

8. TROUBLESHOOTING

- a. Ensure you are using quality multiple shielded cables with quality radial or compression F-connectors.
- b. Ensure the cables center conductors are making solid contact with the HMDD Antenna Input, Audio Output, and Video Output port.
- c. If HMDD is receiving power but no signal, check to be sure the video cable is securely connected between the HMDD and the video source, and the video and/or audio cables are securely connected between the HMDD and the modulator.
- d. If the HMDD is not receiving power make sure the power cable is firmly connected. Be sure the power source is properly rated to handle the HMDD load especially if other equipment is being powered by that same source.

HOLLAND
Electronics LLC

INSTALLATION MANUAL

Model:HMDD

ATSC Digital Mini Demodulator



WARNING:

TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT TAKE THE COVER OFF.
NO PART OF THE RECEIVER CAN BE REPAIRED BY THE USER.
PLEASE CONSULT A QUALIFIED TECHNICIAN FOR ANY REPAIRS.



This symbol indicates "dangerous voltage"-there is the risk of an electric shock.



This symbol indicates that there are some important instructions for this particular product.

Caution:

These servicing instructions are for use by qualified service personnel only. To reduce the risks of electric shock, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so.

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1. PACKAGE CONTENTS

This package contains:

- One HMDD ATSC Mini Demodulator
- One HMDD Installation Manual

2. PRODUCT DESCRIPTION

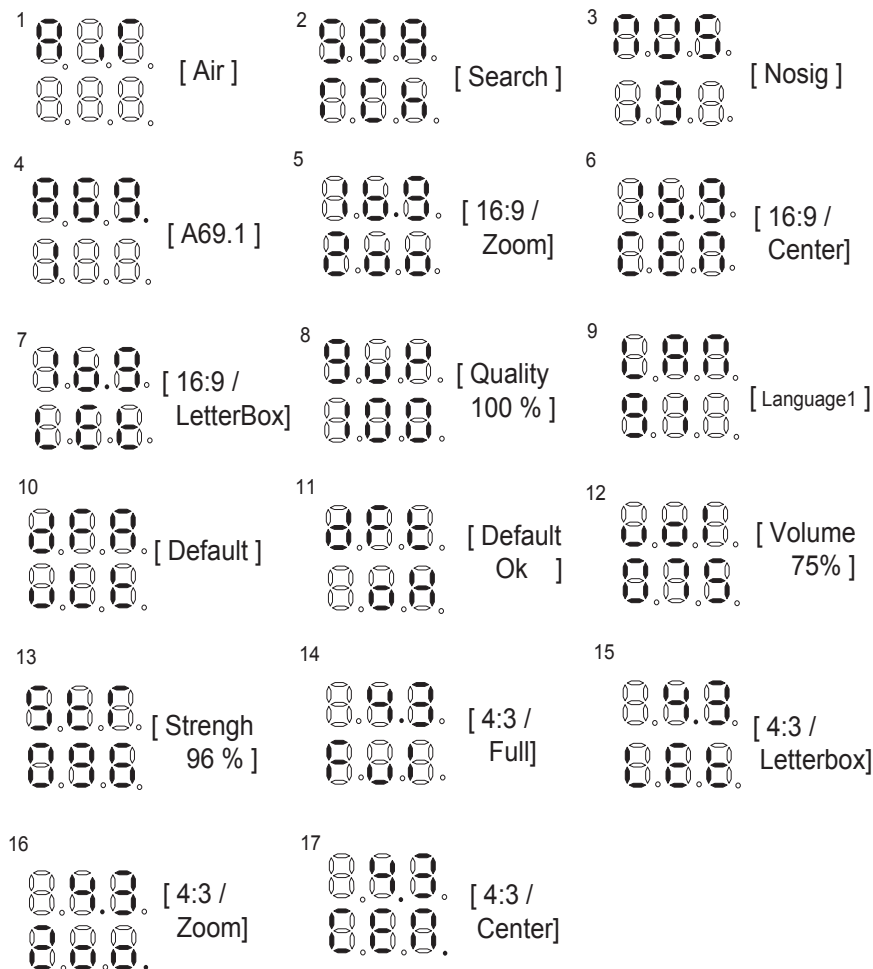
The HMDD is an ATSC professional grade mini demodulator designed for cost effective digital-to-analog conversion of an unencrypted 8VSB (Off-Air SD/HD TV signal) signal to baseband.

NTSC video and left and right stereo audio outputs. All of the 18 ATSC video formats including HD format can be received by the HMDD and converted to display on non-digital TV sets over analog channels with the use of a modulator.

3. SPECIFICATIONS




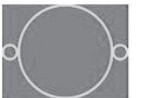



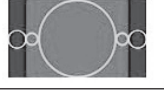

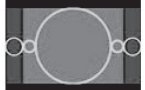
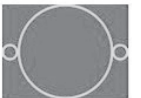



RF	
1 Input frequency range	57-803MHz
2 Channels	2-13 (VHF) 14-69 (UHF)
3 8VSB input channel bandwidth	6 MHz
4 Data rate	19.392 Mbps
5 Noise figure	< 8dB
6 Input level range	-7 dBm to -80 dBm
7 Adjacent channel rejection	60dB
8 Image rejection	40dB
9 Demodulation mode	8VSB, 8VSB MP
10 Symbol clock frequency	10.762 MHz
11 Input connector	75 ohm F-female
GENERAL	
1. Video output (analog)	
Frequency response	30Hz to 4.2MHz, +/-1.5dB
Video output level	1Vp-p +/- 0.2V
Impedance	75ohms
Connector type	75ohm F-female
2. Audio L/R outputs	
Impedance	10K ohms.
Level	1.3Vp-p +/-0.2V
Frequency response	30Hz to 20kHz, +/-2dB
Distortion	1% max
Connector	RCA.
3. Power consumption	
Power	DC5V / 350 mA 1.75W DC12V / 250 mA 3 W
	235 x 27 x 88mm

- g. Press and hold AUDIO button, select CH+ or CH- button to increase or decrease volume. (Preset audio volume level of 75%, sample 12)
- h. Press and hold ZOOM button, select CH+ to display current signal strength. (sample 13)
- i. Press and hold ZOOM button, select CH- to display current signal quality. (sample 8)
- j. Press SCAN button for at least 10 seconds to reset to factory default.
- k. Fourteen samples of "8" shape display as below:



7. SETTINGS

- a. Confirm the HMDD is powered on.
- b. Press the HMDD SCAN button. The HMDD will initiate a channel scan for available ATSC signals/channels in the given area. "SEARCH" will appear in the HMDD Display. The scan process can take several minutes. You should know what channels are available in that area, so you can determine which of those signals needs to be converted and demodulated.
- c. When the channel scan is complete, the first found channel number will be shown on the HMDD Display. The HMDD may have find multiple channels, use the CH+ and CH- Buttons to scroll through the available channels until you find the one to be converted and demodulated. The HMDD Lock LED will glow indicating a channel has been found and selected.
- d. Press the "ZOOM" button, you can select up to seven screen types: 4:3 / Center, 4:3 / Full, 4:3 / Letter, 4:3 / Zoom, 16:9 / Center, 16:9 / Letter, 16:9 / Zoom
4:3 is for standard screen display 16:9 is for widescreen display. The Zoom feature allows the selected channel image to be displayed as FULL (full screen display) or LETTER (letter box with smaller image surrounded by a black border) and center.

TV Ratio	Video Ratio	FULL	Pilar Box /	Pan Scan	
16:9 TV	16:9 Broad- cast				
	4:3 Broad- cast				
4:3 TV	16:9 Broad- cast				
	4:3 Broad- cast				

- e. The HMDD provides available language selections. Then, the available language depends on what stream contains. (Not every stream has multi-language selections. Some have 2 or more language selections, but most streams have 1 language.)

4. INSTALLATION AND OPERATION

NOTE TO SYSTEM INSTALLER

System installer must adhere to Article 820-40 of the NEC that provides guidelines for proper grounding and specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

1. UNPACKING and HANDLING

Each unit is shipped assembled and factory tested.

Ensure that all accessories are removed from the container before discarding packing material

2. MECHANICAL INSPECTION

Inspect the front and rear of the equipment for shipping damage. Make sure the equipment is clean, and no connectors are broken, damaged, or loose.

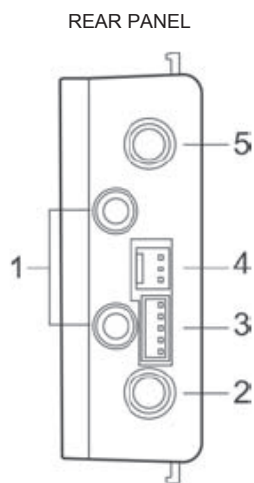
3. THE USE OF RACK MOUNTABLE CHASSIS AND POWER SUPPLIES

The HMDD is designed to be mounted in a rack chassis designed for mini modulators, and powered by power supplies intended for mini demodulators and designed to fit in the mini demodulator rack chassis. The HMR 12-unit rack chassis, and the HMPS 12-unit power supply should be used with the HMDD. Use of another power supply can void the warranty. Up to 11 HMDDs can be configured into a single HOLLAND HMR with the chassis stabilizer bar in place. Up to 12 HMDDs can be installed into a single HOLLAND HMR with the chassis stabilizer bar removed.

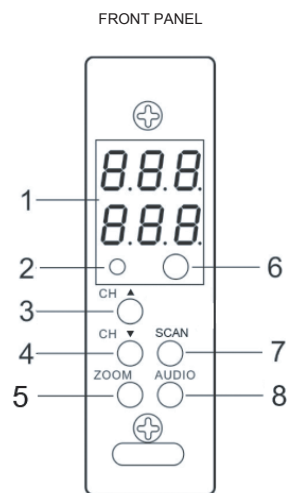
Note: Using the wrong power supply harness and/or power supply can damage the HMDD.

Always allow for adequate ventilation when assembling a headend rack.

5. PRODUCT DIAGRAM



- 1 Audio Left & Right Output, RCA connector
- 2 Video Output , F connector
- 3 Service connector
- 4 Power connector
- 5 Off-air antenna input, F connector



- 1 Message and Channel Display
- 2 LOCK LED indicate signal/channel locked
- 3 CH+ Button search channel up
- 4 CH- Button search channel down
- 5 Zoom button select screen format 4:3/16:9 letterbox, full, zoom or center.
- 6 IR receiver (Not Functional)
- 7 SCAN Button searches for off-air ATSC signals
- 8 Audio button selects Audio Language (SAP)

6. HARDWARE CONNECTIONS

- a. The HMDD is designed for installation in a chassis designed for mini demodulators. Mini demodulator chassis such as the HOLLAND HMR can be mounted in standard 19" EIA racks.
- b. The HOLLAND HMR 12-unit rack chassis and HOLLAND HMPS power supply should be used with the HMDD. Up to 11 HMDDs can be configured into a HOLLAND HMR with the HOLLAND HMR stabilizer bar in place or 12 HMDDs with the stabilizer bar removed.
- c. When configuring the HMDD in the chassis with the power supply it is critical that the power harness being used is from the same vendor as the power supply, and is designed for that specific supply. Power supply harnesses among vendors are not interchangeable and can severely damage the HMDD.
- d. The use of a surge protector and a UPS is highly recommended. Product warranty does not cover surge or spike damages.
- e. Connect a 75-ohm coaxial cable with proper connectors from the HMDD Antenna Input Port to an Off-Air antenna .
- f. For mono audio output connect an audio patch cable with RCA male connectors on both ends between the HMDD Audio LEFT (White) output port to the modulator's audio input. For output to a stereo modulator use patch cables from the HMDD Audio LEFT (White) and RIGHT (Red) output ports.
- g. Connect a coaxial cable using a male F-connector to the HMDD Video Output and a male F-connector to the modulator's video input
- h. Note you will require 1 HMDD for each channel or subcarrier to be converted and demodulated. You will also require 1 modulator for each channel to be remodulated.
- i. Connect the HMDD to the power harness and power supply installed in the mini demodulator chassis.