

# HDS2800 Series Encoder/Modulators

## Engineering Datasheet

### Global Specifications

#### Digital Modulator

Modulation Standard	DVB-T COFDM ( <i>ATSC option available</i> )
No of RF Carriers	HDS2800: 1 HDS2802/2803: 2
RF Output Frequency	30 ~ 960 MHz in 1 kHz steps
RF Output Level	-26 ~ -10 dBm (81 ~ 97 dBμV) in 0.1 dB steps
FFT Mode	2K, 8K
Channel Bandwidth	6, 7, 8 MHz
Constellation	QPSK, 16QAM, 64QAM
Guard Interval	1/4, 1/8, 1/16, 1/32
FEC	1/2, 2/3, 3/4, 5/6, 7/8
MER	≥ 42 dB

#### Interfaces

RF Loop Input	1 x 75 Ω F-type
RF Output	1 x 75 Ω F-type
Remote Management (NMS)	RJ45 100 Mbps Ethernet, TCP/IP Web Interface
IPTV (Data)	RJ45 100 Mbps Ethernet, MPTS UDP Unicast/Multicast Streaming (RTP/RTPS option)
ASI In/Through/Out ( <i>optional</i> )	3 x 75 Ω BNC
Power	3 pole 16 A IEC Plug

#### General

Power Supply	110 ± 10% / 220 ± 10% VAC, 25 W
Operating Temperature	0 ~ 45 °C
Dimensions	HDS2800 Wall Frame: 270 (w) x 270 (h) x 45 (d) mm HDS2800/02 1RU Frame: 482 (w) x 44 (h) x 404 (d) mm HDS2803 1RU Frame: 482 (w) x 44 (h) x 440 (d) mm
Net Weight	HDS2800 Wall Frame: 1.9 kg HDS2800/02 1RU Frame: 3.5 kg HDS2803 1RU Frame: 4.7 kg



## Input Module Specifications

### Type 1 - Single HDMI Input Encoder (obsolete - use module G)

Interface	2 x HDMI (selectable input)
Video Resolution	1280x720-50p, 1280x720-60p, 1920x1080-50i, 1920x1080-60i, 1920x1080-50p, 1920x1080-60p
Video Encoding Standard	MPEG-4 H.264/AVC High Profile, Level 4.0
Video Bitrate	2 ~ 18 Mbps
Audio Encoding Standard	MPEG-1 Layer II
Audio Bitrate	64, 96, 128, 192, 256, 320 kbps
Audio Sample Rate	48 kHz

### Type 2 - Single HD/SD-SDI Input Encoder

Interface	1 x HD/SD-SDI, 75 Ω BNC
Video Resolution	720x576-50i, 720x480-60i, 1280x720-50p, 1280x720-60p, 1920x1080-50i, 1920x1080-60i, 1920x1080-50p, 1920x1080-60p
Video Encoding Standard	MPEG-4 H.264/AVC High Profile, Level 4.0 (HD) MPEG-4 H.264/AVC High Profile, Level 3.0 (SD)
Video Bitrate	2 ~ 18 Mbps
Audio Encoding Standard	MPEG-1 Layer II
Audio Bitrate	64, 96, 128, 192, 256, 320, 384 kbps
Audio Sample Rate	44.1, 48 kHz

### Type 3 - Single CVBS + Stereo Audio Input Encoder (obsolete - use module H)

Interface	Video: 1 x CVBS, 75 Ω BNC Audio: 1 x Unbalanced Stereo Analogue Audio (2 x BNC)
Video Resolution	720x576 50i (PAL), 720x480 60i (NTSC)
Video Encoding Standard	MPEG-2 (4:2:0)
Video Bitrate	1 ~ 8 Mbps
Video Aspect Ratio	4:3, 16:9
Audio Encoding Standard	MPEG-1 Layer II
Audio Bitrate	64, 96, 128, 192 kbps
Audio Sample Rate	48 kHz



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#### Type 4 - Dual CVBS + Stereo Audio Input Encoder (obsolete - use module H)

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Interface	Video: 2 x CVBS, 75 Ω BNC Audio: 2x Unbalanced Stereo Analogue Audio (4 x BNC)
Video Resolution	720x576-50i (PAL), 720x480-60i (NTSC)
Video Encoding Standard	MPEG-2 (4:2:0)
Video Bitrate	1 ~ 8 Mbps
Video Aspect Ratio	4:3, 16:9
Audio Encoding Standard	MPEG-1 Layer II
Audio Bitrate	64, 96, 128, 192 kbps
Audio Sample Rate	48 kHz

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#### Type 5 - Single HDMI Input Encoder (obsolete - use module G)

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Interface	2 x HDMI (selectable input)
Video Resolution	1280x720-50p, 1280x720-60p, 1920x1080-50i, 1920x1080-60i, 1920x1080-50p, 1920x1080-60p
Video Encoding Standard	MPEG-2 HD / MPEG-4 H.264/AVC High Profile, Level 4.0
Video Bitrate	2 ~ 18 Mbps
Audio Encoding Standard	MPEG-1 Layer II ( <i>MPEG-2 AAC or MPEG-4 AAC optional</i> )
Audio Bitrate	64, 96, 128, 192, 256, 320 kbps
Audio Sample Rate	48 kHz

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#### Type 6 - Single SD-SDI Input Encoder

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Interface	1 x SD-SDI, 75 Ω BNC
Video Resolution	720x576-50i, 720x480-60i
Video Encoding Standard	MPEG-2
Video Bitrate	2 ~ 18 Mbps
Audio Encoding Standard	MPEG-1 Layer II
Audio Bitrate	64, 96, 128, 192, 256, 320 kbps
Audio Sample Rate	44.1, 48 kHz

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#### Type 7 - Dual HDMI Input Long-frame Encoder

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Interface	2 x HDMI
Video Resolution	1280x720-50p, 1280x720-60p, 1920x1080-50i, 1920x1080-60i, 1920x1080-50p, 1920x1080-60p
Video Encoding Standard	MPEG-2 HD / MPEG-4 H.264/AVC High Profile, Level 4.0
Video Bitrate	2 ~ 18 Mbps
Audio Encoding Standard	MPEG-1 Layer II ( <i>MPEG-2 AAC or MPEG-4 AAC optional</i> )
Audio Bitrate	64, 96, 128, 192, 256, 320 kbps
Audio Sample Rate	48 kHz



### Type 8 - Dual HD/SD-SDI Input Long-frame Encoder

Interface	2 x HD/SD-SDI, 75 Ω BNC
Video Resolution	720x576-50i, 720x480-60i, 1280x720-50p, 1280x720-60p, 1920x1080-50i, 1920x1080-60i, 1920x1080-50p, 1920x1080-60p
Video Encoding Standard	MPEG-2 HD / MPEG-4 H.264/AVC High Profile, Level 4.0
Video Bitrate	2 ~ 18 Mbps
Audio Encoding Standard	MPEG-1 Layer II ( <i>MPEG-2 AAC or MPEG-4 AAC optional</i> )
Audio Bitrate	64, 96, 128, 192, 256, 320 kbps
Audio Sample Rate	48 kHz

### Type A - Dual YPbPr/CVBS + Stereo Audio Input Encoder Module (obsolete - use module H)

Interface	Video: 2 x YPbPr/CVBS Audio: 1 x Unbalanced Stereo Analogue Audio (2 x RCA)
Video Resolution	720x576-50i (PAL), 720x480-60i (NTSC)
Video Encoding Standard	MPEG-2 (4:2:0)
Video Bitrate	2 ~ 8 Mbps
Audio Encoding Standard	MPEG-1 Layer II
Audio Bitrate	64, 96, 128, 192, 256, 320 kbps
Audio Sample Rate	48 kHz

### Type D - Dual HDMI Input Encoder

Interface	2 x HDMI
Video Resolution	1280x720-50p, 1280x720-60p, 1920x1080-50i, 1920x1080-60i, 1920x1080-50p, 1920x1080-60p
Video Encoding Standard	MPEG-4 H.264/AVC High Profile, Level 4.0
Video Bitrate	2 ~ 18 Mbps
Audio Encoding Standard	MPEG-1 Layer II
Audio Bitrate	64, 96, 128, 192, 256, 320 kbps
Audio Sample Rate	48 kHz



### Type G - Single HDMI/VGA + Stereo Audio Input Encoder Module

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Interface	Video: 1 x HDMI, 1 x VGA (HD15) Audio: 1 x Unbalanced Stereo Analogue Audio (1 x 3.5mm TRS, 2 x RCA)
Video Resolution	HDMI: 720x576-50i, 720x480-60i, 1280x720-50p, 1280x720-60p, 1920x1080-50i, 1920x1080-60i, 1920x1080-50p, 1920x1080-60p VGA: 1280x720-60p, 1920x1080-60p
Video Encoding Standard	MPEG-2 HD / MPEG-4 H.264/AVC High Profile, Level 4.0
Video Bitrate	2 ~ 18 Mbps
Audio Encoding Standard	MPEG-1 Layer II ( <i>MPEG-2 AAC or MPEG-4 AAC optional</i> )
Audio Bitrate	64, 96, 128, 192, 256, 320 kbps
Audio Sample Rate	48 kHz

### Type G - Dual YPbPr/CVBS/S-Video Input Encoder Module

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Interface	Video: 2 x YPbPr/CVBS/S-Video
Video Resolution	720x576-50i (PAL), 720x480-60i (NTSC)
Video Encoding Standard	MPEG-2 (4:2:0)
Video Bitrate	2 ~ 8 Mbps
Audio Encoding Standard	MPEG-1 Layer II
Audio Bitrate	64, 96, 128, 192, 256, 320 kbps
Audio Sample Rate	48 kHz

