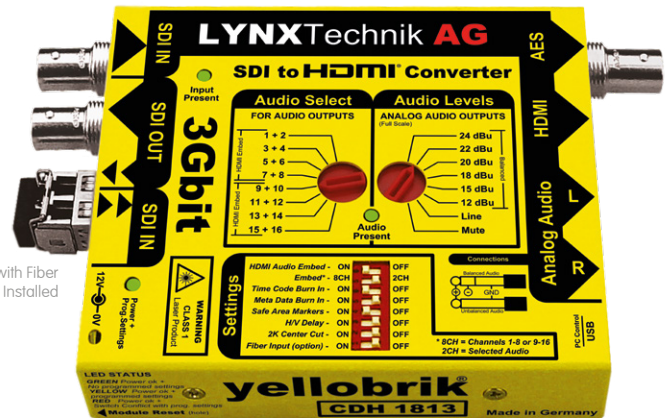# yellobrik®

CDH 1813
yelloGUI compatible

SDI to HDMI® Converter

- Support for SDI video inputs up to 3Gbit/s (1080P)
- Supports HDR and WCG indication at HDMI output
- Automated detection of input signal color range via VPID information
- 3G SDI Level A and Level B support
- Support for single link 3D formats
- Automatic input standard and format detection
- Fiber input and output options
- HDMI video output with embedded audio
- Analog and AES audio outputs
- Selectable timecode burn in and Metadata burn in
- 16 channel on screen audio meters
- H/V delay and safe area markers
- yelloGUI compatible: Gain access to additional features

Shown with Fiber
SFP Option Installed

The CDH 1813 is a versatile, compact SDI to HDMI converter designed to combat a host of monitoring and display applications in broadcast, post production and pro A/V markets. Convert any SDI video signal, including 3D formats into an HDMI signal for monitoring and display. Fiber connectivity options add SDI fiber transmission and/or SDI fiber reception using the integrated fiber SFP socket.

Two channels of audio can be de-embedded providing digital AES and analog audio outputs. Analog audio outputs have selectable full scale range presets. The two selected audio channels can also be embedded into the HDMI output. Alternatively 8 channels selected from the input signal (channels 1-8 or 9-16) can be embedded into the HDMI output. Various burn in features make the CDH 1813 a true monitoring tool. Individually selectable timecode burn in, 16 channel audio metering, safe area markers and Metadata display are just a few of the on-screen monitoring features. The yelloGUI software provides support for a host of additional settings and features which are accessed using a PC and the USB port on the module.

SDI Fiber Transmitter Options

Model	Description	Power
OH-TX-1-LC / ST / SC	SFP Fiber TX - Singlemode - LC, ST or SC conn. - 10km	-5dBm (1310nm)

SDI Fiber Receiver Options

Model	Description	Sensitivity
OH-RX-1-LC / ST / SC	SFP Fiber RX - Singlemode - LC, ST or SC connector	-16dBm

SDI Fiber Transceiver Options

Model	Description	Power	Sense
OH-TR-1	SFP Fiber RX/TX - Singlemode, LC Connector - 10km	-5dBm	-18dBm
OH-TR-0-850	SFP Fiber RX/TX - Multimode, LC Connector - 300m	-5dBm	-15dBm

SDI CWDM Fiber Transmitter Options

Model	Description	Power
OH-TX-4-XXXX	CWDM SFP Fiber TX - Singlemode LC Conn. - 40km XXXX=Wavelength. 18 according to ITU T G692.2 1270nm through 1610nm	-1dBm

SDI CWDM Fiber Transceiver Options

Model	Description	Power	Sense
OH-TR-4-XXXX	CWDM SFP Fiber RX/TX - Singlemode LC Conn. - 40km XXXX=Wavelength. 18 according to ITU T G692.2 1270nm through 1610nm	-1dBm	-20dBm

Technical Specifications

SDI Input	1 x SDI video on 75 Ohm BNC connector
	SMPTE 424M, SMPTE 292M, SMPTE 259M 3G Level A & B-DL & B-DS according to SMPTE ST 425-1 and ST 425-2 (3D) with image formats 1280 x 720 and 1920 x 1080 For a detailed list of supported formats please refer to the article in our knowledge base (www.lynx-technik.com > support > tech.support)
	Support for 'single link' 3D modes: "side by side", "top-bottom" and "dual stream (SMPTE ST-423-2)"
	Electrical Return Loss: >15dB from 5MHz to 1.5GHz, >10dB from 1.5GHz to 3GHz
	Automatic cable EQ (Belden 1694A cable) 340m @ 270Mbit/s, 150m @ 1.5Gbit/s, 120m @ 3Gbit/s
Fiber Input	1 x fiber optic SDI input. SMPTE 297M - 2006 (Optional- see fiber options table)
SDI Output	1 x reclocked SDI video output on 75 Ohm BNC connector
	Electrical Return Loss: >15dB from 5MHz to 1.5GHz, >10dB from 1.5GHz to 3GHz
Fiber Output	1 x reclocked fiber optic SDI output. SMPTE 297M - 2006 (Optional- see fiber options table)
HDMI Output	10 bit HDMI 1.4a support including 3D, deep color and embedded audio Type A connector. 3D modes supported: "side by side" + "top and bottom" + "frame packing"
	24bit (3 X 8bit) and 30bit (3 x 10bit) deep color (R,G,B / Y,Cr,Cb / X,Y,Z)
	2 or 8 channel audio embedding (selectable)
AES Output	AES3id on 75 Ohm BNC, 2 channels (selectable)
Audio Output	Left and right analog audio using 1/4 inch jack sockets (phono sockets)
	Balanced mode with 24, 22, 20, 18, 15, 12dBu full scale (selectable)
	Unbalanced mode with (line level) at -10 dBv
	1/4 inch Jack plug (phono) to RCA connection adapters supplied
USB	Standard USB port for yelloGUI interface and firmware updates (Mini Type "B" plug)
Power	+12VDC @ 3.7W nominal - (supports 10 - 14VDC input range)
Physical	Size: 138mm x 90mm x 22mm (5.13" x 3.54" x 0.86") including connectors Weight: 230g (8.11oz)
Ambient	5 - 40°C (41 - 104°F) 90% Humidity (non condensing)
Model #	CDH 1813 - (EAN# 4250479359833)
Includes	Module, AC power supply, RCA adapters, HDMI + mini USB cable

Specifications subject to change

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www.lynx-technik.com

Monitoring Features

The CHD 1813 is ideal for regular transparent image monitoring, providing a clean 1:1 HDMI conversion of the SDI input signal. There are also a number of other HDMI monitoring options available. These monitoring modes are activated using the module dip switch and can be used individually or as combined monitoring modes.

Clean Feed
- Direct conversion of input SDI Stream
- The CHD 1813 does not scale the image, therefore the HDMI output format is the same as the native SDI input resolution and frame rate.

Burn in Windows
- Select and display up to three timecode values (VITC, LTC, DVITC)
- SDI input format, bit depth and color scheme
- AFD present and format code
- 16 audio level meters
- Closed Caption, WSS and VI metadata presence

Safe Area Markers
- SMPTE Safe Action (default)
  (default can be changed using yelloGUI)
- Center cross marker
- Fully programmable with yelloGUI

H / V Delay
- View horizontal and vertical blanking

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CDH 1813
yelloGUI compatible

yelloGUI™

The CHD 1813 features full yelloGUI support that provides access to additional features and settings not possible from the module's local controls.

Additional features are accessed using our free **yelloGUI** application. Additional settings include:

Parameter	Settings
	= Default Settings
Safe Area Markers	OFF
	SMPTE Safe Action (90/90)
	SMPTE Safe Title (80/80)
	EBU Action (3.5/3.5)
	EBU Graphics (5/10)
Aspect Ratio Markers	OFF
	4:3
	16:9
Curtain Transparency	100%
	Adjustable 30%-90%
Center Cross	ON
	OFF
Marker Color	White
	Red, Green, Blue, Yellow, Cyan, Magenta, Black
Safe Area from Aspect	ON
	OFF

The on screen markers can be custom configured to suit any application. This includes various "standard" safe area markers, aspect ratio markers with adjustable curtain transparency. The color of the markers may also be changed.

Parameter	Settings	Parameter	Settings	Parameter	Settings
SDI input RGB Range	SMPTE Limited	HDMI Color Range	SMPTE Limited	Audio Channels	1:1
	Full Range		Full Range		Convert*
HDMI Input Bit Depth	AUTO	HDMI Color Space	AUTO	*DEFAULT: Audio channels 1 through 8 are mapped 1:1 from SDI to HDMI. When set to "Convert" channels 3 and 4 are swapped resulting in channel allocations per SMPTE 320M (3=center /4=LFE) and CEA-861 (3=LFE / 4=FrontCenter)	
	8 bit		RGB		
	10 bit		Y,Cr,Cb 4:2:2		
	12 bit		Y,Cr,Cb 4:4:4		

Parameter	Settings	Parameter	Settings	Parameter	Settings
3D HDMI Output Format	AUTO	3D SDI Input Format	AUTO	Swap SDI Streams	Regular
	Frame Packing (FP)		Side by Side (SS)		Inverted
	Side by Side (SS)		Top and Bottom (TB)	When a 3G LevelB input signal is processed as 3D content then the default setting is: Left Eye from Stream A, and Right Eye from Stream B. This can be inverted with this switch. For 2D content, default is stream A, and stream B is selected with this switch.	
	Top and Bottom (TB)		Dual Stream (3G/LevelB)		
			2D (no 3D)		
3D Flip Left Eye	NO FLIP	3D Flip Right Eye	NO FLIP	Horizontal Flip	NO FLIP
	Horizontal		Horizontal		FLIP
	Vertical		Vertical	This mode flips the input siganal horizontally to show a mirror image on the HDMI output. Useful for Virtual Set (Green Screen) on set monitoring.	
	Both		Both		

HDMI configuration settings are set automatically by the internal EDID communication between the two connected devices. These settings can be changed manually for specific applications.

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Fiber Application Using CDH 1813 SDI to HDMI Converter

Sample application using two CDH 1813 modules for SDI fiber optic transmission up to 10km (6.2 miles) @3Gbit/s with integrated HDMI signal confidence monitoring at each end.

Source SDI Signal
(with up to 16 channels of audio)

This application demonstrates how the CDH 1813 with the fiber option can be used to provide a system solution for robust fiber transmission with integrated HDMI confidence monitoring at each end. (Using prosumer or consumer display equipment)

CDH 1813
and OH-TX-1 Transmitter SFP

SDI in
SDI out
Re-clocked Loop Output
Fiber out

LYNXTechnik AG
SDI to HDMI Converter
3Gbit

HDMI

Amplifier

Audio

Fiber connection up to 10km (6.2 miles) @ 3Gbit/s

Received SDI Signal
(with up to 16 channels of audio)

- HDMI Display of video signal
- Burn in timecode
- Overlay of key metadata parameters

The diagram shows external analog audio monitoring. The two channels being monitored can be user selected from the 16 input channels. Alternatively, if the HDMI display has audio capability then the internal speakers can be used with the embedded HDMI audio.

CDH 1813
and OH-RX-1 Receiver SFP

SDI out
Fiber in

LYNXTechnik AG
SDI to HDMI Converter
3Gbit

HDMI

Amplifier

Audio

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