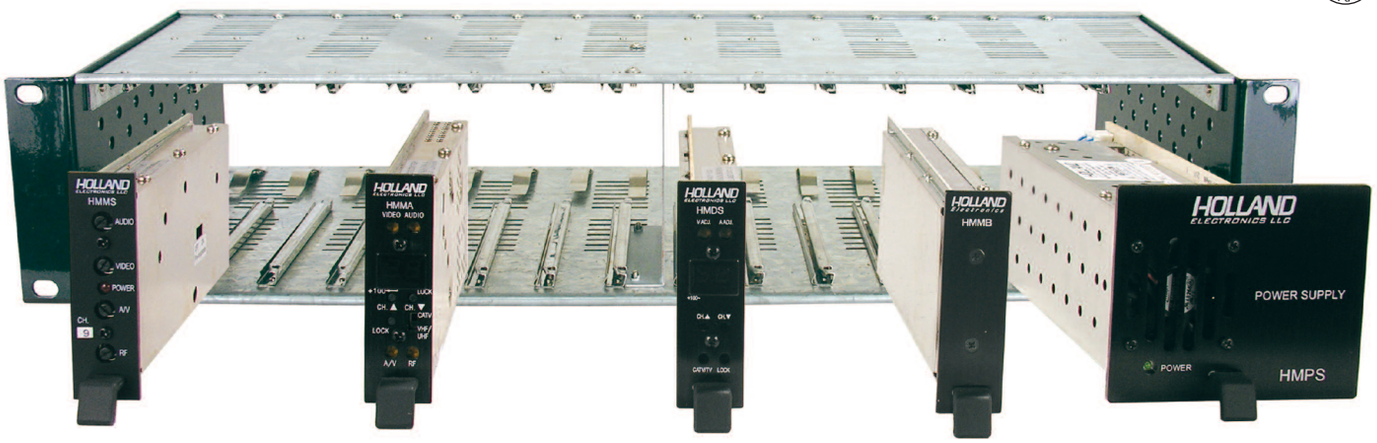
MODULAR HEAD-END SYSTEM

■ MODELS HMMS : HMMA : HMDS : HMMB : HMPS : HMR



HMMS-*
SAW MODULATOR

HMMA
AGILE MODULATOR

HMDS
AGILE DEMODULATOR

HMMB
BLANK INSERT

HMPS
POWER SUPPLY

FEATURES

- SAW Filtered
- PLL Oscillator Controlled Modulators
- Stereo Encoder Available (ST-MOD)
- Microprocessor Controlled (HMMA/HMDS)
- Fan Cooled Power Supply for Extra Reliability
- International Power Supply (95-240VAC)
- Front Panel Controls
- Five Year Warranty

CUSTOMER NOTES:

MODULAR HEAD-END SYSTEM

Holland Electronic's Modular Head-End System consists of a 12-slot mounting chassis and power supply capable of holding any combination of 12 high-quality SAW filtered modulators and/or demodulators. The **HMR** slide-in mounting system uses only 3.5" of rack height, making for easy installation and efficient use of space (as simple as sliding in the modules and plugging in the **HMPS** power supply). All components come with a five year warranty.

AVAILABLE OPTIONS

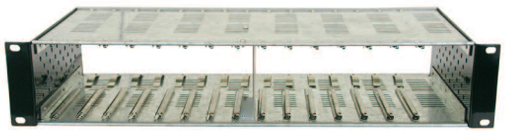
- Inverted Channel Format (HMMS)
- Stereo Encoder (ST-MOD)
- HMMB: Blank Insert for Unused Slots

MODULAR HEAD-END SYSTEM

REQUIRED COMPONENTS

HMR RACK

12-Slot Modular Chassis.



MOUNTING RACK : MODEL HMR	
Width	19"
Height	3.5"
Depth	9"
Capacity	12 Individual Slots (Not Including HMPS)

HMPS POWER SUPPLY

Power Supply for 12-Slot System.

POWER SUPPLY : MODEL HMPS	
AC Input	95 - 240VAC (50 - 60 Hz)
DC Output	5VDC, 12VDC
Output Current (Max.)	5.5A @ 5V, 4A @ 12V
Protection	Short Circuit & Overload
Regulation	5%
Ripple	25 mV
Operating Temperature	0 to 50˚ Celsius

AVAILABLE OPTIONS

ST-MOD

Converts right and left audio inputs to stereo output. Small size and lightweight allows for easy integration with the **HMM* Head-End System**.

STEREO ENCODER : MODEL ST-MOD	
Audio Input	10K ohms
Input Level	.5 - 1.5 V
Output	BTSC
Separation	20 dB (50 Hz - 13 kHz)

HMMB

Blank insert for unused slots.

BLANKS : MODEL HMMB	
Single Slot Blank Insert	Model HMMB

NOTE: All specifications typical unless otherwise noted

MODULAR HEAD-END SYSTEM

■ MODELS HMMS-* : HMMA : HMDS

MODEL **HMMS-***

MODEL **HMMA**

MODEL **HMDS**

FEATURES

- SAW Filtered
- PLL Controlled Oscillator
- Front Panel Controls
- Low Out-of-Band Noise
- LED Channel Display (HMMA/HMDS)
- Microprocessor Controlled (HMMA/HMDS)
- Stereo Encoder Available (ST-MOD)
- Five Year Warranty

CUSTOMER NOTES:

HMMS : FIXED SAW MODULATOR

The **HMMS-*** mini-modulator is a commercial grade fixed channel modulator that integrates with Holland's **Modular Head-End System**. The **HMMS-*** accepts any A/V base-band input and modulates to CATV channels 2-135.

HMMA : AGILE SAW MODULATOR

The **HMMA** is a high quality SAW filtered frequency agile modulator covering 860 MHz and has been designed to meet high CATV performance standards. Low out-of-band noise makes it ideal in adjacent channel head-ends.

HMDS : AGILE DEMODULATOR

The **HMDS** is a commercial grade frequency agile mini demodulator for use with **Holland's Modular Head-End System**. With SAW filtering and PLL controlled oscillators for enhanced adjacent channel performance.

AVAILABLE OPTIONS

- Inverted Channel Format (For HMMS)
- Stereo Encoder (ST-MOD)
- HRC & IRC Offsets Available (For HMMS)

MODULAR HEAD-END SYSTEM

SPECIFICATIONS

RF	HMMS-*	HMMA
Output Channels:	2 - 117 CATV (54-750 MHz) 14 - 59 UHF (470-750 MHz)	2 - 135 CATV (54 - 860 MHz) 14 - 69 UHF (470 - 806 MHz)
FCC Offsets (Where Applicable)	±12.5 kHz, ±25 kHz	±12.5 kHz, ±25 kHz
Output Level	30 - 45 dBmV (Adj.)	30 - 45 dBmV (Adj.)
A/V Ratio	-11 to -18 dB (Adj.)	-11 to -18 dB (Adj.)
Frequency Stability	±5 kHz (Meets FCC Docket 21006)	±5 kHz (Meets FCC Docket 21006)
Aural Carrier Frequency	4.5 MHz ± 5 kHz	4.5 MHz ± 5 kHz
Spurious Outputs	-60 dBc	-60 dBc
C/N (In-Band)	60 dB	60 dB
Out-of-Band Noise	-95 dBc	-78 dBc
Output RL	12 dB	12 dB
VIDEO		
Input Level (Min.)	.5V p-p (for 87.5% Modulation)	.8V p-p (for 87.5% Modulation)
Frequency Response	±1.5 dB (50 Hz - 4.2 MHz)	±1.5 dB (50 Hz - 4.2 MHz)
Video C/N	60 dB	60 dB
Hum/Noise	-60 dB	-60 dB
Modulation Range	0 - 90%	0 - 90%
Input Impedance	75 Ohms	75 Ohms
Differential Phase	±5°	±3°
Differential Gain	±5%	±5%
Group Delay	75 ns	75 ns
AUDIO		
Input Level	.5V p-p (25 kHz Dev)	.5V p-p (25 kHz Dev)
Input Impedance	5k Ohms	10k Ohms
Distortion (THD)	1%	1%
Flatness	±1 dB (50 Hz - 15 kHz)	±1 dB (50 Hz - 15 kHz)
Pre-Emphasis	75 µs (Switchable)	75 µs (Switchable)
BTSC Stereo Encoder	Optional	Optional
CONNECTORS		
Video Input, RF Output	F	F
Audio Input	RCA	RCA
GENERAL		
Power Requirements	5VDC@ 190mA, 12VDC@ 100mA	5VDC @ 280mA, 12VDC @ 400mA
Operating Temperature	0° to 50° Celsius	0° to 50° Celsius
Dimensions	1" x 3.1" x 7.5"	1" x 3.1" x 7.5"
Weight	.75 lbs.	.75 lbs.

RF	HMDS
Input Channels	2-125 CATV/HRC/IRC 14 - 69 UHF (470 - 806 MHz)
Input Power Range	0 - 25 dBmV
Noise Figure	6 dB: VHF / 8 dB: UHF
VIDEO	
Output Level	.5 - 1.2V p-p (Adj.)
Impedance	75 Ohms
Frequency Response	± 2 dB
Differential Phase	± 5°
Differential Gain	± 5%
AUDIO	
Output Level	.8 - 1.5V p-p (Adj.)
Output Impedance	600 Ohms
Distortion (THD)	2%
CONNECTORS	
RF Input, Video Output	F
Audio Output	RCA
GENERAL	
Power Requirements	12VDC, 5VDC @ 150 mA
Operating Temperature	0 to 50° Celsius
Dimensions	1" x 3.1" x 8.5"
Weight	.75 lbs.

NOTE: All specifications typical unless otherwise noted