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WISI CATALOGUE 2007

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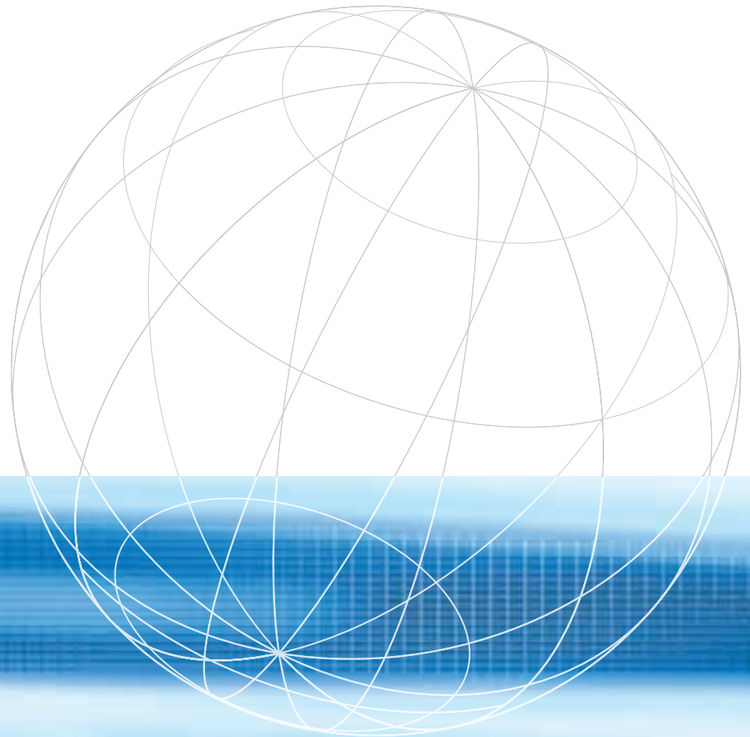

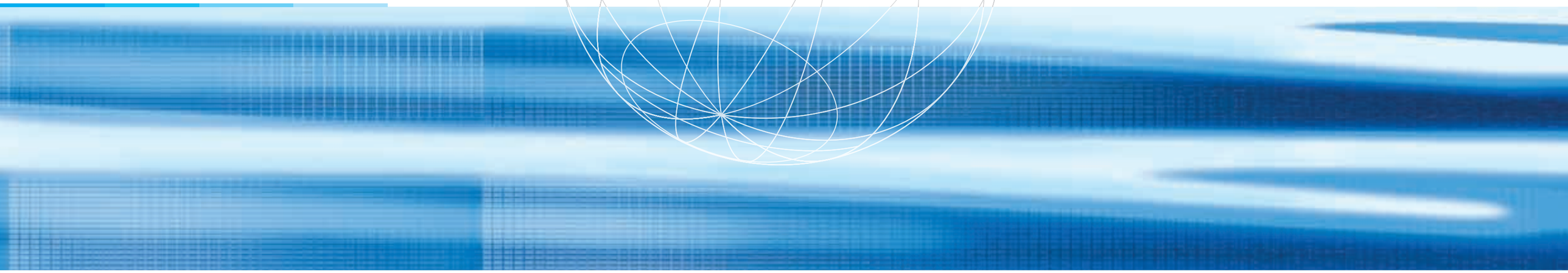

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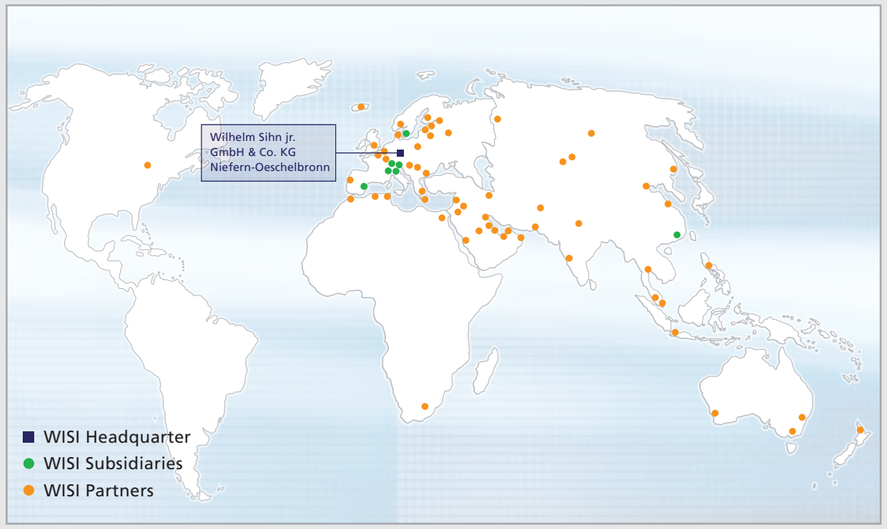
WISI worldwide



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Global connection

Worldwide networking enables products and services to be presented in a global framework. Quality, reliability, availability and economic efficiency are now just a matter of course in the international context. The decisive factor is competence as a system provider and a creative force with which tasks can be solved. The customer remains the focus at the start, in the center and at the end of this process.

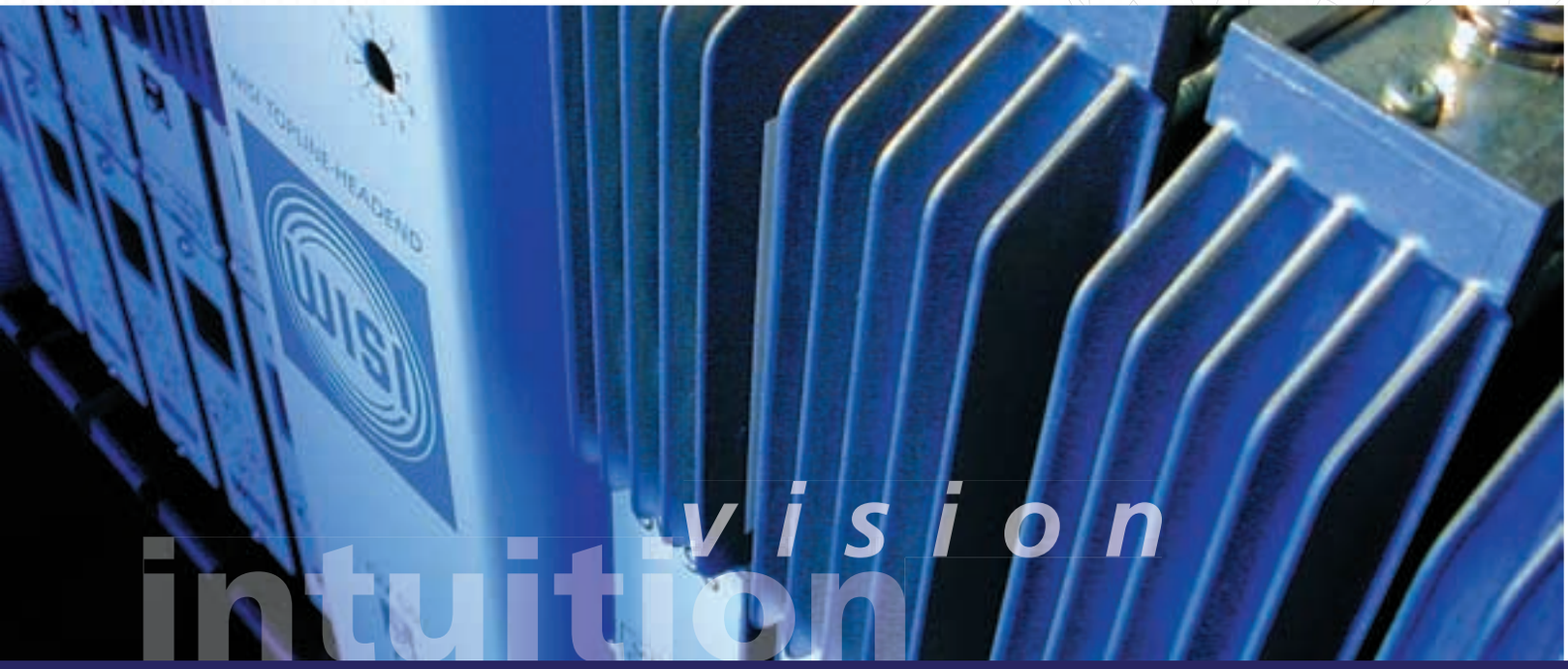
Engineering and development performances by WISI have enjoyed a good reputation from time immemorial. WISI supplied the reception and distribution technology for the world's largest MMDS system in Hong Kong and also for the most powerful interconnected full-service multimedia networks, both in Switzerland and also in Germany.

These are just a few of the highlights of the recent history of the Company. Whether regional or global, WISI takes on the challenges. We supply reliable technology and are therefore a completely competent partner from the planning stage right up to project completion.

Innovation and technology

The industrial society is being transformed into an information society. One of the driving forces for this is communication technology. The linking of various media is creating completely new opportunities and applications, which in turn are giving rise to new demands. An increasingly dynamic circuit.

However complex multimedia content and services may be, they require a transport platform on which to propagate. As a company whose experience and expertise reaches back to the earliest times of radio, we have learned to convert visions into quality products. Even then our business was reception and distribution of signals, and also today WISI is providing technology for the key areas of future communication.



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FM radio antennas

	UA 01	UA 05	UE 01
			
Type	**UA 01** **FM radio antenna**	**UA 05** **FM radio antenna**	**UE 01** **FM radio antenna**
Elements	1	3	2
Gain max.	-3 dB	5.0 dB	-3 dB
Back / front ratio	0 dB	12 dB	0 dB
Half power beam width horizontal	110°	70°	360°
Wind loading horizontal	-	63.8 N	22.1 N
Length	350 mm	860 mm	-
Clamp for mast	Ø 34-60 mm	Ø 34-60 mm	Ø 34-60 mm
Cable connection	75 Ω	75 Ω	75 Ω
Packing unit	1 piece, 11 dm³, 1.33 kg	1 piece, bag	1 piece, 7.2 dm³, 0.83 kg
Shipping package	-	5 pieces, 64 dm³, 6.90 kg	-

VHF III antennas

Polarisation: horizontal or vertical
inclination adjustable

	FO 04	FX 07	FX 10	FX 13
				
Type	**FO 04 VHF III-antenna**	**FX 07 VHF III antenna**	**FX 10 VHF III antenna**	**FX 13 VHF III antenna**
Channels	E 5 - 12, L 05 - 10	E 5 - 12/ L 05 - 10	E 5 - 12/ L 05 - 10	E 5 - 12 / L 05 - 10
Elements	4	7	10	13
Gain max.	5 dB	8.3 dB	9.5 dB	10.6 dB
Back / front ratio	12 dB	18 dB	>20 dB	>20 dB
Half power beam width horizontal	66°	58°	53°	49°
Half power beam width vertical	108°	78°	67°	57°
Wind loading horizontal	33.6 N	28.5 N	47 N	61.8 N
Wind loading vertical	47.4 N	-	-	-
Length	540 mm	1090 mm	1710 mm	2090 mm
Connection	75 Ω, F-type-socket	75 Ω, F-type-socket	75 Ω, F-type-socket	75 Ω, F-type-socket
Packing unit	1 piece, bag	1 piece, bag	1 piece, bag	1 piece, bag
Shipping package	5 pieces, 39 dm³, 4.20 kg	5 pieces, 56 dm³, 4.20 kg	5 pieces, 56 dm³, 6.90 kg	5 pieces, 56 dm³, 8.10 kg

VHF III channel group antennas

Polarisation: horizontal or vertical
inclination adjustable.
*Please specify the channel group with the order.

FA 45

FA 47

FA 49

Type	FA 45 VHF III channel group antenna	FA 47 VHF III channel group antenna	FA 49 VHF III channel group antenna
Channels	*E 5 - 6 / L 05 - 06, E 7-9 / L 07 - 08, E 9 - 12 / L 09 - 10	*E 5 - 6 / L 05 - 06, E 7-9 / L 07 - 08, E 9 - 12 / L 09 - 10	*E 5 - 6 / L 05 - 06, E 7-9 / L 07 - 08, E 9 - 12 / L 09 - 10
Elements	5	7	9
Gain max.	8.5 dB	10 dB	11.5 dB
Back / front ratio	18 dB	20 dB	> 20 dB
Half power beam width horizontal	51°	48°	44°
Half power beam width vertical	70°	58°	51°
Wind loading horizontal	47/43/40 N	57/52/46 N	60/61/55 N
Wind loading vertical	63/60/54 N	86/81/73.5 N	118/108/100 N
Length	920-1150 mm	1680-1980 mm	2380-2840 mm
Connection	75 Ω, F-type-socket	75 Ω, F-type-socket	75 Ω, F-type-socket
Packing unit	1 piece, 20 dm³, 1.3 kg	1 piece, 20 dm³, 1.5 kg	1 piece, 20 dm³, 1.9 kg

UHF antennas

Polarisation: horizontal or vertical
inclination adjustable
*Please specify the channel group with the order

EB 15

EB 22

EB 44

EB 66

Type	EB 15 UHF antenna	EB 22 UHF antenna	EB 44 UHF antenna	EB 66 UHF antenna
Channels	*21-47/21-29/ 38-69	21-69	*21-44/21-69	*21-37, 21-69, 31-47, 38-69
Elements	-	16	24	41
Gain max.	13.5 dB	11 dB	13 dB	16.5
Back / front ratio	>20 dB	20 dB	> 20 dB	26
Half power beam width horizontal	37°	49°	38° / 40°	29° / 29° / 29° / 29°
Half power beam width vertical	41°	59°	47° / 48°	32° / 34° / 34° / 34°
Wind loading horizontal	35 N	46.0 N	31.7 N	35 N, 34 N, 34 N, 34 N
Wind loading vertical	35 N	60.6 N	-	75 N, 62 N, 63 N, 62 N
Length	1050-1310 mm	443 mm	1021 mm	2330 mm, 1940 mm, 1990 mm, 1940 mm
Connection	75 Ω, F-type-socket	75 Ω, F-type-socket	75 Ω, F-type-socket	75 ‘•, F-type-socket
Packing unit	1 piece, 27 dm³, 2.3 kg	1 piece, bag	1 piece, bag	1 piece, 90.8 dm³, 90.8 dm³, 76.5 dm³, 64.5 dm³ (2.40 kg)
Shipping package	-	5 pieces, 139 dm³, 5.70 kg	5 pieces, 208 dm³ 8.20 kg	-

UHF antennas

Polarisation: horizontal or vertical
inclination adjustable
*Please specify the channel group with the order

EB 76

EE 06

EZ 44

Type	EB 76 UHF antenna	EE 06 UHF broadband antenna	EZ 44 UHF antenna
Channels	21-69	21-69	21-69
Elements	52	-	39
Gain max.	15.5 dB	13.5 dB	15 dB
Back / front ratio	25 dB	> 20 dB	28 dB
Half power beam width horizontal	33°	46°	35°
Half power beam width vertical	39°	27°	42°
Wind loading horizontal	120 N	107 N	72.6 N
Wind loading vertical	190 N	107 N	114.0 N
Length	1860 mm	830 / 645 / 260 mm (HxWxD)	1090 mm
Connection	75 Ω, F-type-socket	75 Ω, F-type-socket	75 Ω, F-type-socket
Packing unit	1 piece, 91 dm³, 3.1 kg	2 pieces, 58.4 dm³, 3.8 kg	1 piece, 39 dm³, 2.2 kg
Shipping package	-	-	-

VHF-UHF multiband antennas

EA 34

EA 65

Type	EA 34 VHF-UHF- multiband antenna	EA 65 VHF-UHF-multiband antenna
Polarization	Horizontal. Mast clamp inclinable	Horizontal or vertical
Reception range / channels	VHF III E 5-12 L 05-10/UHF E 21-69	VHF III E 5-12, L 05-10 / UHF 21-69
Elements	6 / 36	3 / 13
Gain max.	6.5 dB / 12.5 dB	3.5 / 9.5 dB
Back / front ratio	> 20 dB	>10 / 20 dB
Half power beam width horizontal	65° / 35°	68 / 44°
Half power beam width vertical	92° / 40°	- / 70°
Wind loading horizontal	111.5 N	36 N
Length	1285 mm	670 mm
Connection	75 Ω, F-type-socket	75 Ω, F-type-socket
Packing unit	1 piece, bag, 65 dm³, 2.4 kg	1 piece, bag, 65 dm³, 3.4 kg

Indoor set-top antennas

FW 89 A

Electronic indoor antenna

UHF-Polarisation	Horizontal or vertical adjustable	LED-Gain display. Continuous gain control adjustable	
Gain	FM/VHF I: 18 dB	VHF III: 20 dB	UHF IV-V: 30dB
Noise figure	1.5-3.0 dB		
Operating voltage	230 V AC	50/60 Hz	
Mains lead	1.8 m		
Color	black		
Packing unit	1 piece, self service carrier bag		
Shipping package	10 pieces, 132 dm³, 14.8 kg		

MW 44

Indoor set-top antenna

For VHF III and UHF. Black colored.

Channels	VHF III E 5-12	UHF K 21-69
Half-dipoles / elements	2	4
Connecting cable	1 with IEC plug	
Packing unit	1 piece, self service carrier bag	
Shipping package	20 pieces, 111 dm³, 16.1 kg	

OA 01

DVB-T antenna, active

- Reception of all digital terrestrial programs
- Integrated low noise amplifier for better picture quality
- Remote powering via antenna cable
- Optimum reception due to various mounting options
- Power on LED
- Integrated GSM/DECT suppression filter

Output frequency		VHF III / UHF
Gain		>18 dB
Remote feed voltage		5 VDC
Power consumption		30 mA
RF connector		IEC
Connecting cable		2 m
Dimensions		130x168x95 mm
Weight		0.5 kg
Packing unit	1 piece	Blister
Shipping package	10 pieces	

Mechanical accessories

Mast accessories

NB 10

Base bracket

- With earthing terminal.
- For anchoring of poles or masts up to 60 mm dia.
- With 2 hexagonal woodscrews 8 x 35 mm.

Packing unit	5 pieces, 2.50 dm³
Shipping package	50 pieces, 27 dm³, 16.6 kg

NC 03

Mast cap

Waterproof top. For the closing of mast-tubes, fits 37 - 48 mm dia.

Packing unit	50 pieces, 13 dm³, 1.70 kg

NC 10

Mast clamp

For fastening in straight or sloped position. With earthing terminal and 2 hexagonal wood-screws 8 x 50 mm.

For masts of	42-45 mm Ø
Packing unit	10 pieces, 3.30 dm³
Shipping package	50 pieces, 25 dm³, 12 kg

NC 11

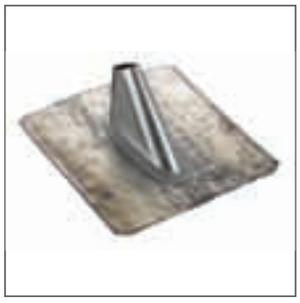
Mast clamp

Mast-clamp for fastening in straight or sloped position. With earthing terminal and 2 hexagonal wood-screws 8 x 50 mm.

For masts of	46-50 mm Ø
Packing unit	10 pieces, 3.30 dm³
Shipping package	50 pieces, 25 dm³, 13 kg

Mast accessories

NC 85



Sheet lead roof cowl

Sheet lead roof cowl useful for masts up to 60 mm dia.

Packing unit	5 pieces, 23.70 dm³, 6.60 kg

NC 91

Tightening tape

Tightening tape suitable with mast poles up to 60/80 mm dia.
Not to be used when temperature below 5°C.

Packing unit	5 pieces, bag
Shipping package	50 pieces, 19 dm³, 5.20 kg

NC 95 A

Tightening sleeve

Tightening sleeve of soft neoprene plastic, to weatherproof the passage of the mast through the roof cowl. Useful for mast MN 17 and masts of 44 mm dia.

Packing unit	100 pieces, 36 dm³, 7.40 kg

Installation materials

NB 02

Earthing bar

Earthing bar for up to 8 coaxial cables.

Packing unit	10 pieces, 1.03 dm³
Shipping package	100 pieces, 13.2 dm³, 10 kg

Installation materials

NB 04

Earthing block

For two F-type-double couplers.
2 mounting screws included.

Packing unit	1 pieces, bag
Shipping package	100 pieces, 5.2 dm³, 4.2 kg

Wall mounting

MN 03

Wall mounting

For installation of one terrestrial or parabolic antennas.
For any wall.
Easy mounting.

Material	Fe hot galvanized	
	Top or bottom installation	
Mast	80 mm Ø	
Distance from wall	220 mm	
Distance between fixing holes	300-400 mm	
Hole diameter	11 mm	
Packing unit	5 pieces, 49 dm³, 17.20 kg	without packing

MN 09

Wall mounting

For installation of a parabolic antenna.
For any wall.
Easy mounting.

Material	Alu	
Mast	50 mm Ø	
Distance from wall	500 mm	
Mast lenght	360 mm	
Distance between fixing holes	125 mm	
Hole diameter	10 mm	
Ground plate	175x175 mm	
Packing unit	5 pieces, 49 dm³, 17.20 kg	without packing

Wall mounting

MN 10

Wall mounting

For installation of a parabolic antenna.
For any wall.
Easy mounting.

Material	Alu
Mast	50 mm Ø
Distance from wall	400 mm
Mast length	360 mm
Horizontal distance	125 mm
Hole diameter	10 mm
Ground plate	175x175 mm
Packing unit	5 pieces

MN 11

Wall mounting

For installation of a parabolic antenna.
For any wall.
Easy mounting.

Material	Alu
Mast	50 mm Ø
Distance from wall	300 mm
Mast length	360 mm
Horizontal distance	125 mm
Hole diameter	10 mm
Ground plate	175x175 mm
Packing unit	5 pieces

MN 15

Mastfixing

Mastfixing for SAT antennas.
Can be adjusted from 49 cm up to 90 cm. Mastfixing made of galvanized steal. Mast made of aluminium.
Mast length 95 cm; Ø 50 mm

Wall mounting

MN 16

Mastfixing

Mastfixing for SAT antennas.
Can be adjusted from 49 cm up to 90 cm. Mastfixing made of galvanized steal. Mast made of aluminium.
Mast length 135 cm; Ø 50 mm

Masts

MN 17

Mast

hot galvanized, guide groove

Length max.	1.75 m
Useful bending mom. max.	1160 Nm (q=800 N/m²)
Weight	5.25 kg
Diameter	48 mm Ø
Packing unit	4 pieces, 19 dm³, 21 kg

Mast mounting kit

NG 01

Mast mounting kit

Consisting of	NC 03, NC 11, NC 85, NC 95 A, NB 02, NB 10
Packing unit	1 box, 30 dm³, 3.7 kg

Electrical accessories

Tee-splitter, plug-on type

DM 43 A 0397

Tee-splitter, plug-on type

Frequency range	47-2050 MHz
Distribution loss	3.5-4.5 dB
Isolation	typ. 19-15 dB
Screening factor	> 75 dB / 47-450 MHz > 70 dB / 470-2050 MHz
Packing unit	1 piece, bag
Shipping package	10 pieces, 2.50 dm³, 0.46 kg

DM 44 A 0397

Tee-splitter, plug-on type

Frequency range	47-2050 MHz
Distribution loss	3.5-4.5 dB
Isolation	typ. 19-15 dB
Screening factor	> 75 dB / 47-450 MHz > 70 dB / 470-2050 MHz
Packing unit	1 piece, bag
Shipping package	10 pieces, 2.50 dm³, 0.46 kg

DC Block

DL 05

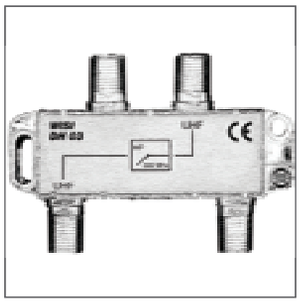
DC Block

F-type connectors male and female 75 Ω

Through loss	0,6 dB (2 GHz)
Voltage max.	60 VAC 48 VDC
Packing unit	10 pieces, bag
Shipping package	100 pieces, 2.9 dm³, 3.5 kg

Filter

DH 03



HP-Filter

Frequency range (Pass band)	300-862 MHz
Rejection attenuation	> 40 dB
Rejection attenuation	< 240 NHz
Thru loss	< 0,8 dB
Return loss	< 14 dB (300-862 MHz)
Connectors	F
Packing unit	10 pieces, bag
Shipping package	100 pieces, 10,8 dm³, 6,15 kg

Filter

VZ 26

UHF Rejection filter

adjustable

Frequency range	470-862 MHz
Rejection attenuation	20 dB
Thru loss	1 dB
Connections	IEC
Packing unit	1 piece, bag
Shipping package	20 pieces, 2.2 dm³, 0.94 kg

Tap offs 1-way DM 2...B (F-type connector)

	DM 21 B	DM 22 B	DM 24 B	DM 25 B
				
Type	**DM 21 B Tap off, 1-way**	**DM 22 B Tap off, 1-way**	**DM 24 B Tap off, 1-way**	**DM 25 B Tap off, 1-way**
Thru loss 5-1000 MHz	1.5-2 dB	1 dB	0.8 dB	0.8 dB
Tap loss 5-1000 MHz	8 dB	12 dB	16 dB	20 dB
Directional attenuation 5-40 MHz	30 dB	35 dB	40 dB	45 dB
Directional attenuation 40-1000 MHz	25 dB	26 dB	28 dB	32 dB
Isolation 5-1000 MHz	-	-	-	-
Screening factor	>85 dB, Class A	> 85 dB, Class A	> 85 dB, Class A	> 85 dB, Class A
Dimensions	55x50x28 mm	55x50x28 mm	55x50x28 mm	55x50x28 mm
Packing unit	5 pieces, bag	5 pieces, bag	5 pieces, bag	5 pieces, bag
Shipping package	25 pieces, 9,8 dm³, 3,6 kg	25 pieces, 9.8 dm³, 3.6 kg	25 pieces, 9.8 dm³, 3.6 kg	25 pieces, 9.8 dm³, 3.6 kg

Tap offs 2-way DM 3...A (F-type connector)

	DM 31 A	DM 32 A	DM 34 A	DM 35 A
				
Type	**DM 31 A Tap off, 2-way**	**DM 32 A Tap off, 2-way**	**DM 34 A Tap off, 2-way**	**DM 35 A Tap off, 2-way**
Thru loss 5-862 MHz	2.0-2.7 dB	1.7 dB	1.0 dB	0.8 dB
Thru loss 862-2400 MHz	9/9 dB	3.0 dB	2.0 dB	2.0 dB
Side loss 5-862 MHz	-	12/12 dB	16.5/17 dB	19/19 dB
Side loss 862-2300 MHz	-	12/12 dB	16.5/17 dB	18.5/19 dB
Directional attenuation 5-40 MHz	Cat C	Cat C	Cat C	Cat C
Directional attenuation 40-2400 MHz	Cat B	Cat B	Cat B	Cat B
Isolation 5-862 MHz	>42->34 dB	>42->38 dB	>42 dB	>42 dB
Isolation 862-2400 MHz	-	>32 dB	>35 dB	>40 dB
Return loss 5-40 MHz	Cat C	Cat C	Cat C	Cat C
Return loss 40-2400 MHz	Cat B	Cat B	Cat B	Cat B
Screening factor	> 85 dB, Class A	> 85 dB, Class A	> 85 dB, Class A	> 85 dB, Class A
Dimensions	75x48x18 mm	75x48x18 mm	75x48x18 mm	75x48x18 mm
Packing unit	10 pieces, bag / 100 pieces, 13.44 dm³, 7.5 kg	10 pieces, bag / 100 pieces, 13.44 dm³, 7.5 kg	10 pieces, bag / 100 pieces, 13.44 dm³, 7.5 kg	10 pieces, bag / 100 pieces, 13.44 dm³, 7.5 kg

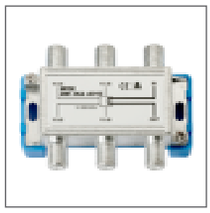
Tap offs 2-way DM 3...B (F-type connector)

	DM 31 B	DM 32 B	DM 34 B	DM 35 B
				
Type	**DM 31 B Tap off, 2-way**	**DM 32 B Tap off, 2-way**	**DM 34 B Tap off, 2-way**	**DM 35 B Tap off, 2-way**
Thru loss 5-1000 MHz	2.5-3.2 dB	1.6-2 dB	0.8-1.2 dB	0.5-1 dB
Tap loss 5-1000 MHz	10 dB	12 dB	16 dB	20 dB
Directional attenuation 5-40 MHz	≥ 28 dB	≥30 dB	≥35 dB	≥45 dB
Directional attenuation 40-1000 MHz	≥ 23 dB	≥25 dB	≥28 dB	≥32 dB
Isolation 5-1000 MHz	≥ 28 dB	≥30 dB	≥30 dB	≥30 dB
Screening factor	> 85 dB, Class A	> 85 dB, Class A	> 85 dB, Class A	>85 dB, Class A
Dimensions	78x50x27 mm	78x50x27 mm	78x50x27 mm	78x50x27 mm
Packing unit	5 pieces, bag	5 pieces, bag	5 pieces, bag	5 pieces, bag
Shipping package	25 pieces, 9.8 dm³, 3.6 kg	25 pieces, 9.8 dm³, 3.6 kg	25 pieces, 9.8 dm³, 3.6 kg	25 pieces, 9.8 dm³, 3.6 kg

Tap offs 4-way DM 36... (F-type connector)

	DM 36	DM 36 1010	DM 36 1016	DM 36 1019
				
Type	**DM 36 Tap off, 4-way**	**DM 36 1010 Tap off, 4-way**	**DM 36 1016 Tap off, 4-way**	**DM 36 1019 Tap off, 4-way**
Thru loss 5-862 MHz	2.5 dB	4,5 dB	2.5 dB	2 dB
Thru loss 862-2300 MHz	-3 dB	6-10 dB	4.5-8 dB	3.5-7 dB
Side loss 5-862 MHz	12.5-14 dB	11-13 dB	16.5-18 dB	18.5-19.5 dB
Side loss 862-2300 MHz	-	11-16 dB	16.5-19.5 dB	18.5-20.5 dB
Directional attenuation 5-862 MHz	>28 dB	>28 dB	>28 dB	>28 dB
Directional attenuation 862-2300 MHz	-	>15 dB	>24 dB	>22 dB
Isolation 5-862 MHz	>40 dB	>30 dB	>40 dB	>40 dB
Isolation 862-2300 MHz	-	>30->24 dB	>34->30 dB	>34->32 dB
Screening factor	> 85 dB, Class A	>85 dB, Class A	>85 dB, Class A	>85 dB, Class A
Dimensions	82x67x36 mm	82x67x36 mm	82x67x36 mm	82x67x36 mm
Packing unit	5 pieces, bag	5 pieces, bag	5 pieces, bag	5 pieces, bag
Shipping package	25 pieces, 9.8 dm³, 3.6 kg	25 pieces, 9.8 dm³, 3.6 kg	25 pieces, 9.8 dm³, 3.6 kg	25 pieces, 9.8 dm³, 3.6 kg

Tap offs 4-way DM 36 A (F-type connector)

	DM 36 A 4012	DM 36 A 4016	DM 36 A 4020
			
Type	**DM 36 A 4012 Tap off, 4-way**	**DM 36 A 4016 Tap off, 4-way**	**DM 36 A 4020 Tap off, 4-way**
Thru loss 5-1000 MHz	3.5 dB	2.0 dB	1.0 dB
Tap loss 5-1000 MHz	12 dB	16 dB	20 dB
Directional attenuation 5-470 MHz	30 dB	35 dB	35 dB
Directional attenuation 470-1000 MHz	28 dB	30 dB	30 dB
Isolation 5-470 MHz	28 dB	30 dB	30 dB
Isolation 470-1000 MHz	25 dB	28 dB	28 dB
Screening factor	> 85 dB, Class A	> 85 dB, Class A	> 85 dB, Class A
DC-Bypass IN-OUT	yes	yes	yes
Dimensions	78x58x28 mm	78x58x28 mm	78x58x28 mm
Packing unit	5 pieces, bag	5 pieces, bag	5 pieces, bag
Shipping package	25 pieces, 9.8 dm³, 3.6 kg	25 pieces, 9.8 dm³, 3.6 kg	25 pieces, 9.8 dm³, 3.6 kg

Tap offs 4-way DM 36 A (F-type connector)

DM 36 A 4024

DM 37 B 6013

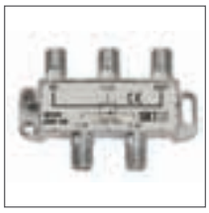
Type	DM 36 A 4024 Tap off, 4-way	DM 37 B 6013 Tap off, 6-way
Thru loss 5-1000 MHz	0.8 dB	6 dB
Tap loss 5-1000 MHz	24 dB	13-17.5 dB
Directional attenuation 5-470 MHz	35 dB	30-26 dB
Directional attenuation 470-1000 MHz	30 dB	24 dB
Isolation 5-470 MHz	30 dB	40-36 dB
Isolation 470-1000 MHz	28 dB	32 dB
Screening factor	> 85 dB, Class A	> 85 dB, Class A
DC-Bypass IN-OUT	yes	yes
Dimensions	78x58x28 mm	92x54x42 mm
Packing unit	5 pieces, bag	5 pieces, bag
Shipping package	25 pieces, 9.8 dm³, 3.6 kg	25 pieces, 9.8 dm³, 3.6 kg

Tap offs 4-way DM 36 B (F-type connector)

	DM 36 B 4013	DM 38 B 8013
		
Type	**DM 36 B 4013 Tap off, 4-way**	**DM 38 B 8013 Tap off, 8-way**
Thru loss 5-1000 MHz	4 dB	8 dB
Tap loss 5-1000 MHz	13-15.5 dB	13-20 dB
Directional attenuation 5-470 MHz	30-26 dB	30-26 dB
Directional attenuation 470-1000 MHz	24 dB	24 dB
Isolation 5-470 MHz	40-36 dB	40-36 dB
Isolation 470-1000 MHz	32 dB	32 dB
Screening factor	> 85 dB, Class A	> 85 dB, Class A
DC-Bypass IN-OUT	yes	yes
Dimensions	92x54x42 mm	115x54x42 mm
Packing unit	5 pieces, bag	5 pieces, bag
Shipping package	25 pieces, 9.8 dm³, 3.6 kg	25 pieces, 9.8 dm³, 3.6 kg

Tap offs 3-way DM 39A (F-type connector)

DM 39 A



Type	DM 39 A Tap off, 3-way
Thru loss 5-1000 MHz	1.2-2.0 dB
Tap loss 5-1000 MHz	16 dB
Directional attenuation 5-1000 MHz	≥30 dB
Isolation 5-1000 MHz	≥30 dB
Screening factor	>85 dB, Class A
Dimensions	74x50x18 mm
Packing unit	5 pieces, bag
Shipping package	25 pieces, 9.8 dm³, 3.6 kg

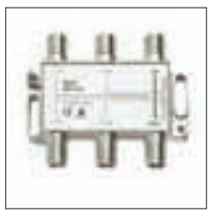
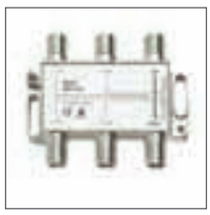
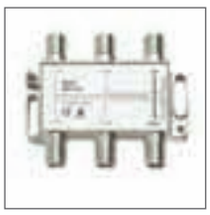
Tap offs 1-way DM 51... (F-type connector)

	DM 51 1010	DM 51 1015	DM 51 1020
			
Type	**DM 51 1010 Tap off, 1-way**	**DM 51 1015 Tap off, 1-way**	**DM 51 1020 Tap off, 1-way**
Thru loss 5-2400 MHz	1.5-2.5 dB	1-2 dB	0.7-1.8 dB
Tap loss 5-2400 MHz	11 dB	15 dB	20 dB
Directional attenuation 5-40 MHz	32 dB	35 dB	40 dB
Directional attenuation 40-1000 MHz	25 dB	30 dB	32 dB
Directional attenuation 1000-2400 MHz	22 dB	25 dB	28 dB
Isolation 5-2400 MHz	-	-	-
Screening factor	>85 dB, Class A	>85 dB, Class A	>85 dB, Class A
DC-Bypass IN-OUT 1A, 30 V	yes	yes	yes
Dimensions	52x50x18mm	52x50x18mm	52x50x18mm
Packing unit	5 pieces, bag	5 pieces, bag	5 pieces, bag
Shipping package	25 pieces, 9.8 dm³, 3.6 kg	25 pieces, 9.8 dm³, 3.6 kg	25 pieces, 9.8 dm³, 3.6 kg

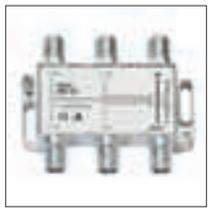
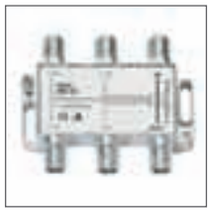
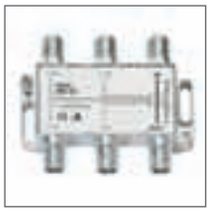
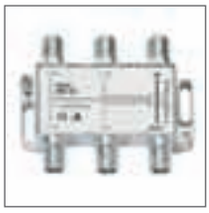
Tap offs 2-way DM 52... (F-type connector)

	DM 52 2010	DM 52 2015	DM 52 2020
			
Type	**DM 52 2010 Tap off, 2-way**	**DM 52 2015 Tap off, 2-way**	**DM 52 2020 Tap off, 2-way**
Thru loss 5-2400 MHz	3-4 dB	2-4 dB	1.5-3.5 dB
Tap loss 5-2400 MHz	11 dB	15 dB	20 dB
Directional attenuation 5-40 MHz	≥23 dB	≥22 dB	≥25 dB
Directional attenuation 40-2400 MHz	≥20 dB	≥20 dB	≥20 dB
Isolation 5-2400 MHz	≥28 dB	≥30 dB	≥32 dB
Screening factor	>85 dB, Class A	>85 dB, Class A	>85 dB, Class A
DC-Bypass IN-OUT 1A, 30 V	yes	yes	yes
Dimensions	74x48x18 mm	74x48x18 mm	74x48x18 mm
Packing unit	5 pieces, bag	5 pieces, bag	5 pieces, bag
Shipping package	25 pieces, 9.8 dm³, 3.6 kg	25 pieces, 9.8 dm³, 3.6 kg	25 pieces, 9.8 dm³, 3.6 kg

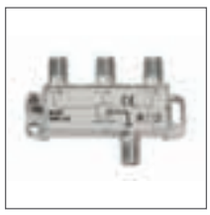
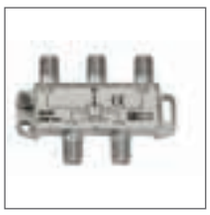
Tap offs 4-way DM 54A... (F-type connector)

	DM 54 A 4010	DM 54 A 4015	DM 54 A 4020	DM 54 A 4025
				
Type	**DM 54 A 4010 Tap off, 4-way**	**DM 54 A 4015 Tap off, 4-way**	**DM 54 A 4020 Tap off, 4-way**	**DM 54 A 4025 Tap off, 4-way**
Thru loss 5-862 MHz	3.5 dB	2.5 dB	1.0 dB	0.6 dB
Thru loss 862-2400 MHz	4.5-5 dB	4-5 dB	2-2.5 dB	1.8-2.5 dB
Tap loss 5-862 MHz	11 dB	15 dB	20 dB	25 dB
Tap loss 862-2400 MHz	12.5-14 dB	15 dB	20 dB	25 dB
Directional attenuation 5-2400 MHz	≥25 dB	≥25 dB	≥25 dB	≥25 dB
Isolation 5-2400 MHz	≥21 dB	≥21 dB	≥21 dB	≥21 dB
Srceening factor	>85 dB, Class A	>85 dB, Class A	> 85 dB, Class A	>85 dB, Class A
DC-Bypass IN-OUT 1A, 30 V	yes	yes	yes	yes
Dimensions	74x58x18 mm	74x58x18 mm	74x58x18 mm	74x58x18 mm
Packing unit	5 pieces, bag	5 pieces, bag	5 pieces, bag	5 pieces, bag
Shipping package	25 pieces, 9.8 dm³, 3.6 kg	25 pieces, 9.8 dm³, 3.6 kg	25 pieces, 9.8 dm³, 3.6 kg	25 pieces, 9.8 dm³, 3.6 kg

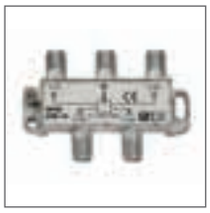
Tap offs 4-way DM 54... (F-type connector)

	DM 54 4025	DM 54 4010	DM 54 4015	DM 54 4020
				
Type	**DM 54 4025 Tap off, 4-way**	**DM 54 4010 Tap off, 4-way**	**DM 54 4015 Tap off, 4-way**	**DM 54 4020 Tap off, 4-way**
Thru loss 5-862 MHz	0.6 dB	3.5 dB	2.5 dB	1.0 dB
Thru loss 862-2300 MHz	1.8-2.5 dB	4.5-5 dB	4-5 dB	2-2.5 dB
Side loss 5-862 MHz	25 dB	11 dB	14 dB	19.5 dB
Side loss 862-2300 MHz	26-27 dB	12.5-14 dB	15-16 dB	20-21 dB
Directional attenuation 5-2300 MHz	25 dB	11 dB	15 dB	20 dB
Isolation 5-2300 MHz	≥25 dB	≥25 dB	≥25 dB	≥25 dB
Screening factor	> 85 dB, Class A	> 85 dB, Class A	>85 dB, Class A	> 85 dB, Class A
Dimensions	103x67x36 mm	103x67x36 mm	103x67x36 mm	103x67x36 mm
Packing unit	5 pieces, bag	5 pieces, bag	5 pieces, bag	5 pieces, bag
Shipping package	25 pieces, 13.9 dm³, 5.6 kg	25 pieces, 13.9 dm³, 5.6 kg	25 pieces, 13.9 dm³, 5.6 kg	25 pieces, 13.9 dm³, 5.6 kg

Splitters DM 02A...08B (F-type connector)

	DM 02 A	DM 03 A	DM 04 A	DM 06 B DM 08 B
				
Type	**DM 02 A Splitter, 2-way**	**DM 03 A Splitter, 3-way**	**DM 04 A Spiltter, 4-way**	**DM 06 B DM 08 B Splitter, 6/8-way**
Distribution loss 5-862 MHz	3.7 dB	5.9 dB	7.5 dB	10/11 dB
Isolation 5-862 MHz	30 dB	30 dB	30 dB	>25 dB
Screening factor	>85 dB, Class A	>85 dB, Class A	>85 dB, Class A	>85 dB, Class A
Dimensions	55x50x28 mm	78x50x28 mm	78x50x28 mm	115x54x42 mm
Shipping package	5 pieces, bag	5 pieces, bag	5 pieces, bag	5 pieces, bag
Packing unit	25 pieces, 9.8 dm³, 3.6 kg	25 pieces, 9.8 dm³, 3.6 kg	25 pieces, 9.8 dm³, 3.6 kg	25 pieces, 9.8 dm³, 3.6 kg

Splitters SAT-IF DM 1... (F-type connector)

	DM 12 A	DM 13 A	DM 14 A	DM 16 B
				
Type	**DM 12 A SAT splitter, 2-way**	**DM 13 A SAT splitter, 3-way**	**DM 14 A SAT splitter, 4-way**	**DM 16 B SAT splitter, 6-way**
Distribution loss 5-2400 MHz	4-6 dB	7-10.5 dB	8-11.5 dB	11.2-17.5 dB
Isolation 5-2400 MHz	>20 dB	>20 dB	>20 dB	>20 dB
Screening factor	>85 dB, Class A	>85 dB, Class A	>85 dB, Class A	>85 dB, Class A
DC-Bypass 1A, 30 V	yes	yes	yes	yes
Dimensions	55x55x28 mm	74x55x18	74x55x18 mm	92x35x28 mm
Packing unit	5 pieces, bag	5 pieces, bag	5 pieces, bag	5 pieces, bag
Shipping package	25 pieces, 9.8 dm³, 3.6 kg	25 pieces, 9.8 dm³, 3.6 kg	25 pieces, 9.8 dm³, 3.6 kg	25 pieces, 9.8 dm³, 3.6 kg

F-type Accessories

DV 10

F-type compression connector

for MK 75

Packing unit 100 pieces, 0.35 dm³, 0.58 kg

DV 14

F-type compression connector

for MK 15

Packing unit 100 pieces, 0,35 dm³, 0,58 kg

DV 15

F-type compression connector

for MK 90/95

Packing unit 100 pieces, 0.35 dm³, 0.58 kg

DV 24

F-type terminating resistor

Packing unit 10 pieces, 0.2 dm³, 0.03 kg

DV 25

F-type terminating resistor with DC-isolation

Packing unit 10 pieces, 0.2 dm³, 0.05 kg

DV 46

F-type/F-splice

Packing unit 100 pieces, 0.35 dm³, 0.58 kg

DV 49 A

F-type adapter

Adapter F-Fix / F-Quick

Packing unit 10 pieces, 0.25 dm³, 0.10 kg

DV 50

F-type connector twist on

for MK 79 A/75

Packing unit 100 pieces, 0.5 dm³, 0.8 kg

DV 52

F-type adapter

Adapter IEC-male / F-female

Packing unit 10 pieces, 0.25 dm³, 0.10 kg

DV 53

F-type elbow adapter

Packing unit 10 pieces, bag, 0.3 dm³, 0.10 kg

DV 54

F-type connector, twist on

for MK 16/11

Packing unit 25 pieces, bag, 0.28 dm³, 0.5 kg

DV 55

F-type connector, twist on

for MK 90/95/99

Packing unit 100 pieces, bag, 0.5 dm³, 0.7 kg

DZ 01

F-type connector

tightning tool

Packing unit 1 piece, bag

F-type Accessories

DZ 14

Compressing tool	
for DV 14	
Packing unit	1 piece, 0,9 dm³, 0,50 kg

DZ 15

Compressing tool	
for DV 10/15	
Packing unit	1 piece, 0.9 dm³, 0.50 kg

MZ 01

Coaxial cable stripper	
Pre-adjusted to MK 95 C and MK 90 D. Adjustable to other cable diameters, like MK 75 C.	
Packing unit	1 piece

F-type connectors crimp

DV 80

F-type connector for MK 75	
for MK 75	
Packing unit	100 pieces, 0.5 dm³, 0.86 kg

DV 85

F-type connector	
for MK 90/95/99/60	
Packing unit	100 pieces, 0.5 dm³, 0.86 kg

DV 90

F-type-Quick connector	
for MK 75	
Packing unit	100 pieces, 0.5 dm³, 0.86 kg

DV 95

F-type-Quick connector	
for MK 90 / 95 / 99	
Packing unit	100 pieces, 0.5 dm³, 0.86 kg

DZ 85

Crimping tool	
for DV 80 / 85 / 90 / 95	
Packing unit	1 piece, 0.9 dm³, 0.5 kg

IEC-Accessories

Solderless IEC connectors
For cables up to 1.3/4.8 mm dia. inner /outer conductor
Screening factor 75 dB
IEC-standard 169/2

DV 01 0397

Coaxial plug (male)	
Color	white
Packing unit	bag
Shipping package	100 pieces, 2.7 dm³, 0.64 kg

DV 07 0397

Coaxial plug (female)	
Color	white
Packing unit	bag
Shipping package	100 pieces, 2.7 dm³, 0.64 kg

DV 60 0397

Coaxial elbow connector (male)	
Color	white
Packing unit	bag
Shipping package	100 pieces, 9.6 dm³, 0.90 kg

DV 75

Terminal resistor	
75 Ω, plug in type, screened in accordance with radio interference regucations IEC 169/2	
Packing unit	5 pieces, bag
Shipping package	50 pieces, 0.8 dm³, 0.30 kg

DV 82 0397

Coaxial elbow socket (female)	
Color	white
Packing unit	bag
Shipping package	100 pieces, 9.6 dm³, 0.95 kg

Antenna multiplexers (F-type connector)

DC 07 F

Antenna multiplexer

Thru loss	FM, VHF I, VHF III, UHF IV, UHF V 1 dB
Connections	F-type-sockets
Dimensions	120x100x40 mm
Packing unit	1 piece, 0.91 dm³
Shipping package	20 pieces, 21.3 dm³, 6.0 kg

Antenna multiplexers (F-type connector)

DC 26 F

Antenna multiplexer

Thru loss	AM-FM, VHF I, VHF III	1 dB
	UHF IV, UHF V	1 dB
With built-in DC by-pass for	(max. 500 mA)	
Connections	F-type-sockets	
Dimensions	120x100x40 mm	
Packing unit	1 piece, 0.91 dm³	
Shipping package	20 pieces, 21.3 dm³, 6.0 kg	

TERR/SAT combiner

DH 34 H

TERR/SAT combiner

with DC-Bypass
outer/inner mounting
with mast mounting

Frequency range	47-862 MHZ/950-2300 MHz
Connections	F-type-sockets
Thru loss	1.5 dB max.
Isolation	40 dB
Dimension	120x100x40 mm
Packing unit	1 piece, 0.91 dm³
Shipping unit	20 pieces, 21.3 dm³, 6 kg

UHF multi-channel combiner (F-type connector)

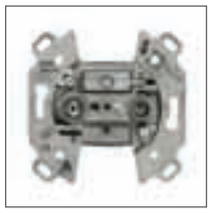
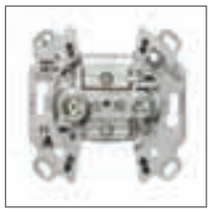
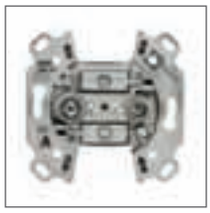
DH 37

UHF multichannel combiner

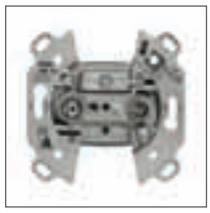
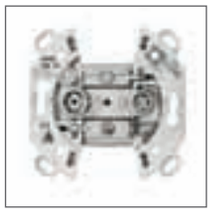
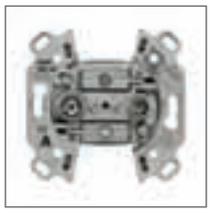
Up to 4 antenna inputs.
Up to 7 UHF channels with individual level adjustment.
Please, specify channel combination to the in/output ports with your order.

Inputs	1-4	
Outputs	1-2	
Thru loss	4 dB	
Individual level adjustment	-14 dB	
Channel spacing	min. 1 at 470-606 MHz	min. 2 at 606-862 MHz
Connections	F-type-sockets	
Packing unit	1 piece, 0.90 dm³, 0.39 kg	

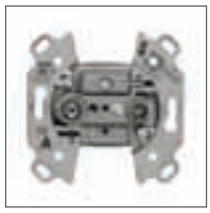
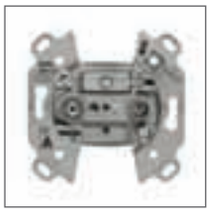
Universal wall outlet sockets

	DB 03	DB 05	DB 07
			
Type	**DB 03 Individual socket**	**DB 05 Loop-through socket**	**DB 07 Loop-through socket**
Frequency range	5-2400 MHz	5-2400 MHz	5-2400 MHz
Thru loss 5-862 MHz	-	2.5 dB	1.0 dB
Thru loss 862-2400 MHz	-	3.0 dB	1.0 dB
Side loss TV/FM 5-862 MHz	4.5/4.5 dB	10/12 dB	14/14 dB
Side loss TV/FM 862-2400 MHz	5.0/5.0 dB	10/11 dB	15/15 dB
Return loss 40-2150 MHz, IN	Cat B	Cat B	Cat B
Return loss 40-2150 MHz, TV	Cat C	Cat C	Cat C
Isolation 5-40 MHz	>20 dB 2)	≥35 dB 1)	≥40 dB 1)4)
Isolation 40-862 MHz	>20 dB 2)	≥42 dB 1)3)	≥44 dB 1)
Isolation 862-2400 MHz	>20 dB 2)	≥35 dB 1)	≥40 dB 1)
Screening factor	> 85 dB, Class A	> 85 dB, Class A	> 85 dB, Class A
Cable connection outer/inner conductor	7.5/0.8-1.3 mm	7.5/0.8-1.3 mm	7.5/0.8-1.3 mm
Packing unit	10 pieces, 2.45 dm³	10 pieces, 2.45 dm³	10 pieces, 2.45 dm³
Shipping package	100 pieces, 30 dm³, 8.9 kg	100 pieces, 30 dm³, 8.9 kg	100 pieces, 30 dm³, 8.9 kg
	1) between two sockets 2) isolation in one socket3) up from 470 MHz ≥ 36 dB 4) up from 10 MHz		
	3) up from 470 MHz ≥ 36 dB 4) up from 10 MHz		

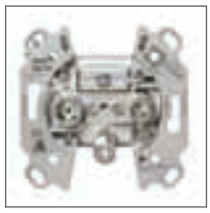
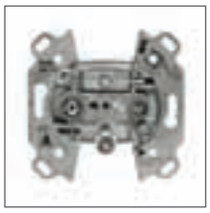
Wall outlet sockets

	DB 10	DB 16	DB 66
			
Type	**DB 10 Individual socket**	**DB 16 Individual socket**	**DB 66 Loop-through socket**
Frequency range	5-862 MHz	0.15-862 MHz	5-1000 MHz
Frequency range TV out	5-68, 132-862 MHz	47-68, 125-862 MHz	-
Frequency range FM out	87.5-108 MHz	87.5-108 MHz	-
Thru loss	-	<4.5 dB	1.0-1.6 dB
Side loss IN-TV	0.5 dB	<4.5 dB	13.0-13.6 dB
Side loss IN-FM	1.5 dB	<4.5 dB	13.0-13.6 dB
Screening factor	> 85 dB, Class A	> 85 dB, Class A	> 85 dB, Class A
Isolation	TV-FM ≥20 dB	FM-TV ≥20 dB	-
Isolation at 2 sockets	-	-	>42 dB
Return loss IN	Cat B	Cat B	Cat B
Return loss TV,FM	Cat C	Cat C	Cat C
Cable connection outer-inner conductor	<7.5/0.8-1.3 mm	7.5/0.8-1.3 mm	< 7.5/0.8-1.3 mm
Packing unit	10 pieces, 2.45 dm³	10 pieces, 2.45 dm³	10 pieces, 2.45 dm³
Shipping package	100 pieces, 30 dm³, 9.2 kg	100 pieces, 30 dm³, 9.2 kg	100 pieces, 30 dm³, 9.2 kg

Wall outlet sockets special types

	DB 17	DB 33
		
Type	**DB 17 Individual socket**	**DB 33 Individual socket**
Frequency range IN	5-862 MHz	47-2150 MHz
Frequency range TV	-	47-862 MHz
Frequency range SAT	-	950-2150 MHz
Side loss TV 5-862 MHz	< 2.5 dB	-
Side loss FM 5-140 MHz	7.2 dB	-
Side loss TV 47-862 MHz	-	≤1.5 dB/<4.0 dB
Side loss SAT 950-2150 MHz	-	≤2.5 dB/<1.5 dB
Isolation FM-TV 5-30/30-140 MHz	≥20 dB/30-45 dB	-
Isolation IN-SAT 47-862 MHz	-	≥20 dB
Isolation IN-TV 950-2150 MHz	-	≥20 dB
Isolation TV-SAT	-	≥20 dB
Return loss IN	Cat B*	Cat B
Return loss TV	Cat C*	-
Return loss FM	Cat D*	-
Return loss TV/SAT	-	Cat C
Screening factor	> 85 dB, Class A	> 85 dB, Class A
Cable connection outer-/inner conductor	< 7.5/0.8-1.3 mm	< 7.5/0.8-1.3 mm
Packing unit	10 pieces, 2.45 dm³	10 pieces, 2.45 dm³
Shipping package	100 pieces, 30 dm³, 8.9 kg	100 pieces, 30 dm³, 8.9 kg
	*30 MHz, DB 33 with max. 500 mA DC bypass	

SAT wall outlet sockets

	DB 52	DB 53
		
Type	**DB 52 Individual socket (TWIN)**	**DB 53 Individual socket**
Frequency range IN	47-2400 MHz (2x)	47-2150 MHz
Frequency range SAT out	950-2400 MHz (2x)	950-2150 MHz
Frequency range TV/FM out	47-862 MHz	-
Frequency range TV	-	47-68 MHz; 174-862 MHz
Frequency range FM	-	87.5-108 MHz
Side loss TV/SAT	< 2,0 dB	< 2 dB
Side loss FM 87,5-108 MHz	-	1.5 dB
DC Bypass SAT	500 mA max.	500 mA max.
Isolation	TV-SAT1 min. 15 dB, typ. 25 dB	TV-SAT1 min. 15 dB, typ. 25 dB
Screening factor	> 85 dB, Class A	> 85 dB, Class A
Cable connection outer-/inner conductor	7.5/0.8-1.3 mm	7.5/0.8-1.3 mm
Packing unit	10 pieces, 2,45 dm³	10 pieces, 2,45 dm³
Shipping package	100 pieces, 30 dm³, 8,9 kg	100 pieces, 30 dm³, 8,9 kg

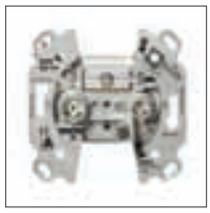
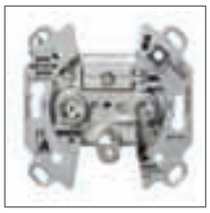
Multimedia wall outlet sockets, individual

DM 80

Frequency range		TV-FM	88-862 MHz
		Data	5-862 MHz
Insertion loss	120-862 MHz	IN-TV	7 dB ± 1 dB
	88-108 MHz	IN-R	8.5 dB ± 1 dB
	5-862 MHz	IN-Data	7.5 dB ± 1 dB
Isolation loss	5-65 MHz	Data-TV	≥ 60 dB
	120-862 MHz	Data-TV	≥ 20 dB
	5-65 MHz	Data-R	≥ 50 dB
	88-108 MHz	Data-R	≥ 25 dB
Return loss	5-862 MHz	IN	≥ 10 dB
			(outputs non terminated)
Connectors	Input and output	F-type-sockets	

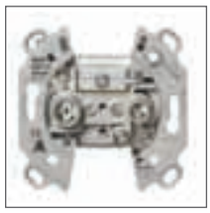
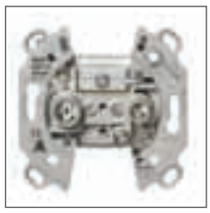
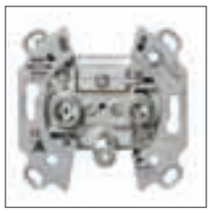
Notes

Multimedia wall outlet sockets, individual, DD 04

	DD 04	DD 04 M 0650
		
Type	**DD 04 Multimedia socket, WICLIC**	**DD 04 M 0650 Multimedia socket, F-type connector**
Frequency range	5-862 MHz	5-862 MHz
Side loss DATA	8 dB	8 dB
Side loss TV	3.5 dB	3,5 dB
Side loss FM	8 dB	8 dB
Isolation 5-30/65 MHz TV-DATA	≥70 / - dB	typ. 74 dB
Isolation 5-30/65 MHz FM-DATA	≥70 / - dB	typ. 74 dB
Isolation 47-68 MHz TV-DATA	≥45 dB	-
Isolation 47-68 MHz FM-DATA	≥45 dB	-
Isolation 65-85 MHz TV-DATA	-	≥40 dB
Isolation 65-85 MHz FM-DATA	-	≥40 dB
Isolation 85-862 MHz TV-FM	≥20 dB	≥20 dB
Isolation 85-862 MHz TV-DATA	≥30 dB	≥30 dB
Isolation 85-862 MHz FM-DATA	≥30 dB	≥30 dB
Return loss EN 50083-4, 47/85-862 MHz IN-DATA	Cat B	Cat B
Return loss EN 50083-4, 47/85-862 MHz TV-FM	Cat C	Cat C
Return loss EN 50083-4, 5-40/65-862 MHz	Cat B	Cat B
Screening factor	>85 dB, Class A	>85 dB, Class A
Cable connection outer/ inner	7.5/0.8-1.3 mm	7.5/0.8-1.3 mm
Packing unit	10 pieces, 2.45 dm³	10 pieces, 2.45 dm³
Shipping package	100 pieces, 30 dm³, 8.9 kg	100 pieces, 30 dm³, 8.9 kg

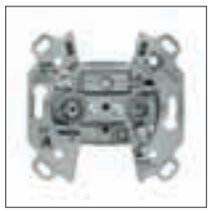
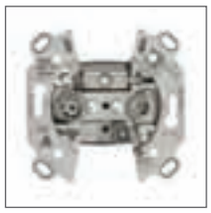
Multimedia wall outlet sockets, loop-thru, DD 11

Note: Isolation one/two sockets: Data - TV/FM or TV-FM

	DD 11	DD 11 0650	DD 11 M 0650
			
Type	**DD 11 Multimedia socket, WICLIC**	**DD 11 0650 Multimedia socket, WICLIC**	**DD 11 M 0650 Multimedia socket, F-type connector**
Frequency range	5-862 MHz	5-862 MHz	5-862 MHz
Thru loss	3.2-4 dB	3-4 dB	3-4 dB
Side loss	10 dB	10 dB	10 dB
Isolation at one socket 5-30 MHz	≥70 dB	-	-
Isolation at one socket 5-65 MHz	-	typ. 74 dB	typ. 74 dB
Isolation at one socket 30-300 MHz	≥44 dB	-	-
Isolation at one socket 65-300 MHz	-	≥44 dB	≥ 44 dB
Isolation at one socket 300-862 MHz	≥40 dB	≥40 dB	≥ 40 dB
Isolation at two sockets 5-30 MHz	≥70 dB	-	-
Isolation at two sockets 5-65 MHz	-	typ. 74 dB	typ. 74 dB
Isolation at two sockets 30-300 MHz	≥44 dB	-	-
Isolation at two sockets 65-300 MHz	-	≥44 dB	≥ 44 dB
Isolation at two sockets 300-862 MHz	≥40 dB	≥40 dB	≥ 40 dB
Return loss IN-OUT 47-862 MHz	Cat B	Cat B	Cat B
Return loss TV-DATA 85-862 MHz	Cat C	Cat C	Cat C
Return loss FM 86-862 MHz	Cat D	Cat D	Cat D
Return loss ALL 10-40 MHz	min. Cat D	min. Cat D	min. Cat D
Screening factor	>85 dB, Class A	>85 dB, Class A	>85 dB, Class A
Outer/inner conductor cable connection	7.5/0.8-1.3 mm	7.5/0.8-1.3 mm	7.5/0.8-1.3 mm
Packing unit	10 pieces, 2.45 dm³	10 pieces, 2.45 dm³	10 pieces, 2.45 dm³
Shipping package	100 pieces, 30 dm³, 8.9 kg	100 pieces, 30 dm³, 8.9 kg	100 pieces, 30 dm³, 8.9 kg

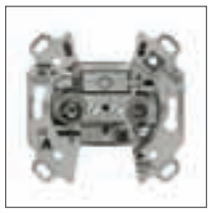
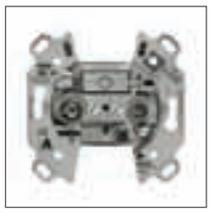
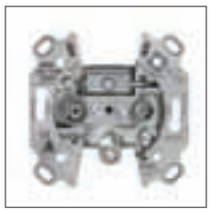
Multimedia wall outlet sockets, loop-thru, DD 15

Note: Isolation one/two sockets: Data - TV/FM or TV-FM

	DD 15	DD 15 0650	DD 15 M 0650
			
Type	**DD 15 Multimedia socket, WICLIC**	**DD 15 0650 Multimedia socket, WICLIC**	**DD 15 M 0650 Multimedia socket, F-type connector**
Frequency range	5-862 MHz	5-862 MHz	5-862 MHz
Thru loss	1-1.7 dB	1-1.75 dB	1-1.75 dB
Side loss	14 dB	14 dB	14 dB
Isolation at one socket 5-30 MHz	≥70 dB	-	-
Isolation 5-30/65 MHz TV-DATA	-	typ. 74 dB	typ. 74 dB
Isolation at one socket 30-300 MHz	≥44 dB	-	-
Isolation at one socket 65-300 MHz	-	≥44 dB	≥ 44 dB
Isolation at one socket 300-862 MHz	≥40 dB	≥40 dB	≥ 40 dB
Isolation at two socket 5-30 MHz	≥70 dB	-	-
Isolation at two socket 5-65 MHz	-	typ. 74 dB	typ. 74 dB
Isolation at two socket 30-300 MHz	≥44 dB	-	-
Isolation at two socket 65-300 MHz	-	≥44 dB	≥ 44 dB
Isolation at two socket 300-862 MHz	≥40 dB	≥40 dB	≥ 40 dB
Return loss IN-OUT 47-862 MHz	Cat B	Cat B	Cat B
Return loss IN-OUT 85-862 MHz TV-DATA	Cat C	Cat C	Cat C
Return loss IN-OUT 85-862 MHz FM	Cat D	Cat D	Cat D
Return loss ALL 10-40 MHz	min. Cat D	min. Cat D	min. Cat D
Screening factor	>85 dB, Class A	>85 dB, Class A	>85 dB, Class A
Outer/inner conductor cable connection	7.5/0.8-1.3 mm	7.5/0.8-1.3 mm	7.5/0.8-1.3 mm
Packing unit	10 pieces, 2.45 dm³	10 pieces, 2.45 dm³	10 pieces, 2.45 dm³
Shipping package	100 pieces, 30 dm³, 8.9 kg	100 pieces, 30 dm³, 8.9 kg	100 pieces, 30 dm³, 8.9 kg

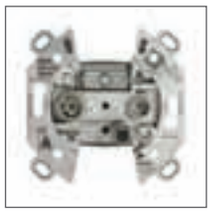
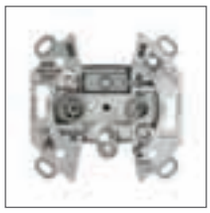
Multimedia wall outlet sockets, loop-thru, DD 19

Note: Isolation one/two sockets: Data - TV/FM or TV-FM

	DD 19	DD 19 0650	DD 19 M 0650
			
Type	**DD 19 Multimedia socket, WICLIC**	**DD 19 0650 Multimedia socket, WICLIC**	**DD 19 M 0650 Multimedia socket, F-type connector**
Frequency range	5-862 MHz	5-862 MHz	5-862 MHz
Thru loss	1.2-1.4 dB	1.2-1.4 dB	1.2-1.4 dB
Side loss	19 dB	19 dB	19 dB
Isolation at one socket 5-30 MHz	≥70 dB	-	-
Isolation at one socket 5-65 MHz	-	typ. 74 dB	typ. 74 dB
Isolation at one socket 30-300 MHz	≥44 dB	-	-
Isolation at one socket 65-300 MHz	-	≥44 dB	≥ 44 dB
Isolation at one socket 300-862 MHz	≥40 dB	≥40 dB	≥ 40 dB
Isolation at two socket 5-30 MHz	≥70 dB	-	-
Isolation at two socket 5-65 MHz	-	typ. 74 dB	typ. 74 dB
Isolation at two socket 30-300 MHz	≥50 dB	-	-
Isolation at two socket 65-300 MHz	-	≥50 dB	≥ 50 dB
Isolation at two socket 300-862 MHz	≥50 dB	≥50 dB	≥ 50 dB
Return loss IN-OUT 47-862 MHz	Cat B	Cat B	Cat B
Return loss IN-OUT 85-862 MHz TV-DATA	Cat C	Cat C	Cat C
Return loss IN-OUT 85-862 MHz FM	Cat D	Cat D	Cat D
Return loss ALL 10-40 MHz	min. Cat D	min. Cat D	min. Cat D
Screening factor	>85 dB, Class A	>85 dB, Class A	>85 dB, Class A
Outerlinner conductor cable connection	7.5/0.8-1.3 mm	7.5/0.8-1.3 mm	7.5/0.8-1.3 mm
Packing unit	10 pieces, 2.45 dm³	10 pieces, 2.45 dm³	10 pieces, 2.45 dm³
Shipping package	100 pieces, 30 dm³, 8.9 kg	100 pieces, 30 dm³, 8.9 kg	100 pieces, 30 dm³, 8.9 kg

Multimedia wall outlet sockets, loop-thru, DD 23

Note: Isolation one/two sockets: Data - TV/FM or TV-FM

	DD 23	DD 23 0650	DD 23 M 0650
			
Type	**DD 23 Multimedia socket, WICLIC**	**DD 23 0650 Multimedia socket, WICLIC**	**DD 23 M 0650 Multimedia socket, F-type connector**
Frequency range	5-862 MHz	5-862 MHz	5-862 MHz
Thru loss	1.2-1.4 dB	1.2-1.4 dB	1.2 -1.4 dB
Control range	23 dB	23 dB	23 dB
Isolation at one socket 5-30 MHz	≥70 dB	-	-
Isolation at one socket 5-65 MHz	-	typ. 74 dB	typ. 74 dB
Isolation at one socket 30-300 MHz	≥50 dB	-	-
Isolation at one socket 65-300 MHz	-	≥50 dB	≥ 50 dB
Isolation at one socket 300-862 MHz	≥45 dB	≥45 dB	≥ 45 dB
Isolation at two socket 5-30 MHz	≥70 dB	-	-
Isolation at two socket 5-65 MHz	-	typ. 74 dB	typ. 74 dB
Isolation at two socket 30-300 MHz	≥50 dB	-	-
Isolation at two socket 65-300 MHz	-	≥50 dB	≥ 50 dB
Isolation at two socket 300-862 MHz	≥50 dB	≥50 dB	≥ 50 dB
Return loss IN-OUT 47-862 MHz	Cat B	Cat B	Cat B
Return loss IN-OUT 85-862 MHz TV-DATA	Cat C	Cat C	Cat C
Return loss IN-OUT 85-862 MHz FM	Cat D	Cat D	Cat D
Return loss ALL 10-40 MHz	min. Cat D	min. Cat D	min. Cat D
Screening factor	>85 dB, Class A	>85 dB, Class A	>85 dB, Class A
Outerlinner conductor cable connection	7.5/0.8-1.3 mm	7.5/0.8-1.3 mm	7.5/0.8-1.3 mm
Packing unit	10 pieces, 2.45 dm³	10 pieces, 2.45 dm³	10 pieces, 2.45 dm³
Shipping package	100 pieces, 30 dm³, 8.9 kg	100 pieces, 30 dm³, 8.9 kg	100 pieces, 30 dm³, 8.9 kg

Accessories for wall outlet sockets

Color of the coverplates and frames: white

	**DD 99**	**Surface mounting frame**	
		Dimensions	75x75x35 mm
		Packing unit	5 pieces, 1.05 dm³
		Shipping package	100 pieces, 38 dm³, 3.30 kg
	**DS 26 0301**	**DATA connecting cable, F-quick/ WICLIC-plug**	
		for DD sockets	F-quick and WICLIC-plug
		Length	3 m
		Packing unit	1 piece, bag
	**DS 26 0501**	**DATA connecting cable, F-quick/WICLIC-plug**	
		for DD sockets	F-quick and WICLIC-plug
		Length	5 m
		Packing unit	1 piece, bag
	**DS 26 0901**	**DATA connecting cable, F-quick/WICLIC-plug**	
		for DD sockets	F-Quick + WICLIC-plug
		Length	9 m
		Packing unit	1 piece, bag
	**DV 23**	**Terminal resistor 75 Ω**	
		Packing unit	10 pieces, bag
		Shipping package	100 pieces, 0.31 dm³, 0.15 kg
	**DW 42**	**Cover plate**	
		Dimensions	75x75 mm
		Packing unit	10 pieces, 1.05 dm³
		Shipping package	200 pieces, 26 dm³, 3.45 kg
	**DW 44**	**Cover plate**	
		Dimensions	85x85 mm
		Packing unit	10 pieces, 1.05 dm³
		Shipping package	200 pieces, 26 dm³, 3.45 kg
	**DW 45**	**Cover plate**	
		Dimensions	75x75 mm
		Packing unit	10 pieces, 1.05 dm³
		Shipping package	200 pieces, 26 dm³, 3.45 kg
	**DW 46**	**Cover plate**	
		Dimensions	75x75 mm
		Packing unit	10 pieces, 1.05 dm³
		Shipping package	200 pieces, 26 dm³, 3.45 kg
	**DW 49**	**Cover plate**	
		Dimensions	85x85 mm
		Packing unit	10 pieces	1.05 dm³
		Shipping package	200 pieces	26 dm³, 3.45 kg
	**DW 49 M**	**Cover plate**	
		Dimensions	85x85 mm
		Packing unit	10 pieces	1.05 dm³
		Shipping package	200 pieces	26 dm³, 3.45 kg

Connectors, terminals, splices

	**ZG 12**	**Cable gland PG11**	
		for coaxial cable	Cellular PE/Cu-braid + Al-foil MK 90/95/99
		Dimensions	0.7-1.2 mm/4.8 mm
	**ZG 13**	**Cable gland PG 11**	
		for coaxial cable	CU-tube semi air (bamboo type) MK 33
		Dimensions	3.3 mm/13.5 mm
	**ZG 15**	**Cable gland PG 11**	
		for coaxial cable	CU-tube semi air (bamboo type) MK22
		Dimensions	2.2 mm/8.8 mm
	**ZG 19**	**Cable gland PG11**	
		Coaxial cable	CU-foil/PE solid MK 11
		Dimensions	1.1 mm/7.3 mm
	**ZG 27**	**Cable gland PG11**	
		For coaxial cable	Cellular Pe/Cu-braid + Al-foil MK 16
		Dimensions	1.6 mm/7.3 mm

Accessories for connectors, terminals, splices

	**ZB 35**	**Line connector**	
			3.5/12 //3.5/12
		Shipping package	100 pieces, 3.7 dm³, 4.29 kg
	**ZG 20**	**Adapter**	
		PG11 to IEC (female)	
		Shipping package	50 pieces, 3.9 dm³, 2.2 kg
	**ZG 28**	**Adapter**	
		PG 11 to F (female)	
		Shipping package	25 pieces, 2.2 dm³, 0.9 kg
	**ZG 35**	**Adapter**	
		PG 11 to 3.5/12 (female)	
		Shipping package	100 pieces, 3.9 dm³, 4.3 kg

CATV/house terminal box

XU 60

CATV-house terminal box

Frequency range	5-862 MHz
Impedance	75 Ω
Return loss	47 MHz, 18 dB, -1.5 dB/Oct., min. 14 dB
Pass band attenuation	< 1.5 dB
Test socket	-2 dB
Packing unit	10 pieces, 7.9 dm³, 3.05 kg

XU 61

High pass filter for XU 60

Frequency range	87-862 MHz	
Pass band attenuation	87-108 MHz	< 1 dB
	111-862 MHz	< 0.5 dB
Isolation	4-65 MHz	> 45 dB

XU 62

Equalizer for XU 60

Frequency range	5-862 MHz	
Return loss	IN-OUT	18 dB, -1.5 dB/Oct.
Pass band attenuation	5-470 MHz	< 1.5 dB
De-emphasis	862 MHz	-3/-6 dB

XU 63

Low pass filter for XU 60

Return loss	IN-OUT	> 18 dB, -1 dB/Oct.	min. 14 dB
Pass band attenuation	5-470 MHz	< 2 dB	
	4-494 MHz	< 3 dB	
Isolation	> 542 MHz	> 52 dB	

XU 64

Measurement modul for XU 60

Connections	IEC type female
Measurement in coaxial cable direct burial	

Cable connecting terminals

High quality RF connectors 75 Ω
High versatility.
Direct burial with heat shrinkable sleeves.

ZE 10 0200

Cable connector	
for cable	MK 11 (1.1/7.3)
Packing unit	10 pieces, 0.28 dm³
Shipping package	100 pieces, 5.3 dm³, 3.8 kg

ZE 11 0200

Cable connector	
for cable	MK 22 (2.2/8.8)
Packing unit	10 pieces, 0.28 dm³
Shipping package	100 pieces, 5.3 dm³, 3.8 kg

ZE 12 0200

Cable connector	
for cable	MK 33 (3.3/13.5)
Packing unit	10 pieces, 0.28 dm³
Shipping package	100 pieces, 5.3 dm³, 3.8 kg

ZE 13 0200

Cable connector	
for cable	- (4.9/19.4)
Packing unit	5 pieces, 0.28 dm³
Shipping package	50 pieces, 5.3 dm³, 2.7 kg

ZE 15 0200

Cable connector	
for cable	- (1.8/11.5)
Packing unit	5 pieces, 0.28 dm³
Shipping package	50 pieces, 5.3 dm³, 2.7 kg

ZG 22 0200

Fixed cable socket IEC	
Transition	Cable sleeve to IEC female
Packing unit	5 pieces, 0.35 dm³
Shipping package	50 pieces, 5.3 dm³, 8.1 kg

ZK 10 0200

Coupling sleeve	
for inline cable connetions	
Packing unit	3 pieces, 0.35 dm³
Shipping package	30 pieces, 5.3 dm³, 3.5 kg

ZR 10 0200

Terminating resistor	
75 Ω,	
Packing unit	5 pieces, 0.28 dm³
Shipping package	50 pieces, 5.3 dm³, 2.2 kg

ZZ 11

Shrink sleeve set	
for splitters / taps	
Length	170 mm
Packing unit	10 pieces, bag
Shipping package	100 pieces, 17 dm³, 1.6 kg

ZZ 12

Shrink sleeve set	
for coupling sleeve ZK 10	
Length	210 mm
Packing unit	10 pieces, bag
Shipping package	100 pieces, 26 dm³, 1.8 kg

Coaxial cable

- **Coaxial cables 75 Ω white**
- **Coaxial cables 75 Ω black**
- **Cable boxes**

Coaxial cables 75 Ω white

	MK 75 C 0101	MK 75 C 0500	MK 94 C 0100
			
Type	**MK 75 C 0101 Coaxial cable, 75 Ω, 100 m**	**MK 75 C 0500 Coaxial cable, 75 Ω, 500 m**	**MK 94 C 0100 Coaxial cable, 75 Ω, 100 m**
Installation	House installation	House installation	House installation
Inner conductor	Cu-core, Ø0.8	Cu-core, Ø0.8	Cu-core, Ø1.13
Dielectric	PE foamed, Ø3.5	PE foamed, Ø3,5	PE foamed, Ø4.8
Outer conductor	bonded Al-foil / Cu-Sn braid	bonded Al-foil / Cu-Sn braid	bonded Al-foil / Cu-Sn braid
Outer sheath material	PVC, white, Ø5	PVC, white, Ø5	LSZH-Compound, halogenfree Ø6.5
Loop resistance	55 Ω/km	55 ‘•/km	30.5 Ω/km
Attenuation 5 MHz	2.0 dB/100m	2.0 dB/100m	1.5 dB/100m
Attenuation 50 MHz	5.8 dB/100m	5.8 dB/100m	4.2 dB/100m
Attenuation 600 MHz	20.0 dB/100m	20.0 dB/100m	14.6 dB/100m
Attenuation 950 MHz	26.9 dB/100m	26.9 dB/100m	19.1 dB/100m
Attenuation 2200 MHz	38.6 dB/100m	38.6 dB/100m	29.6 dB/100m
Return loss 5-862 MHz	≥26 dB	≥26 dB	>28 dB
Return loss 862-2500MHz	≥18 dB	≥18 dB	>23 dB
Propagation factor	0.84	0.84	-
Screening factor 30-2400 MHz	≥90 dB	≥90 dB	> 90 dB
Coupling resistance mOhm/m, 5-30 MHz	< 5	< 5	< 5
Total weight	28.0 kg/km	28.0 kg/km	47.3 kg/km
Bending radius: single/multiple	25/50 mm	25/50 mm	35/70 mm
Packing	plastic reel	plastic reel	lastic foil
Shipping package	5 x 100 m / 52.9 dm³, 15.5 kg	2 x 500 m / 54.7 dm³, 28 kg	6 x 100m / 56.0 dm³, 29 kg
Diameter Ø*	0.8/3.5/5.0 mm	0.8/3.5/5.0 mm	1.13/4.8/6.5 mm
			* Spec.1=Inner conductor; Spec.2=dielektric; Spec.3=outer sheath material

Coaxial cables 75 Ω white

	MK 94 C 0500	MK 95 C 0015/0025	MK 95 C 0100/0250
			
Type	**MK 94 C 0500 Coaxial cable, 75 Ω, 500 m**	**MK 95 C 0015/0025 Coaxial cable, 75 Ω, 15/25 m**	**MK 95 C 0100/0250 Coaxial cable, 75 Ω, 100/250 m**
Installation	House installation	House installation	House installation
Inner conductor	Cu-core, Ø1.13	Cu-core, Ø1.13	Cu-core, Ø1.13
Dielectric	PE foamed, Ø4.8	PE foamed, Ø4.8	PE foamed, Ø4.8
Outer conductor	bonded Al-foil / Cu-Sn braid	bonded Al-foil / Cu-Sn braid	bonded Al-foil / Cu-Sn braid
Outer sheath material	LSZH-Compound, halogenfree Ø6.5	PVC, white, Ø6.5	PVC, white, Ø6.5
Loop resistance	30.5 Ω/km	30,5 Ω/km	30.5 Ω/km
Attenuation 5 MHz	1.5 dB/100m	1,5 dB/100m	1.5 dB/100m
Attenuation 50 MHz	4.2 dB/100m	4,2 dB/100m	4.2 dB/100m
Attenuation 600 MHz	14.6 dB/100m	14,6 dB/100m	14.6 dB/100m
Attenuation 950 MHz	19.1 dB/100m	18,9 dB/100m	18.9 dB/100m
Attenuation 2200 MHz	29.6 dB/100m	29,6 dB/100m	29.6 dB/100m
Return loss 5-862 MHz	>28 dB	≥28 dB	≥28 dB
Return loss 862-2500MHz	>23 dB	≥25 dB	≥25 dB
Propagation factor	-	0,85	0.85
Screening factor 30-2400 MHz	> 90 dB	> 90 dB	> 90 dB
Coupling resistance mOhm/m, 5-30 MHz	< 5	< 5	< 5
Total weight	47.3 kg/km	46 kg/km	46.0 kg/km
Bending radius: single/multiple	35/70 mm	35/70 mm	35/70 mm
Packing	plastic reel	Blister	plastic foil /plastic reel
Shipping package	1x 500 m, 24 kg	6 x 15m 6 x 25m	6x100m / 2 x 250 m 57.7/53 dm³, 25 kg
Diameter Ø*	1.13/4.8/6.5 mm	1.13/4.8/6.5 mm	1.13/4.8/6.5 mm
			* Spec.1=Inner conductor; Spec.2=dielektric; Spec.3=outer sheath material

Coaxial cables 75 Ω white

	MK 95 C 0500	MK 96 0100/0250	MK 96 0500
			
Type	**MK 95 C 0500 Coaxial cable, 75Ω, 250/500 m**	**MK 96 0100/0250 Coaxial cable, 75 Ω, 100/250 m**	**MK 96 0500 Coaxial cable, 75 Ohm, 500 m**
Installation	House installation	House installation	House installation
Inner conductor	Cu-core, Ø1.13	Cu-core, Ø1.13	Cu-core, Ø1.13
Dielectric	PE foamed Ø4.8	PE foamed, Ø4.8	PE foamed, Ø4.8
Outer conductor	bonded Al-foil / Cu-Sn braid	bonded Al-foil / Cu-Sn braid	bonded Al foil / Cu-Sn braid
Outer sheath material	PVC, white, Ø6.5	PVC, white, Ø6.5	PVC, white, Ø6.5
Loop resistance	30.5 Ω/km	31 Ω/km	31 Ω/km
Attenuation 5 MHz	1.5 dB/100m	1.5 dB/100m	1.5 dB/100m
Attenuation 50 MHz	4.2 dB/100m	4.2 dB/100m	4.2 dB/100m
Attenuation 600 MHz	14.6 dB/100m	14.6 dB/100m	14.6 dB/100m
Attenuation 950 MHz	18.9 dB/100m	18.9 dB/100m	18.9 dB/100m
Attenuation 2200 MHz	29.6 dB/100m	29.6 dB/100m	29.6 dB/100m
Return loss 5-862 MHz	≥28 dB	≥ 26 dB	≥ 26 dB
Return loss 862-2500MHz	≥25 dB	≥ 20 dB	≥ 20 dB
Propagation factor	0.85	0.84	0.84
Screening factor 30-2400 MHz	> 90 dB	115 dB	115 dB
Coupling resistance mOhm/m, 5-30 MHz	< 5	-	-
Total weight	46.0 kg/km	42 kg/km	42 kg/km
Bending radius: single/multiple	35/70 mm	35/75 mm	35/75 mm
Packing	plastic reel 24 kg	plastic foil 4.5/12 kg	plastic reel 25 kg
Shipping package	1 x 500 m / 54.4 dm³	6 x 100m / 57.7 dm³, 30 kg 2 x 250 m/53 dm³	1 x 500/54.4 dm³
Diameter Ø*	1.13/4.8/6.5 mm	1.13/4.8/6.5 mm	1.13/4.8/6.5 mm
			* Spec.1=Inner conductor; Spec.2=dielektric; Spec.3=outer sheath material

Coaxial cables 75 Ω black

	MK 11 0500	MK 15 0500	MK 22	MK 33
				
Type	**MK 11 0500 Coaxial cable, 75 Ω, black**	**MK 15 0500 Coaxial cable, 75 Ω, black**	**MK 22 Coaxial cable, 75 Ω, black**	**MK 33 Coaxial cable, 75 Ω, black**
Installation	Direct burial	Direct burial	Direct burial	Direct burial
Inner conductor	Cu-core, Ø1.1	Cu-core, Ø1.63	Cu-core, Ø2.2	Cu-core Ø3.3
Dielectric	PE solid, Ø7.3	PE foamed, Ø7.2	Semi air/Bamboo, Ø8.8	Semi air / Bamboo Ø13,4
Outer conductor	Cu-longitud.	bonded Al-foil / Cu-Sn braid	Cu tube	Cu tube
Multi screen foil	-	Al / Pet	-	-
Outer sheath	PE black, Ø10.5	PE black, Ø10.3	PE black, Ø12.5	PE black Ø17.0
Loop resistance	24.3 Ω/km	16 Ω/km	8.6 Ω/km	4.5 Ω/km
Attenuation 5 MHz/100 m	1.2 dB	0,9 dB	0.7 dB	0.5 dB
Attenuation 50 MHz/100 m	3.7 dB	2,8 dB	2.1 dB	1.4 dB
Attenuation 600 MHz/100 m	14.5 dB	10,1 dB	6,9 dB	4.7 dB
Attenuation 862 MHz/100 m	20.1 dB	12,4 dB	9.3 dB	6.0 dB
Attenuation 2150/3000 MHz/100 m	- /-	20,4 / 23,8 dB	-/-	-/-
Return loss 5-1000/3000 MHz	>25/-	>28dB / >23dB	>22 dB/-	≥ 21 dB/-
Propagation factor	0.66	0.84	-	-
Screening factor 30-1000/2400 MHz	>100 dB	>110dB- >100 dB	>100 dB	> 100 dB
Coupling resistance mOhm/m	< 1	< 1	< 1	< 1
Total weight	110 kg/km	76 kg / km	185 kg/km	350 kg/km
Bending radius: single/multiple	150/300 mm	100 mm	300/400 mm	300/600 mm
Shipping package: Reeled on drum	Ø 60x55x60 cm, 500m, 64 kg	500 m	Ø 96x80x96 cm, 1000 m (on request), 80 kg	Ø 132x80x132 cm, 1000 m (on request), 150 kg
Diameter Ø*	1.1/7.3/10.5 mm	1.63/7.2/10.3 mm	2.2/8.8/12.5 mm	3.3/13.4/17.0 mm

Cable boxes

MB 01

Cable box

Drill-free reel off
Increased cable protection
Easy to carry, break proof
Impact resistant
For ecological foil and reel packaged cables
Robust mechanics

Delivery volume	Cable box, Carring belt, Empty plastic reel
Application for	100 m blisterpac, 100 m reel
WISI-Cable type	MK 75 C 0101, MK 90 D 0100, MK 95 C 0100, MK 96 0100
Shipping package	5 pieces, 90.28 dm³, 10.80 kg

Notes

Satellite receiving systems

- WISI ORBIT TOPLINE Offset antennas
- WISI ORBIT TOPLINE Feed holder
- WISI ORBIT Offset antennas
- WISI ORBIT Feed systems
- WISI MULTISYSTEM QUICK, stand alone 5 inputs
- WISI MULTISYSTEM QUICK, cascadable 5 inputs
- WISI MULTISYSTEM QUICK, cascadable 9 inputs
- WISI MULTISYSTEM QUICK, cascadeable, 17 Inputs
- MULTISYSTEM QUICK Accessories

WISI ORBIT TOPLINE Offset antennas

The parabolic reflector are made of glassfiber reinforced plastic, plus a sealing coat of polyurethane paint. Two colors are available for best blending in with the sourroundings.
The antennas are supplied with feed holder.
The hot galvanized mounting bracket is powder-coated in the color of the reflector.

OA 78

OA 78 B

OA 98

OA 98 B

Type	OA 78 Offset antenna	OA 78 B Offset antenna	OA 98 Offset antenna	OA 98 B Offset antenna
Reflector	GRP	GRP	GRP	GRP
Diameter	75 cm	75 cm	90 cm	90 cm
Color	light grey (RAL 7035)	grey brown (RAL 8019)	light grey (RAL 7035)	grey brown (RAL 8019)
Gain (12.0 GHz)	37.5 dB	37.5 dB	39 dB	39 dB
3 dB aperture angle	<2.5 °	<2.5 °	<2 °	<2 °
Setting range, elevation	9-42 °	9-42 °	9-42 °	9-42 °
Fastening clamp	38-80 mm	38-80 mm	38-80 mm	38-80 mm
Wind load up to 20 m	525 N	525 N	745 N	745 N
Figure of merit with LNC = 1.2 dB	16.2 dB/K	16.2 dB/K	17.7 dB/K	17.7 dB/K
Packing unit	1 piece, 115 dm³, 10 kg	1 piece, 115 dm³, 10 kg	1 piece, 180 dm³, 15 kg	1 piece, 180 dm³, 15 kg

WISI ORBIT TOPLINE Feed holder

Simple extension of an individual feed system.
Snap in technique allows to replace the single feed holder by a dual feed. The dual feed holder is suitable for reception of satellites with 6° orbital distanc e e.g. ASTRA and EUTELSAT/HOTBIRD.

OF 10

Single feed holder, Ø 40 mm	
for Offset antenna	OA 78, OA 98
Packing unit	
Color	light grey (RAL 7035)

OF 10 B

Single feed holder, Ø 40 mm	
for Offset antenna	OA 78 B, OA 98 B
Packing unit	
Color	grey brown (RAL 8019)

OF 70

DUO-Feed-Adapter	
for Offset antenna	OA 78
Feed system	2x OC02-04 + 1x OF 10
Color	light grey (RAL 7035)
Packing unit	5 pieces, 4.2 dm³, 1.04 kg

OF 70 B

DUO-Feed-Adapter	
for Offset antenna	OA 78 B/C
Feed system	2x OC02-04B + 1x OF 10B
Color	grey brown (RAL 8019)
Packing unit	5 pieces, 4.2 dm³, 1.04 kg

OF 90

DUO-Feed-Adapter	
for Offset antenna	OA 98
Feed system	2x OC02-04 + 1x OF 10
Color	light grey (RAL 7035)
Packing unit	5 pieces, 4.2 dm³, 1.04 kg

OF 90 B

DUO-Feed-Adapter	
for Offset antenna	OA 98 B/C
Feed system	2x OC02-04B + 1x OF 10B
Color	grey brown (RAL 8019)
Packing unit	5 pieces, 4.2 dm³, 1.04 kg

OX 78

Retrofit feed rood	
for TOPLINE antennas	75 cm
Color	light grey (RAL 7035)

OX 78 B

Retrofit feed rood	
for TOPLINE antennas	75 cm
Color	grey brown (RAL 8019)

OX 98

Retrofit feed rood	
for TOPLINE antennas	95 cm
Color	light grey (RAL 7035)

OX 98 B

Retrofit feed rood	
for TOPLINE antennas	95 cm
Color	grey brown (RAL 8019)

WISI ORBIT Offset antennas

Offset antennas aluminium reflector painted light grey, graphit grey or red brown, hot-galvanized mast bracket, feed bracket 40 mm.
For antenna mast or wall bracket mounting.

OA 10

OA 36 G

OA 36 H

OA 36 I

Type	OA 10 Offset antenna	OA 36 G Offset antenna	OA 36 H Offset antenna	OA 36 I Offset antenna
Reflector	Aluminium	Aluminium	Aluminium	Aluminium
Diameter	100 cm	60 cm	60 cm	60 cm
Color	light grey (RAL 7035)	light grey (RAL 7035)	graphit grey (RAL 7024)	red brown (RAL 8012)
Gain	38-40 dB	35 dB	35 dB	35 dB
3 dB aperture angle	< 1.8 °	3.0 °	3.0 °	3.0 °
Setting range, elevation	15-55 °	16-50 °	16-50 °	16-50 °
Tightening range of the mast bracket	32-80 mm	32-60 mm	32-60 mm	32-60 mm
Wind load up to 20 m mounting height	872 N	280 N	280 N	280 N
Packing unit	1 piece, 143 dm³, 12.6 kg	1 piece, 75 dm³, 3.4 kg	1 piece, 75 dm³, 3.4 kg	1 piece, 75 dm³, 3.4 kg

WISI ORBIT Offset antennas

Offset antennas aluminium reflector painted light grey, graphit grey or red brown, hot-galvanized mast bracket, feed bracket 40 mm.
For antenna mast or wall bracket mounting.

OA 38 G

OA 38 H

OA 38 I

Type	OA 38 G Offset antenna	OA 38 H Offset antenna	OA 38 I Offset antenna
Reflector	Aluminium	Aluminium	Aluminium
Diameter	80 cm	80 cm	80 cm
Color	light grey (RAL 7035)	graphit grey (RAL 7024)	red brown (RAL 8012)
Gain	37 dB	37 dB	37 dB
3 dB aperture angle	2.5 °	2.5 °	2.5 °
Setting range, elevation	16-50 °	16-50 °	16-50 °
Tightening range of the mast bracket	32-60 mm	32-60 mm	32-60 mm
Wind load up to 20 m mounting height	525 N	525 N	525 N
Packing unit	1 piece, 115 dm³, 6.0 kg	1 piece, 115 dm³, 6.0 kg	1 piece, 115 dm³, 6.0 kg

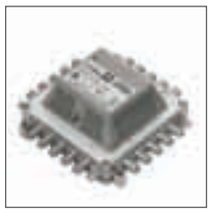
WISI ORBIT Feed systems

	OC 01 OC 01 B	OC 02 OC 02 B	OC 04 OC 04 B	OC 06 OC 06 B
				
Type	**OC 01 OC 01 B Feed system**	**OC 02 OC 02 B Feed system**	**OC 04 OC 04 B Feed system**	**OC 06 OC 06 B Feed system**
No. of user	1	2	4-32	4, incl Multiswitch
Circuit design	SINGLE	TWIN	QUADRO	QUAD-SWITCH
Input frequency	10.7-11.70 GHz 11.7-12.75 GHz	10.7-11.70 GHz 11.7-12.75 GHz	10.7-11.70 GHz 11.7-12.75 GHz	10.7-11.70 GHz 11.7-12.75 GHz
L.O. frequency	9.75/10.6 GHz	9.75/10.6 GHz	9.75/10.6 GHz	9.75/10.6 GHz
Noise factor	0.3 dB	0.3 dB	0.3 dB	0.3 dB
Output frequency	950-2150 MHz	950-2150 MHz	950-2150 MHz	950-2150 MHz
LNB supply voltage V/H	11-14.2/15.5-21 VDC 22 kHz	11-14.2/15.5-21 VDC 22 kHz	11-14.2/15.5-21 VDC 22 kHz	11-14.2/15.5-21 VDC 22 kHz
Current consumption	110 mA	110 mA	110 mA	110 mA
Packing unit	1 piece, 2.3 dm³, 0.38 kg	1 piece, 2.3 dm³, 0.38 kg	1 piece, 2.3 dm³, 0.38 kg	1 piece, 2.3 dm³, 0.38 kg
Shipping package	5 pieces, 14 dm³, 1.5 kg	5 pieces, 14 dm³, 1.5 kg	5 pieces, 14 dm³, 1.5 kg	5 pieces, 14 dm³, 1.5 kg
Color	OC 01 light grey (RAL 7035) OC 01 B grey brown (RAL 8019)	OC 02 light grey (RAL 7035) OC 02 B grey brown (RAL 8019)	OC 04 light grey (RAL 7035) OC 04 B grey brown (RAL 8019)	OC 06 light grey (RAL 7035) OC 06 B grey brown (RAL 8019)

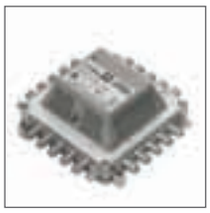
WISI MULTISYSTEM QUICK, stand alone 5 inputs

EMC acc. to CE, Class A

DY 56 A



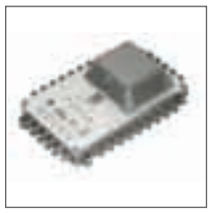
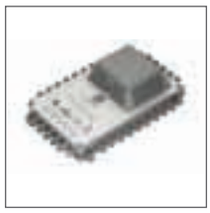
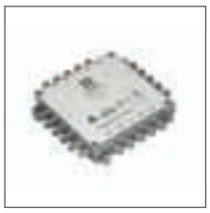
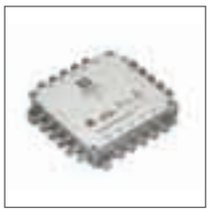
DY 58 A



Type	DY 56 A Multiswitch, Stand Alone	DY 58 A Multiswitch, Stand Alone
Inputs SAT + TERR	4 + 1	4 + 1
Frequency range TERR	5-862 MHz	5-862 MHz
Frequency range SAT	950-2400 MHz	950-2400 MHz
Subscriber outputs	6	8
Frequency range	5-2400 MHz	5-2400 MHz
Side loss TERR/SAT	22/9 dB	22/9 dB
Isolation TERR/SAT Subscriber-Subscriber	>42/>30 dB	>42/>30 dB
Control signal	13/18 V; 22 kHz	13/18 V; 22 kHz
Operating voltage	230 VAC, 50/60 Hz	230 VAC, 50/60 Hz
Power consumption	8.5 W	8,5 W
LNB supply voltage/ current	14VDC/350 mA	14VDC/350 mA
Dimensions	140x140x58 mm	140x140x58 mm
Packing unit	1 piece, 2.16 dm³, 0.74 kg	1 piece, 2.16 dm³, 0.74 kg
Shipping package	5 pieces, 15 dm³, 4 kg	5 pieces, 15 dm³, 4 kg

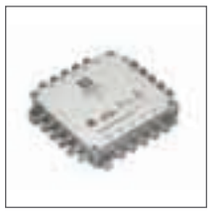
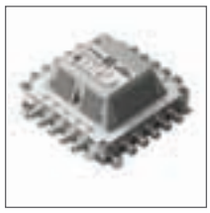
WISI MULTISYSTEM QUICK, cascadable 5 inputs

EMC acc. to CE, Class A

	DY 12	DY 16	DY 44 A	DY 46 A
				
Type	**DY 12 Multiswitch, Stand Alone & cascadable**	**DY 16 Multiswitch, Stand Alone & cascadable**	**DY 44 A Multiswitch, cascadable**	**DY 46 A Multiswitch, cascadable**
Trunk	Trunk	Trunk	Trunk	Trunk
Inputs SAT + TERR	4 + 1	4 + 1	4 + 1	4 + 1
Frequency range TERR	5-862 MHz	5-862 MHz	5-862 MHz	5-862 MHz
Gain TERR	-	-	-	-
Output level TERR, 3rd ord. EN 50083-3	-	-	-	-
Thru loss TERR	8.5 dB	11 dB	5.5 dB	5.5 dB
Frequency range SAT	950-2400 MHz	950-2400 MHz	950-2400 MHz	950-2400 MHz
Gain SAT	12 dB	12 dB	-	-
Output level SAT, 3rd ord. EN 50083-3	103 dBµV 35 dB IMA	103 dBµV 35 dB IMA	-	-
Thru loss SAT	-	-	1.3-3.4 dB	1.3-3.4 dB
Cascadable with	DY44A-48A	DY44A-48A	DY44A-48A/ DY54B-58B/ DY12,16/DY50A	DY44A-48A/ DY54B-58B/ DY12,16/DY50A
Subscriber outputs	12	16	4	6
Frequency range	5-2400 MHz	5-2400 MHz	5-2400 MHz	5-2400 MHz
Side loss TERR/SAT	22/0 dB	22/0 dB	22/21-16 dB (5 dB slope)	22/21-16 dB (5 dB slope)
Isolation Subsc.-Subsc. TERR/SAT	>42/>30 dB	>42/>30 dB	>42/>30 dB	>42/>30 dB
Control signal	13/18 V, 22 kHz	13/18 V, 22 kHz	13/18 V, 22 kHz	13/18 V, 22 kHz
Operating voltage	230 VAC,50/60 Hz	230 VAC,50/60 Hz	-	-
Power / current consumption	9.5 W/150 mA	9,5 W/150 mA	-	-
LNB supply voltage	14 VDC/350 mA	14 VDC /350 mA	-	-
Dimensions	210x140x55 mm	210x140x55 mm	140x140x27 mm	140x140x27 mm
Packing unit	1 piece, 2.3 dm³, 1.13 kg	1 piece, 2.3 dm³, 1.13 kg	1 piece, 2.16 dm³, 0.74 kg	1 piece, 2.16 dm³, 0.74 kg
Shipping package	5 pieces, 14.5 dm³, 6.05 kg	5 pieces, 14.5 dm³, 6.05 kg	5 pieces, 15 dm³, 4.0 kg	5 pieces, 15 dm³, 4.0 kg

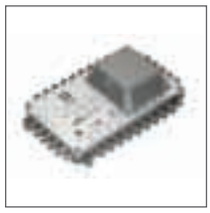
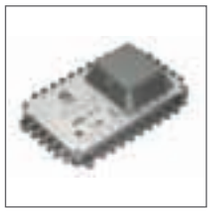
WISI MULTISYSTEM QUICK, cascadable 5 inputs

EMC acc. to CE, Class A

Type	DY 48 A Multiswitch, cascadable	DY 54 B Multiswitch, Stand Alone & cascadable	DY 56 B Multiswitch, Stand Alone & cascadable	DY 58 B Multiswitch, Stand Alone & cascadable
				
Trunk	Trunk	Trunk	Trunk	Trunk
Inputs SAT + TERR	4 + 1	4 + 1	4 + 1	4 + 1
Frequency range TERR	5-862 MHz	5-862 MHz	5-862 MHz	5-862 MHz
Gain TERR	-	14 dB	14 dB	14 dB
Output level TERR, 3rd ord. EN 50083-3	-	105 dBµV 60 dB IMA	105 dBµV 60 dB IMA	105 dBµV 60 dB IMA
Thru loss TERR	5.5 dB	-	-	-
Frequency range SAT	950-2400 MHz	950-2400 MHz	950-2400 MHz	950-2400 MHz
Gain SAT	-	15 dB	15 dB	15 dB
Output level SAT, 3rd ord. EN 50083-3	-	105 dBµV 35 dB IMA	105 dBµV 35 dB IMA	105 dBµV 35 dB IMA
Thru loss SAT	1.3-3.4 dB	-	-	-
Cascadable with	DY44A-48A/ DY54B-58B/ DY12,16/DY50A	DY44A-48A	DY44A-48A	DY44A-48A
Subscriber outputs	8	4	6	8
Frequency range	5-2400 MHz	5-2400 MHz	5-2400 MHz	5-2400 MHz
Side loss TERR/SAT	22/21-16 dB (5 dB slope)	2/0 dB	2/0 dB	2/0 dB
Isolation Subsc.-Subsc. TERR/SAT	>42/>30 dB	>42/>30 dB	>42/>30 dB	>42/>30 dB
Control signal	13/18 V, 22 kHz	13/18 V, 22 kHz	13/18 V, 22 kHz	13/18 V, 22 kHz
Operating voltage	-	230 VAC,50/60 Hz	230 VAC,50/60 Hz	230 VAC,50/60 Hz
Power / current consumption	-	9,5 W/210 mA	9.5 W/210 mA	9.5 W/210 mA
LNB supply voltage	-	14 VDC / 290 mA	14 VDC/290 mA	14 VDC/290 mA
Dimensions	140x140x27 mm	140x140x58 mm	140x140x58 mm	140x140x58 mm
Packing unit	1 piece, 2.16 dm³, 0.74 kg	1 piece, 2.16 dm³, 0.74 kg	1 piece, 2.16 dm³, 0.74 kg	1 piece, 2.16 dm³, 0.74 kg
Shipping package	5 pieces, 15 dm³, 4.0 kg	5 pieces, 15 dm³, 4.0 kg	5 pieces, 15 dm³, 4.0 kg	5 pieces, 15 dm³, 4.0 kg

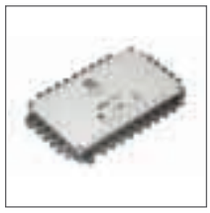
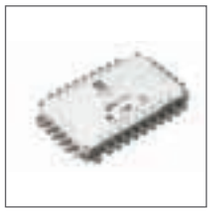
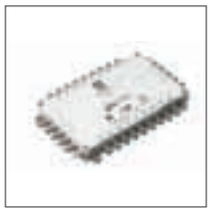
WISI MULTISYSTEM QUICK, cascadable 9 inputs

* Switches can be addressed with 14/18 V, 22 kHz
  but only 4 inputs can be controlled
EMC acc. to CE, Class A

	DY 04	DY 06	DY 08
			
Type	**DY 04 Multiswitch, Stand Alone & cascadable**	**DY 06 Multiswitch, Stand Alone & cascadable**	**DY 08 Multiswitch, Stand Alone & cascadable**
Trunk	Trunk	Trunk	Trunk
Inputs SAT + TERR	8 + 1	8 + 1	8 + 1
Frequency range TERR	5-862 MHz	5-862 MHz	5-862 MHz
Gain TERR	-	-	-
Output level TERR 3rd ord. EN 50083-3	-	-	-
Thru loss TERR:	6 dB	6 dB	6 dB
Frequency range SAT	950-2400 MHz	950-2400 MHz	950-2400 MHz
Gain SAT	15 dB	15 dB	15 dB
Output level SAT 3rd ord. EN 50083-3	111 dBµV 35 dB IMA	111 dBµV 35 dB IMA	111 dBµV 35 dB IMA
Thru loss SAT	-	-	-
Cascadable with	DY94A-98A	DY94A-98A	DY94A-98A
Subscriber outputs	4	6	8
Frequency range	5-2400 MHz	5-2400 MHz	5-2400 MHz
Side loss TERR/SAT	22/0 dB	22/0 dB	22/0 dB
Isolation Subsc.-Subsc. TERR/SAT	>42/>30 dB	>42/30 dB	>42/>30 dB
Control signal	DiSEqC 2.0 *	DiSEqC 2.0 *	DiSEqC 2.0 *
Operating voltage	230 VAC,50/60 Hz	230 VAC,50/60 Hz	230 VAC,50/60 Hz
Power / current consumption	17.5 W/300 mA	17.5 W/300 mA	17.5 W/300 mA
LNB supply voltage	14 VDC/700 mA	14 VDC/700 mA	14 VDC/700 mA
Dimensions	210x140x55 mm	210x140x55 mm	210x140x55 mm
Packing unit	1 piece, 2.3 dm³, 1.13 kg	1 piece, 2.3 dm³, 1.13 kg	1 piece, 2.3 dm³, 1.13 kg
Shipping package	5 pieces, 14.5 dm³, 6.05 kg	5 pieces, 14.5 dm³, 6.05 kg	5 pieces, 14.5 dm³, 6.05 kg

WISI MULTISYSTEM QUICK, cascadable 9 inputs

* Switches can be addressed with 14/18 V, 22 kHz
  but only 4 inputs can be controlled
EMC acc. to CE, Class A

	DY 94 A	DY 96 A	DY 98 A
			
Type	**DY 94 A Multiswitch, cascadable**	**DY 96 A Multiswitch, cascadable**	**DY 98 A Multiswitch, cascadable**
Trunk	Trunk	Trunk	Trunk
Inputs SAT + TERR	8 + 1	8 + 1	8 + 1
Frequency range TERR	5-862 MHz	5-862 MHz	5-862 MHz
Gain TERR	-	-	-
Output level TERR 3rd ord. EN 50083-3	-	-	-
Thru loss TERR:	5.5 dB	5.5 dB	5.5 dB
Frequency range SAT	950-2400 MHz	950-2400 MHz	950-2400 MHz
Gain SAT	-	-	-
Output level SAT 3rd ord. EN 50083-3	-	-	-
Thru loss SAT	1.3-3.4 dB	1.3-3.4 dB	1.3-3.4 dB
Cascadable with	DY94A-98A/ DY04-08/ DY90	DY94A-98A/ DY04-08/ DY90	DY94A-98A/ DY04-08/ DY90
Subscriber outputs	4	6	8
Frequency range	5-2400 MHz	5-2400 MHz	5-2400 MHz
Side loss TERR/SAT	21/21-16 dB (5 dB slope)	21/21-16 dB (5 dB slope)	21/21-16 dB (5 dB slope)
Isolation Subsc.-Subsc. TERR/SAT	>42/>30 dB	>42/>30 dB	>42/>30 dB
Control signal	DiSEqC 2.0 *	DiSEqC 2.0 *	DiSEqC 2.0 *
Operating voltage	-	-	-
Power / current consumption	-	-	-
LNB supply voltage	-	-	-
Dimensions	210x140x27 mm	210x140x27 mm	210x140x27 mm
Packing unit	1 piece, 1.13 dm³, 0.72 kg	1 piece, 1.13 dm³, 0.72 kg	1 piece, 1.13 dm³, 0.72 kg
Shipping package	5 pieces, 6.05 dm³, 3.9 kg	5 pieces, 6.05 dm³, 3.9 kg	5 pieces, 6.05 dm³, 3.9 kg

WISI MULTISYSTEM QUICK, cascadeable, 17 Inputs

Connection of up to four Offset antennas with QUADRO LNB
16 SAT-IF and 1 TERR. Input
Broadband return path
Connectors: F-type
Accessories DV 24/25, DV 49

DY 25

DY 26

Type	DY 25 Multiswitch, Stand Alone & Cascade	DY 26 Multiswitch, cascadable
Trunk	Trunk	Trunk
Inputs SAT + TERR	16 + 1	16+1
Frequency range TERR	5-862 MHz	5-862 MHz
Gain TERR Output level TERR,	-/ -	-/ -
Thru loss TERR	4-5.5 dB	4-5.5 dB
Frequency range SAT	950-2400 MHz	950-2400 MHz
Input level adjustment SAT	0-12 dB	-
Gain SAT	15 dB	-
Output level SAT 3rd ord. EN 50083-3	105 dBµV 35 dB IMA	-
Thru loss SAT	-	1.2-3.5 dB
Cascadeable with	DY 26	DY 25, 26
Subscriber outputs	8	8
Frequency range	5-2400 MHz	5-2400 MHz
Side loss TERR/SAT	22/0 dB	22/21-16 dB (5 dB slope)
Isolation Subsc.-Subsc. TERR/SAT	>42/>30 dB	>42/>30 dB
Control signal	DiSEqC 2.0	DiSEqC 2.0
Operating voltage	230 VAC,50/60 Hz	-
Power / current consumption	21 W / 250 mA	-
LNB supply voltage	14 VDC / 1.2 A	-
Dimensions	359x140x58 mm	330x140x28 mm
Packing unit	1 piece, 2.9 dm3 1.8 kg	1 piece, 1.3 dm3 1.4 kg
Shipping package	-	-

DV 24

F-Terminating resistor

Packing unit	10 pcs. / bag	0,2 dm³	0,03 kg

DV 25

F-Terminating resistor

with DC-Isolation

Packing unit	10 pieces, in bag	0.25 dm³	0.05 kg

DV 49 A

F-connector F-Fix/F-Quick

Packing unit	10 pieces, in bag	0.25 dm³	0.10 kg

DY 20

DiSEqC-switch

Selection of two SAT IF layers

Packing unit	1 piece, bag
Shipping package	100 pieces, 13,44 dm³, 7.5 kg

DY 50 A

SAT amplifier

- 4 SAT inputs and outputs + 1 TERR. input and output
- Input: 0-15 dB attenuator at SAT / TERR
- Return path: 0-10 dB attenuator
- High screening, Class A
- Stand-by function
- Return path and IRS (Integrated Reception System)

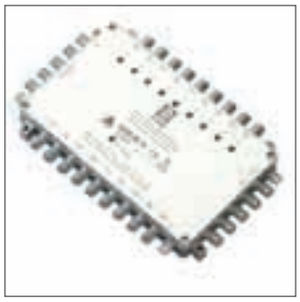
Specifications		
Frequency range	TERR	85-862 MHz
Gain	TERR	15-22 dB
Output level 3rd order EN 50083-3	TERR	115 dBµV
Attenuator	TERR	0-15 dB
Frequency range return path	TERR	5-65 MHz
Gain	TERR	8-9 dB
Attenuator	TERR	0-10 dB
Frequency range	SAT	950-2400 MHz
Gain	SAT	16-23 dB
Output level 3rd order EN 50083-3	SAT	115 dBµV
Noise	SAT	11-4 dB
Attenuator	SAT	0-15 dB
Isolation trunk	SAT	27 dB min./38 dB typ.
Power supply		external or via trunk
Current consumption 13/14 VDC		370 mA
Housing, cover		Zinc die-cast
Dimensions incl. F-conn.		140x140x27 mm
Packing unit	1 piece	1 dm³
Shipping package	10 pieces	10 dm³, 6 kg
EMC		CE, Class A
Accessory		Plug-in power supply unit DY 55

DY 55

High Power-Plug-in power supply unit

Mains voltage	230 VAC, 50/60 Hz	
Output voltage	13 VDC	
Output corrent	1.6 A	short-circuit protected
Packing unit	1 piece, 1.5 dm³, 0.35 kg	

DY 90



SAT amplifier

- 8 SAT inputs and outputs + 1 TERR. input and output
- Input: 0-15 dB attenuator at SAT / TERR
- Return path: 0-10 dB attenuator
- High screening, Class A
- Stand-by function
- Return path and IRS (Integrated Reception System)

Specifications

Frequency range	TERR		85-862 MHz
Gain	TERR		16-22 dB
Output level	TERR		115 dBµV
Attenuator	TERR		0-15 dB
Frequency range	TERR		5-65 MHz
Gain	TERR		8-9 dB
Attenuator	TERR		0-10 dB
Frequency range	SAT		950-2400 MHz
Gain	SAT		16-24 dB
Output level	SAT		115 dBµV
Noise	SAT		12-5 dB
Attenuator	SAT		0-15 dB
Isolation trunk	SAT		27 dB min., 38 dB typ.
Power Supply			external or via trunk
Current consumption 13/14 VDC			520 mA
Housing, cover			Zinc die-cast
Dimensions incl. F-conn.			210x140x27 mm
Packing unit		1 piece	1 dm³
Shipping package		10 pieces	10 dm³, 10 kg
EMC			CE, Class A
Accessory			Plug-in power supply unit DY 55

Notes

Notes

Receiver

- Receiver DVB-S
- Receiver DVB-T
- Accessories SAT-Receivers

OR 20

DVB-S receiver

- Slim Line Receiver
- 4000 channel memory capacity
- Display
- Electronic Program guide (EPG)
- Video text (loop through TV)
- 2 SCART
- Video, Audio L/R, AC3, RCA sockets
- 16:9 signalling
- Timer
- Multilingual Onscreen Menü
- DiSEqC 1.0, 1.2

Input		
Frequency range		950-2150 MHz
Socket		1 x F / 75 ohm
Video		
Decoding		MPEG II
Video standard		PAL
Video format		4:3; 16:9 (Letterbox)
Resolution	720x480 (NTSC)	720x576 (PAL)
Output level		1Vpp/75 Ohm
Output connectors	2 RCA Cinch	Stereo, L+R
	1 RCA Cinch	Digital Audio AC3/SPDIF
Power supply		
Operating voltage		230 VAC ± 10%, 50/60 Hz
Power consumption		max. 30 W, Standby ca. 6 W
General data		
Data socket		RS 232, 115 200 Kbps
Operating temperature		+5°C...+40°C
Dimensions		252 x 52 x 140 mm
Shipping package		25 pieces/130 dm^3/30 kg
Further details		Volume adjustment
		Software update
		Autom. channel search

OR 40

DVB-S-FTA-Receiver

- 4000 selectable stations for TV and Radio
- Alphanumeric display
- User friendly on-screen-menu
- Electronic Program Guide (EPG) with multi day preview
- Favorite program list for TV and Radio
- Pre-programmed for ASTRA, EUTELSAT and TURKSAT
- Digital audio output
- DiSEqC 1.0 & 1.2, USALS
- ECHO, automatic program list update
- Power switch

Input	Frequenzy range	950 - 2150 MHz
	Input level range	- 65 dBm to -25 dBm
	Remote feed voltage	14/18 V, max. 400 mA
	Control signal	22 kHz
	DiSEqC	1.0 and 1.2, USALS
	Input symbolrate	2 MS/s - 45 MS/s
Video	Decoding	MPEG II, Main profile @ Main level
	Resolution	720x480 (NTSC) / 720x576 (PAL)
	Video format	4:3, 16:9
Audio	Typ	Mono, 2-ch. Mono, Stereo
	Bitrate	32 / 44.1 / 48 kHz
Connectors	Tuner input	F-type socket
	Loop Through	F-type socket
	TV SCART	RGB, CVBS, Audio
	VCR SCART	CVBS, Audio
	S-VHS	Y/C, Hosiden
	Digital Audio S/PDIF	1x RCA Cinch coaxial
	Video	1x RCA Cinch
	Audio	2x RCA Cinch
	Data socket	D-sub, 9-polig, max. 115 kbps
Power supply	Operating voltage	100-240 V AC, 50/60 Hz
	Power consumption	max. 15 W
General Data	Dimensions (WxDxH)	285 x 210 x 54 mm
	Weight	1.5 kg
	Operating temperature	+5°C...+35°C

OR 41

DVB-S-CI-Receiver

- 4000 selectable stations for TV and Radio
- 2 Common Interface slots
- Alphanumeric display
- User friendly on-screen-menu
- Electronic Program Guide (EPG) with multi day preview
- Favorite program list for TV and Radio
- Pre-programmed for ASTRA, EUTELSAT and TURKSAT
- Digital audio output
- DiSEqC 1.0 & 1.2, USALS
- ECHO, automatic program list update
- Power switch

Input	Frequency range	950 - 2150 MHz
	Input level range	- 65 dBm to -25 dBm
	Remote feed voltage	14/18 V, max. 400 mA
	Control signal	22 kHz
	DiSEqC	1.0 and 1.2, USALS
	Symbolrate	2 MS/s - 45 MS/s
Video	Decoding	MPEG II, Main profile @ Main level
	Resolution	720x480 (NTSC) / 720x576 (PAL)
	Video format	4:3, 16:9
	Typ	Mono, 2-ch. Mono, Stereo
	Bitrate	32 / 44,1 / 48 kHz
Connectors	Tuner input	F-type socket
	Loop Through	F-type socket
	TV SCART	RGB, CVBS, Audio
	VCR SCART	CVBS, Audio
	S-VHS	Y/C, Hosiden
	Digital Audio S/PDIF	1x RCA Cinch coaxial
	Video	1x RCA Cinch
	Audio	2x RCA Cinch
	Data socket	D-sub, 9-polig, max. 115 kbps
Power supply	Operating voltage	100-240 V AC, 50/60 Hz
	Power consumption	max. 15 W
General data	Dimensions (WxDxH)	285 x 210 x 54 mm
	Weight	1.5 kg
	Operating temperature	+5°C...+35°C

OR 43

DVB-S-CI-Receiver Cryptoworks

- 4000 selectable stations for TV and Radio
- 2 Common Interface slots
- Integrated Cryptoworks card reader
- Alphanumeric display
- User friendly on-screen-menu
- Electronic Program Guide (EPG) with multi day preview
- Favorite program list for TV and Radio
- Pre-programmed for ASTRA, EUTELSAT and TURKSAT
- Digital audio output
- DiSEqC 1.0 & 1.2, USALS
- ECHO, automatic program list update
- Power switch

Input	Frequency range	950 - 2150 MHz
	Input level range	- 65 dBm to -25 dBm
	Remote feed voltage	14/18 V, max. 400 mA
	Control signal	22 kHz
	DiSEqC	1.0 and 1.2, USALS
	Sybolrate	2 MS/s - 45 MS/s
Video	Decoding	MPEG II, Main profile @ Main level
	Resolution	720x480 (NTSC) / 720x576 (PAL)
	Video format	4:3, 16:9
Audio	Typ	Mono, 2ch. Mono, Stereo
	Bitrate	32 / 44,1 / 48 kHz
Connectiors	Tuner input	F-type socket
	Loop Through	F-type socket
	TV SCART	RGB, CVBS, Audio
	VCR SCART	CVBS, Audio
	S-VHS	Y/C, Hosiden
	Digital Audio S/PDIF	1x RCA Cinch coaxial
	Video	1x RCA Cinch
	Audio	2x RCA Cinch
	Data socket	D-sub, 9-polig, max. 115 kbps
Power supply	Operating voltage	100-240 V AC, 50/60 Hz
	Power consuption	max. 15 W
General data	Dimensions (WxDxH)	285 x 210 x 54 mm
	Weight	1.5 kg
	Operating temperature	+5°C...+35°C

OR 80

DVB-S TWIN receiver with hard disk

- 4000 selectable stations for TV/Radio
- 120GB hard disk for 84 hours of recording
- Double Sat IF tuner with loop through connectors
- Time shift function
- User friendly on-screen-menu
- EPG with multi day preview
- List of favourite TV and radio programs
- DOLBY DIGITAL AC3 output

Color		Silver
Antenna inputs		2
Channel memories TV/Radio		4000
Common Interface		2 slots
SCART/RCA-connectors		2
On-screen-Menus		color
Timer		Programme / days
RF-section	Input	75 Ω / F-socket
	Input frequency	920-2150 MHz
Video-section	Outputs	SCART
Audio-section	Outputs	SCART / RCA
	Decoding	MPEG I, Layer 2
	Bit rate	max. 384 kbps
	Digital	SPDIF
	RF-connections	IEC-socket / plug
Video	Decoding	MPEG II
	Output	PAL / NTSC
	SCART	RGB / FBAS
Serial data	Connection / Signal	9 pin D-sub / RS 232 115 200 kbps
Power supply	Operating voltage	230 VAC / 50 Hz
	Power consumption Operation	30 W
	Power consumption Standby	5 W
	LNC-supply max.	500 mA
Miscellaneous	Operating temperature	0°C...+40°C
	Dimensions W x D x H	300x210x60 mm
	Weight	2.9 kg
	Shipping package	5 pieces 90 dm³ 20 kg

OR 21

DVB-T receiver

- 4000 channel memory capacity
- 4 digit LED
- Electronic Program guide (EPG)
- Video text
- 2 Scart, RCA cinch video, - audio L/R, - AC3
- RS 232 interface for Software and channel list update
- TV format 4:3, 16:9, Letterbox
- Timer function (10x Timer, 1x Sleep Timer)
- Multi lingual ON-SCREEN menue
- Display for strenght and quality of signal
- Channel lists editor

Input		
Frequency range		174-230 MHz; 470-862 MHz
Connector		2xIEC (Male, Female)
Antenna power supply		+5V/30 mA max; switch off
Impedance		75 Ohm
Input level		20-80 dBµV
Demodulation		OFDM
Bandwidth		7/8 MHz
Video		
Decoding		MPEG II
Video standard		PAL
Video format		4:3; 16:9 (Letterbox)
Resolution	720x480 (NTSC)	720x576 (PAL)
Output level		1 Vpp/75 Ohm
Output connector		TV SCART: CVBS. RGB, Y/C,YUV, Audio L+R
		VCR SCART: CVBS. Audio L+R
Audio		
Decoding		MPEG I, Layer 2
Sample rate		32; 44.1; 48 kHz
Output connectors	2 RCA Cinch	Stereo, L+R
	1 RCA Cinch	Digital Audio AC3/SPDIF
Power supply		
Operating voltage		230 VAC ±10%, 50/60 Hz
Power consumption		max. 30 W, Standby ca. 2 W
General data		
Data socket		RS 232, 115 200 kBps, 9 pin D-Sub
Operating temperature		+5°C...+40°C
Dimensions		252x52x140 mm
Shipping package		25 pieces/130 dm³/30 kg

Receiver DVB-T

OR 49

DVB-T-Receiver

- 500 selectable stations for TV and Radio
- Alphanumeric display
- User friendly on-screen-menu
- Electronic Program Guide (EPG) with multi day preview
- Favorite program list for TV and Radio
- Pre-programmed for ASTRA, EUTELSAT and TURKSAT
- Digital audio output
- Power switch

Input	Frequency range	47 - 867 MHz
	Input level range	-65 dBm to -35 dBm
	Input frequency	VHF 178 - 228 MHz UHF 474 - 858 MHz
	Bandwidth	6/7/8 MHz type
Video	Decoding	MPEG II, Main profile @ Main level
	Transmisson	up to 15 Mbit/s
	Resolution	720x480 (NTSC) / 720x576 (PAL)
	Video format	4:3, 16:9
Audio	Typ	Mono, 2ch. Mono, Stereo
	Bitrate	32 / 44,1 / 48 kHz
Power supply	Operating temperature	100-240 V AC, 50/60 Hz
	Power consumption	max. 15 W
General data	Dimensions (WxDxH)	285 x 210 x 54 mm
	Weight	1.6 kg
	Operating temperature	+5°C...+35°C

Accessories SAT-Receivers

OB 01

Universal IR-SAT Remote control

Distance range	<7 m	
Key pad area	40 Function keys	
Batteries	4x 1.5 VDC	Typ: LR03-AAA
Receiver	OR 30, OR 28, OR 31, OR 46	
	OR 48, OR 49, OR 52, OR 54	
	OR 54 D, OR 55, OR 56, OR 57	
	OR 58, OR 60	
Packing unit	1 piece, 0.34 dm³, 0.11 kg	

OB 02

Universal IR-SAT Remote control

Distance range	<7 m
Key pad area	40 Function keys
Batteries	4x 1.5 VDC Typ: LR 03-AAA
Receiver	OR 12 A/B, OR 46, OR 49, OR 60
	OR 61, OR 72, OR 81, OR 91
	OR 95
Packing unit	1 piece, 0.34 dm³, 0.11 kg

Notes

Notes

Channel processing

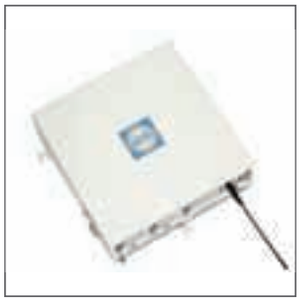
OM 03

MINI HEADEND, SAT analogue

- Reception of six analogue SAT IF signals
- Channel processing to six analogue TV channels
- LNB power supply 14/18 VDC 22 kHz, 600 mA
- Set up via handset OK41 / OK 41A

SAT input		
Frequency range		950-2150 MHz
Input level		43-78 dBµV
Video		
Polarity		pos/neg
Video deemphasis		PAL/SECAM (625 lines)
Audio		
IF range		5.5-9.0 MHz
Deemphasis	Mono adaptive / 50 µs / 75 µs / J17 / Stereo sum signal	
Level	1 dB step size	-12 dB ... +12 dB
Output		
Output frequency		470-862 MHz
Output level	6 ch / 60 dB IMR	90-100 dBµV
TV standards		B/G, D/K, I, L, M
Test pattern generator		black/white
General data		
RF inputs and outputs		F-type
Power supply		230 VAC, 50/60 Hz ±10 %
Power consumption		≤15 W / 27 W with LNB
Operating temperature		0°C ... +55°C
Dimensions (W x H x D)		320x300x102 mm
Weight		3.4 kg
Decoder interface		D-SUB socket
EMC		CE, Class A

OM 01



Basic unit digital

- Compact housing with power supply and RF booster amplifier
- Integrated backplane with all necessary connectors
- Capacity for up to 6 digital channel processor modules
- LNB power switchable via system menu
- Easy to program with external handset OK 41 / OK 41A
- Standard RS 232 interface for software upgrade

* NTSC / SECAM on request

Number of SAT-IF inputs			6
Output frequency range			470-862 MHz
Gain			24 dB
Output level	(6 ch. / 60 dB IMR)		90-100 dBµV
General data			
Power supply			230VAC, 50/60 Hz
LNB power max.			14 VDC / 600 mA
Power consumption			< 55 W
Operating temperature			0°C...+55°C
Storage temperature			-25°C...+75°C
Dimensions			320x300x102mm
Connectors			
RF in and outputs			F-type
Handset OK 41 / OK 41A			RJ 10
Upgrade / Remote control			Dsub 9 (male)
Packing unit		1 piece	16 dm³, 3.9 kg
EMC			CE, Class A
Modules	Channel processors Modulators are available	Bloc converter	
OM 10	Stereo AV modulator		
OM 11	DVB-T to TS (FE)		
OM 13	-	UHF to VHF	
OM 14	TS to PAL* (FTA)		
OM 15	TS to PAL* (CI)		
OM 16	DVB-S to PAL* (FE), (FTA)		
OM 17	DVB-S to PAL* (CI)		
OM 18A stereo	DVB-T to PAL/SECAM (FTA)		
Legend			
TS = Transport Stream			
FE = Front End			
FTA = Free To Air			
CI = Common Interface			

OM 16

DVB-S to channel processing module FTA

- Channel processing of DVB-S signals "Free to Air" into an analog UHF-TV channel
- Transport stream output to connect Transport stream channel processing modules

SAT input		
Frequency range		950-2150 MHz
Tuning steps		1 MHz
Input level		47-70 dBµV
Modulation type		QPSK
Symbol rate		1-45 MS/s
Filtering/Roll-off		Nyquist √ cos/35 %
FEC inner code		1/2, 2/3, 3/4, 5/6, 7/8
Spectral inversion		C/KU band
Interleaving		Conv., I=12
FEC outer code		RS (204; 188,8)
Transport stream Interface		
Transport stream output		Parallel
Video		
Video decoder		ISO 13818-2 MPEG2 (MP@ML) 1.5 -15 Mbit/s
Format		4:3 / 16:9
Audio		
Audio decoder		ISO 13818-3 MPEG 2 (L1/2)
Audio language		ISO 639
Audio format		mono/stereo sum, auto, manual
Output		
Output frequency		470-862 MHz
Tuning steps		250 kHz
Modulation		Double sideband
Output level		80 dBµV
TV standard		B/G, D/K, I, L, M PAL NTSC SECAM on request!
Test pattern generator		b/w and color
Connectors	RF input/output Transport stream Power supply	F-type LIF flexible foil PCB connector
Power consumption		< 4 W
Operating temperature		0°C...+55°C
Storage temperature		-25°C...+75°C
EMC		CE, Class A

OM 17

DVB-S to channel processing module CI

- Channel processing of encrypted DVB-S signals into an analog UHF TV channel
- Transport stream output to connect Transport stream channel processing modules with Common Interface (CI)

SAT input		
Frequency range		950-2150 MHz
Tuning steps		1 MHz
Input level		47-70 dBµV
Modulation type		QPSK
Symbol rate		1-45 MS/s
Filtering/Roll-off		Nyquist √ cos/35%
FEC inner code		1/2, 2/3, 3/4, 5/6, 7/8
Spectral inversion		C/KU-Band
Interleaving		Conv, I=12
FEC outer code		RS (204; 188,8)
Transport stream Interface		
Transport stream output		Parallel
Video		
Video decoder		ISO 13818-2 MPEG-2 (MP@ML) 1.5 - 15 Mbit/s
Format		4:3 / 16:9
Audio		
Audio decoder		ISO 13818-3 MPEG-2 (L1/2)
Audio language		ISO 639
Audio format		mono/stereo (sum) /auto, manual
Output		
Output frequency		470-862 MHz
Tuning steps		250 kHz
Modulation		Double side band
Output level		80 dBµV
TV standard		B/G, D/K, I, L, M PAL NTSC, SECAM on request!
Test pattern generator		s/w and colour
General data		
Connectors	RF input/output Transport stream Power supply Common interface	F-type LIF flexible foil PCB connector PCMCIA
Power consumption		< 4 W
Operating temperature		0°C...+55°C
Storage temperature		-25°C...+75°C
EMC		CE, Class A

OM 11

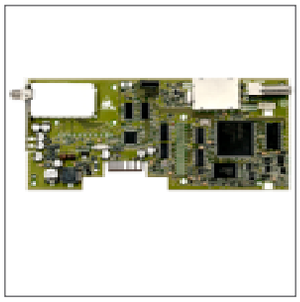
DVB-T to TS channel processing module

- Channel processing of DVB-T signals into a transport stream
- Transport stream output to connect transport stream channel processing modules

Input			
Frequency range			145-862 MHz
Input level			25-90 dBµV
		QAM 64, 7/8	40 dBµV
		QPSK, 1/2	25 dBµV
Channel bandwidth			7 / 8 MHz
Tuning steps			500 kHz
Frequency offset		8 MHz	± 166.67 KHz
		7 MHz	± 125.00 KHz
COFDM spectrum			2k-FFT, 8k-FFT
Modulation type			QPSK, 16-, 64-QAM
Protection intervall			1/4, 1/8, 1/16, 1/32
Error correction			1/2, 2/3, 3/4, 5/6, 7/8
Transport stream interface			
Transport stream output			Parallel
General data			
Power consumption			approx. 2 W
Connectors	Antenna input TS output Power supply		5VDC/60 mA LIF flexible foil PCB connector
Operating temperature			0°C...+55°C
Storage temperature			-25°C...+75°C
RF-connectors			F-type
EMC			CE, Class A

Notes

OM 18 A



DVB-T channel processor stereo

- Reception of a DVB-T signal and channel processing to a TV channel PAL/SECAM
- Hardware capable for teletext insertion, VPS and WSS data
- Transport Stream output
- Stereo, Mono and Dual tone (single audio mode)

DVB-T input			
Frequency range	500kHz steps		145-858 MHz
Frequency offset	8 MHz		+166 kHz, 0 kHz -166 kHz
	7 MHz		+125 kHz, 0 kHz -125 kHz
Bandwidth			7/8 MHz
Input level			40-90 dBµV
COFDM spectrum			2k-FFT / 8k-FFT
Type of modulation	QPSK		16, 64 QAM
Guard intervall			1/32, 1/16, 1/8, 1/4
FEC			1/2, 2/3, 3/4, 5/6, 7/8
Video decoder			ISO 13818-2 MPEG2 (MP@ML)
Video format			4:3 / 16:9
Video norm		* on request!	PAL/SECAM / - * NTSC
Audio decoder			ISO 13818-3 MPEG2 (L1/L2)
Audio format			Mono / Stereo / 2nd. sc
Output			
Frequency range	250kHz steps		470-862 MHz
Output level			80 dBµV
TV standard			B/G, D/K, I, L, M
Spurious emissions	within AM-TV channel		>60 dB
	outside TV channel		>56 dB
S/N video (CCIR-rec.567-1)			typ. 56 dB
S/N audio			typ. 50 dB
General data			
Connectors	RF input-output		F
	Transport stream		LIF flexible foil
	Power supply		PCB connector
Power consumption			< 4 W
Operating temperature			0°C...+55°C
Storage temperature			-25°C...+75°C
Max. humidity, non condensing			95 %
EMC			CE, Class A

OM 14

DVB transport stream channel processing module

- Channel processing of a transport stream into an analog UHF-TV channel
- Transport stream output to connect transport stream channel processing modules

Video		
Video decoder		ISO 13818-2 MPEG 2 (MP@ML) 1.5 - 15 Mbit/s
Format		4:3 / 16:9
Audio		
Audio decoder		ISO 13818-3 MPEG 2 (L 1/2)
Audio format		mono/stereo sum, auto, manual
Output		
Output frequency		470-862 MHz
Tuning steps		250 kHz
Modulation		Double sideband
Output level		80 dBµV
TV standard		B/G, D/K, I, L, M PAL NTSC / SECAM on request!
Test pattern generator		b/w and colour
General data		
Connectors	RF Transport stream Power supply	F-type LIF flexible foil cable PCB connector
Power consumption		< 4 W
Operating temperature		0°C...+55°C
Storage temperature		-25°C...+75°C
EMC		CE, Class A

Notes

OM 15

DVB Transport stream channel processing module with CI

- Channel processing of DVB-S and T signals into an analog UHF TV channel
- Transport stream output to connect Transport stream channel processing modules with common interface CI

Video		
Video decoder		ISO 13818-2 MPEG 2 (MP@ML) 1.5 Mbit/s - 15 Mbit/s>
Format		4:3 / 16:9
Audio		
Audio decoder		ISO 13818-3 MPEG-2 (L1/2)
Audio language		ISO 639
Audio format		mono/stereo (sum) / auto /manual
Output		
Output frequency		470-862 MHz
Tuning steps		250 kHz
Modulation		Double sideband
Output level		80 dBµV
TV standard		B/G, D/K, I, L, M PAL NTSC/SECAM on request!
Test pattern generator		black/white and colour
General data		
Connectors	RF Transport stream Power consumption	F-type LIF flexible foil cable PCB connector
Power consumption		< 4 W
Operating temperature		0°C...+55°C
Storage temperature		-25°C...+75°C
EMC		CE, Class A

MINI HEADEND modules AV

OM 10

TWIN stereo AV modulator

- Modulation of two video- and audio signals into the frequency range of 470-862 MHz

Video		
Video level		1 Vss
Tuning steps	1 dB steps	-6 dB...+6 dB
Video bandwidth		20 Hz - 5 MHz
S/N (CCIR-rec. 567-1)		>52 dB, typ, 54 dB
Audio		
Audio level		500 mVeff
Tuning steps	3 dB steps	-6 dB...+6 dB
Frequency range		40 Hz - 15 kHz
S/N (with color test pattern)		> 45 dB
Output		
Frequency		470-862 MHz
Tuning steps		250 kHz steps
Modulation		Double sideband
Level per channel		78 dBµV
TV standard	*stereo	B/G*, D/K*, M, I, L
Test pattern generator		b /w
General datas		
Connectors	RF output Video Audio	F-type BNC Cinch
Power consumption		< 1 W
Operating temperature		0°C...+55°C
Storage temperature		-25°C...+75°C
EMC		CE, Class A

MINI HEADEND accessories

OM 13

UHF/VHF bloc converter

- UHF/VHF bloc converter for
  OM 01 from serial number: 0529 0111;
  OM 03 from serial number: 0523 0011.
- Input frequency 540-860 MHz
- Output frequency 112-430 MHz

Input frequency range	540-860 MHz
Output frequency range	112-430 MHz
Output level	100 dBµV
TV standard	B/G, D/K, I, L, M
Operating temperature	0°C...+55°C
Storage temperature	-25°C...+75°C

OK 40 A

Basic unit

- Slots for up to 8 modules / 16 channels
- Additional IF inputs for slot 1
- Integrated 4/16 multiswitch
- Intergrated output amplifier
- Modem interface
- Switch mode power supply
- Wall mount or 19“ rack mounting
- Extendable with OK40 and OK40A

Splitter			
Input impedance			75 Ω
Inputs			5x F-type
Frequency range			920-2150 MHz
Input level			70-90 dBµV
Thru loss	SAT-IF-input - output module		21 dB ±2
Return loss	SAT-IF input		10 dB typ.
LNC remote voltage	SAT1 + SAT3		13/18 VDC
LNC remote voltage	SAT2 + SAT4		13 VDC
LNC current			0.6 A
Output amplifier			
Frequency range			45-862 MHz
Impedance			75 Ω
Gain			6-8 dB
Output level	8ch load / 60 dB IMR		103 dBµV
Output level	16ch load / 60 dB IMR		100 dBµV
Return loss	Input		≥16 dB
Return loss	Output		≥16 dB (-1,5 dB/Oct.)
Power supply			
Operating voltage			180-265 VAC
Operating voltage	(via jumper)		90-130 VAC
Max. output current	5.5 VDC 7.45 A	12.5 VDC 7.25 A	18.5 VDC 0.6 A
Mains frequency			47-63 Hz
Dimensions		W x H x D	442x270x265 mm
Packing unit		1 piece	55 dm³, 9.2 kg
Operating temperature			-5°C...+55°C
Storage temperature			-25°C...+75°C
Max. humidity, non condensing			95%
EMC			CE, Class A

OK 34 A

Stereo AV-Modulator

- Modulation of video- and audio signals into the frequency range of 45-862 MHz
- Adjacent channel capable

Input video			
Input impedance			75 Ω
Video level			1 Vss
Tuning steps	1 dB step size		-6 dB...+6 dB
Video bandwidth			20 Hz-5 MHz
S/N (CCIR 405-1)			> 53 dB, typ. 56 dB
Input audio			
Input impedance	(via jumper)		600 Ω / 10 kΩ
Audio level			500 mVeff
Tuning steps	3 dB step size		-6 dB...+6 dB
Frequency range			40 Hz-15 kHz
Audio inputs			2 x L/R cinch
Modulator			
Output frequency range			45-862 MHz
Output level	adjustable via 10 dB attenuator		88-98 dBµV
TV standard		*Stereo	PAL B/G*, D/K*, M/N, I, L
Channel offset A-B	1 MHz step size		6-16 MHz
General data			
Connectors		Video	BNC
		Audio	Cinch
Operating temperature			0°C...+55°C
Storage temperature			-25°C...+75°C
Max. humidity, non condensing			95%
EMC			CE, Class A

Notes

OK 44 A

TWIN Stereo SAT channel processor

- Channel processing of two SAT IF signals into 47-862 MHz
- Output frequency 45-862 MHz, adjacent channel capable
- Decoder socket OK 48 (Accessory)

SAT IF Frequency range	1 MHz step size	920-2150 MHz
SAT IF bandwidth		27 MHz
Input level		47-75 dBµV
Video		
Video polarity	adjustable	pos/neg
Video deviation	adjustable	13,5/16/19/22,5 MHz
Audio		
Frequency range	10 kHz step size	5-9 MHz
Deemphasis	adjustable	10µs, J17
Modes	adjustable	left+right, mono
Modulator		
Vestigial side band		adjacent channel capable
Output frequency range	250 kHz step size	45-862 MHz
Channel offset A/B	1 MHz step size	6-16 MHz
TV standard	*Stereo	PAL B/G*, D/K*, M/N, I, L
Output level	adjustable via 10 dB attenuator	88-98 dBµV
General		
RF inputs and outputs		F-type
Operating temperature		0°C...+55°C
Storage temperatur		-25°C...+75°C
Max. humidity, non condensing		95%
EMC		CE, Class A

Notes

OK 22

FM Amplifier 87.5-108 MHz CCIR

- Feed in of local FM programmes into a CATV system
- 6 seperate traps to attenuate local carriers
- All settings with handset OK 41 / OK 41A

Input impedance		75 Ω
Input/output frequency range		87.5-108 MHz
Noise figure		≤6 dB
Gain	low gain	>20 dB
	high gain	>38 dB
Attenuator range		0-18 dB
Output level (60 dB IMA)		>108 dBµV
General data		
RF connectors		F-type
Power supply		12V / 5V
Power consumption		2 W
Operating temperature		0°C...+55°C
Storage temperature		-25°C...+75°C
Max. humidity, non condensing		95%
EMC		CE, Class A

OK 22 6673

FM Amplifier 66-73 MHz OIRT

- Feed in of local FM programmes into a CATV system
- All settings with handset OK 41 / OK 41A

Input impedance		75 Ω
Input/output frequency range		66-73 MHz
Noise figure		≤6 dB
Gain	low gain	>20 dB
	high gain	>38 dB
Attenuator range		0-18 dB
Output level (60 dB IMA)		>108 dBµV
General data		
RF connectors		F-type
Power supply		12V / 5V
Power consumption		2 W
Operating temperature		0°C...+55°C
Storage temperature		-25°C...+75°C
EMC		CE, Class A

COMPACT HEADEND modules analogue FM

OK 42

Quad FM channel converter

- Conversion of four analog FM channels into any output channel
- AGC to control input level deviation of 50-90 dBµV
- Frequency range 108-110 MHz for unused channel converters

Input frequency range	50 kHz steps size	87.5-108 MHz
Input level		50-90 dBµV
Output frequency range	50 kHz steps size	87.5-110 MHz
Output level adjustable		80-90 dBµV
Frequency response		typ. 5 kHz max. 12 kHz
Harmonic distorsion		typ. 0.4 max. 0.8%
General data		
RF connectors		F-type
Power supply		12V / 5V
Operating temperature		0°C...+55°C
Storage temperature		-25°C...+75°C
Max. humidity, non condensing		95%
EMC		CE, Class A

COMPACT HEADEND modules digital TV

OK 45 A

TWIN TV channel converter

- Conversion and amplification of two analog/digital TV channels
- Adjacent channel capable at input and output
- Output level AGC

Frequency range	250 kHz step analog	500 kHz step digital	47-862 MHz
Input offset digital			± 166 kHz
TV standard			B/G, D/K, I, L
Input level			50-85 dBµV
IF bandwidth	switchable		7 / 8 MHz
Output frequency range	250 kHz step analog	500 kHz step digital	47-862 MHz
Output level		analog digital	103 dBµV 93 dBµV
Output level with AGC		analog digital	97 dBµV 87 dBµV
General data			
Connectors			F-type
Operating temperature			0°C...+55°C
Storage temperature			-25°C...+75°C
Max. humidity, non condensing			95%
EMC			CE, Class A

OK 75

TWIN DVB/QPSK - QAM Transmodulator

- Reception of two QPSK-SAT signals and transmodulation into two digital QAM-TV-channels
- Integrated stuffing
- All settings via handset OK 41 / OK 41A

SAT input		
Frequency range		950-2150 MHz
Level		47-70 dBµV
AFC		±5 MHz
Type of modulation		QPSK
Symbol rate		2-45 MS/s
Filtering/Roll-off		Nyquist √ cos/35 %
FEC inner code		Conv., K = 7, R = 1/2, 2/3, 3/4, 5/6, 7/8
FEC outer code		Reed Solomon (204, 188.8)
Interleaving		Conv., I = 12
Spectral inversion		C- / KU-Band
Output		
Frequency range		45-862 MHz
Offset	1 MHz step size	6-16 MHz
Output level	1dB step size	78-88 dBµV
Output level stability		±1 dB
Return loss		≥14 dB
Type of modulation		4-, 16-, 32-, 64-, 128-, 256-QAM
Symbol rate		3.45-7.0 Mbaud
Stuffing factor		max. 2
Filtering/Roll-off		Nyquist √ cos/15 %
Interleaving		Conv., I = 12
FEC outer code		Reed Solomon (204, 188,8)
General data		
Connectors		F-type
Power supply		12V / 5V
Operating temperature		0°C...+55°C
Storage temperature		-25°C...+75°C
Max. humidity, non condensing		95%
EMC		CE, Class A

OK 75 A

TWIN DVB/QPSK - QAM Transmodulator

- Reception of two QPSK-SAT signals and transmodulation into two digital QAM-TV-channels
- Stuffing with PCR correction
- PID filtering
- Network information table processing (NIT) with CS 75 software and interface cable
- All settings via handset OK 41 / OK 41A

SAT input		
Frequency range		950-2150 MHz
Level		47-70 dBµV
AFC		±5 MHz
Type of modulation		QPSK
Symbol rate		2-45 MS/s
Filtering/Roll-off		Nyquist √ cos/35 %
FEC inner code		Conv., K = 7, R = 1/2, 2/3, 3/4, 5/6, 7/8
FEC outer code		Reed Solomon (204, 188.8)
Interleaving		Conv., I = 12
Output		
Frequency range		45-862 MHz
Offset	1 MHz step size	6-16 MHz
Output level	1dB step size	78-88 dBµV
Output level stability		±1 dB
Return loss		≥14 dB
Type of modulation		4-, 16-, 32-, 64-, 128-, 256-QAM
Symbol rate		3.45-7.0 Mbaud
Stuffing Faktor		max. 2
Filtering/Roll-off		Nyquist √ cos/15 %
Interleaving		Conv., I = 12
FEC outer code		Reed Solomon (204, 188.8)
PID filter		2 x 10
General data		
Connectors		F-type
Power supply		12V / 5V
Operating temperature		0°C...+55°C
Storage temperature		-25°C...+75°C
Max. humidity, non condensing		95%
EMC		CE, Class A

OK 75 H

TWIN Transmodulator HDTV DVB-S2 - DVB-C

- Reception of two DVB-S2-SAT-Signals and transmodulation to two DVB-C-channels
- Stuffing
- Suitable for HDTV

SAT		
Frequency range	1 MHz steps	950-2150 MHz
Level		47-70 dBµV
AFC		± 10 MHz
Type of modulation		QPSK, 8PSK
Symbol rate		10-30 MS/s
Filtering / Roll-Off		Nyquist √ cos 20%, 25%, 35%
FEC inner code		LDPC, R=1/4, 1/3, 2/5, 1/2, 3/5, 2/3, 3/4 4/5, 5/6, 8/9, 9/10
FEC outer code		BCH
Data format		EN 302307
Spectral inversion		C-/ Ku band
Bit rate		56 Mbit
Output		
Frequency range	0,5 MHz steps	45-862 MHz
Offset	1 MHz steps	6-16 MHz
Output level/Stability	1 dB steps	78-88 dBµV /± 1 dB
Return loss		≥14 dB
Type of modulation		16, 32, 64, 128, 256 QAM
Symbol rate		3,45-7 MS/s
Stuffing factor		2
Filtering / Roll-Off		Nyquist √ cos 15%
FEC outer code		RS 204, 188,8
Interleaving		Conv., I=12
General data		
Power consumption		15 W max.
Operating temperature		0°C...+55°C
Storage temperature		-25°C...+75°C
Max. humidity, non condensing		95%
EMC		CE, class A

OK 79 T

DVB-T channel processor

- Reception of a DVB-T signal and processing into an analogue TV channel
- Demultiplexing and decoding of MPEG 2 signals
- Insertion of teletext, VPS, WSS
- Decoder socket
- All settings via OK 41 / OK 41A handset

Input		
Frequency range		49-862 MHz
Tuning steps		500 kHz
Level		24-89 dBµV
	QAM 64 7/8	40 dBµV
	QPSK	24 dBµV
OFDM-Spektum (autom)		2k and 8k
Typ of modulation		QPSK, 16, 64 QAM
Protection intertval		1/32, 1/16, 1/8, 1/4 (autom)
FEC inner code		1/2, 2/3, 3/4, 5/6, 7/8 (autom)
Channel bandwidth		6, 7, 8 MHz
Video decoder	ISO 13818-2	MPEG2 (MP@ML)
Video format		4:3 / 16:9
Video norm	switchable	PAL / SECAM / NTSC-M
Video level		1 Vpp / 75 ohms
Audio decoder	ISO 13818-3	MPEG (L1/L2)
Audio format		Mono / Stereo / 2nd sc
Output		
Frequency range		45-862 MHz
Tuning steps		250 kHz
Level		88-98 dBµV
TV standard		B/G, D/K, I, L, M
General data		
Connectors		F-type
Power supply		12V / 5V
Operating temperature		0°C...+55°C
Storage temperature		-25°C...+75°C
Max. humidity, non condensing		95%
EMC		CE, Class A

OK 86

TWIN DVB-S channel processor, FTA

- Reception of two QPSK satellite signals and processing in two analogue TV channels
- insertion of Teletext-, VPS-, and WSS data
- Insertion of teletext DVB subtitles
- All settings via handset OK 41 / OK 41A

Input		
Frequency range	1 MHz steps	950-2150 MHz
Level		47-70 dBµV
AFC		±5 MHz
Type of modulation		QPSK
Symbol rate	adjustable	1-45 MS/s
Filtering/Roll-Off		Nyquist √ cos / 35 %
FEC inner code		Conv., K = 7 R = 1/2, 2/3 3/4, 5/6, 7/8
Interleaving		Conv., I = 12
Spectral inverting		C- /KU-Band
FEC outer code		RS (204; 188,8)
Video decoder	ISO 13818-2	MPEG2 (MP@ML)
Video format		4:3/ 16:9/ 4:3 Zoom
Video norm	switchable	PAL / SECAM / NTSC-M
Video level		1 Vpp/75 Ohm
Audio decoder	ISO 13818-3	MPEG (MP@ML)
Audio format		Mono / Stereo / 2 Ton
Output		
Frequency range	250 kHz steps	45-862 MHz
Level		88-98 dBµV
Offset	1 MHz steps	6-16 MHz
Spurious emissions	within, out of 45-860 MHz	typ. 60 dB
S/N video	CCIR-rec.567-1	typ. 56 dB
Distorsion factor		typ. 1 %
General data		
Connectors		F
Power supply		12V / 5V
Operating temperature		0°C...+55°C
Storage temperature		-25°C...+75°C
Max. humidity, non condensing		95%
EMC		CE, Class A

OK 87

TWIN DVB-S channel processor, CI

- Reception of two QPSK satellite signals and processing in two analogue TV channels
- Common Interface
- Insertion of Teletext-, VPS-, and WSS datas
- Insertion of teletext DVB subtitles
- All settings via handset OK 41 / OK 41A

Input		
Frequency range	1 MHz steps	950-2150 MHz
Level		47-70 dBµV
AFC		±5 MHz
Type of modulation		QPSK
Symbol rate	adjustable	1-45 MS/s
Filtering/Roll-Off		Nyquist √ cos / 35 %
FEC inner code		Conv., K = 7 R = 1/2, 2/3 3/4, 5/6, 7/8
Interleaving		Conv., I = 12
Spectral inverting		C- /KU-Band
FEC outer code		RS (204; 188,8)
Video decoder	ISO 13818-2	MPEG2 (MP@ML)
Video format		4:3/ 16:9/ 4:3 Zoom
Video norm		PAL/SECAM/NTSC-M
Video level		1 Vpp/75 Ohm
Audio decoder	ISO 13818-3	MPEG (MP@ML)
Audio format		Mono / Stereo / 2nd. sc
Output		
Frequency range	250 kHz steps	45-862 MHz
Level		88-98 dBµV
Offset	1 MHz steps	6-16 MHz
Spurious emissions		typ. 60 dB
S/N video		typ. 56 dB
Distorsion factor		typ. 1 %
Common Interface	EN 50221	DVB conform
General data		
Connectors		F
Power supply		12V / 5V
Operating temperature		0°C...+55°C
Storage temperature		-25°C...+75°C
Max. humidity, non condensing		95%
EMC		CE, Class A

OK 89

TWIN DVB-T - channel processor, FTA

- Reception of a DVB-T signal and channel processing to a TV channel (PAL/SECAM)
- Hardware capable for teletext insertion-, VPS- and WSS data
- Fading in of DVB subtitles
- All settings with handset OK 41A

DVB-T input		
Frequency range	250 kHz steps	49-862 MHz
Frequency offset	8 MHz	+166 kHz, 0 kHz -166 kHz
	7 MHz	+125 kHz, 0 kHz -125 kHz
Bandwidth		7/8 MHz
Input level		25-90 dBµV
COFDM		2k FFT, 8k FFT
Type of modulation		QPSK 16, 64 QAM
Guard intervall		1/4, 1/8, 1/16, 1/32
FEC		1/2, 2/3, 3/4, 5/6, 7/8
FEC outer code		RS (204; 188,8)
Video decoder		ISO 13818-2 (MP@ML)
Video format		4:3/ 16:9/ 4:3 Zoom
Video standard		PAL/SECAM NTSC-M
Audio decoder		ISO 13818-3 MPEG (L1/L2)
Audio format		Mono / Stereo / 2nd sc
Output		
Frequency range	250 kHz steps	45-862 MHz
Channel offset A-B	1 MHz steps	6-16 MHz
Level		88-98 dBµV
TV standard		B/G, D/K, I, L, M
Spurious emissions	within AM-TV	> 56 dB
	outside TV	> 56 dB
Group delay		< 80 ns
S/N video (CCIR-rec.567-1)		typ. 56 dB, min. 53 dB
S/N audio		typ. 50 dB, min. 45 dB
General data		
Connectors		F
Operating voltage		12V / 5V
Operating temperature		0°C ...+55°C
Storage temperature		-20°C...+75°C
Max. humidity, non condensing		95 %
EMC		CE, Class A

OK 72

TWIN SAT QPSK to FM converter Free To Air

- Processing of two Sat radio channels into 2 FM radio channels
- Insertion of RDS station name
- Decoder interface
- All settings via OK41 / 41A handset

Sat input		
Input impedance		75 ohms
Input frequency range		950-2150 MHz
IF bandwidth		non (Zero IF)
Input level		47-70 dBµV
AFC		±5 MHz
Type of modulation		QPSK
Symbol rate		2-45 MS/s
Filtering/Roll-off		Nyquist √ cos/35 %
FEC inner code		Conv., K=7, R= 1/2,2/3,3/4,5/6,7/8
FEC outer code		RS (204,188,8)
Interleaving		Conv., I=12
Spectral inversion		C- / Ku-Band
Audio parameters		
Frequency response		±2,0 dB
Non linear distortions 60 Hz-3 kHz		≥43 dB
FM output		
Output frequency range	50 kHz step size	87.5-108 MHz
Output impedance		75 ohms
Output level		90 dBµV
Spurious suppression		>60 dB (compared to TV signals)
Crosstalk attenuation		>40 dB
Distorsion		≤1 %
S/N signal to noise ratio		>56 dB
General data		
Connectors		F-type
Power supply		12V / 5V
Operating temperature		0°C ... +55 °C
Storage temperature		-25°C ... +75°C
Max. humidity, non condensing		95%
EMC		CE, Class A

COMPACT HEADEND accessories

OK 41 A

Handset

with memory, lightning display and LED torch

Packing unit	1 piece, 1.25 dm³
Shipping package	10 pieces, 15 dm³, ca. 1kg

OK 48

Decoder interface module

	Optional for OK 44/ OK 44A
Packing unit	1 piece, 1,25 dm³
Shipping package	10 pieces, 15 dm³, ca. 1 kg

OK 52

WISI COMPACT HEADEND remote Interface

included in the set
- WISI HEADEND COMMANDER software
- Interconnection cable PC--Headend

The WISI OK 52 HEADEND COMMANDER enables operators to configure and survey the WISI COMPACT HEADEND from a remote location. It offers a self-explanatory graphical user interface in English and German language. The system provides great ease of maintenance for operators of networks or stations at any remote location.
OK 52 also opens the door to service contracts with hotels and large housing complexes.

Notes

OV 50 A

TOPLINE HEADEND Basic unit with power supply module

Modular universal system for professional applications to satisfy all requirements of high-quality channel processing - from the CATV headend to the community antenna TV system.
Whether it's satellite or terrestrially broadcast programmes - the WISI TOPLINE HEADEND will feed them into your distribution system - in brilliant quality.

- Basic unit with GaAs-high-output broadband amplifier.
- Modular system concept; up to 10 modules per basic unit.
- Easy configuration and expansion.
- Tunable module features individual microprocessor control, through ISA-technology (Integrated Stand Alone).
- Simple programming of the individual modules.
- High output level.
- Output frequency fully tunable in FM/VHF/UHF range through FFC-technology (Free Frequency Choice).
- TV standards: B/G, D/K, I, L, M, N.
- Adjacent-channel operation through SAW filter and vestigial sideband modulation.
- NMS via Headend controller OV 51S or remote control via remote interface OV 52

Power supply			
Power supply	no-load, short-ciruit and overload-protected		
Operating voltage			230 VAC / 50/60 Hz
Max. output power			124 W
DC operating voltages	5 VDC / 12 A	12 VDC / 7.0 A	13.5 VDC / 1.0 A
LED displays			5 / 12 / 13.5 VDC
Output broadband amplifier			
2 RF inputs, loop-thru input, output, TP -20 dB			F-type
Frequency range			45-862 MHz
Gain			30 dB
Adjustable attenuator			0-10 dB
Output level at 60 dB IMA, 3 rd order			121 dBµV
Output level at 60 dB IMA, 2 nd order			115 dBµV
Test output			-20 dB
Operating output level (10 modules)		45-862 MHz	110 dBµV
6-way splitter, with DC-bypass			built in
Thru loss		2x 9,5 dB	4x 13.2 dB
Isolation			18 dB
General data			
Operating temperature			-5°C...+55°C
Storage temperature			-25°C...+75°C
Max. humidity, non condensing			95%
EMC			CE, Class A
Frame housing, aluminium, painted grey			445x398x208 mm
Weight			9 kg
Packing unit		1 piece	133.5 dm³, 8.5 kg

OV 35 A MONO
OV 36 A STEREO

A/V modulatoren

- Modulation of video and an audio signal for CATV transmission
- Multi-standard operation
- Interface for audio/video via BNC/Cinch
- Test pattern generator
- Prepared for installation of video generator OV 61A
- NMS via Headend controller OV 51S or remote control via remote interface OV 52

Video		
Video bandwidth		20 Hz - 5 MHz
Input level		1Vpp ±0,4
Audio		
Audio bandwidth		40 Hz - 15 kHz
Audio level		+6 dB...-3 dB
Modulator		
Output frequency	0.25 MHz step size	45-862 MHz
Output level	Loop through	75-85 dBµV
	Single	85-95 dBµV
TV standard selectable		B/G, D/K, M/N, I, L
General data		
Option	OV 61 A video generator module	Assembly in the factory only!
Connectors	RF	F female
	A/V input	BNC / Cinch
Operating temperature		0°C ...+55°C
Storage temperature		-25°C...+75°C
Max. humidity, non condensing		95%
EMC		CE, Class A

Notes

OV 45 D

Terrestrial-TV multi-standard channel converter analog / digital

- Conversion of one analog/digital TV channel into the range of 45-862 MHz
- Suitable for DVB-T
- AGC of the input level range 50-90 dBµV analog/ 40-80 dBµV digital
- Output level adjustable in the range of 74-84 dBµV analogue / 64-74 dBµV digital
- High IF selection via two SAW filters, thereby adjacent channel operation at input and output.
- Deactivation of AGC for TV standard L. Manual gain adjustment
- NMS via Headend controller OV 51S or remote interface OV 52

Frequency range input / output DVB-T suitable			45-862 MHz
Tuning steps	PAL B/G, D/K, I, L		0.25 MHz
	DVB-T 7 MHz		0.5 MHz ±125 kHz Offset
	DVB-T 8 MHz / DVB-8S	only input or output	0.5 MHz ±166.6 kHz Offset
	DVB-C 7 MHz		0.5 MHz
	DVB-C 8 MHz / DVB-C8S		0.5 MHz
Input level range	PAL B/G, D/K, I, L		50-90 dBµV
	DVB-T, DVB-C		40-80 dBµV
TV standards	analog		PAL B/G, D/K, I, L
	digital terrestrial		DVB-T 7 MHz, DVB-T 8 MHz
	digital cable		DVB-C 7 MHz, DVB-C 8 MHz
Noise factor			≤9 dB
AGC range			≥40 dB
Spurious signal supression at input			acc. to EN 50083-2
Output level (AGC on)	analog		84 dBµV
	DVB-T, DVB-C		74 dBµV
Multi-standard	PAL B/G, D/K, I, L		
	DVB-C		16 QAM, 64 QAM (7/8 MHz-bandwidth)
	DVB-T		2k, 8k mode, Coderate 2/3 (7/8-MHz band width)
General data			
Option: TV demodulator	OV 62 A OV 62 D		A= B/G D= D/K
Connectors	RF		F-type
	Audio/Video		Sub-D socket
Operating temperature			0°C...+55°C
Storage temperature			-25°C...+75°C
Max. humidity, non condensing			95%
EMC			CE, Class A

OV 55 A MONO
OV 85 A STEREO

SAT-TV channel processing

- Demodulation of a SAT- IF signal
- Modulation in one TV channnel
- Adjacent channel capable vestigial sideband modulator
- Demodulator with noise-suppression system (Wegener compatible)
- Multi-standard operation
- Loop and single output switchable
- Integrated test pattern generator
- Prepared for installation of Video generator OV 61A
- NMS via Headend controller OV 51S or remote control via remote interface OV 52

SAT		
Input frequency		920-2150 MHz
Tuning steps		1 MHz
Input level		45-75 dBµV
IF bandwidth		27 MHz
Video		
Video bandwidth		20 Hz-5.0 MHz
Output level	Decoder socket	1 Vpp/ ±3 dB
Video de-emphasis		625 lines
Audio		
Main sound carrier	tunable	5-9 MHz
Bandwidth	Main sound carrier	110 kHz
	Sound sub carrier	280 kHz
De-emphasis	Main sound carrier	50µ, 75µ, J 17
	Sound sub carrier	adaptive
Audio level		+6 dB...-9 dB
Modulator		
Output frequency		45-862 MHz
Tuning steps		250 kHz
Output level	Loop through	75-85 dBµV
	Single	85-95 dBµV
TV standard	*Stereo/Dual sound; sub carrier (2) with ID (OV 85A only)	B/G*, D/K*, M/N, I, L
General data		
Option	OV 61 A video generator	Assembly in factory only!
Connectors	RF	F-type
Decoder		SUB-D
Operating temperature		-5°C...+55°C
Storage temperature		-25°C...+75°C
Max. humidity, non condensing		95%
EMC		CE, Class A

TOPLINE HEADEND modules analogue radio

OV 82 B

Dual SAT-FM channel processing unit with ADR and RDS

- Conversion of two SAT-IF mono/stereo channels into two VHF-FM mono/stereo channels
- Demodulation of FM- and ADR signals
- Manually operated decoder switching
- Manual input of the station name
- NMS via Headend controller OV 51S or remote interface OV 52

Frequency range SAT, IF	1 MHz step size		950-2150 MHz
Input level			47-70 dBµV
Return loss			≥10 dB
IF bandwidth			27 MHz
AFC range	switchable		± 8 MHz
Audio carrier frequency tunable	10 kHz step size	analog/ADR	5.5-9.0 MHz
Bandwidth			130/280 kHz
De -emphasis sound carrier			50µ, 75µ, J 17
Distorsion			<1,5 %
Output frequency range	50 kHz step size		87.5-108 MHz
Output level	loop		70 dBµV
	single		80 dBµV
RDS Coder			EN 5007 / EBV-SPB490
General data			
Connectors			F-type
Decoder			15-pin SUB-D
Operating temperature			-5°C...+55°C
Storage temperature			-25°C...+75°C
Max. humidity, non condensing			95%
EMC			CE, Class A

TOPLINE HEADEND modules analogue FM

OV 22

FM range amplifier

Frequency range		87-108 MHz
4 adjustable frequency traps	Bandwidth	5 MHz
	Trapping depth	20 dB
Gain adjustable		25 / T 0-18 dB
Output level		87 dBµV
IF input connectors		IEC connectors, 75 Ω
IF output connectors	Loop-through output	F-type
Thru loss		0.5 dB
Operating temperature		-10°C...+55°C
Storage temperature		-25°C...+75°C
Max. humidity, non condensing		95%
EMC		CE, Class A

OV 42 A

FM-converter, 4 x FM - FM

- Conversion of four analogue FM channels into four analogue FM channels
- Input frequency 87.5 MHz...108 MHz
- Output frequency 87.5 MHz...108 MHz
- Looped through output with low attenuation
- NMS via Headend controller OV 51S or remote control via remote interface OV 52

Input frequency		87.5-108 MHz
Input level		50-90 dBµV
AGC range		40 dB
RF input connector		F-type, 75 Ω
RF output connector	Loop-through output	F-type, 75 Ω
Thru loss		0.5 dB
Output frequency		87.5-108 MHz
Output level, adjustable		64-74 dBµV
Display / selection	via software menu, 4 line LCD, 4 keys	
Signal to spurious	47-862 MHz	60 dB
general data		
Operating temperature		0°C ... +55°C
Storage temperature		-25°C...+75°C
Max. humidity, non condensing		95%
EMC		CE, Class A

Notes

OV 75

DVB / QAM - QPSK transmodulator

- Transmodulation of digital DVB/QPSK SAT IF signals
- Processing of symbol rates 2-45 MS/s
- NMS via Headend controller OV 51S or remote control via remote interface OV 52

SAT			
Input frequency			950-2150 MHz
Tuning steps			1 MHz
Input level			47-70 dBµV
Impedance			75 Ω
Type of modulation			QPSK
Symbol rate	adjustable		2-45 MS/s
Filtering			Nyquist √ cos
Internal error protection			Conv., K = 7, R = 1/2, 2/3, 3/4, 5/6, 7/8
Spectrum inversion			C-/Ku-Band
Interleaving			Conv., I = 12
FEC outer code			Reed Solomon (204, 188.8)
Output			
Frequency range			45-862 MHz
Tuning steps			250 kHz
Bandwidth			depending on QAM-symbol rate
Output level	for 16-, 32-, 64-, 128-, 256-QAM		74-84 dBµV
Output impedance			75 ohms
Signal to spurious frequency ratio		45-862 MHz	≥45 dB
Type of modulation			for 16-, 32-, 64-, 128-, 256-QAM
Symbol rate			3.45-7.125 MS/s
Filtering			Nyquist √ cos
Roll off			15 %
Interleaving			Conv., I = 12
FEC outer code			Reed Solomon (204, 188.8)
General data			
Connectors	RF		F-type
Operating temperature			-20°C...+55°C
Storage temperature			-25°C...+75°C
Max. humidity, non condensing			95%
EMC			CE, Class A

OV 75 A

DVB / QPSK-QAM transmodulator with TS handling

- Identical with OV 75
- Stuffing with PCR correction
- PID filtering
- Network information table processing (NIT) with CS 75 software and interface
- NMS via Headend controller OV 51S or remote control via remote interface OV 52

SAT		
Input frequency		950-2150 MHz
Tuning steps		1 MHz
Input level		44-84 dBµV
Type of modulation		QPSK
Symbol rate	adjustable	2-45 MS/s
Internal error protection		Conv., K=7, R=1/, 2/3, 3/4, 5/6, 7/8
Spectrum inversion		C-/Ku-Band
Interleaving		Conv., I=12
FEC outer code		Reed Solomon (204, 188.8)
Output		
Frequence range		45-862 MHz
Symbol rate	version up to 7.5 MS/s on request	3.45-7.125 MS/s
Type of modulation		16-, 32-, 64-, 128-, 256-QAM
Output level for	loop	64-74 dBµV
	single output	74-84 dBµV
Stuffing		on / off
NIT processing		with CS 75 software and interface cable (Accessories)
PID filter		10
General data		
Connectors	RF	F-type
Operating temperature		-20°C...+55°C
Storage temperature		-25°C...+75°C
Max. humidity, non condensing		95%
EMC		CE, Class A

OV 75 C

DVB/QPSK-QAM transmodulator with ASI interface

- Identical with OV 75
- Additional ASI interface
- NMS via Headend controller OV 51S or remote control via remote interface OV 52

SAT		
Input frequency		950-2150 MHz
Tuning steps		1 MHz
Input level		44-84 dBµV
Type of modulation		QPSK
Symbol rate	adjustable	2-45 MS/s
Internal error protection		Conv.,K=7,R=1/2 2/3, 3/4, 5/6, 7/8
Spectrum inversion		C-/Ku-Band
Interleaving		Conv., I=12
FEC outer code		Reed Solomon (204, 188.8)
Output		
Frequency range		45-862 MHz
Symbol rate	(special version up to 7.5 MS/s upon request)	3.45-7.125 MS/s
Type of modulation		16-, 32-, 64-, 128-, 256-QAM
Output level for	loop	64-74 dBµV
	single	74-84 dBµV
ASI out	Format	204 Byte/ Burst Mode
ASI in	Format	Burst 188/204 Byte - Packet 204 Byte
Output data rate		2-45 MS/s
Input data rate		10-53.95 Mbit/s
General data		
Connectors	ASI	BNC
Connectors	RF	F-type
Operating temperature		-20°C...+55°C
Storage temperature		-25°C...+75°C
Max. humidity, non condensing		95%
EMC		CE, Class A

OV 75 D

DVB/QPSK-QAM transmodulator with TS handling + ASI interface

- Transmodulation of digital DVB/QPSK SAT IF signals
- Processing of symbol rates of 2-45 MS/s
- Operation ID 2 Byte
- PID filtering
- NIT editing
- NMS via Headend controller OV 51S or remote control via remote interface OV 52

SAT		
Input frequency		950-2150 MHz
Tuning steps		1 MHz
Input level		44-84 dBµV
Type of modulation		QPSK
Symbol rate	adjustable	2-45 MS/s
Internal error protection		Conv.,K=7,R=1/2 2/3, 3/4, 5/6, 7/8
Spectrum inversion		C-/Ku-Band
Interleaving		Conv., I=12
FEC outer code		Reed Solomon (204, 188,8)
Output		
Frequence range		45-862 MHz
Symbol rate	version up to 7.5 MS/s on request	3,45-7,125 MS/s*
Type of modulation		16-, 32-, 64-, 128-, 256-QAM
Output level for	loop	64-74 dBµV
	single ouput	74-84 dBµV
Additional specifications		
Stuffing		on/off
NIT processing		with CS 75 software and interface cable (Accessories)
PID-filter		10
ASI out	Format	204 Byte Burst Mode
ASI in	Format	Burst 188/204 Byte/Packet 204 Byte
Output data rate		2-45 MS/s
Input data rate		10-53,95 Mbit/s
General data		
Connectors	ASI	BNC
	RF	F-type
Operating temperature		-20°C...+55°C
Storage temperature		-25°C...+75°C
Max. humidity, non condensing		95%
EMC		CE, Class A

OV 75 T

COFDM - QAM Transmodulator

- Reception of DVB-T signal and transmodulation to a digital QAM channel
- PID filtering
- Stuffing with PCR correction
- NIT-Network Information Table processing with CS-75-Software and Interface
- SI Table editor with CS-76-Software
- NMS via Headend controller OV 51S or remote interface OV 52

DVB-T			
Input frequency	500 kHz steps		174-862 MHz
Frequency offset	8 MHz		+166 kHz, 0 kHz -166 kHz
	7 MHz		+125 kHz, 0 kHz -125 kHz
Input level			40-90 dBµV
COFDM Spectrum			2k-FFT / 8k-FFT
Type of modulation	QPSK		16-; 32-QAM
Guard intervall			1/4, 1/8, 1/16, 1/32
FEC			1/2, 2/3, 3/4, 5/6, 7/8
Output			
Frequency range	250 kHz steps		45-862 MHz
Symbol rate			3,45-7,125 MS/s
Stuffing		min. 1,725 MS/s	max. 7,125 MS/s
Type of modulation			16-, 32-, 64-, 128-, 256-QAM
Output level	loop		64-74 dBµV
	single		74-84 dBµV
PID filter			10
Filtering/Roll-Off			Nyquist √ cos/ 15%
Interleaving			Conv; I=12
Spectral inversion			normal/invertiert
General data			
Connectors	RF input		F
Operating temperature			-20°C...+55°C
Storage temperature			-25°C...+75°C
Max. humidity, non condensing			95%
EMC			CE, Class A

OV 76 A

Digital SAT processor - QPSK / PAL, FTA, Stereo

- Reception of a QPSK satellite signal and processing into a PAL / SECAM / NTSC-M TV-channel
- Insertion of Teletext data
- BISS Scrambling system
- Option: Decoder- and/or NICAM module

SAT		
Frequency range		950-2150 MHz
Tuning steps		1 MHz
Input level		47-70 dBµV
AFC		± 5 MHz
Type of modulation		QPSK
Symbol rate	selectable	2-45 MS/s
FEC inner code		Conv;K=7, R=1/2, 2/3, 3/4, 4/5, 6/7, 7/8
Spectrum inversion		C- / Ku band
Video decoder	ISO 13818-2	MPEG 2 (MP@ML)
Video format		4:3, 16:9, 4:3Zoom
Video standard	selectable	PAL/SECAM/NTSC-M
Audio decoder	ISO 13818-3	MPEG 2 (L1/L2)
Output		
Frequency		45-862 MHz
Tuning steps		250 kHz
Channel bandwidth	selectable	7/8 MHz
Output level	loop	74-84 dBµV
	single	84-94 dBµV
Spurious emissions	within AM-TV channels	>60 dB
	outside of TV channels	>60 dB
Differential gain		<5 %
Differential phase		<5°
Group delay	(-0,5...4,43 MHz)	<80 ns
S/N video	(CCIR-rec. 567-1)	typ. 59 dB
S/N audio	(with color test pattern)	typ. 50 dB
Distortion		1 %
General data		
Connectors	RF	F
Operating temperature		-20°C...+55°C
Storage temperature		-25°C...+75°C
Max. humidity, non condensing		95%
EMC		CE, Class A

OV 77 A

Digital SAT processor - QPSK / PAL, stereo, CI

- Reception of a QPSK satellite signal and processing into a PAL / SECAM / NTSC-M TV-channel
- Insertion of Teletext data
- BISS Scrambling system
- Option: Decoder- and/or NICAM module

SAT		
Frequency range		950-2150 MHz
Tuning steps		1 MHz
Input level		47-70 dBµV
AFC		± 5 MHz
Type of modulation		QPSK
Symbol rate	selectable	2-45 MS/s
FEC inner code		Conv;K=7, R=1/2, 2/3, 3/4, 4/5, 6/7, 7/8
Spectrum inversion		C- / Ku-Band
Video decoder	ISO 13818-2	MPEG 2 (MP@ML)
Video format		4:3, 16:9, 4:3Zoom
Video standard	selectable	PAL/SECAM/NTSC-M
Audio decoder	ISO 13818-3	MPEG 2 (L1/L2)
Output		
Frequency		45-862 MHz
Tuning steps		250 kHz
Channel bandwidth	selectable	7/8 MHz
Output level	loop	74-84 dBµV
	single	84-94 dBµV
Spurious emissions	within AM-TV channels	>60 dB
	outside of TV channels	>60 dB
Differential gain		<5 %
Differential phase		<5°
Group delay	(-0,5...4,43 MHz)	<80 ns
S/N video	(CCIR-rec. 567-1)	typ. 59 dB
S/N audio	(with color test pattern)	typ. 50 dB
Distorsion		1 %
General data		
Connectors		F
Operating temperature		-20°C...+55°C
Storage temperature		-25°C...+75°C
Max. humidity, non condensing		95%
EMC		CE, Class A

OV 79 A

DVB-T/ PAL processor stereo

- Reception of a DVB-T signal and processing into a PAL/SECAM/NTSC-M TV channel
- Insertion of teletext datas into the blanking impuls
- NMS via Headend controller OV 51S or remote interface OV 52

DVB-T		
Frequency range	250kHz steps	146-858 MHz
Frequency offset	8 MHz	+166 kHz, 0 kHz -166 kHz
	7 MHz	+125 kHz, 0 kHz -125 kHz
Input level		47-90 dBµV
OFDM spectrum		2k+ 8k
Type of modulation	QPSK	16, 64 QAM
Guard intervall		1/4, 1/8, 1/16, 1/32
FEC		Conv.;K=7, R=1/2, 2/3, 3/4, 5/6 7/8
Video decoder		ISO 13818-2 MPEG2 (MP@ML)
Video format		4:3 / 16:9 / 4:3 Zoom
Video standard		PAL / SECAM / NTSC-M
Audio decoder		ISO 13818-3 MPEG2 (L1/L2)
Audio format		mono / stereo / 2sc
Output		
Frequency range	250kHz steps	45-862 MHz
Channel bandwidth		7 / 8 MHz
Output level	loop	74-84 dBµV
	single	84-94 dBµV
Output level adjustment	1dB steps	0...10 dB
TV standard		B/G, D/K, I, L, M, N
Spurious emissions		> 60 dB
Group delay		< 80 ns
S/N video (CCIR-rec.567-1)		typ. 59 dB, min. 56 dB
S/N audio		typ. 50 dB, min. 47 dB
Distorsion		1 %
General data		
Connectors	RF-input/outputs	F
Operating temperature		-20°C...+55°C
Storage temperature		-25°C...+75°C
Max. humidity, non condensing		95%
EMC		CE, Class A

TOPLINE HEADEND accessories

CS 75

WISI NIT Generator Interface

included in set:
- NIT Generator Software
- Cable

CS 76

WISI SI Tabellen Editor Interface

included in set:
- WISI SI Table Editor
- Cable

OV 51 S

HEADEND Controller

- NMS module with SNMP protocoll for WISI TOPLINE HEADEND
- Proxy for connection of TOPLINE HEADEND ((RS-485, OV 50 A Remote Interface)) to NMSystems (Ethernet, UDP/IP, SNMP)
- Protocoll SNMPv2
- Configuration of module parameters
- Fault managment , reporting of alarms and configuration changes via traps.
- Supports up to 10 OV-, LR- or LT modules

Hardware
- RS 232 interface ((DSUB9 - 19.200 bps)
- RS 485 interface to OV-module bus ((9.600 bps)
- 10/100 Mbit Ethernet interface to managment system

Software
- Internet protocoll acc. RFC 1700 (IP, and parts of TCP, UDP, ICMP)
- Setup via Telnet or RS2323 Terminal program
- Necessary RFC-MIBs (ex. MIB II)
- WISI HEADEND-MIB SCTE HMS inside plant MIBs

Up to 10 basic units OV 50 A can be controlled

Delivery as set consisting of Cable, adapter A-Sub - RJ 11

OV 52

Remote control interface WISI COMMANDER

- Control and configure up to 10 WISI TOPLINE HEADEND Systems
- RS 232 crossed serial cable for direct connection
- RS 485 interface to OV-module bus (9.600 bps)
- Code switch selection of 10 WISI COMPACT Headend modules
- Automatic disconnect (timeout) to prevent high phone bills
- Integrated phonebook
- Password protection
- Customizable user surface

Supports
- analogue and digital modems (Hayes)
- GSM mobile phones
- pulse and tone dialing
- direct RS 232 send connection

Delivery as set consisting of software (CD) plus hardware interface

OV 61 A

Video generator module

Factory assembly into eg. OV 36A or OV 85 B
The video generator module generates a PAL video signal in accordance with the standard. It is thus possible,for example, to transmit sound sub-carrier only..
It is possible to display the text "Radio".Four pages, each with 12 lines of 24 characters, can be stored.
Factory setting:Page 1 with text "Radio"
Page 2 blank
Contents of pages 3 and 4: Customer-specific text: on request.
The customer can switch between these four text pages with a jumper and can also select one of eight background colours.

Pages	4
Lines per page	12
Characters per line	24

OV 62 A

A/V Demodulator module standard B/G

The module is an accessory which can be mounted inside the OV 45A and OV 45D channel converters.
It demodulates RF signals of standard B/G to audio (mono) and video.
The A/V signal is available on the decoder socket on top of the OV 45A and D module. OV 62A can be installed by the customer.

OV 62 D

A/V Demodulator module standard D/K

The module is an accessory which can be mounted inside the OV 45A and OV 45D channel converters.
It demodulates RF signals of standard D/K to audio (mono) and video.
The A/V signal is available on the decoder socket on top of the OV 45A and D module.
OV 62D can be installed by the customer.

OV 65

NICAM module

For use in OV 76 A and OV 77 A

NICAM mode	off, mono, auto, dual, stereo

OV 66

Decoder module

For use in OV 76 A and OV 77 A

Feed in of	AV signal

TOPLINE HEADEND accessories

OV 97

Cover

for OV 50 A	steel, white lacquered
	lockable
Packing unit	1 piece, 3.6 dm³, 1.9 kg

OV 98 A

Mounting plate

Mounting plate for up to 3 TOPLINE HEADEND modules

Power supply 13 VDC / 3 A included

Packing unit	1 piece, bag	1.3 dm³	1.2 kg

OV 99

Mounting kit 19''

OV 50A 19''-rack-mounting

Packing unit	1 piece, bag (consisting of two rails)	0.4 dm³	0.2 kg

Notes

Notes

Amplifiers, Power supplies

Multiband amplifiers for VHF-UHF, FM

*adjustable
F-connectors, 75 Ω
EMC acc. to CE

VS 56 A

VS 80

VS 83 A

Type	VS 56 A Multiband amplifier for VHF - UHF, FM	VS 80 Multiband amplifier / Splitband	VS 83 A Multiband amplifiers for VHF-UHF, FM
Frequency range input 1	FM 87-108 MHz	FM 88.5-108 MHz	FM 87-108 MHz
Frequency range input 2	VHF I 47-68 MHz	VHF I 47-68 MHz	VHF I 47-68 MHz
Frequency range input 3	VHF III 174-230 MHz	VHF III 174-230 MHz	VHF III 174-230 MHz
Frequency range input 4	UHF 470-862 MHz	UHF 470-862 MHz	UHF 470-862 MHz
Frequency range input 5	-	UHF 470-862 MHz	-
Channel input 1	FM	-	FM
Channel input 2	2-4	-	2-4
Channel input 3	5-12	-	5-12
Channel input 4	21-69	-	21-69
Channel input 5	-	21-69	-
Gain input 1	18 dB	35 dB, T-18	28 dB, T-18
Gain input 2	18 dB	35 dB, T-18	28 dB, T-18
Gain input 3	18 dB	35 dB, T-18	28 dB, T-18
Gain input 4/5	21/-	42 dB, T-18/42 dB, T-18	28 dB, T-18/-
1 test output	-	-20 dB	-
Output level (60 dB IMR)	113 dBµV	118 dBµV	113 dBµV
Noise figure	<7 dB	-	<7 dB
Operating voltage	230 VAC	230 VAC	230 VAC
Power consumption	3.8 W	8.5 W	3.8 W
Operating temperature	0°C...+55°C	0°C...+55°C	0°C...+55°C
Packing unit	1 piece, 1.42 dm³	1 piece, 1.7 dm³	1 piece, 1.42 dm³
Shipping package	10 pieces, 17 dm³, 5.6 kg	10 pieces, 20 dm³, 5.9 kg	10 pieces, 17 dm³, 5.6 kg

Multi channel programmable filter amplifier

VS 21

Programmable Multi channel filter amplifier

- For digital and analog channels
- 6 inputs. B I-II / B III / VHF-UHF and 3 UHF inputs
- Split into 10 UHF clusters
- Cluster bandwidth 1..7 channels
- All settings via OK41 / 41A Handset
- Copy and paste function supports easy setting of several VS21
- Highly selective filters
- Low noise, high gain splitband amplifiers
- Output level 123 dBµV
- Manual or automatic level adjustment
- Remot feeding voltage for masthead amplifiers on inputs
- 30 dB testpoint

Input frequency range	BI-FM		47-108 MHz
	B III		174-240 MHz
	VHF-UHF		47-240 + 470-862 MHz
	UHF inputs 1-3		470-862 MHz
Adjustment cluster	UHF 1	UHF 2	UHF 3
1..7 channels / cluster	2	8	
	2	7	1
	2	5	3
Gain	BI-FM		35 dB
	BIII		40 dB
	VHF-UHF		40 dB
	UHF 1-3		55 dB
Attenuator	BI-FM, BIII, VHF-UHF		20 dB
	UHF 1-3		30 dB
UHF level adjustable			+ 10 dB...-9 dB
Noise figure			< 6 dB
Input level max.			80 dBµV
Output level max.	BI-FM, BIII, VHF		118 dBµV
	UHF, UHF 1-3		123 dBµV
Return loss	IN / OUT	BI-FM	> 7 dB
		BIII	> 8 dB
		VHF-UHF	> 5 dB
		UHF 1-3	> 6 dB
Test signal output			-30 dB
Data connection			D-Sub 9
Operating voltage			230 VAC
Ambient temperature			-5°C ... +55°C
Storage temperature			-25°C...+75°C
Max. humidity, non condensing			95%
Dimensions			265x220x95 mm
Packing unit		1 piece	7.3 dm³; 1.5 kg
EMC			CE

VS 22

Programmable Multi channel filter amplifier

- For digital and analog channels
- 5 inputs: B I-II / B III and 3 UHF inputs split into 10 UHF clusters
- Cluster bandwidth 1...7 channels
- All settings via handset OK41, OK 41A
- Copy and paste function supports easy setting of several VS 22
- High selective filters
- Low noise, high gain splitband amplifiers
- Manual or autom. level adjustment
- remote feed voltage for masthead amplifiers on inputs
- Test point -30 dB

Input frequency range	BI-FM		47-108 MHz
	B III		174-240 MHz
	UHF inputs 1, 2, 3		470-862 MHz
Adjustment cluster	UHF inputs 1	UHF inputs 2	UHF inputs 3
1..7 ch/Cluster	2	8	
	2	7	1
	2	5	3
Gain	BI-FM		35 dB
	B III		40 dB
	UHF inputs 1-3		45 dB
Attenuator	BI-FM, B III		20 dB
	UHF input 1-3		30 dB
Input level max			80 dBµV
Output level max.			116 dBµV
Return loss	IN / OUT	BI-FM	> 7 dB
		B III	> 8 dB
		UHF 1-3	> 6 dB
Test signal output			-30 dB
Data connection			D-Sub 9
Operating voltage			230 VAC
Operating temperature			-5°C...+55°C
Storage temperatur			-25°C...+75°C
Max. humidity, non condensing			95%
Dimensions			265x220x72 mm
Packing unit		1 piece	7,3 dm³; 1,5 kg
EMC			CE

VS 93 A

Splitband amplifier 2,4 GHz

Inputs	1xTERR+SAT	1 x TERR
Frequency range	47-862 MHz+950-2400 MHz	470-862 MHz
Gain	TERR:10-18 dB SAT: 27-35 dB	
Equalization, switchable	SAT: 8/16 dB	-
Output level, max. (IMR 60 dB)	TERR:109 dBµV (60 dB IMA) SAT:118 dBµV (35 dB IMA)	
Noise figure	TERR: 12 dB typ. SAT:<8 dB typ.	-
Thru loss		< 3 dB
Operating voltage		230 VAC
Power consumption, max.		15 W
LNC remote power supply	13-14 VDC	300 mA
Dimensions		178x116x48 mm
EMC		CE
Packing unit	1 piece	1.7 dm³
Shipping package	10 pieces	20 dm³, 5.9 kg

VX 51

Splitband amplifier

Input	VHF +	UHF
Frequency range	47-400 MHz	470-862 MHz
Gain with slope	28-35 dB	36-42 dB
Output level, max. (IMR 60 dB)	118 dBµV	116 dBµV
Attenuator	≤18 dB	≤18 dB
Equalizer	≤12 dB	≤10 dB
Testpoint		-20 dB
EMC		CE
RF-connectors		F-type
Operating voltage		230 VAC
Power consumption		<10 W
Ambient temperature		0°C ... 55°C
Dimensions		178x116x48 mm
Packing unit	1 piece	1.7 dm³
Shipping package	10 pieces	20 dm³, 6.0 kg

Splitband amplifiers

VS 94

Splitband amplifier

Inputs	TERR	2x SAT
Frequence range	47-862 MHz	950-2150 MHz
Gain	-7 dB	25-32 dB
Equalization, switchable	-	0/6 dB
Output level, max. 2nd ord.	-	117 dBµV
Output level, max. 3rd ord.	-	120 dBµV
Noise figure	-	≤6 dB
Operating voltage		230 VAC
Power consumption, max.		12,5 W
LNC remote power supply	14 VDC	500 mA
Dimensions		177x122x40 mm
EMC		CE, Class A
Packing unit	1 piece	2.14 dm³, 1.08 kg
Shipping package	5 pieces	14 dm³, 5.7 kg

VS 95

Splitband amplifier

Inputs	2x TERR +	SAT
Frequency range	47-862 MHz	950-2150 MHz
Gain	23-29 dB	25-32 dB
Equalization, switchable	0/5 dB	0/6 dB
Output level, max. 2nd ord.	106 dBµV	117 dBµV
Output level, max. 3rd ord.	118 dBµV	120 dBµV
Noise figure	≤6 dB	≤6 dB
Operating voltage		230 VAC
Power consumption, max.		9 W
Dimensions		177x122x40 mm
EMC		CE, Class A
Packing unit	1 piece	2.14 dm³, 1.08 kg
Shipping package	5 pieces	14 dm³, 5.7 kg

MINI LINE in-house distribution amplifiers

VX 81 / VX 82 active return path
VX 86 / VX 87 passive return path
- adjustable level and equalizer
- lightning protection on input
- Wall mounting
*Active/passive jumper

VX 81

VX 82

VX 86

VX 87

Type	VX 81 In-house distribution amplifier	VX 82 In-house distribution amplifier	VX 86 In-house distribution amplifier	VX 87 In-house distribution amplifier
Frequency range US/DS	5-65/ 87-862 MHz	5-65/ 87-862 MHz	5-30/ 47-862 MHz	5-30/47-862 MHz
Gain DS	18-21 dB	28-31 dB	18-21 dB	28-31 dB
Attenuator	0-18 dB	0-18 dB	0-18 dB	0-18 dB
Equalizer	3-18 dB	3-18 dB	3-18 dB	3-18 dB
Output level DS CENELEC, flat	96 dBµV	96 dBµV	96 dBµV	96 dBµV
Output level DS CENELEC, 6 dB slope	98.5 dBµV	98.5 dBµV	98.5 dBµV	98.5 dBµV
Output level DS EN50083-5/3.Ord	114 dBµV	114 dBµV	114 dBµV	114 dBµV
Noise figure	< 8 dB	< 8 dB	< 8 dB	< 8 dB
Return path amplifier US	20 (-2)* dB	25 (-2)* dB	-2 dB	-2 dB
Attenuator US	0-12 dB	0-12 dB	-	-
Output level US EN50083-5/3.Ord	112 dBµV	112 dBµV	-	-
RF inputs and outputs	F-type	F-type	F-type	F-type
Operating voltage	230 VAC 50/60 Hz	230 VAC 50/60 Hz	230 VAC 50/60 Hz	230 VAC 50/60 Hz
Power consumption	3.5 W	3.5 W	3.5 W	3.5 W
Operating temperature	-20°C...+55°C	-20°C...+55°C	-20°C...+55°C	-20°C...+55°C
Dimensions	163x90x47 mm	163x90x47 mm	163x90x47 mm	163x90x47 mm
EMC	CE, Class A	CE, Class A	CE, Class A	CE, Class A
Legend	DS=Down Stream; US=Up Stream			
*Aktive / Passive jumper				

MINI LINE in-house distribution amplifier 6 outputs

VX 67A

Type	VX 67A In-house distribution amplifier, 6 outputs
Frequency range US/DS	5-65/ 87-862 MHz
Gain DS	8-11 dB/port 1-6
Attenuator	0-18 dB
Equalizer	3-18 dB
Output level CENELEC	80 dBµV
Output level 3rd order@60 dB IMR	96 dBµV
Output level 2nd order@60 dB IMR	86 dBµV
Noise figure	typ 8 dB min. slope
Return path amplifier	passive
Attenuation	< 2 dB
RF inputs and outputs	F-male
Operating voltage	230 VAC 50/60 Hz
Power consumption	< 3 W
Operating temperature	-20°C...+55°C
Dimensions	165x105x45 mm
EMC	CE, class A

HOME LINE in-house distribution amplifiers A series

	VX 43 A	VX 44 A	VX 45 A	VX 46 A
				
Type	**VX 43 A In-house distribution amplifier**	**VX 44 A In-house distribution amplifier**	**VX 45 A In-house distribution amplifier**	**VX 46 A In-house distribution amplifier, remote-powered**
Frequency range DS	47/85-862 MHz	47/85-862 MHz	47/85-862 MHz	47/85-862 MHz
Gain DS	20 dB	25-28 dB	33-36 dB	29 dB
Equalizer	0-15 dB	0-15 dB	0-15 dB	0-15 dB
Adjustable attenuator	0-15 dB	0-15 dB	0-15 dB	0-15 dB
Slope	-	3 dB	3 dB	3 dB
Output level CENELEC, flat	≥100 dBµV	≥100 dBµV	≥100 dBµV	≥100 dBµV
Output level CENELEC, 6 dB slope	≥102 dBµV	≥102 dBµV	≥102 dBµV	≥102 dBµV
Output level 60 dB IMA 3rd order	≥117 dBµV	≥117 dBµV	≥117 dBµV	≥117 dBµV
Noise figure	<8 dB	<8 dB	<8 dB	<8 dB
Frequency range US	5-30/65 MHz	5-30/65 MHz	5-65 MHz	5-65 MHz
Gain US	22-25 dB	22-25 dB	22-25 dB	22-25 dB
Adjustable attenuator US	0-22 dB	0-22 dB	0-22 dB	0-22 dB
Slope US	3 dB	3 dB	3 dB	3 dB
Output level EN 50083-5 US	112 dBµV	112 dBµV	112 dBµV	112 dBµV
Operating voltage	230 VAC 50/60Hz	230 VAC 50/60Hz	230 VAC 50/60Hz	27-65 VAC 50/60 Hz
Power consumption	<6.5 W	<6.5 W	<6.5 W	<6.5 W
Connector	F-type	F-type	F-type	F-type
EMC	CE, Class A	CE, Class A	CE, Class A	CE, Class A
Testpoints Input/Output	-20 dB	-20 dB	-20 dB	-20 dB
Packing unit	1 piece, 2.14 dm³, 1.08 kg	1 piece, 2.14 dm³, 1.08 kg	1 piece, 2.14 dm³, 1.08 kg	1 piece, 2.14 dm³, 1.08 kg
Legend	DS=Down Stream; US=Up Stream			

XE 40 0300

Diplex filter set

Frequency range	5-30 MHz
Consisting of filters at input (L) + output (R)	

XE 40 0650

Diplex filter set

Frequency range	5-65 MHz
Consisting of filters at input (L) and output (R)	

Notes

VALUE LINE distribution amplifiers

- GaAs-technology
- High gain, low noise
- Return path 30/65 MHz
- One or two outputs jumper
- Equalization/attenuation 0-18 dB
- Test sockets at in- and output
- Aluminium die-cast housing
- Splashwater protected
- Low power consumption

VX 20 B

VX 21 P

VX 22 A

Type	VX 20 B PUSH PULL	VX 21 P PUSH PULL Remote powered	VX 22 A POWER DOUBLING
Frequency range	47/85-862 MHz	47/85-862 MHz	47/85-862 MHz
Gain	35 dB	35 dB	35 dB
Output level CENELEC, flat	104 dBµV	104 dBµV	107 dBµV
Output level CENELEC, 6 dB slope	106 dBµV	106 dBµV	110 dBµV
Output level EN 50083-3	123 dBµV	123 dBµV	125 dBµV
Output level EN 50083-3 2.nd order	121 dBµV	121 dBµV	119 dBµV
Equalizer, attenuator	0-18 dB	0-18 dB	0-18 dB
Test socket (input, output)	-20 dB	-20 dB	-20 dB
Noise figure	≤6 dB	≤6 dB	≤6 dB
Return loss (input / output)	18 dB -1.5 dB/Oct., >14 dB	18 dB -1.5 dB/Oct., >14 dB	18 dB -1.5 dB/Oct., >14 dB
EMC	CE, Class A	CE, Class A	CE, Class A
RF-connectors	F-type	PG 11	F-type
Ambient temperature	-20°C...+55°C	-20°C...+55°C	-20°C...+55°C
Remote feed voltage	-	27-65 VAC, 50/60 Hz	-
Operating voltage	207-253 VAC, 50/60 Hz	-	207-253 VAC, 50/60 Hz
Power consumption	6.9 W	6.5 W	12 W
Dimensions	244 x 134 x 84 mm	244 x 134 x 84 mm	244 x 134 x 84 mm
Packing unit	1 piece, 8,1 dm³, 1.75 kg	1 piece, 8.1 dm³, 1.75 kg	1 piece, 8.1 dm³, 1.75 kg

VALUE LINE distribution amplifiers

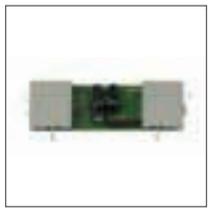
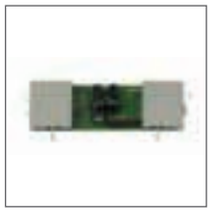
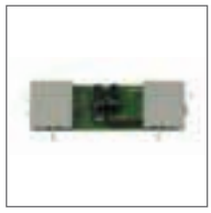
- GaAs-technology
- High gain, low noise
- Return path 30/65 MHz
- One or two outputs jumper
- Equalization/attenuation 0-18 dB
- Test sockets at in- and output
- Aluminium die-cast housing
- Splashwater protected
- Low power consumption

VX 22 P

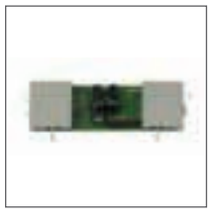
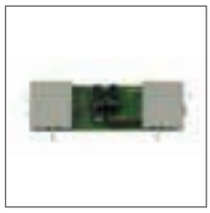
VX 23 P

Type	VX 22 P POWER DOUBLING	VX 23 P POWER DOUBLING Remote powered
Frequency range	47/85-862 MHz	47/85-862 MHz
Gain	35 dB	35 dB
Output level CENELEC, flat	107 dBµV	107 dBµV
Output level CENELEC, 6 dB slope	110 dBµV	110 dBµV
Output level EN 50083-3	125 dBµV	125 dBµV
Output level EN 50083-3 2.nd order	119 dBµV	119 dBµV
Equalizer, attenuator	0-18 dB	0-18 dB
Test socket (input, output)	-20 dB	-20 dB
Noise figure	≤6 dB	≤6 dB
Return loss (input / output)	18 dB - 1,5 dB/Oct. >14 dB	18 dB -1.5 dB/Oct. >14 dB
EMC	CE, Class A	CE, Class A
RF-connectors	PG 11	PG 11
Ambient temperature	-20°C....+55°C	-20°C...+55°C
Remote feed voltage	-	27-65 VAC, 50/60 Hz
Operating voltage	207-253 VAC, 50/60 Hz	-
Power consumption	12 W	12 W
Dimensions	244x134x84 mm	244 x 134 x 84 mm
Packing unit	1 piece, 8.1. dm³, 1.75 kg	1 piece, 8.1 dm³, 1.75 kg

VALUE LINE accessories distribution amplifiers

	VX 28 0300	VX 28 0650	VX 28 A 0300
			
Type	**VX 28 0300 Return path module 30 MHz**	**VX 28 0650 Return path module 65 MHz**	**VX 28 A 0300 Return path module 4-30 MHz**
Frequency range	5-30 MHz	5-65 MHz	4-30 MHz
Gain	>18 dB	>18 dB	20 dB
Equalizer	>0-10 dB	>0-10 dB	0-10 dB
Attenuator	>0-10 dB	>0-10 dB	0-10 dB
Output level EN 50083-3	113 dBµV	113 dBµV	113 dBµV
For use in	VX 20, 21, 22, 23	VX 20, 21, 22, 23	VX 20B, 21P, 22A, 22P, 23P
Packing unit	1 piece, bag	1 piece, bag	1 piece, bag

VALUE LINE accessories distribution amplifiers

	VX 28 A 0650	VX 28 E 0650	ZG 01
			
Type	**VX 28 A 0650 Return path module**	**VX 28 E 0650 Return path module 5-65 MHz**	**ZG 01 Adapter PG11 - 5/8''**
Frequency range	5-65 MHz	5-65 MHz	-
Gain	20 dB	25 dB	-
Equalizer	0-10 dB	0-12 dB	-
Attenuator	0-10 dB	0-16 dB	-
Output level EN 50083-3	113 dBµV	113 dBµV	1 piece, bag
For use in	VX 20B, 21P, 22A, 22P, 23P	VX 20B, 22A, 21P, 23P	
Packing unit	1 piece, bag	1 piece, bag	

VALUE LINE programmable distribution amplifiers

- CATV-amplifier with high output level
- Protection class IP 66
- All adjustments(gain, slope etc.) programmable with handset OK 41 A or HMS transponder VT 24
- Return path module active/passive
- 2way splitter plugable
- *6 dB on request!

VX 24

VX 25

Type	VX 24 In-house distribution amplifier local powered	VX 25 In-house distribution amplifier remote powered
Frequency range	47/85-862 MHz	47/85-862 MHz
Gain	36 dB	36 dB
Output level CENELEC, flat	109 dBµV	109 dBµV
- CSO	≥64 dB	≥64 dB
- CTB	≥60 dB	≥60 dB
Output level CENELEC, 7 dB slope	112 dBµV,	112 dBµV
- CSO	≥63 dB	≥63 dB
- CTB	≥60 dB	≥60 dB
Attenuator	0-15 dB, 0,5-dB-steps	0-15 dB, 0,5-dB-steps
Equalizer	0-15 dB, 0,5-dB-steps	0-15 dB, 0,5-dB-steps
Interstage Attenuator	0 / 5 dB	0 / 5 dB
- Equalizer*	0 / 7 dB	0 / 7 dB
Noise figure	< 7 dB	< 7 dB
Test socket	-20 dB	-20 dB
Operating voltage	180-265 VAC / 50/60 Hz	27-65 VAC
Power consumption	< 13 W	< 13 W
Connectors Input Output	PG 11	PG 11
Remote power current	Input <6 A; output <3 A	Input < 6 A; output < 3 A
Ambient temperature	-20 °C...+55 °C	-20 °C...+55 °C
Dimensions (WxDxH)	236x145x90 mm	236x145x90 mm
EMC	CE, Class A	CE, Class A

VALUE LINE accessories for programmable amplifiers

OK 41 A	**Handset for all programmable amplifiers and nodes**		
	with memory, lightning display and LED torch		
	Packing unit	1 piece	1.25 dm³
	Shipping unit	10 pieces	15 dm³, approx. 1 kg
VT 24	**HMS transponder**		
VX 27 A	**Return path module active**		
	Frequency range	depends from diplex filter	5-30/65 MHz
	Gain	30 dB	ICS 0 / 8 / >45 dB
	Attenuator/Equalizer	0-30 dB / 0-10 dB	
	Output level	2nd / 3rd ord.	114 dBµV
VX 27 A 0180	**Return path module active**		
	Frequency range	depends from diplex filter	18-30/65 MHz
	Gain	30 dB	ICS 0 / 8 / >45 dB
	Attenuator/Equalizer	0-30 dB/0-10 dB	
	Output level	2nd / 3rd ord.	114 dBµV
XE 25 0082	**Tap plugable**		
	Thru loss	2/8 dB	
XE 25 0131	**Tap plugable**		
	Thru loss	1/13 dB	
XE 51	**Equalizer module 862 MHz**		
	Side loss	3/9 dB	
XE 51 6000	**Equalizer module 606 MHz**		
	Side loss	3/9 dB	
XE 52	**Equalizer module 862 MHz**		
	Side loss	12/18 dB	
XE 52 6000	**Equalizer module 606 MHz**		
	Side loss	12/18 dB	
XE 57	**Cable compensator**		
	Attenuation	6/9 dB	

COMPACT LINE programmable trunk amplifiers

- Active single output
- All settings (gain, slope etc.) by WISI control unit (OK 41 handset) or LMT (laptop) via HMS transponder VT 51
- Includes interface for NMS functionality
- Diplex filters and splitter/tap-modules pluggable
- High level return amplifier on board
- Remote power 35-90 V optional!
- ASC / ALSC modul VX 58

*Depending on diplex filter
** Gain for full range ALSC with VX 58

VX 52

VX 53

VX 54

VX 55

Type	VX 52 Universal trunk/ distribution amplifier	VX 53 Universal trunk/ distribution amplifier	VX 54 Universal trunk/ distribution amplifier	VX 55 Universal trunk/ distribution amplifier
Frequency range DS	47/85-862 MHz*	47/85-862 MHz*	47/85-862 MHz*	47/85-862 MHz*
Gain DS	40 (36**) dB	40 (36**) dB	33 (29**) dB	33 (29**)dB
Noise figure DS	≤6 dB	≤6 dB	≤6 dB	≤6 dB
Attenuator DS	0-15 dB	0-15 dB	0-15 dB	0-15 dB
Equalizer DS	0-15 dB	0-15 dB	0-15 dB	0-15 dB
Interstage attenuator DS	0 / 5 / 10 dB	0 / 5 / 10 dB	0 / 5 / 10 dB	0 / 5 / 10 dB
Interstage slope DS	0 / 6 / 9 dB	0 / 6 / 9 dB	0 / 6 / 9 dB	0 / 6 / 9 dB
Output level DS CENELEC, flat	1x 111 dBµV	1x 111 dBµV	1x 111 dBµV	1x 111 dBµV
Output level DS CENELEC, 6 dB slope	1x 114 dBµV	1x 114 dBµV	1x 114 dBµV	1x 114 dBµV
Frequency range US	5-30/65 MHz*	5-30/65 MHz*	5-30/65 MHz*	5-30/65 MHz*
Gain US	30 dB	30 dB	30 dB	30 dB
Noise figure US	≤8 dB	≤8 dB	≤8 dB	≤8 dB
Attenuator US	0-30 dB	0-30 dB	0-30 dB	0-30 dB
Equalizer US	0-10 dB	0-10 dB	0-10 dB	0-10 dB
Output level EN 50083-5, US	116 dBµV	116 dBµV	116 dBµV	116 dBµV
ICS, US	0 / -8 / -45 dB	0 / -8 / -45 dB	0 / -8 / -45 dB	0 / -8 / -45 dB
EMC	CE, Class A	CE, Class A	CE, Class A	CE, Class A
Power supply	180-265 VAC, 50/60 Hz	-	180-265 VAC, 50/60 Hz	-
Remote feed voltage	-	27-65 VAC, 50/60 Hz	-	27-65 VAC, 50/60 Hz
Power consumption with/without transpond-	26/22.5 W	26/22.5 W	26/22.5 W	26/22.5 W
Dimensions	260 x 215 x 95 mm	260 x 215 x 95 mm	260 x 215 x 95 mm	260 x 215 x 95 mm
Legend	DS=Down Stream; US=Up Stream			

COMPACT LINE programmable trunk amplifiers

- Dual active outputs
- All settings (gain, slope etc.) by WISI control unit (OK 41 handset) or LMT (laptop) via HMS transponder
- Includes interface for NMS functionality
- Diplex filters and splitter/tap-modules pluggable
- High level return amplifier on board
- Remote power 35-90 V optional!

*Depending on diplex filter
** Gain for full range ALSC with VX 58

VX 56

VX 57

Type	VX 56 Universal trunk/ distribution amplifier	VX 57 Universal trunk/ distribution amplifier
Frequency range DS	47/85-862 MHz*	47/85-862 MHz*
Gain DS	2 x 38 (34**) dB	2 x 38 (34**) dB
Noise figure DS	≤6.5 dB	≤6.5 dB
Attenuator DS	0-15 dB	0-15 dB
Equalizer DS	0-15 dB	0-15 dB
Interstage attenuator DS	0 / 5 / 10 dB	0 / 5 / 10 dB
Interstage slope DS	0 / 6 / 9 dB	0 / 6 / 9 dB
Output level DS CENELEC, flat	2 x 111 dBµV	2 x 111 dBµV
Output level DS CENELEC, 6 dB slope	2 x 114 dBµV	2 x 114 dBµV
Frequency range US	5-30/65 MHz*	5-30/65 MHz*
Gain US	26 dB	26 dB
Noise figure US	≤11 dB	≤11 dB
Attenuator, US	0-26 dB	0-26 dB
Equalizer, US	0-10 dB	0-10 dB
Output level EN 50083-5, US	116 dBµV	116 dBµV
ICS, US	0 / -8 / -45 dB	0 / -8 / -45 dB
EMV	CE, Class A	CE, Class A
Power supply	180-265 VAC, 50/60 Hz	-
Remote feed voltage	-	27-65 VAC, 50/60 Hz
Power consumption with/without transpond-	30/26 W	30/26 W
Dimensions	260 x 215 x 95 mm	260 x 215 x 95 mm
Legend	DS=Down Stream; US=Up Stream	

COMPACT LINE accessories

	**OK 41 A**	**Handset for all programmable amplifiers and nodes**	
		with memory, lightning display and LED torch	
		Packing unit	1 piece 1.25 dm³
		Shipping unit	10 pieces 15 dm³, approx. 1 kg
	**VT 51 A**	**HMS Transponder module**	
			For use in VX 5...Compact Line amplifier and Fiber Nodes LR43/63
			Hardware compliant with SCTE HMS PHY. layer HMS-005R9
			Software compliant with SCTE HMS-MAX layer HMS-004R13
			Update capability over HMS RF layer
	**XE 50 0300**	**Diplex filter**	
		Frequency	30/47 MHz
	**XE 50 0650**	**Diplex filter**	
		Frequency	65/85 MHz
	**XE 51**	**Equalizer module 862 MHz**	
		Side loss	3/9 dB
	**XE 51 6000**	**Equalizer module 606 MHz**	
		Side loss	3/9 dB
	**XE 52**	**Equalizer module 862 MHz**	
		Side loss	12/18 dB
	**XE 52 6000**	**Equalizer module 606 MHz**	
		Side loss	12/18 dB
	**XE 54**	**Ripple compensator**	
			47-200 / 300-600 MHz 2 dB compensation in the frequency range
	**XE 57**	**Cable compensator**	
			6/9 dB
	**XM 51**	**Splitter**	
		Side loss	4/4 dB
	**XM 53**	**Splitter**	
		Side loss	8/2 dB

COMPACT LINE accessories

XM 55

Tap	
Side loss / Thru loss	13/1 dB

XM 56

Tap	
Side loss / Thru loss	18/1 dB

Accessories COMPACT LINE ASC / ALSC module

ASC = Automatic Slope Control 1 pilot (287-862 MHz)
ALSC = Automatic Level & Slope Control 2 pilots (287-862 MHz, 110-140 MHz)
Specify pilot frequencies / channel when ordering

VX 58

ASC / ALSC module 1-2 pilot ton signals		
Control range	47 MHz ± 0.9 dB	1. pilot 287-812 MHz
	470 MHz ± 2.9 dB	2. pilot 110-140 MHz
	606 MHz ± 3.4 dB	
	862 MHz ± 4 dB	

Notes

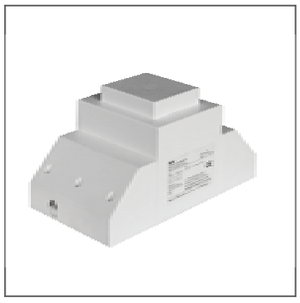
Selective pre-amplifiers

	VM 21 I	VM 23 I	VM 24 I
			
Type	**VM 21 I Pre-amplifier kit for masts**	**VM 23 I Pre-amplifier kit for masts**	**VM 24 I Pre-amplifier kit for masts**
Input	1	2	2
Band	VHF + UHF	VHF III / UHF	VHF / UHF
Frequency range	47-862 MHz	170-230 / 470-862 MHz	47-230 / 470-862 MHz
Gain T = adjustable; f = fixed	28 dB (T)	20 dB (f) / 20 dB (f)	28 dB (T) / 36 dB (T)
Remote feeding voltage	24 V	24 V	24 V
Noise figure	<3.5 dB	<3.5 dB	<3.5 dB
Output level	max. 98 dBµV	max. 98 dBµV	max. 98 dBµV
Connector	F-type	F-type	F-type
Power supply	230 VAC/24 VDC, 50 mA, 2 outputs	230 VAC/24 VDC, 50 mA, 2 outputs	230 VAC/24 VDC, 50 mA, 2 outputs
Current consumption	50 mA	50 mA	50 mA
EMC	CE	CE	CE

Selective pre-amplifiers

	VM 25 I	VM 29 H
		
Type	**VM 25 I** **Pre-amplifier kit for masts**	**VM 29 H** **In-house amplifier**
Input	2	1
Band	VHF III / UHF	2
Frequency range	170-230 / 470-862 MHz	-
Gain **T = adjustable; f = fixed**	28 dB (T) / 36 dB (T)	-
Remote feeding voltage	24 V	15 dB T VHF+UHF
Noise figure	<3.5 dB	-
Output level	max. 98 dBµV	-
Connector	F-type	-
Power supply	230 VAC/24 VDC, 50 mA, 2 outputs	-
Current consumption	50 mA	-
EMC	CE	-

VA 34 A



Transformer for amplifier remote powering

Mains voltage	230 VAC	50/60 Hz	
Operation voltage supplied	60 VAC ±1		
Protection class	IP 20		
Output power max.	300 VA		
Nominal current	5 A		
Operating temperature	-20 ... 40°C		
Dimensions	223 x 115 x 116 mm		
Packing unit	1 piece	11.8 dm³	5.3 kg

Notes

Notes

Optical transceiving systems

- FIBER LINE optical receivers
- FIBER LINE optical transmitters
- FIBER LINE optical nodes
- FIBER LINE accessories optical nodes
- MINI NODE optical nodes
- MINI NODE accessories optical nodes
- Optical accessories

LR 52 S

Optical dual return path receiver

- Dual optical return path receiver for WISI TOPLINE HEADEND
- Optical input level -12 dBm ... +2 dBm
- 2 input channels with 50 dB crosstalk isolation
- NMS via headend controller OV 51S or remote interface OV 52
- LASER CLASS 1

RF characteristics		
Frequency range		5 - 100 MHz
Impedance		75 Ω
Amplitude response		< ± 0,75 dB
Output level	ALC on	90 dBµV ± 2 dB
Attenuation	ALC on	0 - 20 dB
	ALC off	0 - 50 dB
Isolation between outputs	Dual mode	> 50 dB
	Combining mode	> 20 dB
	Redundancy mode	> 20 dB
Output return loss		18 dB
Test point		- 20 dB
Optical characteristics		
Wavelength		1290-1600 nm
Input level		-12 dBm...+2 dBm
Fiber		single mode 9 / 125 µm
Optical connector		SC/APC, E2000 on request!
NMS-Functions		
Monitoring	Selection of input and output mode	
	Test point optical input level	
	Optical input ALC	
	Redundancy threshold	
Selection	Mode	Dual, redundancy, combining
	ALC	
	Optical power	
	Redundancy threshold	
Alarms	Redundancy Optical power	< -20 dB
General data		
Housing		Zinc die-cast
Operating temperature		0C°...+55°C
Storage temperature		-25C°...+75°C
Max. humidity, non condensing		95%
EMC		CE, Class A

LT 53 S
LT 53 S 0400

DFB laser transmitter

- Optical transmitter for WISI TOPLINE HEADEND
- Input frequency range 5-862 MHz
- Wavelength 1310 nm
- NMS via headend controller OV 51S or remote interface OV 52
- LASER CLASS 1

RF parameters		
Input frequency range		5-862 MHz
Input level (42 channels)		88 dBµV ± 4 dB
Level adjustment		10 dB
C/N for 42 channels, opt., link=4 dB @LT 53		> 50 dB
CSO for 42 channels CENELEC		> 60 dB
CTB for 42 channels CENELEC		> 63 dB
Test socket		- 20 dB
Optical parameters		
Laser type		uncooled isolated DFB laser
Wavelength		1310 nm ± 20 nm
Optical output power	LT 53S	2.5 mW (4 dBm)
	LT 53S 0400	4mW (6 dBm)
NMS functions		
Monitoring		
		Laser bias
		Laser temperature
		Laser output power
		Level adjustment
		RF power at laser
General data		
Housing		Zinc die-cast
Connectors	RF	F-type
	optical	SC / APC, E2000 on request!
Dimensions		30x260x200 mm
Operating temperature		-10°C...+50°C
Storage temperature		-25°C...+75°C
Max. humidity, non condensing		95%
Packing unit		1 piece, 4.6 dm³, 2.2 kg
EMC		CE, Class A

LT 54 S 1000
LT 54 S 1600

DFB laser transmitter

- Optical transmitter for WISI TOPLINE HEADEND
- Input frequency range 5-862 MHz
- Wavelength 1310 nm
- NMS via headend controller OV 51S or remote interface OV 52
- LASER CLASS 1 M

RF parameters		
Input frequency range		5-862 MHz
Input level (42 channels)		88 dBµV ± 4 dB
C/N for 42 channels, opt., link=10 dB@LT54 1000		> 53 dB
CSO for 42 channels CENELEC		> 64 dB
CTB for 42 channels CENELEC		> 67 dB
Test socket		- 20 dB
Optical parameters		
Laser type		cooled isolated DFB laser
Wavelength		1310 nm ± 20 nm
Optical output power	LT 54S 1000	10 mW (10 dBm)
	LT 54S 1600	16 mW (12 dBm)
NMS functions		
Monitoring		
		Laser bias
		Laser temperature
		Laser output power
		Level adjustment
		Tec-Strom
		RF power at laser
General data		
Housing		Zinc die-cast
Connectors	RF	F-type
	optical	SC/ APC, E2000 on request!
Dimensions		30x260x200 mm
Operating temperature		-10°C...+55°C
Storage temperature		-25°C...+75°C
Max. humidity, non condensing		95%
EMC		CE, Class A
Packing unit		1 piece, 4.6 dm³, 2.2 kg

LT 61 S

DFB laser transmitter

- Optical broadband transmitter for WISI TOPLINE HEADEND
- Input frequency range CATV 45-862 MHz, SAT 950-2200 MHz
- Wavelength 1290-1310 nm
- SAT-IF and CATV via one fiber
- Dual band (CATV and SAT-IF) or Single band (CATV or SAT-IF)
- NMS via Headend controller OV 51S or remote interface OV 52
- Laser Class 1

RF parameters

Laser type		DFB Laser uncooled 1290-1310 nm
Input frequency range 1	CATV	45-862 MHz
Input frequency range 2	SAT	950-2200 MHz
Input level 42 ch.	CATV	88 dBµV ±4 dB
Input level 40 ch.	SAT	79 dBµV ±4 dB
Dual band operation		CATV and SAT-IF
Single band operation		CATV or SAT-IF
Test socket		-20 dB
Single band CATV		
C/N for 42 ch. opt. link 4 dB		>50 dB
CSO/CTB 42 ch. CENELEC		>60 dB
Single band SAT IF		
C/N for 40 SAT ch. opt. link 4 dB		>37 dB
Dual band		
C/N for CATV 42 ch. opt. link 4 dB		>49 dB
C/N for SAT 40 ch. opt. link 4 dB		>27 dB
General datas		
Housing		Zinc die-cast
Optical connector		SC/APC, E2000 on request!
Operating temperature		-10°C...+55°C
Storage temperature		-25°C...+75°C
Max. humidity, non condensing		95%
EMC		CE
Packing unit		1 piece 4.6 dm³, 2.2 kg

LR 43 S
LR 63 S

Redundant optical nodes

- Redundant Node with three active outputs
- Integrated splice box
- Plug in RX and TX modules
- All settings via OK41A handset or via NMS system
- NMS interface VT 51
- Electronic upstream configuration (redundancy / clustering)
- ICS for every coax line
- AGC based on optical input level or via pilot carrier with VX58

Downstream	incl. one receiver module		LR 40 S
Wavelength			1290-1600 nm
Fiber		single mode	9/125 µm
Optical connector			SC / APC, E2000 on request!
Frequency range			47-862 MHz
Optical input power		for controlled opt. output level	-5...+3 dBm
Controlled output level			87-102 dBµV
IMR CTB, CSO	64 dB	Out 1	102 dBµV, 6 dB slope
IMR CTB, CSO	60 dB	Out 2 + 3	114 dBµV, 6 dB slope
Equalizer			0-15 dB
RF test points			-20 dB
Upstream		Optical upst-ream trans-mitter	
Wavelength	FP Laser	LT 40 S	1310 ± 40 nm
	DFB Laser	LT 41 S	1310 ± 20 nm
		LT 45 S 1510	1510 ± 3 nm
		LT 45 S 1530	1530 ± 3 nm
		LT 45 S 1550	1550 ± 3 nm
		LT 45 S 1570	1570 ± 3 nm
Optical output power			3 dBm
Frequency range			10-(30)65 MHz
Broadband RF-input	106 dBµV = 5% OMI		10-300 MHz
Nominal input level			75 dBµV
OMI control range	@ 75 dBµV input		3-10%
Test point			-20 dB
Pilot frequencies	LT 40 S / LT 41 S 1310		6.5 MHz
	LT 45 S 1510		6.6 MHz
	LT 45 S 1530		6.8 MHz
	LT 45 S 1550		7.0 MHz
	LT 45 S 1570		7.2 MHz
General			
RF connectors			PG 11
Operating voltages	LR 43 S		180-265 VAC
	LR 63 S		27-65 VAC
Operating temperature			-20°C...+55°C

LR 43 S
LR 63 S

Redundant optical node, local feeding

Power consumption	typ.	incl. 1 xLR 40 S, 1xLT 41 S	<45 W
	max.	incl. 2xLR 40 S, 2xLT 41S, VT 51	53 W
Protection class			IP 66
Dimensions			288x125x302 mm
EMC			CE, Class A
Downstream			
Monitoring	Optical input power		
	Attenuator setting		
	Equalizer out 1,2,3 setting		
	Redundancy switch position		
	Receiver configuration		
	Pilot level		
Configuration	Attenuation out 1, 2, 3		0-15 dB
	Equalizer out 1, 2, 3		0-15 dB
	Redundancy mode		auto / manual
	Redundancy switch position		Rec. 1 / Rec. 2
	AGC control		on / off
	Alarm / warning thresholds		
Upstream	Optical output power		
Monitoring	Temperature		
	Transmitter configuration		
	Redundancy / clustering switch position		
	ICS position		
	Reference pilot frequency		
Configuration			
	Laser		on / off
	OMI		3-8%
	ICS1, ICS2, ICS3		0 / 8 / >45 dB
	Redundancy / clustering switch position		
	Alarm / warning thresholds		
Alarms / Warnings			
	Optical input power too high / too low		
	Optical transmitting power too high / too low		
	Temperature too high / too low		
	AGC range limit		
	Pilot level too high / too low		

LR 40 S

Optical receiver module

Wavelength		1290-1600 nm
Optical return loss		> 40 dB
Frequency range		10-862 MHz
Optical input power		-5dBm...+3dBm
Nominal output level		80 dBµV ±2 dB
Attenuator	Step size	0 / 4/ 8 / 12 dB
Power consumption		< 2 W
Optical connector		SC/APC, E2000 on request!

LT 40 S

Optical transmitter module, 1310 nm FP laser

Wavelength		1310 ±40nm
Broadband RF input		10-300 MHz
Frequency range	depending on diplex filter	10-(30) 65 MHz
Nominal input level		75dBµV
Setting range OMI		3-10% @75 dBµV input
Optical output power		3 dBm
Pilot frequency		6.5 MHz
Optical connector		SC/APC, E2000 on request!

LT 41 S

Optical transmitter module, 1310 nm DFB laser

Wavelength		1310 ± 20 nm
Broadband RF input		10-300 MHz
Frequency range	depending on diplex filter	10-(30) 65 MHz
Nominal input level		75 dBµV
Setting range OMI		3-10% @75 dBµV input
Optical output power		3 dBm
Pilot frequency		6.5 MHz
Optical connector		SC/APC, E2000 on request!

LT 45 S 1510

Optical transmitter module, 1510 nm CWDM

Wavelength		1510 ± 3 nm
Broadband RF input	depending on diplex filter	10-300 MHz
Frequency range		10-(30) 65 MHz
Nominal input level		75 dBµV
Setting range OMI		3-10% @ 75 dBµV input
Optical output power		3 dBm
Pilot frequency		6.6 MHz
Optical connector		SC/APC, E2000 on request!

LT 45 S 1530

Optical transmitter module, 1530 nm CWDM

Wavelength		1530 ± 3 nm
Broadband RF input		10-300 MHz
Frequency range	depending on diplex filter	10 -(30) 65 MHz
Nominal input level		75 dBµV
Setting range OMI		3-10% @ 75 dBµV input
Optical output power		3 dBm
Pilot frequency		6.8 MHz
Optical connector		SC / APC, E2000 on request!

LT 45 S 1550

Optical transmitter module, 1550 nm CWDM

Wavelength		1550 ± 3 nm
Broadband RF input		10-300 MHz
Frequency range	depending on diplex filter	10 -(30) 65 MHz
Nominal input level		75 dBµV
Setting range OMI		3-10% @ 75 dBµV input
Optical output power		3 dBm
Pilot frequency		7.0 MHz
Optical connector		SC / APC, E2000 on request!

LT 45 S 1570

Optical transmitter module, 1570 nm CWDM

Wavelength		1570 ± 3 nm
Broadband RF input		10-300 MHz
Frequency range	depending on diplex filter	10 -(30) 65 MHz
Nominal input level		75 dBµV
Setting range OMI		3-10% @ 75 dBµV input
Optical output power		3 dBm
Pilot frequency		7.2 MHz
Optical connector		SC/APC, E2000 on request!

OK 41 A

Handset

Programming device with illuminated display, data memory and LED torch

Packing unit	1 piece	1.25 dm³
Shipping unit	10 pieces	15 dm³, ca. 1 kg

XC 40

Configuration-Module for installation in LR 43 S/63 S

Required if LT 40-45 is used

XE 50 F 0650

Diplex filter 65 MHz

Downstream frequency	85 - 862 MHz

XS 40

Redundancy switch for use with LR 43 S/63 S

LR 20 S
LR 21 S

Mininode, local feeding

- Modular concept
- Cost efficient optical node for distribution networks
- Optical return transmitter modules LT20 / 21
- Integrated splice box
- All functions controlled via microprocessor
- All settings via OK41 /41A

Downstream			
Wavelength			1290-1600 nm
Transmission bandwidth			47-862 MHz
Controlled output level	slope 4 dB@ 862 MHz		95 dBµV
	flat		80 dBµV
Optical input power	for constant electrical output level		-5 dBm...+3 dBm
Output level (42 TV channels)	slope 4 dB		95 dBµV
	CSO 65 dB		
	CTB 68 dB		
RF test socket			-20 dB
General data			
Operating voltages		LR 20S	230 VAC
		LR 21S	27-65 VAC
Optical connector			SC / APC, E2000 on request!
Operating temperature			-20°C...+50°C
Dimensions			244x134x84 mm
Packing unit		1 piece	8.1 dm³, 2.1 kg

Notes

LR 60 S

Mininode, CATV und SAT IF

- Compact splitband fibernode for CATV and SAT IF on one fiber
- All settings with WISI handset OK 41 / OK 41A.
- Integrated splice box
- Separate outputs for CATV and SAT IF
- ALC for constant output level
- LASER CLASS 1

Wavelength		1290-1600 nm
CATV branch		
Frequency range		45-862 MHz
Controlled output level ALC	OMI=5% @ 862 MHz 4 dB slope	85 dBµV
CNR for 42 channels CENELEC	opt. Link=6 dB	≥48 dB
Optical input power		-5 dBm...+3 dBm
SAT IF branch		
Frequency range		950-2200 MHz
NMS functions		
Monitoring	Optical input level	
	roll-off	
Configuration	ALC mode CATV	auto/manual
	ALC mode SAT-IF	auto/manual
	roll-off CATV	0-20 dB
	roll-off SAT IF	0-20 dB
Alarms	Input level too high/low Adjustable alarm tresholds	
General data		
Operating voltage		230 VAC
Optical connector		SC / APC, E2000 on request!
Packing unit	1 piece	8.1 dm³, 2.1 kg

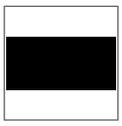
Notes

MINI NODE accessories optical nodes

LT... with optical connector SC/APC. E 2000 on request.

LT 19 S	**Optical upstream transmitter, FP laser**	
	Wavelength	1270-1350 nm
	Transmission bandwidth	10-65 MHz
	RF input 10-300 MHz	95 dBµV (OMI=5%)
	Output power	3 dBm
LT 20 S	**Optical upstream transmitter, DFB laser**	
	Wavelength	1290-1330 nm
	Transmission bandwith	10-65 MHz
	RF input 10-300 MHz	95 dBµV (OMI=5%)
	Output power	3 dBm
LT 21 S 1510	**Optical upstream transmitter, CWDM Laser**	
	Wavelength	1510 nm ± 3 nm
	Transmission bandwidth	10-65 MHz
	RF input 10-300 MHz	95 dBµV (OMI=5%)
	Output power	3 dBm
LT 21 S 1530	**Optical upstream transmitter, CWDM Laser**	
	Wavelength	1530 nm ± 3 nm
	Transmittion bandwidth	10-65 MHz
	RF input 10-300 MHz	95 dBµV (OMI=5%)
	Output power	3 dBm
LT 21 S 1550	**Optical upstream transmitter, DFB laser**	
	Wavelength	1550 nm ± 3 nm
	Transmission bandwidth	10-65 MHz
	RF input 10-300 MHz	95 dBµV (OMI=5%)
	Output power	3 dBm
LT 21 S 1570	**Optical upstream transmitter, CWDM Laser**	
	Wavelength	1570 nm ± 3 nm
	Transmission bandwidth	10-65 MHz
	RF input 10-300 MHz	95 dBµV (OMI=5%)
	Output power	3 dBm
VT 21 A	**HMS Transponder**	
	NMS settings and monitoring of temperature, optical Rx level, RF output level, OMI, alarm. Operable only with LT 20/21.	

Optical accessories

	**LK 05**	**Optical coupler** 4.2 / 2.4 dB 1310 nm -40°C...+85°C 1 m
	**LK 06**	**Optical coupler** 5.6 / 1.8 dB 1310 nm -40°C...+85°C 1 m
	**LK 08**	**Optical coupler** 7.2 / 1.2 dB 1310 nm -40°C...+85°C 1 m
	**LK 12**	**Optical coupler** 2 x 3.2 dB 1310 nm -40°C...+85°C 1 m
	**LK 13**	**Optical coupler** 3 x 5.7 dB 1310 nm -40°C...+85°C 1 m
	**LK 14**	**Optical coupler** 4 x 6.6 dB 1310 nm -40°C...+85°C 1 m
	**LP 01**	**Pigtail with optical connector E 2000**
	**LP 02**	**Patch cord**
	**LP 04**	**In-line coupler E 2000/ E 2000**
	**LP 05**	**Patch panel 19'' 1HE**

Optical accessories

	**LP 08**	**Cable splice protection box**
	**LP 09**	**Splice cassette for LP05 and LP08** Für LP 05 und LP 08
	**LP 11**	**Mounting clip** For secure hold of the spliced fiber in the splicing cassette
	**ZG 41**	**4 x pigtail (LP 01) insertion adaptor**

Notes

Notes

Measuring instruments

- Universal measuring receiver
- Options Universal measuring receiver

Universal measuring receiver

WA 70

Universal measuring receiver

- Frequency range 5 MHz to 2150 MHz
- Input level range 20-126 dBµV (SAT 40-126 dBµV)
- TV standards: multistandard B/G, D/K, M/N, L, I
- DVB measurements
- BER detection selectable for QPSK and 16 to 128 QAM
- MER detection selectable for 16 to 128 QAM
- Constellation diagram for 16-32-64-128 QAM (selectable)
- DiSEqC and RDS output
- Teletext, RS 232 interface
- Full graphics color TFT display
- 24 digit thermal printer
- Spectrum analyzer for all frequency ranges and narrow band
- Memories: 200 tuner settings, 20000 measurement values
- LNC powering
- Power supply 100-230 VAC line power / 12VDC external / 2 x 12 VDC / rechargeable batteries 2.2 or 4.4 Ah
- MPEG 2 decoder for display of FTA programs

Frequency range			5 - 2150 MHz
Level range		20 - 126 dBµV (TV)	40 - 126 dBµV (SAT)
Measuring accuracy		± 1.5 dB (20°C)	± 2.5 dB (0 ... -40°C)
Power supply	100 - 250 VAC/50-60 Hz	2x 12 VDC batterie	2.2 Ah/4.4 Ah
LNC power supply	10 - 20 VDC	22 kHz	DiSEqC 1.0
Printer			24-character thermal printer
Ambient temperature			0°C...+40°C
Weight with battery			6.8 kg
Dimensions			150x365x285 mm
Packing unit		1 piece	68 dm³, 8.6 kg

Options Universal measuring receiver

WZ 14	**S/N measuring module** S/N measuring module for measuring the signal-to-noise ratio in the video signal of the selected transmitter.
WZ 15	**ADR decoder** For demodulation of non-encoded ADR programs and for Viterbi measurements.
WZ 16	**NICAM decoder** For BER measurements on a selected NICAM carrier.
WZ 17	**DVB-T module** Reception of digital terrestrical signals
WZ 18	**S/N-Measuring module with SCOPE** S/N measuring module with SCOPE for measuring the signal-to-noise ratio in the video signal of the selected transmitter
WZ 19	**Documentation S/W for WA 70** Programming and documentation set- PC operating system: Windows

Notes

TV-standards

CCIR-Standard	A	B	C	D	E	F	G	H	I	K	K1	L	M	N
Number of lines	405	625	625	625	819	819	625	625	625	625	625	625	525	625
Channel bandwith MHz	5	7	7	8	14	7	8	8	8	8	8	8	6	6
Video-bandwidth MHz	3	5	5	6	10	5	5	5	5.5	6	6	6	4.2	4.2
Video-to-sound spacing MHz	-3.5	+5.5	+5.5	+6.5	+11.5	+5.5	+5.5	+5.5	+6	+6.5	+6.5	+6.5	+4.5	+4.5
Vestigial side band MHz	0.75	0.75	0.75	1.25	2	0.75	0.75	1.25	1.25	0.75	1.25	1.25	0.75	0.75
Picture modulation	Pos.	Neg.	Pos.	Neg.	Pos.	Pos.	Neg.	Neg.	Neg.	Neg.	Neg.	Pos.	Neg.	Neg.
Sound modulation	AM	FM	AM	FM	AM	AM	FM	FM	FM	FM	FM	AM	FM	FM

International TV systems

CCIR = Comitée Consultatif International des Radiocommunications
PAL = Phase Alternation Line
SECAM = Séquentielle à mémoire
NTSC = National Televison System Commitee

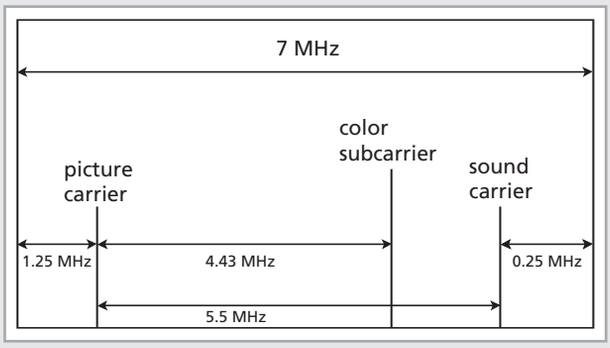
Country	VHF	UHF	Color
Algeria	B	H	PAL
Argentina	N	N	PAL-N
Australia	B	B	PAL
Austria	B	G	PAL
Bahrain	B	G	PAL
Belgium	B	H	PAL
Bulgaria	D	K	PAL
China	D	K	PAL
Cyprus	B	G	PAL / SECAM
Czechoslovakia	D	K	PAL
Denmark	B	G	PAL
Egypt	B	G, H	SECAM
Finland	B	G	PAL
France	L	L	SECAM
Germany	B	G	PAL
Gibraltar	B	G	PAL
Great Britain	I	I	PAL
Greece	B	G	SECAM
Hong Kong	I	I	PAL
Hungary	B	G	PAL
Iceland	B	G	PAL
India	B	-	PAL
Indonesia	B	-	PAL
Iran	B	G	SECAM
Iraq	B	-	SECAM
Ireland	I	I	PAL
Israel	B	G	PAL
Italy	B	G	PAL
Japan	M	M	NTSC
Jordan	B	G	PAL
Korea (Rep.)	M	-	NTSC
Kuwait	B	G	PAL
Lebanon	B	-	SECAM

Country	VHF	UHF	Color
Libya	B	H	SECAM
Luxembourg	B / L	G / L	SECAM / PAL
Malta	B	H	PAL
Malaysia	B	G	PAL
Mexico	M	M	NTSC
Monaco	E	L / G	SECAM / PAL
Morocco	B	H	SECAM
Netherlands	B	G	PAL
Nigeria	B	G	PAL
Norway	B	G	PAL
Pakistan	B	G	PAL
Philippines	M	M	NTSC
Poland	D	K	SECAM
Portugal	B	G	PAL
Oman Sultanate	B	G	PAL
Qatar	B	G	PAL
Romania	B/D	G/K	PAL
Saudi Arabia	B	G	PAL / SECAM
Singapore	B	G	PAL
Spain	B	G	PAL
Sri Lanka	B	-	PAL
South Afirca	I	I	PAL
Schweden	B	G	PAL
Switzerland	B	G	PAL
Syrian Arab. Rep.	B	-	SECAM
Thailand	B / M	-	PAL
Tunisia	B	G	SECAM
Turkey	B	G	PAL
U.A.E.	B	G	PAL
U.S.A	M	M	NTSC
Former U.S.S.R.	D	K	SECAM
Yemen Arab. Rep.	B	-	PAL
Former Yugoslavia	B	G	PAL

TV CCIR standard B

TV bands		Frequency	Channel bandwidth
VHF I	MHz	47 - 68	7
VHF III	MHz	147 - 230	7

Channel composition
VHF I, VHF III



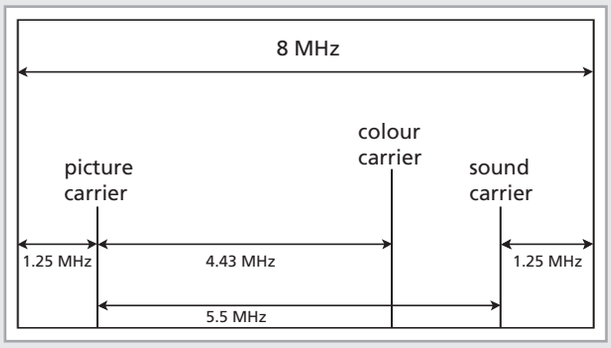
	MHz	MHz	MHz	MHz	MHz
TV bands	Channel	Channel limits	Picture carrier	Sound carrier	Center frequency
I	2	47... 54	48.25	53.75	50.50
	3	54... 61	55.25	60.75	57.50
	4	61... 68	62.25	67.75	64.50
VHF /	S 3	118... 125	119.25	124.75	121.50
mid-band	S 4	125... 132	126.25	131.75	128.50
	S 5	132... 139	133.25	138.75	135.50
	S 6	139... 146	140.25	145.75	142.50
	S 7	146... 153	147.25	152.75	149.50
	S 8	153... 160	154.25	159.75	156.50
	S 9	160... 167	161.25	166.75	163.50
	S 10	167... 174	168.25	173.75	170.50

	MHz	MHz	MHz	MHz	MHz
TV bands	Channel	Channel limits	Picture carrier	Sound carrier	Center frequency
III	5	174... 181	175.25	180.75	177.50
	6	181... 188	182.25	187.75	184.50
	7	188... 195	189.25	194.75	191.50
	8	195... 202	196.25	201.75	198.50
	9	202... 209	203.25	208.75	205.50
	10	209... 216	210.25	215.75	212.50
	11	216... 223	217.25	222.75	222.50
	12	223... 230	224.25	229.75	229.50
VHF /	S 11	230... 237	231.25	236.75	233.50
super-band	S 12	237... 244	238.25	243.75	240.50
	S 13	244... 251	245.25	250.75	247.50
	S 14	251... 258	252.25	257.75	254.50
	S 15	258... 265	259.25	264.75	261.50
	S 16	265... 272	266.25	271.75	268.50
	S 17	272... 279	273.25	278.75	275.50
	S 18	279... 286	280.25	285.75	282.50
	S 19	286... 293	287.25	29275	289.50
	S 20	293... 300	294.25	299.75	296.50
	S 21	302... 310	303.25	308.75	306.00
	S 22	310... 318	311.25	316.75	314.00
	S 23	318... 326	319.25	324.75	322.00
	S 24	326... 334	327.25	332.75	330.00
	S 25	334... 342	335.25	340.75	338.00
	S 26	342... 350	343.25	348.75	346.00
	S 27	350... 358	351.25	356.75	354.00
	S 28	358... 366	359.25	364.75	362.00
	S 29	366... 374	367.25	372.75	370.00
	S 30	374... 382	375.25	380.75	378.00
	S 31	382... 390	383.25	388.75	386.00
	S 32	390... 398	391.25	396.75	394.00
	S 33	398... 406	399.25	404.75	402.00
	S 34	406... 414	407.25	412.75	410.00
	S 35	414... 422	415.25	420.75	418.00
	S 36	422... 430	423.25	428.75	426.00
	S 37	430... 438	431.25	436.75	434.00
	S 38	438... 446	439.25	444.75	442.00

TV CCIR standard G

TV bands		Frequency	Channel bandwidth
UHF IV	MHz	470 - 606	8
UHF V	MHz	606 - 862	8

Channell composition
UHF IV, UHF V



	MHz	MHz	MHz	MHz	MHz
TV bands	Channel	Channel limits	Picture carrier	Sound carrier	Center frequency
IV	21	470... 478	471.25	476.75	474.00
	22	478... 486	479.25	484.75	482.00
	23	486... 494	487.25	492.75	490.00
	24	494... 502	495.25	500.75	498.00
	25	502... 510	503.25	508.75	506.00
	26	510... 518	511.25	516.75	514.00
	27	518... 526	519.25	524.75	522.00
	28	526... 534	527.25	532.75	530.00
	29	534... 542	535.25	540.75	538.00
	30	542... 550	543.25	548.75	546.00
	31	550... 558	551.25	556.75	554.00
	32	558... 566	559.25	564.75	562.00
	33	566... 574	567.25	572.75	570.00
	34	574... 582	575.25	580.75	578.00
	35	582... 590	583.25	588.75	586.00
	36*	590... 598	591.25	596.75	594.00
	37	598... 606	599.25	604.75	602.00

	MHz	MHz	MHz	MHz	MHz
TV bands	Channel	Channel limits	Picture carrier	Sound carrier	Center frequency
V	38**	606... 614	607.25	612.75	610.00
	39	614... 622	615.25	620.75	618.00
	40	622... 630	623.25	628.75	626.00
	41	630... 638	631.25	636.75	634.00
	42	638... 646	639.25	644.75	642.00
	43	646... 654	647.25	652.75	650.00
	44	654... 662	655.25	660.75	658.00
	45	662... 670	663.25	668.75	666.00
	46	670... 678	671.25	676.75	674.00
	47	678... 686	679.25	684.75	682.00
	48	686... 694	687.25	692.75	690.00
	49	694... 702	695.25	700.75	698.00
	50	702... 710	703.25	708.75	706.00
	51	710... 718	711.25	716.75	714.00
	52	718... 726	719.25	724.75	722.00
	53	726... 734	727.25	732.75	730.00
	54	734... 742	735.25	740.75	738.00
	55	742... 750	743.25	748.75	746.00
	56	750... 758	751.25	756.75	754.00
	57	758... 766	759.25	764.75	762.00
	58	766... 774	767.25	772.75	770.00
	59	774... 782	775.25	780.75	778.00
	60	782... 790	783.25	788.75	786.00
	61	790... 798	791.25	796.75	794.00
	62	798... 806	799.25	804.75	802.00
	63	806... 814	807.25	812.75	810.00
	64	814... 822	815.25	820.75	818.00
	65	822... 830	823.25	828.75	826.00
	66	830... 838	831.25	836.75	834.00
	67	838... 846	839.25	844.75	842.00
	68	846... 854	847.25	852.75	850.00
	69	854... 862	855.25	860.75	858.00

* occupied by navigation broadcast receiver
** occupied by astronomie broadcast service

TV-ranges

TV channels VHF I and III standard L (France).

Channel	Picture carrier	Sound carrier
	MHz	MHz
L 02	55.75	49.25
L 03	60.50	54.00
L 04	63.75	57.25
L 05	176.00	182.50
L 06	184.00	190.50
L 07	192.00	198.50
L 08	200.00	206.50
L 09	208.00	214.50
L 10	216.00	222.50

Video carriers of UHF channels identical to standard G, sound carrier +6,5 MHz.

TV channels VHF I and III OIRT standard.

Channel	Picture carrier	Sound carrier
	MHz	MHz
I	49.75	56.25
II	59.25	65.75
III	77.25	83.75
IV	85.25	91.75
V	93.25	99.75
S 1	111.25	117.75
S 2	119.25	125.75
S 3	127.25	133.75
S 4	135.25	141.75
S 5	143.25	149.75
S 6	151.25	157.75
S 7	159.25	165.75
S 8	167.25	173.75
VI	175.25	181.75
VII	183.25	189.75
VIII	191.25	197.75
IX	199.25	205.75
X	207.25	213.75
XI	215.25	221.75
XII	223.25	229.75
S 11	231.25	237.75
S 12	239.25	245.75
S 13	247.25	253.75
S 14	255.25	261.75
S 15	263.25	269.75
S 16	271.25	277.75
S 17	279.25	285.75
S 18	287.25	293.75
S 19	295.25	301.75
S 20	303.25	309.75
S 21	311.25	317.75
S 22	319.25	325.75
S 23	327.25	333.75
S 24	335.25	341.75
S 25	343.25	349.75
S 26	351.25	357.75
S 27	359.25	365.75
S 28	367.25	373.75
S 29	375.25	381.75
S 30	383.25	389.75
S 31	391.25	397.75
S 32	399.25	405.75
S 33	407.25	413.75

Video carriers of UHF channels identical to standard G, sound carrier +6,5 MHz.

TV channels VHF I and III OIRT standard.

Channel	Picture carrier	Sound carrier
	MHz	MHz
S 34	415.25	421.75
S 35	423.25	429.75
S 36	431.25	437.75
S 37	439.25	445.75
S 38	447.25	453.75
S 39	455.25	461.75
S 40	463.25	469.75

Video carriers of UHF channels identical to standard G, sound carrier +6,5 MHz.

TV channels VHF I and VHF III Italian standard.

Channel	Picture carrier	Sound carrier
	MHz	MHz
A	53.75	59.25
B	62.25	67.75
C	82.25	87.75
D	175.25	180.75
E	183.75	189.25
F	192.25	197.75
G	201.25	206.75
H	210.25	215.75
H 1	217.25	222.75
H 2	229.25	229.75

Video carriers of UHF channels identical to standard G, sound carrier +6,5 MHz.

TV channels VHF I and VHF III British & Irish standard.

Channel	Picture carrier	Sound carrier
	MHz	MHz
405 lines		
B 1	45.00	41.50
B 2	51.75	48.25
B 3	56.75	53.25
B 4	61.75	58.25
B 5	66.75	63.25
B 6	179.75	176.25
B 7	184.75	181.25
B 8	189.75	186.25
B 9	194.75	191.25
B 10	199.75	196.25
B 11	204.75	201.25
B 12	209.75	206.25
B 13	214.75	211.25
625 lines		
A	45.75	51.75
B	53.75	59.75
C	61.75	67.75
D	175.25	181.25
E	183.25	189.25
F	191.25	197.25
G	199.25	205.25
H	207.25	213.25
I	215.25	221.25
J	223.50	229.25

Video carriers of UHF channels identical to standard G, sound carrier +6 MHz.

TV-ranges

TV channels American standard (FCC) for Canada and South America.		
Channel	Picture carrier	Sound carrier
	MHz	MHz
A 2	55,25	59,75
A 3	61,25	65,75
A 4	67,25	71,75
A 5	77,25	81,75
A 6	83,25	87,75
A 7	175,25	179,75
A 8	181,25	185,75
A 9	187,25	191,75
A 10	193,25	195,75
A 11	199,25	203,75
A 12	205,25	209,75
A 13	211,25	215,75
A 14	471,25	475,75
A 15	477,25	481,75
A 16	483,25	487,75
A 17	489,25	493,75
A 18	495,25	499,75
A 19	501,25	505,75
A 20	507,25	511,75
A 21	513,25	517,75
A 22	519,25	523,75
A 23	525,25	529,75
A 24	531,25	535,75
A 25	537,25	541,75
A 26	543,25	547,75
A 27	549,25	553,75
A 28	555,25	559,75
A 29	561,25	565,75
A 30	567,25	571,75
A 31	573,25	577,75
A 32	579,25	583,75
A 33	585,25	589,75
A 34	591,25	595,75
A 35	597,25	601,75
A 36	603,25	607,75
A 37	609,25	613,75
A 38	615,25	619,75
A 39	621,25	625,75
A 40	627,25	631,75
A 41	633,25	637,75
A 42	639,25	643,75

TV channels American standard (FCC) for Canada and South America.		
Channel	Picture carrier	Sound carrier
	MHz	MHz
A 43	645,25	649,75
A 44	651,25	655,75
A 45	657,25	661,75
A 46	663,25	667,75
A 47	669,25	673,75
A 48	675,25	679,75
A 49	681,25	685,75
A 50	687,25	691,75
A 51	693,25	697,75
A 52	699,25	703,75
A 53	705,25	709,75
A 54	711,25	715,75
A 55	717,25	721,75
A 56	723,25	727,75
A 57	729,25	733,75
A 58	735,25	739,75
A 59	741,25	745,75
A 60	747,25	751,75
A 61	753,25	757,75
A 62	759,25	763,75
A 63	765,25	769,75
A 64	771,25	775,75
A 65	777,25	781,75
A 66	783,25	787,75
A 67	789,25	793,75
A 68	795,25	799,75
A 69	801,25	805,75
A 70	807,25	811,75
A 71	813,25	817,75
A 72	819,25	823,75
A 73	825,25	829,75
A 74	831,25	835,75
A 75	837,25	841,75
A 76	843,25	847,75
A 77	849,25	853,75
A 78	855,25	859,75
A 79	861,25	865,75
A 80	867,25	871,75
A 81	873,25	877,75
A 82	879,25	883,75
A 83	885,25	889,75

Level and limit values

Output levels at subscriber socket according to EN 50083-7

Frequency range	min. level (dBµV)	max. level (dBµV)
FM-mono	40	70
FM-stereo	50	70
AM-RSB-TV signals	60*)	80**)
FM-TV signals (analogue-SAT-TV)	47	77
DVB- 64QAM	47	67
DVB- QPSK	47	77
COFDM	not yet defined	

*) 57dBµV only for systems with 8 MHz- and 12 MHz-chanel spacing
**) 77dBµV only for systems with more than 20 channels

Maximum level differeces between highest and lowest channels according to EN 50083-7

Frequency range	Modulation type	level difference (dB)
47 - 862 MHz	AM	12
In the range of 60 MHz	AM	6
Adjacent channel	AM	3
950 - 2150 MHz (SAT-IF)	FM	15
upto 470 MHz	FM	15
Adjacent channel	64 QAM	3
Adjacent channel	64 QAM to AM	13*)

*) The 64-QAM-signal must be lower than the nieghbouring AM TV signal

Subscriber to subscriber isolation

Frequency range (MHz)	Isolation (dB)
TV / TV (47 - 862 MHz), 7 MHz channel bandwidth	> 42
TV / TV (47 - 862 MHz), 8 /12 MHz channel bandwidth	> 36
TV - TV (950 - 2150 MHz)	> 30
FM-tone-radio / FM-tone-radio	> 42
FM-tone-radio	> 46

Signal to noise ratio (S/N), picture quality

Noise ratio	> 46 dB	37 dB	+30 dB	< 26 dB
Noise	noise free	visible, not interfering	evidently visible, interfering	predominant
Picture Quality	very good	good	insufficient	unusable

EMC-Requirements (EMC=Electro magnetic compatibility)

Emission of Radiation
Limit values according to EN 50083 - 2

Frequency range	limit value (dBpW)	Level (dBµV) at 75 Ohm
5 - 30 MHz	not yet defined	
30 - 1000 MHz	20	39
1000 - 2500 MHz	43	62
2500 - 25000 MHz	57	76

Active components must not excceed the above radiation levels at the given output power levels.

Screening factor

The screening factor of the network components can be calculated from the above limits of radiation and the operational output level.
In the same way you can determine the maximum operating level at a given screening factor.
Max. level (dBµV) = radiaton limit (dBµV) + screening factor (dB)

Classification

With the introduction of the ammendment 1 to EN 50083 - 2 additional higher screening factors were defined for passive network elements, which must be applied if higher values of radiation are expected at the point of installation.

EMC limit according to EN 50083 - 2 for passive components - screening factor:

	Limit value in dB	
Frequency range	Class A	Class B
5 - 30 MHz	85	75
30 - 300 MHz	85	75
300 - 470 MHz	80	75
470 - 1000 MHz	75	65
1000 - 3000 MHz	55	55

Coaxial cable, according to EN 50117 the following values are required for screening:

	Limit value in dB	
Frequency range	Class A	Class B
30 - 1000 MHz	85	75
1000 - 2000 MHz	75	65
2000 - 3000 MHz	65	55

Calculation of SAT-IF frequencies

$f_{IF} = f_{in} - f_{lo} =$ GHz

Sat IF = transponder frequenz (GHz) - local oscillator (LB: 9.75 / HB: 10.6) = GHz

Gain and half power beam width of a parabolic antenna

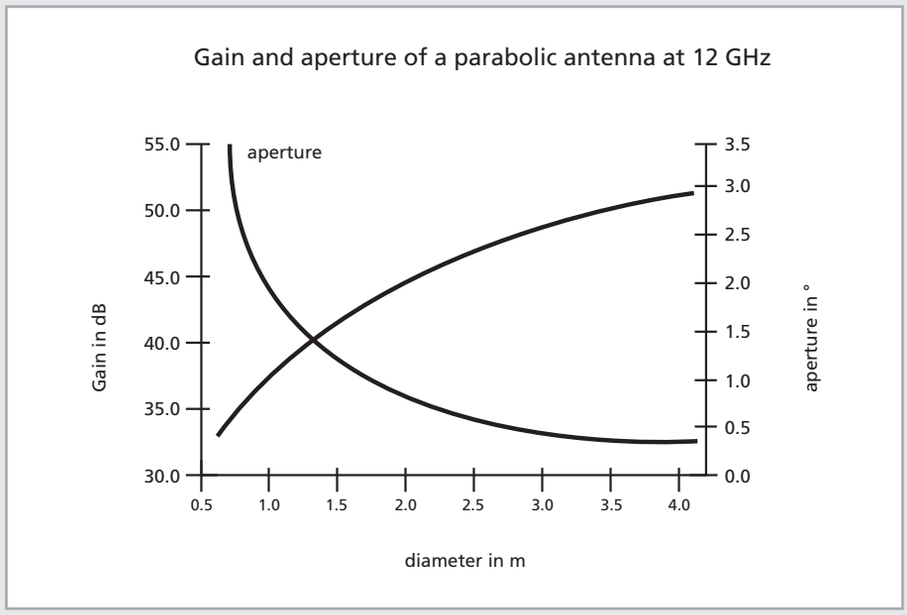
Gain in dBi
$G = 10 \log [\eta(\pi d/\lambda)^2]$
λ = Wave length in m
d = Antenna diameter in m
η = Effectiveness of the antenna, typ. 0.6

Aperture in degrees (Approximation formular) in °:
$\tau = 70 \lambda / d$

For KU-band satellites (ca. 12 GHz, i.e. 0.025 m wave length) and an antenna effectiveness of 0.6 (60 %), the following approximative formulars apply:
G = 40 + 20 log d and τ **= 1.75/d**

f / GHz	λ / m	D / m							η = 0.6
		0.3	0.55	0.75	0.9	1.2	1.5	1.8	Band
3.4	0.0882	18.4	23.6	26.3	27.9	30.4	32.3	33.9	
3.7	0.0811	19.1	24.3	27.0	28.6	31.1	33.1	34.6	C
4.2	0.0714	20.2	25.5	28.1	29.7	32.2	34.2	35.8	
10.7	0.0280	28.3	33.6	36.3	37.9	40.4	42.3	43.9	
11.7	0.0256	29.1	34.4	37.1	38.6	41.1	43.1	44.7	Ku
12.5	0.0240	29.7	34.9	37.6	39.2	41.7	43.6	45.2	

dBi: dB related to the gain of an isotropic antenna (0 by definition)

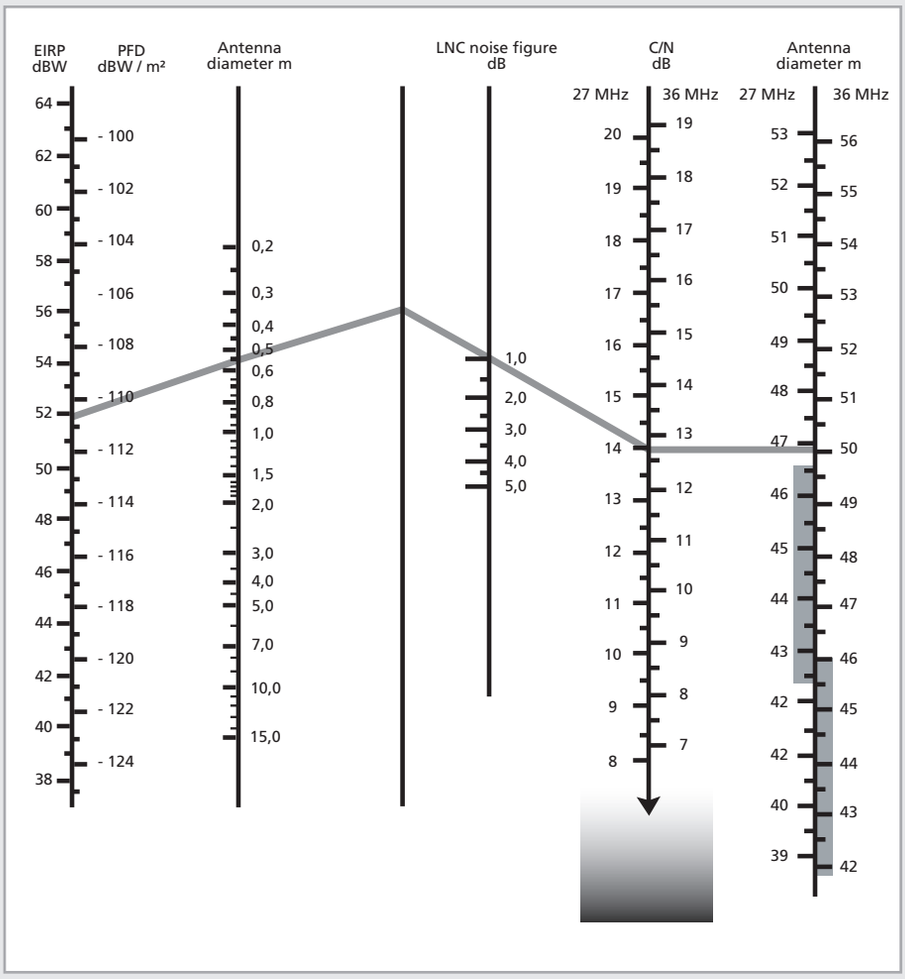


Graphical determination of C/N and S/N

Relation between noise figure NF/dB and noise temperature T/K

Formel:
NF/dB = 10 log (1+T/290)

T Noise temperature in K
NF Noise figure in dB

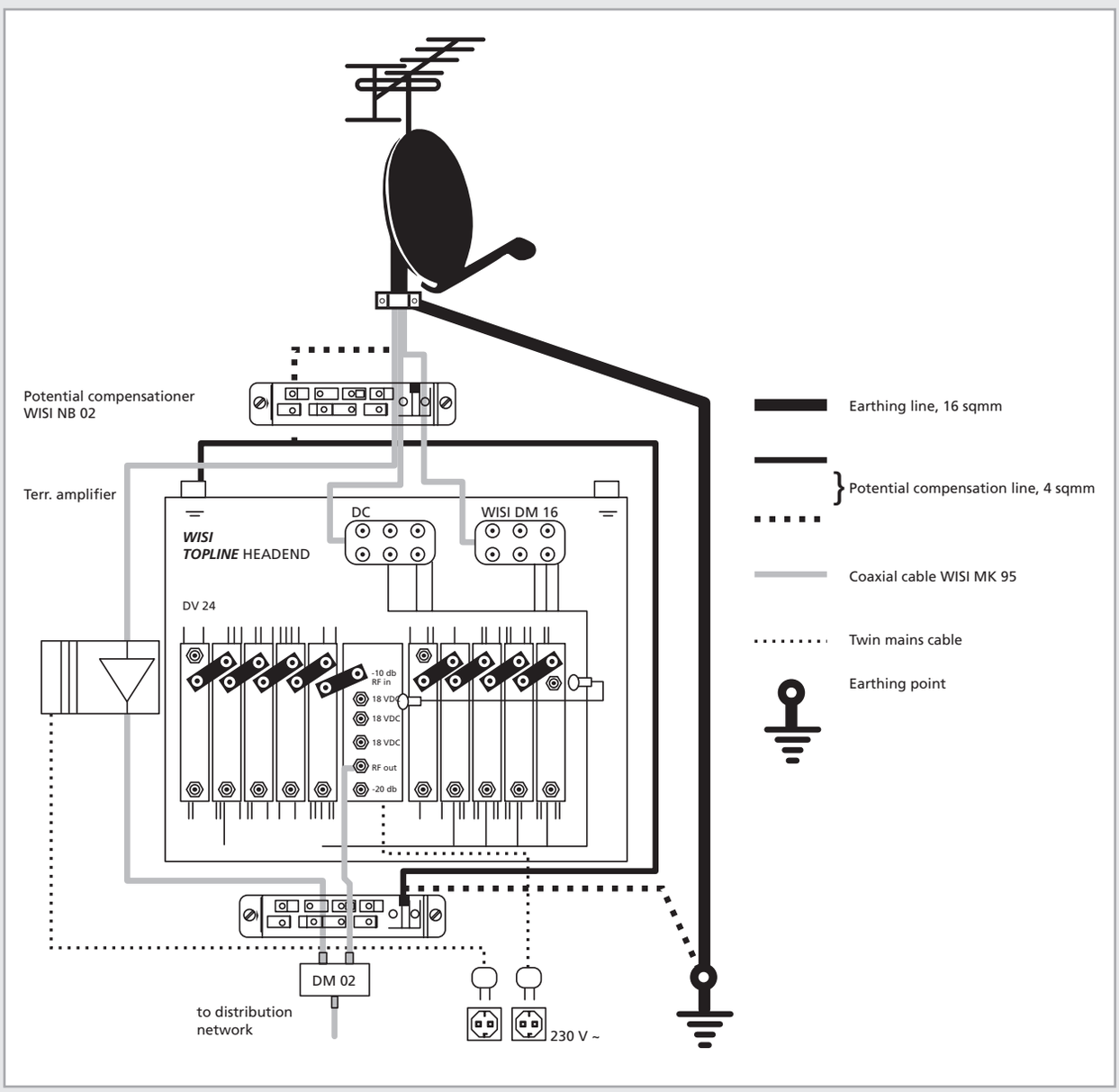


Earthing and potential equalization (VDE 0855, DIN 18015)

External lightning protection through earthing of the antenna installation,incl. the satellite antenna. When metallic antennas are used, earthing the mast is sufficient. The earthing conductor must have a diameter of at least 16 sqmm copper (massive) and connect to the lightning protection bar of the house via the shortest possible way. Antennas earthing is not mandatory if they are located more than 2 meters underneath the roof edge and not farther away than 1.5 m from the house wall.

Internal lightning protection through potential compensation in order to avoid dangerous voltage differences within the distribution network. For this, the outer sheaths of the different coaxial cables must be connected to an earthing line (25 sqmm copper) via a potential compensation bar (WISI NB 02) as closely as possible from the roofline. If amplifiers or remote power supplies are used, make shure that the potentia compensation is permanently available, even in case of removal. For this, install a potential compensation barboth at the input and at the output of such devices.

Warning: the antenna earthing is in no way a replacement for the building lightning protection according to DIN VDE 0185!



WISI product labelling

WISI products are labelled according to domestic and international quality and performance certificates:

	Compliance label of the German PTT telecom administration (BZT)
	EEC compliance lable according to the new EEC standard
	DIN 40010 compliance label
	Safety label granted by the VDE
	Electromagnetic compliance label according to DIN 40010
	Protection Class II according to DIN 40014 for products with mains connection 230 VAC
	Compliance labels to specifications: Sweden, Denmark, Norway, Finnland and Switzerland
	Connection standards: IEC 169-2 according to DIN 45323 (connectible) F-standard (screwable) PG 11 (Thread according to DIN 40430)
	Maximum screening factor according to EN 50083 - 2 Class A / B 30..... 300 MHz 85/75 dB 300.... 470 MHz 80/75 dB 470.... 1000 MHz 75/65 dB 1000.. 3000 MHz 55/55 dB
	Four basic DiSEqC switching criteria (polarisation, band, position, option) but without feedbach interpretation.
	Four basic switching criteria with feedback and interpretation of configuration bytes.

WISI product labelling

	Protection class designations: e.g. IP 20, IP 54, IP 65 etc. ...according to EN 60529.	
Part:	**figures or letters**	**Meaning**
Code letters	IP	-
First figure		Against penetration of objects
	0	(not protected)
	1	≥ 50 mm diameter
	2	≥ 12.5 mm diameter
	3	≥ 2.5 mm diameter
	4	≥ 1.0 mm diameter
	5	dust protected
	6	dust proof
Second figure		Against water penetration
	0	(not protected)
	1	vertical drops
	2	drops 15 ° bank
	3	spray water
	4	splashing water
	5	splashing water
	6	strong splashing water
	7	intermittent submession
	8	constant submession

Notes