SAT IF distribution system

Contents

SAT IF-IF conversion system
SAT IF channel converters ____ 7
power supply with control unit ____ 8
accessories ____ 9

4 cable system
cascadable multiswitches ____ 10
line amplifier ____ 11

5 cable system
cascadable multiswitches ____ 12
radial multiswitches ____ 13-15
remotely powered multiswitches ____ 16-17
taps and splitter ____ 18
4 way splitter ____ 18
launch and line amplifiers ____ 19
application diagrams ____ 20-22

9 cable system
cascadable multiswitches ____ 23
radial multiswitches ____ 24-26
remotely powered multiswitches ____ 27-28
access mode control unit ____ 28
taps and splitter ____ 29
4 way splitter ____ 29
launch and line amplifiers ____ 30
application diagrams ____ 31-34

17 cable system
cascadable multiswitch ____ 35
radial multiswitches ____ 36

System accessories
splitband amplifiers ____ 37-38
masthead products ____ 39
line amplifier ____ 40
diplexer ____ 40
polarity/band switch ____ 40
active SAT IF splitters ____ 40
power supply ____ 40
power inserter ____ 40
link ____ 40
simulation software SatNet ____ 41

SAT IF-IF conversion system

SAT IF channel converters

- frequency conversion of SAT IF channels from different satellites or polarizations/sub-bands
- making a new frequency plan
- all converted channels could be transmitted via single cable
- independent output level adjustment for every section
- DIN rail or wall mounting
- robust die-cast housing
- connectors:
  4xRF - type F
  screw terminal block for DC entry
  power distribution bus
  control bus

cs420
two sections

cs440
four sections

NEW

Technical specifications

TYPE			cs420	cs440
Ordering number			01792	01793
Sections			2	4
RF input	frequency range	pr.	950-2150 MHz by 1 MHz step	
	bandwidth	pr.	6-60 MHz by 1 MHz step	
	level	pr.	50...85 dBμV	
	maximum level difference between input signals		25 dB	
	return loss/impedance		> 10 dB/75 Ω	
	LNB powering/control	pr.	0 V/13 V/18 V/13 V 22 kHz/18 V 22 kHz 400 mA max.	
	noise figure		< 9 dB	
	loop through frequency range		950-2150 MHz	
	loop through loss		< 1.5 dB	
RF output	frequency range	pr.	950-2150 MHz by 1 MHz step	
	level		90 ± 2 dBμV	
	output level adjustment range per section	pr.	0 ÷ -15 dB	
	return loss/impedance		> 10 dB/75 Ω	
	spurious in band		< - 35 dB	
	loop through frequency range		5-2150 MHz	
	loop through loss		< 1 dB	
Supply voltage			12 ± 1 V	
Current consumption without external DC feeding			0.32 A	0.52 A
Operating temperature range			0° ÷ +45° C	
Dimensions/Weight (packed)			36x198x107.5 mm/0.85 kg	

pr. software control

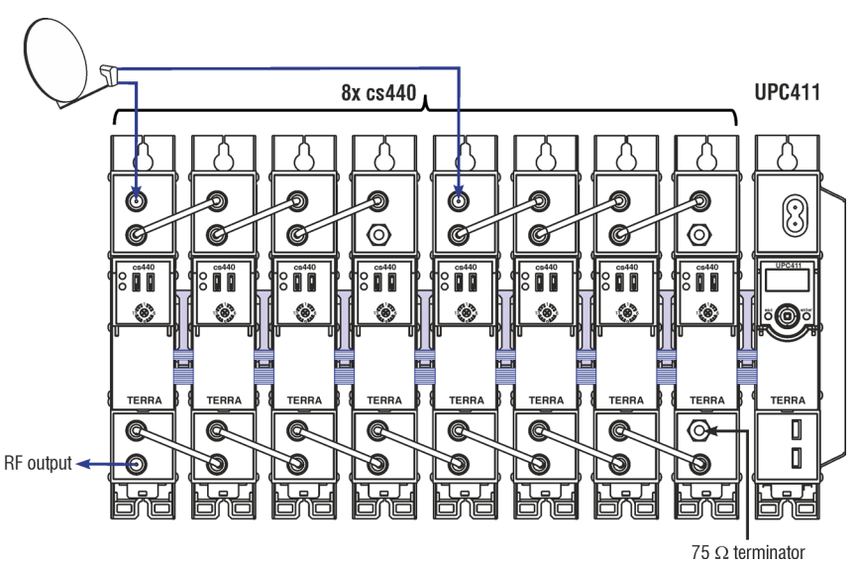
SAT IF-IF conversion system
Power supply with control unit

- for control and powering of cs4xx series converters
- controls up to 64 modules
- OLED graphical display and joystick control of system
- switch-mode technology
- short circuit and overload protected
- DIN rail or wall mounting
- robust diecast housing
- connectors:
  screw terminal block for DC output
  data bus port
  2x connectors for DC flat cable
  2x data bus extension ports
  micro USB-B connector for PC

NEW

Technical specifications

TYPE		UPC411
Ordering number		02887
Power supply	input voltage	187-250 V~ 50/60 Hz
	output voltage, current	12 V 4.5 A max.
	power consumption	65 W max.
Operating temperature range		0° ÷ +50° C
Dimensions/Weight (packed)		48x198x107.5 mm/1 kg



Application example of re-transmitting of up to 32 SAT IF transponders from 2 sub-bands.

cs440 - SAT IF channel converter, **page 7**

See accessories, page 9.

SAT IF-IF conversion system
Accessories

Power supplies

- switch-mode technology
- short circuit and overload protected
- DIN rail mounting (DR-60-12)

Technical specifications

T Y P E	DR-60-12	GS15E-3P1J
Ordering number	00630	00632
DC output voltage	+12 V 4.5 A max.	+12 V 1.25 A max.
Mains voltage	100 V÷ 240 V~ 50 Hz	
Operating temperature range	-20° ÷ +50° C	0° ÷ +40° C
Dimensions/Weight (packed)	78x97x56 mm/0.4 kg	34x71x50 mm/0.18 kg

- DC distribution cable 699.20 for 4 modules with width 36 mm (e.g. at420)
  Ordering number 21875
- DC distribution cable 780.20 for 4 modules with width 48.5 mm (e.g. mdx420)
  Ordering number 21882

- 19" system mountable rack
  Ordering number 01957

- Fmale - Fmale quick coaxial bridge 699.026: for modules with width 36 mm (e.g. at420)
  Ordering number 21876
- Fmale - Fmale quick coaxial bridge 780.026: for modules with width 48.5 mm (e.g. mdx420)
  Ordering number 21881

- Rail for wall mounting, 1 meter, 699.027
  Ordering number 21877

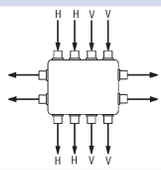
4 cable system
Cascadable multiswitches

- DC pass from receiver to all SAT lines
- cascadable distribution system of 4 SAT polarities for floor by floor installation and star distribution
- economical power using concept - no DC power consumption from SAT line; subscriber line is powered from a corresponding receiver
- to make easier level equalization in distribution network, several types of multiswitches with different tap gain are produced

MS404G02, MS404G06, MS404G15
through line 4x4 multiswitches

Technical specifications

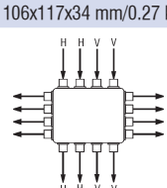
TYPE	MS404G02	MS404G06	MS404G15
Ordering number	01761	01757	01759
Frequency range	950-2400 MHz		
Tap gain	2 dB	6 dB	15 dB
SAT inputs decoupling	> 28 dB		
Outputs decoupling	> 25 dB		
Through loss	< 3 dB		
Maximal output level IMD3=35 dB(EN50083-3)	93 dBμV		
Current consumption from receiver	< 40 mA		
Control signals V/Lo, H/Lo, V/Hi, H/Hi	11.5-14.5 V/0 kHz, 16.5-19 V/0 kHz, 11.5-14.5 V/22 kHz, 16.5-19 V/22 kHz		
DC pass through each of SAT lines	1 A max.		
DC pass from Rec.- SAT lines	0.5 A max.		
Operating temperature range	-20° ÷ + 50° C		
Dimensions/Weight (packed)	106x76x34mm/0.18 kg		



MS408L12, MS408G00, MS408G06, MS408G12
through line 4x8 multiswitches

Technical specifications

TYPE	MS408L12	MS408G00	MS408G06	MS408G12
Ordering number	01762	01763	01764	01765
Frequency range	950-2400 MHz			
Tap gain	-12 dB	0 dB	6 dB	12 dB
SAT inputs decoupling	> 25 dB			
Outputs decoupling	> 25 dB			
Through loss	< 5 dB			
Maximal output level IMD3=35 dB(EN50083-3)	93 dBμV			
Current consumption from receiver	< 40 mA			
Control signals V/Lo, H/Lo, V/Hi, H/Hi	11.5-14.5 V/0 kHz, 16.5-19 V/0 kHz, 11.5-14.5 V/22 kHz, 16.5-19 V/22 kHz			
DC pass through each of SAT lines	1 A max.			
DC pass from Rec.- SAT lines	0.5 A max.			
Operating temperature range	-20° ÷ + 50° C			
Dimensions/Weight (packed)	106x117x34 mm/0.27 kg			

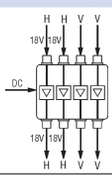


4 cable system
Line amplifier

- 4 path equalized line amplifier of SAT IF signals
- for compensation of through losses of multiswitches and interconnection cables in 4 cable distribution system
- extremely low power consumption
- fixed 4 dB slope precorrection
- in line powering from H lines
- DC pass through H & V lines

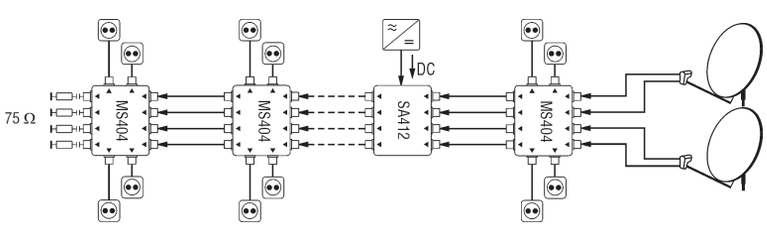
Technical specifications

T Y P E	SA412
Ordering number	01766
Frequency range	950 - 2400 MHz
Gain	13 - 17 dB
Slope pre-correction, fixed	4 dB
Isolation between channels	≥ 30 dB
Noise figure, typical	≤ 10 dB
Maximal output level, IMD3=35 dB (EN 50083-3)*	106 dBμV
DC feeding for external	+ 18 V & 1 A max.
DC pass through, switchable	1 A max.
Power consumption from H lines	+12 ÷ +18 V 65 mA
Operating temperature range	-20° ÷ + 50° C
Dimensions/Weight (packed)	94x76x34 mm/0.16 kg

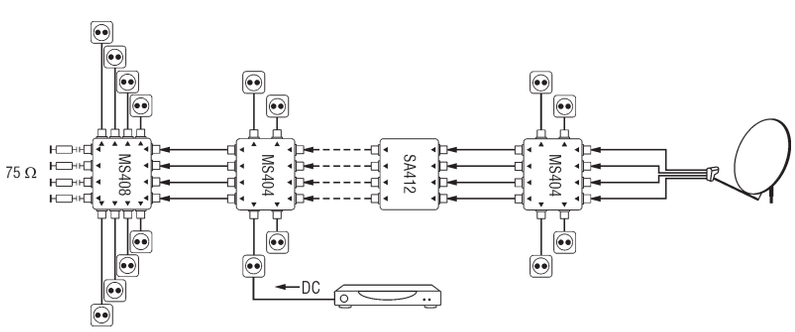


* in case of 18V DC powering

1. Powered through line amplifier SA412

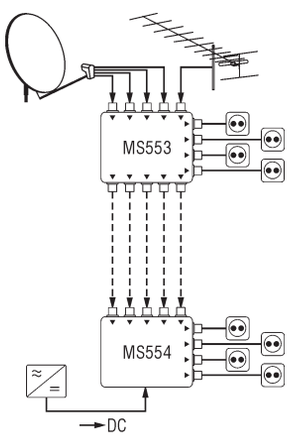


2. Powered from SAT receiver



5 cable system
Cascadable multiswitches

- cascadable distribution system of 4 SAT polarities and terrestrial TV for floor by floor installation and/or star distribution
- possibility to supply DC for LNBs through end line multiswitches MS554, MS554P; MS554P makes 14V from external 18V source
- economical power using consept - no DC power consumption from line
- passive terrestrial TV path allows to receive terrestrial TV programs without switching on SAT TV receiver
- depending on interconnection cable up to 5 multiswitches can be connected into cascade without compensating amplifier
- ready for return path operation

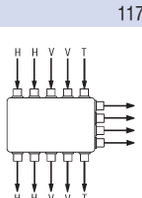
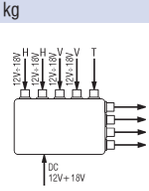
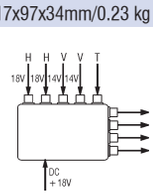


MS553
through line 5x4 multiswitch

MS554
end line 5x4 multiswitch feeds DC to all SAT IF incoming lines

MS554P
end line 5x4 multiswitch;
creates 14 V DC for powering via vertical lines;
18 V DC feeds via horizontal lines

Technical specifications

T Y P E		MS553	MS554	MS554P
Ordering number		01727	01728	01729
Frequency range	SAT IF	950-2400 MHz		
	Terr. TV	5-862 MHz		
Tap gain	SAT IF	2 dB		
	Terr. TV	- 19 dB		
Maximal output level for SAT IF circuit, IMD3=35 dB (EN50083-3)		93 dBµV		
SAT inputs decoupling		> 30 dB		
Outputs decoupling	SAT IF	> 30 dB		
	Terr. TV	> 30 dB		
Through gain	SAT IF	- 3 dB	-	
	Terr. TV	- 3.5 dB	-	
DC pass through SAT input-output		2 A max.	-	
DC pass from external	through V lines	-	+12 V ÷ +18 V	14 V & 0.5 A max.
18 V power supply	through H lines	-	& 1 A max.	18 V &1 A max.
Current consumption from receiver		< 60 mA		
Control signals	V/Lo, H/Lo	11.5-14.5 V/0 kHz, 16.5-19 V/0 kHz		
	V/Hi, H/Hi	11.5-14.5 V/22 kHz, 16.5-19 V/22 kHz		
Operating temperature range		-20° ÷ + 50° C		
Dimensions/Weight (packed)		117x106x34mm/0.25 kg		117x97x34mm/0.23 kg
				

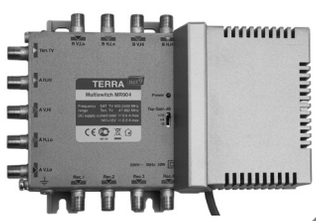
5 cable system
Radial multiswitches

- for star distribution system of 4 SAT IF polarities and terrestrial TV signal up to 8 users
- passive terrestrial TV path
- built-in power supply for remote DC feeding
- possibility to feed preamplifier through terrestrial TV input

MRS504
5x4 multiswitch

MRS508
5x8 multiswitch

net5



NEW

AVAILABLE 4th quarter 2013

AVAILABLE 4th quarter 2013

Technical specifications

T Y P E			MRS504	MRS508
Ordering number			02759	02760
Number of outputs			4	8
Frequency range	SAT IF		950-2400 MHz	
	Terr. TV		47-862 MHz	
Gain (fixed slope	SAT IF	outputs 1-4	-4 ÷ 1 dB	
pre-correction)		outputs 5-8	-	-5 ÷ -1 dB
Attenuation	Terr. TV	outputs 1-4	9 dB	13 dB
		outputs 5-8	-	13 dB
Output level for SAT IF (IMD3=35 dB)*			93 dBμV	
SAT inputs decoupling			≥ 25 dB	
Outputs decoupling	SAT IF		≥ 25 dB	
	Terr. TV		≥ 25 dB	
Rejection	SAT/Terr. TV		≥ 40 dB	
Supply voltage through RF inputs			H,Lo, H,Hi, V,Lo and V,Hi - 13 V; Terr. TV - 12 V	
DC supply current	+13V &+12V		< 0.27 A	
through RF inputs	+12V		≤ 60 mA	
Current consumption from receiver			< 40 mA	
Control signals			14/18 V, 0/22 kHz	
Power consumption**			230 V~ 50/60 Hz 7 W	
Operating temperature range			-20° ÷ + 50° C	
Dimensions/Weight (packed)			200x135x52 mm/0.8 kg	

* 2 equal carriers
** without external DC load; with maximal load 7 W

5 cable system
Radial multiswitches

net5

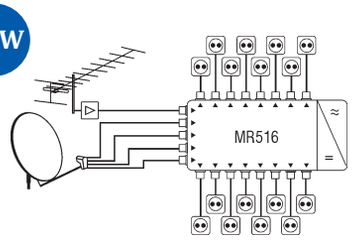
NEW

- for star distribution system of 4 SAT IF polarities and terrestrial TV signal up to 16 users
- 16 positions discrete gain regulator for terrestrial TV
- built-in power supply for remote DC feeding
- possibility to feed preamplifier through terrestrial TV input

MR508
5x8 multiswitch

MR512
5x12 multiswitch

MR516
5x16 multiswitch



Technical specifications

TYPE			MR508	MR512	MR516
Ordering number			02725	02726	02727
Number of outputs			8	12	16
Frequency range	SAT IF		950-2400 MHz		
	Terr. TV		47-790 MHz		
Gain	SAT IF	outputs 1-4	0 ÷ 8 dB		
(fixed slope		outputs 5-8	-1 ÷ 6 dB		
pre-correction)		outputs 9-12	-	-2 ÷ 3 dB	
		outputs 13-16	-		-3 ÷ 1 dB
	Terr. TV	outputs 1-4	-1 ÷ 5 dB		
		outputs 5-8	-2 ÷ 3 dB		
		outputs 9-12	-	-3 ÷ 1 dB	
		outputs 13-16	-		-4 ÷ -1 dB
Gain adjustment Terr. TV			15 dB by 1 dB step		
Output level for SAT IF (IMD3=35 dB)*			96 dBμV		
Output level for Terr. TV		outputs 1-4	88 dBμV	88 dBμV	88 dBμV
(IMD3=60 dB)*		outputs 5-8	86 dBμV	86 dBμV	86 dBμV
		outputs 9-12	-	84 dBμV	84 dBμV
		outputs 13-16	-	-	82 dBμV
SAT inputs decoupling			≥ 30 dB		
Outputs decoupling	SAT IF		≥ 30 dB		
	Terr. TV		≥ 35 dB		
Rejection	Terr. TV/SAT		≥ 30 dB		
	SAT/Terr. TV		≥ 40 dB		
Supply voltage through RF inputs			H,Lo and H,Hi - 18 V; V,Lo and V,Hi - 14 V; Terr. TV - 12 V		
DC supply current	+18V &+14V &+12V		< 0.7 A		
through RF inputs	+14V &+12V		< 0.5 A		
	+12V		≤ 100 mA		
Current consumption from receiver			< 65 mA		
Control signals			14/18 V, 0/22 kHz		
Power consumption**			230 V~ 50/60 Hz 2 W		
Operating temperature range			-20° ÷ + 50° C		
Dimensions/Weight (packed)			253x135x52 mm/0.8 kg	293x135x52 mm/0.9 kg	333x135x52 mm/1.1 kg

* 2 equal carriers
** without external DC load; with maximal load 17 W

5 cable system
Radial multiswitches

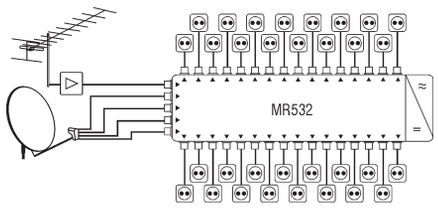
- for star distribution system of 4 SAT IF polarities and terrestrial TV signal up to 32 users
- 16 positions discrete gain regulator for terrestrial TV
- built-in power supply for remote DC feeding
- possibility to feed preamplifier through terrestrial TV input

MR524
5x24 multiswitch

MR532
5x32 multiswitch

net5

NEW



Technical specifications

TYPE			MR524	MR532
Ordering number			02728	02729
Number of outputs			24	32
Frequency range	SAT IF		950-2400 MHz	
	Terr. TV		47-790 MHz	
Gain	SAT IF	outputs 1-8	-3 ÷ 5 dB	
(fixed slope		outputs 9-16	-4 ÷ 3 dB	
pre-correction)		outputs 17-24	-5 ÷ 1 dB	
		outputs 25-32	-	-6 ÷ -1 dB
	Terr. TV	outputs 1-8	-2 ÷ 3 dB	
		outputs 9-16	-4 ÷ 1 dB	
		outputs 17-24	-5 ÷ 0 dB	
		outputs 25-32	-	-6 ÷ -2 dB
Gain adjustment Terr. TV			15 dB by 1 dB step	
Output level for SAT IF (IMD3=35 dB)*			96 dBμV	
Output level for Terr. TV		outputs 1-8	86 dBμV	
(IMD3=60 dB)*		outputs 9-16	84 dBμV	
		outputs 17-24	82 dBμV	
		outputs 25-32	-	80 dBμV
SAT inputs decoupling			≥ 30 dB	
Outputs decoupling	SAT IF		≥ 30 dB	
	Terr. TV		≥ 35 dB	
Rejection	Terr. TV/SAT		≥ 30 dB	
	SAT/Terr. TV		≥ 40 dB	
Supply voltage through RF inputs			H,Lo and H,Hi - 18 V; V,Lo and V,Hi - 14 V; Terr. TV - 12 V	
DC supply current	+18V &+14V &+12V		< 0.65 A	
through RF inputs	+14V &+12V		< 0.5 A	
	+12V		≤ 100 mA	
Current consumption from receiver			< 65 mA	
Control signals			14/18 V, 0/22 kHz	
Power consumption**			230 V~ 50/60 Hz 3 W	
Operating temperature range			-20° ÷ + 50° C	
Dimensions/Weight (packed)			293x135x52 mm/1.7 kg	333x135x52 mm/2.1 kg

* 2 equal carriers

** without external DC load; with maximal load 17 W

5 cable system
Remotely powered multiswitches

- for large installations of SAT IF distribution systems
- in line powering through H lines
- all components of 5 cable distribution system are compatible to each other
- length of the subscriber line up to 80 meters
- four positions discrete gain regulator for each SAT IF line and separate 16 positions discrete gain regulator for terrestrial TV
- optimized for operation with terrestrial digital/analog signals
- active terrestrial TV path is powered from central power supply allows to receive terrestrial TV programs without switching on SAT TV receiver
- LED indication of 18 V line powering
- possibility to supply powering for LNBs and network equipment from external +18 V power supply unit: recommended power supply - PS182F (page 40)

net5

NEW

MV508
5x8 multiswitch
MV512
5x12 multiswitch
MV516
5x16 multiswitch

Technical specifications

TYPE			MV508	MV512	MV516
Ordering number			02720V1	02721V1	02722V1
Number of outputs			8	12	16
Frequency range	SAT IF		950-2400 MHz		
	Terr. TV		47-790 MHz		
Gain	SAT IF	outputs 1-4	5 ÷ 14 dB		
(fixed slope		outputs 5-8	4 ÷ 12 dB		
pre-correction)		outputs 9-12	-	3 ÷ 10 dB	
		outputs 13-16	-		2 ÷ 8 dB
	Terr. TV	outputs 1-4	-1 ÷ 5 dB		
		outputs 5-8	-2 ÷ 3 dB		
		outputs 9-12	-	-3 ÷ 1 dB	
		outputs 13-16	-		-4 ÷ -1 dB
Gain adjustment	SAT IF		12 dB by 4 dB step		
	Terr. TV		15 dB by 1 dB step		
Output level for SAT IF (IMD3=35 dB)*			105 dBμV		
Output level for Terr. TV		outputs 1-4	88 dBμV	88 dBμV	88 dBμV
(IMD3=60 dB)*		outputs 5-8	86 dBμV	86 dBμV	86 dBμV
		outputs 9-12	-	84 dBμV	84 dBμV
		outputs 13-16	-	-	82 dBμV
SAT inputs decoupling			≥ 30 dB		
Outputs decoupling	SAT IF		≥ 30 dB		
	Terr. TV		≥ 35 dB		
Rejection	Terr. TV/SAT		≥ 30 dB		
	SAT/Terr. TV		≥ 40 dB		
Current consumption from receiver			< 65 mA		
Current consumption from inputs H lines or from external power supply			+18 V 60 mA		
Control signals			14/18 V, 0/22 kHz		
Operating temperature range			-20° ÷ + 50° C		
Dimensions/Weight (packed)			187x135x30 mm/0.6 kg	227x135x30 mm/0.7 kg	267x135x30 mm/0.9 kg

* 2 equal carriers

5 cable system
Remotely powered multiswitches

- for large installations of SAT IF distribution systems
- in line powering through H lines
- all components of 5 cable distribution system are compatible to each other
- length of the subscriber line up to 80 meters
- four positions discrete gain regulator for each SAT IF line and separate 16 positions discrete gain regulator for terrestrial TV
- optimized for operation with terrestrial digital/analog signals
- active terrestrial TV path is powered from central power supply allows to receive terrestrial TV programs without switching on SAT TV receiver
- LED indication of 18 V line powering
- possibility to supply powering for LNBs and network equipment from external +18 V power supply unit: recommended power supply - PS182F (page 40)

MV524
5x24 multiswitch
MV532
5x32 multiswitch

net5

NEW

Technical specifications

TYPE			MV524	MV532
Ordering number			02723V1	02724V1
Number of outputs			24	32
Frequency range	SAT IF		950-2400 MHz	
	Terr. TV		47-790 MHz	
Gain	SAT IF	outputs 1-8	5 ÷ 14 dB	
(fixed slope		outputs 9-16	4 ÷ 12 dB	
pre-correction)		outputs 17-24	3 ÷ 10 dB	
		outputs 25-32	-	2 ÷ 8 dB
	Terr. TV	outputs 1-8	-1 ÷ 5 dB	
		outputs 9-16	-2 ÷ 3 dB	
		outputs 17-24	-3 ÷ 1 dB	
		outputs 25-32	-	-4 ÷ -1 dB
Gain adjustment	SAT IF		12 dB by 4 dB step	
	Terr. TV		15 dB by 1 dB step	
Output level for SAT IF (IMD3=35 dB)*			105 dBμV	
Output level for Terr. TV		outputs 1-8	86 dBμV	
(IMD3=60 dB)*		outputs 9-16	84 dBμV	
		outputs 17-24	82 dBμV	
		outputs 25-32	-	80 dBμV
SAT inputs decoupling			≥ 30 dB	
Outputs decoupling	SAT IF		≥ 27 dB	
	Terr. TV		≥ 35 dB	
Rejection	Terr. TV/SAT		≥ 30 dB	
	SAT/Terr. TV		≥ 40 dB	
Current consumption from receiver			< 65 mA	
Current consumption from inputs H lines or from external power supply			+18 V 100 mA	
Control signals			14/18 V, 0/22 kHz	
Operating temperature range			-20° ÷ + 50° C	
Dimensions/Weight (packed)			227x135x50 mm/1.5 kg	267x135x50 mm/1.9 kg

5 cable system
Taps and splitter

- 2 way splitter and one way taps of 4 SAT+1 terrestrial signals
- low losses
- DC pass through SAT and terrestrial TV trunk lines; switchable DC pass to tap H outputs
- accepts central pin ∅ 1.2 mm max.

SD504
2 way splitter

SD515
1 way 15 dB tap

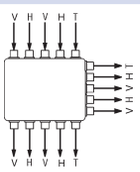
SD510
1 way 10 dB tap

SD520
1 way 20 dB tap

NEW

Technical specifications

TYPE		SD504	SD510	SD515	SD520
Ordering number		02715	02716	02717	02718
Frequency range	SAT IF	950-2400 MHz			
	Terr. TV	5-862 MHz			
Through loss	SAT IF	4 dB	1.5 dB	1.1 dB	0.8 dB
	Terr. TV	4 dB	1.8 dB	1.3 dB	1.1 dB
Tap loss	SAT IF	4 dB	12 ÷ 8 dB	17 ÷ 13 dB	22 ÷ 18 dB
	Terr. TV	4 dB	10 dB	15 ÷ 16 dB	20 dB
SAT inputs decoupling	SAT IF	30 dB			
	Terr. TV	30 dB			
DC pass through	H lines	2 A max. (1 A max. through one line)			
	Terr.TV lines	0.1 A max.			
Return loss		> 10 dB			
Operating temperature range		-20° ÷ + 50° C			
Dimensions/Weight (packed)		126x135x30 mm/0.44 kg			



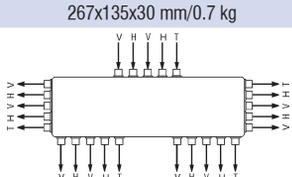
4 way splitter

- 4 way splitter of 4 SAT+1 terrestrial TV signals
- DC pass through H trunk lines; switchable DC pass to tap H outputs
- accepts central pin ∅ 1.2 mm max.

NEW

Technical specifications

TYPE		SDQ508
Ordering number		02719
Frequency range	SAT IF	950-2400 MHz
	Terr. TV	5-862 MHz
Through loss	SAT IF	8 dB
	Terr. TV	8 dB
SAT inputs decoupling	SAT IF	30 dB
	Terr. TV	30 dB
DC pass through	H lines	2 A max. (1 A max. through one line)
	Terr.TV lines	0.1 A max.
Return loss		> 10 dB
Operating temperature range		-20° ÷ + 50° C
Dimensions/Weight (packed)		267x135x30 mm/0.7 kg



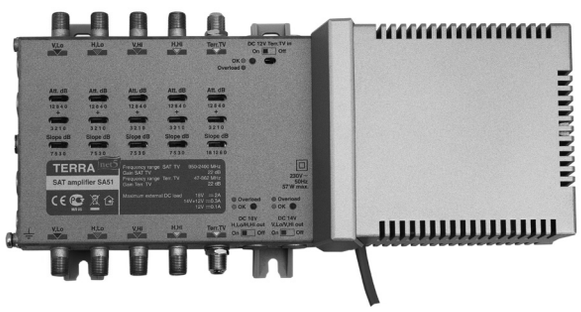
5 cable system
Launch and line amplifiers

- for compensation of through losses of multiswitches and interconnection cables in 5 cable distribution systems
- cascadable with 5 cable system components: taps, splitters and multiswitches
- signal level control and adjustable equalizer at all inputs
- push-pull amplifier on terrestrial TV line

SA51
launch amplifier for amplifying of 4 SAT IF and terrestrial TV signals; built-in switch-mode power supply allows to feed: 18 V DC via H inputs and 14 V DC via V inputs to up lines; switchable 18 V DC via H outputs and switchable 14 V DC via V outputs to down lines; switchable 12 V DC via Terr. TV input

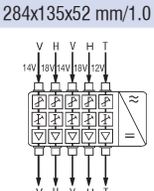
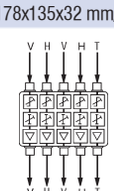
SA51D
line amplifier for amplifying of 4 SAT IF and terrestrial TV signals; in line powering through H lines; switchable DC pass through H and V lines; switchable 12 V feeding via Terr. TV input; remote powering voltage indication

net5



NEW

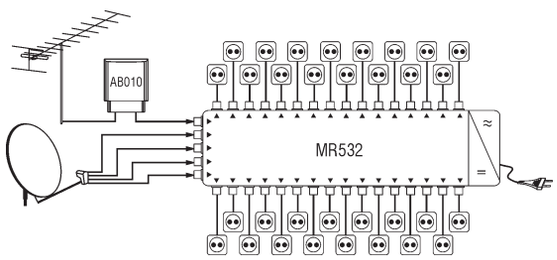
Technical specifications

TYPE		SA51	SA51D
Ordering number		02730	02731
Frequency range	SAT IF	950-2400 MHz	
	Terr. TV	47-790 MHz	
Gain	SAT IF, adjustable	22 dB (0 ÷ -15 dB) by 1 dB step	
	Terr. TV, adjustable	22 dB (0 ÷ -15 dB) by 1 dB step	
Slope	SAT IF, switchable	0/3/5/7 dB	
	Terr. TV, switchable	0/6/12/18 dB	
Isolation	SAT/SAT	30 dB	
	SAT/Terr. TV	30 dB	
Noise figure, typical		≤ 9 dB	
Output level IMD3=60 dB Terr. TV**		109 dBμV	
Output level IMD3=35 dB SAT IF**		114 dBμV	
External equipment powering	through V lines	14 V 0.5 A max. (switchable)	-
	through H lines	18 V 2 A* max. (switchable)	-
	through Terr line	12 V 0.1 A max. (switchable)	-
DC pass through, switchable through H lines		2 A* max.	
Power consumption		230 V~ 50/60 Hz 5 W**	DC 9-18 V 4 W***
Operating temperature range		-20° ÷ + 50° C	
Dimensions/Weight (packed)		284x135x52 mm/1.0 kg	178x135x32 mm/0.6 kg
			

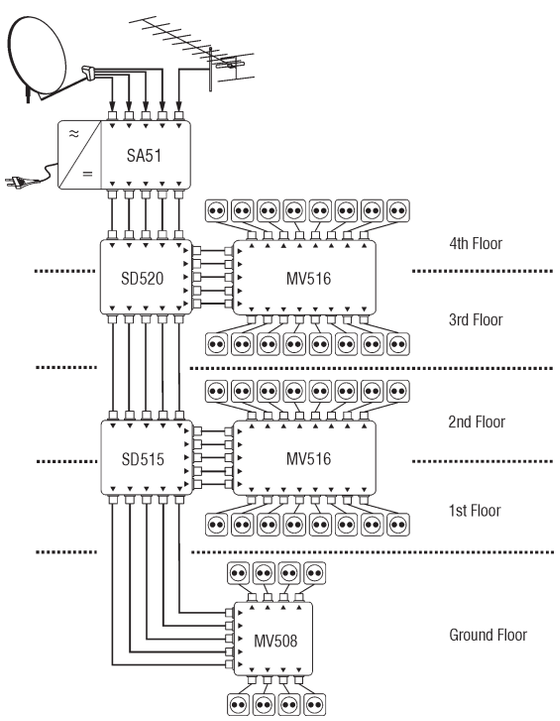
* 1 A max. through one line
** without external DC loading; with maximal external DC load - 55 W
*** in line powering of SA51D through H lines
**** measured using 2 equal signals

5 cable system
Application diagrams

Radial installation for 32 subscribers.



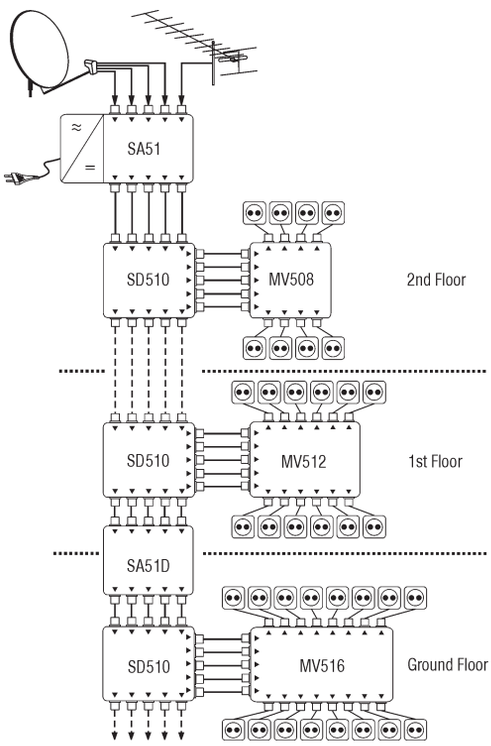
Installation of single multiswitch for two floors. 8 subscribers on every floor.



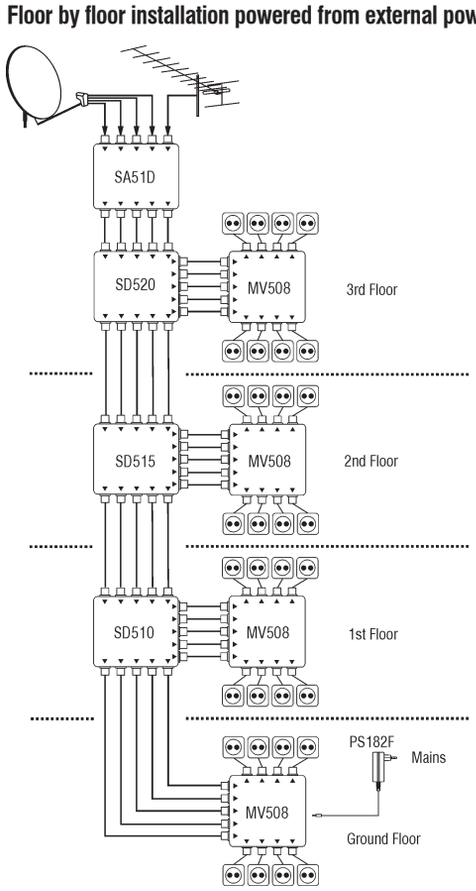
AB010 - fixed gain UHF masthead amplifier, **page 45**
MR532 - 5x32 multiswitch, **page 15**
MV508 - 5x8 multiswitch, **page 16**
MV516 - 5x16 multiswitch, **page 16**
SA51 - launch amplifier, **page 19**
SD515 - 1 way 15 dB tap, **page 18**
SD520 - 1 way 20 dB tap, **page 18**

5 cable system
Application diagrams

Floor by floor installation powered from SA51.



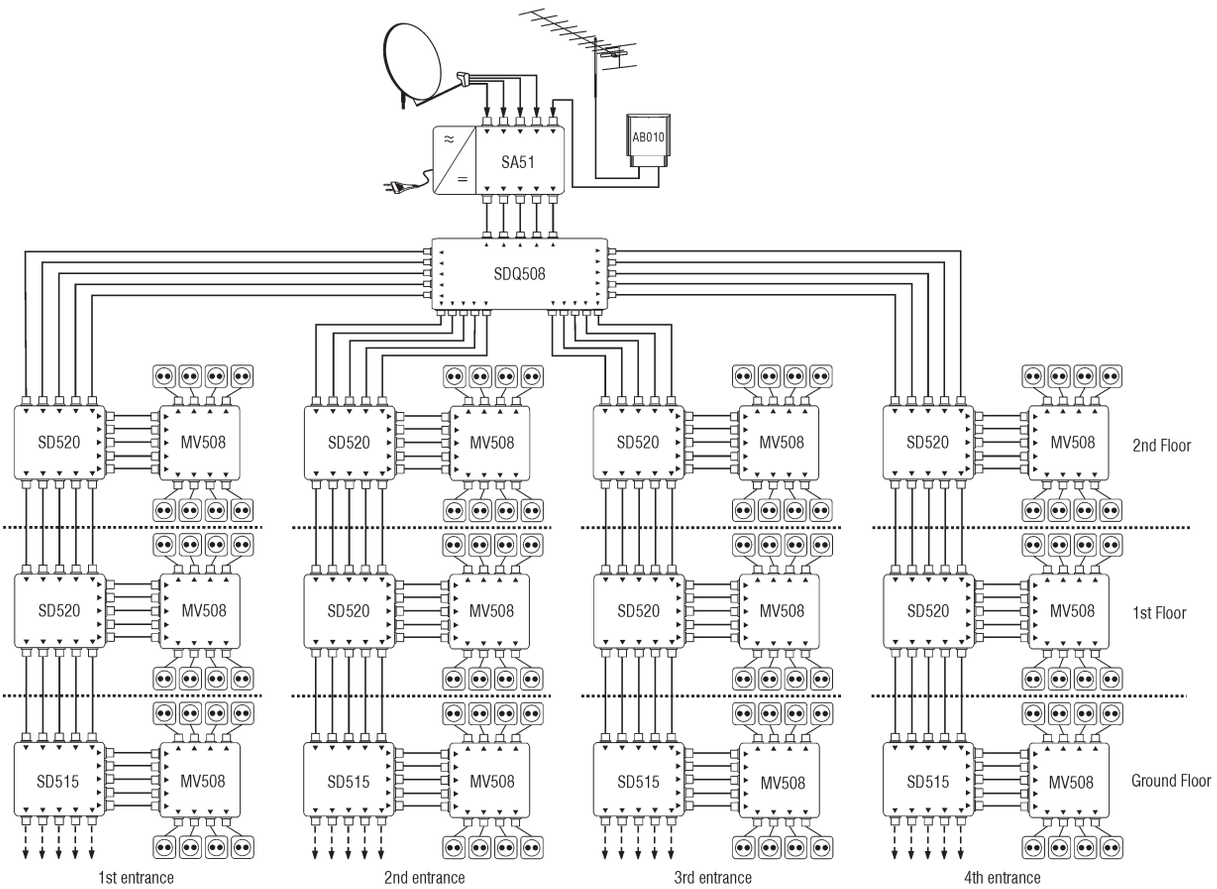
Floor by floor installation powered from external power supply on ground level.



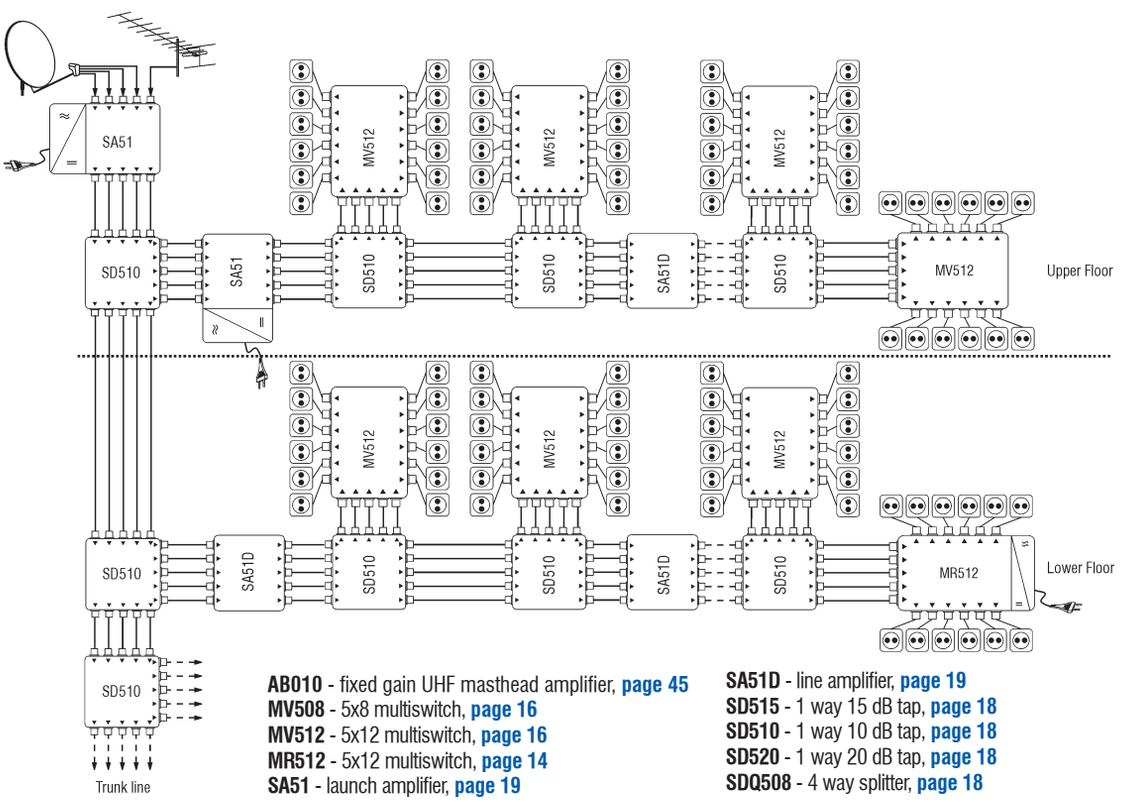
MV508 - 5x8 multiswitch, **page 16**
MV512 - 5x12 multiswitch, **page 16**
MV516 - 5x16 multiswitch, **page 16**
PS182F - power supply, **page 40**
SA51 - launch amplifier, **page 19**
SA51D - line amplifier, **page 19**
SD510 - 1 way 10 dB tap, **page 18**
SD515 - 1 way 15 dB tap, **page 18**
SD520 - 1 way 20 dB tap, **page 18**

5 cable system
Application diagrams

Four entrances house, 2 floors house installation. Whole system powered from SA51.



Long coridor house installation. Trunk line powered from SA51.
Upper coridor line powered from SA51. Lower coridor line powered from MR512.



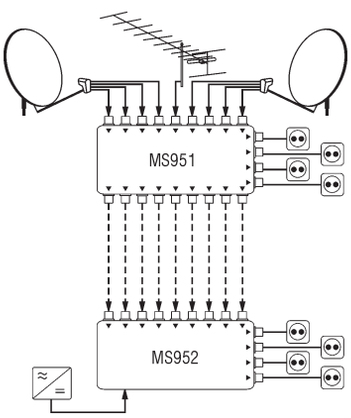
AB010 - fixed gain UHF masthead amplifier, **page 45**
MV508 - 5x8 multiswitch, **page 16**
MV512 - 5x12 multiswitch, **page 16**
MR512 - 5x12 multiswitch, **page 14**
SA51 - launch amplifier, **page 19**
SA51D - line amplifier, **page 19**
SD515 - 1 way 15 dB tap, **page 18**
SD510 - 1 way 10 dB tap, **page 18**
SD520 - 1 way 20 dB tap, **page 18**
SDQ508 - 4 way splitter, **page 18**

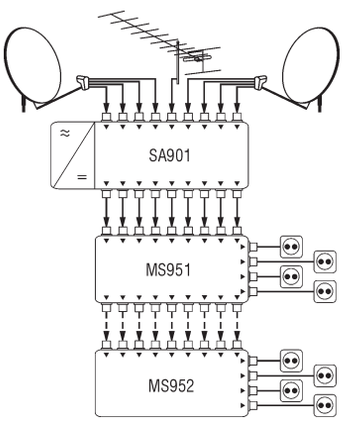
9 cable system
Cascadable multiswitches

- cascadable distribution system of 8 SAT polarities and terrestrial TV for floor by floor installation and/or star distribution
- economical power using concept - no DC power consumption from line; subscriber line is powered from a corresponding receiver
- possibility to supply DC for LNBs through end line multiswitch MS952; MS952 makes 14V from external 18V source
- passive terrestrial TV path allows to receive terrestrial TV programs without switching on SAT TV receiver
- depending on interconnection cable up to 5 multiswitches can be connected into cascade without using a compensation amplifier
- ready for return path operation
- high isolation between all outputs
- recommended power supply - PS182F (**page 40**)

MS951
through line 9x4 multiswitch

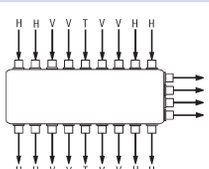
MS952
end line 9x4 multiswitch

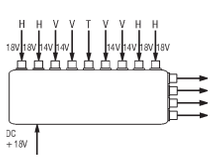




Technical specifications

T Y P E		MS951	MS952
Ordering number		01725	01726
Frequency range	SAT IF	950-2400 MHz	
	Terr. TV	5-862 MHz	
Tap gain	SAT IF	3 dB	
	Terr. TV	-19 dB	
Maximal output level for SAT IF circuit IMD3=30 dB (EN50083-3)		93 dBμV	
SAT inputs decoupling		> 30 dB	
Outputs decoupling	SAT IF	> 30 dB	
	Terr. TV	> 30 dB	
Through gain	SAT IF	-3 dB	-
	Terr. TV	-3.5 dB	-
DC pass through		1 A max.	-
DC pass from external	through V lines	-	14 V & 0.5 A max.
18V power supply	through H lines	-	18 V & 1 A max.
Current consumption from receiver		< 60 mA	
Control signals		14/18 V, 0/22 kHz, tone burst or DiSEqC 2.0	
Operating temperature range		-20° ÷ + 50° C	
Dimensions/Weight (packed)		199x106x34mm/0.4 kg	199x106x34mm/0.37 kg





9 cable system
Radial multiswitches

net9

NEW

- star distribution system of 8 SAT IF polarities and terrestrial TV signal up to 16 users
- built-in power supply for remote DC feeding
- possibility to feed DC for preamplifier through terrestrial TV input
- passive terrestrial TV path

MRS904
9x4 multiswitch

MRS908
9x8 multiswitch

MRS912
9x12 multiswitch

MRS916
9x16 multiswitch




AVAILABLE 4rd quarter 2013

AVAILABLE 4rd quarter 2013

Technical specifications

TYPE		MRS904	MRS908	MRS912	MRS916
Ordering number		02755	02756	02757	02758
Number of outputs		4	8	12	16
Frequency range	SAT IF	950-2400 MHz			
	Terr. TV	47-862 MHz			
Typical loss	SAT	8-4 dB		11-8 dB	13-10 dB
	Terr. TV	10 dB	14 dB	16 dB	18 dB
Output level for SAT IF (IMD3=35 dB)		100 dBμV			
SAT inputs decoupling		> 30 dB			
Outputs decoupling		> 30 dB			
Rejection	Terr. TV/SAT	≥ 24 dB			
	SAT/Terr. TV	≥ 45 dB			
Supply voltage through RF inputs		H,Lo and H/Hi - 18 V; V,Lo and V/Hi - 14 V; Terr. TV - 12 V			
DC supply current through RF inputs	+18V &+14V &+12V	< 0.7 A			
	+14V &+12V	< 0.3 A			
	+12V	≤ 0.1 A			
Current consumption from receiver		< 70 mA			
Control signals		14/18 V, 0/22 kHz, tone burst or DiSEqC 2.0			
Power consumption with maximal loud		230 V~ 50/60 Hz 17 W			
Operating temperature range		-20° ÷ + 50° C			
Dimensions/Weight (packed)		200x135x52 mm/0.68 kg	252x135x52 mm/0.8 kg	292x135x52 mm/0.9 kg	332x135x52 mm/1.1 kg

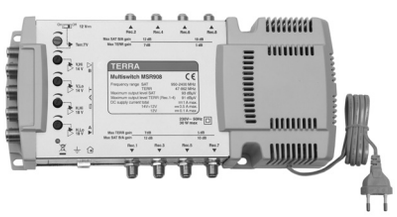
9 cable system
Radial multiswitches

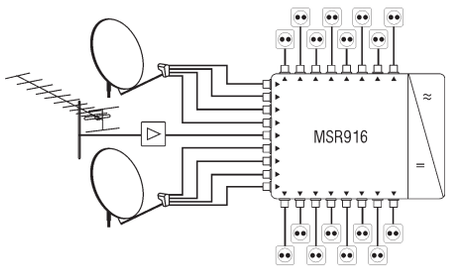
- star distribution system of 8 SAT IF polarities and terrestrial TV signal up to 16 users
- built-in power supply for remote DC feeding
- possibility to feed DC for preamplifier through terrestrial TV input

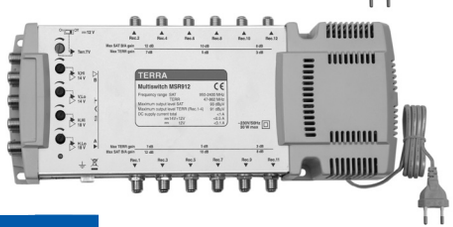
MSR908
9x8 multiswitch

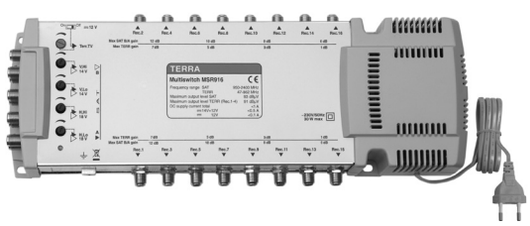
MSR912
9x12 multiswitch

MSR916
9x16 multiswitch









Technical specifications

TYPE			MSR908	MSR912	MSR916
Ordering number			01767	01768	01769
Number of outputs			8	12	16
Frequency range	SAT IF		950-2400 MHz		
	Terr. TV		47-862 MHz		
Gain, typical	SAT	outputs 1-4	7 ÷ 12 dB		
(fixed slope	(SAT A	outputs 5-8	6 ÷ 10 dB		
pre-correction)	adjustable	outputs 9-12	-	5 ÷ 8 dB	
	10 dB)	outputs 13-16	-		4 ÷ 6 dB
	Terr. TV	outputs 1-4	3 ÷ 7 dB		
	adjustable	outputs 5-8	2 ÷ 5 dB		
	20 dB	outputs 9-12	-	1 ÷ 3 dB	
		outputs 13-16	-		0 ÷ 1 dB
Output level for SAT IF (IMD3=35 dB)			93 dBµV		
Output level for Terr. TV		outputs 1-4	91 dBµV	91 dBµV	91 dBµV
(DIN45004B)		outputs 5-8	88 dBµV	88 dBµV	88 dBµV
		outputs 9-12	-	86 dBµV	86 dBµV
		outputs 13-16	-	-	83 dBµV
SAT inputs decoupling			> 25 dB		
Outputs decoupling			> 25 dB		
Rejection	Terr. TV/SAT		≥ 24 dB		
	SAT/Terr. TV		≥ 45 dB		
Supply voltage through RF inputs			H,Lo and H,Hi - 18 V; V,Lo and V,Hi - 14 V; Terr. TV - 12 V		
DC supply current	+18V &+14V &+12V		< 1 A		
through RF inputs	+14V & +12V		< 0.5 A		
	+12V		< 0.1 A		
Current consumption from receiver			< 60 mA		
Control signals			14/18 V, 0/22 kHz, tone burst or DiSEqC 2.0		
Power consumption*			230 V~ 50 Hz 4 W		
Operating temperature range			-20° ÷ + 50° C		
Dimensions/Weight (packed)			244.5x128x53 mm/0.9 kg	284.5x128x53mm/1 kg	324.5x128x53 mm/1.1 kg

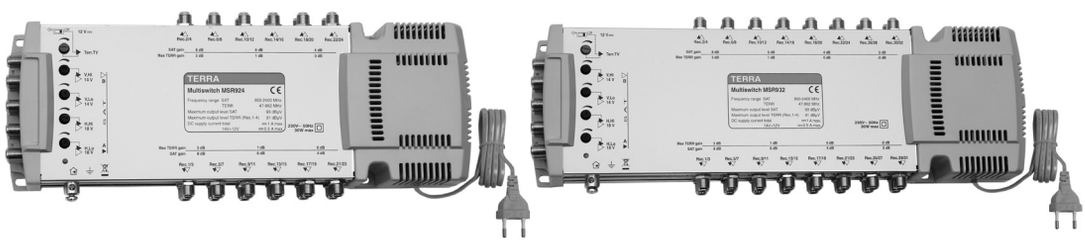
* without external DC load; with maximal load 30 W

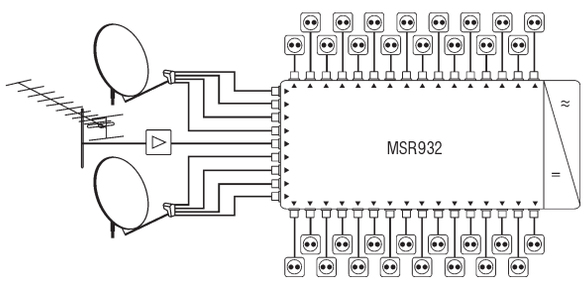
9 cable system
Radial multiswitches

- star distribution system of 8 SAT IF polarities and terrestrial TV signal up to 32 users
- built-in power supply with possibility of remote DC feeding for LNBs and preamplifier through terrestrial TV input

MSR924
9x24 multiswitch

MSR932
9x32 multiswitch





Technical specifications

TYPE			MSR924	MSR932
Ordering number			01775	01776
Number of outputs			24	32
Frequency range	SAT IF		950-2400 MHz	
	Terr. TV		47-862 MHz	
Gain, typical (fixed slope pre-correction)	SAT (SAT A adjustable 10 dB)	outputs 1-8	3 ÷ 8 dB	
		outputs 9-16	2 ÷ 6 dB	
		outputs 17-24	1 ÷ 4 dB	
		outputs 25-32	-	0 ÷ 2 dB
	Terr. TV adjustable 20 dB	outputs 1-8	-1 ÷ 3 dB	
		outputs 9-16	-2 ÷ 1 dB	
		outputs 17-24	-3 ÷ 0 dB	
		outputs 25-32	-	-4 ÷ -2 dB
Output level for SAT IF (IMD3=35 dB)			93 dBµV	
Output level for Terr. TV (DIN45004B)		outputs 1-8	91 dBµV	
		outputs 9-16	88 dBµV	
		outputs 17-24	86 dBµV	
		outputs 25-32	-	83 dBµV
SAT inputs decoupling			> 25 dB	
Outputs decoupling			> 25 dB	
Rejection	Terr. TV/SAT		≥ 24 dB	
	SAT/Terr. TV		≥ 45 dB	
Supply voltage through RF inputs			H,Lo and H,Hi - 18 V; V,Lo and V,Hi - 14 V; Terr. TV - 12 V	
DC supply current through RF inputs	+18V &+14V &+12V		< 1 A	
	+14V & +12V		< 0.5 A	
	+12V		< 0.1 A	
Current consumption from receiver			< 60 mA	
Control signals			14/18 V, 0/22 kHz, tone burst or DiSEqC 2.0	
Power consumption*			230 V~ 50 Hz 4 W	
Operating temperature range			-20° ÷ + 50° C	
Dimensions/Weight (packed)			310x128x53mm/1.1 kg	350x128x53 mm/1.3 kg

* without external DC load; with maximal load 30 W

9 cable system
Remotely powered multiswitches

- for large installations of SAT IF distribution systems
- in line powering through H lines
- length of the subscriber line up to 80 meters
- 4 gain regulators* for SAT IF and separate regulator for terrestrial TV
- optimized for operation with terrestrial digital/analog signals
- active terrestrial TV path is powered from central power supply
- LED indication of 18 V line powering
- possibility of supply powering for LNBs equipment from external +18V power supply unit: recommended power supply - PS182F (**page 40**)

MSV908
9x8 multiswitch
MSV912
9x12 multiswitch
MSV916
9x16 multiswitch

Technical specifications

T Y P E			MSV908	MSV912	MSV916
Ordering number			01770	01771	01772
Number of outputs			8	12	16
Frequency range	SAT IF		950-2400 MHz		
	Terr. TV		47-862 MHz		
Gain	SAT IF	outputs 1-4	7 ÷ 12 dB		
(fixed slope		outputs 5-8	6 ÷ 10 dB		
pre-correction)		outputs 9-12	-	5 ÷ 8 dB	
		outputs 13-16	-		4 ÷ 6 dB
	Terr. TV	outputs 1-4	3 ÷ 7 dB		
		outputs 5-8	2 ÷ 5 dB		
		outputs 9-12	-	1 ÷ 3 dB	
		outputs 13-16	-		0 ÷ 1 dB
Gain adjustment	SAT IF*		10 dB		
	Terr. TV		17 dB		
Output level for SAT IF (IMD3=35 dB)			93 dBμV		
Output level for Terr. TV		outputs 1-4	91 dBμV		
(DIN45004B)		outputs 5-8	89 dBμV		
		outputs 9-12	-	87 dBμV	
		outputs 13-16	-		85 dBμV
SAT inputs decoupling			> 25 dB		
Outputs decoupling	SAT IF		> 25 dB		
	Terr. TV		> 30 dB		
Current consumption from receiver			< 160 mA		
Current consumption from inputs H lines or from external power supply			+12 V 100 mA ÷ +18 V 70 mA max.		
Control signals			14/18 V, 0/22 kHz, tone burst or DiSEqC 1.0, DiSEqC 2.0 or compatible versions		
Operating temperature range			-20° ÷ + 50° C		
Dimensions/Weight (packed)			170x128x53 mm/0.58 kg	210x128x53 mm/0.68 kg	250x128x53 mm/0.78 kg

* synchronic adjustment for high and low band inputs

9 cable system
Remotely powered multiswitches

- for large installations of SAT IF distribution systems
- in line powering through H lines
- length of the subscriber line up to 80 meters
- 4 gain regulators* for SAT IF and separate regulator for terrestrial TV
- optimized for operation with terrestrial digital/analog signals
- active terrestrial TV path is powered from central power supply
- LED indication of 18 V line powering
- possibility of supply powering for LNBs equipment from external +18V power supply unit: recommended power supply - PS182F (**page 40**)

MSV924
9x24 multiswitch
MSV932
9x32 multiswitch

Technical specifications

TYPE			MSV924	MSV932
Ordering number			01781	01782
Number of outputs			24	32
Frequency range	SAT IF		950-2400 MHz	
	Terr. TV		47-862 MHz	
Gain	SAT IF	outputs 1-8	2 ÷ 6 dB	
(fixed slope		outputs 9-16	1 ÷ 4 dB	
pre-correction)		outputs 17-24	0 ÷ 2 dB	
		outputs 25-32	-	-1 ÷ 0 dB
	Terr. TV	outputs 1-8	-1 ÷ 3 dB	
		outputs 9-16	-2 ÷ 1 dB	
		outputs 17-24	-3 ÷ 0 dB	
		outputs 25-32	-	-4 ÷ -2 dB
Gain adjustment	SAT IF*		10 dB	
	Terr. TV		17 dB	
Output level for SAT IF (IMD3=35 dB)			93 dBμV	
Output level for Terr. TV		outputs 1-8	91 dBμV	
(DIN45004B)		outputs 9-16	89 dBμV	
		outputs 17-24	87 dBμV	
		outputs 25-32	-	85 dBμV
SAT inputs decoupling			> 25 dB	
Outputs decoupling	SAT IF		> 25 dB	
	Terr. TV		> 30 dB	
Current consumption from receiver			< 170 mA	
Current consumption from inputs H lines or from external power supply			+12 V 100 mA ÷ +18 V 70 mA max.	
Control signals			14/18 V, 0/22 kHz, tone burst or DiSEqC 1.0, DiSEqC 2.0 or compatible versions	
Operating temperature range			-20° ÷ + 50° C	
Dimensions/Weight (packed)			251x128x53 mm/0.9 kg	291x128x53 mm/1.04 kg

* synchronic adjustment for high and low band inputs

Access mode control unit PC101

Control unit PC101 allows to change the access mode of multiswitches MSR908-MSR932, MSV908-MSV932 by changing reaction of the multiswitches to receiver's control commands (analog 14/18 V / 0/22 kHz and DiSEqC 1.0/2.0). Two modes are available:

1. Default mode (access to SAT A, SAT B by DiSEqC commands, access to SAT A by analog commands;
2. Restricted mode (access to SAT B only by analog or DiSEqC commands).

Ordering number 01773

9 cable system
Taps and splitter

- 2 way splitter and one way taps of 8 SAT+1 terrestrial signals
- low losses
- switchable DC pass to tap H outputs
- accepts central pin ∅ 1.2 mm max.

SS904
2 way splitter

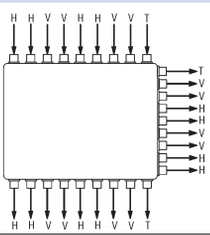
SS915
1 way 15 dB tap

SS910
1 way 10 dB tap

SS920
1 way 20 dB tap

Technical specifications

TYPE		SS904	SS910	SS915	SS920
Ordering number		02710	02711	02712	02713
Frequency range	SAT IF	950-2400 MHz			
	Terr. TV	5-862 MHz			
Through loss	SAT IF	4 dB	1.7 dB	1.2 dB	0.9 dB
	Terr. TV	4 dB	1.6 dB	1.2 dB	1 dB
Tap loss	SAT IF	4 dB	8 ÷ 12 dB	13 ÷ 17 dB	18 ÷ 22 dB
	Terr. TV	4 dB	10 dB	15 dB	20 dB
SAT inputs decoupling	SAT IF	30 dB			
	Terr. TV	30 dB			
DC pass through		2 A max.			
Operating temperature range		-20° ÷ + 50° C			
Dimensions/Weight (packed)		120x120x51 mm/0.4 kg			

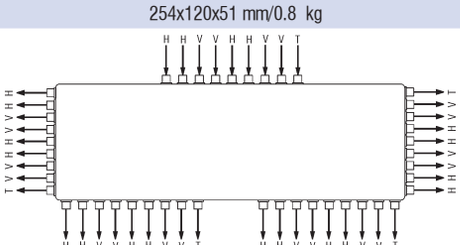


4 way splitter

- 4 way splitter of 8 SAT+1 terrestrial TV signals
- switchable DC pass to tap H outputs
- accepts central pin ∅ 1.2 mm max.

Technical specifications

TYPE		SSQ908
Ordering number		02714
Frequency range	SAT IF	950-2400 MHz
	Terr. TV	5-862 MHz
Through loss	SAT IF	8 dB
	Terr. TV	8 dB
SAT inputs decoupling	SAT IF	30 dB
	Terr. TV	30 dB
DC pass through		2 A max.
Operating temperature range		-20° ÷ + 50° C
Dimensions/Weight (packed)		254x120x51 mm/0.8 kg

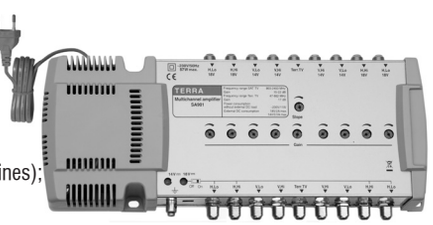


9 cable system
Launch and line amplifiers

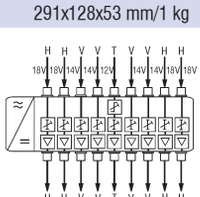
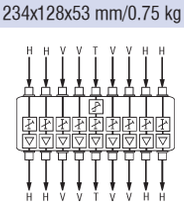
- for compensation of through losses of multiswitches and interconnection cables in 9 cable distribution systems
- cascadable with multiswitches MS951, MS952 and other 9 cable system components
- signal level control at all inputs
- built-in adjustable equalizer and push-pull amplifier on terrestrial TV line
- fixed 7 dB slope precorrection on SAT IF lines

SA901
launch amplifier for amplifying of 8 SAT IF and terrestrial TV signals; built-in switch-mode power supply allows to feed: 18 V DC via H inputs and 14 V DC via V inputs to up lines; switchable 18 V DC via H outputs to down lines; 12 V DC via Terr. TV input (switchable)

SA911
line amplifier for amplifying of 8 SAT IF and terrestrial TV signals; in line powering through H lines; DC pass through H and V lines (switchable through H lines); 12 V feeding via Terr. TV input (switchable)



Technical specifications

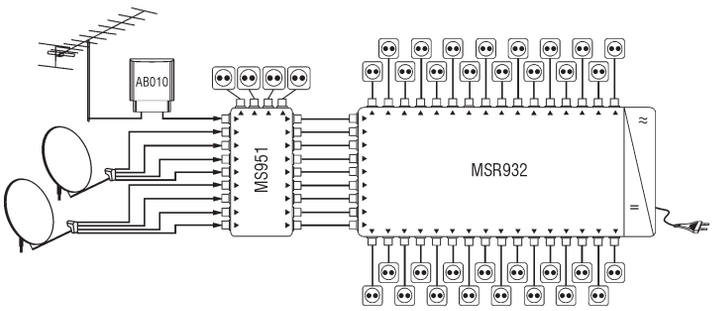
TYPE		SA901	SA911
Ordering number		01742	01743
Frequency range	SAT IF	950-2400 MHz	
	Terr. TV	47-862 MHz	
Gain	SAT IF	15-22 dB (0 ÷ -10 dB adjustable)	
	Terr. TV	17 dB (0 ÷ -17 dB adjustable)	
Slope	SAT IF	7 dB(fixed)	
	Terr. TV	0 ÷ -15 dB (adjustable)	
Isolation	SAT/SAT	30 dB	
	SAT/Terr. TV	30 dB	
Noise figure, typical		≤ 9 dB	
Output level IMD3=60 dB (DIN45004B)		112 dBμV (for terrestrial TV)	
Output level IMD3=35 dB (EN50083-3)		114 dBμV (for SAT IF)	
External equipment powering	through V lines	14 V (14 V+12 V 0.5 A max.)	-
	through H lines	18 V 2 A max. (switchable)	-
	through Terr line	12 V 0.1 A max. (switchable)	-
DC pass through, switchable through H lines		2 A max.	
Power consumption		230 V~ 50 Hz 11 W*	DC 9-18 V 6 W**
Operating temperature range		-20° ÷ + 50° C	
Dimensions/Weight (packed)		291x128x53 mm/1 kg	234x128x53 mm/0.75 kg
			

* without external DC loading; with maximal external DC load - 57 W

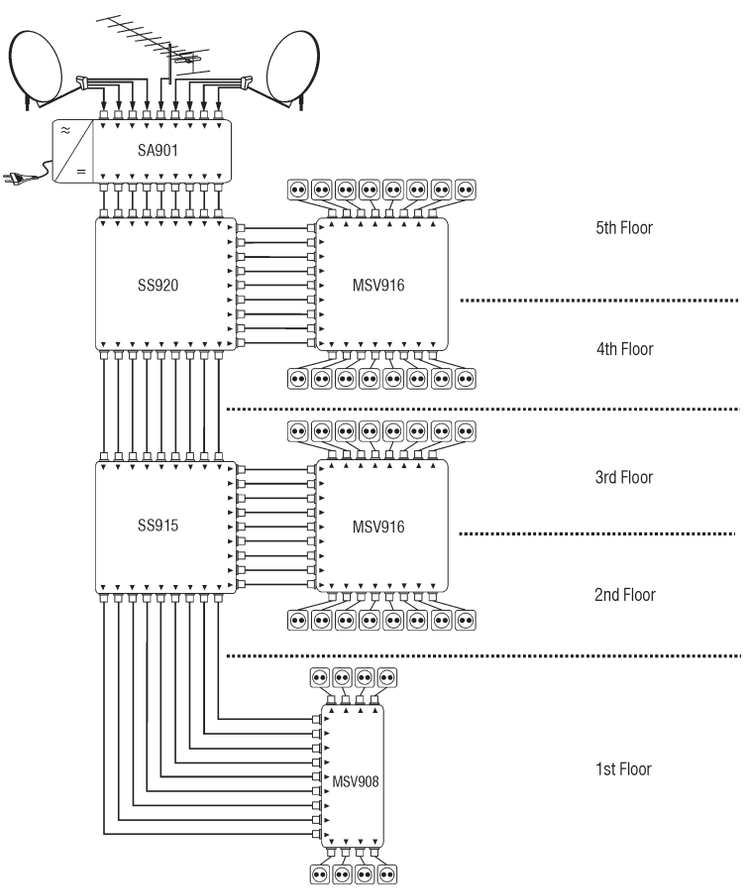
** in line powering of SA911 through H lines

9 cable system
Application diagrams

Radial installation for 32 subscribers.



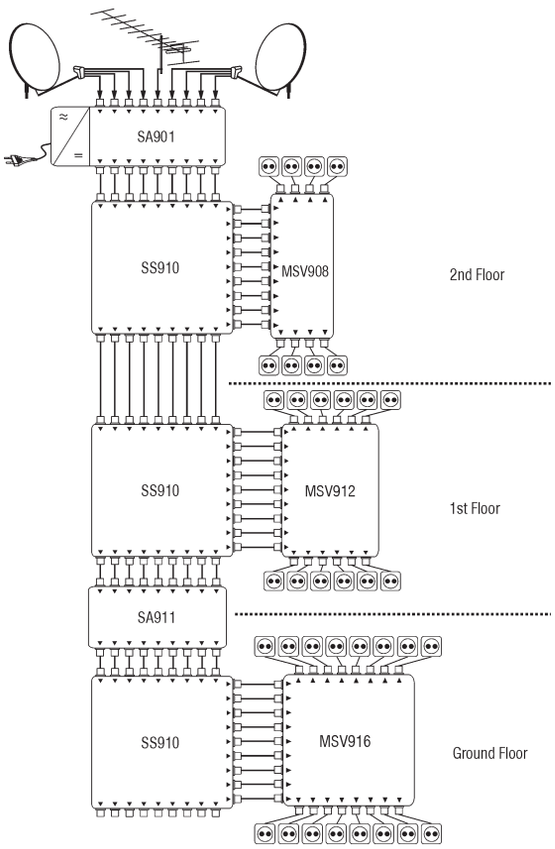
Installation of single multiswitch for two floors. 8 subscribers on every floor.



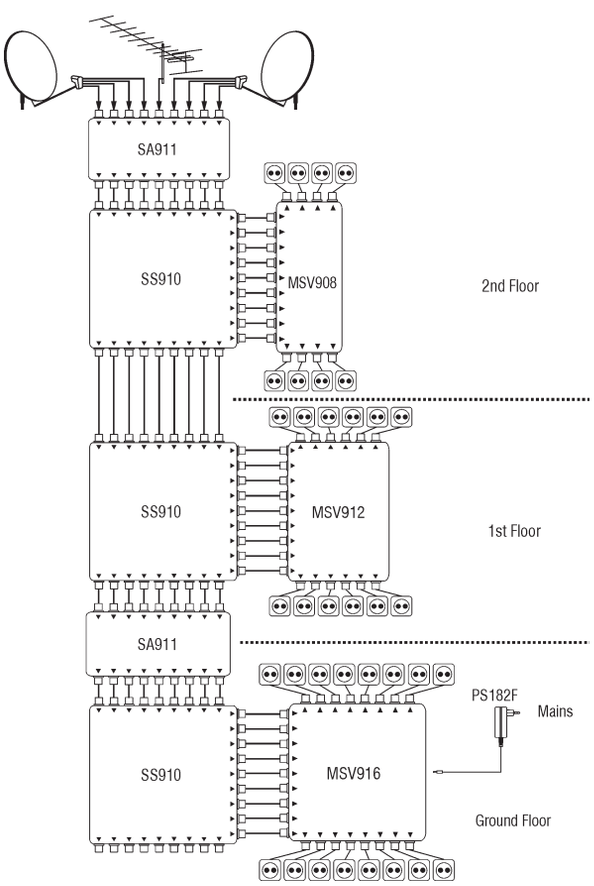
AB010 - UHF masthead amplifier, **page 45**
MS951 - through line 9x4 multiswitch, **page 23**
MSV908 - 9x8 multiswitch, **page 27**
MSV912 - 9x12 multiswitch, **page 27**
MSV916 - 9x16 multiswitch, **page 27**
MSR932 - 9x32 multiswitch, **page 26**
SA901 - launch amplifier, **page 30**
SS915 - 1 way 15 dB tap, **page 29**
SS920 - 1 way 20 dB tap, **page 29**

9 cable system
Application diagrams

Floor by floor installation powered from SA901.



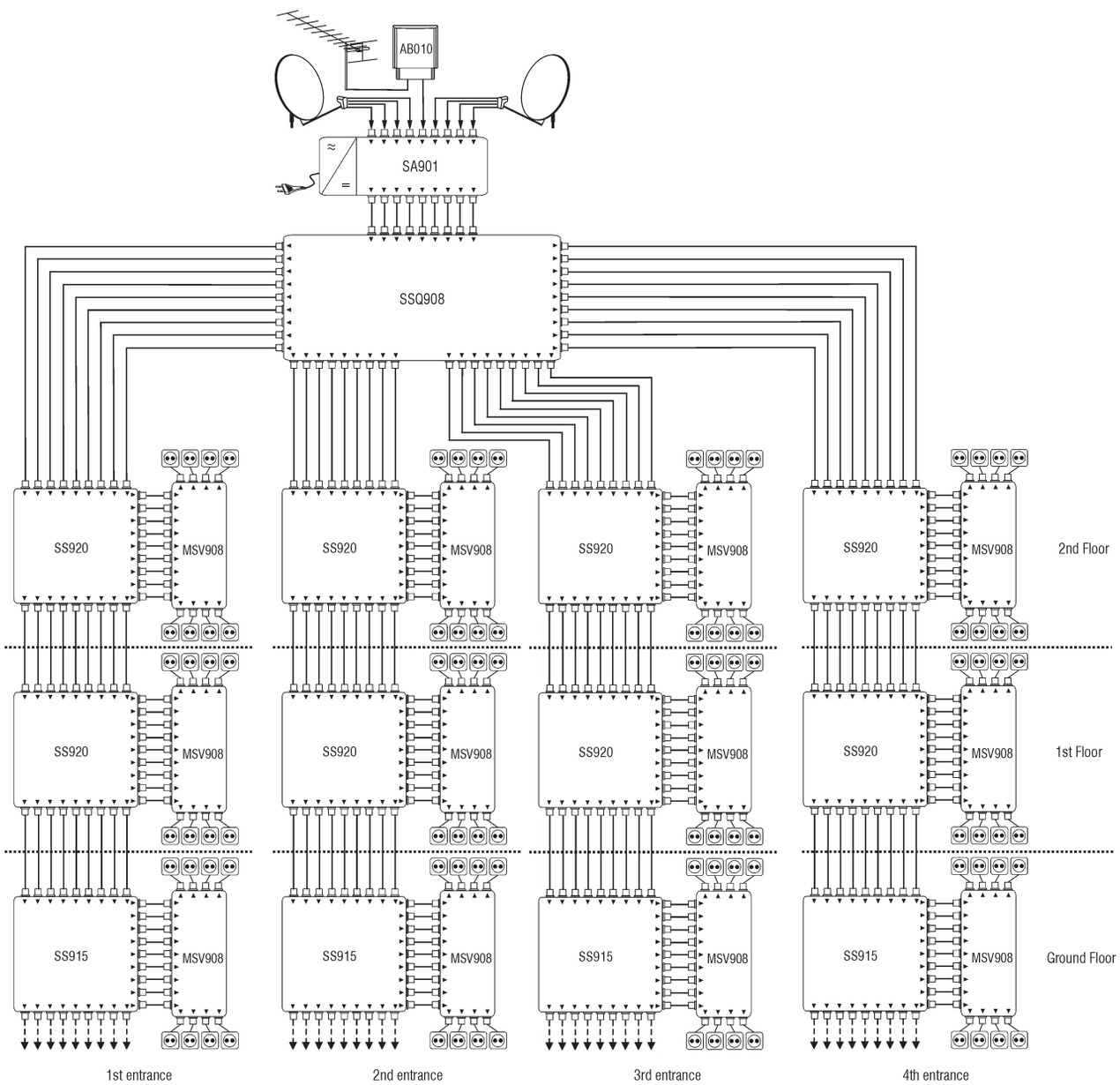
Floor by floor installation powered from external power supply on ground level.



MS951 - through line 9x4 multiswitch, **page 23**
MSV908 - 9x8 multiswitch, **page 27**
MSV912 - 9x12 multiswitch, **page 27**
MSV916 - 9x16 multiswitch, **page 27**
PS182F - power supply, **page 40**
SA901 - launch amplifier, **page 30**
SA911 - line amplifier, **page 30**
SS910 - 1 way 10 dB tap, **page 29**

9 cable system
Application diagrams

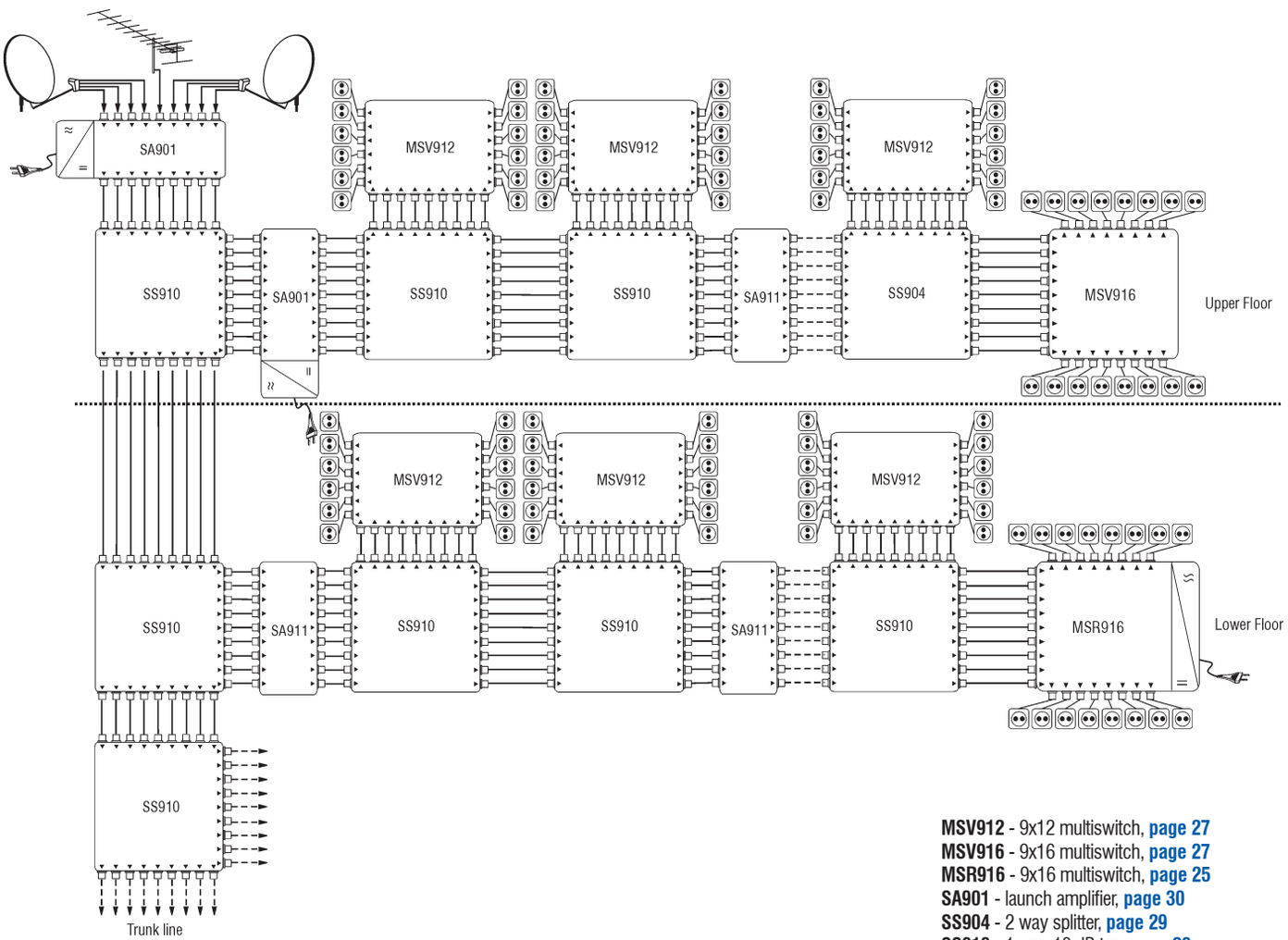
Four entrances house, 2 floors house installation. Whole system powered from SA901.



AB010 - UHF masthead amplifier, **page 45**
MSV908 - 9x8 multiswitch, **page 27**
SA901 - launch amplifier, **page 30**
SS915 - 1 way 15 dB tap, **page 29**
SS920 - 1 way 20 dB tap, **page 29**
SSQ908 - 4 way splitter, **page 29**

9 cable system
Application diagrams

Long coridor house installation. Trunk line powered from SA901.
Upper coridor line powered from SA901. Lower coridor line powered from MSR916.



MSV912 - 9x12 multiswitch, **page 27**
MSV916 - 9x16 multiswitch, **page 27**
MSR916 - 9x16 multiswitch, **page 25**
SA901 - launch amplifier, **page 30**
SS904 - 2 way splitter, **page 29**
SS910 - 1 way 10 dB tap, **page 29**

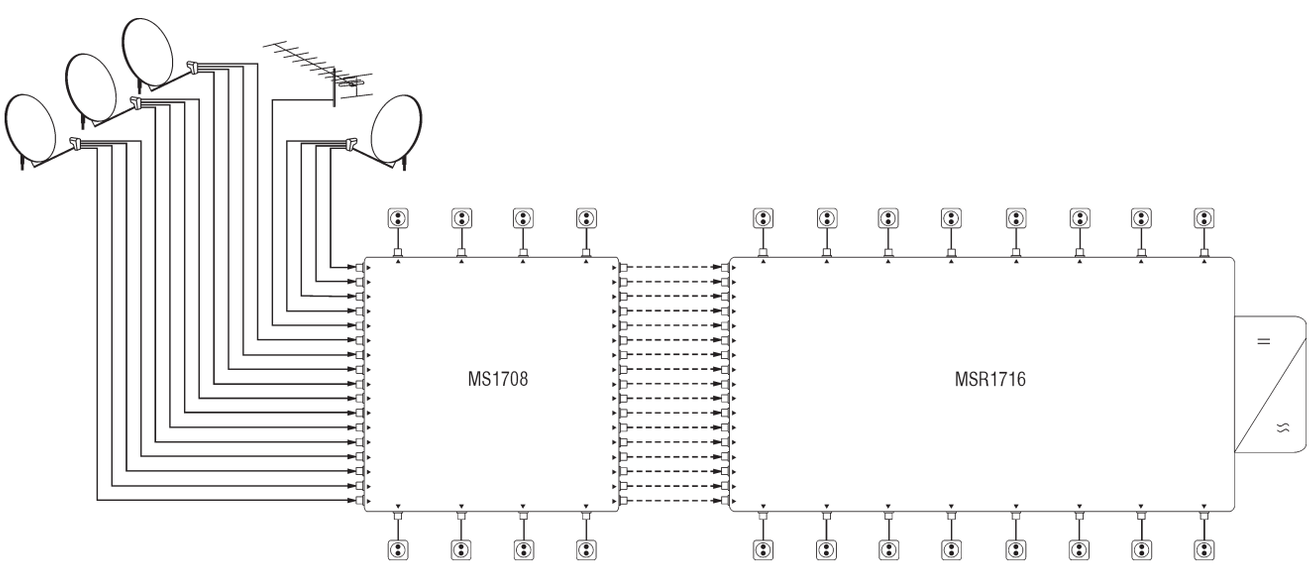
17 cable system
Cascadable multiswitch

- through line 17x8 multiswitch
- cascadable distribution system of 16 SAT polarities and terrestrial TV for floor by floor installation and/or star distribution
- separate SAT IF gain adjustment for every pair of subscribers outputs
- DC through path and multiswitch feeding from SAT A HLo, SAT A HHi lines

Technical specifications

TYPE			MS1708
Ordering number			01783
Frequency range	SAT IF		950-2400 MHz
	Terr. TV		5-862 MHz
Gain, typical (fixed slope pre-correction)*	SAT IF adjustable 13 dB	outputs 1-4	-6 ÷ 0 dB
		outputs 5-8	-7 ÷ -1 dB
	Terr. TV adjustable 20 dB	outputs 1-4	-8 ÷ -5 dB
		outputs 5-8	-9 ÷ -7 dB
Output level for SAT IF (IMD3=35 dB)			100 dBμV
Output level for Terr. TV (DIN45004B)		outputs 1-4	94 dBμV
		outputs 5-8	92 dBμV
SAT inputs decoupling			> 25 dB
Outputs decoupling			> 40 dB
Through gain	SAT IF		-6 dB
	Terr. TV		6 ÷ 8 dB max.
DC pass through SAT input-output			1 A max. (through single line)
Current consumption from receiver			90 mA max.
Current consumption from SAT A HLo, SAT A HHi lines			18 V 80 mA ÷ 12 V 120 mA
Control signals			DiSEqC 1.0, DiSEqC 2.0 or compatible versions
Operating temperature range			-20° ÷ + 50° C
Dimensions/Weight (packed)			190x190x55 mm/0.8 kg

* max. gain on 2150 MHz

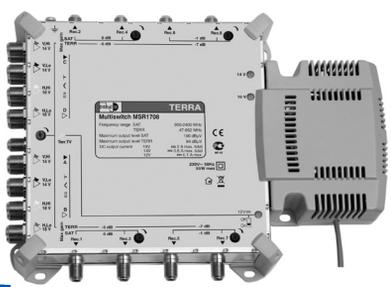


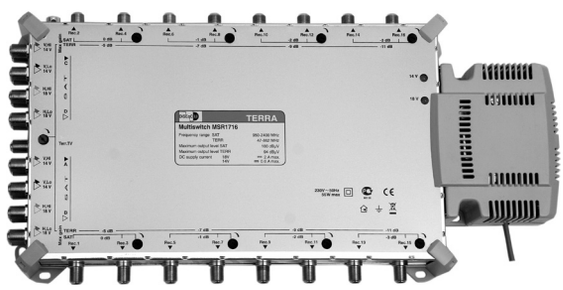
17 cable system
Radial multiswitches

- star distribution system of 16 SAT IF polarities and terrestrial TV signal up to 16 users
- separate SAT IF gain adjustment for every pair of subscribers outputs
- built-in power supply with possibility of remote DC feeding for LNBs and other network components including amplifiers inside terrestrial TV path
- power supply has short-circuit and overload protection with LED indicators

MSR1708
17x8 multiswitch

MSR1716
17x16 multiswitch





Technical specifications

TYPE			MSR1708	MSR1716
Ordering number			01784	01785
Number of outputs			8	16
Frequency range	SAT IF		950-2400 MHz	
	Terr. TV		47-862 MHz	
Gain, typical	SAT IF	outputs 1-4	-6 ÷ 0 dB	
(fixed slope	adjustable	outputs 5-8	-7 ÷ -1 dB	
pre-correction)*	13 dB	outputs 9-12	-	-8 ÷ -2 dB
		outputs 13-16	-	-9 ÷ -3 dB
	Terr. TV	outputs 1-4	-8 ÷ -5 dB	
	adjustable	outputs 5-8	-9 ÷ -7 dB	
	17 dB	outputs 9-12	-	-10 ÷ -9 dB
		outputs 13-16	-	-11 ÷ -11 dB
Output level for SAT IF (IMD3=35 dB)			100 dBμV	
Output level for Terr. TV		outputs 1-4	94 dBμV	
(DIN45004B)		outputs 5-8	92 dBμV	
		outputs 9-12	-	90 dBμV
		outputs 13-16	-	88 dBμV
SAT inputs decoupling			> 25 dB	
Outputs decoupling			> 40 dB	
Rejection, SAT/Terr. TV			≥ 30 dB	
Output voltage through RF inputs			H,Lo and H,Hi - 18 V; V,Lo and V,Hi - 14 V	
DC supply current	+18V		2 A max. total	
through RF inputs	+14V		0.6 A max. total	
	+12V		0.1 A max.	
Current consumption from receiver			90 mA max.	
Control signals			DiSEqC 1.0 , DiSEqC 2.0 or compatible versions	
Power consumption**			230 V~ 50/60 Hz 3.5 W	
Operating temperature range			-20° ÷ + 50° C	
Dimensions/Weight (packed)			260x190x55mm/1.06 kg	360x190x55 mm/1.7 kg

* max. gain on 2150 MHz
** without external DC load; with maximal load 55 W

System accessories
Splitband amplifiers

- for amplification signals of SAT and terrestrial TV bands
- suitable for signals combining of SAT and terrestrial TV bands
- possibility of DC feeding for LNBs from external power supply
- possibility of DC and DiSEqC signals pass
- built-in separate gain & slope regulators for every band
- die-cast housing

SA100
SAT IF amplifier with passive terrestrial TV path

HSA100
SAT IF amplifier with active/passive terrestrial TV path, switchable

HSA100R30
SAT IF amplifier with active/passive terrestrial TV path and 30 MHz passive return path, switchable

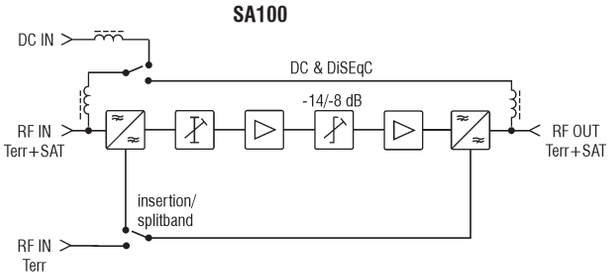
HSA100R65
SAT IF amplifier with active/passive terrestrial TV path and 65 MHz passive return path, switchable

Technical specifications

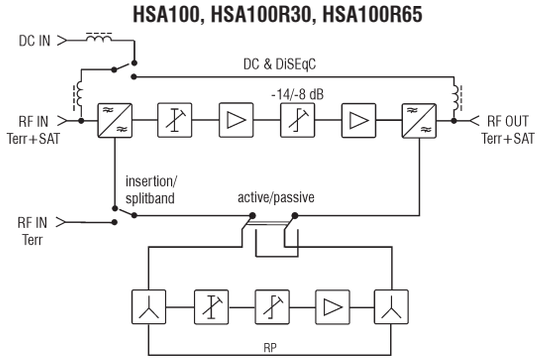
TYPE		SA100	HSA100	HSA100R30	HSA100R65
Ordering number		01777	01778	01779	01780
Forward path					
Frequency range	SAT IF	950- 2400 MHz			
	Terr. TV	5-862 MHz	47-862 MHz		87-862 MHz
Gain	SAT IF	23-31 dB (pre-correction)			
	Terr. TV	-4 dB	21-24 dB (pre-correction)/-4 dB switchable		
Gain adjustment	SAT IF	10 dB			
	Terr. TV*	-	18 dB		
Slope adjustment	SAT IF	14/8 dB switchable			
	Terr. TV*	-	18 dB		
Input and output return loss	SAT IF	≥ 10 up to 1750 MHz, 1750-2400 MHz linear decrease from 10 dB up to 7 dB			
	Terr. TV	≥ 10 dB			
Maximal output level IMD3=35 dB (EN50083-3)	SAT IF	120 dBμV (2 egual carriers)			
Maximal output level IMD3=60 dB (DIN45004B)	Terr. TV	-	115 dBμV		
Noise figure	SAT IF	-	8 dB		
	Terr. TV	-	8 dB		
Return path					
Frequency range		-		5 - 30 MHz	5-65 MHz
Loss		-		-3 dB	
Return loss		-		>14 dB	
General					
Mains power consumption		230 V~ 50/60 Hz 5 W	230 V~ 50/60 Hz 7.5 W		
Temperature range		-20° ÷ +50° C			
Dimensions		185x91x47 mm/0.7 kg			

* terrestrial gain, slope adjustment and return path are not available at passive terrestrial TV mode

SA100



HSA100, HSA100R30, HSA100R65



System accessories
Splitband amplifiers

- for amplification signals of SAT and terrestrial TV bands
- possibility of DC and DiSEqC signals pass
- built-in separate gain regulators for every band
- die-cast housing inside plastic case

HSA001
SAT IF amplifier with active terrestrial TV path, without return path

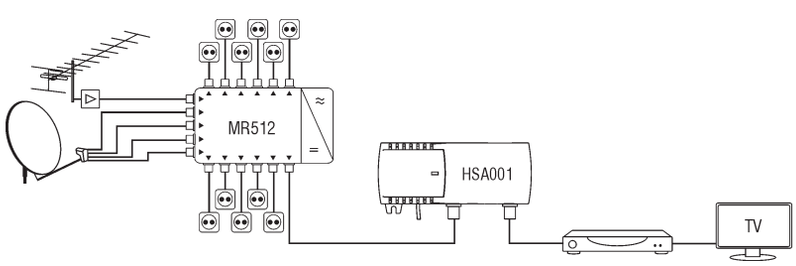
HSA001R3
SAT IF amplifier with active terrestrial TV path, with 30 MHz passive return path

HSA001R6
SAT IF amplifier with active terrestrial TV path, with 65 MHz passive return path

CABRIOLINE

Technical specifications

TYPE		HSA001	HSA001R3	HSA001R6
Ordering number		01786	01787	01788
Forward path				
Frequency range	SAT IF	950- 2400 MHz		
	Terr. TV	47-862 MHz		87-862 MHz
Gain	SAT IF	18-25 dB (pre-correction)		
	Terr. TV	14-18 dB (pre-correction)		
Gain adjustment	SAT IF	10 dB		
	Terr. TV	15 dB		
Input and output return loss	SAT IF	≥ 10 up to 1750 MHz, 1750-2400 MHz linear decrease from 10 dB up to 7 dB		
	Terr. TV	≥ 10 dB		
Maximal output level IMD3=35 dB (EN50083-3)	SAT IF	115 dBμV (2 egual carriers)		
Maximal output level IMD3=60 dB (DIN45004B)	Terr. TV	110 dBμV		
DC pass		400 mA max.		
Return path				
Frequency range		-	5 - 30 MHz	5-65 MHz
Loss		-	-4 dB	
Return loss		-	>14 dB	
General				
Mains power consumption		230 V~ 50/60 Hz 4 W		
Temperature range		-20° ÷ +50° C		
Dimensions		133x73x39 mm/0.36 kg		



System accessories
Masthead products

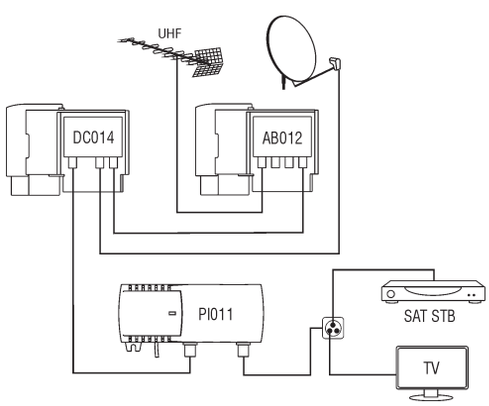
Line amplifier SA002
- for recovering of signal loss in SAT IF distribution networks
- DC and tone pass through
- for outdoor mounting

Diplexer DC010
- for combining of SAT IF and terrestrial TV signals
- DC and tone pass through to SAT TV input
- for outdoor mounting

Diplexer DC014
- for combining of SAT IF and terrestrial TV signals with built in automatic DC switch
- allows to feed terrestrial TV preamplifier from power supply PI011 (**page 46**) when SAT STB is switched off
- built-in short circuit proof for terrestrial TV
- DC and tone pass through to SAT TV input
- for outdoor mounting

Technical specifications

TYPE	SA002	DC010	DC014
Ordering number	01791	02556	02557
Frequency range	950-2400 MHz	47-862 MHz/950-2400 MHz	
Attenuation in the stop-band	18 dB	25 dB	
Gain Terr/SAT	- / 6.5 ÷ 10 dB	- 2 / -2.5 dB	
Noise figure, typical	≤ 7 dB	-	-
Maximal output level IMD3=35 dB (EN50083-3)	104 dBμV	-	-
DC pass Terr/SAT	- / 0.5 A max.		0.1 / 0.4 A max.
Current consumption	+12 ÷ +18 V 35 mA	-	+10 ÷ +18 V 20 mA
Dimensions/Weight (packed)	89x107x43mm/0.20 kg	89x107x43mm/0.18 kg	



Dual DC feeding for antennas equipment:

1. SAT STB is switched on -
for LNB & terrestrial preamplifier DC feeding from STB

2. SAT STB is switched off -
DC feeding only for terrestrial preamplifier from power supply PI011, **page 46**

DiSEqC controlled switches
- metal housing inside and weather-cap

Technical specifications

TYPE	TRU4508	TRU4518
Ordering number	11796	11797
Number of inputs	2	4
Frequency range	950-2300 MHz	
Through loss	2 dB	
Current consumption / Through pass	10 mA / 0.5 A max.	
Operating temperature range	-20° ÷ + 50° C	
Dimensions/Weight (packed)	97x101x23 mm/0.11 kg	97x101x23 mm/0.15 kg

System accessories

Line amplifier SA001

- for recovering of signal loss in SAT IF distribution networks
- DC and tone pass through

Diplexer DC009

- for combining of SAT IF and terrestrial TV signals
- DC and tone pass through to SAT TV input

Polarity/band switch PI010

- for insertion 14 V/18 V / 0/22 kHz control signal
- powered from line or external 18 V power supply

Technical specifications

TYPE	SA001	DC009	PI010
Ordering number	00701	01543	01789
Frequency range	950-2400 MHz	47-862 MHz/950-2400 MHz	950-2400 MHz
Attenuation in the stop-band	-	20 dB	-
Gain	17-22 dB	- 1.5 dB	- 1 dB
Noise figure, typical	≤ 9 dB	-	-
Maximal output level IMD3=35 dB (EN50083-3)	104 dBμV	-	-
DC pass	-	-	0.3 A max.
Current consumption	+12 ÷ +18 V 60 mA	-	14 V/18 V 30 mA
Dimensions/Weight (packed)	79x40x24mm/0.06 kg	53x64x24mm/0.07 kg	53x64x24mm/0.08 kg

Active SAT IF splitters

- DC and tone through pass
- high outputs isolation

SS001
2 way active splitter
SS002
4 way active splitter
SS003
6 way active splitter

Technical specifications

TYPE	SS001	SS002	SS003
Ordering number	00704	00702	00703
Frequency range	950-2400 MHz		
Gain	-1 ÷3 dB		
Noise figure	≤ 10 dB		
Maximal output level IMD3=35 dB (EN50083-3)	94 dBμV		
Current consumption	+12 ÷ +18 V 20 mA		
Dimensions/Weight (packed)	79x40x24mm/0.07 kg	79x64x24mm/0.07 kg	79x64x24mm/0.08 kg

Power supply

- high efficiency 18 V & 2 A switch-mode power supply

Technical specifications

TYPE	PS182F
Ordering number	00626
DC output	+18 V 2 A
Output DC connector	F male
Mains voltage	180 V÷ 240 V~ 50 Hz
Dimensions	78x130x33 mm

Power inserter

- F female, 5-2400 MHz
- I max. 1 A

Ordering number 00797

Link

- F male-quick - F male-quick for interconnection of the equipment

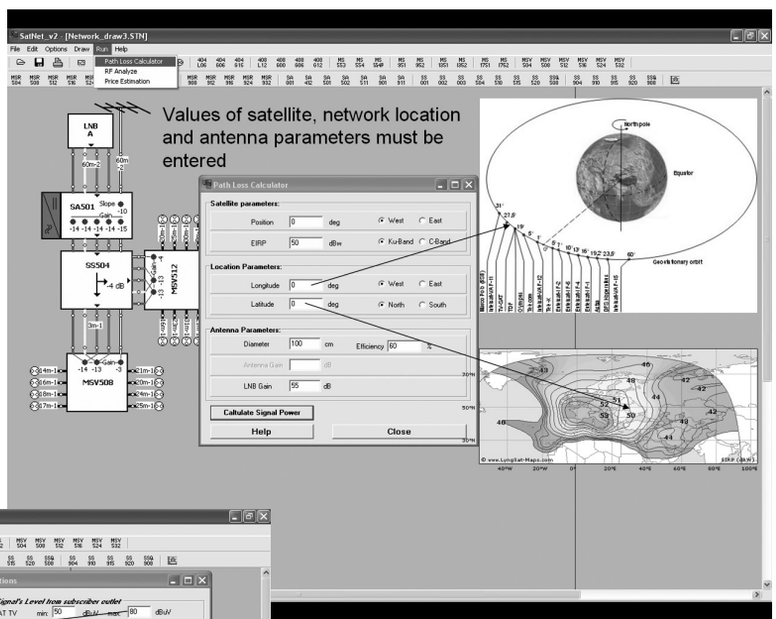
Ordering number 00933

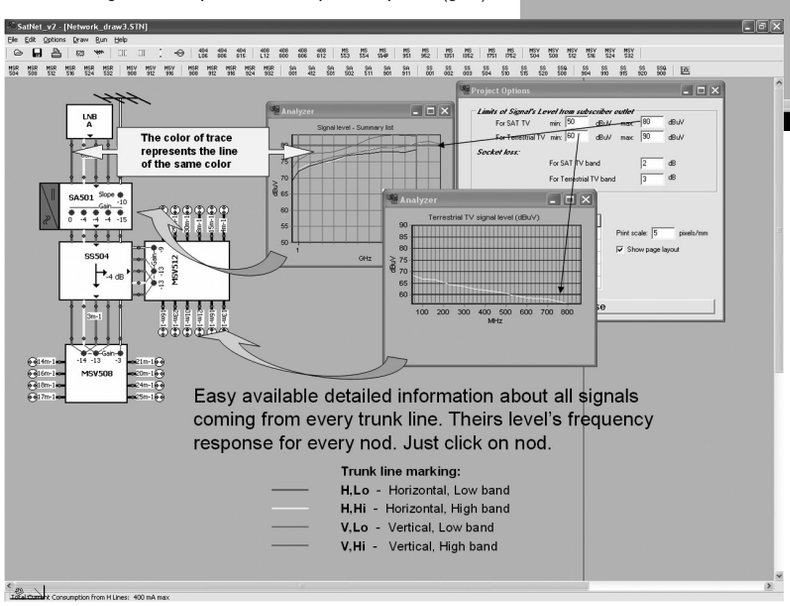
System accessories

Simulation Software SatNet

Freeware software for simulation of SAT IF distribution networks the latest version could be downloaded from **www.terraelectronics.com**, section **downloads**

- significantly facilitates designing of complex satellite IF distribution networks with TERRA components
- component library includes all TERRA satellite IF products and is constantly updated when new products are available
- accurateness of calculating allows to avoid preparing of invalid bill of materials, unreasonable estimated network prices and consumed time for troubleshooting the network during installation
- user-friendly graphical interface
- include “Path Loss Calculator” in the case if measured input levels are not available
- realistically simulates action of controls if they are
- have a useful tools for automatic positioning of controls and navigating inside big network
- easy to learn - short animated tutorial available
- can rearrange cascadable networks by applying interchangeable components with optimal tap loss (gain)





1. Allowed complexity of network:	
- SAT IF trunk lines	up to 16 (4 quatro LNB)
- terrestrial path	1
- subscribers points	unlimited
2. Results	- comprihensive information about signal’s level on every nod - indication of overloaded components - indication of nods with lacking signal strength - total consumed current - report for network’s price estimation
3. Memory occupied by software	12 MB (zipped)
4. Minimum hardware requirements	- 1 GHz CPU - VGA 768 by 1024 pixels - Windows 98/Windows XP or later version