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INTRODUCTION

UMH160R IRD is a powerful and cost-effective broadcast level satellite receiver. It supports signal reception, multi-channel descrambling, multiplexing, external table/data insertion, transcoding and transmodulating. It also supports MPEG-2/MPEG-4 SD/HD program decoding with two audio channels. With remote web-based management interfaces, it is ideal to support advanced content distribution, real-time signal conversion and transmission via any video delivery system.

KEY FEATURES

Receiving

- RF inputs support multiple standards of signal receiving including DVB-S/S2/T/T2/ISDBT/8VSB
- Supports ASI and TSIP inputs (mutual redundancy)
- Supports DVB-S2 multi-stream receiving (optional)
- Supports T2-MI transport stream decapsulation (optional)
- Supports Genlock signal input (optional)

Data Processing

- Two independent common interfaces support multi-channel descrambling, making the IRD compliant with various popular CAM cards
- Embedded BISS-1 & BISS-E support TS & Service level descrambling
- VBI subtitle insertion from analogue video
- PSI/SI/PSIP processing and regeneration
- Supports PID & Service/TS multiplexing
- Supports TS pass-through

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Output

- MPEG-2 or MPEG-4 HD/SD video decoding
- HDMI, SD/HD SDI and CVBS output
- SDI output with 2 embedded audios
- One audio decoding through AES/EBU digital audio output, 2 pairs of balanced and unbalanced analog audio output
- Multicast and unicast broadcasting in LAN and WAN network
- GPI alarm and cue tone output
- 4-channel QAM or 2-channel OFDM output (optional)
- 2-channel HD or 4-channel SD MPEG-2 to/from H.264 transcoding (optional)

Management

- One Ethernet 10/100Base-TX, RJ45
- Web-based NMS
- Front panel keypad and LCD
- SNMP supported for system integration

ORDER INFORMATION

Model	Description
UMH160R-RL	1 x RF input, HDMI/CVBS decoding, IP-Management port
UMH160R-Base	1 x RF input, ASI in/out, HDMI/CVBS decoding, IP-Management port
UMH160R-SDI	1 x RF input, ASI in/out, HDMI/CVBS/SDI decoding, IP-Management
UMH160R-IP-G	1 x RF input, ASI in/out, IP in/out, HDMI/CVBS/SDI decoding, Genlock, 608 & 708 Closed caption, IP-Management
UMH160R-IP	Receiving, descrambling, HD&SD decoding, 4ASI (2In + 2Out), 2TSIP (In + Out) and SDI (Out)
UMH160R-AD	IP + multiplexing (2 tuner receiving) with AAC license (optional)
UMH160R-TC2/TC4	1 x RF input, ASI in/out, IP in/out, HDMI/CVBS/SDI decoding, transcoding, IP-Management
UMH160R-QAM	2 x RF input, ASI in/out, IP in/out, HDMI/CVBS/SDI decoding, multiplexing, QAM modulation, IP-Management port
UMH160R-ATSCM	2 x RF input, ASI in/out, IP in/out, HDMI/CVBS/SDI decoding, multiplexing, 8VSB modulation, IP-Management port

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SPECIFICATIONS

RF

DVB-S/S2 Input	
Input	F-type, single input, IEC, 169-24, 75Ω
Constellation	DVB-S Constellation: QPSK FEC: 1/2, 2/3, 3/4, 5/6, 7/8 External code: reed Solomon, por EN300-421 (204, 188, T=8) DVB-S2 Constellation: QPSK, 8PSK, 16APSK (LDPC) FEC: QPAK: 1/2, 2/3, 3/4, 3/5, 4/5, 5/6, 8/9, 9/10 8PSK: 2/3, 3/4, 3/5, 5/6, 8/9, 9/10 16APSK: 2/3, 3/4, 4/5, 5/6, 8/9, 9/10 External code: BCH
Symbol Rate	1~45 Mbps
Input Frequency	950~2150 MHz
Max. Bit-Rate	150Mbps
Signal Level	-65~-25 dBm
LNB Power	DC 13/18V, max 400mA
Control Tone	22K on/off
Roll-Off Factors	0.35, 0.25, 0.20
Advanced Feature (via a simple hardware upgrade, optional)	16APSK
	CCM/VCM demodulation supported
	Multi-stream supported (single ISI)
	Roll-off factors: 0.15, 0.10, 0.05

DVB-C Input	
Input	F-type, single input, 75Ω
Symbol Rate	3.6~6.952 MBauds
QAM Type	J.83 A/B/C
Input Frequency Range	48~862 MHz
Max. Bit-Rate	55Mbps
Signal Level	40~80 dBuV

DVB-T Input	
Input	F-type, single input, 75Ω
Constellation	QPSK/16/64QAM
Bandwidth	6/7/8M
Input Frequency Range	48~862 MHz
Max. Bit-Rate	31.67Mbps
Signal Level	-75~-10 dBm
Transmission Mode	2K, 8K

DVB-T2 Input	
Input	F-type, single input, 75Ω
Constellation	16/32/64/128/256QAM
Bandwidth	1.7MHz, 5MHz, 6MHz, 7MHz, 8MHz
Input Frequency Range	48~862 MHz
Max. Bit-Rate	50Mbps
Transmission Mode	1K, 2K, 4K, 8K, 16K, 32K

ISDB-T/Tb Input	
Input	F-type, single input, 75Ω
Constellation	QPSK/16/64QAM
Bandwidth	1.7MHz, 5MHz, 6MHz, 7MHz, 8MHz, 10MHz
Input Frequency Range	48~862 MHz
Max. Bit-Rate	6Mbps
Signal Level	-75~-10dBm
Carriers Mode	1K-42K, 3K

8VSB Input	
Input	F-type, single input, 75Ω
Bandwidth	6MHz
Input Frequency Range	57~803 MHz (fixed frequency)
Max. Bit-Rate	19.39Mbps

GbE IP	
Interface	GbE level RJ45 port
Speed	10/100/1000Mbps
Package Format	UDP & RTP (auto detection)
Traffic Type	Unicast: ARP
	Multicast: V2, V3 (optional)
FEC	ProMPEG CoP3v2 (input)
TCP/IP Protocol	IPv4
IGMP	Version 1, 2 & 3

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SPECIFICATIONS

DVB-ASI

DVB-ASI	
Interface	4 BNC, 75Ω (2 x ASI input, 2 x ASI output)
Max. Bit-Rate	100Mbps
Packet Type	188/204 Bytes
Input Mode	Spread and burst
Output Mode	Supports burst
Supports MPEG-2/H.264 SD/HD stream bypass transmission	

DVB De-Scrambling

DVB De-Scrambling	
DVB Common Interface	2 slots
Max. Bit-Rate	100Mbps
CAM Supported	NEOTION, SMIT, ASTON and other major CAMs
CAS Supported	CONAX, IRDETO, Novel-SuperTV, CTI and other major CAS
BISS 1& BISS E	Program level, decoded service only TS level optional
Number of Services	Limited by CAM

RF Modulation (for QAM model)

Output	
Interface	1 RF for 4-channel (DVB-C modulation, F-type, 75Ω)
	1 RF for 2-channel (DVB-T modulation, F-type, 75Ω)
	1 for RF monitor output (F-type, 75Ω)
DVB-C Modulation	
Standard	ITU-T J.83 Annex A/C, Annex B
Constellation	16/32/64/128/256QAM
Symbol Rate	4.4~6.952 MBauds
Output Level	90~115 dBuV (depending on the channel numbers)
Frequency Range	48~862 MHz
EMR	38
DVB-T Modulation	
Standard	ETSI EN 300 744
Constellation	QPSK/16/64QAM
Carriers Mode	2K, 8K
Bandwidth	6MHz, 7MHz, 8MHz
Output Level	90~115 dBuV (depending on the channel numbers)
Frequency Range	48~862 MHz

Decoder

Interface		
Composite Video Output	1 x BNC, 75Ω PAL/NTSC/SECAM	
SD/HD-SDI Output	1 x BNC, 75Ω 2 x BNC, 75Ω, (for SDI model)	
Digital Output	1 x HDMI-type connector	
Analog Audio Outputs	4 x BNC, 75Ω unbalanced	
	1 x 15 Pin D-sub (4 x XLR breakout cable, for IP-G/TC2/TC4/QAM/ATSCM models)	
AES/EBU	1 x BNC, 75Ω (for Base/RL/SDI models)	
	1 x 15 Pin D-sub (1 x BNC, breakout cable, for IP-G/TC2/TC4/QAM/ATSCM models)	
Video Decoding		
Video Profile/ Levels	MPEG-2 SD 4:2:0 MP@ML	
	MPEG-2 HD 4:2:0 MP@ML	
	MEPG-4 AVC/H.264 SD MP@L3	
	MEPG-4 AVC/H.264 HD MP@L4.0/HP@4.0	
Output Format	Chroma: 4:2:0	
	720 x 576i@25	
	720 x 480i@29.97	
	1920 x 1080i@50,59,60	
	1920 x 1080p@24,30	
Aspect Ratio Conversion	1280 x 720p@50,59,60	
	4:3 letterbox, 4:3 pan and scan, 16:9 pan and scan, anamorphic	
	CVBS	RCA or BNC connector, video level 1.0Vp-p
	SDI	SD/HD-SDI with embedded audio. BNC connector
Audio Decoding		
Number of Audio Services	2	
Standard	ISO/IEC 13818-3	
Audio Codecs Supported	MPEG1L2 & MPEG2L2	
	AAC (Option) (MPEG-2, MPEG-4/HE v1 & 2, MPEG-4/LC)	
Output Formats	Linear PCM & Dolby E pass-through	
	Digital pass-through	
	PCM (downmixed for 5.1 Sources) Analog (downmixed for 5.1 Sources)	
SDI Embedded Audio Output	2 Audio Pairs	
Adjustable Volume Level	-63~0 dB	

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SPECIFICATIONS

Transcoding (for TC2/TC4 model)

TS Transcoding	
Processing Channels	4 programs
Input	
Video	H.264 (MPEG-4 part 10) or MPEG-2
Video Format	Up to 1080p30
Aspect Ratio	4:3, 16:9, auto
Audio	MPEG-1 Layer I/II
	MPEG-2 Layer II
Audio Mode	Stereo, dual mono, single mono
Output	
Video	H.264 (MPEG-4 part 10) 4:2:0 MP@L4
	MPEG-2 4:2:0 MP@ML
Resolution	576i, 480i (BT.656)
	1080i50, 1080i60, 1080i59.94
	720P50, 720P60, 720P59.94
Audio	MPEG-1 Layer-I/II
Subtitle and Audio	Pass-through
Bit-Rate	MPEG-2 video: 2~15 Mbps (CBR & VBR)
	Audio: 64~384 Kbps
	H.264 video: 1~20 Mbps (CBR & VBR)
	Audio: 64~384 Kbps
Adjustable Volume	-63~0 dBm

Genlocking (for IP-G model)

Input	
Genlock Signal	1 x BNC, Black Burst/tri-level sync
Output	
HD/SD SDI	2 x BNC, 75Ω
CVBS	1 x BNC, 75Ω
Audio	1 x DB-15, 2 AES/EBU audios + 2 pairs balance audios
Ancillary Data Support	
SDI ANC Data	Closed captions (CEA-708)
SDI VBI Waveform	Line 21 captions (CEA-608)

Management

Connector	RJ-45 10/100Mbps - auto negotiating
Protocols	HTTP and SNMP
User Interfaces	Full control via Web GUI
	Front pane
Automation Interface	Full status via SNMP
	Configurable SNMP traps
Firmware Updates	Via Web GUI

Physical & Environment

Power Supply	100~240 VAC, 50/60Hz
	Dual AC (via a hardware upgrade, optional)
	36~72 VDC (via a hardware upgrade, optional)
Size	1 RU rack mount chassis
Dimension	485mm x 340mm x 45mm
Operating Temperature	0 C ~50 C
Storage Temperature	-40 C ~70 C
Relative Operating Humidity	< 95% (non-condensing)