



ELPAS

COMPACT HEADEND

FLEXIBLE HARDWARE-BASED HEADEND PLATFORM



Compact,
Powerful and
Extremely Flexible

COMPACT HEADEND

Flexible Hardware-Based Headend Platform



Thermally optimized housing

RF output to housing distribution equipment

-20 dB test point

Additional FM input

Slots for up to 14 twin modules

Ethernet interface to control the headend by a web browser

Connection for OH 41 (OK 41 A) handset

USB update interface
External NIT injection

Solutions with COMPACT HEADEND



HFC

From the Headend to the wall-outlet:
Everything for the cable network.



HOUSING INDUSTRY

Headends for housing complexes,
hotels and hospitals



HOLIDAY RESORTS & CAMPS

Television for groups of holiday villas or
assemblies of military barracks

COMPACT HEADEND

Compact, Powerful and Extremely Flexible

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.

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 OH is easy to configure. With up to 14 module slots it offers channel processing for 14 analogue or 28 digital channels in a 3 HU 19" rack chassis.

WISI Compact Headend OH 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 and the RJ45 interface can be used to execute software updates for the basic unit as well as for the modules. Furthermore, all functions can be furnished from a distance per web browser.



Wall mounting of WISI
Compact Headend OH.

COMPACT HEADEND Sample Application

Channel Processing

OH 50 A

Base unit for 14 modules

OH 76 F (DVB-S)

Analogue channel processing FTA (MPEG-2)

OH 77 / OH 77 D (DVB-S/S2)

Analogue channel processing with CI (MPEG-4)

OH 66

Twin A/V encoder

OH 88 H (SD/HD)

Twin DVB-S/S2 – COFDM-transmodulator with CI

OH 89 2

Twin DVB-C/T-T2 - COFDM transmodulator with CI

RF Splitter

DM 04 B

Input Splitter

DC28 3S1T

Sockets

DB 05

DB 07

Handset

OH 41

Coax cables

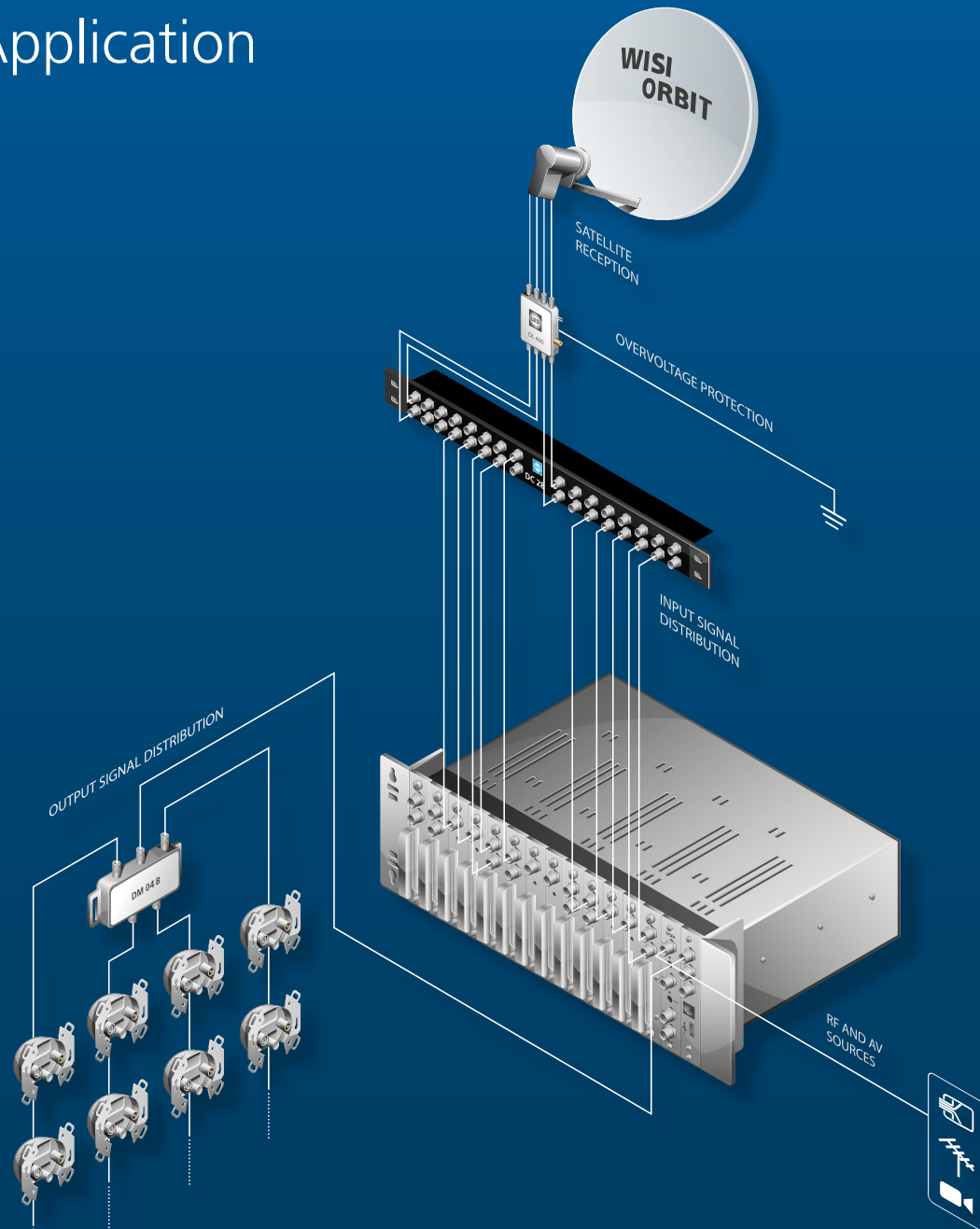
MK 96 A

Connectors

DV 15/N, DV 55, DV 85

Connecting cables

BK 76, BK 96, DS 35, DS 40



COMPACT HEADEND Base Units

OH 50 A/R

Base unit for 14 modules
(14 analogue or 28 digital channels)

OH 40 A

Base unit for 7 modules
(7 analogue or 14 digital channels)



Base Units

Frequency range, TV:	47...862 MHz
Frequency range, FM:	87,5...108 MHz
Output level	110 dBμV
Output attenuator	15 dB / 1-dB-steps
Input level FM	70...100 dBμV
Attenuator FM	0...30 dB / 1-dB-steps
Output test jack	-20 dB
Operating voltage AC	180... 265 V AC (47... 63 Hz)
Power consumption	OH 50: < 195 W OH 40: < 135 W
LNB supply voltage	12,5 V / 1,2 A
Connectors RF-Input/Output	F-socket
Test output	1 × F-socket
Connector Handset	RJ 11
Software-Update	USB
Connector remote monitoring	RJ 45
Operating temperature range	-20 °C ... + 55 °C

- Base units for analogue and digital TV signals
- Integrated FM amplifier
- Easy programming with OH 41 (OK 41 A) handset
- Suitable for wall and rack mounting
- Update and pre-programming via USB stick
- OH51A license for remote management, NIT and LCN editing
- High output power
- High efficiency
- Version R with redundant power supply



OH 50 with DC 28

- Clearly structured signal feeds
- Efficient 19" rack passive splitters
- SAT / Terrestrial and dual versions
- LNB Power passing



OH 50 with OH 84

- OH84 with smart distribution by integrated IF switching matrix
- Remotely controllable 4x4 input selector
- Loop through signal feeding from both ends
- No external splitter required
- Excellent price/channel ratio

COMPACT HEADEND Modules

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 38

Twin A/V-modulator



Features

- Modulation of 2 A/V-signals into 2 analogue TV-channels
- Multi-standard
- Vestigial sideband stereo modulators without channel bonding.
- Video-/audio interface in BNC/RCA

OH 45

Channel processing



Features

- Channel converter for frequency range 45...862 MHz
- AGC 50...90 dB μ V
- Deactivation of AGC for manual amplification settings
- High IF selection through two SAW filter. Suitable for adjacent channel operation on in- and outputs

OH 66

Twin A/V encoder



Features

- Encoding of two A/V signals and modulation into a QAM or COFDM TV channel
- Analogue Video-input
- Digital SDI input
- QAM- or COFDM-modulation
- PSI/SI-editing
- ASI-output / loop through option

For complete technical specifications and further information, please visit katalog.wisi.de

OH 76 (DVB-S)

Analogue channel processing with CI (MPEG-2)



Features

Reception of a DVB-S-signal and transmodulation into an analogue TV-channel

Reception and decoding of MPEG-2-signals

1 CI slot

Vestigial sideband modulator

OH 76 F (DVB-S)

Analogue channel processing FTA (MPEG-2)



Features

Reception of a DVB-S-signal and transmodulation into an analogue TV-Channel

Reception and decoding of MPEG-2-signals

Vestigial sideband modulator

OH 77/OH 77 D* (DVB-S/S2)

Analogue channel processing with CI (MPEG-4)



Features

Reception of a DVB-S/S2-signal and transmodulation into an analogue TV-Channel

Decoding of MPEG-2 signals and MPEG-4 signals, downconversion into SD

1 CI slot

NICAM Encoder

Vestigial sideband modulator

OH 77 D: Decoding of Dolby Digital*

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

COMPACT HEADEND Accessories



DC 28 Input splitter

- Four signal inputs and 28 signal outputs
- Four individual 7 way splitters in four blocks with 7 outputs per block
- DC bypass for LNC voltage supply



OH 41 Handset

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

OH79 2 / OH79 2D*

DVB-T/-T2/-C analogue channel processing with CI (MPEG-4)



OH 84 (DVB-S/S2)

4ch DVB S/S2 QAM transmodulator



OH 85 H (SD/HD)

Twin DVB-S/-S2 – QAM transmodulator with CI



Features

Reception of a DVB-T/-T2/-C-signal and transmodulation into an analogue TV-channel

Decoding of MPEG-2 signals and MPEG-4 signals

1 CI slot

NICAM encoder

Vestigial sideband modulator

OH 79 2 D: decoding of Dolby Digital*

Features

Reception of four DVB-S/S2 signals and transmodulation into four DVB-C channels

Integrated switching matrix

IF loop-through function

PID filtering

Features

Reception of two DVB-S/S2 signals and transmodulation into two QAM-channels

1 CI slot

License OH51A for NIT and LCN editing

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



ZG 80 installation set

Mounting set for attaching DC28 directly to the OH50A chassis



OH 51 A Web interface license

This software option opens the RJ45 IP interface for remote management, NIT injection, software updates, and alarm email messages via a regular web browser and email account.

OH 86 2

Twin DVB-C/-T/-T2 – QAM transmodulator with CI



OH 88 H (SD/HD)

Twin DVB-S/S2 – COFDM-transmodulator with CI



OH 89 2

Twin DVB-C/-T/-T2 – COFDM transmodulator with CI



Features

Reception of two DVB-C/-T/-T2-signals and transmodulation into two QAM-channels

1 CI slot

License OH51A for NIT and LCN editing

Features

Reception of two DVB-S/S2-signals and transmodulation in two COFDM-channels (coupled)

1 CI slot

License OH51A for NIT and LCN editing

Features

Reception of two DVB-T/-T2/-C-signals and transmodulation in two COFDM-channels (coupled)

1 CI slot

COMPACT HEADEND Technical Specifications

GENERAL DATA

Power consumption	<10 W*
Operating temperature range	-20°C...+55°C
LNB supply voltage	12 V DC < 0,8 A**

* For all modules without CAM

** If nothing else is stated

WISI OH 38

INPUT

Video input level	1 V (1V _{ss} , ±0,4 V)
Video input bandwidth	20...5000 Hz
Audio input impedance	600...10000 Ω
Audio input level	-4 dBm/1 kHz
Audio input level range	-6...+6 dB
Audio input bandwidth	40...15000 Hz

OUTPUT

Output frequency range	45...862 MHz
Output frequency steps	250 kHz
Frequency stability	±0,030 MHz
Output channel bandwidth	7/8 MHz
Output level	90...105 dBμV
Spurious suppression	>55 dB
TV standards	B/G, D/K, I, L, M
Audio format	Mono/Stereo/Dual
S/N Video	>57 dB
S/N Audio	>50 dB
Flatness	±1,5 dB
Group delay	<80 ns

CONNECTORS

RCA-socket	Audio in
BNC-socket	Video in

WISI OH 45

INPUT

Input frequency range	45...862 MHz
Input frequency steps	250 kHz
Input channel band width	7/8 MHz
Input level range	50...90 dBμV
AGC	>40 dB

OUTPUT

Output frequency range	45...862 MHz
Output frequency steps	250 kHz
Frequency stability	>0,03 MHz
Output level	90...105 dBμV
Spurious suppression	>55 dB
Flatness	>1 dB
Group delay	<80 ns

CONNECTORS

F-socket	RF in
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WISI OH 66

INPUT

Input signal	AV / SDI
Impedance video	75 Ω
Input level video	1 dBm
Frequency range	0,000020...5 MHz

ENCODING STANDARD

Bit rate	1...12 Mbps (0,1 Mbit-steps)
Picture size	720/576 Pixel
Teletext	Extraction from video signal
Aspect ratio	4:3, 16:9 (automatic detection)
PID	automatic/manual
PSI/SI	Autom. Generation
NIT with LCN	Optional with CS77

AUDIO INPUT

Sampling frequency	kHz 32/44,1/48 kHz
Bit rate	192 Kbps (up to)
Audio format	Stereo, joint stereo, dual, mono

OUTPUT

QAM- mode	Selectable
Modulation type	16-, 32-, 64-, 128-, 256-QAM
Output frequency steps	250 kHz
Output channel bandwidth	8 MHz
Output level	88...103 dB μ V
MER	≥ 40 dB
Symbol rate	2...8 MS/s
Bit stuffing	Yes
COFDM-Mode	Selectable
Modulation	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	2 k/8 k

CONNECTORS

3,5 mm jack socket	Audio in
BNC-socket	Video in / SDI in

WISI OH 76 / 76 F

INPUT

Input frequency range	950...2150 MHz
Input frequency steps	1 MHz
Input level range	47...70 dB μ V
AFC	± 5 MHz
Modulation type	Vestigial sideband
Symbol rate	1...45 MS/s
FEC inner code	Conv. (1/2, 2/3, 3/4, 5/6, 7/8)
FEC outer code	RS-204, 188, 16

OUTPUT

Output frequency range	45...862 MHz
Output frequency steps	250 kHz
Frequency stability	$\pm 0,030$ MHz
Output channel bandwidth (coupled)	7/8 MHz
Output level	95...105 dB μ V (1 dB-steps)
Flatness	$\pm 1,5$ dB
Spurious suppression	> 58 dB
Video-Format	4:3/16:9/4:3 Zoom
Video decoder	MPEG 2, MP@ML
Audio decoder	MPEG-2 (L1/L2)
S/N	> 57 dB

CONNECTORS

F-socket	SAT IF in
Common Interface	1 pcs.*
AV output	3,5 mm jack

* OH 76 F without CI

WISI OH 77 / 77 D

INPUT

Input frequency range	950...2150 MHz
Input frequency steps	1 MHz
Input level range	47...70 dB μ V
AFC	± 10 MHz
Modulation type	QPSK, 8PSK
Symbol rate	1...45 MS/s
FEC outer DVB-S	RS-204, 16
FEC inner DVB-S	Viterby Conv. (1/2, 2/3, 3/4, 5/6, 7/8)
FEC outer DVB-S2	BCH
FEC inner DVB-S2	LDPC 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10

OUTPUT

Output frequency range	45...862 MHz
Output frequency steps	250 kHz
Frequency stability	± 30 kHz
Output channel bandwidth (coupled)	7/8 MHz
Output level	90...105 dB μ V (1 dB-steps)
Flatness	± 1 dB
Spurious suppression	> 58 dB
Video-Format	4:3/16:9/4:3 Zoom
Video decoder	MPEG-2 (ML@MP) H.264 (MPEG-4)
Audio decoder	MPEG-2 (L1/L2); (Dolby*)
S/N	> 57 dB

CONNECTORS

F-socket	SAT IF in
Common Interface	1 pcs.
AV output	3,5 mm jack

WISI OH 79 2 / 79 D

INPUT

Input frequency range	47...878 MHz
Input frequency steps	0.001 MHz
Input level range	35...90 dBμV
COFDM-Spectrum DVB-T	2 k/8 k/16 k/32 k FFT
COFDM modulation type	QPSK, 16QAM, 64QAM,
COFDM Guard Interval	BCH
FEC	LDPC/BCH-Code 1/2, 2/3, 3/4, 5/6, 3/5

OUTPUT

Output frequency range	45...862 MHz
Output frequency steps	250 kHz
Frequency stability	±30 kHz
Output channel bandwidth (coupled)	2x 6/7/8 MHz
Output level	90...105 dBμV (1 dB-steps)
Flatness	±1,5 dB
Spurious suppression	>55 dB
Video-Format	4:3/16:9/4:3 Zoom
Video decoder	MPEG-2 MP@ML, MPEG-4 H.264
Audio decoder	MPEG-2 (L1/L2); (Dolby*)

CONNECTORS

F-socket	SAT IF in
Common Interface	1 pcs.
AV output	3,5 mm jack

WISI OH 84

INPUT

Input frequency range	950...2150 MHz
Input frequency steps	1 MHz
Return loss IN	>8 dB
Isolation internal multiswitch	>30 dB
Input level range	47...90 dBμV
AFC	±10 MHz
Modulation	QPSK (EN300421), QPSK 8PSK (EN302307)16APSK, 32APSK
Symbol rate	QPSK: 1...53 MS/s; 8PSK: 1...45 MS/s; 16APSK: 1...35 MS/s; 32APSK: 1...28 MS/s
Spectral inversion	normal or inverted
FEC outer DVB-S	RS 204-16
FEC inner DVB-S	1/2, 2/3, 3/5, 5/6, 7/8
FEC outer DVB-S2	BCH
FEC inner DVB-S2	(1/4, 1/3, 2/5, 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10 (QPSK) /5, 2/3, 3/4, 5/6, 8/9, 9/10 (8PSK)/5, 2/3, 3/4, 5/6, 8/9, 9/10 (8PSK)/5, 2/3, 3/4, 5/6, 8/9, 9/10 (8PSK)

OUTPUT

Output frequency range	45...862 MHz
Output frequency steps	250 kHz
Frequency stability	±30 kHz
Output channel bandwidth (coupled)	4 x 8 MHz
Output level	88...103 dBμV (1 dB-steps)
Flatness	1 dB
Spurious suppression	>50 dB at QAM 256
SNR	≥45 dB
MER	≥40 dB
Interlacing	Conv., I=12
Bit stuffing	Yes
SI-Table handling	Yes
NIT generation	Yes

CONNECTORS

F-socket	SAT IF in/out
Common Interface	0 pcs.

GENERAL DATA

LNB supply voltage	14...18 V
LNB electrical power supply	0,5 A (without CAM)

WISI OH 85 H

INPUT

Input frequency range	950...2150 MHz
Input frequency steps	1 MHz
Input level range	47...70 dBμV
AFC	±10 MHz
Modulation	QPSK, 8PSK
Symbol rate	10...30 MS/s
Spectral inversion	normal or inverted
FEC outer DVB-S	RS 204,188, 16
FEC inner DVB-S	Viterby Conv. (1/2, 2/3, 3/4, 5/6, 7/8)
FEC outer DVB-S2	BCH
FEC inner DVB-S2	LDPC 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10

OUTPUT

Output frequency range	110...862 MHz
Output frequency steps	1 MHz
Frequency stability	±30 kHz
Output channel bandwidth (coupled)	2 x 8 MHz
Output level	85...103 dBμV (1 dB-steps)
Flatness	1 dB
Modulation type	16-256 QAM
Symbol rate	3.45...6.9 MS/s
Spurious suppression	>50 dB
SNR	≥45 dB
MER	≥40 dB
Interlacing	Conv., I=12
Bit stuffing	Yes
PCR correction	Yes
PID filtering and remapping	Yes
Editing transponder tables	Yes

CONNECTORS

F-socket	SAT IF in
Common Interface	2 pcs.

WISI OH 86 2

INPUT

Input frequency range	45...862 MHz
Input frequency steps	0.250 MHz
channel bandwidth DVB-T2	1,7 / 5 / 6 / 7 / 8 MHz
Input level range	47...90 dBμV
QAM Modulation type	QPSK, 16QAM, 64QAM, 128QAM, 256QAM
QAM Symbolrate	1...7,2 Mbaud
FEC DVB-T	Conv., K=7, G=1/2, 2/3, 3/4, 4/5, 5/6, 7/8
Modulation scheme DVB-T	QPSK, 16-, 64-QAM
Guard Intervall DVB-T	1/4, 1/8, 1/16, 1/32
FFT DVB-T	2k, 8k switchable
FEC DVB-T2	LDPC/BCH-Code 1/2, 2/3, 3/4, 4/5, 5/6, 3/5
Modulation scheme DVB-T2	QPSK, 16QAM, 64QAM, 256QAM
Guard Intervall DVB-T2	1/4, 1/8, 1/16, 1/32, 1/128, 19/128, 19/256
FFT DVB-T2	1k, 2k, 4k, 8k, 16k, 32k

OUTPUT

Output frequency range	45...862 MHz (channel A)
Output frequency steps	1 MHz
Frequency stability	±30 kHz
Output channel bandwidth (coupled)	2 x 8 MHz
Output level	85...103 dBμV (Depending on QAM-symbol rate)
Flatness	±1 dB
Spurious suppression	≥50 dB
S/N	≥45 dB
MER	≥40 dB
Modulation	16-, 32-, 64-, 128-, 256-QAM
Symbol rate	3,45...6,9 MS/s
Spectral inversion	normal or inverted
Interlacing	Conv., I=12

FEC outer DVB-S	RS-204,188,16
Bit stuffing	Yes
PCR correction	Yes
PID filtering and remapping	Yes
Editing transponder tables	Yes

CONNECTORS

F-socket	3 pcs.
Common Interface	2 pcs.

GENERAL DATA

Supply voltage DVB-T antenna	12 V DC
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WISI OH 88 H

INPUT

Input frequency range	950...2150 MHz
Input frequency steps	1 MHz
Input level range	47...70 dBμV
AFC	±10 MHz
Modulation type	QPSK, 8PSK
Symbol rate	10...30 MS/s
FEC outer DVB-S	BCH
FEC inner DVB-S	Viterby Conv. (1/2, 2/3, 3/4, 5/6, 7/8)
FEC outer DVB-S2	BCH
FEC inner DVB-S2	LDPC 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10

OUTPUT

Output frequency range	110...862 MHz
Output frequency steps	1 MHz
Frequency stability	±30 kHz
Output channel bandwidth (coupled)	2 x 7/8 MHz
Output level	95...105 dBμV
Flatness	±1 dB
Spurious suppression	>50 dB
S/N	>41 dB
MER	>37 dB
Modulation	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	2 k/8 k
Bit stuffing	Yes
PCR correction	Yes
PID filtering and remapping	Yes
Editing transponder tables	Yes

CONNECTORS

F-socket	SAT IF in
Common Interface	2 pcs.

WISI OH 89 2

INPUT

Input frequency range	45...862 MHz
Input frequency steps	0,250 MHz
Channel bandwidth DVB-T2	1,7 / 5 / 6 / 7 / 8 MHz
Input level range	47...90 dBμV
FEC DVB-C	Conv., RS 188, 204
QAM-Modulation type	QPSK, 16QAM, 64QAM,- 128QAM, 256QAM
QAM Symbolrate	1...7,2 Mbaud
FEC DVB-T	Conv., K=7, G=1/2, 2/3, 3/4, 4/5, 5/6, 7/8
Modulation schema DVB-T	QPSK, 16-, 64-QAM
Guard Interval DVB-T	1/4, 1/8, 1/16, 1/32
FFT DVB-T	2k, 8k switchable
FEC DVB-T2	LDPC/BCH-Code 1/2, 2/3, 3/4, 4/5, 5/6, 3/5
Modulation scheme DVB-T2	QPSK, 16QAM, 64QAM, 256QAM
Guard Intervall DVB-T2	1/4, 1/8, 1/16, 1/32, 1/128, 19/128, 19/256
FFT DVB-T2	1k, 2k, 4k, 8k, 16k, 32k

OUTPUT

Output frequency range	45...862 MHz (channel A)
Output frequency steps	250 kHz
Frequency stability	±30 kHz
Output channel bandwidth (coupled)	2 x 6/7/8 MHz
Output level	82...97 dBμV (Depending on QAM-symbol rate)
Flatness	±1 dB
Spurious suppression	>50 dB
S/N	>41 dB
MER	>37 dB
Modulation	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 switchable

Bit stuffing	Yes
PCR correction	Yes
PID filtering and remapping	Yes

CONNECTORS

F-socket	SAT IF in
Common Interface	2 pcs.

GENERAL DATA

Supply Voltage DVB-T antenna	12 V DC
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**Any video from
any source to
any device**

