TXS

TSMP range of analogue digital modulators receivers and re- modulators

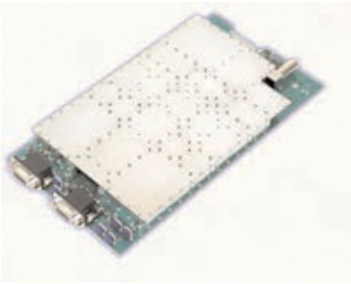
DVB-T Digital modulators, HDMI in
UHF-VHF analogue modulators with stereo options.
Digital sat receivers for free to air
Digital sat receivers with conditional access modules
FM radio tuner remodulator modules
Agile channel convert VHF/UHF DVB-T/T2 Freeview
COFDM receiver to PAL Video
Sat ,re mux to DVB-T

Specifications subject to change

19" RACK 4U

Brackets also supplied for wall mounting

TSMP-MMTQ

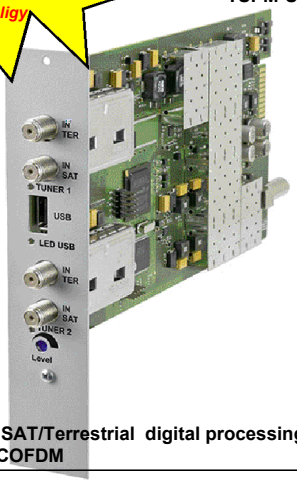


Twin analogue modulator

Remote programming & monitoring via internet ipm option

Digital Freesat or Digital Freeview Converted to Freeviewin one compact unit Amazing Value and Technoligy

TSPM-UTCT



SAT/Terrestrial digital processing to DVB-T COFDM

TSMP-PTTI

Twin Freeview
to PAL AV out receiver

Modulator
Multistandard
PAL/SECAM/NTSC
Agile 47-860MHz

TSMP-200 for two single modules

TCLP2.9 12VDC3A
Switch mode psu
For TSMP 200 £16.35

TSMP-H4TCT

DVB-T modulator
MPEG4 encoding
4x HDMI inputs

TSMP-H4TCT Specification

Video Encoding		MPEG-4 AVC / H.264
Input		HDMI
Encoding	1920x1080_60P ; 1920x1080_50P ; 1920x1080_60i ; 1920x1080_50i Full HD 1280x720_60P ; 1280x720_50P – HD ready	
Audio Encoding		MPEG1 Layer II / AAC/LC
Sampling Rate / Sample rate		48 KHz
Output	DVB-C or DVB-T	
Bandwidth		7, 8 MHz
Modulation	16	QPSK, 16 QAM, 64 QAM
MER		≥ 38 dB
Frequency		112–862 MHz
RF output level		80 dBµV
Power consumption		15 W
Operation temp.		0...45 °C

DTL 2
Link lead between twin sat receiver and analogue modulators

£14.75

DTL 1
Link lead between receiver and analogue mo

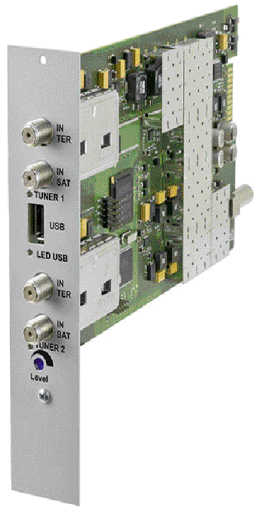
£4.90

Please note ,some older or non HD TV sets may need MPEG2 encoding .

For MPEG 2 Encoding see page 40, 44, 47-49

TXS

Type	Description	Price
TSMP-2000ipm	4U 19" Rack base unit (177mm deep) and programmer. With remote monitoring and programming via the internet. PSU 180-265 AC > Includes combiner for ten modules, 20dB test socket. 180-265VAC , max power consumption 115W ,50/60Hz. Power available for LNB's 18VDC 500mA per LNB total 1A .	£487.00
TSMP-200T	Base unit and programme for two twin modules. Requires 12V PSU ,2.5A max	£210.00
TSMP-H4TCT	DVB-T Modulator , 4 HDMI Inputs, modules can be fitted into a TSMP2000 4U rack ,that s 24 , TV programs into digital TV format.Max six modules in TSMP 2000ip	£1,418.48
TSMP-UTCT	Converts 2 sat DVBS/S2 or 2 terrestrial digital DVB-T/2 multiplexes into, 2 DVB-T multiplexes ,Functions include editing LCN,NIT,and TSP, Via LAN connection using a PC.	£491.74
TSMP-UTCT-CI	As above (TSMP-UTCT) but with 2 x CAM slots.	£590.01
TSMP-MMQ	TV Modulator module Video in 1V pk –1dB 75‰. Audio 500mV rms 10K‰, adjustable –6dB . Frequency agile, adjacent channel performance, 47-860MHz. Multistandard B/G,D/K,I,M and N. Diff gain typ 5%, Diff phase typ 5 deg. Variable attenuator 10dB. Output level when fitted into base unit 100dBuV. AV in via 15 pin D socket	£113.74
TSMP-MMTQ	Twin TV Modulator module. Video in 1V pk –1dB 75‰. Audio 500mV rms 10K‰, adjustable –6dB. Frequency agile, adjacent channel performance, 47-860MHz. Multistandard B/G, D/K, I, M and N. Diff gain typ 5%, Diff phase typ 5 deg. Variable attenuator 10dB . Output level when fitted into base unit 100dBuV. AV in via 15 pin D socket	£180.41
TSMP-MSTQ	Twin TV Stereo Modulator module for B/G Video in 1V pk –1dB 75‰. Audio 500mV rms 10K‰, adjustable –6dB . Frequency agile, adjacent channel performance, 47-860MHz, PAL B/G, Diff gain typ 5%, Diff phase typ 5 deg. Variable attenuator 10dB . Output level when fitted into base unit 100dBuV. AV in via 15 pin d socket	£248.18
TSMP-MSTQ	Twin TV Stereo Modulator module for B/G Video in 1V pk –1dB 75‰. Audio 500mV rms 10K‰, adjustable –6dB . Frequency agile, adjacent channel performance, 47-860MHz, PAL B/G, Diff gain typ 5%, Diff phase typ 5 deg. Variable attenuator 10dB . Output level when fitted into base unit 100dBuV. AV in via 15 pin d socket	£248.18
TSMP-PSTI	QPSK Twin Digital Sat Receiver for free to air broadcasts.Sky and Free sat . AV output. . Requires modulator .LNB control 14-18V ,22kHz ,DISEqC. With CAM module .Two tuners ,select any programs from any multiplex.	£367.64
TSMP-S2T Discontinued see above TSMP-UTCT TSMP-UTCT-CI	QPSK Digital Sat receiver demodulator LNB control 14-18V ,22kHz ,DISEqC. With demodulation and remodulation to DVB-T COFDM. Output 90dB uV adjustable. Intergrated CAM slot. Up to 10 TV programs,selected from a sat multipexes depending on the compression and bandwidth of each TV program and can be processed and modulated on to 8MHz COFDM UHF or VHF channels. Check out FTA programs available on each sat multi[plex. Power consumption 12W . Max six modules in TSMP 2000ip.	£591.82
TSMP-TV-TVDTQ	Twin frequency agile UHF/VHF channel convertor with AGC. Freq range input and output 47-862MHz. Input 65-85dBuV, F connector. TV standards B/G, D/K I, M, N COFDM digital. Very low phase noise synthesizers,improves MER.	£380.86
TSMP-PT	Freeview DVB-T COFDM receiver 147-230mHz/470-862mHz .COFDM 2k,8k Video out 1vpk-pk,audio-6 to +6dB. Output connector 15 pin D socket	£225.11
TSMP-PTT	Twin Freeview DVB-T COFDM receiver 147-230mHz/470-862mHz .COFDM 2k,8k Video out 1vpk-pk,audio-6 to+6dB. Output connector via two 15 pin D sockets.One tuner ,select any two programs from one multiplex.	£251.61
TSMP-T2C-AVT	Twin Freeview DVBT/T2 COFDM receiver 147-230mHz/470-862mHz .COFDM 2k,8k Video out 1vpk- pk,audio-6 to+6dB. Output connector both channels via one 15 pin D socket.Use this on new installations!	£428.59
TSMP-PTTI	Twin Freeview DVB-T COFDM receiver 147-230mHz/470-862mHz .COFDM 2k,8k Video out 1vpk-pk,audio-6 to+6dB. Output connectors two 15 pin D sockets. Two tuners ,select any two programs from any multiplex.	£309.84



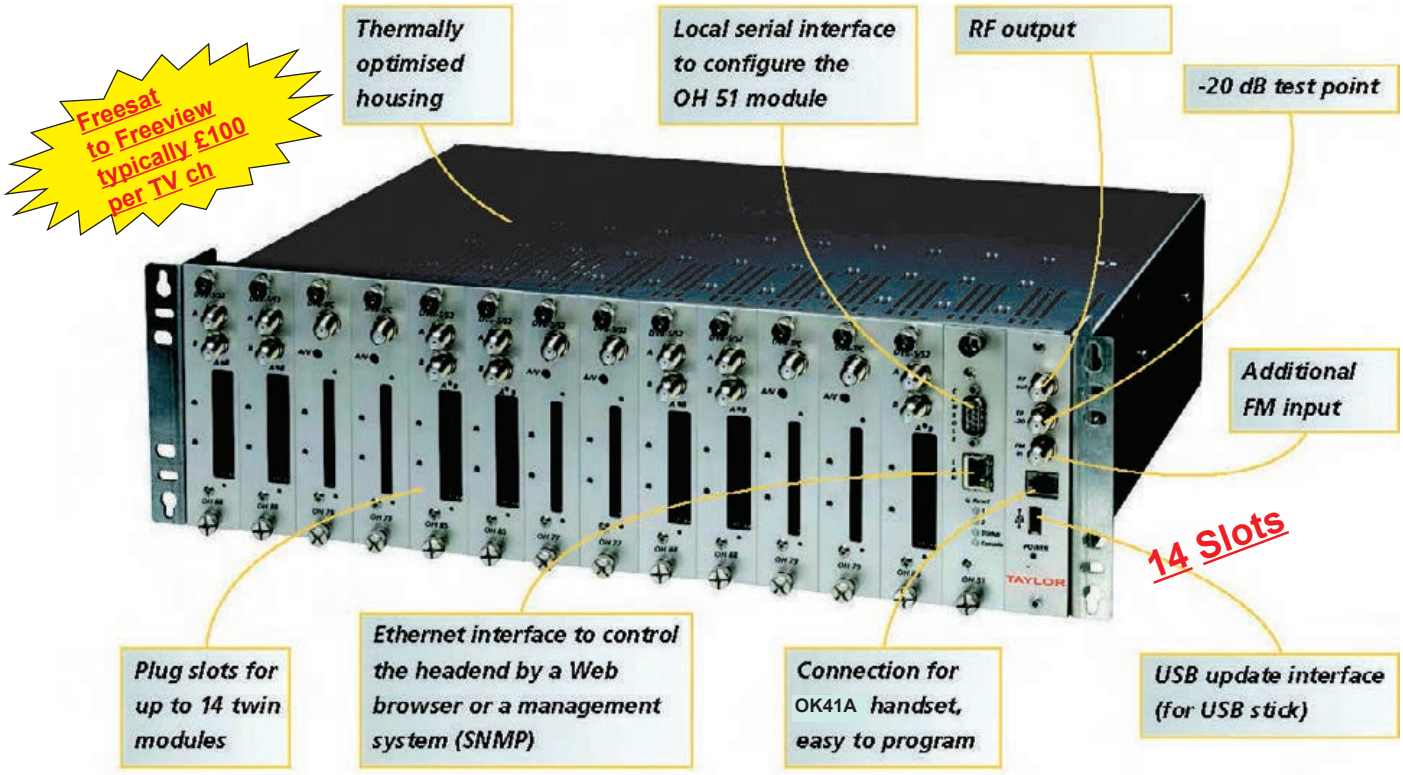
TSMP DBP 2m D plug to AV Phono lead **£7.65**
TSMP DB 2m D plug to BNC Video Phono audio lead **£7.65** **for 5m leads add £1.90**
TSMP DS 2m D plug to scart lead **£7.65**
TSMP DBPS 2m D plug to AV stereo Phono lead **£8.90**

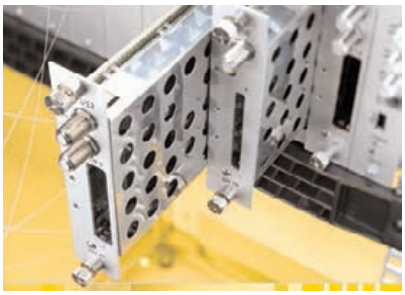
See bottom of page 37 for D to D leads

TX SYSTEMS

Compact Head End. OH50 range Rack or wall mounted

*Rack mounted head end that can be customized and .monitored and controlled via the internet.
*Composite Video Audio modulated to PAL B/G D/K I,L
*DVB-S free to air MPEG 2&4 to PAL B/G D/K I,L M,N with CI interface
*DVB-S /S2 free to air MPEG 2&4 to PAL B/G D/K I,L M,N with CI interface
*DVB-T/C free to air MPEG 2&4 to PAL B/G D/K I,L M,N with CI interface
*DVB-S /S2 free to air MPEG 2&4 to COFDM with CI interface
*DVB-T/C free to air MPEG 2&4 to COFDM with CI interface
*DVB-S /S2 free to air MPEG 2&4 to COFDM with CI interface
*DVB-S /S2 free to air MPEG 2&4 to QAM with CI interface
*Composite Video Audio and SDI ,modulated to QAM and COFDM

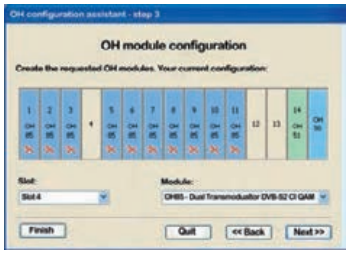




OH50
Base unit

OH41
Programmer
£51.55

OH51 Remote
Monitoring module



TX SYSTEMS

Wall or rack mounting brackets

* **Headend basic unit for analog and digital TV signals**
* **Slots for up to 14 modules (28 channels max.)**
* **19" rack mounting or wall mounting**
* **Integrated FM amplifier**
* **Easy programming with OH 41 handset**
* **Update and pre-programming via USB stick**
* **Remote monitoring module OH 51 is available**
* **High output power**

OH 50 Base Unit (3U)

Amplifier Frequency range	
TV	47–862 MHz
FM	87.5–108 MHz
Output level	110 dB_V
Output attenuator	15 dB / 1 dB steps
Input level	(FM) 70–100 dB_V
FM attenuator	31 dB / 1dB steps
Test output	- 20 dB
Power supply	
Input voltage	180...265 V AC (47-63 Hz)
Max. power consumption	< 195 W
Efficiency	≥ 85 %
LNB power	12.5 V 1.2 A
Dimensions	443 x 132 (3 HU) x 351 mm
Connectors	
FM input/RF output	2 x F-connector
Test output	1 x F-connector
Control	RJ 11
Software update	USB
Master slave operation	RJ 12
Operating temperature range	- 20 °C to + 40 °C

* **Reception of a DVB-S signal and processing to an analog-TV-channel**
* **Demultiplexing and decoding of MPEG-2 signals**
* **Built-in CI interface**
* **Input frequency range 950–2150 MHz**
* **Output frequency range 45–862 MHz**
* **Frequency agile vsb modulator**

OH 76 DVB-S to Analogue UHF/VHF

With CI	
Input frequency range	950–2150 MHz
Input frequency steps	1 MHz
Input level range	47–70 dB_V
Modulation scheme	QPSK
Frequency steps	1 MHz
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
Frequency steps	250 kHz
Stability of output frequency	± 30 kHz
Output channel bandwidth	7/8 MHz
Output level (1dB steps)	95–105 dB_V
TV standards	B/G, D/K, I, L, M, N
Video standard	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, Stereo, Dual
S/N video	(CCIR-rec. 567-1) ≥ 58 dB
S/N audio	(color test pattern) > 50 dB
Stability of output level	± 1 dB
Spurious inside TV channel	> 55 dB
Spurious outside TV channel	> 55 dB
Connectors RF input/output	F-connector
Current consumption	ca. 0.80 A
Power consumption	< 10 W
LNB power*	12 V / 0.5 A max.
Operating temperature range	- 20 °C to +40 °C

* with 22 kHz/DiSEqC modulator to control multiswitches

* **Modulation of 2 AV or SDI signals to 2 QAM or COFDM TV channels**
* **Video rsolution adjustable from 1.5-9Mb/s**
* **Connectors for audio/video with BNC/3.5mm jack**
* **Connectors for SDI with BNC/3.5mm /jack**
* SDI ,audio input ,embedded or 2 x 3.5mm Jack

OH66 Twin AV/SDI ,MPEG 2 to QAM ,COFDM.

Composite video Input level 1 Vss (± 0,4V),	
Frequency range 20 Hz ... 5 MHz	
MPEG 2 Video processing ,ISO/IEC 13818-2, MP@ML (4:2:2)	
Bit rate ,CBR & VBR 1,5 – 9 Mb/s in 1,5Mb/s steps;	
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 Hz ... 15 kHz	
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	
Mode 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	
Video- / Audio-input per channel 1 x BNC /	
1 x stereo jack socket 3.5 mm	
RF-output F-connector	
Operating temperature range - 20°C to +55°C	

* **Reception of a DVB-T/C signal and processing to an analog-TV-channel per module**
* **Demultiplexing and decoding of MPEG-2 and MPEG-4 signals**
* **Built-in CI interface**
* **NICAM audio processing**
* **Input frequency range 110–858 MHz**
* **Output frequency range 45–862 MHz**
* **Vestigial sideband modulator**

OH79D DVB-T/C to Analogue UHF/VHF

with CI (MPEG-4)	
Input frequency range	110–858 MHz
Input frequency steps	250 kHz
Input level range	47–90 dB_V
Channel bandwidth	7/8 MHz
COFDM spectral	2k and 8k FFT
COFDM modulation scheme	QPSK, 16QAM, 64QAM
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	45–862 MHz
Frequency steps	250 kHz
Stability of output frequency	± 30 kHz
Output channel bandwidth	7/8 MHz
Output level (1dB steps)	95–105 dB_V
Spurious inside TV channel	> 55 dB
Spurious outside a TV channel	> 55 dB
TV standards	B/G, D/K, I, L, M, N
Video standard	PAL, SECAM, NTSC
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), AAC
Audio format	Mono, Stereo, Dual, NICAM
S/N video	(CCIR-rec. 567-1) > 58 dB
S/N audio	(color test pattern) > 50 dB
Stability of output level	± 1 dB
Connectors RF input/output	F-connector
Current consumption	ca. 0.80 A
Power consumption	< 10 W
LNB power* 12 V / 0.5 A max.	
Operating temperature range - 20 °C to + 40 °C	

* **Reception of a DVB-S/S2 signal and processing to an analog-TV-channel**
* **Demultiplexing and decoding of MPEG-2 and MPEG-4 signals**
* **Built-in CI interface**
* **NICAM audio processing**
* **Input frequency range 950–2150 MHz**
* **Output frequency range 45–862 MHz**
* **Vestigial sideband modulator**

OH77 DVB-S/S2 to Analogue UHF/VHF

with CI (MPEG-4)	
Input frequency range	950–2150 MHz
Input frequency steps	1 MHz
Input level range	47–70 dB_V
AFC	± 10 MHz
Modulation scheme	QPSK, 8PSK
Symbol rate	10–30 MS/s
FEC inner code LDPC	(1/2, 3/5, 2/3, 3/4, 4/5 5/6, 8/9, 9/10)
Spectral inversion X	C-Band/KU-Band
Output frequency range	45–862 MHz
Frequency steps	250 kHz
Stability of output frequency	± 30 kHz
Output channel bandwidth	7/8 MHz
Output level (1dB steps)	95–105 dB_V
Spurious inside TV channel	> 55 dB
Spurious outside a TV channel	> 55 dB
TV standards	B/G, D/K, I, L, M, N
Video standard	PAL, SECAM, NTSC
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), AAC
Audio format	Mono, Stereo, Dual, NICAM
S/N video (CCIR-rec. 567-1)	> 58 dB
S/N audio (color test pattern)	> 50 dB
Stability of output level	± 1 dB
Connectors RF input/output	F-connector
Current consumption	ca. 0.80 A
Power consumption	< 10 W
LNB power*	12 V / 0.5 A max.
Operating temperature range	- 20 °C to + 40 °C

* with 22 kHz/DiSEqC modulator to control multiswitches

* **Modulation of 2 AV signals to 2 analog TV channels**
* **Multi standard operation**
* **Stereo capable vestigial sideband modulator, independently adjustable in 250 kHz steps**
* **Interface for audio/video with BNC/Phono(RCA)**
* **Output frequency range 45–862 MHz**

OH38 Twin AV-Analogue Modulator

Video input level	1 V ± 0,4 V
Video input bandwidth	20 Hz–5 MHz
Audio input impedance	600 / 10 k Ohm
Audio input level (for nom. deviatic	- 4 dBm / 1 kHz
Audio level range -	9 dB...+ 5 dB
Audio input bandwidth	40–15000 Hz
Output impedance	75 Ohm
Output frequency range	45–862 MHz
Frequency steps	250 kHz
Stability of output frequency	± 30 kHz
Output channel bandwidth	7/8 MHz
Output level (1 dB steps)	± 1 dB
TV standards	B/G, D/K, I, L
Audio format	Mono, Stereo, Dual(not Nicam)
S/N video (CCIR-rec. 567-1)	> 58 dB
S/N audio (color test pattern)	> 50 dB
Stability of output level	± 1 dB
Spurious inside TV channel	> 55 dB
Spurious outside TV channel	> 55 dB
Power consumption	< 8 W
Operating temperatur range	- 20 °C to + 40 °C

· Reception of two DVB-S/S2 signals and transmodulation into dual COFDM-TVchannels
· 2 built-in CI interfaces
· Input frequency range 950–2150 MHz
· Output frequency range 110–858 MHz

OH88H	Twin DVB-S/S2 to COFDM
with CI	
Input frequency range	950–2150 MHz
Input frequency steps	1 MHz
Input level range	47–70 dB_V
AFC	± 10 MHz
Modulation scheme	QPSK, 8PSK
Symbol rate	2–45 MS/s
FEC inner code LDPC (1/2, 3/5, 2/3, 3/4, 4/5 5/6, 8/9, 9/10)	
Spectral inversion	C-Band/KU-Band
Output frequency range	110–858 MHz
Frequency steps	1 MHz
Stability of output frequency	± 30 kHz
Output channel bandwidth	2 x 8 MHz
Output level	95–105 dB_V
Stability of output level	± 1 dB
Spurious inside TV channel	> 50 dB
Spurious outside TV channel	> 50 dB
SNR	≥ 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
Bit stuffing	yes
PID filtering	yes
Connectors RF input/output	F-connector
Current consumption	ca. 0.85 A
Power consumption	< 10 W
LNB power* 1	2 V / 0.5 A max.
Operating temperature range	- 20 °C to + 40 °C

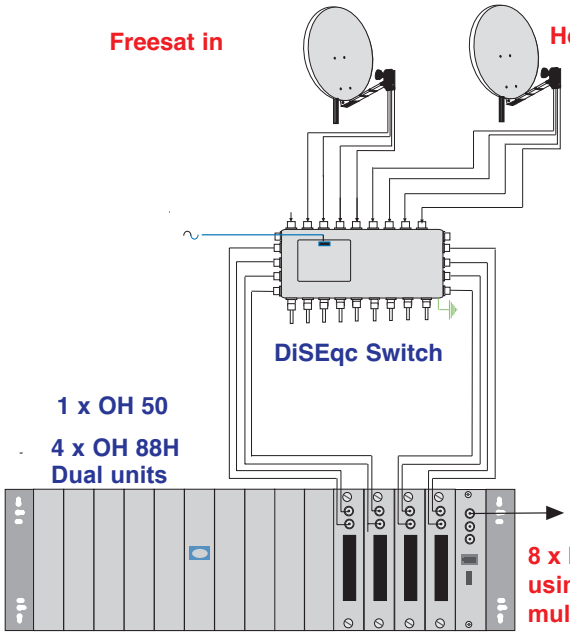
* with 22kHz/DiSEqC modulator to control multiswitches

* Reception of two DVB-T/C signals and transmodulation into dual COFDM-TVchannels (bonded)
* Input frequency range 110–858 MHz
* Output frequency range 110–858 MHz

OH892	Twin DVB-T/C to COFDM
with CI	
Input frequency range	110–858 MHz
Input frequency steps	250 kHz
Input level range	47–90 dB_V
Channel bandwidth	7/8 MHz
COFDM spectral	2k and 8k FFT
COFDM modulation scheme	QPSK, 16QAM, 64QAM
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	110–858 MHz
Frequency steps	1 MHz
Stability of output frequency	± 30 kHz
Output channel bandwidth	2 x 8 MHz
Output level	95–105 dB_V
Stability of output level	± 1 dB
Spurious inside TV channel	> 50 dB
Spurious outside TV channel	> 50 dB
SNR	≥ 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
Bit stuffing	yes
PID filtering	yes
Connectors RF input/output	F-connector
Current consumption	ca. 0.85 A
Power consumption	< 10 W
LNB power* 1	2 V / 0.5 A max.
Operating temperature range	- 20 °C to + 40 °C

OH51A.
Remote Monitoring module. Two OH50 units can be monitored and config-ured via the internet.

OH45
DVB-T/T2 ch convertor
Useful for changing to lower frequencies and consequently lower cable lossess



8 x Freeview DVB-T muxes out using 4 modules ,add more modules for more multiplexes

OH 50	Basic unit for 14 modules; FM amplifier, power supply; USB interface	£499.19
OH 51A	Management module, Web browser, SNMP	£113.40
OH 38	Dual AV modulator, no channel bonding	£262.30
OH 45	Terrestrial DVB-T/T2 channel converter 45-862 MHz,internal SAW filter.7/8 MHz	£251.43
OH 66	Twin AV or SDI input MPEG 2 encoder to QAM or COFDM. 82- 97dBuV , 47-862MHz	£715.90
OH 76	DVB-S to PAL/Secam/NTSC	£222.56
OH 77	DVB-S/DVB-S2/MPEG2/MPEG4 to PAL/Secam/NTSC	£395.75
OH 79D	DVB-S2/MPEG4 to PAL/Secam/NTSC	£467.92
OH 85H	Dual DVB-S/DBV-S2 to QAM transmodulator; HD, 2 CI, bit stuffing,	£479.95
OH 88H	Dual DVB-S/DVB-S2 to COFDM transmodulator, HD, 2 CI, bit stuffing,	£589.80
OH 892	Dual DVB-T/DVB-C to COFDM transmodulator, 2 CI, bit stuffing, PCR,	£647.18

USB Interface Updates:
Received via internet can be transferred to the Headend by USB stick without PC.
Preprogramming:
Can be done in office and transferred
To the Headend for quick installation.