW5, EW6

- Space between connectors 20 mm.
- Including mounting screws.

Model Art. No.	EW 4 852113	EW 5 852114	EW 6 852115
EAN	4040326521137	4040326521144	4040326521151
Connectors	4	5	6
Dimensions (mm)	77 x 45 x 30	97 x 45 x 30	117 x 45 x 30

Ground Clamp

EDKL 1/Set

- Suitable for all F connectors, especially for the grounding of the UniSystem devices.
- For equipotential bounding with 4 mm².

Set = 5 pcs. (sales unit).

Model Art. No.	EDKL 1/Set 872013
EAN	4040326720134
Dimensions (mm)	35 x 14,5 x 2

Elbow Connector

WS 90 F / Set

Set = 4 of 4 pcs.

Model Art. No.	WS 90 F 871502
EAN	4040326715024
Screening attenuation	> 90 dB

DC - Blocker

DCF 500 / Set

Set of 2 pcs.

Model Art. No.	DCF 500 / Set 871506
EAN	4040326715062
Impedance	75 Ω
Through loss trunk Terrestrial SAT	 < 0,5 dB < 0,5 dB
Voltage max.	50 V
Dimensions (mm)	33, 12 ∅

DC - Decoupled Terminating Resistor

❶  ❷ 

ZFR 75 DC / Set, ZMR 75 DC / Set

Set of 2 pcs.

❶ **ZFR 75 DC**

❷ **ZMR 75 DC**

Model Art. No.	ZFR 75 DC / Set 871511	ZMR 75 DC / Set 871514
EAN	4040326715116	4040326715147
Impedance	75 Ω	75 Ω
Voltage max.	30 V	30 V
Dimensions (mm)	27, 12 ∅	27, 12 ∅

Non DC - Decoupled Terminating Resistor

ZSR 75 F / Set

Set of 5 pcs.

Model Art. No.	ZSR 75 F / Set 871501
EAN	4040326715017
Impedance	75 Ω
Voltage max.	0 V
Dimensions (mm)	12,5 ∅

Push On F Coupler (male)

ZSV 2 S/Set

Set of 5 pcs.

Model Art. No.	ZSV 2 S/Set 871508
EAN	4040326715086
Trough loss trunk Terrestrial SAT	0,2 dB 0,4 dB
Dimensions (mm)	28, 12 ∅

F Coupler (female)

SFV 2/Set

Set of 2 pcs.

Model Art. No.	SFV 2/Set 872616
EAN	4040326726167
Through loss Terrestrial SAT	0,2 dB 0,4 dB
Domensions (mm)	26, 12 ∅

RF Link Cables

ZVK 500 F/Set , ZVK 250 F/Set

Set of 5 pcs.

Model Art. No.	ZVK 250 F/Set 871505	ZVK 500 F/Set 871507
EAN	4040326715055	4040326715079
Impedance	75 Ω	
Through loss Terrestrial SAT	0,5 dB 1 dB	
Dimensions (mm)	250	500
Diameter (mm)	6	

Antenna Coaxial Cable

SPOAX 111

- Dark blue external sheath.
- Meter marking.
- Lead and silicone free.
- Conform with EN 50117-2-4, EN 50117-2-5.
- Conform with EN 60332-1-2-3, EN 50265-EN, EN 50266-EN, EN 50267-EN, EN 50268.
- SPOAX 111 LS0H capable for outdoor use **(no underground installation)**.

Model External coating (material) Art. No.		SPOAX 111	
		PVC 860020	LS0H 860022
EAN		4040326600207	4040326600221
Outdoor mounting		-	✓
Indoor mounting		✓	✓
Flame retardant		-	✓
Material data	1. Inner conductor	Copper (CU) 1.13 mm (17 Ω/km)	
	2. Bend protection	Pigmented Polyethylene with black Carbon (PEC)	
	3. Insulation (Dielectric)	Foamed antiaging Polyethylene (PEE) 4.9 mm	
	4. Bend protection	Pigmented Polyethylene with black Carbon (PEC)	
	5. Tape	Aluminum/Polyester/Aluminum (AL/PET/AL) 100%	
	6. Braid	Tinned Copper wire (CU-SN) 5,6 mm	
	7. Tape	Aluminum/Polyester (AL/PET) 100%	
	8. Sheath	6,7 mm	
Capacitance		52 pF/m (+/-2)	
Nominal impedance		75 Ω (+/-3)	
Attenuation dB/100 m	5 MHz 50 MHz 200 MHz 300 MHz 470 MHz 860 MHz 1000 MHz 1750 MHz 2150 MHz 2500 MHz 3000 MHz	1,0 dB 3,6 dB 8,0 dB 9,5 dB 12,4 dB 16,8 dB 18,0 dB 24,9 dB 27,8 dB 29,5 dB 33,0 dB	
Return loss	20…470 MHz 470…1500 MHz 1500…2500 MHz	> 30 dB > 28 dB > 24 dB	
Screening attenuation		> 110 dB	
Velocity ratio		85 %	
Bending radius in mm max. one-time/repeated		20/50	
Copper weight		24,5 kg/km	
Total weight		55 kg/km	
Mounting temperature		-20 °C … 70 °C	
Packing		250 m boxed with unwinder	

F Connectors

❶

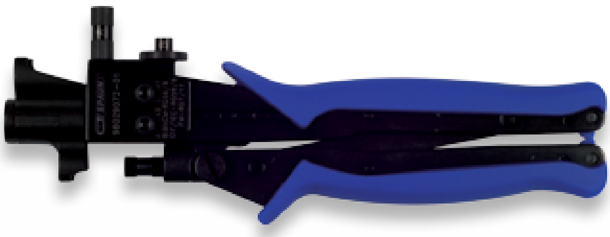
❷

FKS 53/Set, FCS 53/Set

❶ **FKS 53**
❷ **FCS 53**

Model Art. No.	FKS 53/Set (Compression) 872600	FCS 53/Set (Crimp) 872610
EAN	4040326726006	4040326726105
Screening attenuation	> 90 dB	> 90 dB
Packing unit	50	50

Compression Pliers



FKZ - 1

Compression pliers with 3 compression adapters for compression connectors FKS 53 / Set.

- Parallel track path.
- Robust metal worked design with efficient transmission for good effort / compression ratio.

Model Art. No.	FKZ - 1 872500
EAN	4040326725009

Crimp Pliers

FCZ - 1

Crimp pliers for crimp connectors FCS - 53 / Set.

- Robust metal worked design.
- Adjustable track.
- Use with crimp connector in size 3.7 and 5.3 without switching the cap.

Model Art. No.	FCZ - 1 872501
EAN	4040326725016

Rotary Cable Stripper

AIW - 1

Rotary cable stripper for nearly all kinds of mini coaxial cables as well as RG 6, RG 59 and RG 58.

- Different settings for cut and stripper blades.
- Including hex key wrench for adjustment.
- Fixcross for easy adjustment of cable diameter.
- Depth stop for optimal cable cutback.

Model Art. No.	AIW - 1 872502
EAN	4040326725023

VAM 420 NG PAL / DVB - T

The premium Audio / Video conversion

VAM 420 NG DVB-T

Conversion of two A / V signals into a COFDM modulated signal.

VAM 420 NG PAL

Adjacent channel capable conversion of two A / V signals into an analogue PAL signal.

Annex

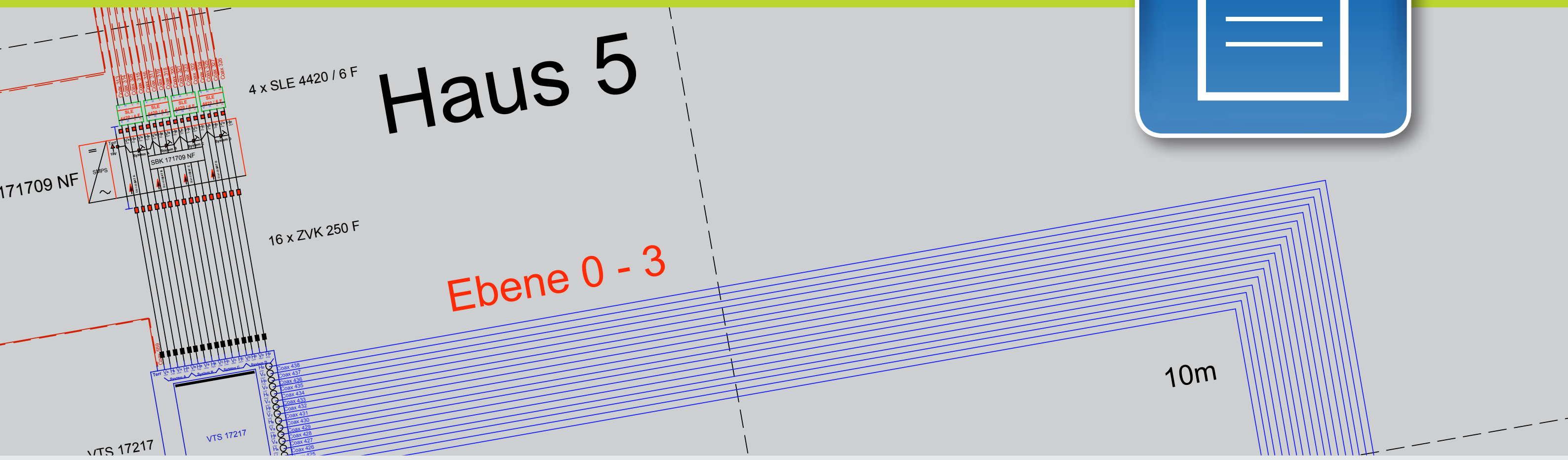
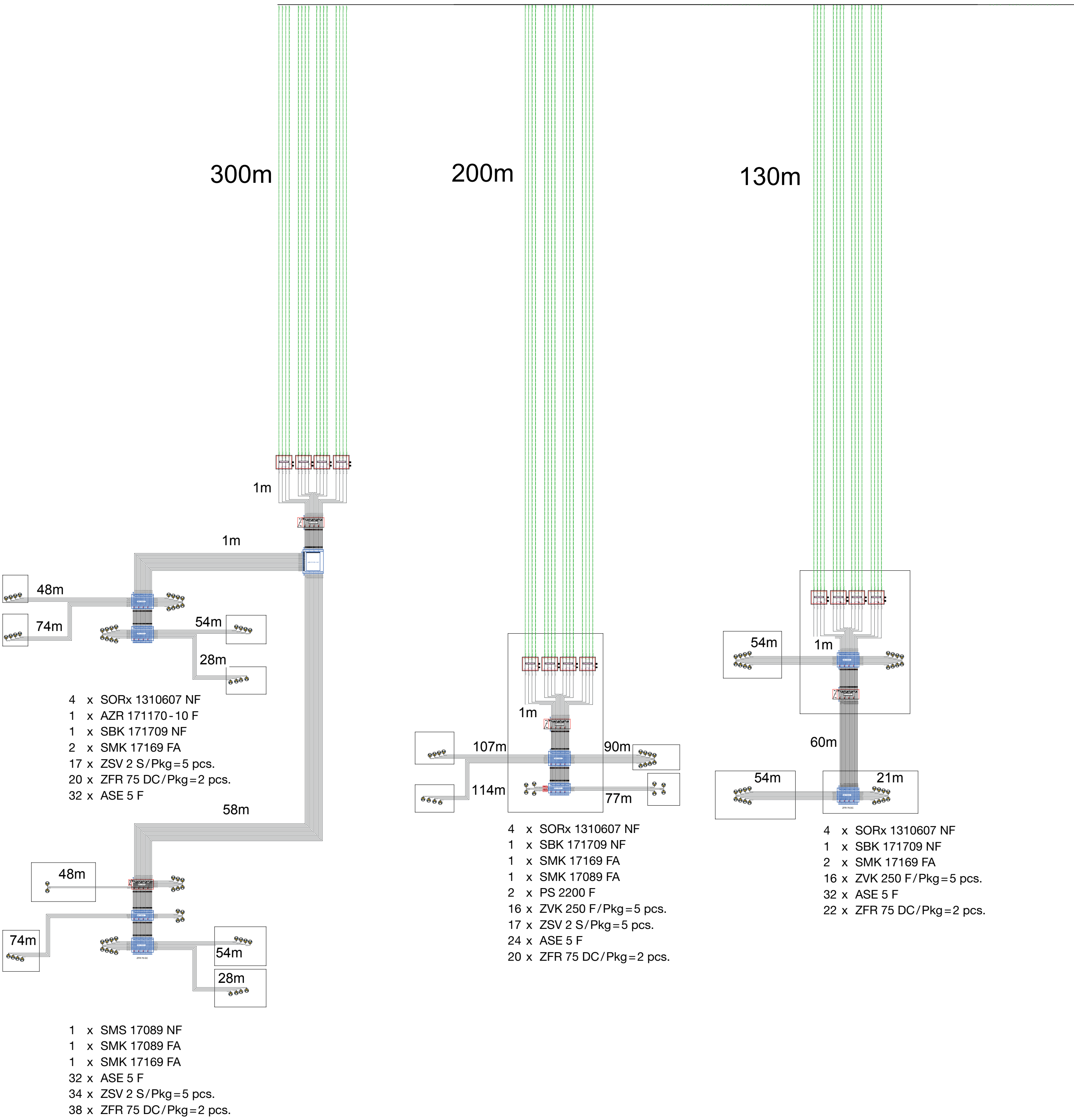


TABLE OF CONTENTS

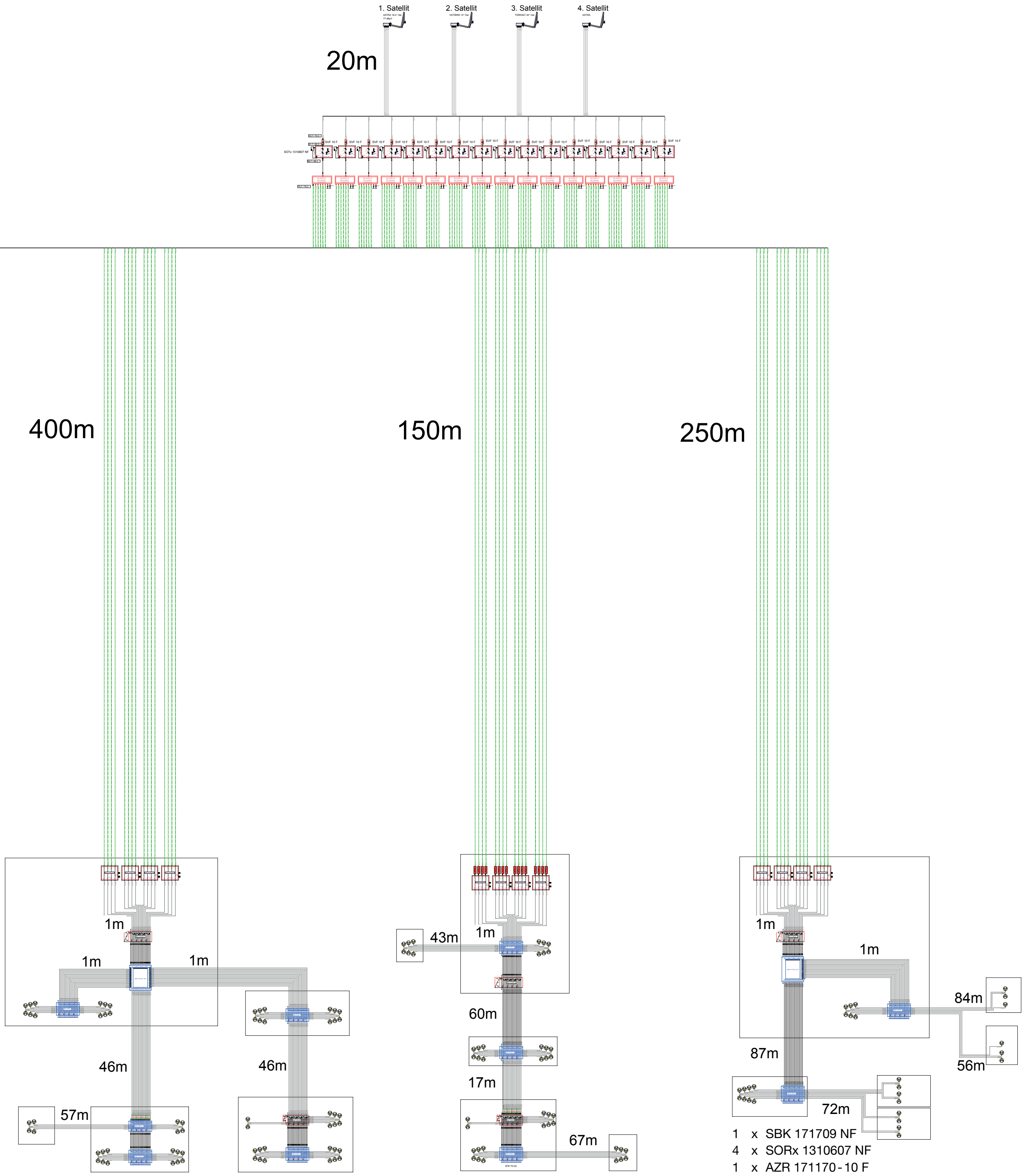
Project reference 1

A satellite system with 4 satellite position and a total of 256 TV socket outlets.

In a technical service room which is located next to the antenna park the signal is modulated from coax to fibre optic and is distributed to 6 locations with different cable distances from 130 up to 400 m.
From each location a further sub-distribution to the various buildings is made with distances between 20 and approximate 110m. By using our active and passive multiswitch technology, we are able to realize such a distribution system with a large number of outlets but with a small number of additional inline amplifiers.



Annex



4 x SORx 1310607 NF
1 x SBK 171709 NF
1 x AZR 172170-10 F
3 x SMK 17129 F
1 x SMS 17089 NF
4 x LE 4420/6 F
2 x SMK 17129 FA
1 x SMK 17089 FA
17 x ZVK 250 F/Pkg=2 pcs.
64 x ASE 5 F
60 x ZFR 75 DC/Pkg=2 pcs.

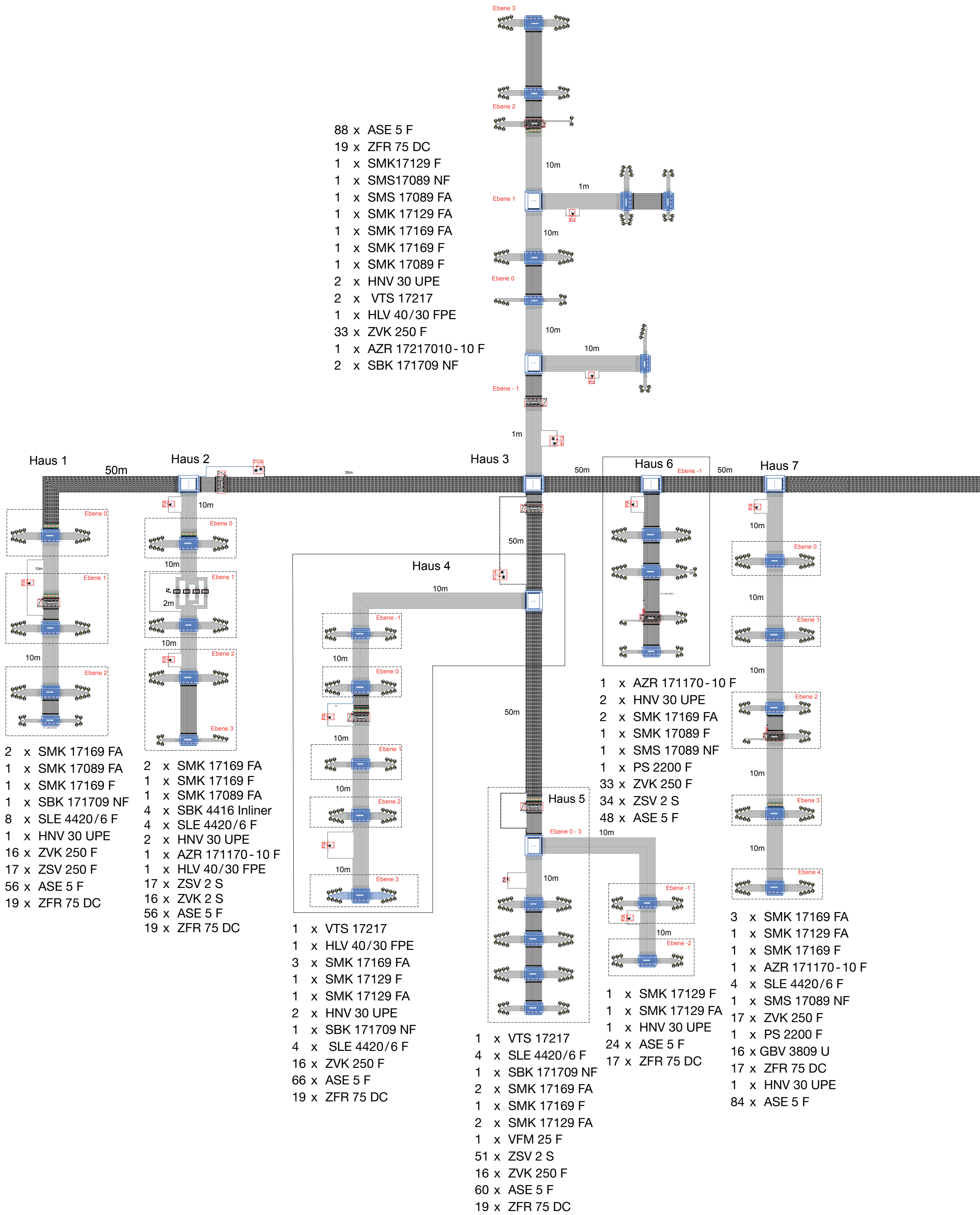
1 x SBK 171709 NF
4 x SORx 1310607 NF
16 x SODE 15 dB
3 x SMK 17129 FA
4 x LE 4420/6 F
1 x SMS 17089 NF
17 x ZVK 250 F/Pkg=2 pcs.
17 x ZSV 2 S/Pkg=2 pcs.
36 x ASE 5 F
38 x ZFR 75 DC/Pkg=2 pcs.

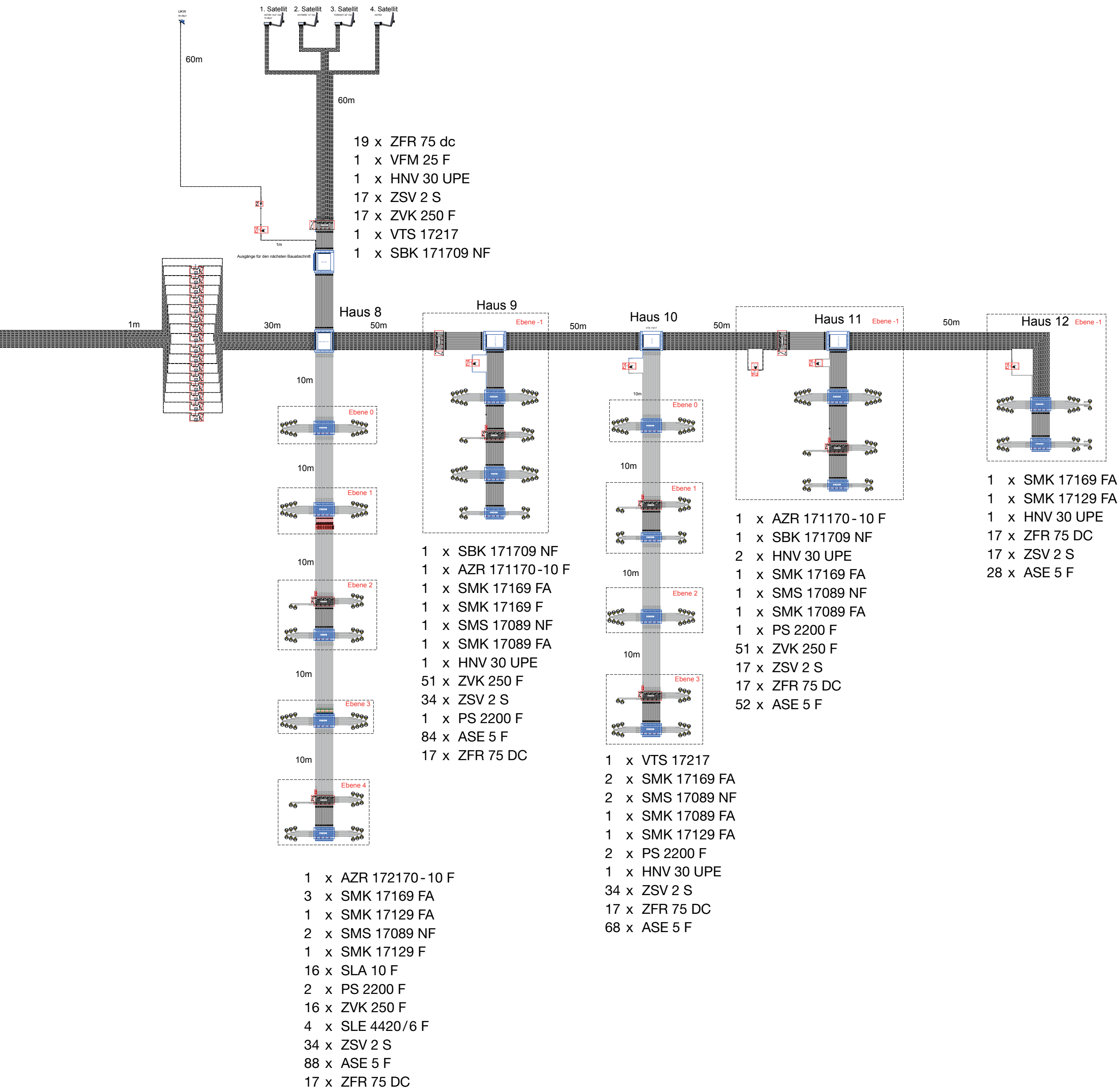
1 x SBK 171709 NF
4 x SORx 1310607 NF
1 x AZR 171170-10 F
1 x SMK 17169 FA
1 x SMK 17129 FA
17 x ZVK 250 F/Pkg=5 pcs.
38 x ZFR 75 DC/Pkg=2 pcs.
28 x ASE 5 F

Project reference 2

A satellite system with 4 satellite position and an FM antenna for radio reception.

The distribution system has a total of 752 TV socket outlets and is scheduled for two phases.
The first phase consists of 12 corridor entrances. The antenna park is approximately 60 m away from the main building and is fed into the center of the entire distribution. In each corridor entrance, a floor or central distribution is applied. For installing the trunk lines a underground cable was used and for the cable runs bewteen the multiswitches and the TV socket outlets a standard coaxial cable. By using our active and passive multiswitch technology, we are able to realize such a distribution system with a large number of outlets but with a small number of additional inline amplifiers.




1. Satellit
2. Satellit
3. Satellit
4. Satellit
60m
60m
19 x ZFR 75 dc
1 x VFM 25 F
1 x HNV 30 UPE
17 x ZSV 2 S
17 x ZVK 250 F
1 x VTS 17217
1 x SBK 171709 NF
1m
30m
Haus 8
50m
Haus 9
Ebene -1
50m
Haus 10
50m
Haus 11
Ebene -1
50m
Haus 12
Ebene -1
10m
Ebene 0
10m
Ebene 1
10m
Ebene 2
10m
Ebene 3
10m
Ebene 4
1 x AZR 172170-10 F
3 x SMK 17169 FA
1 x SMK 17129 FA
2 x SMS 17089 NF
1 x SMK 17129 F
16 x SLA 10 F
2 x PS 2200 F
16 x ZVK 250 F
4 x SLE 4420/6 F
34 x ZSV 2 S
88 x ASE 5 F
17 x ZFR 75 DC
1 x SBK 171709 NF
1 x AZR 171170-10 F
1 x SMK 17169 FA
1 x SMK 17169 F
1 x SMS 17089 NF
1 x SMK 17089 FA
1 x HNV 30 UPE
51 x ZVK 250 F
34 x ZSV 2 S
1 x PS 2200 F
84 x ASE 5 F
17 x ZFR 75 DC
1 x VTS 17217
2 x SMK 17169 FA
2 x SMS 17089 NF
1 x SMK 17089 FA
1 x SMK 17129 FA
2 x PS 2200 F
1 x HNV 30 UPE
34 x ZSV 2 S
17 x ZFR 75 DC
68 x ASE 5 F
1 x AZR 171170-10 F
1 x SBK 171709 NF
2 x HNV 30 UPE
1 x SMK 17169 FA
1 x SMS 17089 NF
1 x SMK 17089 FA
1 x PS 2200 F
51 x ZVK 250 F
17 x ZSV 2 S
17 x ZFR 75 DC
52 x ASE 5 F
1 x SMK 17169 FA
1 x SMK 17129 FA
1 x HNV 30 UPE
17 x ZFR 75 DC
17 x ZSV 2 S
28 x ASE 5 F

Annex

Guidelines and Standards

The product standards of the EN 50083 and EN 60728 series apply for antenna reception and distribution systems.

Overview of the European standard EN 50083 & EN 60728

Cable distribution systems for television and audio signals and interactive multi - media services.

EN 60728 - 11	Safety requirements
EN 50083 - 2	Electromagnetic compatibility of equipment
EN 60728 - 3	Active broadband equipment for coaxial distribution networks
EN 60728 - 4	Passive broadband equipment for coaxial distribution networks
EN 60728 - 5	Equipment for headend stations
EN 60728 - 6	Optical equipment
EN 60728 - 1	System requirements
EN 50083 - 8	Electromagnetic compatibility of cable distribution networks
EN 50083 - 9	Interfaces for CATV / SMATV headend stations and comparable professional equipment for DVB / MPEG 2 transportation streams
EN 60728 - 10	Return channel system requirements

EN 60728 Part 11 covers all the relevant safety regulations such as earthing, lightning protection, potential equalisation, mechanical stability etc. and refers inter alia to EN 60065 and EN 60950 - 1 which applies to power supply units.

EN 50083 Part 2 contains all the important regulations pertaining to EMC such as screening factor, noise emission, irradiation, input flow, interference suppression etc.

The CE labelling of SPAUN products confirms the conformity with these norms.

Screening factor / Classifikation

With introduction of the addition of the EN 50083 - 2 classification for passive devices new improved standards were specified as minimum requirements.

Frequency range	Screening factor		Interference
	Class A	Class B	
5 … 30 MHz	≥ 85 dB	≥ 75 dB	27 bis 20 dBpW [1) 2)] ≤ 33 dBpW [3)]
30 … 300 MHz	≥ 85 dB	≥ 75 dB	≤ 20 dBpW
300 … 470 MHz	≥ 80 dB	≥ 75 dB	≤ 20 dBpW
470 … 950 MHz	≥ 75 dB	≥ 65 dB	≤ 20 dBpW
from 950 MHz	≥ 55 dB	≥ 50 dB	≤ 43 dBpW

1) Linear response with logarithmic frequency decrement.
2) For active devices, which are not supplied with a mains power.
3) For devices with power supply.

SPAUN electronics guarantees the adherence regarding the electromagnetic shielding (EMC) with this custom - built symbol.

SPAUN Headquarters Germany

Disclaimer

Represented by over 40 global SPAUN™ distribution partners

Are you interested in becoming a distribution partner of SPAUN? Please get in touch with us.

Email: export@spaun.de
Phone: + 49 (0) 7731 - 86 73 - 0

www.spaun.de

General Terms and Conditions
of SPAUN electronic GmbH & Co. KG

The General Terms and Conditions of SPAUN electronic GmbH & Co. KG consist of Part A. (General Terms and Conditions of Sale) and Part B. (Warranty Conditions).

Part A. General Terms and Conditions of Sale

Sec. 1. Applicability

1.1 Business transactions between us and the commercial buyer in the sense of sec. 14 German Civil Code (BGB), a public-law entity, or special public law funds (jointly "buyer") shall be governed exclusively by the following General Terms and Conditions of Sale as amended (hereinafter "GTC") and subsidiarily by the General Terms and Conditions of Delivery for Products and Services of the Electronics Industry" (ZVEI) ["Allgemeine Lieferbedingungen für Erzeugnisse und Leistungen der Elektroindustrie", ZVEI].

1.2 Our GTC shall apply exclusively also to all future contracts concluded between us and the commercial buyer, even if these GTC are not expressly included.

1.3 Ancillary agreements of any kind shall only be binding if set forth in writing or confirmed by us.

1.4 We herewith expressly object to the buyer's terms and conditions of purchase. They shall only apply as far as we have expressly agreed to them in writing. Our unconditional performance of a purchase order or any other performance despite our knowledge of conflicting terms and conditions of purchase shall not imply our consent.

Sec. 2. Quotations

2.1 Our quotations shall be governed by the selling prices and terms valid on the day of delivery unless agreed otherwise.

2.2 The documents which form a part of the quotation, in particular illustrations, drawings and dimensional data, shall be authoritative approximately only unless they are expressly referred to as binding.

2.3 Our quotations shall always be subject to change. Orders of the buyer shall be deemed accepted by us if we expressly confirmed them.

2.4 Every contract is concluded under our reservation of correct and timely self-supply. We will inform the buyer without undue delay of the unavailability of the ordered good and redeem any consideration made in case of cancellation.

Sec. 3. Delivery, Dispatch, Delivery Dates, Right of Retention, Force Majeure

3.1 All deliveries shall take place ex works Singen.

3.2 The risk of deterioration and of accidental destruction of goods we deliver shall pass to the buyer upon hand-over or dispatch.

3.3 In case of purchase by shipment (Versendungskauf) we shall perform the contract by handing over the goods to the forwarder or carrier or to any other person appointed to carry out the shipment. The buyer agrees that the day of dispatch of the goods, or of hand-over to the forwarder or carrier, shall be deemed equivalent to the day of hand-over and delivery, even if it is no purchase by shipment (section 477 of the German Civil Code [BGB]).

3.4 The period of liability for defects shall begin on the day of dispatch or hand-over of the goods as stipulated above.

3.5 Dates of delivery shall be non-binding at all times unless they have been expressly agreed upon in writing as fixed dates.

3.6 We are entitled to withhold every delivery, until all accounts receivable from orders which we already performed, in particular through delivery, or a balance of accounts are fully and finally settled.

3.7 Delays in delivery or performance due to force majeure or due to events which make it materially more difficult or impossible for us to make delivery, including in particular strike, lockout, official directives, acts of God, administrative decrees, operational disruptions, shortage of raw materials, unavailability of an important piece of work etc., shall not be imputable to us, even in the case of periods or dates bindingly agreed upon. They shall not entitle the buyer to withdraw orders or to assert damage claims of any kind unless the hindrance persists for more than six (6) months; in such case, the buyer shall, after having set a reasonable respite period, be entitled to cancel the contract in respect of the part not yet performed, without this resulting in any obligation on our part regarding compensatory damages.

3.8 Partial deliveries shall be permitted.

Sec. 4. Notifications of Defects, Liability for Defects, Liability Period, Compensatory Damages

4.1 In any event, our liability for defects shall depend on the buyer's examination of the goods for defects without undue delay, however no later than seven (7) days, upon receipt. The buyer must give notification of all apparent defects without undue delay. Any hidden defect must be notified by the buyer without undue delay, however no later than five (5) days, after its discovery. Every notification of defects by the buyer must be made in writing. The buyer's notification of defects must specify the respective goods and the respective defect in the goods. The date of receipt of the notification of defects at our company shall be authoritative for observance of the time limit. If the buyer omits to give notification of defects, the goods shall be deemed approved.

4.2 Immaterial deviations in color, dimensions and/or other quality and performance characteristics of the goods shall not result in any claims on the part of the buyer, particularly no defect-related rights.

4.3 The buyer shall bear the burden of proof for the existence of a defect at the time of delivery.

4.4 At first, the rights of the buyer in case of a defect are limited to supplementary performance upon our choice, i.e. the replacement or the reinstatement of the delivered defective good. If the replacement or the reinstatement fails the buyer shall be entitled to abate the purchase price or, at its option, cancel the contract. Supplementary performance shall be deemed to have failed after the third unsuccessful attempt.

4.5 Damages claims shall be governed by the stipulations of these General Terms and Conditions.

4.6 The liability period for defects shall be one year upon delivery unless we grant a longer liability period for defects by a respective warranty.

4.7 We do not make any independent warranty promises to the buyer beyond our statutory liability for defects unless we expressly make an independent warranty promise.

4.8 Independent warranty promises to any third-party end-purchaser do not contain any independent warranty promise to the buyer.

Sec. 5. Reimbursement of Expenses, supplier's regress

5.1 If the buyer demands compensation for expenditures according to sec. 478 para. 2 German Civil Code [BGB], this shall be limited to a maximum of 2 % of the original net value of the goods as invoiced.

5.2 Claims based on sec. 478 German Civil Code [BGB] are contracted out by the voluntary 5-year warranty promise in the sense of compensation of equivalent value in accordance with sec. 478 para. 4 sent. 1 German Civil Code [BGB].

5.3 To the extent permitted under statutory law and unless agreed otherwise, claims regarding costs which are incurred due to supplementary performance or due to any other reason, in particular due to transport, shipment, reconsignment, travel, work or assembly, against us are excluded.

5.4 The buyer shall be liable to us for all our further expenses and costs as caused by the buyer which exceed what is necessary for supplementary performance. Further expenses are in particular expenses which are increased because the good was brought to another place than the business seat of the buyer.

5.5 Unjustified complaints for defects or the return shipment of defect-free goods as defective shall entitle us to charge the buyer with all costs and expenses incurred due to the handling, the examination, the reconsignment or due to respective other reasons.

5.6 Costs of shipment of defective goods or wrongfully specified goods as being defective shall be borne by the buyer at all times.

Sec. 6. Exclusion of rights

6.1 Rights for defects shall be limited to delivered goods.

6.2 Our liability is excluded in particular regarding

a) normal wearing as well as natural deterioration of the delivered goods.

b) losses which have not arisen in the goods themselves, as well as consequential losses in general,

c) losses or disruptions which caused by
(i) improper or feature-adverse use, handling, storage or transport
(ii) non-observance of instructions of use or installation
(iii) the operation of the good with the wrong type of electric power or voltage or to the connection to unsuitable electric power sources.

d) damage and losses due to fire, lightning, explosion, grid-related excess voltage, moisture of all kinds, or incorrect or lack of programming

6.3 The buyer remains entitled to prove that the respective defect exists at the time of delivery regardless of the circumstances stated in sec. 6.2 of these GTC.

6.4 The defect-related rights and other claims shall not, or cease to, exist, if the buyer tampers with and / or repairs the goods itself or through third parties not authorized by us, and has not given us a prior deadline for supplementary performance.

Sec. 7. Attention with devices containing an integrated power supply unit and / or with power packs

Self-made or improper repairs or alterations to the goods may be life-threatening

Sec. 8. Default

In case of our default, cancellation of the contract as well as claiming compensatory damages shall require the setting of a reasonable respite period by the buyer, whereas the respite period must be proportionate to the type and scope of the order. If we are at fault, our liability for damages due to default shall be limited to an amount equivalent to 30 % of the foreseeable and typical loss.

Sec. 9. Liability

Our liability shall be unlimited in cases of intent and gross negligence, as well as in cases of fraud. Any liability arising out of minor negligence on our side shall only give rise to damages that, based on this agreement, were typically predictable and only if an obligation with significant meaning to the achievement of the purpose of this agreement was violated. We shall not be liable beyond the foregoing, regardless of the basis of the claim. The above-mentioned limitations and exclusions of liability shall not apply to claims based on losses arising from injury to life, body or health or to claims under the Product Liability Act [Produkthaftungsgesetz]. To the extent our liability is limited or excluded, the personal liability of our agents in contract and agents in tort shall likewise be limited or excluded.

Sec. 10. Payment

10.1 The prices are understood to be ex works and plus the respective applicable statutory value-added tax.

10.2 Our invoices shall be due as follows unless agreed otherwise in annual arrangements or condition agreements: 30 days of the invoice date net free of charge to the point of payment of Spaun electronic GmbH & Co KG. In case of payment within 14 days of the invoice date 3 % cash discount are granted, unless the buyer is in arrears of payment of previous invoices.

10.3 In the event of arrears of net payment, we shall have the right to charge default interest at the rate of 8 % above the respective valid statutory base interest rate.

10.4 If the buyer is in arrears of payment or if justified doubts about its financial standing arise, we are entitled to declare all outstanding accounts receivable due for payment with immediate effect.

10.5 We are entitled at all times to reject quotations or to accept quotations only on the condition that unsettled invoices are paid, irrespective of their due date, or that a balance of accounts receivable in our favor with respect to the buyer is settled.

10.6 Bills of exchange shall not be accepted as a means of payment.

10.7 We shall always, in particular in case of first-time purchase orders, be entitled to request of cash on delivery or advance payment.

10.8 The buyer shall only be entitled to offset on the basis of claims which are undisputed or have been determined with legal finality. The assertion of rights to refuse performance or of rights of retention shall be limited to the same legal relationship.

Sec. 11. Retention of Title

11.1 All delivered goods including software shall remain our property until the buyer has fully settled all accounts receivable (including all balances due on an open account) which have ensued from our business relationship.

11.2 At least, all delivered goods including software shall remain our property until the buyer has fully paid the respective purchase price.

11.3 The buyer shall properly hold the goods in safekeeping until the transfer of title. The buyer shall be entitled to resale the delivered goods in the ordinary course of business. The buyer shall not be entitled to make any other dispositions, in particular not the pledging or the transfer of title as security.

11.4 If the delivered goods are resold to third parties, whether by reselling or by installation into buildings or land property, the buyer's claim against the third party shall be assigned to us up to the sum of the purchase price, including VAT, shown in the order confirmation. We accept the respective assignment.

11.5 In the event of default in payment, the buyer shall be obligated to disclose the address of its debtors and the sum of the account receivable concerned.

11.6 As long as the goods which we delivered within the territory of the Federal Republic of Germany are under retention of title, they must not be exported out of the Federal Republic of Germany without our prior written consent.

11.7 Furthermore, if the buyer is in default with the payment of the agreed purchase price the account receivable against the third party shall be assigned beyond the amount of the purchase up to the additional amount of our loss caused by the default. We accept this assignment. In the event of default, we shall be entitled to immediately disclose the assignment of the receivable to the third party and collect.

11.8 In the event of default with payment, we shall be entitled, even without exercising our cancellation rights and without setting a respite period, to demand the provisional surrender of the goods belonging to us at the buyer's expense. Our request for surrender shall not be deemed to be a cancellation of the contract unless we expressly declared the cancellation of the contract. Subject to prior notice, we shall be entitled to dispose of the surrendered good and, following payment, supply the buyer anew within the customary period for delivery.

11.9 Loss, damage, seizure, or any other access by third parties in respect of the goods under retention of title or seizure of the accounts receivable assigned to us shall be notified to us without undue delay. Costs arising as a result of the assertion of our claims shall be reimbursed by the buyer.

11.10 Any processing (including the alteration) of a delivered goods under retention of title by the buyer shall be made for us. If the goods under retention of title are processed together with other goods which do not belong to us, in particular become parts thereof, we shall receive joint ownership of the new good in relation of the value of the delivered good (purchase price plus VAT) to the value of the other processed good(s) at the time of processing. The buyer shall keep possession of the processed jointly owned new good for us free of charge.

11.11 If a delivered good is inseparably mixed or combined with other goods which do not belong to us, in particular through fitting, we shall receive joint ownership in the new good in relation of the value of the delivered good (purchase price plus VAT) to the value of the other processed good(s) at the time of combination or mixing. The buyer shall keep possession of the solely or jointly owned new good for us free of charge.

11.12 Goods, in which we hold sole or joint ownership according to sec. 11.10 as well as 11.11, shall be governed by the stipulations of this sec. 11 like goods delivered under the retention of title according to sec. 11.1 and sec. 11.2 respectively.

Sec. 12 Place of Performance, Place of Jurisdiction and Applicable Law

12.1 The place of performance for the delivery and payment is the registered business seat of Spaun electronic GmbH & Co. KG.

12.2 If the buyer is a merchant Singen is the exclusive place of jurisdiction for all present and future claims arising from the business relationship. However, we shall be entitled to bring an action against the buyer at its place of general jurisdiction.

12.3 The legal relations in connection with this contract shall be governed exclusively by German substantive law, excluding the United Nations Convention on Contracts for the International Sale of Goods (CISG).

Sec. 13 Language

These General terms and conditions exist in the German and English language. In case of discrepancies the German version shall prevail over the English version.

Part B. Warranty Conditions

To the extent we grant a warranty to the commercial buyer in the sense of sec. 14 German Civil Code (BGB), a public-law entity, or special public law funds (jointly "buyer"), the following shall apply:

1. In case of a defect in workmanship or in material the period of our liability shall be 5 years after delivery.
2. In any given warranty case the buyer shall have the following rights subject to the following warranty conditions:

a) Shipment of the good on our expense
b) Upon our choice supplementary performance, i. e. either the removal of the defect in workmanship or in material respectively or the supply of a defect-free good
c) The warranty does not cover assembly costs, transport infrastructure charges, or other consequential costs as well as compensation for losses which have not arisen in the goods themselves, which all shall be borne by the buyer

3. We reserve the right to examine the good which is claimed as a warranty case. If, as a result of our examination, there is no defect in workmanship or in material and there fore no warranty case, we will reship the good to the buyer at the buyer's expense and charge the cost of the examination.
4. In any event, our warranty liability shall depend on the buyer's examination of the goods for defects without undue delay, however no later than seven (7) days, upon receipt. The buyer must give notification of all apparent defects without undue delay. Any hidden defect must be notified by the buyer without undue delay, however no later than five (5) days, after its discovery. Every notification of defects by the buyer must be made in writing. The buyer's notification of defects must specify the respective goods and the respective defect in the goods. The date of receipt of the notification of defects at our company shall be authoritative for observance of the time limit. If the buyer omits to give notification of defects, the goods shall be deemed approved.
5. Processing systems (headends), optical transmitting & receiving equipment, optical accessories, audio-/video modulators, measurement technology, cables, batteries/rechargeable batteries, and software are excluded from any warranty at all times.
6. The warranty shall not apply if the defect of the good was caused or partially caused by

a) normal wearing as well as natural deterioration of the delivered good,
b) improper or feature-adverse use, handling, storage or transport of the good,
c) non-observance of instructions of use or installation of the good,
d) the operation of the good with the wrong type of electric power or voltage,
e) the connection of the good to unsuitable electric power sources,
f) the buyer's tampering with and/or repairs of the good itself or through third parties not authorized by us, or
g) fire, lightning, explosion, grid-related excess voltage, moisture of all kinds, or incorrect or lack of programming

7. The buyer shall bear the burden of proof that the respective defect in workmanship or in material respectively existed at the time of delivery.
8. Furthermore, the buyer shall bear the burden of proof that the events listed in sec. 6 lit a) to g) included of these warranty conditions do not exist or did not become (co-)causal.
9. If the buyer is a merchant Singen is the exclusive place of jurisdiction for all present and future claims arising from a warranty. However, we shall be entitled to bring an action against the buyer at its place of general jurisdiction.
10. The legal relations in connection with a warranty shall be governed exclusively by German substantive law, excluding the United Nations Convention on Contracts for the International Sale of Goods (CISG).
11. These warranty conditions do not affect the buyer's rights in case of defects as they exist according to our general terms and conditions in its respective current version. 12 These warranty conditions exist in the German and English language. In case of discrepancies the German version shall prevail over the English version.

Part A. and B each valid per 1. June 2014

SPAUN electronic GmbH & Co. KG
Byk-Gulden-Str. 22
D-78224 Singen (Hohentwiel)

For the latest news please visit our website.

www.spaun.com

Important contact addresses

SPAUN electronic GmbH & Co. KG

Byk - Gulden - Str. 22
78224 Singen
Germany

Main Office

+ 49 (0) 7731 - 86 73 - 0

+ 49 (0) 7731 - 86 73 - 17

contact@spaun.com

www.spaun.com

Repair Service

Please return defective products with a detailed error description together with our repair form to our service department:

SPAUN electronic GmbH & Co. KG
Reparaturservice
Byk - Gulden - Str. 22
78224 Singen

The repair form can be downloaded here:
http://formulare.spaun.de/

+49 (0) 7731 - 86 73 - 39

+49 (0) 7731 - 86 73 - 17

service@spaun.de

Sales

Sales Germany
+49 (0) 7731 - 86 73 - 0

International Sales
+49 (0) 7731 - 86 73 - 46

+49 (0) 7731 - 86 73 - 17

export@spaun.de

Technical Hotline (for installers and wholesalers only)

The request form for RF and IF plannings can be downloaded here: http://formulare.spaun.de/

+49 (0) 7731 - 86 73 - 18

+49 (0) 7731 - 86 73 - 28

hotline@spaun.de

Presented through:

Business hours

Monday - Friday 07:45 - 12:00 am
01:00 - 05:00 pm

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