



## INSTALLATION & CONFIGURATION MANUAL

### SCDM-HD1, SCDM-HD2

### Single and Dual Input QAM Encoders / Modulators



**Logenex Innovations Inc.**  
**6A-7500 Martin Grove Rd.**  
**Woodbridge, Ontario L4L8S9**  
**Tel: (905) 790-8823 Fax: (289) 371-3117**  
**[www.logenex.com](http://www.logenex.com)**

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## SAFETY PRECAUTIONS



*The presence of this symbol is to alert the installer and user to the presence of uninsulated dangerous voltages within the product's enclosure that may be of sufficient magnitude to produce a risk of electric shock.*

**TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS DEVICE TO RAIN OR MOISTURE. DO NOT OPEN THE UNIT. REFER SERVICING TO QUALIFIED PERSONNEL ONLY.**

- ❖ DO NOT apply power to the unit until all connections have been made, all components have been installed and all wiring has been properly terminated.
- ❖ DO NOT terminate, change or uninstall any wiring without first disconnecting the unit's power adapter from the device.
- ❖ This device is supplied with the appropriately rated 12VDC power supply with the center pin positive. The use of any other power supply could cause damage and invalidate the manufacturer's warranty.
- ❖ DO NOT connect the power cord to the device if the power cord is damaged.
- ❖ DO NOT cut the power cord.
- ❖ DO NOT plug the power cord into an AC outlet until all cables and connections to the device have been properly connected.
- ❖ The device should be installed in an environment consistent with its operating temperature specifications. Placement next to heating devices and ducts is to be avoided as doing so may cause damage. The device should not be placed in areas of high humidity.
- ❖ DO NOT cover any of the device's ventilation openings.
- ❖ DO NOT cover or obstruct the device's fan or fan openings.
- ❖ If the device has been in a cold environment allow it to warm to room temperature for at least 2 hours before connecting to an AC outlet.



## PACKAGE

## CONTENTS

This package contains:

- ❖ One SCDM-HD1 OR SCDM-HD2 QAM Encoder / Modulator
- ❖ One power cable
- ❖ One installation / configuration manual

Inspect the package before starting installation to ensure there is no damage and all supplied contents are present. Contact your distributor or dealer should the device be damaged or package contents are incomplete.

## SPECIFICATIONS

INPUT	SCDM-HD1	SCDM-HD2
Input Connectors	HDMI input (Video+Audio)	HDMI input (Video+Audio) x2
	Y, Pr, Pb Component input (Video)	Y, Pr, Pb Component input (Video) x2
	Composite input (Video)	Composite input (Video) x2
	L / R Channel Audio input (Audio)	L / R Channel Audio input (Audio) x2
	Coaxial SPDIF input (Digital Audio, LPCM) ), AC3 Pass Through	Coaxial SPDIF input x2 (Digital Audio, LPCM), AC3 Pass Through)
	Optical SPDIF input (Digital Audio, LPCM), AC3 Pass Through	Optical SPDIF input x2 (Digital Audio, LPCM), AC3 Pass Through
	<b>ASI Optional** (check factory for details)</b>	<b>ASI Optional ** (check factory for details) x2</b>
Video Input Level	0.7 – 1.4V(peak-to peak)	0.7 – 1.4V(peak-to peak)
Video Mode	480i,480p,576i,576p,720P50,720P60, 1080i50,1080i60 1080P50,1080P60- (Optional for AVC Encoding Only)	480i,480p,576i,576p,720P50,720P60, 1080i50,1080i60 1080P50,1080P60(Optional for AVC Encoding Only)
Audio input	Stereo / Digital	Stereo / Digital
Audio Input Level	0.4 – 0.8V (p-to-p)	0.4 – 0.8V (p-to-p)
Input Impedance	75Ω	75Ω
OUTPUT		
Frequency Range	54-864MHz (2-135)	54-864MHz (2-135)
Output Level	40 dBmV	40 dBmV
Output Impedance	75 ohm	75 ohm
Channel Bandwidth	6 MHz	6 MHz
Channel Level Adjustment	20 dB typ.	20 dB typ.
MER	38 dB min.	38 dB min.
MODULATION		
Video Resolution	1080i /720p/576i/576p/480p/480i 1080p @MPEG-AVC	1080i /720p/576i/576p/480p/480i 1080p @MPEG-AVC
Video Compression	AVC MP@Level4 / MPEG2 MP@HL	AVC MP@Level4 / MPEG2 MP@HL
Audio Compression	MPEG1 Layer II/ AAC (Advanced Audio Codec) AC-3 Pass through	MPEG1 Layer II/ AAC (Advanced Audio Codec) AC-3 Pass through
Constellations	64 QAM / 256 QAM	64 QAM / 256 QAM
Control/Monitoring		
Front Panel LCD Control	Yes	Yes
Remote Setup Functions	Yes	Yes
Remote Monitoring / Status	Yes	Yes
GENERAL		
Power Supply	12 VDC 3 Amp	12 VDC 3 Amp
Consumption	1300 mA	1700 mA
Languages	English	English
Dimensions	482.7mm x 240mm x 44.4mm (19" x 9.45" x 1.75") 1RU	482.7mm x 240mm x 44.4mm (19" x 9.45" x 1.75") 1RU

**\*Specifications subject to change without prior notice**

## HARDWARE INSTALLATION and CONNECTIONS

It is highly recommended that quality cables and connectors be used for all video and audio source connections.

1. The unit is designed to be rack mounted in a standard EIA 19" rack. Use the supplied rack screws to mount the unit securely.
2. The unit comes standard with HDMI, Component, and Composite video inputs. The CHD encoder / modulator are intelligently designed to detect the active video input from the video source. **HDMI Connection:** Connect the HDMI cable(s) from the video source(s) into the HDMI input(s). If using a **Component Video Cable**, connect the Y (Green), Pb (Blue), and Pr (Red) video source cable to the unit's Component input ports. If using a **Composite Video** source, use a 75Ω coaxial cable with RCA connectors to connect the **video source** (e.g., CATV, DVD, VCR, Camera) to the unit's CVBS port (IN1...IN2 depending on the CHD model).

Repeat this step for each video source connection.

3. **Component / Composite Audio inputs:** Connect a **Digital Audio Coaxial** cable or **Optical (Toslink)** cable for Digital Audio use from the audio source. For A/V audio input (Left / Right Audio) use RCA cables to connect the **audio source** to the red / white **AUDIO L and AUDIO R INPUT jacks** (IN1...IN2 depending on the CHD model).

Repeat this step for each audio source connection.

Be sure the video and audio connections for each source are consistent with the unit's inputs (IN1...IN2 depending on the SCDM model).

4. Use a quality 75Ω coaxial cable with "F" connectors from the unit's **RF OUT jack** to the **distribution system** (combiner or reverse splitter) or directly to a television.
5. Connect the included power cord to the unit's **POWER** plug.
6. Connect the power cord to an appropriately rated AC power outlet.

## MODULATOR SETUP AND CONFIGURATION

### INITIAL SETUP

The SCDM's front panel can be used to configure the modulator as desired. Below find the advanced menu setup instructions.

### MODULATOR CONFIGURATION

Once the modulator is powered up it will go through an internal booting process. When “**Running**” appears in the LCD Display the unit is ready for programming or operation. (The unit will display Bit rate information shortly after “Running” appears in the LCD display).

- ❖ **Password** – Press the OK button to select a 4-digit password. Use the **Scroll Up/Down button to search and select individual numbers for the password**. The default password is 0000. Press the OK button for each number to set the password.

**\*\*\*NOTICE TO THE INSTALLER- SEVERAL INTERNAL FUNCTIONS ARE RESERVED OR SET ASIDE FOR FUTURE USE. SKIP OVER THESE ‘RESERVE’ MENUS WHEN SETTING UP THE ENCODER FOR YOUR APPLICATION**

- ❖ **Advanced Menu** – To access the Advanced Menu first enter the password by pressing the OK button. Once the correct password is entered press the OK button and the LCD Screen will display “Advanced Menu Output Channel”. The following configuration options are available under Advanced Menu:
  - **Output Channel** – Use the Scroll Up/Down button to change the output channel. Channels 2 to 135 are available. Once the desired output channel is selected press the OK button to set the channel.  
**Major and Minor Channel Numbers:**  
**Major Channel #** The Major Channel # is automatically set when the user selects the output channel. Example: If you select output channel (STD) 102, then the Major Channel Number will be 102.1.  
**Minor Channel # (Dual Model)** - Not Selectable. The Minor Channel # is automatically set when the user selects the output channel. Example: If you select output channel (STD) 102, then the Major Channel Number will be 102.1 and the Minor Channel # will be set as 102.2.
  - **Attenuation** – Use the Scroll Up/Down button to select Attenuation. Press the OK button to enter the Attenuation menu. Use the Scroll/Up down button to select the desired attenuation in 1dB increments from 0 to minus 20 dB. Once the desired attenuation level is found press the OK button to set.
  - **Constellation** – Use the Scroll Up/Down button to select Constellation. Press the OK button to enter the Constellation menu. The modulator allows for either QAM256 or QAM64. Select the desired Constellation then press the OK button to set. Factor Default is QAM256.
  - **Interleaver**- If needed, use the Scroll Up/Down button to select the appropriate Interleaver selection. Press the OK button to enter the Interleaver menu. Use the Scroll Up/Down button to select the desired Interleaver value and press the OK button to set. Factory default is I=128, J=8.
  - **Channel Type** – Use the Scroll Up/Down button to select Channel Type. Press the OK button to enter the Channel Type menu. Menu options are STD, HRC and IRC. The factory default is STD. Use the Scroll Up/Down button to select the desired Channel Type and press the OK button to set.

- **RF Output** – Use the Scroll Up/Down button to select RF Output. Press the OK button to enter the RF Output menu. Menu options are Normal, Inverted and C.W. The factory default is Normal. Use the Scroll Up/Down button to select the desired RF Output and press the OK button to set.
- **Brightness** – Use the Scroll Up/Down button to select Brightness. Press the OK button to enter the Brightness menu. Use the Scroll Up/Down button to select the desired Brightness value (0 to 255) and press the OK button to set. Factory default is 128
- **Contrast** – Use the Scroll Up/Down button to select Contrast. Press the OK button to enter the Contrast menu. Use the Scroll Up/Down button to select the desired Contrast value (0 to 255) and press the OK button to set. Factory default is 128.
- **Saturation** – Use the Scroll Up/Down button to select Saturation. Press the OK button to enter the Saturation menu. Use the Scroll Up/Down button to select the desired Saturation value (0 to 255) and press the OK button to set. Factory default is 128.
- **Hue** – Use the Scroll Up/Down button to select Hue. Press the OK button to enter the Hue menu. Use the Scroll Up/Down button to select the desired Hue value (0 to 255) and press the OK button to set. Factory default is 128.
- **Device Address** – Use the Scroll Up/Down button to select Device Address. Press the OK button to enter the Device Address menu. Use the Scroll Up/Down to select the Desired Address ranging from 1 to 32 then press OK to set.
- **Set TS ID.** Use the Scroll Up/Down button to set TS ID. Press the OK button to enter the TS menu. Use the Scroll Up/Down to select the TS ID ranging from 1 to 65535 then press OK to set.
- **Set Region Name.** If required, use Scroll Up/Down button to set Region Name. Press the OK button to enter the Region Name. Use the Scroll Up/Down button to select the first character of the desired Region Name then press the OK button to set. Repeat the process until the desired Region Name is completed. Factory Default is USA.

**Note: Do not Change for USA operation.**

- **Default Configuration –**



**Caution: Once the OK button is pressed at the Default Config menu the unit will automatically reset to the factory default.**

**All settings or changes to the encoder/modulator will be lost.**

If you wish to set the modulator back to the factory default settings use the Scroll Up/Down button to reach Default Configuration then press the OK button.

- **1 Video Input** – Use the Scroll Up/Down button to select 1 Video Input. Press the OK button to enter the 1 Video Input menu. Use the Scroll Up/Down button to select the Video Input option: Auto, Composite, Component, HDMI, or ASI\*. The factory default is Auto. Press the OK button to set.

The SCDM-HD series of Encoder/Modulators is designed with Intelligent Input Detection (IID) technology. If you select Auto, the unit will detect the Active input source. You can set or fix the input source on any of the input types available on your unit.

*If the modulator has more than one video input scroll through the Advanced Menu for the additional video input menus. (2 Video Input for Dual Unit).*

*\*An ASI connection may not be present on your model. Set ASI if you desire to fix the input on ASI.*

- **1 Program Num.** Use the Scroll Up/Down button to set 1 Program Num(Number). Press the OK button to enter the 1 Program Num menu. Use the Scroll Up/Down to select the 1 Program Num ranging from 1 to 65535 then press OK to set.

*If the modulator has more than one video input scroll through the Advanced Menu for the additional **Program Num** menus. (2 Program Num for Dual Unit).*

- **1 Short Channel Name** – Use the Scroll Up/Down button to select Short Channel Name. Press the OK button to enter the Short Channel Name menu. Use the Scroll Up/Down menu to select the first character of the desired Short Channel Name then press the OK button to set. Repeat the process until the Short Channel Name is completed. If the modulator has more than one video input scroll through the Advanced Menu for additional Short channel name menus.

**The Short Name can be 7 characters long.** Factory Default is MY-DVT1.

- **1 Long Ch Name** – Use the Scroll Up/Down button to select Long Channel Name. Press the OK button to enter the Long Channel Name menu. Use the Scroll Up/Down menu to select the first character of the desired Long Channel Name then press the OK button to set. Repeat the process until the Long Channel Name is completed. If the modulator has more than one video input scroll through the Advanced Menu for additional Long channel name menus.

**The Long Name can be 16 characters long.** Factory Default is ATSC-Digital-TV1

- **1 Source ID.** Use the Scroll Up/Down button to set 1 Source ID. Press the OK button to enter the 1 Source ID menu. Use the Scroll Up/Down to select the 1 1 Source ID. ranging from 1 to 65535 then press OK to set.

*If the modulator has more than one video input scroll through the Advanced Menu for the additional **Source ID** menus. (2 Source ID for Dual Unit).*

- **1 Aspect Ratio** – Use the Scroll Up/Down button to select 1 Aspect Ratio. Press the OK button to enter the 1 Aspect Ratio menu. Use the Scroll Up/Down button to select the desired Aspect Ratio option of 4:3 or 16:9 then press the OK button to set. Factory default is 4:3. If the modulator has more than one video input scroll through the Advanced Menu for additional Aspect Ratio menus.

- **1 Video Output** – The SCDM-HD Series of Encoder / Modulators is Dual MODE Capable. The user may select to output video in either MPEG2 or AVC (MPEG4). Use the Scroll Up/Down button to select 1 Video Output. Press the OK button to enter the 1 Video Output menu. Use the Scroll Up/Down button to select the 1 Video Output option: MPEG2 or AVC. The factory default is MPEG2. Press the OK button to set. If the modulator has more than one Video Output scroll through the Advanced Menu for the additional Video Output menus.

**Note:** The Dual Input Unit allows the installer to select a combination of Video Output formats. The SCDM-HD2 can either have both outputs broadcasting in either MPEG2 or AVC(MPEG4) or a combination of MPEG2 and AVC(MPEG4).

- **1 Audio Input** – Use the Scroll Up/Down button to select. Press the OK button to enter the 1 Audio Input menu. Use the Scroll Up/Down button to select the 1 Audio Input option: Analog (L/R), Coaxial, or Optical. The factory default is Analog. Select the appropriate Input selection for your installation. Press the OK button to set. If the modulator has more than one Audio Input scroll through the Advanced Menu for the additional Audio Input menus.

- **1 Audio Output** – Use the Scroll Up/Down button to select 1 Audio Output. Press the OK button to enter the Audio Output menu. Use the Scroll Up/Down button to select the Audio Output



option: AC3 (AC-3 Pass Through), MP2 (MPEG2 Layer I Audio), or AAC. The factory default is MP2. Press the OK button to set. If the modulator has more than one Audio output scroll through the Advanced Menu for the additional Audio Output menus.

- **1 Closed Caption-** Use the Scroll Up/Down button to 1 Closed Caption. Press the OK button to enter the 1 Closed Caption menu. Enable / Disable 1 Closed Caption control. If the modulator has more than one Video Output scroll through the Advanced Menu for the additional Closed Caption menus.

- ❖ To **exit the Advanced Menu** use the Scroll Up/Down button to select Exit then press the OK button. Exit Exit Menu will appear on the LCD screen. Press the OK button twice to exit.

**\*\*\* Important- Save the settings \*\*\***

- ❖ Once the settings are made and the modulator is programmed (a) remove power from the unit by disconnecting the power supply cable from the rear of the unit, (b) wait 5 seconds and (c) reconnect the power cable. This will allow the modulator to capture the new settings.

### **CABLE PROVIDER SETUP**

Rogers: 988-991

Allows 4 channels to be modulated. Each input must be set to a program number ranging from 1-4 and will show on the below channels.

Output Channel: 99 MHz | Channel 96

Program Number: 1

Program 1: 988

Program 2: 989

Program 3: 990

Program 4: 991

Cogeco: 398

Output Channel: 759 MHz | Channel 118

Program Number: 398

Shaw: 716

Output Channel: 855 MHz | Channel 134

Constellation: QAM64

Program Number: 1

## SCDM-HD MODULATOR NOTES

PRODUCT NOTES:

ITEM	VALUE
PASSWORD	
SERIAL NUMBER	
INSTALLATION DATE	
PURCHASE DATE	
VIDEO 1 INPUT	
VIDEO 2 INPUT	