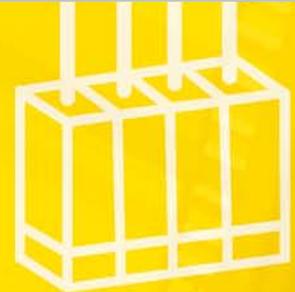


WISI COMPACT HEADEND

Channel Processing



excellence in digital ...

Communication

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

WISI's highly-motivated staff is fully committed to provide you with the state-of-the-art technology for communication today and tomorrow.



The new **WISI COMPACT** HEADEND

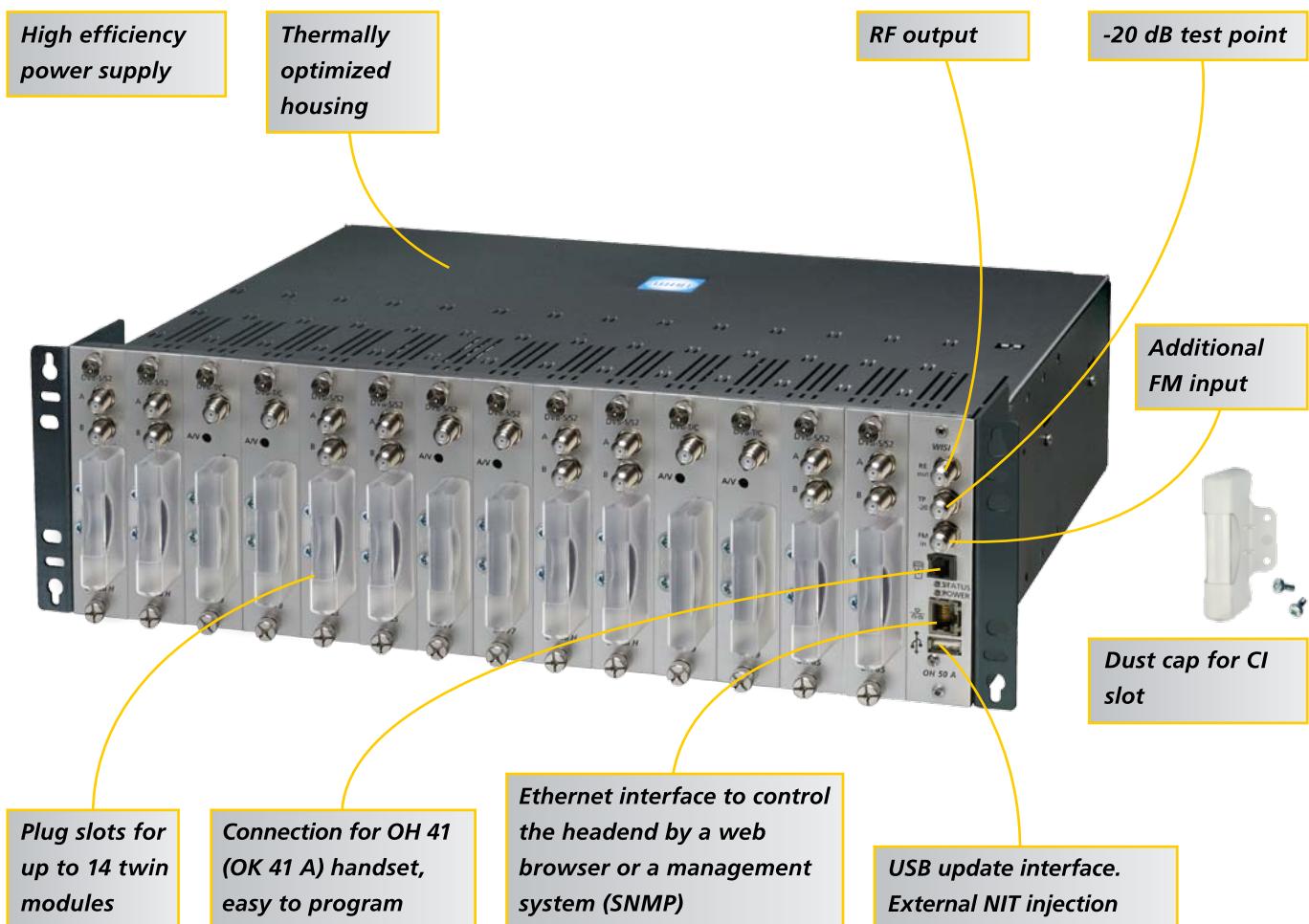
Compact, strong and extremely flexible

Powerful technology, compact dimensions, modular and flexibly expandable; the new **WISI COMPACT** HEADEND System OH combines all the advantages of an innovative and affordable headend.

WISI COMPACT HEADEND is easily tailored with up to 14 modules and thus offers optimum channel processing for up to 14* analogue and 28 digital channels in a 3 HU 19" rack chassis. Mux function for DVB-S/S2 to QAM as an option.

WISI COMPACT HEADEND operates on a high efficiency power supply, with low consumption modules in order to make a minimum ecological impact and a low operational cost.

The USB connection can be used to execute software updates for the basic unit as well as for the modules.



* analogue modulator

Easy Wall or Rack Mounting

The **WISI COMPACT HEADEND System OH** is pre-equipped both for wall installation and for installation in a 19" rack. The material required for installation is already furnished with the basic unit so that a simple installation and configuration of the system is guaranteed.

WISI COMPACT HEADEND features a new economy of space for professional headends. Despite the growing number of channels the foot print in many locations becomes a problem. Not so with the headend with the highest functional density in our industry.

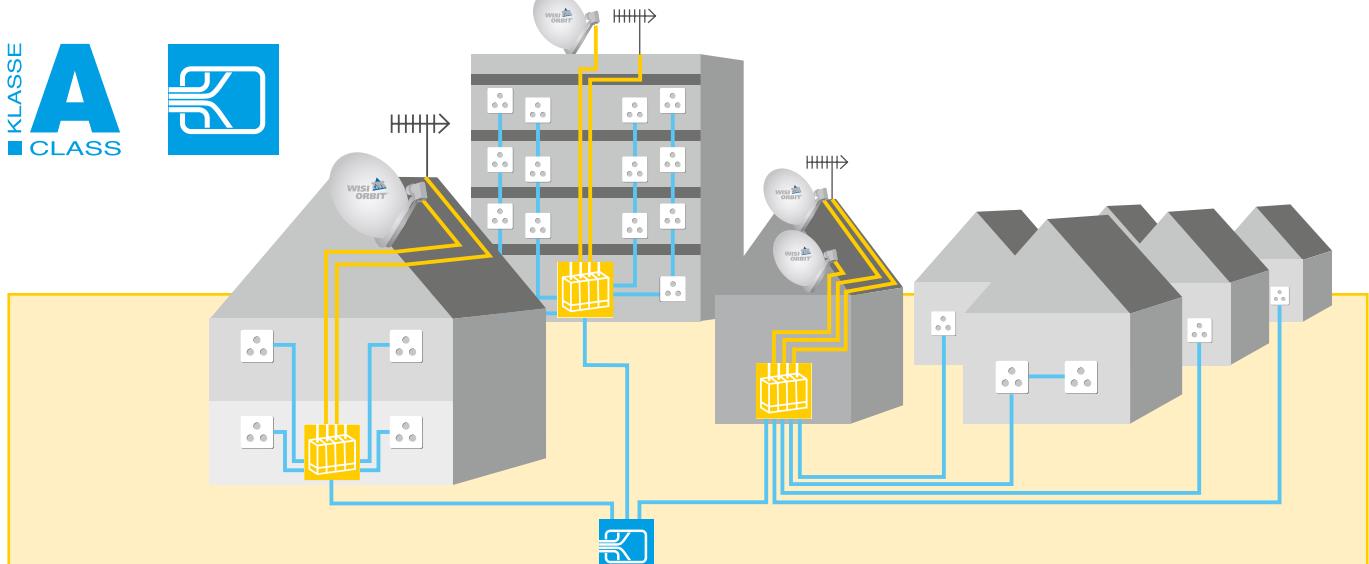


Rack mounting



Wall mounting

Variety in application



With the high output level of 110 dB μ V, the new **WISI COMPACT HEADEND System OH** is best suited for use in small CATV networks, medium sized residences, high rise buildings, recreational facilities, hospitals, hotels, etc.

OH 50 A

Basic Unit for 14 modules



- Headend basic unit for analogue and digital TV signals
- Slots for 14 modules (28 digital channels)
- 19" rack mounting or wall mounting
- Integrated FM amplifier
- Easy programming with OH 41 handset and Webbrowser
- Update and pre-programming via USB stick and Webinterface
- Remote monitoring with OH 51 A license
- High output power
- High efficiency

OH 40 A

Basic Unit for 7 modules



- Headend basic unit for analogue and digital TV signals
- Slots for 7 modules
- Integrated FM amplifier
- Easy programming with OH 41 handset and Webbrowser
- Update via USB stick and Webinterface

Basic Unit	OH 50 A
Booster Frequency range	
TV	47–862 MHz
FM	87.5–108 MHz
Output level	110 dB μ V
Output attenuator	15 dB/1 dB steps
Input level (FM)	70–100 dB μ V
FM attenuator	0–30 dB/1dB steps
Test output	-20 dB
Power supply	180... 265 V AC (47... 63 Hz)
Input voltage	
Max. power consumption	< 195 W
LNB power	12.5 V/1.2 A
Dimensions	443 × 132 (3 HU) × 351 mm
Connectors	2 × F-connector
FM input/RF output	
Test output	1 × F-connector
Control	RJ 11
Software update	USB
Remoteaccess	RJ 45 10/100BasT
Master slave operation	RJ 12
Operating temperature	-20 °C to +55 °C

Basic Unit	OH 40 A
Values differing from OH 50 A	
Max. power consumption	< 135 W
Dimensions	276 × 159 × 385 mm
Software update	USB



OH 76

DVB-S → analogue TV, CI

- Reception of a DVB-S signal and processing to an analogue-TV-channel
- Demultiplexing and decoding of MPEG-2 signals
- CI interface
- Vestigial sideband modulator



OH 76 F

DVB-S → analogue TV, FTA

- Reception of a DVB-S signal and processing to an analogue-TV-channel
- Demultiplexing and decoding of MPEG-2 signals
- Vestigial sideband modulator



Module	OH 76 DVB-S – RF analogue channel processing with CI (MPEG-2)
Input frequency range	950–2150 MHz
Input frequency steps	1 MHz
Input level range	47–70 dB μ V
Modulation scheme	QPSK
Symbol rate	1–45 MS/s
FEC outer code	RS (204,16)
FEC inner code	Conv. (1/2, 2/3, 3/4, 5/6, 7/8)
Output frequency range	45–862 MHz
Output frequency steps	250 kHz
Output stability	±30 kHz
Output channel bandwidth	7/8 MHz
Output level (1 dB steps)	90–105 dB μ V
TV standards	B/G, D/K, I, L, M, N
Video standards	PAL, SECAM, NTSC
Video format	4:3, 16:9, 4:3-Zoom
Video decoder	MPEG-2 (ML@MP)
Audio decoder	MPEG-2 (L1/L2)
Audio format	Mono, A2-Stereo, Dual
S/N video (CCIR-rec. 567-1)	>57 dB
S/N audio	>50 dB
Stability of output level	± 1.5 dB
Spurious outside TV channel	>55 dB
Connectors RF	F-connector
Current consumption	ca. 0.80 A
Power consumption	<10 W
LNB power	12 V/0.5 A max., DiSEqC 2.0
Operating temperature	-20 °C to +55 °C

Module	OH 76 F DVB-S – RF analogue channel processing FTA (MPEG-2)
Input frequency range	950–2150 MHz
Input frequency steps	1 MHz
Input level range	47–70 dB μ V
Modulation scheme	QPSK
Symbol rate	1–45 MS/s
FEC outer code	RS (204,16)
FEC inner code	Conv. (1/2, 2/3, 3/4, 5/6, 7/8)
Output frequency range	45–862 MHz
Output frequency steps	250 kHz
Output stability	±30 kHz
Output channel bandwidth	7/8 MHz
Output level (1 dB steps)	90–105 dB μ V
TV standards	B/G, D/K, I, L, M, N
Video standards	PAL, SECAM, NTSC
Video format	4:3, 16:9, 4:3-Zoom
Video decoder	MPEG-2 (ML@MP)
Audio decoder	MPEG-2 (L1/L2)
Audio format	Mono, A2-Stereo, Dual
S/N video (CCIR-rec. 567-1)	>57 dB
S/N audio	>50 dB
Stability of output level	± 1.5 dB
Spurious outside TV channel	>55 dB
Connectors RF	F-connector
Current consumption	ca. 0.80 A
Power consumption	<10 W
LNB power	12 V/0.5 A max., DiSEqC 2.0
Operating temperature	-20 °C to +55 °C

OH 77/OH 77 D

DVB-S/S2 → analogue TV, CI

- Reception of a DVB-S/S2 signal and processing to an analogue-TV-channel
- MPEG-2/4 decoding
- CI interface
- HD → SD downscaling
- NICAM audio processing
- Vestigial sideband modulator
- OH 77 D: decoding of Dolby** Digital sound



OH 79/OH 79 D/OH 79 2*

DVB-T/C → analogue TV, CI

- Reception of a DVB-T*/C signal and processing to an analogue-TV-channel,
- * OH 79 2: additional DVB-T2
- MPEG-2/4 decoding
- CI interface
- HD → SD downscaling
- NICAM audio processing
- Vestigial sideband modulator
- OH 79 D: decoding of Dolby** Digital sound



Module	OH 77 DVB-S/S2 – RF analogue channel processing with CI (MPEG-4)	OH 79 DVB-T*/C – RF analogue channel processing with CI (MPEG-4)
Input frequency range	950–2150 MHz	110–878 MHz
Input frequency steps	1 MHz	250 kHz
Input level range	47–70 dBµV	47–90 dBµV
AFC	± 10 MHz	7/8 MHz
Modulation scheme	QPSK, 8PSK	COFDM spectral
Symbol rate	1–45 MS/s	2 k and 8 k FFT
FEC inner code	LDPC (1/2, 3/5, 2/3, 3/4, 4/5 5/6, 8/9, 9/10)	COFDM modulation scheme
Spectral inversion	C-Band/KU-Band	QPSK, 16-QAM, 64-QAM
Output frequency range	45–862 MHz	COFDM guard interval
Output frequency steps	250 kHz	1/32, 1/16, 1/8, 1/4
Output stability	± 30 kHz	COFDM FEC inner code
Output channel bandwidth	7/8 MHz	Conv., K=7, G=1/2, 2/3, 3/4, 4/5, 5/6, 7/8
Output level (1 dB steps)	90–105 dBµV	QAM modulation scheme
Spurious outside TV channel	> 55 dB	16-, 32-, 64-, 128-, 256-QAM
TV standards	B/G, D/K, I, L, M, N	QAM symbol rate
Video standards	PAL, SECAM, NTSC	1–7 MBaud
Video format	4:3, 16:9, 4:3-Zoom	Output frequency range
Video decoder	MPEG-2 (ML@MP) H.264 (MPEG-4)	45–862 MHz
Audio decoder	MPEG-2 (L1/L2), AAC	Output frequency steps
Audio format	Mono, A2-Stereo, Dual, NICAM	250 kHz
S/N video (CCIR-rec. 567-1)	> 57 dB	Output stability
S/N audio (color test pattern)	> 50 dB	± 30 kHz
Stability of output level	± 1.5 dB	Output channel bandwidth
Connectors RF input/output	F-connector	7/8 MHz
Current consumption	ca. 0.80 A	Output level (1 dB steps)
Power consumption	< 10 W	90–105 dBµV
LNB power	12 V/0.5 A max., DiSEqC 2.0	Spurious outside TV channel
Operating temperature	-20 °C to +55 °C	> 55 dB

* OH 79 2: additional DVB-T2

** Dolby and the double-D symbol are trademarks of Dolby Laboratories.



OH 85

Twin DVB-S → QAM

- Reception of two DVB-S signals and transmodulation into two QAM-channels
- Optional remultiplexer funktion
- 2 CI interfaces
- Option for NIT and LCN editing



OH 85 H

Twin DVB-S/S2 → QAM

- Reception of two DVB-S/S2 signals and transmodulation into two QAM-channels
- Optional remultiplexer funktion
- 2 CI interfaces
- Option for NIT and LCN editing



Module	OH 85 (SD) Twin DVB-S – QAM transmodulator with CI	OH 85 H (SD/HD) Twin DVB-S/S2 – QAM transmodulator with CI
Input frequency range	950–2150 MHz	950–2150 MHz
Input frequency steps	1 MHz	1 MHz
Input level range	47–80 dB μ V	47–80 dB μ V
AFC	\pm 10 MHz	\pm 10 MHz
Modulation scheme	QPSK, 8PSK	QPSK, 8PSK
Symbol rate	1–45 MS/s	1–45 MS/s
FEC inner code	LDPC (1/2, 3/5, 2/3, 3/4, 4/5 5/6, 8/9, 9/10)	LDPC (1/2, 3/5, 2/3, 3/4, 4/5 5/6, 8/9, 9/10)
Spectral inversion	C-Band/KU-Band	C-Band/KU-Band
Output frequency range	47–862 MHz	47–862 MHz
Output frequency steps	500 kHz	500 kHz
Output stability	\pm 30 kHz	\pm 30 kHz
Output channel bandwidth	2 \times 8 MHz	2 \times 8 MHz
Output level	88–103 dB μ V	88–103 dB μ V
Stability of output level	\pm 1 dB	\pm 1 dB
Spurious outside TV channel	>50 dB	>50 dB
SNR	\geq 45 dB	\geq 45 dB
MER	\geq 40 dB	\geq 40 dB
Modulation	16-, 32-, 64-, 128-, 256-QAM	16-, 32-, 64-, 128-, 256-QAM
Symbolrate	3.45–6.9 MS/s	3.45–6.9 MS/s
FEC outer code	RS (204,188,16)	RS (204,188,16)
Spectral inversion	normal/inverted	normal/inverted
Interleaving	Conv., I=12	Conv., I=12
Bit stuffing	yes	yes
PCR correction	yes	yes
PCR correction	yes	yes
Connectors RF	F-connector	F-connector
Current consumption	ca. 0.83 A/12 V	ca. 0.83 A/12 V
Power consumption	< 10 W	< 10 W
LNB power	12 V/0.5 A max., DiSEqC 2.0	12 V/0.5 A max., DiSEqC 2.0
Operating temperature	-20 °C to +55 °C	-20 °C to +55 °C

OH 86/OH 86 2*
Twin DVB-T/C → QAM

- Reception of two DVB-T*/C signals and transmodulation into dual QAM-TV channels (bonded),
- * OH 86 2: additional DVB-T2
- Option for NIT and LCN editing



OH 88 H
Twin DVB-S/S2 → COFDM

- Reception of two DVB-S/S2 signals and transmodulation into two COFDM-channels
- 2 CI interfaces
- Option for NIT and LCN editing



Module	OH 86 (SD/HD) Twin DVB-T*/C – QAM-transmodulator	OH 88 H (SD/HD) Twin DVB-S/S2 – COFDM transmodulator with CI
Input frequency range	110–878 MHz	950–2150 MHz
Input frequency steps	250 kHz	1 MHz
Input level range	47–90 dBµV	47–80 dBµV
COFDM spectral	2 k and 8 k FFT	
Modulation scheme	QPSK, 16-QAM, 64-QAM	QPSK, 8PSK
Guard interval	1/32, 1/16, 1/8, 1/4	
FEC inner code	Conv., K=7, G=1/2, 2/3, 3/4, 4/5, 5/6, 7/8	LDPC (1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10)
QAM modulation scheme	16-, 32-, 64-, 128-, 256-QAM	C-Band/KU-Band
QAM symbol rate	1–7 MBaud	47–862 MHz
Output frequency range	47–862 MHz	250 kHz
Output frequency steps	500 kHz	
Output stability	±30 kHz	±30 kHz
Output channel bandwidth	2 × 8 MHz	2 × 7/8 MHz (bonded)
Output level	88–103 dBµV	82–97 dBµV
Stability of output level	±1 dB	±1 dB
Spurious outside TV channel	≥50 dB	>50 dB
SNR	≥45 dB	≥41 dB
MER	≥40 dB	≥37 dB
Modulation	16-, 32-, 64-, 128-, 256-QAM	QPSK, 16-, 64-QAM
Symbolrate	3.45–6.9 MS/s	1/2, 2/3, 3/4, 5/6, 7/8
FEC outer code	RS (204,188,16)	Guard interval
Spectral inversion	normal/inverted	1/4, 1/8, 1/16, 1/32
Interleaving	Conv., I=12	FFT Mode
Bit stuffing	yes	2k, 8k
PCR correction	yes	Bit stuffing
PCR correction	yes	yes
Connectors RF	F-connector	PCR correction
Current consumption	0.83 A/12 V	PID filtering
Power consumption	<10 W	NIT editing
Operating temperature	-20 °C to +55 °C	Connectors RF
		Current consumption
		Power consumption
		LNB power
		Operating temperature

* OH 86 2: additional DVB-T2



OH 89/OH 89 2

Twin DVB-T/C → COFDM

- Reception of two DVB-T/C signals and transmodulation into two COFDM-channels (bonded)
- Option for NIT and LCN editing



Module	OH 89 (SD/HD) Twin DVB-T/C – COFDM transmodulator with CI
Input frequency range	110–878 MHz
Input frequency steps	250 kHz
Input level range	47–90 dB μ V
Channel bandwidth	7/8 MHz
COFDM spectral	2 k and 8 k FFT
COFDM modulation scheme	QPSK, 16-QAM, 64-QAM
COFDM guard interval	1/32, 1/16, 1/8, 1/4
COFDM FEC inner code	Conv., K=7, G=1/2, 2/3, 3/4, 4/5, 5/6, 7/8
QAM modulation scheme	16-, 32-, 64-, 128-, 256-QAM
QAM symbol rate	1–7 MBaud
Output frequency range	47–862 MHz
Output frequency steps	250 kHz
Output stability	\pm 30 kHz
Output channel bandwidth (bonded)	2 \times 7/8 MHz
Output level	82–97 dB μ V
Stability of output level	\pm 1 dB
Spurious outside TV channel	>50 dB
SNR	\geq 41 dB
MER	\geq 37 dB
Modulation (COFDM)	QPSK, 16-, 64-QAM
FEC	1/2, 2/3, 3/4, 5/6, 7/8
Guard interval	1/4, 1/8, 1/16, 1/32
FFT Mode	2k, 8k
Bit stuffing	yes
PCR correction	yes
PID filtering	yes
NIT editing	yes
Connectors RF	F-connector
Current consumption	0.5 A/12 V
Power consumption	<10 W
Operating temperature	-20 °C to +55 °C

OH 38

A/V-Modulator

- Modulation of 2 A/V signals to 2 analogue TV channels
- Multi standard operation
- Vestigial sideband stereo modulator, independently adjustable in 250 kHz steps
- Video/Audio connectors BNC/RCA
- Unbonded output channels



Module	OH 38 Twin A/V-Modulator
Video input level	1 V \pm 0.4 V
Video input bandwidth	20 Hz–5 MHz
Audio input impedance	600/20 k Ohm
Audio input level	-4 dBm/0.5 V eff.
Audio level range	+6 dB...-6 dB
Audio input bandwidth	40–15000 Hz
Output frequency range	45–862 MHz
Output frequency steps	250 kHz
Output stability	\pm 30 kHz
Output channel bandwidth	2 \times 7/8 MHz
Output level (1 dB steps)	90–105 dB μ V
TV standards	B/G, D/K, I, L
Audio format	Mono, A2-Stereo, Dual
S/N video (CCIR-rec. 567-1)	>57 dB
S/N audio	>50 dB
Stability of output level	\pm 1.5 dB
Spurious outside TV channel	>55 dB
Current consumption	0.85 A/12 V
Power consumption	<10 W
Operating temperature	-20 °C to +55 °C

OH 45

RF Converter

- Channel converter for one analogue terrestrial TV channel
- Wide input level range
- 40 dB manual or automatic gain control
- High selectivity (dual SAW filter)



Module OH 45 Channel Converter	
Input frequency range	45–862 MHz
Input frequency steps	250 kHz
Input channel bandwidth	7/8 MHz
Input level range	50–90 dB μ V
AGC range	\geq 40 dB
Output frequency range	45–862 MHz
Frequency steps	250 kHz
Output channel bandwidth	7/8 MHz
Output level (1 dB steps)	95–105 dB μ V
Group delay (-0.5....4.43 MHz)	<80 ns
S/N video (CCIR-rec. 567-1)	>57 dB
S/N audio	>50 dB
Stability of output level	\pm 1 dB
Spurious outside TV channel	>55 dB
Connectors RF	F-connector
Current consumption	0.5 A/12 V
Power consumption	<10 W
OH 45 module	
Operating temperature	-20 °C to +55 °C



OH 66

Twin A/V Encoder

- Encoding and multiplexing of 2 AV or SD/SDI input signals into one MPEG2 TS
- Adjustable bit rate
- Modulation into QAM or COFDM
- PSI/SI editing
- ASI loop for cascading of OH 66*



Module	OH 66 Twin A/V-Encoder
Input video analogue	
Input format	Composite FBAS-signal
Input Impedance	75 Ohm
Input level	1 Vss ± 0,4 V
Frequency range	20 Hz–5 MHz
Video processing	
Encoding standard	MPEG 2 ISO/IEC 13818-2 MP@ML (4:2:2)
Bit rate	1,5–9 Mb/s in 1,5 Mb/s-steps; CBR & VBR
Picture size	720 Pixel horizontal, 576 Pixel vertical
Teletext	extraction from analogue video signal
Picture format	support for 4:3 and 16:9 automatic detection by WSS
PID setting	automatic; Manual overwriting possible
PSI/SI settings	automatic creation of PAT/ PMT/SDT
NIT setting with LCN	Optional with CS77
Input audio	
Input format	analogue (left/right) or digital (SDI with embedded audio)
Frequency range	40–15000 Hz
Audio processing	
Sampling frequency	32/44, 1/48 kHz
Encoding standard	MPEG 1 L1/L2 ISO/IEC 13818-3
Bit rate	up to 192 kbit/s
up to	stereo, joint stereo, dual, mono
Output	
QAM or COFDM modulation	can be selected by the control software
Output frequency range	47–862 MHz
Spurious outside TV channel	≥50 dB
QAM-Mode	
Modulation scheme	16-, 32-, 64-, 128-, 256-QAM
Output frequency steps	500 kHz
Output channel bandwidth	8 mHz
Output level	88–103 dBµV
MER	≥40 dB
Symbolrate	3.45–6.9 MS/s
Bit stuffing	yes
PCR correction	yes
COFDM-Mode	
Modulation scheme	COFDM
Output frequency steps	250 kHz
Output channel bandwidth	7/8 MHz
Output level	82–97 dBµV
MER	≥37 dB
Modulation of single carriers	QPSK, 16-, 64-QAM
FEC	1/2, 2/3, 3/4, 5/6, 7/8
Guard interval	1/4, 1/8, 1/16, 1/32
FFT Mode	2k, 8k
General data	
Connectors	per channel 1 × BNC/
Video- / Audio-input	1 × stereo jack socket 3.5 mm
RF-output	F-connector
Operating temperature	-20 °C to +55 °C

* from Q4 2013

Accessories – optional

DC 28 Input Splitter

Types:

DC 28 4SOT: 28 SAT output

DC 28 0S4T: 28 TERR output

DC 28 3S1T: 21 SAT output/

7 TERR output



- Four signal inputs and 28 signal outputs
- Departed in four blocks with seven outputs per block
- DC bypass for LNC voltage supply

ZG 80 Mounting set

Mounting set for DC 28 at OH 50 A



CS 77 NIT creator

- Software for creating DVB Cable and Terrestrial Network Information Tables (NIT)
- For the Modules OH 85/88/86/89
- HD Simulcast LC Descriptors

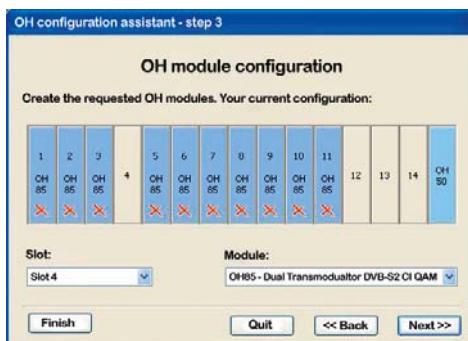
OH 41 Handset

- Programming of parameters
- With a data memory, illuminated display and LED lighting



CS 51 Remote monitoring

For programming and monitoring system parameters, for example in hotels or residences, with a self-explanatory German/English user interface



Accessories for OH 50 A – the scope of delivery includes

Wall mounting bracket/19" installation kit

Rail-type bracket for wall mounting or 19" cabinet mounting



COMPACT HEADEND OH

Sample Application

(Example for 8 subscriber connections
Astra 19,2° East – digital television HDTV)

Channel processing

- OH 50 A basic unit
- OH 38 Twin A/V Modulator
- OH 45 RF Converter
- OH 76 DVB-S – RF analogue channel processing, CI
- OH 76 F DVB-S – RF analogue channel processing FTA
- OH 77/77 D DVB-S/S2 – RF analogue channel processing (MPEG-4), CI
- OH 79/79 D DVB-T/C – RF analogue channel processing (MPEG-4), CI
- OH 85 Twin DVB-S – QAM-transmodulator, CI
- OH 85 H Twin DVB-S/S2 – QAM-transmodulator, CI
- OH 86 Twin DVB-T/C – QAM-transmodulator, CI
- OH 88 H Twin DVB-S/S2 – COFDM-transmodulator, CI
- OH 89 Twin DVB-T/C – COFDM-transmodulator, CI

Distributor

- DM 04 B

Sockets

- DB 05, DB 07, DB 16

Splitter

- DC 28 – 4 × 7 input-splitter

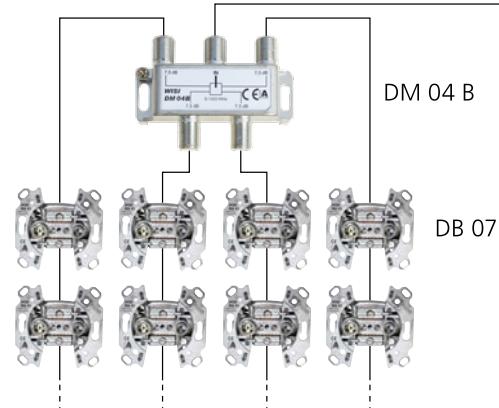
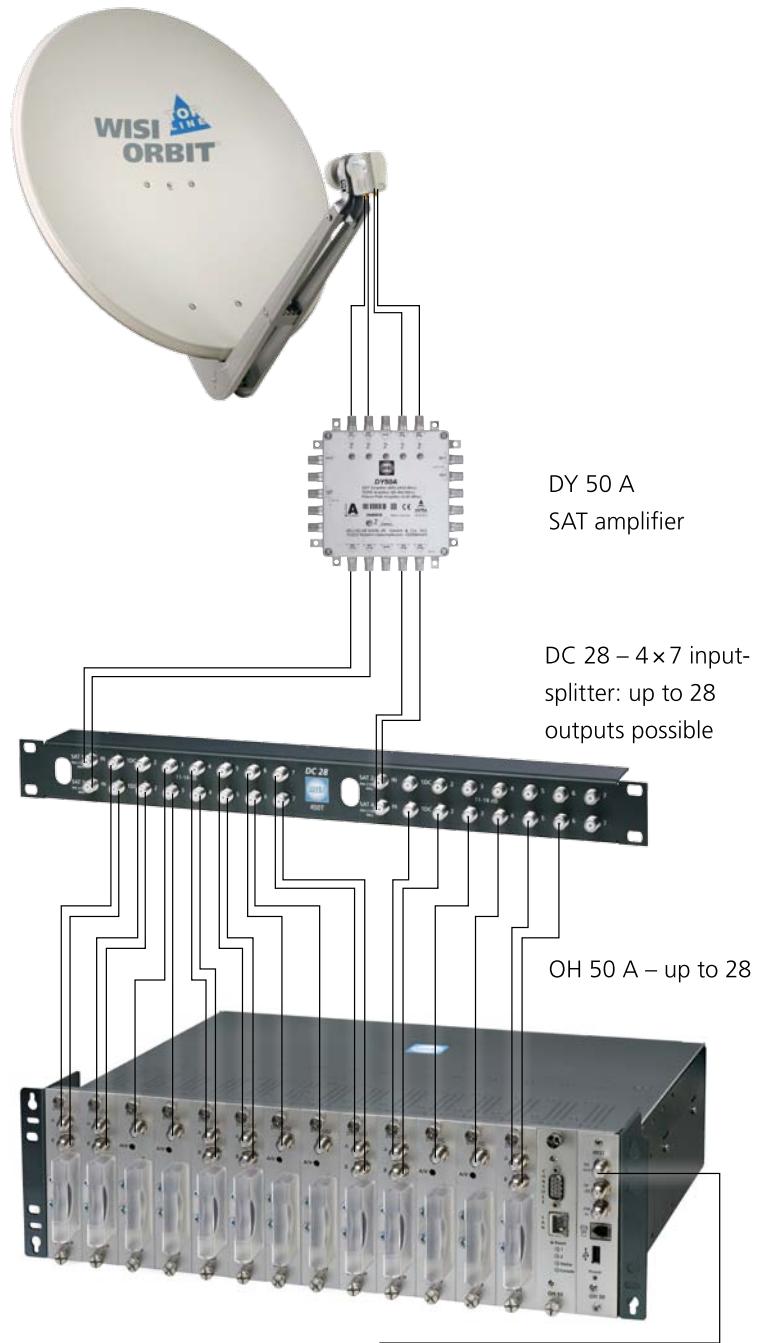
Handset

- OH 41

At one glance:

- High output level 110 dB μ V
- Basic unit for up to 14 analogue or 28 digital channels
- All parameters adjustable with OH 41 Handset

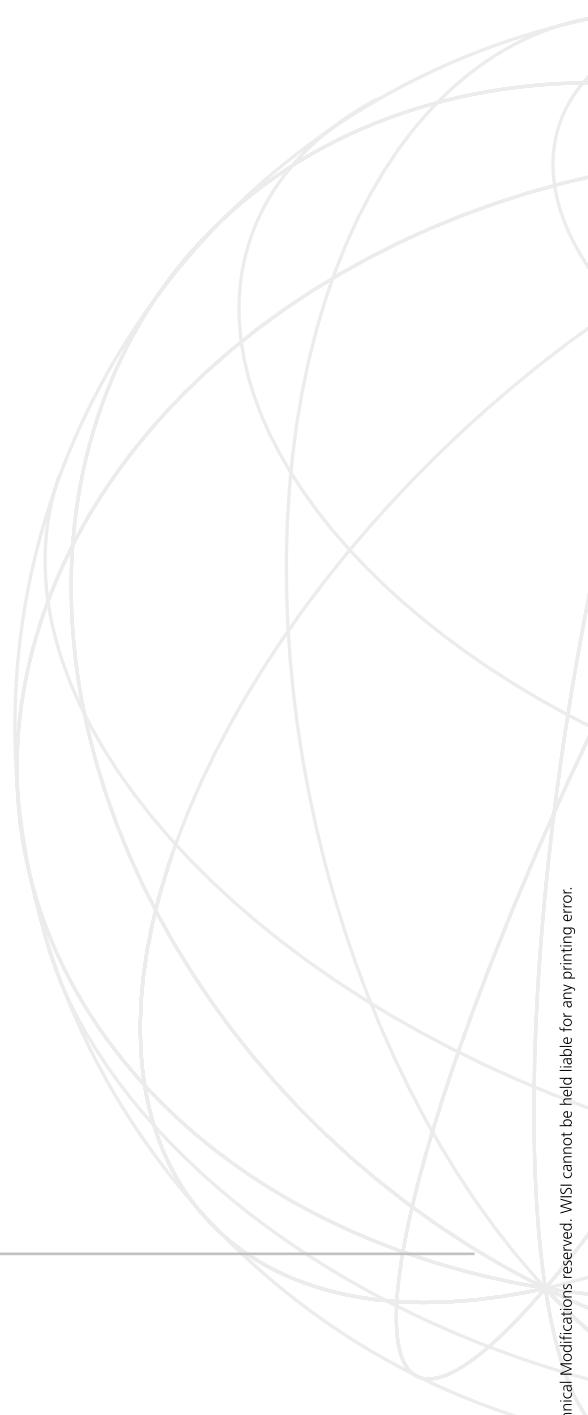
We willingly assist you in planning your system.



Unmatched in flexibility and performance

The new **WISI COMPACT** HEADEND System OH is best suited for use in small CATV networks, medium sized residences, high rise buildings, recreational facilities, hospitals, hotels, etc.





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excellence in digital ...

