DRAKE DIGITAL ™

HDE24 High-Definition Encoder
INSTRUCTION MANUAL
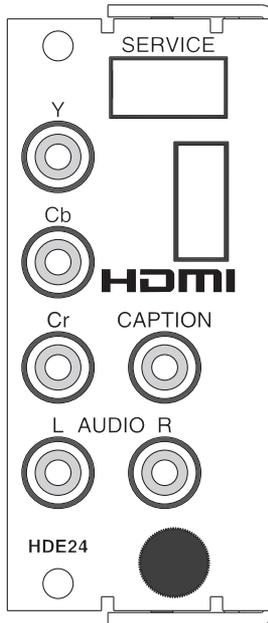
Warranty Statement

THREE YEAR LIMITED WARRANTY

R.L. DRAKE LLC warrants to the original purchaser this product shall be free from defects in material or workmanship for three (3) years from the date of original purchase.

During the warranty period the R.L. DRAKE LLC or an authorized Drake service facility will provide, free of charge, both parts and labor necessary to correct defects in material and workmanship. At its option, R.L. DRAKE LLC may replace a defective unit.

To obtain such a warranty service, the original purchaser must:

(1) Retain invoice or original proof of purchase to establish the start of the warranty period.

(2) Notify the R.L. DRAKE LLC or the nearest authorized service facility, as soon as possible after discovery of a possible defect, of:

(a) the model and serial number,

(b) the identity of the seller and the approximate date of purchase; and

(c) A detailed description of the problem, including details on the electrical connection to associated equipment and the list of such equipment.

(3) Deliver the product to the R.L. DRAKE LLC or the nearest authorized service facility, or ship the same in its original container or equivalent, fully insured and shipping charges prepaid.

Correct maintenance, repair, and use are important to obtain proper performance from this product. Therefore carefully read the Instruction Manual. This warranty does not apply to any defect that R.L. DRAKE LLC determines is due to:

(1) Improper maintenance or repair, including the installation of parts or accessories that do not conform to the quality and specifications of the original parts.

(2) Misuse, abuse, neglect or improper installation.

(3) Accidental or intentional damage.

All implied warranties, if any, including warranties of merchantability and fitness for a particular purpose, terminate three (3) years from the date of the original purchase.

The foregoing constitutes R.L. DRAKE LLC's entire obligation with respect to this product, and the original purchaser shall have no other remedy and no claim for incidental or consequential damages, losses or expenses. Some states do not allow limitations on how long an implied warranty lasts or do not allow the exclusions or limitation of incidental or consequential damages, so the above limitation and exclusion may not apply to you.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

This warranty shall be construed under the laws of Ohio.

For Service, contact:

R. L. DRAKE LLC
230 Industrial Drive
Franklin, OH 45005 U.S.A.
Customer Service and Parts Telephone: +1 (937) 746-6990
Telefax: +1 (937) 806-1576

Web Site: http://www.rldrake.com

Introduction

The Drake® HDE24 high-definition encoder generates an MPEG2 or MPEG4 H.264 video stream, with Dolby® AC-3 or MPEG1 layer 2 audio. This module is designed to be installed into the Drake EH24- or MEQ1000-style chassis, which provide the control and output interfaces to the unit. The encoder accepts HDMI™ and component inputs, and can inject closed-captioning data from a synchronized composite video source (typically provided by the same decoder that produces the HD video stream).

Installation

This unit installs into the chassis in the same fashion as the SDE24 encoder; for chassis insertion instructions, see the manual for your particular chassis. **DO NOT INSERT THIS ENCODER WITH POWER APPLIED TO THE CHASSIS - RESULTING DAMAGE WILL NOT BE COVERED BY THE LIMITED WARRANTY.** Cable the inputs appropriately (see the Rear Panel Connections section for details).

Upgrading Firmware

The HDE24's firmware may be upgraded in the field, using a removable USB flash drive. Once you have obtained the latest firmware version file, copy the file onto a removable flash drive. The file must not be placed in any sub-folder of the drive. Power down the chassis, insert the flash drive into the Service port on the unit, and apply power to the chassis. The HDE24 will automatically upgrade and then reboot. Once the unit is functioning normally again (encoded audio and video is being generated), remove the flash drive from the unit.

Operation

Power on the chassis, and select the newly-inserted HDE24 unit via the LEFT and RIGHT buttons on the front panel. The following configuration settings are available for the HDE24 (defaults listed in bold italics):

Video Source: *Component*, *HDMI, Composite* - sets the input video format

Resolution: *Scan, **1080i**, 720p, 480p, 480i* - auto-scan input resolution, or force a particular video mode. Not available for composite (composite is always 480i)

Format: *MPEG2*, *MPEG4 H.264* - sets the video compression method used

MPEG4 Profile: *Default*, *Simple, Advanced Simple* - sets the MPEG4 video profile used (only available when format is MPEG4 H.264)

MPEG4 Level: ***0**, 1, 2, 3, 4, 5* - sets the MPEG4 encoding level (only available when format is MPEG4 H.264)

Bitrate: *Range varies by resolution* - sets the bandwidth used by the video encoder (***15.0 Mbps***)

Brightness: Sets the video brightness - larger values increase brightness (***128***)

Contrast: Sets the video contrast - larger values increase contrast (***128***)

Saturation: Sets the video contrast - larger values increase saturation (***128***)

Hue: Adjusts the video color hue - behavior varies by input mode (***128*** for Composite, ***0*** for other inputs)

Audio Source: *Analog*, *HDMI* - select audio input source (only available when video input is HDMI)

Audio Encode: *AC-3*, *MP2* - changes audio encode format between Dolby AC-3 and MPEG1 Layer 2.

Audio Gain: varies audio level +/- 15dB (***0***, only avaliable when audio input is Analog)

2 Specifications

Notes

1. If the front panel display shows *INVALID VIDEO*, the incoming video is not correct for the input type and resolution settings. If the front panel display shows *INVALID AUDIO*, the HDMI embedded audio source is not available or not PCM (uncompressed).
2. This encoder will only support the specific video resolutions outlined in the Specifications table.
3. This encoder does not support HDMI copy protection (HDCP). All HDMI sources must be un-encryp-ted.
4. Composite video is supported - use the Component Y (green-colored) input connector.
5. Closed-captioning data is automatically extracted when the encoder is in Composite mode. All other modes require a captioned composite video source input to the Caption connector.
6. Firmware updates may be re-quired for MEQ1000 or EH24 chassis. MEQ1000s must be up-dated to v1.4 or later. EH24s must be updated to v2.3 or later.

Video Inputs	
HDMI™	1x HDMI input - to protect copyrighted content, this encoder does not support HDMI copy protection (HDCP)
Component	1x HD Component (YCrCb) video input
Composite	1x 1V p-p +/- 3dB, 480i only
Closed Captioning Input	1x 1V p-p +/- 3dB, 480i composite video (used for Closed Captioning data extraction during HD encoding)
Audio Inputs	
RCA-type L+R	1x 1Vrms nominal, 3.5Vrms maximum
HDMI Embedded Audio	Supports PCM (uncompressed) digital audio from HDMI
Video Options	
Input Video Modes Supported	480i (640x480/720x480 @30fps)
	480p (640x480/720x480 @60fps)
	720p (1280x720 @60fps)
	1080i (1920x1080 @30fps)
	Supports auto-scan for input resolution
Encoder Format	MPEG2 or MPEG4 H.264
Video Adjustments	Brightness, contrast, hue, and saturation
MPEG4 Profile support	Simple, Advanced Simple, High
Bitrate	Up to 19Mbps (depends on input format)
Audio Options	
Encoder format	Dolby® AC-3 or MPEG1 layer 2
Output Bitrate	320kbps

Rear Panel Connections

1: Component video input. Y input is used for Composite video input as well.

2: Analog audio input.

3: Service port. Used during firmware updates of unit.

4: HDMI input. Supports embedded PCM audio. Does not support HDCP/Copy protection.

5: Closed captioning data input. Used during high-definition encodes to insert closed-caption data from a composite video source.

Manufactured under license from Dolby Laboratories