Catalogue

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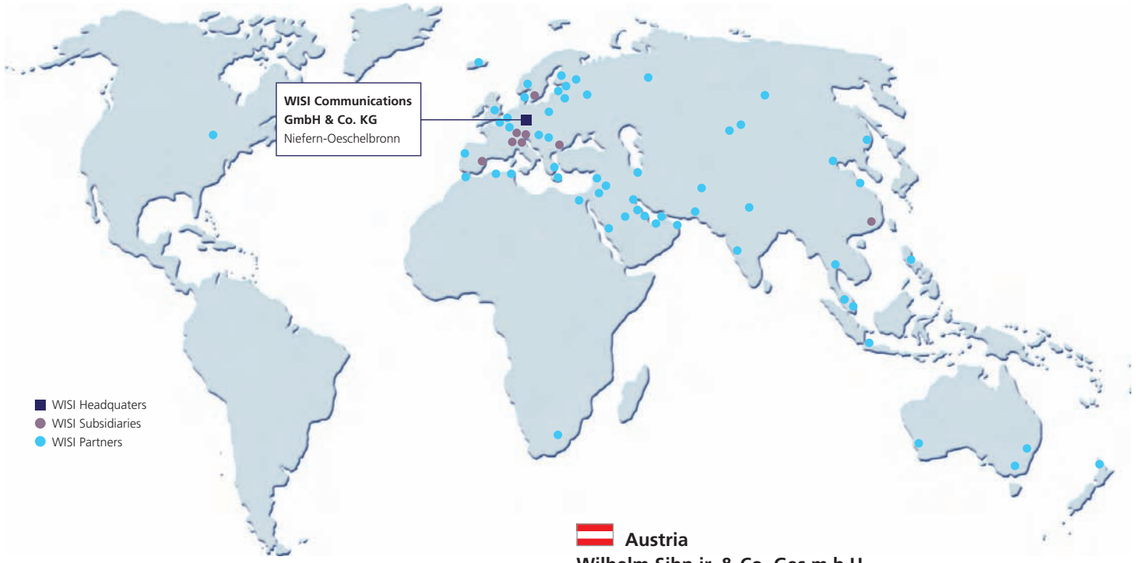
... a link to the future

... a link to the future

WISI – linked worldwide



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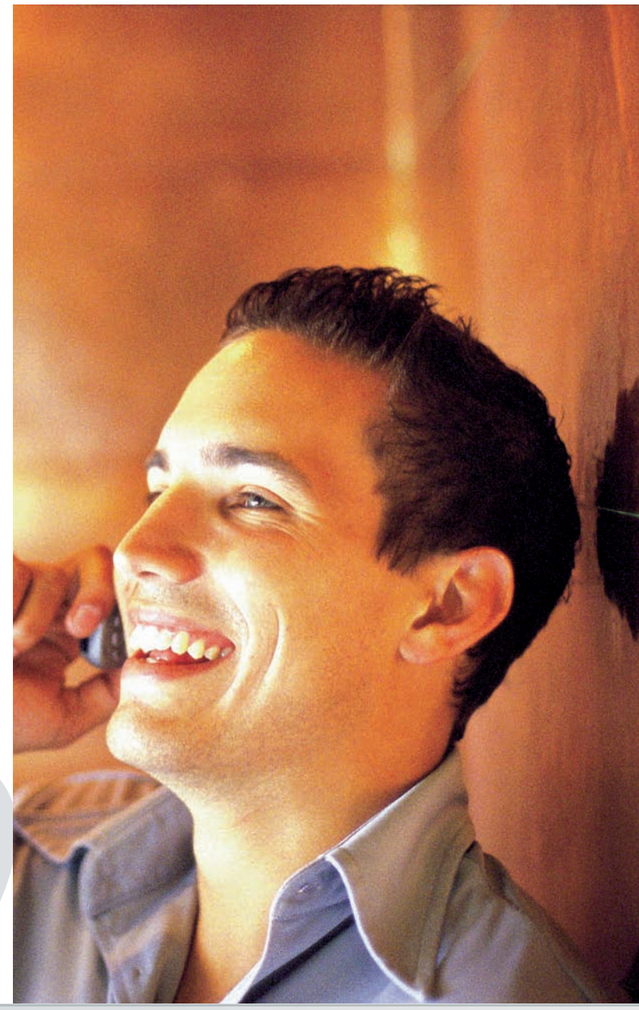
We are spoken about, worldwide.

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 lagest 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.



Communication *is our life.*

Communication defines our everyday life, informs us, imparts knowledge and experience. It supports our understanding and helps us solving problems.

We at WISI do everything possible to provide you with all necessary tools for your communication of today and tomorrow.

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Terrestrial antennas

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	710 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

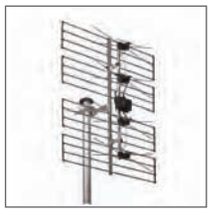
	EB 15	EB 22	EB 44	EB 66
				
Type	**EB 15 UHF antenna**	**EB 22 UHF antenna**	**EB 44 UHF antenna**	**EB 66 UHF antenna**
Channels	*21-47/21-29/ 38-69	21-69	*21-44/21-69	*21-37, 21-69, 31-47, 38-69
Elements	-	16	24	41
Gain max.	13.5 dB	11 dB	13 dB	16.5
Back / front ratio	>20 dB	20 dB	> 20 dB	26
Half 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 Ω, 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, 65 dm³, 2.4 kg	1 piece, 65 dm³, 3.4 kg

Notes

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

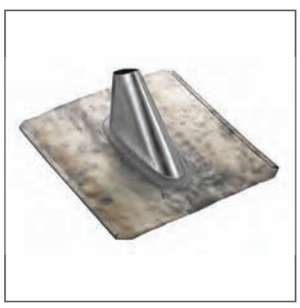
NC 11

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

NC 85 B



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

Mast accessories

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

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

MN 08

Wall mounting

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

Material	Alu
Mast	50 mm Ø
Distance from wall	200 mm
Mast length	360 mm
Distance between fixing holes	125 mm
Hole diameter	10 mm
Ground plate	175x175 mm
Packing unit	5 pieces, 4.3 kg

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, 4.7 kg

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
Distance between fixing holes	125 mm
Hole diameter	10 mm
Ground plate	175x175 mm
Packing unit	5 pieces, 4.6 kg

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
Distance between fixing holes	125 mm
Hole diameter	10 mm
Ground plate	175x175 mm
Packing unit	5 pieces, 4.4 kg

Roof mounting

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

Mast material	Alu
Clamping tube material	Steel
Rafter distance	49-90 cm
Mast length	95 cm
Mast	Ø 50 mm
Roof pitch	0 - 90 °
Packing unit	1 piece, 30 dm³, 4.5 kg

Roof 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

Mast material	Alu
Clamping tube material	Steel
Rafter distance	49-90 cm
Mast length	135 cm
Mast	Ø 50 mm
Roof pitch	0 - 90 °
Packing unit	1 piece, 42 dm³, 6.3 kg

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

MN 60 0300

Mast

hot galvanized, guide groove

Length max.	3 m
Useful bending mom. max.	1160 Nm (q=800 N/m²)
Weight	13 kg
Diameter	60 mm Ø
Packing unit	1 piece, 19 dm³, 21 kg

Mast mounting kit

NG 03

Service case

- 20 x DV 55 F-type connector, twist on
- 20 x DV 85 F-type connector crimp
- 20 x DV 95 F-type Quick-connector, crimp
- 20 x DV 15 F-type compression connector
- 5 x DV 53 F-type elbow adapter
- 10 x DV 49A F-type adapter; F-Quick toF-Fix
- 1 x MZ 01 Coax cable stripper
- 1 x DZ 01 tightning tool, F-type connector,
- 1 x DZ 15 Compressing tool
- 1 x DZ 85 Crimping tool
- per 1 x DB 03, DB 07, DB 53 Individual socket

Packing unit 1 piece, 13 dm³, 5.9 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/Filter

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

DL 20 A

Galvanic Block

Frequency range	5-1000 MHz
Through loss	< 0,5 dB
Insulation test voltage	2120 VDC
Packing unit	1 piece, bag
Shipping package	20 pieces, 1.2 dm³, 1.4 kg

DC Block/Filter

DL 20 G

Housing for DL 20 A

Packing unit	1 piece, bag
Shipping package	40 pieces, 30 dm³, 3 kg

DL 40 B

Return path filter

F-type connetors male and female 75 Ω

Blocking frequency range	1-65 MHz
Passing frequency range	80-862 MHz
Attenuation	> 40 dB
Packing unit	5 pieces, bag
Shipping package	100 pieces, 2.9 dm³, 3.5 kg

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

	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	100 pieces, 18.4 dm³, 5.3 kg	100 pieces, 18.4 dm³, 5.3 kg	100 pieces, 18.4 dm³, 5.3 kg	100 pieces, 18.4 dm³, 5.3 kg

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

	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	≥ 30 dB	≥34 dB	≥34 dB	≥34 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	100 pieces, 31.4 dm³, 7.2 kg	100 pieces, 31.4 dm³, 7.2 kg	100 pieces, 31.4 dm³, 7.2 kg	100 pieces, 31.4 dm³, 7.2 kg

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

	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	no	no	no
Dimensions	78x58x28 mm	78x58x28 mm	78x58x28 mm
Packing unit	5 pieces, bag	5 pieces, bag	5 pieces, bag
Shipping package	25 pieces, 8.1 dm³, 2.3 kg	25 pieces, 8.1 dm³, 2.3 kg	25 pieces, 8.1 dm³, 2.3 kg

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

Type	DM 36 A 4024 Tap off, 4-way	DM 36 B 4013 Tap off, 4-way
		
Thru loss 5-1000 MHz	0.8 dB	4 dB
Tap loss 5-1000 MHz	24 dB	13-15.5 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	no	yes
Dimensions	78x58x28 mm	92x54x42 mm
Packing unit	5 pieces, bag	5 pieces, bag
Shipping package	25 pieces, 8.1 dm³, 2.3 kg	25 pieces, 8.1 dm³, 2.3 kg

Tap offs 4-way DM 3...B (F-type)

	DM 37 B 6013	DM 38 B 8013
		
Type	**DM 37 B 6013 Tap off, 6-way**	**DM 38 B 8013 Tap off, 8-way**
Thru loss 5-1000 MHz	6 dB	8 dB
Tap loss 5-1000 MHz	13-17.5 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, 8.1 dm³, 4.9 kg	25 pieces, 8.1 dm³, 5.6 kg

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

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	100 pieces, 24 dm³, 9.5 kg

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

	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	200 pieces, 47 dm³, 12.8 kg	200 pieces, 47 dm³, 12.8 kg	200 pieces, 47 dm³, 12.8 kg

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

	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	200 pieces, 63 dm³, 17 kg	200 pieces, 63 dm³, 17 kg	200 pieces, 63 dm³, 17 kg

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

	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	50 pieces, 18.5 dm³, 6.3 kg	50 pieces, 18.5 dm³, 6.3 kg	50 pieces, 18.5 dm³, 6.3 kg	50 pieces, 18.5 dm³, 6.3 kg

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

	DM 02 A	DM 03 A	DM 04 A
			
Type	**DM 02 A Splitter, 2-way**	**DM 03 A Splitter, 3-way**	**DM 04 A Spiltter, 4-way**
Distribution loss 5-1000 MHz	3.7 dB	5.9 dB	7.5 dB
Isolation 5-1000 MHz	30 dB	30 dB	30 dB
Screening factor	>85 dB, Class A	>85 dB, Class A	>85 dB, Class A
Dimensions	55x50x28 mm	78x50x28 mm	78x50x28 mm
Shipping package	5 pieces, bag	5 pieces, bag	5 pieces, bag
Packing unit	100 pieces, 24 dm³, 5.5 kg	100 pieces, 24 dm³, 6.8 kg	100 pieces, 24 dm³, 7.5 kg

	DM 06 B	DM 08 B
		
Type	**DM 06 B Splitter, 6-way**	**DM 08 B Splitter, 8-way**
Distribution loss 5-1000 MHz	10 dB	11 dB
Isolation 5-1000 MHz	>25 dB	>25 dB
Screening factor	>85 dB, Class A	>85 dB, Class A
Dimensions	115x54x42 mm	115x54x42 mm
Shipping package	5 pieces, bag	5 pieces, bag
Packing unit	25 pieces, 10 dm³, 5.2 kg	25 pieces, 12.8 dm³, 5.7 kg

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

	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	100 pieces, 24 dm³, 5.9 kg	100 pieces, 24 dm³, 6.9 kg	100 pieces, 24 dm³, 7.9 kg	50 pieces, 16.9 dm³, 6.6 kg

F-type Accessories

DV 10

F-type compression connector

for MK 75

Packing unit	100 pieces, bag, 1.1 kg

DV 14

F-type compression connector

for MK 15

Packing unit	25 pieces, bag, 0.5 kg

DV 15

F-type compression connector

for MK 90/95

Packing unit	100 pieces, bag, 1.1 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 45

F Twin coupler 180°

Packing unit	10 pieces, bag, 0.2 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

F-type Accessories

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

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

DV 97

F-type Quick elbow, compression

for MK 9x

Packing unit 100 pieces, 0.5 dm³, 0.86 kg

DV 99

Tool for F-type mounting

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

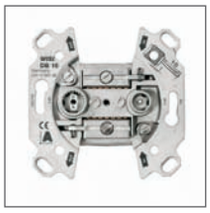
Coaxial elbow socket (female)

Color	white
Packing unit	bag
Shipping package	100 pieces, 9.6 dm³, 0.95 kg

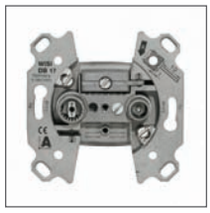
Universal wall outlet sockets

	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 socket 3) up from 470 MHz ≥ 36 dB 4) up from 10 MHz		

Wall outlet sockets

	DB 10	DB 16
		
Type	**DB 10 Individual socket**	**DB 16 Individual socket**
Frequency range	5-862 MHz	0.15-862 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
Side loss IN-TV	0.5 dB	<4.5 dB
Side loss IN-FM	1.5 dB	<4.5 dB
Screening factor	> 85 dB, Class A	> 85 dB, Class A
Isolation	TV-FM ≥20 dB	FM-TV ≥20 dB
Isolation at 2 sockets	-	-
Return loss IN	Cat B	Cat B
Return loss TV,FM	Cat C	Cat C
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, 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

Multimedia CATV/data-socket

- Separate connector for cable modem
- F connectors
- Additional Highpass filter for interference free TV and FM reception
- Strong ingress suppression in return path
- 2 directional couplers for high directivity

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	

Multimedia wall outlet sockets, individual, DD 04

Type	DD 04 0650 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	-/ typ 74 dB	typ. 74 dB
Isolation 5-30/65 MHz FM-DATA	-/ typ 74 dB	typ. 74 dB
Isolation 47-68 MHz TV-DATA	-	-
Isolation 47-68 MHz FM-DATA	-	-
Isolation 65-85 MHz TV-DATA	≥40 dB	≥40 dB
Isolation 65-85 MHz FM-DATA	≥40 dB	≥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 IN-DATA 47-862 MHz	Cat B	Cat B
Return loss TV-FM/TV-DATA	Cat C	Cat C
Return loss IN-DATA / FM 5-862 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

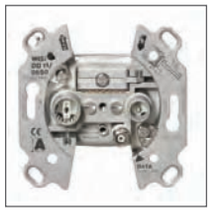
Multimedia wall outlet sockets, individual, DD 09

DD 09 M 0650

Type	DD 09 M 0650 Multimedia socket, F-type connector
Frequency range	5-862 MHz
Side loss DATA	9 dB
Side loss TV	9 dB
Side loss FM	11 dB
Isolation 5-30/65 MHz TV-DATA	typ. 74 dB
Isolation 5-30/65 MHz FM-DATA	typ. 74 dB
Isolation 5-30/65 MHz TV-FM	typ. 74 dB
Isolation 47-68 MHz FM-DATA	-
Isolation 65-85 MHz TV-DATA	≥38 dB
Isolation 65-85 MHz FM-DATA	≥40 dB
Isolation 85-862 MHz TV-FM	≥32 dB
Isolation 85-862 MHz TV-DATA	≥35 dB
Isolation 85-862 MHz FM-DATA	≥35 dB
Return loss, 85-862 MHz, IN	Cat B
Return loss, 85-862 MHz, TV-DATA	Cat C
Return loss, 85-862 MHz, FM	Cat D
Screening factor	>85 dB, Class A
Cable connection outer/ inner	7.5/0.8-1.3 mm
Packing unit	10 pieces, 2.45 dm³
Shipping package	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 0650	**DD 11 M 0650**
		
Type	**DD 11 0650 Multimedia socket, WICLIC**	**DD 11 M 0650 Multimedia socket, F-type connector**
Frequency range	5-862 MHz	5-862 MHz
Thru loss	3-4 dB	3-4 dB
Side loss	10 dB	10 dB
Isolation at one socket 5-30 MHz	-	-
Isolation at one socket 5-65 MHz	typ. 74 dB	typ. 74 dB
Isolation at one socket 30-300 MHz	-	-
Isolation at one socket 65-300 MHz	≥44 dB	≥ 44 dB
Isolation at one socket 300-862 MHz	≥40 dB	≥ 40 dB
Isolation at two sockets 5-30 MHz	-	-
Isolation at two sockets 5-65 MHz	typ. 74 dB	typ. 74 dB
Isolation at two sockets 30-300 MHz	-	-
Isolation at two sockets 65-300 MHz	≥44 dB	≥ 44 dB
Isolation at two sockets 300-862 MHz	≥40 dB	≥ 40 dB
Return loss IN-OUT 47-862 MHz	Cat B	Cat B
Return loss TV-DATA 85-862 MHz	Cat C	Cat C
Return loss FM 86-862 MHz	Cat D	Cat D
Return loss ALL 10-40 MHz	min. Cat D	min. Cat D
Screening factor	>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
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 15

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

	DD 15 0650	**DD 15 M 0650**
		
Type	**DD 15 0650 Multimedia socket, WICLIC**	**DD 15 M 0650 Multimedia socket, F-type connector**
Frequency range	5-862 MHz	5-862 MHz
Thru loss	1-1.75 dB	1-1.75 dB
Side loss	14 dB	14 dB
Isolation at one socket 5-30 MHz	-	-
Isolation 5-30/65 MHz TV-DATA	typ. 74 dB	typ. 74 dB
Isolation at one socket 30-300 MHz	-	-
Isolation at one socket 65-300 MHz	≥44 dB	≥ 44 dB
Isolation at one socket 300-862 MHz	≥40 dB	≥ 40 dB
Isolation at two socket 5-30 MHz	-	-
Isolation at two socket 5-65 MHz	typ. 74 dB	typ. 74 dB
Isolation at two socket 30-300 MHz	-	-
Isolation at two socket 65-300 MHz	≥44 dB	≥ 44 dB
Isolation at two socket 300-862 MHz	≥40 dB	≥ 40 dB
Return loss IN-OUT 47-862 MHz	Cat B	Cat B
Return loss IN-OUT 85-862 MHz TV-DATA	Cat C	Cat C
Return loss IN-OUT 85-862 MHz FM	Cat D	Cat D
Return loss ALL 10-40 MHz	min. Cat D	min. Cat D
Screening factor	>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
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 19

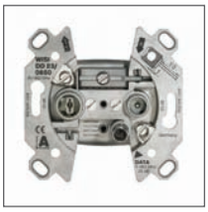
Note: Isolation one/two sockets: Data - TV/FM or TV-FM

Type	DD 19 0650 Multimedia socket, WICLIC	DD 19 M 0650 Multimedia socket, F-type connector
		
Frequency range	5-862 MHz	5-862 MHz
Thru loss	1.2-1.4 dB	1.2-1.4 dB
Side loss	19 dB	19 dB
Isolation at one socket 5-30 MHz	-	-
Isolation at one socket 5-65 MHz	typ. 74 dB	typ. 74 dB
Isolation at one socket 30-300 MHz	-	-
Isolation at one socket 65-300 MHz	≥44 dB	≥ 44 dB
Isolation at one socket 300-862 MHz	≥40 dB	≥ 40 dB
Isolation at two socket 5-30 MHz	-	-
Isolation at two socket 5-65 MHz	typ. 74 dB	typ. 74 dB
Isolation at two socket 30-300 MHz	-	-
Isolation at two socket 65-300 MHz	≥50 dB	≥ 50 dB
Isolation at two socket 300-862 MHz	≥50 dB	≥ 50 dB
Return loss IN-OUT 47-862 MHz	Cat B	Cat B
Return loss IN-OUT 85-862 MHz TV-DATA	Cat C	Cat C
Return loss IN-OUT 85-862 MHz FM	Cat D	Cat D
Return loss ALL 10-40 MHz	min. Cat D	min. Cat D
Screening factor	>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
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

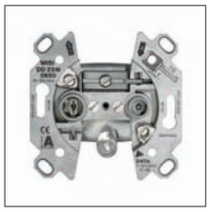
Multimedia wall outlet sockets, loop-thru, DD 23

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

DD 23 0650



DD 23 M 0650



Type	DD 23 0650 Multimedia socket, WICLIC	DD 23 M 0650 Multimedia socket, F-type connector
Frequency range	5-862 MHz	5-862 MHz
Thru loss	1.2-1.4 dB	1.2 -1.4 dB
Control range	23 dB	23 dB
Isolation at one socket 5-30 MHz	-	-
Isolation at one socket 5-65 MHz	typ. 74 dB	typ. 74 dB
Isolation at one socket 30-300 MHz	-	-
Isolation at one socket 65-300 MHz	≥50 dB	≥ 50 dB
Isolation at one socket 300-862 MHz	≥45 dB	≥ 45 dB
Isolation at two socket 5-30 MHz	-	-
Isolation at two socket 5-65 MHz	typ. 74 dB	typ. 74 dB
Isolation at two socket 30-300 MHz	-	-
Isolation at two socket 65-300 MHz	≥50 dB	≥ 50 dB
Isolation at two socket 300-862 MHz	≥50 dB	≥ 50 dB
Return loss IN-OUT 47-862 MHz	Cat B	Cat B
Return loss IN-OUT 85-862 MHz TV-DATA	Cat C	Cat C
Return loss IN-OUT 85-862 MHz FM	Cat D	Cat D
Return loss ALL 10-40 MHz	min. Cat D	min. Cat D
Screening factor	>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
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

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 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 27

Cable gland PG11

For coaxial cable	Cellular Pe/Cu-braid + Al-foil	MK 16
Dimensions	1.6 mm/7.3 mm	

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

CATV/house terminal box

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 C 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 14 0200

Cable connector	
for cable	- (1.7/7.0)
Packing unit	10 pieces, 0.28 dm³
Shipping package	100 pieces, 5.3 dm³, 3.8 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

ZE 16 0200

Cable connector	
for cable	- (2.9/19.4)
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

Cable connecting terminals

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

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 cables

Coaxial cables 75 Ω white

	MK 75 B 0101	MK 75 C 0101	MK 75 C 0500	MK 90 F 0100/0250
				
Type	**MK 75 B 0101 Coaxial cable, 75 Ω, 100 m**	**MK 75 C 0101 Coaxial cable, 75 Ω, 100 m**	**MK 75 C 0500 Coaxial cable, 75 Ω, 500 m**	**MK 90 F 0100/0250 Coaxial cable, 75 Ω, 100/0250 m**
Installation	House installation	House installation	House installation	House installation
Inner conductor	Cu-core, Ø0.8	Cu-core, Ø0.8	Cu-core, Ø0.8	Cu-core, Ø1.02
Dielectric	PE foamed, Ø3.5	PE foamed, Ø3.5	PE foamed, Ø3,5	PE foamed, Ø4.75
Outer conductor	bonded, laminated Al-foil/CuSn-braid	bonded, laminated Al-foil/CuSn-braid	bonded, laminated Al-foil/CuSn-braid	bonded Al-Foil/ CuSn-braid/ Al-foil
Outer sheath material	PVC, white, Ø5	PVC, white, Ø5	PVC, white, Ø5	PVC, white, Ø6.5
Loop resistance	55 Ω/km	55 Ω/km	55 Ω/km	43.5 Ω/km
Attenuation 5 MHz	2.0 dB/100m	2.0 dB/100m	2.0 dB/100m	1.6 dB/100m
Attenuation 50 MHz	5.8 dB/100m	5.8 dB/100m	5.8 dB/100m	4.1 dB/100m
Attenuation 600 MHz	20.0 dB/100m	20.0 dB/100m	20.0 dB/100m	14.8 dB/100m
Attenuation 950 MHz	26.9 dB/100m	26.9 dB/100m	26.9 dB/100m	18.9 dB/100m
Attenuation 2200 MHz	38.6 dB/100m	38.6 dB/100m	38.6 dB/100m	29.7 dB/100m
Return loss 5-862 MHz	≥26 dB	≥26 dB	≥26 dB	≥ 26 dB
Return loss 862-2500MHz	≥18 dB	≥18 dB	≥18 dB	≥ 22 dB
Propagation factor	0.84	0.84	0.84	0.84
Screening factor 30-2400 MHz	>90 dB	≥90 dB	≥90 dB	≥ 100 dB
Coupling resistance mOhm/m, 5-30 MHz	< 5	< 5	< 5	< 5
Total weight	28,0 kg/km	28.0 kg/km	28.0 kg/km	37 kg/km
Bending radius: single/multiple	25/50 mm	25/50 mm	25/50 mm	35 mm
Packing	plastic reel	plastic reel	plastic reel	plastic foil
Shipping package	5 x 100 m / 52,9 dm³, 15.5 kg	5 x 100 m / 52.9 dm³, 15.5 kg	2 x 500 m / 54.7 dm³, 28 kg	6x100m/2x250m 57.7 dm³, 20 kg

Coaxial cables 75 Ω white

	MK 90 F 0500	MK 95 C 0015/0025	MK 95 C 0100/0250	MK 95 C 0101
				
Type	**MK 90 F 0500 Coaxial cable, 75 Ω, 500 m**	**MK 95 C 0015/0025 Coaxial cable, 75 Ω, 15 m**	**MK 95 C 0100/0250 Coaxial cable, 75 Ω, 100/101/250 m**	**MK 95 C 0101 Coaxial cable, 75 Ω, 100 m**
Installation	House installation	House installation	House installation	House installation
Inner conductor	Cu-core, Ø1.02	Cu-core, Ø1.02	Cu-core, Ø1.02	Cu-core, Ø1.02
Dielectric	PE foamed, Ø4.75	PE foamed, Ø4.8 bonded	PE foamed, Ø4.8, bonded	PE foamed, Ø4.8, bonded
Outer conductor	bonded Al-Foil/ CuSn-braid/ Al-foil	laminated Al-Foil / CuSn braid	laminated Al-foil / CuSn braid	laminated Al-foil / CuSn braid
Outer sheath material	PVC, white, Ø6.5	PVC, white, Ø6.5	PVC, white, Ø6.5	PVC, white, Ø6.5
Loop resistance	43.5 Ω/km	30.5 Ω/km	30.5 Ω/km	30.5 Ω/km
Attenuation 5 MHz	1.6 dB/100m	1.5 dB/100m	1.5 dB/100m	1.5 dB/100m
Attenuation 50 MHz	4.1 dB/100m	4.2 dB/100m	4.2 dB/100m	4.2 dB/100m
Attenuation 600 MHz	14.8 dB/100m	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	18.9 dB/100m
Attenuation 2200 MHz	29.7 dB/100m	29.6 dB/100m	29.6 dB/100m	29.6 dB/100m
Return loss 5-862 MHz	≥ 26 dB	≥28 dB	≥28 dB	≥28 dB
Return loss 862-2500MHz	≥ 22 dB	≥25 dB	≥25 dB	≥25 dB
Propagation factor	0.84	0,85	0.85	0.85
Screening factor 30-2400 MHz	≥ 100 dB	> 90 dB	> 90 dB	> 90 dB
Coupling resistance mOhm/m, 5-30 MHz	< 5	< 5	< 5	< 5
Total weight	37 kg/km	46 kg/km	46.0 kg/km	46.0 kg/km
Bending radius: single/multiple	35 mm	35/70 mm	35/70 mm	35/70 mm
Packing	plastic reel	Blister	plastic foil	plastic reel
Shipping package	1x500m 54.4 dm³, 20 kg	6x15m, 4.7 kg 6x25m, 7.7 kg	6x100m / 2x250 m 57.7/53 dm³, 25 kg	5x100m/ 57.7 dm³, 25 kg

Coaxial cables 75 Ω white

	MK 95 C 0500	MK 96 F 0100/0250	MK 96 F 0101	MK 96 F 0500
				
Type	**MK 95 C 0500 Coaxial cable, 75 Ω, 500 m**	**MK 96 F 0100/0250 Coaxial cable, 75 Ω, 100/0250 m**	**MK 96 F 0101 Coaxial cable, 75 Ω, 100m**	**MK 96 F 0500 Coaxial cable, 75 Ω, 500 m**
Installation	House installation	House installation	House installation	House installation
Inner conductor	Cu-core, Ø1.02	Cu-core, Ø1.02	Cu-core, Ø1.02	Cu-core, Ø1.02
Dielectric	PE foamed, Ø4.8, bonded	PE foamed, Ø4.8	PE foamed, Ø4.8	PE foamed, Ø4.8
Outer conductor	laminated Al-foil / CuSn braid	bonded Al-Foil/ Cu-braid/ Al-foil	bonded Al-Foil/ Cu-braid/ Al-foil	bonded Al-foil/ Cu-braid/ Al-foil
Outer sheath material	PVC, white, Ø6.5	PVC, white, Ø6.5	PVC, white, Ø6.5	PVC, white, Ø6.5
Loop resistance	30.5 Ω/km	34.5 Ω/km	34.5 Ω/km	34.5 Ω/km
Attenuation 5 MHz	1.5 dB/100m	1.6 dB/100m	1.6 dB/100m	1.6 dB/100m
Attenuation 50 MHz	4.2 dB/100m	4.1 dB/100m	4.1 dB/100m	4.1 dB/100m
Attenuation 600 MHz	14.6 dB/100m	14.8 dB/100m	14.8 dB/100m	14.8 dB/100m
Attenuation 950 MHz	18.9 dB/100m	18.9 dB/100m	18.9 dB/100m	18.9 dB/100m
Attenuation 2200 MHz	29.6 dB/100m	29.7 dB/100m	29.7 dB/100m	29.7 dB/100m
Return loss 5-862 MHz	≥28 dB	≥ 26 dB	≥ 26 dB	≥ 26 dB
Return loss 862-2500MHz	≥25 dB	≥ 20 dB	≥ 20 dB	≥ 20 dB
Propagation factor	0.85	0.84	0.84	0.84
Screening factor 30-2400 MHz	> 90 dB	≥ 110 dB	≥ 110 dB	≥ 110 dB
Coupling resistance mOhm/m, 5-30 MHz	< 5	< 1.5	< 1.5	< 1.5
Total weight	46.0 kg/km	43 kg/km	43 kg/km	43 kg/km
Bending radius: single/multiple	35/70 mm	35/75 mm	35/75 mm	35/75 mm
Packing	plastic reel	plastic foil	plastic reel	plastic reel
Shipping package	1x 500 m / 54.4 dm³, 25 kg	6x100m/2x250m 57.7 dm³, 25 kg	5x100m/57.7 dm³, 25 kg	1x500m/ 54.4 dm³, 25 kg

Coaxial cables 75 Ω white

	MK 96 L 0100	MK 96 L 0500
		
Type	**MK 96 L 0100 Coaxial cable, 75 Ω, 100 m, halogenfree**	**MK 96 L 0500 Coaxial cable, 75 Ω, 500 m, halogenfree**
Installation	House installation	House installation
Inner conductor	Cu-core, Ø1.02	Cu-core, Ø1.02
Dielectric	PE foamed, Ø4.8	PE foamed, Ø4.8
Outer conductor	bonded Al-foil/ Cu-braid/ Al-foil	bonded Al-foil/ Cu-braid/ Al-foil
Outer sheath material	LSZH-Compound white, halogenfree Ø6.5	LSZH-Compound white, halogenfree Ø6.5
Loop resistance	34.5 Ω/km	34.5 Ω/km
Attenuation 5 MHz	1.6 dB/100m	1.6 dB/100m
Attenuation 50 MHz	4.1 dB/100m	4.1 dB/100m
Attenuation 600 MHz	14.8 dB/100m	14.8 dB/100m
Attenuation 950 MHz	18.9 dB/100m	18.9 dB/100m
Attenuation 2200 MHz	29.7 dB/100m	29.7 dB/100m
Return loss 5-862 MHz	≥ 26 dB	≥ 26 dB
Return loss 862-2500MHz	≥ 20 dB	≥ 20 dB
Propagation factor	0.84	-
Screening factor 30-2400 MHz	≥ 110 dB	≥ 110 dB
Coupling resistance mOhm/m, 5-30 MHz	< 1.5	< 1.5
Total weight	43 kg/km	43 kg/km
Bending radius: single/multiple	35/70 mm	35/70 mm
Packing	plastic foil	plastic foil
Shipping package	6 x 100m / 56.0 dm³, 28 kg	1x 500 m, 24 kg

Coaxial cables 75 Ω black

MK 15 0500

Type	MK 15 0500 Coaxial cable, 75 Ω, black
Installation	Direct burial
Inner conductor	Cu-core, Ø1.63
Dielectric	PE foamed, Ø7.2
Outer conductor	bonded Al-foil / Cu-Sn braid
Multi screen foil	Al / Pet
Outer sheath	PE black, Ø10.3
Loop resistance	16 Ω/km
Attenuation 5 MHz/100 m	0,9 dB
Attenuation 50 MHz/100 m	2,8 dB
Attenuation 600 MHz/100 m	10,1 dB
Attenuation 862 MHz/100 m	12,4 dB
Attenuation 2150/3000 MHz/100 m	20,4 / 23,8 dB
Return loss 5-1000/3000 MHz	>28dB / >23dB
Propagation factor	0.84
Screening factor 30-1000/2400 MHz	>110dB- >100 dB
Coupling resistance mOhm/m	< 1
Total weight	76 kg / km
Bending radius: single/multiple	100 mm
Shipping package: Reeled on drum	500 m, 57 dm³, 41 kg
Diameter Ø*	1.63/7.2/10.3 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 contains	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

MB 02

Drill-free reel off
Increased cable protection
Easy to carry, break proof
Impact restistant
For ecological fail and reel packaging
Robust mechanics

Delivery contains	Cable box, Carring belt, Empty plastic reel
Application for	250 m blisterpac, 250 m reel
WISI- Cable type	MK 75 C 0101, MK 90 D 0100, MK 95 C 0100
Shipping package	3 pieces, 100 dm³, 10.0 kg

Notes

systems

Satellite receiving systems

WISI ORBIT TOPLINE Offset antennas

The parabolic reflector are made of glassfiber reinforced plastic, OA 13A aluminium, plus a sealing coat of polyurethane paint.
Two colors are available for best blending in with the surroundings.
The antennas are supplied with feed holder.
The hot galvanized mounting bracket is powder-coated in the color of the reflector.

OA 13 A

OA 78

OA 78 B

Type	OA 13 A Offset antenna	OA 78 Offset antenna	OA 78 B Offset antenna
Reflector	Aluminium	GRP	GRP
Diameter	125 cm	75 cm	75 cm
Color	light grey (RAL 7035)	light grey (RAL 7035)	grey brown (RAL 8019)
Gain (12.0 GHz)	43.4 dB	37.5 dB	37.5 dB
3 dB aperture angle	<1.37 °	<2.5 °	<2.5 °
Setting range, elevation	20-50 °	9-42 °	9-42 °
Fastening clamp	55-100 mm	38-80 mm	38-80 mm
Wind load up to 20 m	1450 N	525 N	525 N
Figure of merit with LNC = 1.2 dB	-	16.2 dB/K	16.2 dB/K
Packing unit	1 piece, 314 dm³, 19 kg	1 piece, 115 dm³, 10 kg	1 piece, 115 dm³, 10 kg

WISI ORBIT TOPLINE Offset antennas

The parabolic reflector are made of glassfiber reinforced plastic,
OA 13A aluminium, plus a sealing coat of polyurethane paint.
Two colors are available for best blending in with the surroundings.
The antennas are supplied with feed holder.
The hot galvanized mounting bracket is powder-coated
in the color of the reflector.

OA 98

OA 98 B

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

WISI ORBIT TOPLINE Offset antennas OA 85

Offset antenna, 85 cm Ø
Made of Alu powder-coated.Three colors are available for best blending
Feed bracket 40 mm

OA 85 G

OA 85 H

OA 85 I

Type	OA 85 G Offset antenna	OA 85 H Offset antenna	OA 85 I Offset antenna
Reflector	Alu, powder-coated	Alu, powder-coated	Alu, powder-coated
Diameter	85 cm	85 cm	85 cm
Color	light grey (RAL 7035)	graphite grey (RAL 7012)	red brown (RAL 8012)
Gain (12.o GHz)	37 dB	37 dB	37 dB
3 dB aperture angle	< 2,2°	< 2,2°	< 2,2°
Setting range, elevation	0-90°	0-90°	0-90°
Fastening clamp	32-80 mm	32-80 mm	32-80 mm
Wind load up to 20m	478 N	478 N	478 N
Figure of merit with LNC=1.2 dB	-	-	-
Packing unit	1 piece, 144 dm³, 7 kg	1 piece, 144 dm³, 7 kg	1 piece, 144 dm³, 7 kg

WISI ORBIT TOPLINE Feed systems

	OC 01	OC 02	OC 04
			
Type	**OC 01 Feed system**	**OC 02 Feed system**	**OC 04 Feed system**
Circuit design	SINGLE	TWIN	QUADRO
No. of user	1	2	4-32
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
LO Frequency	9.75/10.6 GHz	9.75/10.6 GHz	9.75/10.6 GHz
Output frequency	950-2150 MHz	950-2150 MHz	950-2150 MHz
Operating 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
Power consumption DC max.	110 mA	110 mA	110 mA
Color	light grey RAL (7035)	light grey RAL (7035)	light grey RAL (7035)
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
Shipping package	5 pieces, 14 dm³ 1.5 kg	5 pieces, 14 dm³ 1.5 kg	5 pieces, 14 dm³ 1.5 kg

WISI ORBIT TOPLINE Feed systems

	OC 05	OC 06
		
Type	**OC 05 Feed system**	**OC 06 Feed system**
Circuit design	UNICABLE	QUAD-Switch
No. of user	5	4, incl. Multiswitch
Input frequency	10.7-11.70 GHz 11.7-12.75 GHz	10.7-11.70 GHz 11.7-12.75 GHz
LO Frequency	9.75/10.6 GHz	9.75/10.6 GHz
Output frequency	1210, 1420, 1680, 2040 MHz	950-2150 MHz
Operating voltage V/H	11-14.2/15.5-21 VDC 22 kHz	11-14.2/15.5-21 VDC 22 kHz
Power consumption DC max.	280 mA	110 mA
Color	grey brown RAL (8019)	light grey RAL (7035)
Packing unit	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

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 85 0002

DUO-Feed-Adapter for 2 Feed systems	
For Offset antenna	OA 85 G/H/I
Feed system	2x40Ø Feed system

OF 85 0004

QUADRO-Feed-Adapter for 4 Feed systems	
For Offset antenna	OA 85 G/H/I
Feed system	4x40Ø Feed system

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

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

Accessories WISI ORBIT Feed systems

OP 08 C

Duo-Feed bracket for ORBIT antennas

Packing unit 1 piece, bag, 0.8 dm³, 0.15 kg

WISI MULTISYSTEM QUICK, stand alone 5 inputs

EMC acc. to CE, Class A

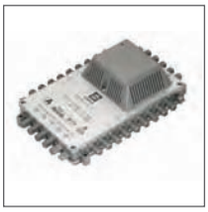
DY 56 A

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

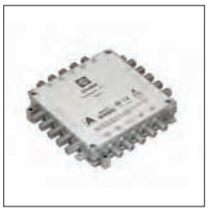
WISI MULTISYSTEM QUICK, cascadable 5 inputs

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, 5.7 dm³, 0.9 kg	1 piece, 5.7 dm³, 0.95 kg	1 piece, 3.4 dm³, 0.65 kg	1 piece, 3.4 dm³, 0.65 kg
Shipping package	5 pieces, 30 dm³, 5.0 kg	5 pieces, 30 dm³, 5.0 kg	5 pieces, 20 dm³, 3.4 kg	5 pieces, 20 dm³, 3.4 kg

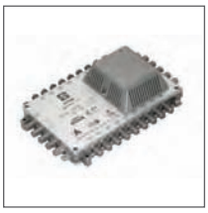
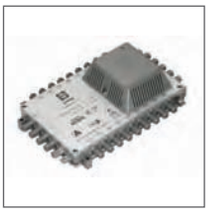
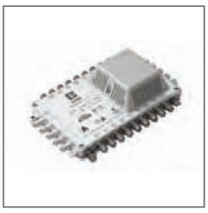
WISI MULTISYSTEM QUICK, cascadable 5 inputs

EMC acc. to CE, Class A

	DY 48 A	DY 54 B	DY 56 B	DY 58 B
				
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, 3.4 dm³, 0.65 kg	1 piece, 3.8 dm³, 0.74 kg	1 piece, 3.8 dm³, 0.74 kg	1 piece, 3.8 dm³, 0.74 kg
Shipping package	5 pieces, 20 dm³, 3.4 kg	5 pieces, 20 dm³, 4.1 kg	5 pieces, 20 dm³, 4.1 kg	5 pieces, 20 dm³, 4.1 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, 5.8 dm³, 0.95 kg	1 piece, 2.3 dm³, 1.13 kg	1 piece, 5,8 dm³, 0.95 kg
Shipping package	5 pieces, 30 dm³, 5 kg	5 pieces, 30 dm³, 5 kg	5 pieces, 30 dm³, 5 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, 5.8 dm³, 0.85 kg	1 piece, 5.8 dm³, 0.85 kg	1 piece, 5.8 dm³, 0.85 kg
Shipping package	5 pieces, 30 dm³, 4.5 kg	5 pieces, 30 dm³, 4.5 kg	5 pieces, 30 dm³, 4.5 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 and 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 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, 3.5 dm3 1.5 kg	1 piece, 1.6 dm3 1.4 kg
Shipping package	-	-

MULTISYSTEM QUICK Accessories

DV 24

F-Terminating resistor

Packing unit	10 pieces in 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

MULTISYSTEM QUICK Accessories

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
Packing unit		1 piece, 3.4 dm³, 0.65 kg
Accessory		power supply unit DY 55 plug-in

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	

MULTISYSTEM QUICK Accessories

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	5.8 dm³, 1 kg
Shipping package		10 pieces	60 dm³, 10.6 kg
EMC			CE, Class A
Accessory			Plug-in power supply unit DY 55

WISI Multitap

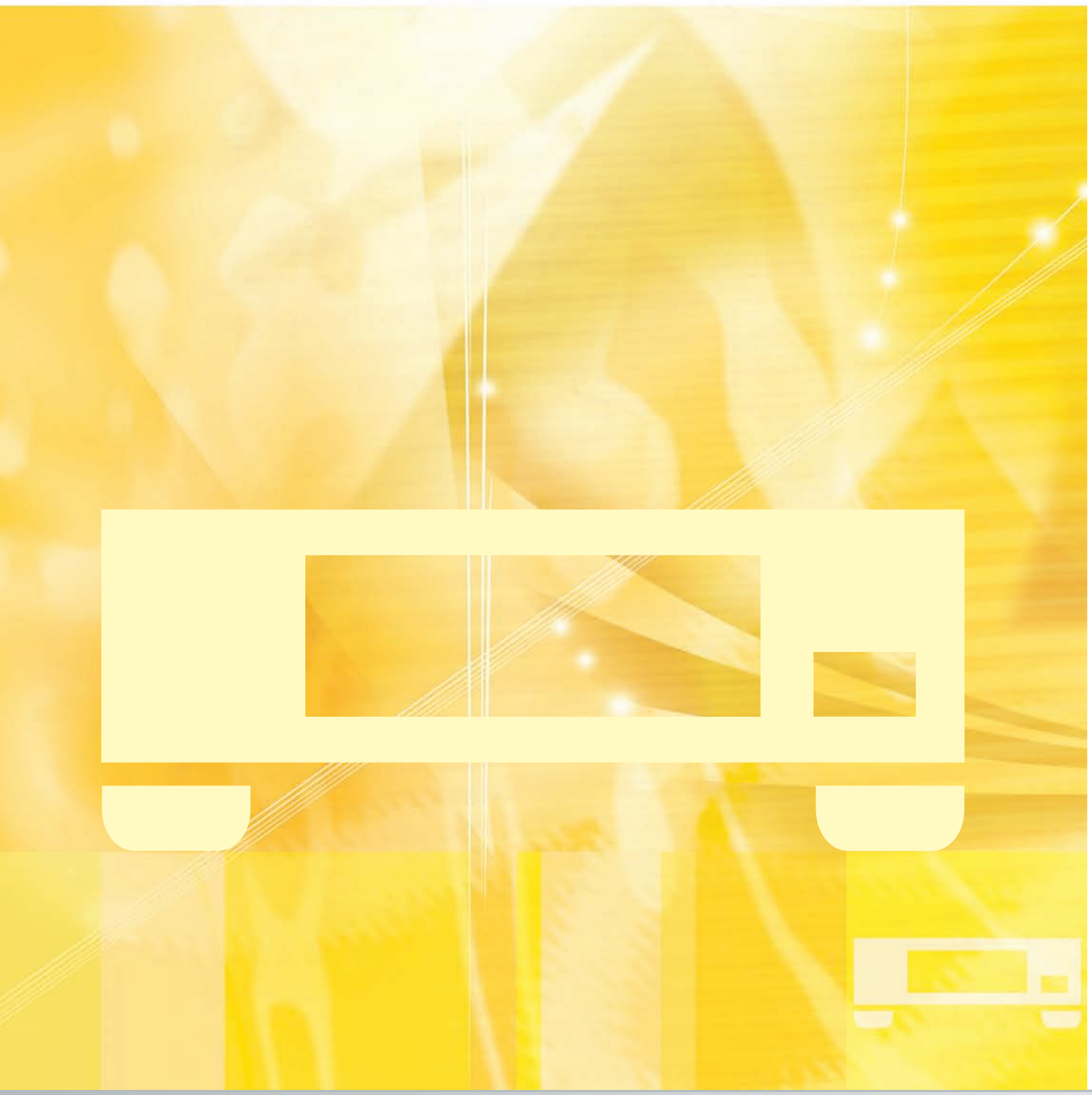
DM 90

Multitap passive

- 8 SAT + 1 TERR inputs and outputs (trunk)
- 8 SAT + 1 TERR outputs (per tap)
- Up to 1500 subscribers and more
- DY 90 amplifier required

Thru loss	3 dB
Tap loss	13 dB
DC bypass (trunk)	yes

Receiver



Receiver DVB-C

OR 28

DVB-C-Receiver CONAX

4000 program memories
4-digit display
Integrated Conax
Electronic program guide
Videotext and -generating for TV
Fast-OSD
Automatic channel search
TV SCART (FBAS, RGB, YUV, Y/C), VCR SCART (FBAS)
Digitaler audio output S/PDIF
RJ11 interface
IR receiver OB 03 interface
Pre programmed ASTRA, Hotbird, Türksat

Input	Frequency range	51-858 MHz
	Modulation	16/32/64/128/256 QAM
	Symbolrate	2.000 - 6.900 Ms
	Input connector	IEC / 75 Ω
Video	Decoding	MPEG II
	Vdeo format	4:3, 16:9, Letterbox, Pan-Scan
	Output connector	TV SCART - FBAS, RGB, Y/C, YUV, Audio L+R VCR SCART - FBAS HDMI 1.2 - 576i, 576p, 720p, 1080i
Audio	Decoding	MPEG I, Layer 2
	Optical Output	AC3
	Output connector	TV/VCR SCART, OPTIC S/PDIF
Power supply	Operating voltage	plug-in 100 - 240 VAC, 50/60 Hz; 12 VDC
	Power consumption	ca. 7 W, Standby ca. 2.7 W
General data	Data socket	RJ 11
	Operating temperature range	+5°C...+40°C
	Dimensions (WxHxD)	230x35x140 mm
	Packing unit	1piece, 3.4 dm³, 0.6 kg

Receiver DVB-S

OR 18

DVB-S-Receiver Free To Air

4000 program memories
Display
Electronic program guide
Videotext and -generating for TV
Fast-OSD
Automatic channel search
DiSEqC 1.0
2 SCART,(TV: FBAS, Y/C)
Digitaler audio output S/PDIF
RJ11 interface
IR receiver OB 03 interface
Pre programmed ASTRA, Hotbird, Türksat

Input	Frequency range	920-2150 MHz
	Socket	F-type / 75 Ω
Video	Decoding	MPEG II
	Video formats	4:3, 16:9
	Connectors	TV SCART - CVBS, Y/C, Audio L+R; VCR SCART - CVBS
Audio	Decoding	MPEG I, Layer 2
	Bitrate	max. 384 kbps
	Connectors	TV/VCR SCART; OPTIC S/PDIF
Power supply	Operating voltage	plug-in 100 - 240 VAC, 50/60 Hz; 12 VDC
	Power consumption	ca. 10 W, Standby ca. 6 W
	LNC power supply	max. 300 mA
General data	Data socket	RJ 11
	Operating temperature	+5°C...+40°C
	Dimensions (WxDxH)	230x35x140 mm
	Packing unit	1piece, 3.4 dm³, 0.6 kg
Accessory		OB 03 external IR receiver

Receiver DVB-S

OR 18 HDMI

HDMI DVB-S-Receiver Free To Air

4000 program memories
Display
Electronic program guide
Videotext and -generating for TV
Fast-OSD
Automatic channel search
DiSEqC 1.0
2 SCART, RCA: Video, Audio L/R
Digitaler audio output
RJ11 interface
IR receiver OB 03 interface
Pre programmed ASTRA, Hotbird, Türksat

Input	Frequency range	920-2150 MHz
	Socket	F-type / 75 Ω
Video	Decoding	MPEG II
	Standard	PAL
	Video formats	4:3, 16:9
	Resolution	720x480 (NTSC) 720x576 (PAL)
	Output level	1 Vpp / 75 Ω
	Connectors	TV SCART - CVBS, RGB, Y/C, YUV, Audio L+R VCR SCART - FBAS HDMI 1.2 - 576i, 576p, 720p, 1080i
Audio	Decoding	MPEG I, Layer 2
	Bitrate	max. 384 kbps
	Connectors	RCA Cinch, TV/ VCR SCART, OPTIC S/PDIF
Power supply	Operating voltage	230 VAC, 50/60 Hz; 12 VDC
	Power consumption	ca. 10 W, Standby ca. 4 W
	LNC power supply	max. 300 mA
General data	Data socket	RJ 11
	Operating temperature	+5°C...+40°C
	Dimensions (WxDxH)	230x35x140 mm
	Packing unit	1piece, 3.4 dm³, 0.73 kg
Accessory		OB 03 external IR receiver

Receiver DVB-S

OR 20

DVB-S-Receiver

- Slim Line Receiver
- 4000 channel memory capacity
- Display
- Electronic Program guide (EPG)
- Video text (loop through to 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-type / 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		252x52x140 mm
	Packing unit		1 piece, 4,8 dm3, 1,0kg
	Shipping package		25 pieces/130 dm³/26.5 kg
Further details			Volume adjustment
			Software update
			Autom. channel search

Receiver DVB-S

OR 20 HDMI

HDMI DVB-S-Receiver

- 4000 channel memory capacity
- Display
- Electronic Program guide (EPG)
- Video text and video generating
- 2 SCART (TV: CVBS, RGB, YUV, Y/C)
- Video, Audio L/R, AC3, RCA sockets
- 4:3 , 16:9 signalling
- Timer
- DiSEqC 1.0, 1.2
- Digitaler audio output
- RS232 interface
- Pre programmed ASTRA, Hotbird, Türksat

Input	Frequency range	950-2150 MHz
	Socket	1 x F-type / 75 ohm
Video	Decoding	MPEG II
	Image adaption	Letterbox, Center, Pillarbox
	Video format	4:3; 16:9 (Letterbox)
	Connerctors	TV SCART - CVBS, RGB, Y/C, YUV, Audio L+R; VCR SCART -CVBS, Audio L+R; HMDI 1.2 - 576i, 576p, 720p, 1080i
Audio	Decoding	MPEG I, Layer 2
	Bitrate	max. 384 kbps
	Connerctors	TV/VCR SCART; RCA Cinch; OPTIC S/PDIF
Power supply	Operating voltage	230 VAC, 50/60 Hz
	Power consumption	10,6 W, Standby 2,3 W
	LNC power supply	max. 500 mA
General data	Data socket	RS232
	Dimensions (WxDxH)	252x52x140 mm
	Packing unit	1 piece, 4,8 dm³, 1,0 kg
	Shipping package	25 pieces/130 dm³/26.5 kg
Further details		Software update
		Autom. channel search

Receiver DVB-S

OR 25

DVB-S-PVR receiver Free To Air, 80 GB

- 80 GB hard disk for approx. 50h recording time
- 4000 Program memories
- Timer programming via EPG
- Timeshift function
- 4-digit display
- 2 SCART, (TV_SCART:RGB, Y/C, YUV, FBAS), RCA sockets, Video, Audio L/R
- EPG, Video text and loop through TV
- AC3 (Dolby Digital)
- RS 232, Software update via satellite
- Timer function, Multilingual On-Screen Menue
- DiSEqC 1.0/1.2
- Pre-programmed: ASTRA, Hotbird, Türksat

Input	Frequency range		920-2150 MHz
	Power supply LNB		+14/+18V, max. 400 mA
	Input sockets		F-type / 75Ω
Video	Decoding		MPEG II
	Video standards		PAL
	Video formats		4:3, 16:9
	Image adaptation		Letterbox, Pan Scan, Center, Pillarbox
	Output level		1Vss / 75Ω
	Output connector	TV SCART	CVBS, RGB, Y/C, YUV, Audio L+R
		VCR SCART	CVBS, Audio L+R
Audio	Decoding		MPEG I, Layer 2
	Bitrate		max. 384 kbps
	Output connector		RCA Cinch, TV/ VCR SCART, OPTIC S/PDIF
Power supply	Operating voltage		230 VAC, ± 10%, 50/60 Hz
	Power consumption		ca. 10 W, Standby ca. 4 W
General data	Data socket		RS-232, 115 200 Kbps, 9 Pin D-sub
	Operating temperature		+5°C...+40°C
	Dimensions (WxDxH)		325x55x140 mm
	Packing unit		1 piece, 5 dm³, 1.2 kg

Receiver DVB-S

OR 26

DVB-S/T-COMBI receiver

- 4000 program memories
- Reception of: digital Satellite and digital terrestrial signals
- Program table for SAT and Terr.
- 4-digit display
- 2 SCART
- EPG, Video text and loop through to TV
- 2 SCART /TV-SCART: RGB, Y/C, YUV, FBAS), RCA: Video, Audio L/R
- Digital optical audio output S/P-DIF (Toslink)
- 10fold timer + Sleep-Timer
- Multilingual On-Screen-Menü
- DiSEqC 1.0/1.2
- Pre-programmed: ASTRA, Hotbird, Türksat

Input	Frequency range	DVB-S	920-2150 MHz
		DVB-T	174-862 MHz
	LNB power supply	DVB-S	+14/+18V, max. 400 mA
		DVB-T	+5V, max. 30 mA
	Input sockets	DVB-S	F-type / 75Ω
		DVB-T	IEC /75Ω
Video	Decoding		MPEG II
	Video standards		PAL
	Video formats		4:3, 16:9
	Image adaptation		Letterbox, Pan Scan, Center, Pillarbox
	Output level		1Vpp / 75Ω
	Output connector	TV SCART	CVBS, RGB, Y/C, YUV, Audio L+R
		VCR SCART	CVBS, audio L+R
Audio	Decoding		MPEG I, Layer 2
	Bitrate		max. 384 kbps
	Output connector		RCA Cinch, TV/ VCR SCART, OPTIC S/PDIF
Power supply	Operating voltage		230 VAC, ± 10%, 50/60 Hz
	Power comsumption		ca. 10 W, Standby ca. 4 W
General data	Data socket		RS-232, 115 200 Kbps, 9 Pin D-sub
	Operating temperature		+5°C...+40°C
	Dimensions (WxDxH)		325 x 55 x 140 mm
	Packing unit		1 piece, 6.4 dm³, 1.1 kg

Receiver DVB-S

OR 50 D

DVB-S-FTA-Receiver

- 4000 program memories for TV and Radio
- 12 digit VFD display
- FAV favorite list
- OSD - Multilingual ON-SCREEN display
- EPG - Elektronic Program Guide
- Timer and Sleep Timer
- Parental lock - block specific menue settings or individual channels
- Teletext decoder
- Teletext loop through to TV, DVB sub titles
- OTA-Software update via Satellite and PC (RS232)
- Automatic Video format 4:3 and 16:9 switching
- DiSEqC 1.2
- Unicable and ASTRA DUO capable
- 2 SCART TV (CVBS,Y-C,YUV and RGB) & VCR (CVBS)
- S/PDIF (optical), analogue L/R (RCA)
- Mains switch

Input	Frequency range	950 - 2150 MHz
	Input level	- 65 dBm... -25 dBm
	LNB power supply	14/18 V, max. 400 mA
	Control signal	22 kHz
	DiSEqC	1.0 und 1.2, USALS
	Input data rate	2 MS/s - 45 MS/s
Video	Decoding	MPEG II, MP @ ML
	Resolution	720x480 (NTSC) / 720x576 (PAL)
	Video formats	4:3, 16:9
Audio	Typ	Mono, 2-ch mono, stereo
	Bitrate	32 / 44,1 / 48 kHz
Connectors Rear panel	Tuner input	F-type
	Loop through	F-type
	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 interface	D-sub, 9-pin, max. 115 kbps
Power supply	Operating voltage	100-240 V AC, 50/60 Hz
	Power consumption	max. 15 W
General data	Dimensions (WxDxH)	285x54x210 mm
	Operating temperature	+5°C...+35°C
	Packing unit	1 piece, 10.9 dm³, 2.2 kg

Receiver DVB-S

OR 52 D

DVB-S-CI receiver

- 4000 program memories for TV and Radio
- 12 digit VFD display
- FAV favorite list
- OSD - Multilingual ON-SCREEN display
- EPG - Elektronic Program Guide
- Timer and Sleep Timer
- Parental lock - block specific menue settings or individual channels
- Teletext decoder
- Teletext loop through to TV, DVB sub titles
- OTA-Software update via Satellite and PC (RS232)
- Automatic video format 4:3 and 16:9 switching
- 2 CI slots
- DiSEqC 1.x
- Unicable and ASTRA DUO capable
- TV SCART (CVBS,Y-C,YUV and RGB) & VCR (CVBS)
- S/PDIF (optical), analogue L/R (RCA)
- Mains switch

Input	Frequency range	950 - 2150 MHz
	Input level	- 65 dBm...-25 dBm
	LNB power supply	14/18 V, max. 400 mA
	Control signal	22 kHz
	DiSEqC	1.0 und 1.2, USALS
	Input data rate	2 MS/s - 45 MS/s
Video	Decoding	MPEG II, MP @ ML
	Resolution	720x480 (NTSC) / 720x576 (PAL)
	Video formats	4:3, 16:9
Audio	Typ	Mono, 2ch mono, stereo
	Bitrate	32 / 44,1 / 48 kHz
Connectors Rear panel	Tuner input	F-type
	Loop through	F-type
	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 interface	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 54 x 210 mm
	Operating temperature	+5°C...+35°C
	Shipping package	1 piece, 10.9 dm³, 2.2 kg

Receiver DVB-S

OR 53 D

DVB-S-CI receiver incl. HDMI, USB2.0

- 4000 program memories for TV and Radio
- 10 digit VFD display
- PVR ready; Recording on hard disk via USB 2.0
- FAV favorite list
- OSD - Multilingual ON-SCREEN display
- EPG - Elektronic Program Guide
- Timer and Sleep Timer
- Parental lock - block specific menue settings or individual channels
- Teletext decoder
- Teletext loop through to TV, DVB sub titles
- OTA-Software update via Satellite and PC (RS232)
- Automatic video format 4:3 and 16:9 switching
- CI slots
- DiSEqC 1.2
- Unicable and ASTRA DUO capable
- TV SCART (CVBS,Y-C,YUV and RGB) & VCR (CVBS)
- HDMI
- S/PDIF (optical), analogue L/R (RCA)
- Mains switch

Input	Frequency range	950 - 2150 MHz
	Input level	- 65 dBm ... -25 dBm
	LNB power supply	14/18 V, max. 400 mA
	Control signal	22 kHz
	DiSEqC	1.0 und 1.2, USALS
	Input data rate	2 MS/s - 45 MS/s
Video	Decoding	MPEG II, MP @ ML
	Resolution	720x480 (NTSC) / 720x576 (PAL)
	Video formats	4:3, 16:9
Audio	Typ	Mono, 2-chl mono, stereo
	Bitrate	32 / 44,1 / 48 kHz
Connectors Rear panel	Tuner input	F-type
	Loop Through	F-type
	TV SCART	RGB, CVBS, Audio, HDMI
	VCR SCART	CVBS, Audio
	S-VHS	Y/C, Hosiden
	Digital Audio S/PDIF	1x RCA Cinch coaxial
	Video/Audio	1/2x RCA Cinch
	Digital Video/Audio	HDMI
	Data interface	D-sub, 9-pin, max. 115 kbps
Power supply	Operating voltage	100-240 V AC, 50/60 Hz
	Power consumption	max. 15 W
General data	Dimensions (WxDxH)	285x54x210 mm
	Weight	1.5 kg
	Operating temperature	+5°C...+35°C

Receiver DVB-S

OR 54 D

DVB-S-PVR-TWIN receiver

- 160 GB hard disk
- 6000 program memories for TV and Radio
- 10 digit VFD display
- PIP picture in picture
- PVR ready; Recording on hard disk via USB 2.0
- FAV favorite list
- OSD - Multilingual ON-SCREEN display
- EPG - Elektronic Program Guide
- Timer and Sleep Timer
- Parental lock - block specific menue settings or individual channels
- Teletext decoder
- Teletext loop through to TV, DVB sub titles
- OTA-Software update via Satellite and PC (RS232)
- Automatic video format 4:3 and 16:9 switching
- CI slots
- DiSEqC 1.2
- Unicable and ASTRA DUO capable
- TV SCART (CVBS,Y-C,YUV and RGB) & VCR (CVBS)
- HDMI
- S/PDIF (optical), analogue L/R (RCA)
- Mains switchL/R (RCA)

Input	Frequency range	950 - 2150 MHz
	Input level	- 65 dBm bis -25 dBm
	LNB power supply	14/18 V, max. 400 mA
	Control signal	22 kHz
	DiSEqC	1.0 und 1.2, USALS
	Input data rate	2 MS/s - 45 MS/s
Video	Decoding	MPEG II, MP @ ML
	Resolution	720x480 (NTSC) / 720x576 (PAL)
	Video formats	4:3, 16:9
Audio	Typ	Mono, 2ch mono, stereo
	Bitrate	32 / 44,1 / 48 kHz
Connectors Rear panel	Tuner input	F-type
	Loop Through	F-type
	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 interface	D-sub, 9-ppin, max. 115 kbps
Power supply	Operating voltage	100-240 V AC, 50/60 Hz
	Power consumption	max. 15 W
General data	Dimensions (WxDxH)	285x54x210 mm
	Weight	1.5 kg
	Operating temperature	+5°C...+35°C

Receiver DVB-S

OR 55 D

DVB-S2-HDTV receiver incl. HDMI, USB2.0

- Multicodec MPEG4 / MPEG2 / DIVX
- 5000 program memories for TV and Radio
- 10 digit VFD display
- PVR ready; Recording on external hard disk via USB 2.0
- FAV favorite list
- OSD - Multilingual ON-SCREEN display
- EPG - Elektronic Program Guide
- Timer and Sleep Timer
- Parental lock - block specific menue settings or individual channels
- Teletext decoder
- Teletext loop through to TV, DVB sub titles
- OTA-Software update via Satellite and PC (RS232)
- Automatic video format 4:3 and 16:9 switching
- DiSEqC 1.2
- Unicable and ASTRA DUO capable
- TV SCART (CVBS,Y-C,YUV and RGB) & VCR (CVBS)
- HDMI
- S/PDIF (optical), analogue L/R (RCA)
- Mains switchL/R (RCA)

Input	Frequency range	950 - 2150 MHz
	Input level	- 65 dBm bis -25 dBm
	LNB power supply	14/18 V, max. 400 mA
	Control signal	22 kHz
	DiSEqC	1.0 und 1.2, USALS
	Input data rate	2 MS/s - 45 MS/s
Video	Decoding	MPEG II, MP @ ML
	Resolution	720x480 (NTSC) / 720x576 (PAL)
	Video formats	4:3, 16:9
Audio	Typ	Mono, 2-ch mono, stereo
	Bitrate	32 / 44,1 / 48 kHz
Connectors Rear panel	Tuner input	F-type
	Loop Through	F-type
	TV SCART	RGB, CVBS, Audio, YUV, HDMI 1.2-1080i
	VCR SCART	CVBS, Audio
	S-VHS	Y/C, Hosiden
	Digital Audio S/PDIF	1x RCA Cinch coaxial
	Video/Audio	1/2x RCA Cinch
	Digital Video/Audio	HDMI
	Data interface	D-sub, 9-pin, 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 54 x 210 mm
	Operating temperature	+5°C...+35°C
	Packing unit	1 piece, 7.1 dm³, 2.1 kg

Receiver DVB-T

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 51 D

DVB-T-FTA receiver

- 2000 program memories for TV and Radio
- 10 digit VFD display
- FAV favorite list
- OSD - Multilingual ON-SCREEN display
- EPG - Elektronic Program Guide
- Timer and Sleep Timer
- Parental lock - block specific menue settings or individual channels
- Teletext decoder
- Teletext loop through to TV, DVB sub titles
- OTA-Software update via Satellite and PC (RS232)
- Automatic video format 4:3 and 16:9 switching
- 2 TV SCART (CVBS,Y-C,YUV and RGB) & VCR (CVBS)
- S/PDIF (optical), analogue L/R (RCA)
- Mains switch

Input	Input frequency	174-230 MHz 470-862 MHz
	Input level	- 65 dBm... -25 dBm
	Input data rate	2 MS/s - 45 MS/s
Video	Decoding	MPEG II, MP @ ML
	Resolution	720x480 (NTSC) / 720x576 (PAL)
	Video formats	4:3, 16:9
Audio	Typ	Mono, 2ch mono, stereo
	Bitrate	32 / 44,1 / 48 kHz
Connectors Rear panel	Tuner input	F-type
	Loop Through	F-type
	TV SCART	RGB, CVBS, Audio
	VCR SCART	CVBS, Audio
	Digital Audio	1x optical
	Video	1x RCA Cinch
	Audio	2x RCA Cinch
	Data interface	D-sub, 9-pin, max. 115 kbps
Power supply	Operating voltage	100-240 V AC, 50/60 Hz
	Power consumption	max. 15 W
	Dimensions (WxDxH)	285x54x210 mm
General data	Weight	1.5 kg
	Operating temperature	+5°C...+35°C

Accessories SAT-Receivers

OB 03

IR receiver

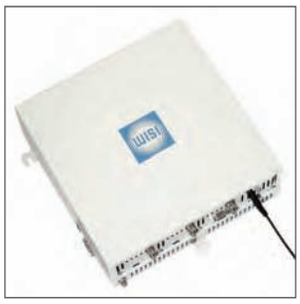
- For use in OR 18 / OR 18 HDMI / OR 28
- RJ 11 connector

Notes

Channel processing

MINI HEADEND analog

OM 03



MINI HEADEND, SAT analog

- Reception of six analog SAT IF signals
- Channel processing to six analog 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
Decoder interface		D-SUB socket
EMC		CE, Class A
Packing unit		1 piece, 15.7 dm³, 3.7 kg

MINI HEADEND analog

OV 10

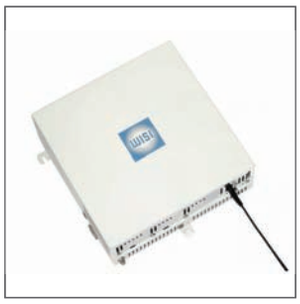
SAT IF channel converter

The OV 10 converts all required analog and digital SAT transponders from their original frequency grid. position to a freely selectable frequency. Transponders which are not required are not converted. Several units can be combined with each other. Each channel block has an automatic gain control (AGC)-; thus all transponders are available at the output at identical system levels, even in case of level variations at the input.

Input		
Frequency range	1 MHz steps	950-2150 MHz
Input level		52-75 dBµV
Spurious emissions		-63 dBm
Intermediate frequency		480 MHz
Line output		950-2150 MHz
Line output attenuation		max. -3 dB
Output basic unit		
Frequency range	1 MHz steps	1000-2150 MHz
Spurious emissions		≥26 dB
Variable attenuator		-20 dB
Output level		typ. 88 dBµV
General data		
Connectors		F-type
Power supply		190-260 VAC/ 50/60 Hz
LNB feeding voltage		12 VDC, max. 500 mA
Power consumption		max. 40 W
Operating temperature		0°C...+50°C
Storage temperature		-25°C...+75°C
Max. humidity, non-condensing		95%
Dimensions (WxHxD)		195x380x80 mm
Weight		3 kg

MINI HEADEND digital

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		230 VAC, 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)
EMC		CE, Class A
Packing unit		1 piece, 17 dm³, 17 kg

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 14A	TS to PAL/SECAM* (FTA)	stereo, teletext
OM 15A	TS to PAL/SECAM* (CI)	stereo, teletext
OM 16A	DVB-S to PAL/SECAM* (FE), (FTA)	stereo, teletext
OM 17A	DVB-S to PAL/SECAM* (CI)	stereo, teletext
OM 18A	DVB-T to PAL/SECAM* (FTA)	stereo, teletext

*** NTSC on request!**

Legend

TS = Transport Stream

FE = Front End

FTA = Free To Air

CI = Common Interface

MINI HEADEND modules DVB-S

OM 16 A

DVB-S channel processor FTA

- Reception of a DVB-S signal and channel processing into a stereo TV channel PAL/SECAM
- Transport Stream output
- stereo, mono and dual tone (single audio mode)

SAT input		
Frequency range		950-2150 MHz
Steps		1 MHz
Input level		47-70 dBµV
Type of modulation		QPSK
Symbol rate		2-45 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		ISO 639
Audio format		mono / stereo / dual tone
Output		
Output frequency		470-862 MHz
Steps		250 kHz
Modulation type		double sideband
Output level		78 dBµV
TV standard		B/G, D/K, I, L, M
Test pattern generator		b /w and color
General data		
Connectors	RF input, output Transport stream Power supply	F type LIF foil cable PCB connector
Power consumption		< 4 W
Operating temperature		0°C...+55°C
Storage temperature		-25°C...+75°C
EMC		CE, Class A
Packing unit		1 piece, 5 dm³, 0.3 kg

MINI HEADEND modules DVB-S

OM 17 A

DVB-S channel processor CI

- Channel processing of encrypted DVB-S signals into a stereo UHF TV channel PAL/SECAM
- 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
Type of modulation		QPSK
Symbol rate		2-45 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 /dual tone
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/SECAM; NTSC on request!
Test pattern generator		s /w and color
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
Packing unit		1 piece, 5 dm³, 0.3 kg

MINI HEADEND modules DVB-S

OM 75

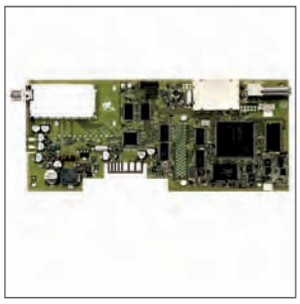
Dual transmodulator QPSK to QAM

- Reception of 2 DVB-S signals and transmodulation into two QAM channels
- All settings via handset OK 41A
- Channel bundling
- Adjacent channel operation

SAT			
Frequency range		1 MHz steps	950-2150 MHz
Input level			47-70 dBµV
AFC			± 10 MHz
Type of modulation			QPSK
Symbol rate			2-45 MS/s
Filtering / Roll-Off			Nyquist √ cos / 20%, 25%, 30%
FEC inner code			Conv. (1/2, 2/3, 3/4, 5/6, 7/8
FEC outer code			RS (204, 188,8)
Data format			EN 302307
Spectral inversion			C-/KU band
Output			
Output frequency (ch A)		1 MHz steps	110-862 MHz
Output channel bandwidth	(ch A+B)		2 x 8 MHz
Output level		1 dB steps	90-100 dBµV
Modulation			16, 32, 64, 128, 256 QAM
Symbol rate			3.45-6.9 MS/s
Filtering			Nyquist √ cos / 15%
FEC outer code			RS (204, 188.8)
Interleaving			normal/inverted
Spurious emissions		inside / outside TV channels	> 50 dB
General			
Connectors		RF output	F-type
		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
EMC			CE, Class A
Packing unit			1 piece, 5 dm³, 0.3 kg

MINI HEADEND modules DVB-T

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	500 kHz 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 interval			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		NTSC on request!	PAL/SECAM / NTSC
Audio decoder			ISO 13818-3 MPEG2 (L1/L2)
Audio format			Mono / Stereo / dual tone
Output			
Frequency range	250 kHz steps		470-862 MHz
Output level			78 dBµV
TV standard			B/G, D/K, I, L, M
Spurious emissions	within 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-type
	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
Packing unit			1 piece, 5 dm³, 0.3 kg

MINI HEADEND modules AV

OM 10

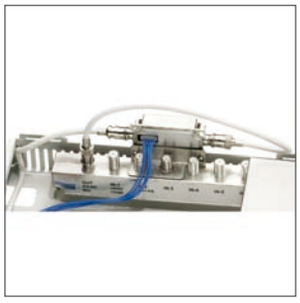
TWIN stereo AV modulator

- 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 data		
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
Packing unit		1 piece, 5 dm³, 0.3kg

MINI HEADEND accessories

OM 13 A



UHF/VHF bloc converter

- UHF/VHF bloc converter for use
  in OM 01 from serial number: 0529 0111;
  in 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
Packing unit	1 piece, plastic bag
Shipping package	10 pieces, 6.7 dm³, 1.3 kg

COMPACT HEADEND

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 OK 40 and OK 40A

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

COMPACT HEADEND modules analog TV

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 steps	-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 steps	-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 steps	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
Packing unit		1 piece, 5 dm³, 0.9 kg

COMPACT HEADEND modules analog TV

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 steps	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 steps	5-9 MHz
Deemphasis	adjustable	10µs, J17
Modes	adjustable	left+right, mono
Modulator		
Vestigial side band		adjacent channel capable
Output frequency range	250 kHz steps	45-862 MHz
Channel offset A/B	1 MHz steps	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
Packing unit		1 piece, 5 dm³, 0.4 kg

COMPACT HEADEND modules analog FM

OK 22

FM amplifier 87.5-108 MHz CCIR

- Feed of of local FM programmes into a CATV system
- 6 separate 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
Packing unit		1 piece, 5.2 dm³, 0.4 kg

OK 22 6673

FM Amplifier 66-73 MHz OIRT

- Feed of 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
Packing unit		1 piece, 5.2 dm³, 0.4 kg

COMPACT HEADEND modules analog 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	87.5-108 MHz
Input level		50-90 dBµV
Output frequency range	50 kHz steps	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
Packing unit		1 piece, 5.2 dm³, 0.25kg

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 steps analog	500 kHz steps 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 steps analog	500 kHz steps 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
Packing unit			5 dm³, 0,4kg

COMPACT HEADEND modules digital TV

OK 75 M

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 and NIT status indication
- 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
Output level	64 QAM	1 MHz steps	79-89 dBµV
	256 QAM	1 MHz steps	85-95 dBµV
Output level stability			±1.5 dB
Return loss			≥14 dB
Type of modulation			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
Packing unit			1 piece, 5 dm³, 0.4kg

COMPACT HEADEND modules digital TV

OK 86

TWIN DVB-S channel processor, FTA

- Reception of two QPSK satellite signals and processing in two analog 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 inversion		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 standard	switchable	PAL / SECAM / NTSC-M
Video level		1 Vpp/75 Ohm
Audio decoder	ISO 13818-3	MPEG (MP@ML)
Audio format		mono / stereo / dual tone
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-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
Packing unit		1 piece, 5.2 dm³, 0.35 kg

COMPACT HEADEND modules digital TV

OK 87

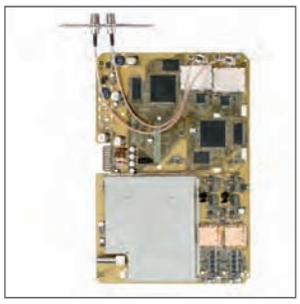
TWIN DVB-S channel processor, CI

- Reception of two QPSK satellite signals and processing into two analog TV channels
- Common Interface
- 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		PAL/SECAM/NTSC-M
Video level		1 Vpp/75 Ohm
Audio decoder	ISO 13818-3	MPEG (MP@ML)
Audio format		mono / stereo / dual tone
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-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
Packing unit		1 piece, 5.2 dm³, 0.35 kg

COMPACT HEADEND modules digital TV

OK 89



TWIN DVB-T - channel processor, FTA

- Reception of a DVB-T signal and processing into a TV channel (PAL/SECAM)
- Hardware capable for teletext insertion-, VPS- and WSS data
- Insertion 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, QAM 16, 64
Guard interval		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 / dual tone
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-type
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
Packing unit		1 piece, 5.2 dm³, 0.35 kg

COMPACT HEADEND modules digital FM

OK 72

TWIN SAT QPSK to FM converter FTA

- 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 Ω
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 steps	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		>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
Packing unit		1 piece, 5.2 dm³, 0.35kg

COMPACT HEADEND accessories

OK 41

Handset

Progamming unit with display

Packing unit	1 piece, 1.4 dm³, 0.15 kg
Shipping package	50 pieces, 80 dm³, 8.3 kg

OK 41 A

Handset

with memory, lightning display and LED torch light

Packing unit	1 piece, 1,4 dm³, 0.15kg
Shipping package	50 pieces, 80 dm³, 8.3 kg

OK 52

WISI COMPACT HEADEND remote Interface

consists of:
- WISI HEADEND COMMANDER software
- Inter connection cable PC-Headend

The WISI OK 52 HEADEND COMMANDER enables operators to configure and control the WISI COMPACT HEADEND from a remote location. It offers a self-explanatory graphical user interface in English and German. 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.

TOPLINE HEADEND

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 is satellite or terrestrially broadcast programs – 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 modules feature individual microprocessor control
- Simple programming of the individual modules.
- High output level.
- Output frequency fully tunable in FM/VHF/UHF range.
- 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, 3rd order			121 dBµV
Output level at 60 dB IMA, 2nd 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	100 dm³, 9 kg

TOPLINE HEADEND Dual QAM transmodulator

OV 75 M

Dual QAM transmodulator

- Two module slots for front end modules
- Integrated stuffing unit for constant output data rate
- Transport Stream (SI, NIT) handling
- Output configuration loop/single switchable
- Channel A/B selectable
- Connection for remote management (OV 51A / OV 52)

Input			refer to input modules
Output			
Frequency range			45-862 MHz
Tuning steps			250 kHz
Bandwidth			depends on QAM symbol rate
Channel offset A to B			4-8 MHz
Tuning steps			1 MHz
Output level	loop	16-128 QAM	64-74 dBµV
		256 QAM	70-80 dBµV
	single	16-128 QAM	74-84 dBµV
		256 QAM	80-90 dBµV
Output level att.			10 dB
Tuning steps			1 dB
Type of modulation			16-, 32-, 64-, 128-, 256-QAM
Symbol rate			1,0-7,499 MS/s
MER @256 QAM			typ. 42 dB
Filtering			Nyquist √ cos
Roll off			15 %
Interleaving			Conv; I=12
FEC outer code			Reed Solomon (204, 188,8)
General data			
Connectors		RF input	F
Operating temperature			-20°C...+50°C
Storage temperature			-25°C...+75°C
Max. humidity, non condensing			95%
EMC			CE, Class A
Packing unit			1 piece, 5.2 dm³, 2.1 kg
Order code		Dual QAM+ NIT	XX21
		Dual QAM without NIT	XX31

TOPLINE HEADEND COFDM transmodulator

OV 75 M

Single COFDM transmodulator

Output frequency		45-858 MHz
Output attenuation		0-16 dB
MER		≥ 36 dB
Type of modulation		QPSK, QAM 16, QAM 64
FEC		1/2, 2/3, 3/4, 5/6, 7/8
Guard interval		1/4, 1/8, 1/16, 1/32
COFDM		2k-FFT, 8k-FFT
Bandwidth		5, 6, 7, 8 MHz
Output level		58-74 dBµV
Shoulder attenuation		> 50 dB
Standard compliance	Digital Video Broadcasting(DVB; Framing structure, channel coding and modulation for digital terrestrial television)	
Order code		XX41

TOPLINE HEADEND DVB remultiplexer

OV 75 M

DVB remultiplexer

- Two module slots for frontend modules
- Output configuration loop/single switchable
- Input channel A/B selectable
- Connection for remote management (OV 51A / 52)

Input			see list of frontend modules
Output			
Frequency range			45-862 MHz
Tuning steps			500 kHz
Bandwidth			depending on QAM symbol rate
Output level	loop	16-128 QAM	64-74 dBµV
		256 QAM	70-80 dBµV
	single	16-128 QAM	74-84 dBµV
		256 QAM	80-90 dBµV
Output level attenuator			10 dB
Tuning steps			1 dB
Type of modulation			16-, 32-, 64-, 128-, 256-QAM
Symbol rate			1,0-7,499 MS/s
MER @ 256 QAM			typ. 43 dB
Filtering			Nyquist √ cos
Roll off			15 %
Interleaving			Conv; I=12
FEC outer code			Reed Solomon (204, 188,8)
Signal to spurious frequency	45-862 MHz		> 50 dB
General data			
Connectors		RF output	F-type
Operating temperature			-20°C...+50°C
Storage temperature			-25°C...+75°C
Max. humidity, non-condensing			95%
EMC			CE, class A
Order code		Remux-QAM	XX11
			please specify desired front end modules!

OV 75 M - front end modules

ASI front end

ASI front end

Data format		DVB A010 ASI-C EN50083-9
Bit rate		270 Mb/s
ASI mode		Burst or continuous
Packet framing		188 / 204 Byte per packet
Sensitivity		200 mV (p-p)
Max. signal level		880 mV (p-p)
Input return loss		> 17 dB (27-270 MHz)
LVTTL output		
Data format		DVB-SPI (LVTTL), EN50083-9
Packet framing		188 / 204 Byte per packet
ASI transmitter		
Data format		DVB-SPI (LVTTL), EN50083-9
Packet framing		188 / 204 Byte per packet
ASI output		
Data format		DVB A010 ASI-C, EN50083-9
Packet framing		188 / 204 Byte per packet
Bit rate		270 Mb/s
ASI mode		Burst
Signal level		800 mV (p-p)
Deterministic jitter		10 %
Order code	ASI In/Out	7XXX

OV 75 M - front end modules

AV MPEG front end

AV-MPEG encoder

Video input		
Input format		Composite PAL
Input level		1 Vpp
Encoder standard		ISO / IEC 13818-2 MP@ML (4:2:0)
Bit rate		1,5-9 Mbit/s
Supported resolutions		Full D1
Operation mode		CBR, VBR
Audio input		
Input format		Analogue (left, right) 83-9
Input level		0 dBm / 600 Ohm
Sampling frequency		48 kHz
Encoder standard		MPEG1 Layer 2
Bit rate		192 kBit/s
Emphasis		none
Mode		stereo, joint stereo, dual, single channel
Order code		6XXX

DVB-C front end

DVB-C front end

Input frequency range		50-862 MHz
Tuning steps		0,5 MHz
Input level		45-90 dBµV
Input signal attenuator	switchable	0 / 20 dB
Type of modulation		16, 32, 64, 128, 256 QAM
Symbol rate		1,75-7,125 MS/s
Transport Stream output		yes
Order code		5XXX

DVB-S front end

DVB-S front end

Input frequency range	950-2150 MHz
Tuning steps	1 MHz
Input level	44-84 dBµV
Type of modulation	QPSK
FEC	1/2, 2/3, 3/4, 5/6, 7/8
Symbol rate	2-45 MS/s
Transport Stream output	yes
Order code	1XXX

OV 75 M - front end modules

DVB-S2 front end

DVB-S2 front end

Input frequency range		950-2150 MHz
Tuning steps		1 MHz
Input level		47-70 dBµV
Type of modulation	DVB-S	QPSK
	DVB-S2	QPSK / 8 QPSK
FEC	DVB-S	1/2, 2/3, 3/4, 5/6, 7/8
	DVB-S2	1/4, 1/3, 2/5, 1/2, 3/5 2/3, 3/4, 4/5, 5/6, 8/9, 9/10
Symbol rate	DVB-S	2-45 MS/s
	DVB-S2	10-30 MS/s
Transport Stream output		yes
Order code		3XXX

DVB-T front end

DVB-T front end

Input frequency range		146-858 MHz
Tuning steps		0,25 MHz
Bandwidth		7/8 MHz
Offset	8 MHz	± 166 kHz
	7 MHz	± 125 kHz
Input level		40-90 dBµV
Type of modulation		QPSK, 16, 64QAM
COFDM		2k-FFT, 8k-FFT
Guard intervall		1/4, 1/8, 1/16, 1/32
FEC		1/2, 2/3, 3/4, 5/6, 7/8
Transport Stream output		yes
Order code		4XXX

IP front end

IP front end

- Ethernet input
- IP address settings
- Multicast address settings
- Port address settings

Ethernet input	
Interface	10/100 Base (RJ 45)
Frame format	Ethernet II
Rate	10/100 Mbit/s, autosensing
Protocol	UDP/IP, ARP, ICMP (ping), IGMPv2
Ethernet transmission	Unicast, Multicast
Order code	9XXX

OV 75 M - front end modules

SDI MPEG front end

SDI MPEG encoder

Video input		
Input format		SDI SMPTE 259M-C 270 Mb/s 625Z with embedded audio SMPTE 272M-A
Input level		200 mVpp without equalizer
Encoding standard		MPEG 2 ISO/IEC 13818-2 MP@ML (4:2:0)
Bit rate		1,5 Mbit/s - 9 Mbit/s
Supported resolutions		Full D1
Frame format	H/V	720/576 pixel
Audio input		
Input format		Analog(L,R), digital (SDI with embedded Audio)
Input level		0 dBm / 600 Ohm
Encoding standard		MPEG 1 L1/2 ISO/ IEC 13818-3
Bit rate		up to 192 kbit/s
Emphasis		none
Audio mode		stereo, joint stereo, dual, single
Sampling frequency		48 kHz
Transport stream output		
Stream type		MPEG 2 transport stream
Elementary streams		Video, Audio
System multiplexing		ISO/IEC 13818-1
Tables		PAT, PMT
System Bitrate		1,6875...13,5MB/s
Mode		CBR, VBR
Order code		AXXX

OV 75 M ordering informations

Ordering information

--------Key code --------
OV 75 M x x x 1

inputs output option
1 2

INPUTS
0 - n.u.
1 - DVB-S
2 - n.u.
*3 - DVB-S2
4 - DVB-T
5 - DVB-C
6 - AV-MPEG
7 - ASI - Input/Output
8 - n.u.
9 - Ethernet - Input (IP)
A - SDI - MPEG

OUTPUT
1 - Remux QAM
2 - Dual QAM (with TS handling)
3 - Dual QAM (without TS handling/ NIT bit stuffing
4 - Remux COFDM

Legend
n.u.=not used
2xDVB-S2 not possible

Examples

OV 75 M 1121=	2 x DVB-S DUAL QAM
OV 75 M 4411=	2 x DVB-T Remux QAM
OV 75 M 4711=	DVB-T / ASI Remux QAM
OV 75 M 1641=	DVB-S / AV-MPEG Remux COFDM
OV 75 M 66 41=	2xAV-Encoder Remux COFDM
OV 75 M 40 41=	DVB-T-COFDM Repeater

TOPLINE HEADEND modules analog TV

OV 35 A

A/V modulator

- Modulation of video and audio signal for CATV transmission
- Multi-standard operation
- Interface for audio/video via BNC/Cinch
- Test pattern generator
- NMS via Headend controller OV 51S or remote control via headend commander 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 steps	45-862 MHz
Output level	Loop-through	75-85 dBµV
	Single mode	85-95 dBµV
TV standard		B/G, D/K, M/N, I, L
General data		
Connectors	RF	F-type
	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
Packing unit		1 piece, 5.2 dm³, 2.1 kg

TOPLINE HEADEND modules analog TV

OV 36 A

A/V modulator stereo

- Modulation of video and an audio signal for CATV transmission
- Multi-standard operation
- Stereo capable vestigial sideband modulator
- Interface for audio/video via BNC/Cinch
- Test pattern generator
- NMS via Headend controller OV 51S or headend commander OV 52

Video		
Video bandwidth		20 Hz - 5 MHz
Input level	Video at 75 Ω	1Vpp ±0,4
Audio		
Audio bandwidth		40 Hz - 15 kHz
Audio level		+6 dB...-3 dB
Modulator		
Output frequency	0.25 MHz steps	45-862 MHz
Output level	Loop through	75-85 dBµV
	Single mode	85-95 dBµV
TV standard selectable		B/G, D/K, M/N, I, L
General data		
Connectors	RF	F-type
	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
Packing unit		1 piece, 5.2 dm³, 2.1 kg

TOPLINE HEADEND modules analog TV

OV 45 D

Terrestrial-TV multi-standard channel conv. analog/digital

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

Frequency range input / output			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 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, 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
Packing unit			1 piece, 5.2 dm³, 2.1 kg

TOPLINE HEADEND modules analog 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
RF input connectors		IEC, 75 Ω
RF 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
Packing unit		1 piece, 5.2 dm³, 2.1 kg

OV 42 A

FM converter, 4 x FM - FM

- Conversion of four analog FM channels into four analog FM channels
- Input frequency 87.5 MHz...108 MHz
- Output frequency 87.5 MHz...108 MHz
- Loop-through output with low attenuation
- NMS via headend controller OV 51S or remote control via headend commander 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
Spurious emissions	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
Packing unit		1 piece, 5.2 dm³, 2.1 kg

TOPLINE HEADEND modules digital TV

OV 76 A

DVB-S processor - QPSK / PAL, FTA, stereo

- Reception of a DVB-S satellite signal and processing into a PAL / SECAM / NTSC-M TV channel
- Insertion of Teletext data
- BISS scrambling system
- Decoder- and/or NICAM option
- NMS via headend controller OV 51 S or remote control via headend commander OV 52

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, 4:3 zoom
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-through	74-84 dBµV
	single mode	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-type
Operating temperature		-20°C...+55°C
Storage temperature		-25°C...+75°C
Max. humidity, non condensing		95%
EMC		CE, Class A
Packing unit		1 piece, 5.2 dm³, 2.1 kg

TOPLINE HEADEND modules digital TV

OV 76 E

IPTV to PAL, FTA, stereo

- Feeding in a IPTV stream and processing into a PAL / SECAM / NTSC-M - TV channel
- Demultiplexing and decoding of MPEG-2 signals
- Ethernet input (RJ 45)
- Insertion of Teletext data
- BISS scrambling system
- Decoder- and/or NICAM option
- NMS via headend controller OV 51S or remote control via headend commander OV 52

Video decoder	ISO 13818-2	MPEG 2 (MP@ML)
Video format		4:3, 16:9, 4:3 zoom
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-through	74-84 dBµV
	single mode	84-94 dBµV
TV standards		B/G, D/K, I, L, M, N
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. 60 dB
S/N audio	(with color test pattern)	typ. 50 dB
Distortion		1 %
General data		
Connectors	RF	F-type
	RJ 45	Ethernet in
Operating temperature		-20°C...+55°C
Storage temperature		-25°C...+75°C
Max. humidity, non condensing		95%
EMC		CE, Class A
Packing unit		1 piece, 5.2 dm³, 2.1 kg

TOPLINE HEADEND modules digital TV

OV 77 A

DVB-S processor - QPSK / PAL, stereo, CI

- Reception of a DVB-S satellite signal and processing into a PAL / SECAM / NTSC-M TV channel
- Insertion of Teletext data
- BISS scrambling system
- Decoder- and/or NICAM option
- NMS via headend controller OV 51S or remote control via headend commander OV 52

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, 4:3 Zoom
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	RF	F-type
Operating temperature		-20°C...+55°C
Storage temperature		-25°C...+75°C
Max. humidity, non condensing		95%
EMC		CE, Class A
Packing unit		1 piece, 5.2 dm³, 2.1 kg

TOPLINE HEADEND modules digital TV

OV 77 E

IPTV to PAL, FTA, Stereo+CI

- Feeding in a IPTV stream and processing into a PAL / SECAM / NTSC-M - TV channel
- Demultiplexing and decoding of MPEG-2 signals
- Ethernet input (RJ 45)
- Insertion of Teletext data
- BISS Scrambling system
- Option: Decoder- and/or NICAM module

Video decoder	ISO 13818-2	MPEG 2 (MP@ML)
Video format		4:3, 16:9, 4:3 Zoom
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
TV standards		B/G, D/K, I, L, M, N
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. 60 dB
S/N audio	(with color test pattern)	typ. 50 dB
Distortion		1 %
General data		
Connectors	RF	F-type
	RJ 45	Ethernet in
Operating temperature		-20°C...+55°C
Storage temperature		-25°C...+75°C
Max. humidity, non condensing		95%
EMC		CE, Class A
Packing unit		1 piece, 5.2 dm³, 2.1 kg

TOPLINE HEADEND modules digital TV

OV 79 C

DVB-T/ PAL processor stereo + CI

- Reception of a DVB-T signal and processing into a PAL/SECAM/NTSC-M TV channel
- Insertion of Teletext data into the blanking pulse
- NMS via headend controller OV 51S or headend controller 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
COFDM spectrum		2k FFT+ 8k FFT
Type of modulation		QPSK, QAM 16, 64
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 / dual tone
Output		
Frequency range	250 kHz steps	45-862 MHz
Channel bandwidth		7 / 8 MHz
Output level	loop-through	74-84 dBµV
	single mode	84-94 dBµV
Output level adjustment	1 dB 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. 60 dB, min. 56 dB
S/N audio		typ. 50 dB, min. 47 dB
Distorsion		1 %
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
Packing unit		1 piece, 5.2 dm³, 2.1 kg

TOPLINE HEADEND accessories

OV 51 S

HEADEND Controller

- SNMP based Network Management system interface for WISI TOPLINE HEADEND
- Proxy for connection to Network Management System via Ethernet, UDP/IP, SNMP)
- Configuration of module parameters
- Fault management , 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 internal communication bus ((9.600 bps)
- 10/100 Mbit/s Ethernet interface to management system

Software
- Internet protocol acc. to 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	controller unit, cable, adaptor A-Sub - RJ 11
Packing unit	1 piece, 3,9 dm³, 0,42kg

OV 52

WISI COMMANDER remote control interface

- Control and configure up to 10 TOPLINE HEADEND unitd be means of coding switches
- RS 232 crossed serial cable for direct connection
- RS 485 interface to internal communications bus (9.600 bps)
- Automatic disconnect (timeout) to prevent unwanted connection cost
- Integrated phone book
- Password protection
- Customizable graphical user interface

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

Delivery as set consisting of	Controller unit plus software (CD)
Packing unit	1 piece, 3,9 dm³, 0,42kg

OV 62 A

Demodulator, standard B/G

This optionally availabe demodulator can be mounted inside the OV 45A and OV 45D channel converters.
It demodulates RF signals of the B/G standard.
The resulting A/V signal is available on the decoder socket on top of the OV 45A or D module. OV 62A can be installed by the customer.

OV 62 D

A/V Demodulator module standard D/K

This optionally availabe demodulator can be mounted inside the OV 45A and OV 45D channel converters.
It demodulates RF signals of the D/K standard.
The resulting A/V signal is available on the decoder socket on top of the OV 45A or D module. OV 62D can be installed by the customer.

TOPLINE HEADEND accessories

OV 65

NICAM module

For use in OV 76 A / OV 77 A and OV 76 E / OV 77 E

NICAM modes	off, mono, auto, dual, stereo

OV 66

A/V interface

For use in OV 76 A / OV 77 A and OV 76 E / OV 77 E

Input, output	A/V signal

OV 67

ASI interface

For use in OV 76 A and OV 77 A

ASI output	LVTTL
Data format	DVB A010 ASI-C EN 50083-9
Bitrate	270 Mb/s
ASI mode	burst
Packet framing	188/204 byte per packet
Signal level	800 mVpp / 75 ohms
Deterministic jitter	10 %

OV 97

Cover

for OV 50 A	steel, white lacquered
	lockable
Packing unit	1 piece, 25 dm³, 2.5 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

TOPLINE HEADEND accessories

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
Shipping package	10 pieces	11.2 dm³	2.1 kg

OSxxx

DVB IP Gateway

- Modular platform for DVB-MPEG Video streaming
- Up to 6 DVB frontend modules
- Support for DVB-S, DVB-S2, DVB-C, DVB-T, DVB-ASI and DVB encoder
- MPTS/SPTS re-multiplexing and GigE aggregation
- 6 CI slots (support professional CAMs) for scrambled signal sources
- Multiple service CAM support
- MPEG-TS over UDP protocol
- Separate Ethernet port (10/100 Mb/s) for management interface
- Configuration via web interface
- Contribution- and IPTV applications

Streamer module	SPTS mode - up to 32 different SPTS per signal path Total bitrate of up to 90 Mbit/s per streamer - each SPTS is synthesized from single components of the incoming TS e.g. video, audio, Teletext, data - dynamic creation of PAT, PMT, SDT - dynamic creation of SAP/SDP (multicast)
Output GbE	
Protocol	Ethernet
Transfer rate	1000 Mb/s
Duplex mode	full
IP version	4
Streaming protocol	MPEG-TS over UDP
TS packet number	7
Standard compliance	
ISO 639	Code for the representation of names of languages
ISO/IEC 13818-1	Information technology - Generic coding of moving pictures and associated audio informations - systems
IETF RFC 791	IPv4
IETF RFC 768	User Datagram Protocol (UDP)
IETF RFC 793	Transmission Control Protocol (TCP)
IETF RFC 1065	Structure and identification of management information for TCP/IP-based Internets. SNMP v1
IETF RFC 1066	Management information base for network management of TCP/IP-based Internets. SNMP v1
IETF RFC 1067 A	Simple Network Protocol. SNMP v1
IETF RFC 1901	Introduction to community-based SNMP v2
IETF RFC 1908	Co-existence between version 1 and 2 of the Internet standard network management framework
IETF RFC 2615	Hypertext Transfer Protocol (HPPT / 1.1)
ETSI EN 300421	Digital Video Broadcasting (DVB); Framing structure, channel coding and modulation for 11/12 GHz satellite services.
ETSI EN 300429	Digital Video Broadcasting (DVB); framing structure, channel coding and modulation for cable systems
ETSI EN 300468	Digital Video Broadcasting (DVB);specification for Service Information (SI) in DVB systems.

STREAMLINE

OSxxx

DVB IP Gateway

ETSI EN 300744	Digital Video Broadcasting (DVB); Framing structure, channel coding and modulation for digital terrestrial television
General data	
Connectors	
RF-input / output	F-type
ASI-input	BNC
AV-input	BNC -/Cinch
IP-streaming	SFP
Management/Control	RJ45
Power supply	180-265 VAC, 50/60 Hz
Housing	19" 1RU
Operating temperature	0°C...+50°C
Storage temperature	-25°C...+75°C
Packing unit	1 piece, 43dm³, 6.2kg
Accessory	SFP adaptor FCLF-8521-3 www.finisar.com

OT 32

Dual DVB Scrambler

- Stand alone Scrambler for DVB Transport Stream signals
- Scrambling to selected programs or transport stream (SPTS/MPTS)
- Injecting of ECM and EMM from the CAS system into the Transport Stream
- Corrected PCR-jitter caused by injecting the EMM/ECM datas
- Compliant with DVB standard CAS systems
- Compliant with DVB Simulcrypt, supporting up to 4 CAS
- Effective input data rate 1-70 Mbps
- Packet length 188 and 204 supported
- Injection of EMM ECM data through Ethernet
- Common scrambling algorithm used
- Generation of scrambling Control Word (CW)
- Managing of PSI/SI information related to CA
- TCP and UDP protocols supported
- Configuration via web interface and command line over TCP/IP
- SNMPv2c network management

ASI - receiver (input)		
Data format		DVB A010 ASI-C, EN50083-0
Packet framing		188 / 204 byte per packet
Bitrate		270 Mbits/s
ASI mode		Burst or continous
Signal level		200 mV (p-p)
Max. signal level		800 mV (p-p)
ASI - transmitter (output)		
Data format		DVB A010 ASI-C, EN50083-0
Packet framing		188 / 204 byte per packet
Bitrate		270 Mbps
ASI mode		Burst or continous
Signal level		800 mV (p-p)
Deterministic jitter		10 %
Random jitter		8 %
Control		
Interface		100Base-T Ethernet
User interface 1		Web-based
User interface 2		Command line
Monitoring and Alarm		SNMPv2c
Applicable standards		ETSI TR 102 035, ETSI TR 101 197, ETSI TR 103 197,
Signaling		1xpower LED green 2xoperating led green 2xalarm led red
General data		
Connectors	ASI	BNC
Control		Ethernet
Power supply		100-240 VAC
Power consumption		13 W
Operating temperature		5°C...+45°C
Storage temperature		-25°C...+75°C
Packing unit		1 piece, 43dm³, 6.2kg

OTxxx

Transport Stream multiplexer

- Integrated 6 in 1 (8 in 1) statical multiplexer
- Variable front end featuring
- Intgrated receiver modules for DVB-S, DVB-S2, DVB-T
- Integrated AV to DVB encoders
- Simulcrypt compliant ASI loop/input for external scrambler
- 4 CI slots (support professional CAMs) for scrambled signal sources
- Integrated QAM or COFDM modulator
- IP interface for configuration, monitoring and analysis

Transport Stream re-multiplexer		
Number of inputs		8
Number of PID filters		254 / input
Number of PID re-mappers		128 / input
Data rate	Tuning steps	8 bit/s
	Accuracy	< 1 x 10-4
Tables handled		PAT, PMT, SDT, NIT
PAT repetition time		40 - 500 ms
Overflow indicator		front panel LED
QAM modulator		
Output frequency range		45-862 MHz
Output frequency steps		500 kHz
Output frequency stability		±30 kHz
Output level	single QAM	99-89 dBµV
	dual QAM	96-86 dBµV
Output level steps		1 dB
Output level stability		±1 dB
Modulation		16-, 32-, 64-, 128-, 256-QAM
Symbol rate		1,0-7,499 MS/s
Filtering		Nyquist √ cos
Roll-off		15 %
FEC outer code		RS (204; 188,8)
Spectral inversion		normal / inverted
MER		>42 dB
S/N		>44 dB
Shoulder attenuation		>56 dB
Interleaving		Conv; I=12
Spurious emissions	inside TV-channels	>56 dB
	outside TV-channels	>50 dB
Test point front panel		-20 dB
General data		
Power supply		180-265 VAC; 50/60 Hz
Housing		19" / 1 RU
Operating temperature		0°C...+50°C
Storage temperature		-25°C...+75°C

STREAMLINE front end modules

ASI in/out, ASI dual in

ASI module

Data format	DVB A010 ASI-C EN50083-9
Bit rate	270 Mb/s
ASI mode	Burst / continious
Packet framing	188 / 204 Byte per packet
Sensitivity	200 mV (p-p)
Max. signal level	880 mV (p-p)
Input return loss	> 17 dB (27-270 MHz)
Lock indicator	Front panel LED
LVTTL output	
Data format	DVB-SPI (LVTTL), EN50083-9
Packet framing	188 / 204 Byte per packet
ASI transmitter	
LVTTL input	
Data format	DVB-SPI (LVTTL), EN50083-9
Packet framing	188 / 204 Byte pro Packet
ASI output	
Data format	DVB >A010 ASI-C, EN50083-9
Packet framing	188 / 204 Byte per packet
Bit rate	270 Mb/s
ASI mode	Burst
Signal level	800 mV (p-p)

STREAMLINE front end modules

Audio-, Video TS encoder

Video - input		
Input format		Composite PAL
Input level		1 Vpp
Gain control		autom gain clamped control
Input anti aliasing filter		Notch / Comb
Encoding standard		MPEG 2 ISO/IEC 13818-2 MP@ML (4:2:2)
Bit rate		6 Mb/s
Supported resolutions		Full D1, 3/4 D1, 2/3 D1 1/2 D1, SIF, QSIF
Picture size	horizontal	up to 720 pixel / 32 pixel steps
	vertical	up to 576 pixel / 32 pixel steps
Picture encoding type		I,P,B
GOP structure		IIIIIIIII,IPPPPPPPPP IBPBPBPBP, IBBPBBPBB
Audio - input		
Input format		Analog (left, right) 83-9
Input level		500 mVeff / 600 Ohm
Sampling frequency		32 / 44,1 / 48 kHz
Emphasis		50 / 75µs / CCITT J.17
Encoding standard		MPEG 1 L1/2 ISO/ IEC 13818-3
Bit rate		up to 448 kbit/s
Lock indicator		front panel LED
Transport Stream output		
Transport Stream		MPEG 2
System multiplexing		ISO/IEC 13818-1
Tables		PAT and PMT
System bit rate		27 Mb/s
Operation mode		CBR, VBR

DVB-C front end

Input frequency range	47-862 MHz
Input frequency steps	250 kHz
Input level range	45-75 dBµV
Spectral inversion	on, off
Modulation	16, 32, 64, 128, 256 QAM
Symbol rate	1,75-7,125 MS/s
Lock indicator	front panel LED

STREAMLINE front end modules

DVB-S / DVB-S dual front end

Input frequency range	950-2150 MHz
Input frequency steps	1 MHz
IF frequency /IF bandwidth	none (Zero-IF)
Input level range	47-70 dBµV
AFC	± 5 MHz
Modulation	QPSK
Symbol rate	2-45 MS/s
Filtering	Nyquist √ cos
Roll-off	35%
FEC inner code	Conv; K=7; R=1/2, 2/3, 3/4, 4/5, 6/7, 7/8, 8/9
FEC outer code	RS (204; 188,8)
Spectral inversion	C-/Ku band
Interleaving	Conv; I=12
Lock indicator	front panel LED

DVB-S2 front end

Input frequency range	950-2150 MHz
Input frequency steps	1 MHz
IF frequency/IF bandwidth	none (Zero-IF)
Input level range	47-70 dBµV
AFC	±10 MHz
Modulation	QPSK, 8PSK
Symbol rate	10-30 MS/s
Filtering	Nyquist √ cos
Roll-Off	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
Spectral inversion	C-/Ku band
Data format	EN302307
Bit rate	56 Mbit max.
Lock indicator	front panel LED

STREAMLINE front end modules

DVB-T front end

Input frequency range		146-858 MHz
Input frequency steps		250 kHz
Input frequency offset	8 MHz	±166,67 kHz
	7 MHz	±125,00 kHz
Input level range		40-90 dBµV
If bandwidth		7 / 8 MHz
Modulation		QPSK, 16, 64 QAM
COFDM		2k-FFT, 8k-FFT
Guard interval		1/4, 1/8, 1/16, 1/32
FEC		1/2, 2/3, 3/4, 5/6, 7/8
Lock indicator		front panel LED

IP module

Ethernet input	
Interface	10/100 Base (RJ45)
Frame Format	Ethernet II
Rate	10/100 Mbps autosensing
Protocol	UDP/ARP/ICMP (ping), IGMPv2
Ethernet transmitting	Unicast, Multicast

STREAMLINE front end modules

SDI front end

Video input	
Input format	SDI SMPTE 159M-C 270 Mbit/s 625Z with embedded audio SMPTE 272 M-A
Input level	200 mVpp without equalizer
Input impedance	75 Ω
Encoder	
Encoding standard	MPEG 2 ISO/IEC 13818-2 MP@ML (4:2:0)
Bit rate	1.5...9 Mbit/s
Supported resolution	Full D1
Picture encoding type	I,P,B
GOP structure	IIIIIIII, IPPPPPPPPP IBPBPBPBP, IBBPBBPBB
Audio input	
Input format	Analog (left, right) or digital (SDI with embedded audio)
Input level	0 dBm / 600 Ω
Encoder	
Encoding standard	MPEG1 L1/2 ISO/IEC 13818-3
Bit rate	up to 192 kbit/s
Emphasis	none
Mode	Stereo, joint stereo, dual, single
Sampling frequency	48 kHz
Transport Stream	MPEG 2
Elementary streams	Video, Audio
System multiplexing	ISO/IEC 13818-1
Tables	PAT and PMT
Bit rate	1.6875...13.5 Mbit/s
Operation mode	CBR, VBR

STREAMLINE ordering informations

Ordering information OSxxxx

--------Key code --------
OS x x x x x x x
Inputs 1---------- -6
output 7

Input	Output
0 = n.u.	6 = 3 OSDS
1 = DVB-S (single)	7 = 3xOSDS+2xOSCI
2 = DVB-S (dual)	8 = 3xOSDS+4xOSCI
3 = DVB-S2 (single)	9 = 3xOSDS+6xOSCI
4 = DVB-T (single)	OSDS = OS-DualStreamer
5 = DVB-C (single)	OSCI = OS-CI modules
6 = AV-MPEG2 Encoder single	
7 = ASI In/Out (single)	
8 = ASI Input (single)	
9 = Ethernet Input (single)	
A = SDI-MPEG2-Encoder (single)	

Ordering information OTxxxx

--------Key code --------
OT x x x x x x x
Inputs 1---------- -6
output 7

Input	Output
0 = n.u.	0 = QAM without CI
1 = DVB-S (single)	1 = COFDM without CI
2 = DVB-S (dual)	2 = QAM with 2 CI
3 = DVB-S2 (single)	3 = COFDM with 2 CI
4 = DVB-T (single)	4 = QAM with 4 CI
5 = DVB-C (single)	5 = COFDM with 4 CI
6 = AV-MPEG2 Encoder single	6 = Dual QAM with 2CI (no Remux)
7 = ASI In/Out (single)	8 = Dual QAM with 4CI (noRemux)
8 = ASI Input (single)	A = Dual QAM without CI noRemux
9 = Ethernet Input (single)	
A = SDI-MPEG2-Encoder (single)	

Notes

supplies

Amplifiers, Power supplies

Multiband amplifiers for VHF-UHF, FM

F-connectors, 75 ohm
EMC acc. to CE

VS 80 A

Type	VS 80 A Multiband amplifier / Splitband
Frequency range input 1	VHF I / FM; 47-108 MHz
Frequency range input 2	VHF III 174-230 MHz
Frequency range input 3	UHF 1; 470-862 MHz
Frequency range input 4	UHF 2; 470-862 MHz
Frequency range input 5	-
Channel input 1	-
Channel input 2	-
Channel input 3	-
Channel input 4	-
Channel input 5	-
Gain input 1	38 dB, T-18
Gain input 2	37 dB, T-18
Gain input 3	42 dB, T-18
Gain input 4/5	42 dB, T-18
1 test output	-20 dB
Output level (60 dB IMR)	119 dBµV
Noise figure	-
Operating voltage	230 VAC
Power consumption	3.5 W
Operating temperature	0°C...+55°C
Packing unit	1 piece, 1.35 dm³, 0.85 kg
Shipping package	10 pieces, 20 dm³, 8.7 kg

Splitband amplifiers

VS 93 B

2,4 GHz splitband amplifier

Inputs	1 x TERR+SAT		1 x TERR
Frequency range		TERR SAT	87-862 MHz 950-2400 MHz
Gain		TERR SAT	13-18 dB 27-35 dB
Attenuator		TERR SAT	0-18 dB 0-18 dB
Equalizer		TERR SAT	5 dB (Fix) 0/8 dB + 8 dB fix
Return loss		TERR SAT	12 dB (min) 8 dB (min)
Output level	3. Ord. 60 dB IMA	TERR	109 dBµV
	3. Ord. 35 dB IMA	SAT	115 dBµV
	CENELEC 42 ch		94 dBµV
Passive return path			
Frequency range			5-65 MHz
Return loss			12 dB min.
Thru loss			3 dB max.
Terrestrial passive input			
Frequency range			5-862 MHz
Return loss			12 dB min.
Thru loss			2,5 dB max.
LNC remote feed voltage			18 VDC / 300 mA
General			
Power supply			230 VAC, 50/60 Hz
Power comsumption			4 W
Connectors			F
Operating temperature			-20°C...+50°C
Storage temperature			-25°C...+75°C
Max.humidity, non condensing			95%
Dimensions			145x120x38 mm
EMC			CE
Packing unit		1 piece	3.4 dm³, 1.05 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	3.4dm³, 1.2 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	3.4 dm³, 1.2 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 81 P

VX 82

Type	VX 81 In-house distribution amplifier	VX 81 P In-house distribution amplifier	VX 82 In-house distribution amplifier
Frequency range US/DS	5-65/ 87-862 MHz	5-65/ 87-862 MHz	5-65/ 87-862 MHz
Gain DS	18-21 dB	18-21 dB	28-31 dB
Attenuator	0-18 dB	0-18 dB	0-18 dB
Equalizer	3-18 dB	3-18 dB	3-18 dB
Output level DS CENELEC, flat	96 dBµV	96 dBµV	96 dBµV
Output level DS CENELEC, 6 dB slope	98.5 dBµV	98.5 dBµV	98.5 dBµV
Output level DS EN50083-5/3.Ord	114 dBµV	114 dBµV	114 dBµV
Noise figure	< 8 dB	-	< 8 dB
Return path amplifier US	20 (-2)* dB	-2 dB	28 (-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
Operating voltage	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
Operating temperature	-20°C...+55°C	-20°C...+55°C	-20°C...+55°C
Dimensions	163x90x47 mm	163x90x47 mm	163x90x47 mm
EMC	CE, Class A	CE, Class A	CE, Class A
Packing unit	1 piece, 1.4 dm³, 0.8 kg	1 piece, 1.4 dm³, 0.8 kg	1 piece, 1.4 dm³, 0.8 kg
Shipping package	10 pieces, 17.5 dm³, 8.5 kg	10 pieces, 17.5 dm³, 8.5 kg	10 pieces, 17.5 dm³, 8.5 kg
Legend	DS=Down Stream; US=Up Stream	DS=Down Stream; US=Up Stream	

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 86

VX 87

Type	VX 86 In-house distribution amplifier	VX 87 In-house distribution amplifier
Frequency range US/DS	5-30/ 47-862 MHz	5-30/47-862 MHz
Gain DS	18-21 dB	28-31 dB
Attenuator	0-18 dB	0-18 dB
Equalizer	3-18 dB	3-18 dB
Output level DS CENELEC, flat	96 dBµV	96 dBµV
Output level DS CENELEC, 6 dB slope	98.5 dBµV	98.5 dBµV
Output level DS EN50083-5/3.Ord	114 dBµV	114 dBµV
Noise figure	< 8 dB	< 8 dB
Return path amplifier US	-2 dB	-2 dB
Attenuator US	-	-
Output level US EN50083-5/3.Ord	-	-
RF inputs and outputs	F-type	F-type
Operating voltage	230 VAC 50/60 Hz	230 VAC 50/60 Hz
Power consumption	3.5 W	3.5 W
Operating temperature	-20°C...+55°C	-20°C...+55°C
Dimensions	163x90x47 mm	163x90x47 mm
EMC	CE, Class A	CE, Class A
Packing unit	1 piece, 1.4 dm³, 0.8 kg	1 piece, 1.4 dm³, 0.8 kg
Shipping package	10 pieces, 17.5 dm³, 8.5 kg	10 pieces, 17.5 dm³, 8.5 kg
Legend		

MINI LINE in-house distribution amplifier 6 outputs

VX 67 A

Type	VX 67 A 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
Packing unit	1 piece, 1.3 dm³, 0.8 kg
Shipping package	10 pieces, 17.5dm³, 8.5 kg

HOME LINE in-house distribution amplifiers B type

VX 43 B

In-house distribution amplifier

Downstream			
Frequency range			87-862 MHz
Downstream only	via jumper		47-862 MHz
Gain			20 dB
Return loss			≥ 14 dB
Attenuator		1 dB steps rotary switch	0-15 dB
		Jumper	0/5 dB
Equalizer		1.5 dB steps rotary switch	0-22.5 dB
Interstage	Equalizer	Jumper	0/6 dB
	Attenuator	Jumper	-
Output level		CENELEC 42 6 dB slope	107 dBµV
CSO, CTB			≥ 60 dB
Test points			-20 dB
Upstream			
Frequency range			5-65 MHz
Gain			15-18 dB
Attenuator		1 dB steps rotary switch	0-15 dB
		Jumper	0/10 dB
Output level	EN 50083-5 2nd order		106 dBµV
	EN 50083-5 3rd order		118 dBµV
General			
Operating voltage			230 VAC, 50/60 Hz
Power consumption			< 4,5 W
Connectors			F
Operating temperature			-20°C...+55°C
Storage temperature			-25°C...+75°C
Dimensions			163x90x47 mm
EMC			CE, class A
Packing unit			1 piece, 1.4dm³, 0.8 kg
Shipping package			10 pieces, 17.5dm³, 8.5 kg

HOME LINE in-house distribution amplifiers B type

VX 44 B

In-house distribution amplifier

Downstream			
Frequency range			87-862 MHz
Downstream only	via jumper		47-862 MHz
Gain			28 dB
Return loss			≥ 14 dB
Attenuator		1 dB steps rotary switch	0-15 dB
		Jumper	0/5 dB
Equalizer		1.5 dB steps rotary switch	0-22.5 dB
Interstage	Equalizer	Jumper	0/6 dB
	Attenuator	Jumper	-
Output level		CENELEC 42 6 dB slope	107 dBµV
CSO, CTB			≥ 60 dB
Test points			-20 dB
Upstream			
Frequency range			5-65 MHz
Gain			19-22 dB
Attenuator		1 dB steps rotary switch	0-15 dB
		Jumper	0/10 dB
Output level	EN 50083-5 2nd order		106 dBµV
	EN 50083-5 3rd order		118 dBµV
General			
Operating voltage			230 VAC, 50/60 Hz
Power consumption			< 4,5 W
Connectors			F
Operating temperature			-20°C...+55°C
Storage temperature			-25°C...+75°C
Dimensions			163x90x47 mm
EMC			CE, class A
Packing unit			1 piece, 1,4dm³, 0,8 kg
Shipping package			10 pieces, 17.5dm³, 8.5 kg

HOME LINE in-house distribution amplifiers B type

VX 45 B

In-house distribution amplifier

Downstream			
Frequency range			87-862 MHz
Downstream only	via jumper		47-862 MHz
Gain			36 dB
Return loss			≥ 14 dB
Attenuator		1 dB steps rotary switch	0-15 dB
		Jumper	0/5 dB
Equalizer		1.5 dB steps rotary switch	0-22.5 dB
Interstage	Equalizer	Jumper	0/6 dB
	Attenuator	Jumper	0/6 dB
Output level		CENELEC 42 6 dB slope	107 dBµV
CSO, CTB			≥ 60 dB
Test points			-20 dB
Upstream			
Frequency range			5-65 MHz
Gain			27-30 dB
Attenuator		1 dB steps rotary switch	0-15 dB
		Jumper	0/10 dB
Output level	EN 50083-5 2nd order		106 dBµV
	EN 50083-5 3rd order		118 dBµV
General			
Operating voltage			230 VAC, 50/60 Hz
Power consumption			< 4,5 W
Connectors			F
Operating temperature			-20°C...+55°C
Storage temperature			-25°C...+75°C
Dimensions			163x90x47 mm
EMC			CE, class A
Packing unit			1 piece, 1.4 dm³, 0.8 kg
Shipping package			10 pieces, 17,5dm³, 8.5 kg

HOME LINE in-house distribution amplifiers E type

VX 45 E

In-house distribution amplifier

Downstream			
Frequency range			47-862 MHz
Gain			36 dB
Attenuator		1 dB steps rotary switch	0-15 dB
		Jumper	0/5 dB
Equalizer		1.5 dB steps rotary switch	0-22.5 dB
Interstage	Equalizer	Jumper	0/6 dB
	Attenuator	Jumper	0/6 dB
Output level		CENELEC 42 6 dB slope	107 dBµV
CSO, CTB			≥ 60 dB
Test points			-20 dB
General data			
Operating voltage			230 VAC, 50/60 Hz
Power consumption			< 5 W
Connectors			F
Operating temperature			-20°C...+55°C
Storage temperature			-25°C...+75°C
Dimensions			163x90x47 mm
EMC			CE, class A

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

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/CTB	≥64/≥60 dB	≥64 /≥60 dB
Output level CENELEC, 7 dB slope	112 dBµV,	112 dBµV
- CSO/CTB	≥63/≥60 dB	≥63/≥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 (6 dB on request)	0 / 7 dB (6 dB on request)
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
Packing unit	1 piece, 11.3 dm³, 2.0 kg	1 piece, 11.3 dm³, 2.0 kg

VALUE LINE accessories for programmable amplifiers

VX 27 A	**Return path module active**		
	Frequency range	depending on 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 1200	**Return path module active with ingress filter**		
	Frequency range	depending on 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 order	114 dBµV
XE 20 A 0300	**Diplex filter**		
	Frequency	30/47 MHz	
XE 20 A 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 57	**Cable compensator**		
	Attenuation	6/9 dB	
XM 25 0082	**Tap plugable**		
	Thru loss	2/8 dB	
XM 25 0131	**Tap plugable**		
	Thru loss	1/13 dB	
ZG 01	**Adapter PG11 - 5/8''**		

VALUE LINE distribution amplifiers Rotary switch

VX 26 / 29 3227

Distribution amplifier

- CATV amplifier high output level
- Protection class IP 54
- all setting via rotary switches (stepwise)
- Return path passive/ active
- Lightning protection RF connectors /Power supply

Down-Stream			
Frequency range			47/85-862 MHz
Gain			32 dB
Output level	CENELEC 42 ch	flat 6 dB slope	111 dBµV 114 dBµV
CSO, CTB			≥ 65 dB, ≥ 60 dB
Noise figure			≤ 6 dB
Input			
Attenuator	rotary switch 16 steps per 1 dB		0-15 dB
Equalizer	rotary switch 16 steps per 1.5 dB		0-22.5 dB
Interstage attenuation	Jumper		0/5 dB
Interstage slope	Jumper		0/6 dB
Cable simulation	Jumper		0/5 dB
Number of outputs			2
Test point	input output		-20 dB
Splitter			4 dB
Up-Stream			
Frequency range			5-65 MHz
Gain			27 dB
Noise figure			≤ 6 dB
Output level	2nd order		typ. 109 dBµV
	3rd order		typ. 115 dBµV
	Max load 1 TS 140		120 dBµV
Attenuator	Rotary switch 16 steps per 1 dB		0-15 dB
Attenuator	Jumper		0/5 dB
Equalizer	Jumper		0/3/6/9 dB
General data			
Operating voltage	VX 26...		180-265 VAC / 50,60 Hz
	VX 29...		27-65 VAC / 50, 60 Hz
Power supply			typ. 19 W
Connectors	VX 26...		F
	VX 29...		PG 11/F
Remote feed voltage	Input Output		<7 A 3 A
Operation indicator			LEG green
Operating temperature			-20°C...+55°C
Storage temperature			-25°C...+75°C
EMC			CE, Class A

VALUE LINE distribution amplifiers Rotary switch

VX 26 / 29 4032

Distribution amplifier

- CATV amplifier high output level
- Protection class IP 54
- all setting via rotary switches (stepwise)
- Return path passive/ active
- Lightning protection RF connectors /Power supply

Down-Stream			
Frequency range			47/85-862 MHz
Gain			40 dB
Output level	CENELEC 42 ch	flat 6 dB slope	111 dBµV 114 dBµV
CSO, CTB			≥ 65 dB, ≥ 60 dB
Noise figure			≤ 6 dB
Input			
Attenuator	rotary switch 16 steps per 1 dB		0-15 dB
Equalizer	rotary switch 16 steps per 1.5 dB		0-22.5 dB
Interstage attenuation	Jumper		0/5 dB
Interstage slope	Jumper		0/6 dB
Cable simulation	Jumper		0/5 dB
Number of outputs			2
Test point	input output		-20 dB
Splitter			4 dB
Up-Stream			
Frequency range			5-65 MHz
Gain			32 dB
Noise figure			≤ 6 dB
Output level	2nd order		typ. 109 dBµV
	3rd order		typ. 115 dBµV
	Max load 1 TS 140		120 dBµV
Attenuator	Rotary switch 16 steps per 1 dB		0-15 dB
Attenuator	Jumper		0/5 dB
Equalizer	Jumper		0/3/6/9 dB
General data			
Operating voltage	VX 26...		180-265 VAC / 50,60 Hz
	VX 29...		27-65 VAC / 50, 60 Hz
Power supply			typ. 19 W
Connectors	VX 26...		F
	VX 29...		PG 11
Remote feed voltage	Input Output		<7 A 3 A
Operation indicator			LEG green
Operating temperature			-20°C...+55°C
Storage temperature			-25°C...+75°C
EMC			CE, Class A

VALUE LINE distribution amplifiers Rotary switch

VX 26 H

Local feed distribution amplifiers F glands

- Die cast housing
- Return amplifier and diplex filter on board
- Passive return path can be enabled by jumpers
- All adjustments by Rotary Switches or jumpers
- Plug-in output splitter

Downstream			
Frequency range			85-1002 MHz
Gain single output			41 dB
Output level	CENELEC 42 ch	flat 6 dB slope	111 dBµV 114 dBµV
CSO, CTB			≥60 dB
Noise figure		up to 600 MHz	≤ 6 dB
		up to 862 MHz	≤ 8 dB
Attenuator		Rotary switch 16 steps per 1 dB	0-15 dB
Equalizer		Rotary switch 16 steps per 1.5 dB	0-22.5 dB
Interstage equalizer		(Jumper)	0 / 6 / 12 dB
Interstage attenuator		(Jumper)	0 / 5 dB
HF output test socket		directional coupler	-20 dB
Input test point		resistive test point	-20 dB
Upstream			
Frequency range			5-65 MHz
Gain		active/ passive	24 dB ±0.5 dB / -4 dB
Noise figure			≤ 6 dB
Output level		EN 50083-3 2nd, 3rd order	typ. 112 dBµV
Attenuator input/output		Rotary switch 16 steps per 1 dB	0-15 dB
Interstage attenuator		(Jumper)	0/5 dB
Interstage equalizer		(Jumper)	0 / 3 / 6 / 9 dB
Operating voltage			180-265 VAC; 50/60 Hz
Power consumption			typ. 18 W
Connectors			F glands
EMC			CE, Class A

VALUE LINE distribution amplifiers Rotary switch

VX 26 L

Local feed distribution amplifiers F glands

- Die cast housing
- Return amplifier and diplex filter on board
- Passive return path can be enabled by jumpers
- All adjustments by Rotary Switches or jumpers
- Plug-in output splitter

Downstream			
Frequency range			85-1002 MHz
Gain single output			32 dB
Output level	CENELEC 42 ch	flat 6 dB slope	111 dBµV 114 dBµV
CSO, CTB			≥60 dB
Noise figure		up to 600 MHz	≤ 6 dB
		up to 862 MHz	≤ 8 dB
Attenuator		Rotary switch 16 steps per 1 dB	0-15 dB
Equalizer		Rotary switch 16 steps per 1.5 dB	0-22.5 dB
Interstage equalizer		(Jumper)	0 / 6 / 12 dB
Interstage attenuator		(Jumper)	0 / 5 dB
HF output test socket		directional coupler	-20 dB
Input test point		resistive test point	-20 dB
Upstream			
Frequency range			5-65 MHz
Gain		active/ passive	24 dB ±0.5 dB / -4 dB
Noise figure			≤ 6 dB
Output level		EN 50083-3 2nd, 3rd order	typ. 112 dBµV
Attenuator input/output		Rotary switch 16 steps per 1 dB	0-15 dB
Interstage attenuator		(Jumper)	0/5 dB
Interstage equalizer		(Jumper)	0 / 3 / 6 / 9 dB
Operating voltage			180-265 VAC; 50/60 Hz
Power consumption			typ. 18 W
Connectors			F glands
EMC			CE, Class A

VALUE LINE distribution amplifiers Rotary switch

VX 26 M

Distribution amplifier

- CATV amplifier high output level
- Protection class IP 54
- all setting via rotary switches (stepwise)
- Lightning protection RF connectors /Power supply

Down-Stream			
Frequency range			47-862 MHz
Gain			36 dB
Output level	CENELEC 42 ch	flat 6 dB slope	111 dBµV 114 dBµV
CSO, CTB			≥ 60 dB
Noise figure			≤ 6 dB
Input			
Attenuator	rotary switch 16 steps per 1.5 dB		0-22.5 dB
Equalizer	rotary switch 16 steps per 1.5 dB		0-22.5 dB
Interstage attenuation	Jumper		0/6 dB
Interstage slope	Jumper		0/6 dB
Return loss			≥ 18 dB
Test point	input output		-20 dB
General data			
Operating voltage			180-265 VAC / 50,60 Hz
Power supply			typ.<16 W
Connectors			F
Operation indicator			LEG green
Operating temperature			-20°C...+55°C
Storage temperature			-25°C...+75°C
EMC			CE, Class A

VALUE LINE distribution amplifiers Rotary switch

VX 29 H

Local feed distribution amplifiers PG 11 glands

- Die cast housing
- Return amplifier and diplex filter on board
- Passive return path can be enabled by jumpers
- All adjustments by Rotary Switches or jumpers
- Plug-in output splitter

Downstream			
Frequency range			85-1002 MHz
Gain single output			41 dB
Output level	CENELEC 42 ch	flat 6 dB slope	111 dBµV 114 dBµV
CSO, CTB			≥60 dB
Noise figure		up to 600 MHz	≤ 6 dB
		up to 862 MHz	≤ 8 dB
Attenuator		Rotary switch 16 steps per 1 dB	0-15 dB
Equalizer		Rotary switch 16 steps per 1.5 dB	0-22.5 dB
Interstage equalizer		(Jumper)	0 / 6 / 12 dB
Interstage attenuator		(Jumper)	0 / 5 dB
HF output test socket		directional co-upler	-20 dB
Input test point		resistive test point	-20 dB
Upstream			
Frequency range			5-65 MHz
Gain		active/ passive	24 dB ±0.5 dB / -4 dB
Noise figure			≤ 6 dB
Output level		EN 50083-3 2nd, 3rd order	typ. 112 dBµV
Attenuator input/output		Rotary switch 16 steps per 1 dB	0-15 dB
Interstage attenuator		(Jumper)	0/5 dB
Interstage equalizer		(Jumper)	0 / 3 / 6 / 9 dB
Operating voltage			27-65 VAC; 50/60 Hz
Power consumption			typ. 18 W
Power passing		per port	< 7 A
Connectors			PG11 glands
EMC			CE, Class A

VALUE LINE distribution amplifiers Rotary switch

VX 29 L

Local feed distribution amplifiers PG 11 glands

- Die cast housing
- Return amplifier and diplex filter on board
- Passive return path can be enabled by jumpers
- All adjustments by Rotary Switches or jumpers
- Plug-in output splitter

Downstream			
Frequency range			85-1002 MHz
Gain single output			32 dB
Output level	CENELEC 42 ch	flat 6 dB slope	111 dBµV 114 dBµV
CSO, CTB			≥60 dB
Noise figure		up to 600 MHz	≤ 6 dB
		up to 862 MHz	≤ 8 dB
Attenuator		Rotary switch 16 steps per 1 dB	0-15 dB
Equalizer		Rotary switch 16 steps per 1.5 dB	0-22.5 dB
Interstage equalizer		(Jumper)	0 / 6 / 12 dB
Interstage attenuator		(Jumper)	0 / 5 dB
HF output test socket		directional coupler	-20 dB
Input test point		resistive test point	-20 dB
Upstream			
Frequency range			5-65 MHz
Gain		active/ passive	24 dB ±0.5 dB / -4 dB
Noise figure			≤ 6 dB
Output level		EN 50083-3 2nd, 3rd order	typ. 112 dBµV
Attenuator input/output		Rotary switch 16 steps per 1 dB	0-15 dB
Interstage attenuator		(Jumper)	0/5 dB
Interstage equalizer		(Jumper)	0 / 3 / 6 / 9 dB
Operating voltage			27-65 VAC; 50/60 Hz
Power consumption			typ. 18 W
Power passing		per port	< 7 A
Connectors			PG11 glands
EMC			CE, Class A

COMPACT LINE programmable trunk amplifiers

-One active output (2 with pluggable splitter XM..)
-High gain / High output level
-All settings via handset OK41
-NMS interface for HMS transponder VT51
-On board return amplifier
-Remote and local powered versions
-AGC / ALSC interface for VX58
*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**
Down Stream Frequency range	47/85-862 MHz*	47/85-862 MHz*	47/85-862 MHz*	47/85-862 MHz*
Gain	40 (36**) dB	40 (36**) dB	33 (29**) dB	33 (29**)dB
Noise figure	≤6.5 dB	≤6 dB	≤6 dB	≤6 dB
Attenuator / Equalizer	0-15/0-15 dB	0-15/0-15 dB	0-15/0-15 dB	0-15/0-15 dB
Interstage attenuator	0 / 5 / 10 dB	0 / 5 / 10 dB	0 / 5 / 10 dB	0 / 5 / 10 dB
Interstage slope	0 / 6 / 9 dB	0 / 6 / 9 dB	0 / 6 / 9 dB	0 / 6 / 9 dB
Output level CENELEC, flat	1x 111 dBµV	1x 111 dBµV	1x 111 dBµV	1x 111 dBµV
Output level CENELEC, 6 dB slope	1x 114 dBµV	1x 114 dBµV	1x 114 dBµV	1x 114 dBµV
Up Stream				
Frequency range	5-30/65 MHz*	5-30/65 MHz*	5-30/65 MHz*	5-30/65 MHz*
Gain	30 dB	30 dB	30 dB	30 dB
Noise figure	≤8 dB	≤8 dB	≤8 dB	≤8 dB
Attenuator / Equalizer	0-30/0-10 dB	0-30/0-10 dB	0-30/0-10 dB	0-30/0-10 dB
Output level EN 50083-5,	116 dBµV	116 dBµV	116 dBµV	116 dBµV
ICS	0 / -8 / <-45 dB	0 / -8 / <-45 dB	0 / -8 / <-45 dB	0 / -8 / <-45 dB
General				
Power supply	180-265 VAC, 50/60 Hz		180-265 VAC, 50/60 Hz	
		27-65 VAC, 50/60 Hz		27-65 VAC, 50/60 Hz
Power consumption with/without transpond-	typ. 20.5 W/ typ. 18W	typ. 20.5 W/ typ. 18W	typ. 20.5 W/ typ. 18W	typ. 20.5 W/ typ. 18W
Dimensions	260x215x95 mm	260x215x95 mm	260x215x95 mm	260x215x95 mm
EMC	CE, Class A	CE, Class A	CE, Class A	CE, Class A
Packing unit	1 piece, 19 dm³, 3.6 kg	1 piece, 19 dm³, 3.6 kg	1 piece, 19 dm³, 3.6 kg	1 piece, 19 dm³, 3.6 kg

COMPACT LINE programmable trunk amplifiers

-Two active outputs
-High gain / High output level
-All settings via handset OK41
-NMS interface for HMS transponder VT51
-On board return amplifier
-Remote and local powered versions
-AGC / ALSC interface for VX58
*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
Down Stream		
Frequency range	47/85-862 MHz*	47/85-862 MHz*
Gain	2 x 38 (34**) dB	2 x 38 (34**) dB
Noise figure	≤6.5 dB	≤6.5 dB
Attenuator / Equalizer	0-15/0-15 dB	0-15/0-15 dB
Interstage attenuator	0 / 5 / 10 dB	0 / 5 / 10 dB
Interstage slope	0 / 6 / 9 dB	0 / 6 / 9 dB
Output level CENELEC, flat	2 x 111 dBµV	2 x 111 dBµV
Output level CENELEC, 6 dB slope	2 x 114 dBµV	2 x 114 dBµV
Up Stream		
Frequency range	5-30/65 MHz*	5-30/65 MHz*
Gain	26 dB	26 dB
Noise figure	≤11 dB	≤11 dB
Attenuator / Equalizer	0-26/0-10 dB	0-26/0-10 dB
Output level EN 50083-5,	116 dBµV	116 dBµV
ICS	0 / -8 / <-45 dB	0 / -8 / <-45 dB
General		
EMC	CE, Class A	CE, Class A
Power supply	180-265 VAC, 50/60 Hz	
		27-65 VAC, 50/60 Hz
Power consumption with/without transpond-	typ. 30 W/typ. 27.5 W	typ. 30 W/typ. 27.5 W
Dimensions	260x215x95 mm	260x215x95 mm

COMPACT LINE accessories

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 04 0150

HP module

Frequency range	Return path (block)	5-15 MHz
Attenuation		≥25 dB

XE 04 0400

HP module

Frequency range	Return path (block)	5-34 MHz
Attenuation		≥25 dB

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

COMPACT LINE accessories

XM 51

Splitter	
Side loss	4/4 dB

XM 53

Splitter	
Side loss	8/2 dB

XM 55

Tap	
Side loss / Thru loss	13/1 dB

XM 56

Tap	
Side loss / Thru loss	18/1 dB

COMPACT LINE VX 58xxxx

- Operates as ALC (flat) in LR63 LR43 Fiber nodes
- Operates as ALSC (level and slope) with 1 or 2 pilots in all COMPACT LINE amplifiers
- Detect CW, AM, QAM carriers
- Advanced pilot failure routines
- Easy adjustment

VX 58 0407

VX 58 0607

VX 58 0703

VX 58 0855

Type	**VX 58 0407 Pilot detector 287,25-407,25 MHz**	**VX 58 0607 Pilot detector 415,25-607,25 MHz**	**VX 58 0703 Pilot detector 615,25-703,25 MHz**	**VX 58 0855 Pilot detector 711,25-855,25 MHz**
Pilot 1	110-140 MHz	110-140 MHz	110-140 MHz	110-140 MHz
Pilot 2	278-407 MHz	415-607 MHz	615-703 MHz	711-855 MHz
Control range	47 MHz ± 0.9 dB	47 MHz ± 0.9 dB	47 MHz ± 0.9 dB	47 MHz ± 0.9 dB
	470 MHz ± 2.9 dB	470 MHz ± 2.9 dB	470 MHz ± 2.9 dB	470 MHz ± 2.9 dB
	606 MHz ± 3.4 dB	606 MHz ± 3.4 dB	606 MHz ± 3.4 dB	606 MHz ± 3.4 dB
	862 MHz ± 4.0 dB	862 MHz ± 4.0 dB	862 MHz ± 4.0 dB	862 MHz ± 4.0 dB
Gain reduction	-4 dB for mid position	-4 dB for mid position	-4 dB for mid position	-4 dB for mid position

Power supplies

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

systems

Optical transceiving systems

FIBER LINE optical transmitters

LT 53 S
LT 53 S 0400

DFB laser module

- Optical transmitter for WISI TOPLINE HEADEND
- Input frequency range 5-862 MHz
- Wavelength 1310 nm
- Remote control via OV52
- Monitoring via OV51S
- 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., attenuation=6 dB		> 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 53 S	2.5 mW (4 dBm)
	LT 53 S 0400	4 mW (6 dBm)
Connector		SC/APC
NMS functions		
Monitoring		Laser bias
		Laser temperature
		Laser output power
		Level adjustment
		RF power at laser
Settings		
	Laser	On / Off
	ALC	On / Off
	Level	0 - 10 dB
Alarms		
	Optical power	< 3 mW
	Laser bias	> 90 mA
	Laser temperature	> 55 °C
Generals		
Housing		Zinc die-cast
Connectors	RF	F-type
	optical	SC/APC, E 2000 on request!
Operating temperature		-10°C...+50°C
Dimensions		30x260x200 mm
Packing unit		1 piece, 4.6 dm³, 2.2 kg

FIBER LINE optical transmitters

LT 54 S 1000

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

FIBER LINE optical transmitters

LT 54 S 2000

DFB laser module

- 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
Level adjustment		10 dB
C/N for 42 channels, opt. attenuation=12 dB		> 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		20 mW (13 dBm)
NMS functions		
Monitoring		
		Laser bias
		Laser temperature
		Laser output power
		Level adjustable
		Tec-Strom
		RF power at laser
General data		
Housing		Zinc die-cast
Connector	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%
EMC		CE, Class A
Packing unit		1 piece, 4.6 dm³, 2.2 kg

FIBER LINE optical transmitters

LT 61 S 0400

DFB laser transmitter

- Optical broadband transmitter for WISI TOPLINE HEADEND
- Input frequency range CATV 45-862 MHz, SAT 950-2200 MHz
- Wavelength 1290-1330 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 CATV		
Frequency range		45-862 MHz
Input level 42 ch.		88 dBµV ±4 dB
Level adjustment manual/autom.		10 dB
C/N 42 ch CENELEC	opt. Link=8 dB	≥50 dB
CTB/CSO 42 ch CENELEC		≥60 dB
Test socket		-20 dB
RF connectors		F
RF parameters SAT		
Frequency range		950-2200 MHz
Input level 42 ch.		78 dBµV ±4 dB
Level adjustment manual/autom.		10 dB
C/N 42 ch CENELEC	opt. Link=8 dB	≥36 dB
Test socket		-20 dB
RF connectors		F
Optical parameters		
Laser type		uncooled isolated DFB laser
Wavelength		1290-1330 nm
Optical output level		4mW=6dBm
Connector		SC/APC; E2000 on request
NMS functionality		Monitoring Configuration Alarms
General data		
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

FIBER LINE optical receivers

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

FIBER LINE optical nodes

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 upstr-eam transmitter	
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

FIBER LINE optical nodes

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		
Weight	5.1 kg		
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		

FIBER LINE optical nodes

LR 54 S
LR 55 S

Optical node

- Compact optical receiver/transmitter
- Integrated splice box
- Return path transmitter, Diplex filter, splitter plugable
- All settings (level, slope etc.) with OK 41 A or NMS if a HMS transponder is used
- Interface VT 51 for NMS function
- Automatic level control (ALC)

Wavelength			1290-1600 nm
Fiber		single mode	9/125 µm
Optical connector			SC/APC
Frequency range			47/85-862 MHz
Optical input level	for controlled electrical output level		-7...+0 dBm
Controlled output level	(ALC on, 5% OMI)		112 dBµV
IMA CTB, CSO	60 dB		110 dBµV, flat
			113 dBµV, 9 dB slope
Attenuator	0,5 dB steps		0-15 dB
Equalizer	0,5 dB steps		0-15 dB
RF test point			-20 dB
Upstream	Optical transmitter		refer to accessories
Wavelength	FP-/DFB laser		refer to accessories
Opt. output level			3 dBm
Frequency range			10-30/65 MHz
Broadband RF input	106 dBµV = 5% OMI		10-300 MHz
RIN	LT 41/45		< -145 dB/Hz
	LT 40		< -135 dB/Hz
Nominal input level			75 dBµV
OMI control range	@ 75 dBµV input	1% steps	3-10%
ICS			0 / 8 / >45 dB
RF test point laser in			75 dBµV = 5 % OMI
Reference pilot			3,16 % OMI
Pilot frequencies			refer to accessories
General data			
RF connectors			PG 11
Operating voltage	LR 54 S		180-265 VAC
	LR 55 S		27-65 VAC
Operating temperature			-20°C...+55°C
Power consumption			25 W

FIBER LINE optical nodes

LR 54 S
LR 55 S

Optical node

Protection class		IP 66
Dimensions		260x95x215 mm
EMC		CE, class A
Downstream		
Monitoring	opt. input level	
	Attenuator	
	Equalizer out	
Configuration	Attenuator in (@ALC=off)	0-20 dB
	Attenuator out	0-15 dB
	Equalizer	0-15 dB
	ALC	on / off
	Alarm / Warning thresholds	
Upstream		
Monitoring	Opt. output level	
	Temperature	
Configuration	Laser	on / off
	OMI	3-8%
	ICS1, ICS2, ICS3	0 / 8 / >45 dB
	Alarm / Warning thresholds	
	Pilot	on / off
Alarme / Warnings	Optical input power too high/ too low	
	Optical transmitting power too high / too low	
	Temperature too high / too low	
	ALC range limit	

FIBER LINE accessories optical nodes

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!

FIBER LINE accessories optical nodes

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 1430

Optical transmitter module, 1430 nm CWDM

Wavelength	1430 ±3 nm
Pilot frequency	5.8 MHz

LT 45 S 1450

Optical transmitter module, 1450 nm CWDM

Wavelength	1450 ±3 nm
Pilot frequency	6.0 MHz

LT 45 S 1470

Optical transmitter module, 1470 nm CWDM

Wavelength	1470 ±3 nm
Pilot frequency	6.2 MHz

LT 45 S 1490

Optical transmitter module, 1490 CWDM

Wavelength	1490 ±3 nm
Pilot frequency	6.4 MHz

FIBER LINE accessories optical nodes

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!

FIBER LINE accessories optical nodes

LT 45 S 1590

Optical transmitter module, 1590 nm CWDM

Wavelength		1590 ±3 nm
Broadband RF input		10-300 MHz
Frequency range	depending on diplex filter	10-(39) 65 MHz
Nominal input level		75 dBµV
Setting range OMI		3-10%@ 75 dBµV input
Optical output power		3 dBm
Pilot frequency		7.4 MHz
Optical connector		SC/APC, E2000 on request!

LT 45 S 1610

Optical transmitter module, 1610 nm CWDM

Wavelength		1610 ±3 nm
Broadband RF input		10-300 MHz
Frequency range	depending on diplex filter	10-(39) 65 MHz
Nominal input level		75 dBµV
Setting range OMI		3-10%@ 75 dBµV input
Optical output power		3 dBm
Pilot frequency		7.6 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 0300

Diplex filter 30 MHz

Downstream frequency	47 - 862 MHz

FIBER LINE accessories optical nodes

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

Optical Receiver

LR 26 A

Optical receiver local feed

- Automatic level control (opt. ALC) for constant output level
- All functions controlled via microprocessor
- All settings via handset OK 41 / OK 41A

Downstream			
Wavelength			1290-1310 nm
Frequency range			47-862 MHz
Controlled output level	ALC=on	OMI=5%	115 dBµV
Optical input level	for controlled electrical output level		-7...+3 dBm
Output level (42 ch CENELEC)	Popt. in ≤ 0 dBm	flat	111 dBµV
		9 dB slope	115 dBµV
CTB, CSO			> 60 dB
Attenuator			0...15 dB
Equalizer			0...15 dB
RF test point			-20 dB
Handset settings			
Configuration	Attenuator		0...15 dB
	Equalizer		0...15 dB
	AGC control		on/manual
	AGC offset		-3 dB +3 dB
Monitoring			Optical input level
			Attenuator
			Equalizer
			AGC state
General data			
Power supply			230 VAC
Optical connector			SC/APC
Connectos			PG 11
Operating temperature			-20°C...+55°C
Dimensions B x H x T			223x145x86 mm
Packing unit			1 piece

MINI NODE optical node

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

MINI NODE accessory optical node

OK 41 A

Handset for all programmable amplifiers and nodes and optical receivers

with memory, lightning display and LED torch	
Packing unit	1 piece, 1.25 dm³
Shipping unit	10 pieces, 15 dm³, approx. 1 kg

Micro receiver

LR 81

Optical receiver

- Optical input power -8 dBm...0 dBm
- Optical input power LED
- 0-20 dB input attenuator
- Switch mode power supply
- Metal housing

Downstream			
Wavelength			1290-1600 nm
Frequency range			47-862 MHz
Output level 4% OMI	4 dB slope		100 dBµV
Optical input level			-8...0 dBm
Attenuator			0-20 dB
Output level	4 dB slope		100 dBµV
	CSO ≥ 60 dB		
	CTB ≥ 60 dB		
Attenuator fixed	via jumper		0/10 dB
RF test point			-20 dB
Alarms	Optical input power	to high > 0 dBm	yellow LED
		o.k. -8...0 dBm	green LED
		to low <-8 dBm	red LED
General data			
Power supply			230 VAC; 50/60 Hz
Optical connector			SC/APC
Operating temperature			-20°C ... +55°C
Dimensions (W x H x D)			163x90+47 mm
Packing unit		1 piece	1,3 dm³, 0,7 kg
Shipping package		10 pieces	17.5 dm³, 9 kg

Micro node

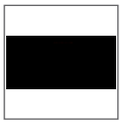
LR 82

Compact Optical Node

- Optical input power -8 dBm...0 dBm
- Optical input power LED
- 0-20 dB input attenuator
- Switch mode power supply
- Metal housing

Downstream			
Wavelength			1290-1310 nm
Frequency range			85-862 MHz
Output level 4% OMI			90 dBµV
Optical input level			-8...0 dBm
Attenuator			0...20 dB
Output level	4 dB slope		90 dBµV
	CSO ≥ 60 dB		
	CTB ≥ 60 dB		
RF test point			-20 dB
Alarms	Optical input level	to high > 0 dBm	yellow LED
		o.k. -8...0 dBm	green LED
		to low <-8 dBm	red LED
Upstream			
Wavelength			1310 nm
Frequency range			5-65 MHz
Optical output level			0 dBm
Input level			77-95 dBµV
Attenuator	adjustable / fixed		0-10 dB; 0/10 dB
RF test point			77 dBµV = 5 % OMI
General data			
Power supply			230 VAC, 50/60 Hz
Optiscal connector			SC/APC
Operating temperature			-20°C ... +55°C
Dimensions (W x H x D)			163x90+47 mm
Packing unit		1 piece	1.3 dm³, 0.7 kg
Shipping package		10 pieces	17.5 dm³, 9 kg

Optical accessories



LK 05

Optical coupler

Thru loss typical	4.2 / 2.4 dB
Wavelength	1310 nm
Operating temperature	-40°C...+85°C
Fiber length	1 m

LK 06

Optical coupler

Thru loss typical	5.6 / 1.8 dB
Wavelength	1310 nm
Operating temperature	-40°C...+85°C
Fiber length	1 m

LK 08

Optical coupler

Thru loss typical	7.2 / 1.2 dB
Wavelength	1310 nm
Operating temperature	-40°C...+85°C
Fiber length	1 m

LK 12

Optical coupler

Thru loss typical	2 x 3.2 dB
Wavelength	1310 nm
Operating temperature	-40°C...+85°C
Fiber length	1 m

LK 13

Optical coupler

Thru loss typical	3 x 5.7 dB
Wavelength	1310 nm
Operating temperature	-40°C...+85°C
Fiber length	1 m

LK 14

Optical coupler

Thru loss typical	4 x 6.6 dB
Wavelength	1310 nm
Operating temperature	-40°C...+85°C
Fiber length	1 m

LP 01 S

Pigtail with optical connector SC/APC

LP 02 S

Patch cord

LP 04 S

In-line coupler SC/APC//SC/APC

Optical accessories

LP 05 **Patch panel 19'' 1HE**

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

LP 50 **Fibermanagement**

Fiber management for use in OV 50 A Headend

ACCESS LINE

CP 10

Fibre CPE

- Optical Network termination for FTTH network
- 2 PSTN telephone connectors (simultaneous mode)
- 1 x LAN Ethernet (Bridge mode) or 4 x LAN Ethernet (Router mode)
- CATV receiver
- Automatic configuration via DHCP/TFTP server
- Remote firmware update via FTP/TFTP
- WEB interface for local configuration
- VLAN Tagging and ToS/Diffserv for QoS and safety
- Stateful inspection Firewall (Router mode)
- ISDN option
- WLAN and DECT option

CATV - optical receiver for radio and tv		
Fiber		single mode 9/125 µm
Optical input level		-7 dBm...0 dBm
Wavelength		1280-1600 nm
Equivalent noise input		4.5 pA / √ Hz
Optical connector		SC / APC 8°
Frequency range		47-862 MHz
Output level	OMI 5%, CENELEC 42 ch	80 dBµV ± 3 dB
CSO / CTB		≥ 60 dB
Ethernet - WAN interface		
Type		100Base-BX WAN
Fiber		single mode 9/125 µm
Optical connector		SC/PC
Wavelength	TX	1260-1360 nm, Typ. 1310 nm
	RX	1480-1600 nm, typ. 1550 nm
Standard		IEEE802.3u 100Base-BX
LAN interface		RJ 45
Standard		IEEE802.3u 10Base-T, IEEE802.3u 100Base-T
Telephone		
VoIP protocol		SIP 2.0
Voice codec		G.711 a-Law
Connector		2xRJ 11 (PSTN)
Provider notes	Clip, Clir, call waiting,call on hold Call hold/retrieve, 3-way conferencing, call diversion	
Management	Intergrated Web interface for manual configuration	SNMP agent
Remote Firmware update		via FTP/TFTP

CP 10

Fibre CPE

General data			
Power supply		External plug in	12 VDC
Power consumption			< 11 W
LEDs	TV	green	Poptin >-7...<+0 dBm
		red	Poptin >+0...<-7 dBm
	Link	green	WAN connected
	Telephone 1, 2	green	Registration VOIP sucessfully completed
Ambient temperature			0°C...+50°C
Storage temperature			-25°C...+75°C
Max humidity, non condensing			95 %
Dimensions (WxDxH)			195x150x44 mm
Weight			0.5 kg
EMC			CE

Notes

Measuring instruments

Universal measuring receiver

WA 31

Antenna measuring receiver

- Analog: SAT, CATV, TV, FM
- 99 memories
- Analog and digital display via 4" color TFT
- Built in return path measurement
- Analyzer for all areals
- 1 x CI slot (Common Interface)
- Scart socket
- Built in Power supply and battery charger
- Incl battery block and bag

Frequency range			5 - 2150 MHz
Level range			25 - 110 dBµV
DVB measuring			Level, BER, MER, S/N @ QPSK QAM 16-256, COFDM
Memories			99
Remote feed SAT			14/18 VDC, 22 kHz modulation0.8 Vpp, 500 mA DiSEqC V1.0; V1.1; V1.2; V2.0
Remote feed TV			5/18 V; 100 mA
Power supply			100-240 VAC; 50/60 Hz
Battery			NI-MH bloc 12V/4,5 Ah integrated battery charger
External 12 V			10-15 VDC
Ambient temperature			0°C...+40°C
Weight			3.9 kg
Dimensions			252x135x272 mm
Packing unit		1 piece	
Accessory	Memory for data measure-ments	PCMCIA module	WZ 31

Universal measuring receiver

WA 70 A

Universal measuring receiver

- TV standards: multistandard B/G, D/K, M/N, L, I
- DVB (S) (T) measurements
- BER detection selectable for QPSK und 16 to 256 QAM
- MER detection for 16 to 256 QAM
- Constellation diagram for 16 to 128 QAM
- DiSEqC and RDS output.
- Videotext, RS-232.
- Full graphics color TFT display
- 24 digit thermal printer
- Spectrum analyzer for all frequency ranges and narrow band.
- Return path capable
- Memories: 200 tuner settings, 20.000 measurement values
- MPEG-2 decoder for displaying 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 VA-C/50-60 Hz	2x12 VDC-Akku	2.2 Ah/4.4 Ah
LNC power supply	10-20 VDC	22 kHz	DiSEqC 1.0
Printer			24-digit Thermo printer
Operating temperature			0°C ...+40°C
Weight with battery			6.8 kg
Dimensions (W x H x D)			150x365x285 mm
Packing unit		1 piece	68 dm³, 8.6 kg

Options Universal measuring receiver WA 31

WZ 31

Memory for data measurements

- PCMCIA module with Flashcard
- Software CD
- USB/RS232 converter cable incl. CD
- Null modem adapter
- Operating instructions for software installation
- Operating instructions WA 31

Options Universal measuring receiver WA 70 A

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
WZ 20	**DVB-S2 Front end** Measurement of level, CBER and PER, S/N and Konstellation diagram at 8PSK-modulated SAT signals (HDTV).
WZ 21	**2xCommon Interface for MPEG2 decoder** Interface for CA modules
WZ 22	**Bluetooth adaptor** Wireless data transfer for die Dokumentationssoftware WZ 19.
WZ 23	**MPEG4 Combi decoder with DVI/ASI** Incl. NIT analyzer. DVI out and ASI in/out interface.
WZ 24	**ASI interface** Only in use with WZ 21 (MPEG2 decoder)

Technical Specifications

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

Country	VHF	UHF	Colour
Algeria	B	H	PAL
Argentina	N	N	PAL-N
Australia	B	H	PAL
Austria	B	G	PAL
Bahrain	B	G	PAL
Belgium	B	H	PAL
Bulgaria	D	K	SECAM
China	D	K	PAL
Cyprus	B	G	PAL/SECAM
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
Hungary	D	K	SECAM
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
Libya	B	H	SECAM

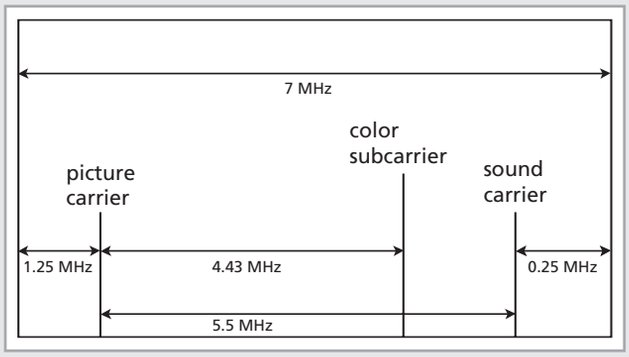
Country	VHF	UHF	Colour
Luxembourg	B / L	G / L	SECAM/PAL
Malta	B	H	PAL
Malysia	B	G	PAL
Mexico	M	M	NTSC
Monaco	E	L / G	SECAM/PAL
Morocco	B	H	SECAM
Netherlands	B	G	PAL
NIgeria	B	G	PAL
Norway	B	G	PAL
Pakistan	B	G	PAL
Philippines	M	M	NTSC
Poland	D	K	SECAM
Portugal	B	G	PAL
Oman Sultanate	B	G	PAL
Qatar	B	G	PAL
Romania	D	K	PAL
Saudi Arabia	B	G	PAL/SECAM
Singapore	B	G	PAL
Spain	B	G	PAL
Sri Lanka	B	–	PAL
South Africa	I	I	PAL
Sweden	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
Yemen Arab. Rep.	B	–	PAL

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

TV CCIR standard B

TV bands	Frequency MHz	Channel bandwidth MHz
VHF I	47–68	7
VHF II	147–230	7

Channel composition
VHF I, VHF III



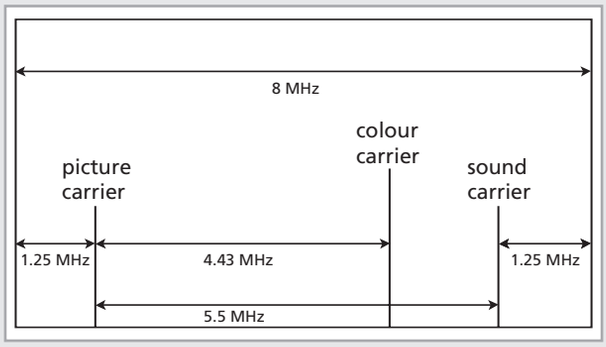
	MHz	MHz	MHz	MHz	MHz
TV bands	Channel	Channel limits	Picture carrier	Sound carrier	Center frequency
I	2	47... 54	48.25	53.75	50.50
	3	54... 61	55.25	60.75	57.50
	4	61... 68	62.25	67.75	64.50
VHF /	S 3	118... 125	119.25	124.75	121.50
mid-band	S 4	125... 132	126.25	131.75	128.50
	S 5	132... 139	133.25	138.75	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	219,50
	12	223... 230	224.25	229.75	226.50
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 MHz	Channel bandwidth MHz
UHF IV	470–606	8
UHF V	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 neighbouring 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
2000 – 3000 MHz	65	55

Calculation of SAT-IF frequencies

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

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

Gain and half power beam width of a parabolic antenna

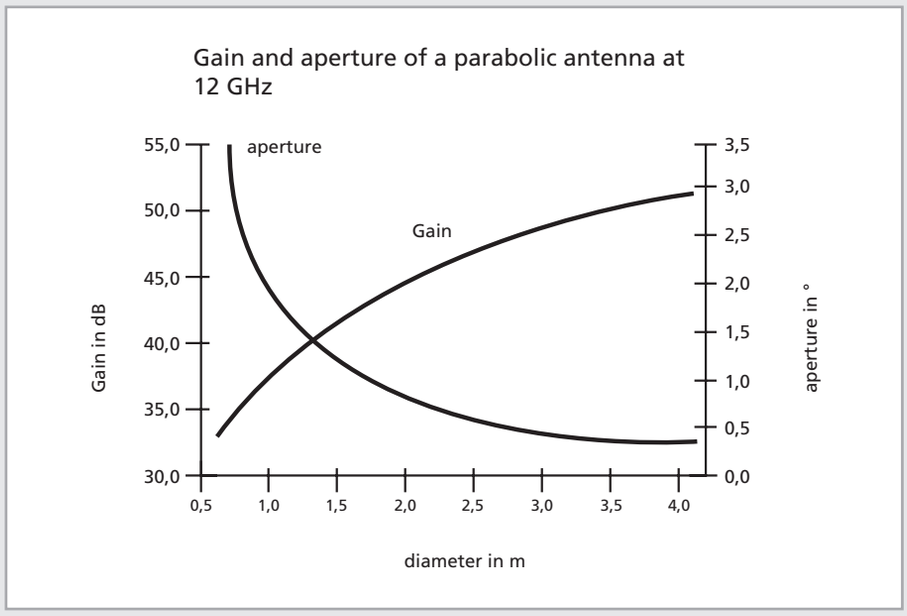
Gain in dBi
$G = 10 \log [\eta (\pi d/\lambda)^2]$ with
λ = Wave length in m
d = Antenna diameter in m
η = Effectiveness of the antenna, typ. 0.6

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:
$G = 40 + 20 \log d$ und 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)

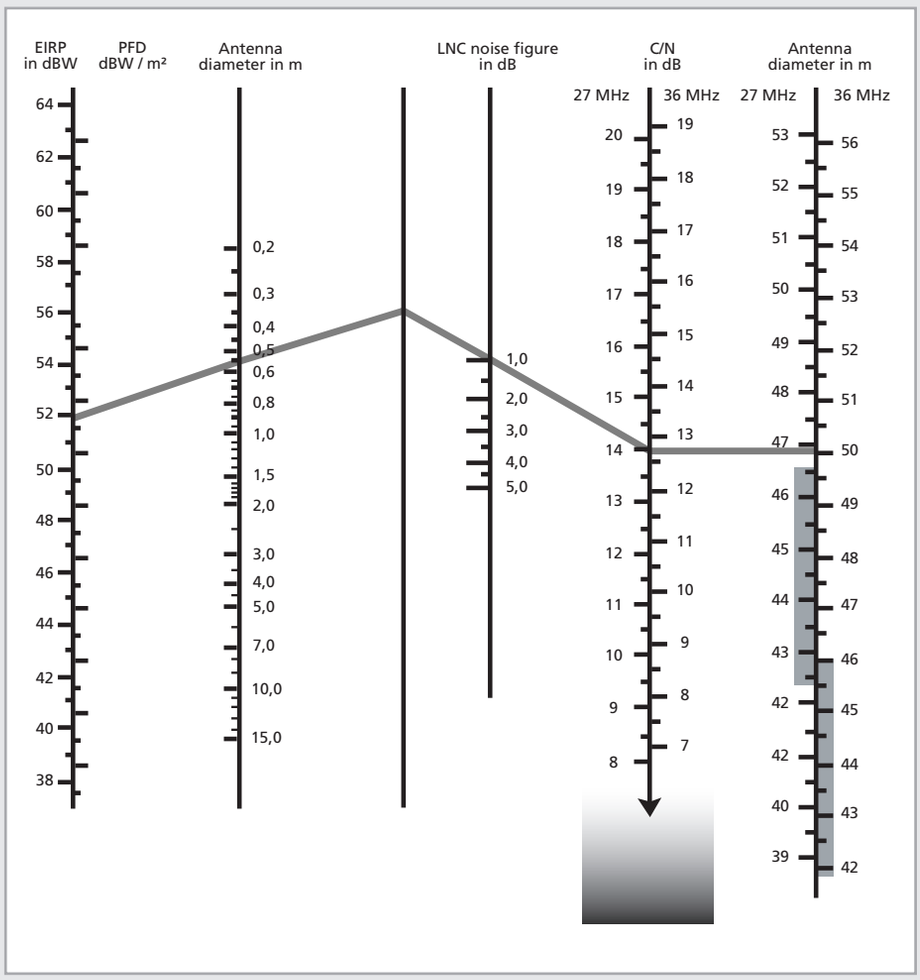


Graphical determination of C/N and S/N

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

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

T = Noise temperature in K
NF = Noise figure in dB

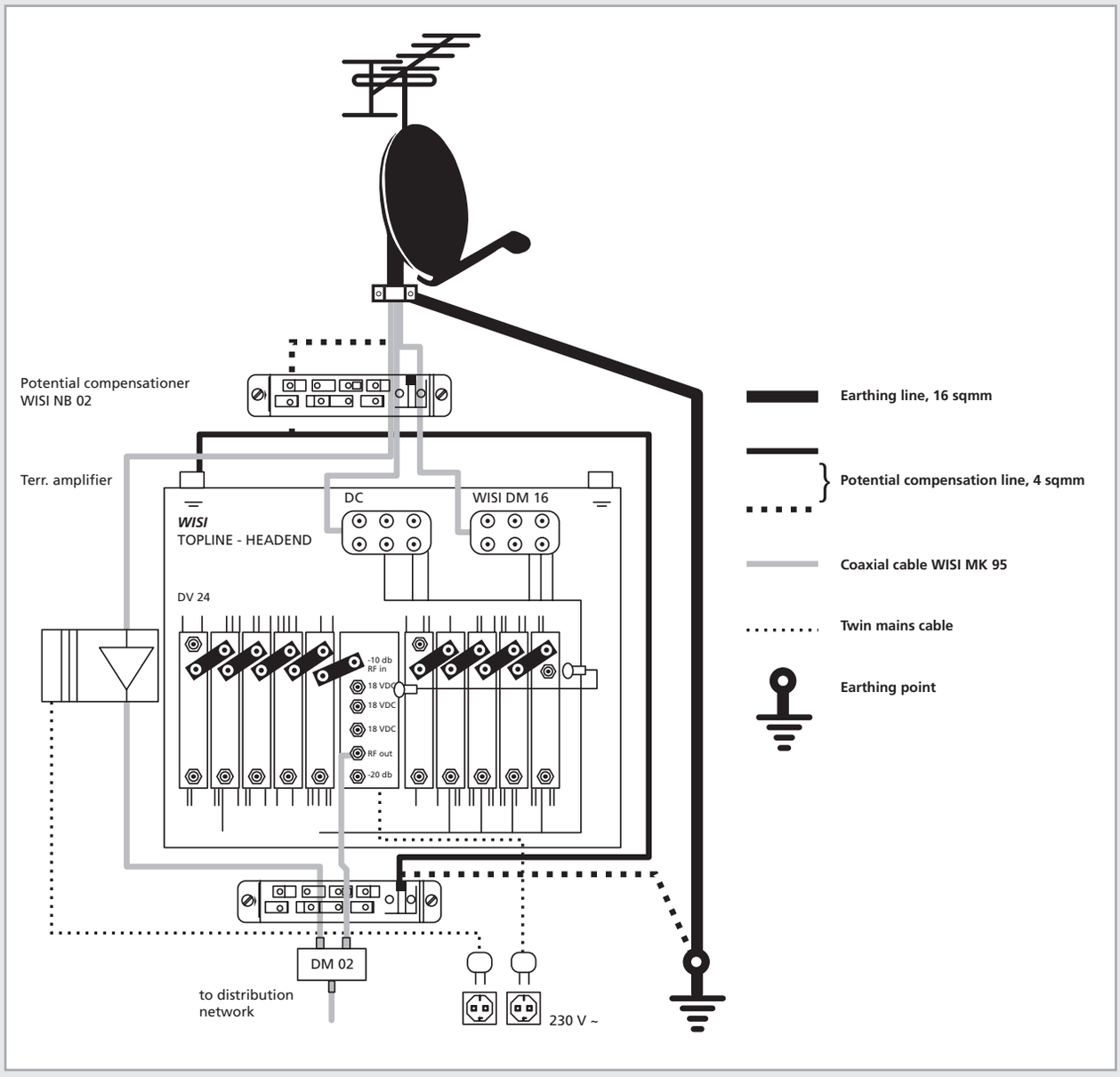


Earthing and potential equalization (VDE 0855, DIN 18015)

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

DVB - Digital Video Broadcasting

Calculation of bandwidth

Example DVB-T:
2 x 4.87 MS/s = 9.74 MS/s
55 Mbit/s x 3/4 x 4bit/sym = 26 Mbit/s
26 Mbit/s x 1/6 bit/sym = 4.33 Ms/s
4.33 Ms/s x 1.15 ~ **5 MHz bandwidth**

Example DVB-S:
2 x 27.5 MS/s = 55 MS/s
55 MS/s x 3/4 x 188/204 = 38.01 Mbit/s
38.01 Mbit/s x 1/6 x 204/188 = 6.87 MSym
6.87 MSym x 1.15 ~ **8 MHz bandwidth**

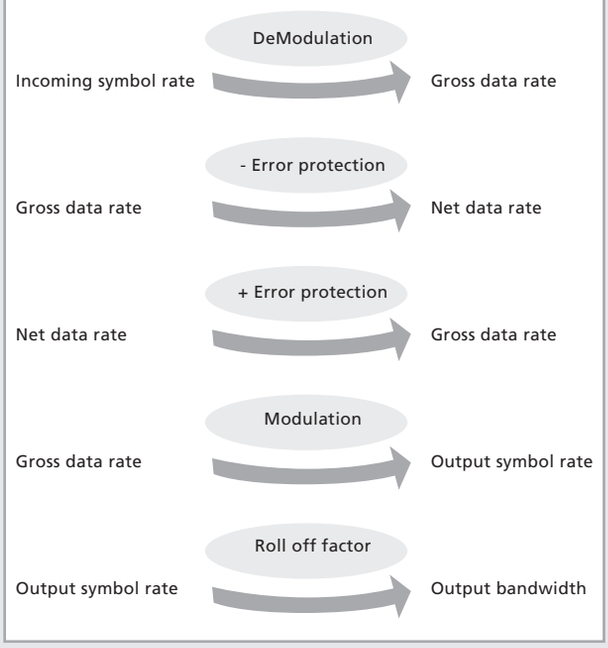
Legend:

Roll off factor
Symbol rate x 1.15 ->bandwidth in MHz

Error protection
FEC -> 2/3
Reed Solomon -> 188 / 204
Viterbi: -> ¾, 7/8 …

Modulation
QPSK -> 2 bits/symbol
16QAM -> 4 bits/symbol
32QAM -> 5 bits/symbol
64QAM -> 6 bits/symbol
128QAM -> 7 bits/symbol
256QAM -> 8 bits/symbol

Conversion



DVB-T - 8 MHz channel parameters

Parameter	Modus							
FFT mode	2k				8k			
Symbol period SP (in µs)	224				896			
Sum of carriers	2048				8192			
Bandwidth	7.6 MHz				7.6 MHz			
Total symbol period (SP+GI in µs)	280	262	238	231	1120	1008	952	924
Guard interval GI (in µs)	56	28	14	7	224	112	56	28
GI/SP	1/4	1/8	1/16	1/32	1/4	1/8	1/16	1/32
Transmitter distance (in km)	16.8	8.4	4.2	2.1	67.2	33.6	16.8	8.4

DVB-T - 8 MHz channel - Real transmitted data rates

		Netto data rate (Mbit/s) Guard interval/GI			
Modulation	Coderate	1/4	1/8	1/16	1/32
QPSK	1/2	4.98	5.53	5.85	6.03
	2/3	6.64	7.37	7.81	8.04
	3/4	7.46	8.29	8.78	9.05
	5/6	8.29	9.22	9.76	10.05
	7/8	8.71	9.68	10.25	10.56
16QAM	1/2	9.95	11.06	11.71	12.06
	2/3	13.27	14.75	15.61	16.09
	3/4	14.93	16.59	17.56	18.10
	5/6	16.59	18.43	19.52	20.11
	7/8	17.42	19.35	20.49	21.11
64QAM	1/2	14.93	16.59	17.56	18.10
	2/3	19.91	22.12	23.42	24.13
	3/4	22.39	24.88	26.35	27.14
	5/6	24.88	27.65	29.27	30.16
	7/8	26.13	29.03	30.74	31.67

Digital Border Values

Digital Video	MER		Pre FEC	Post FEC
	64QAM	256QAM	BER	BER
Headend				
Excellent	35 dB	35 dB	0.0 E-00	0.0 E-00
Acceptable	33 dB	35 dB	1.0 E-08	0.0 E+00
Marginal	30 dB	32 dB	1.0 E-07	1.0 E-00
Node				
Excellent	34 dB	35 dB	0.0 E-00	0.0 E-00
Acceptable	31 dB	34 dB	1.0 E-08	0.0 E-00
Marginal	28 dB	30 dB	1.0 E-07	1.0 E-08
Amp				
Excellent	33 dB	35 dB	1.0 E-09	0.0 E-00
Acceptable	30 dB	32 dB	1.0 E-08	1.0 E-09
Marginal	25 dB	27 dB	1.0 E-07	1.0 E-08
Tap				
Excellent	32 dB	35 dB	1.0 E-08	0.0 E-00
Acceptable	28 dB	31 dB	1.0 E-07	1.0 E-09
Marginal	24 dB	28 dB	1.0 E-06	1.0 E-08
Set-Top				
Excellent	32 dB	35 dB	1.0 E-08	0.0 E-00
Acceptable	27 dB	31 dB	1.0 E-07	1.0 E-08
Marginal	23 dB	27 dB	1.0 E-06	1.0 E-07

Standard BER

Ethernet 10^{e-8}
Token ring 10^{e-9}
FDDI 2.5 x 10^{e-12}

Field optical splitters

Specifications

Uniformity: 0.6 dB
Polarization 0.10 dB
Operation wavelength 1310/1530 ± 40 nm
Return loss + directivity > 55 dB
Operating temperature: -40 °C to + 85 °C
Fiber type: G632D 9/125/2800 µm
Connector type: SC/APC – E2000

Coupler	Insertion loss (max.)	Insertion loss (typ.)
1 x 3	5.8 dB	4,9 dB
1 x 4	7.2dB	6.2 dB
1 x 5	8.2dB	7.2 dB
1 x 6	9.5 dB	8.0 dB
1 x 7	10.3 dB	8.7 dB
1 x 8	10.8 dB	9.3 dB
1 x 14	13.6 dB	11.8 dB
1 x 16	14.0 dB	12.4 dB
1 x 32	17.5 dB	15.6 dB
1 x 64	20.7 dB	18.7 dB

Quelle: Internet

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