

WDH-1800AS

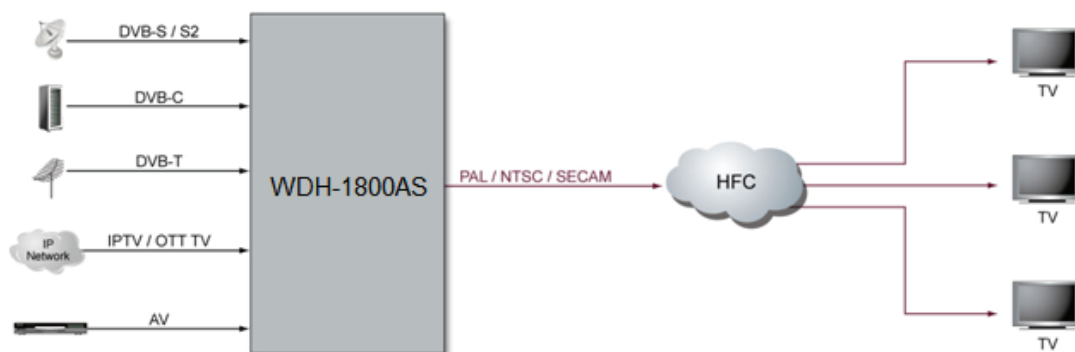
Compact Modular SMATV Headend

WDH-1800AS is a compact modular SMATV headend, supporting up to 16 channels in one 19" 4U chassis. It integrates multiple functions including DTV signal reception, descrambling, decoding and analog modulation. WDH-1800AS has various options for RF input front end, such as DVB-S/S2/T/T2/C, ATSC, ISDB-T and DMBT etc., moreover, analog AV and IP input are also available. Equipped with dual DVB-CI, the WDH-1800AS module can decrypt multiple pay TV services and loop through the TS to the neighbor modules through internal cables for further processing. Each WDH-1800AS module can process two MPEG-2 or H.264 HD/SD services and downscale the HD content to SD, then modulate and output via two adjacent analog RF channels. WDH-1800AS supports various analog modulation standard, such as PAL B/G, PAL D/K, NTSC, and SECAM etc. Each WDH-1800AS module can be controlled and supervised by SNMP and HTTP WEB.

Main Feature

- Support various analog modulation standard, such as PAL B/G, PAL D/K, NTSC, and SECAM etc.
- DVB-S/S2/T/T2, ATSC, ISDB-T, DMBT front end option
- Support IP input and analog AV input
- MPEG-2, H.264 HD/SD decoding
- Two adjacent analog RF channel output per module
- Dual DVB-CI for multi-decryption
- TS loop through between modules
- Functional module hot-swappable
- Web, SNMP remote control or handheld programmer unit local control
- 19" 4RU chassis compact modular design, supporting up to 8 modules in one chassis
- Redundant power supply
- Intelligent temperature control cooling system
- Stand alone function of each module
- Cost-saving by backward compatible with new modules
- On site software update through IP or USB

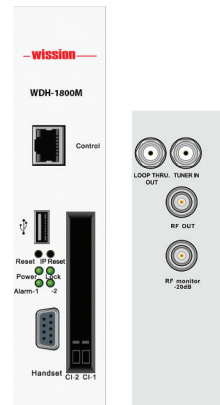
Application Diagram



WDH-1800M series

DVB Tuner to Analog Trans-modulator

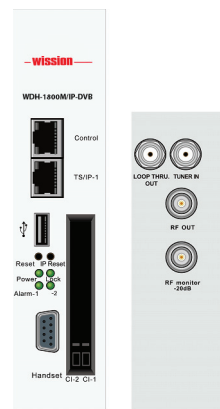
- Multiple RF input front end option DVB-S2/S/C/T/T2, ATSC, ISDB-T, DMBS
- Two adjacent analog channels output in range of 48-860MHz
- Output level 100dBμV per channel
- Support MPEG-2, H.264 SD/HD decoding
- Remote Control and Supervision by SNMP and HTTP WEB
- Support BISS-1, BISS-E descrambling
- Dual DVB-CI for multi-decryption
- Dynamic PMT detection and automatic updating



WDH-1800M/IP-DVB series

DVB/IP to Analog Trans-modulator

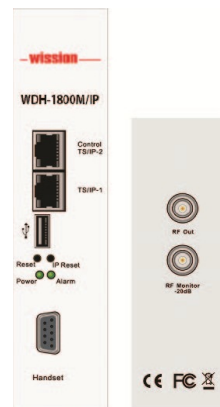
- RF input or IP input selectable by software
- Multiple DVB tuner front end option DVB-S2/S/C/T/T2, ATSC, ISDB-T, DMBS
- Two H.264 SD/HD receiver decoders and analog modulators
- Dynamic PMT detection and automatic updating
- Support BISS-1, BISS-E descrambling
- Dual DVB-CI slots for multi-decryption
- Binding analog channels output in range of 48-860MHz
- 100dBμV per channel
- Remote Control and Supervision by SNMP and HTTP WEB



WDH-1800M/IP series

Twin TS/IP to Analog Trans-modulator

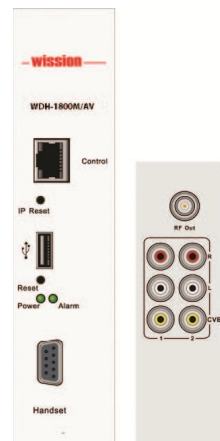
- Two IP multicast/unicast input ports
- Two adjacent analog channels output in range of 48-860MHz
- Supports MPEG-2, H.264 SD/HD decoding
- Output level 100dBμV per channel
- Remote Control and Supervision by SNMP and HTTP WEB



WDH-1800M/AV series

Twin Analog Modulator

- Two analog AV input
- Two adjacent analog channels output in range of 48-860MHz
- Modular design for easy installation and maintenance
- Output level 100dBμV per channel
- Remote Control and Supervision by SNMP and HTTP WEB



Specification

Tuner Input (for WDH-1800M Series)

DVB-S/S2 Tuner Input

Connector Type	1×F type female 75Ω for Input, 1×F type female 75Ω for loop through output
Input Frequency Range	950~2150MHz
Input Level	-25~-65dBm
Symbol Rate	DVB-S: 1~45MBauds/s for QPSK DVB-S2: 1~45MBauds/s for QPSK, 8PSK
Roll-off Factor	DVB-S: 0.35 DVB-S2: 0.2, 0.25, 0.35
FEC Code Rate	DVB-S QPSK: 1/2, 2/3, 3/4, 5/6, 6/7, 7/8 DVB-S2 QPSK: 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10 DVB-S2 8PSK: 3/5, 2/3, 3/4, 5/6, 8/9, 9/10
LNB Polarity Selection Voltage	0, 13V, 18V selectable
LNB Band Switching Tone	0/22KHz selectable
Satellite Selection Command	DiSEqC 1.0

DVB-C Tuner Input

Connector Type	1×F type female 75Ω for Input, 1×F type female 75Ω for loop through output
Input Frequency Range	51~858MHz
Input Level	40~85dBμV
Symbol Rate	1~7MBaud
Constellation	16/32/64/128/256QAM (ITU J.83 Annex A)
Bandwidth	6MHz/7MHz/8MHz

DVB-T Tuner Input

Connector Type	1×F type female 75Ω for Input, 1×F type female 75Ω for loop through output
Input Frequency Range	49~861MHz
Input Level	-25~-65dBm
Carrier Bandwidth	6/7/8 MHz
FTT Model	2K/8K
Guard Interval	1/4, 1/8, 1/16, 1/32
Viterb Error Correction Code Rate	1/2, 2/3, 3/4, 5/6, 7/8

IP Input (for WDH-1800M/IP series)

Connector Type	2×RJ-45, 10/100M
Standard	UDP, RTP, Multicast, Unicast, MPTS, SPTS

A/V Input (for WDH-1800M/AV series)

Video Input	2 sets of RCA, 75Ω
Audio Input	2 sets of RCA mono or A2(optional), 10Ω(unbalance)

Descramble (for WDH-1800M series)

Descrambler	DVB Common Scrambling Algorithm (CSA)
BISS Mode	BISS-1, BISS-E
Common Interface	Double PCMCIA slots, compatible with major CA CAMs in the market

Analog channels Modulation (for WDH-1800M,WDH-1800M/IP,WDH-1800M/AV)

Video	
Video carrier frequency accuracy	VHF: $\Delta f \leq 5\text{KHz}$ UHF: $\Delta f \leq 10\text{KHz}$
Video modulation depth	WDH-1800M 77.5~97.5% WDH-1800M/1800M/IP 87.5%
Video in-band flatness	$\leq 2\text{dB}$
Differential Gain	$\leq 7\%$
Differential Phase	$\leq 5^\circ$
Video S/N ratio	$\geq 45\text{dB}$
Chrominance/Luminance delay	$\Delta t \leq 45\text{nS}$
K factor of 2T pulse	$\leq 4\%$

Audio

FM modulation deviation	WDH-1800M/AV 40~160KHz (D/K, B/G, I)20~80KHz (M/N) WDH-1800M/1800M/IP 40~100KHz (D/K, B/G, I)50KHz (M/
Audio frequency response	±1.5dB (40Hz~15KHz)
Total harmonic distortion (THD)	$\leq 1.2\%$ (1KHz tone with $\pm 60\text{KHz}$ (D/K, B/G,I) or $\pm 30\text{KHz}$ (M/N) FM deviation)
1st audio carrier frequency	6.5MHz $\pm 5\text{KHz}$ /6.0MHz $\pm 5\text{KHz}$ / 5.5MHz $\pm 5\text{KHz}$ /4.5MHz $\pm 5\text{KHz}$ (basing on different standards)
2nd audio carrier frequency	6.742MHz $\pm 5\text{KHz}$ /6.258MHz $\pm 5\text{KHz}$ /5.742MHz $\pm 5\text{KHz}$ /4.742MHz $\pm 5\text{KHz}$ (basing on different standards)
Audio S/N ratio	$\geq 55\text{dB}$
Audio Pre-emphasis	50μS (B/G,D/K,I), 75μS (M/N)

RF Output (for WDH-1800M,WDH-1800M/IP,WDH-1800M/AV)

Connector Type	1×F type female, 75Ω (primary output) 1×F type female 75Ω (-20dB for monitoring)
Output Frequency Range	48~860MHz adjacent, step by 10 KHz
Output Level	100 $\pm 3\text{dB}\mu\text{V}$
Output Level Attenuation	0~18dB adjustable, step by 1 dB
Output Return Loss	$\geq 10\text{dB}$

Control & Monitoring

Connector Type	1×RJ-45, 10/100M, for equipment IP Control
Remote Control	SNMP, HTTP (Web Interface), Proprietary HDMS (Headend Device Management System)
Local Control	Handheld programmer unit
Software Upgrade	Embedded FTP loader and USB

Physical

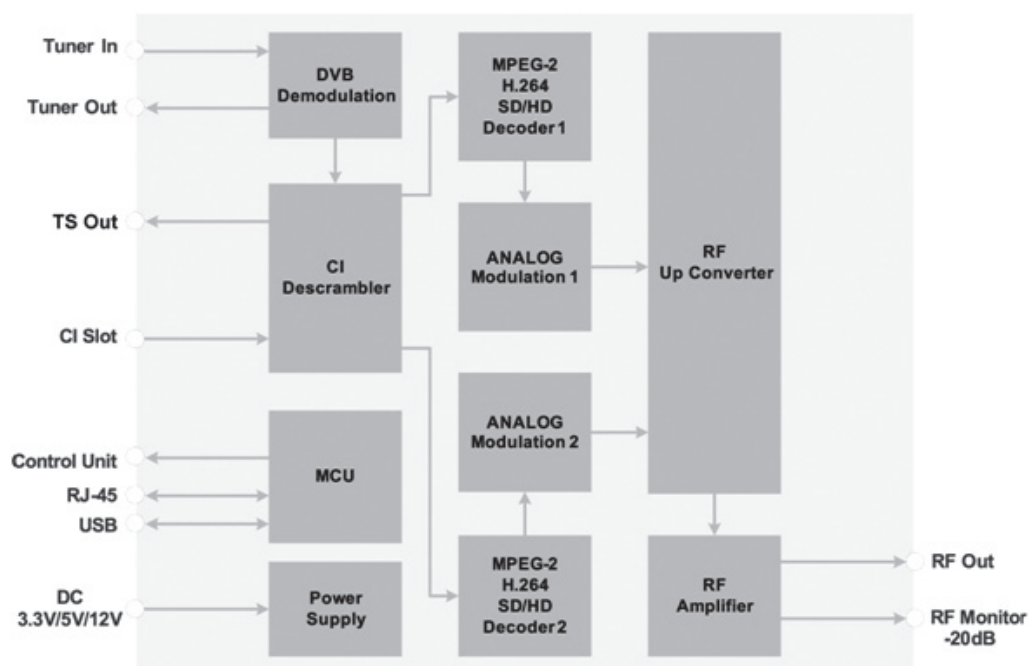
Dimension	379.7×111.5×39mm
Power Consumption	30W Max.
Operating Temperature	0- +45°C
Storage Temperature	-10~ +50°C
Operating Humidity	20~90%, non-condensed

Order Information

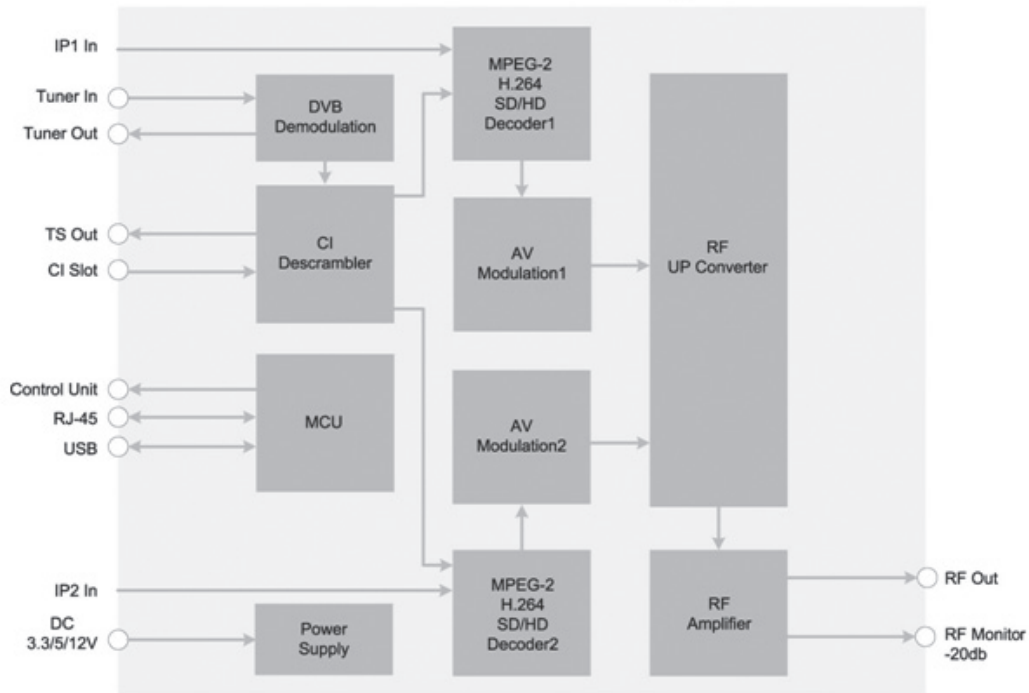
Interface/Model	WDH-1800M/S2		WDH-1800M/T		WDH-1800M/C		WDH-1800M/IP-XX		WDH-1800M/AV-XX	
Video Audio	MONO	A2	MONO	A2	MONO	A2	MONO	A2	MONO	A2
PAL D/K	02S2	04S2	02T	04T	02C	04C	02	04	02	04
PAL D/K (Poland)	02S2	08S2	02T	08T	02C	08C	02	08	02	08
PAL B/G	12S2	14S2	12T	14T	12C	14C	12	14	12	14
NTSC	22S2	-	22T	-	22C	-	22	-	22	-
SECAM D/K	32S2	34S2	32T	34T	32C	34C	32	34	32	34
SECAM L	42S2	-	42T	-	42C	-	42	-	42	-
PAL I	52S2	-	52T	-	52C	-	52	-	52	-

Model	WDH-1800M/IP-DVB-XX					
Tuner	DVB-S2		DVB-T		DVB-C	
Audio	MONO	A2	MONO	A2	MONO	A2
PAL D/K	02S2	04S2	02T	04T	02C	04C
PAL D/K (Poland)	02S2	08S2	02T	08T	02C	08C
PAL B/G	12S2	14S2	12T	14T	12C	14C
NTSC	22S2	-	22T	-	22C	-
SECAM D/K	32S2	34S2	32T	34T	32C	34C
SECAM L	42S2	-	42T	-	42C	-
PAL I	52S2	-	52T	-	52C	-

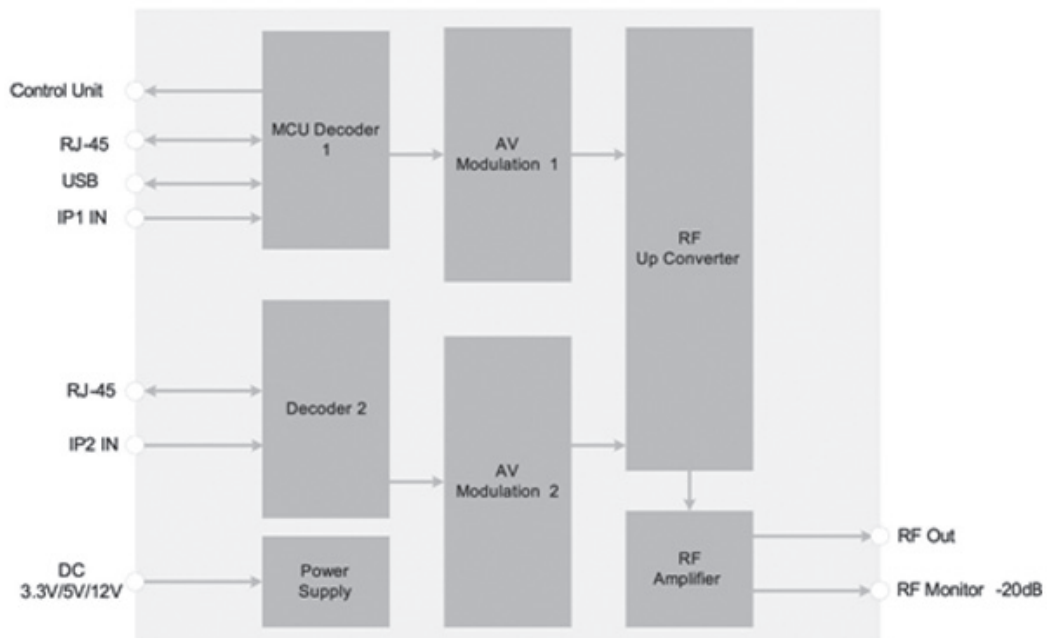
Block Diagram



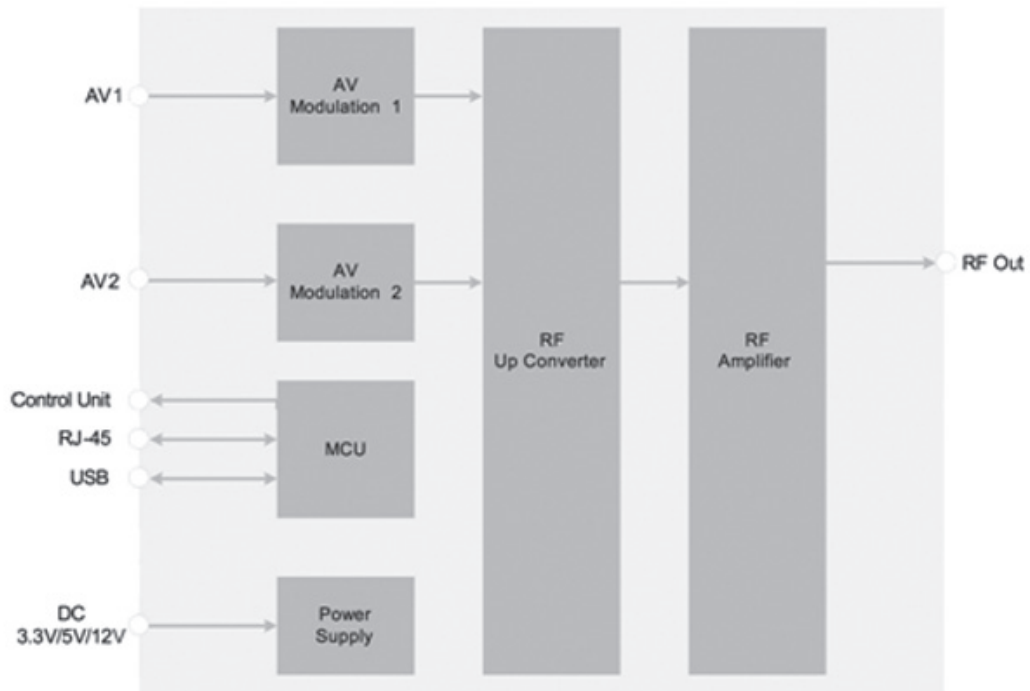
WDH 1800M Functional Block Diagram



WDH 1800M/IP-DVB Functional Block Diagram



WDH 1800M/IP Functional Block Diagram



WDH 1800M/AV Functional Block Diagram