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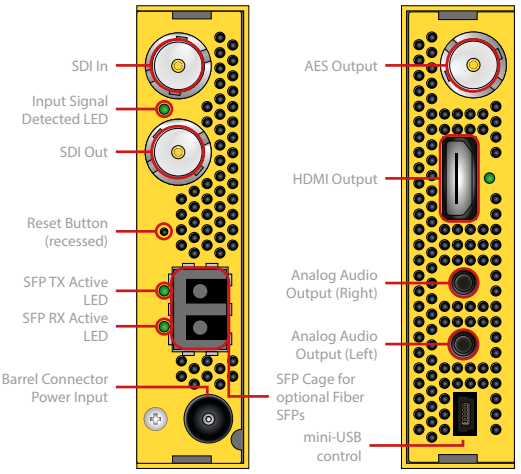
CDH 1411

12G-SDI to HDMI Converter

LYNX | Centraal™ ✓ yelloGUI ✓



Shown with Fiber SFP Option Installed



Features

- Supports video inputs from 1.5G-SDI up to 12G-SDI
- 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
- Automatic input standard and format detection
- 1x Optional SFP Fiber input and output
- HDMI video output with embedded audio
- Analog and AES audio outputs
- Selectable timecode burn-in and Metadata burn-in
- CEA 708 Closed caption burn-in
- 16 channel on screen audio level meter
- H/V delay & H flip and safe area markers
- yelloGUI compatible: Gain access to additional features

Description

The CDH 1411 is a versatile, compact 12G-SDI to HDMI converter designed to assist a host of monitoring and display applications in broadcast, post production and pro AV markets. Convert any SDI video signal to HDMI 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 (8 audio groups in 64 channels) can be embedded into the HDMI output. Various burn in features make the CDH 1411 a true monitoring tool. Individually selectable timecode burn-in, Closed Caption 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.

Technical Specifications

Supported Formats	4K	4096x2160p	23.98, 24, 25, 29.97, 30, 47.95, 48, 50, 59.94, 60	
	UHD	3840x2160p	23.98, 24, 25, 29.97, 30, 50, 59.94, 60	
	2K	1920x1080p	23.98, 24, 25, 29.97, 30, 47.95, 48, 50, 59.94, 60	
	HD	1920x1080p	23.98, 24, 25, 29.97, 30, 50, 59.94, 60	
	HD	1920x1080PsF	23.98, 24, 25, 29.97, 30	
	HD	1920x1080i	50, 59.94, 60	
	HD	1280x720p	23.98, 24, 25, 29.97, 30, 50, 59.94, 60	
Supported Standards	SMPTE 292M, SMPTE 424M, SMPTE 2081-1, SMPTE 2082-1			
Color Precision	YCbCr	4:2:0	8, 10-bit	(HDMI only)
	YCbCr	4:2:2	10-bit	
	YCbCr/RGB	4:4:4	10, 12-bit	(SDI)
	YCbCr/RGB	4:4:4	8-bit	(HDMI)
SDI I/O	1x 12G-SDI input on 75 Ohm BNC connectors 1x 12G-SDI output on 75 Ohm BNC connectors			
	3G-SDI Level A & B-DL & B-DS according to SMPTE ST 425-1			
	Multirate reclocking: 1.5Gbit/s - 3Gbit/s - 6Gbit/s - 12Gbit/s			
	Automatic Cable EQ**	1.5Gbit/s	3Gbit/s	12Gbit/s
		190m	150m	85m
		Belden 1694A		Belden 4794R
Fiber I/O	1x fiber input, 1x fiber output Duplex (singlemode) using LC/PC connection			
	SMPTE 297M - 2006			
HDMI Output	HDMI 2.0b Type A connector			
	2 or 8 channel audio embedding (selectable)			
AES Output	AES3-id on 75 Ohm BNC, 2 channels (selectable)			
Audio Output	Left and right analog audio using 3.5mm jack sockets			
	Balanced mode with 24, 22, 20, 18, 15, 12dBu, Line Level Pro (4dBu) and Line User			
	Unbalanced mode with Line Level Cons (-10 dBV)			
Power	+12V DC @ 9.15W nominal (incl. SFP) (supports 10 - 24V DC input range)			
Physical	Size (incl. connectors)	140m x 90mm x 22mm (5.51" x 3.54" x 0.86")		
	Weight:	230g (8.11oz)		
Ambient	5 - 40ºC (41 - 104ºF) 90% Humidity (non condensing)			
Model #	CDH 1411	4250479327436		
Includes	Module, AC power supply, HDMI + USB cable			

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Monitoring Features

The CDH 1411 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
- HDMI output is the same as the SDI input resolution and frame rate (CDH 1411 does not scale)
- Colorspace, Colometry, Color Range, and Bit-Depth for HDMI output can be set via yelloGUI
- Manual EOTF settings available.



Burn in Windows

- Select and display two timecode values (VITC, LTC)
- SDI input format with frame rate
- Up to 16 audio level meters
- VITC, LTC, Closed Caption and AFD metadata presence indicator
- Display Closed Captions



Safe Area Markers

- Multiple different Safe Area markers available (default: SMPTE Safe Action 90/90)
- Center cross marker
- Aspect Ratio Marker and safe from Aspect Ratio Marker
- Curtain Transparency Settings (30-100%)
- Eight Marker Colors
- Settings available via yelloGUI



H/V Delay & H Flip

- View horizontal and vertical blanking
- Flip on horizontal axis



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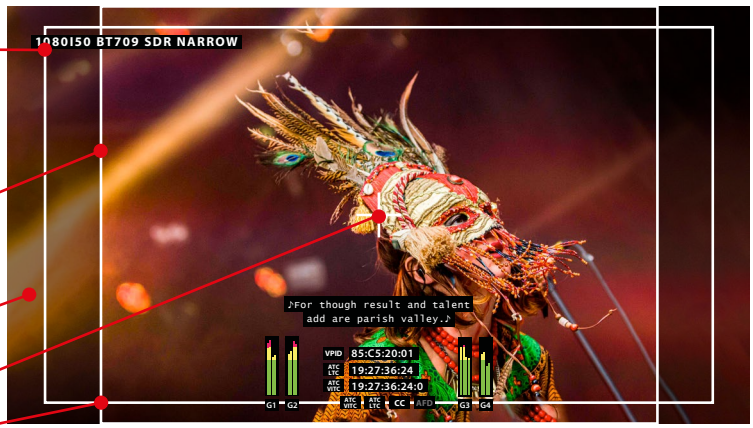
Control Software

The CHD 1411 is fully supported by yelloGUI and LynxCentraal, enabling access to advanced features and configuration options that are not available through the module's local controls.

Parameter Options and Default Settings

= Default Settings

Safe Area Parameter	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	OFF
	ON
Marker Color	White
	Red, Green, Blue, Yellow, Cyan, Magenta, Black
Safe Area from Aspect	OFF
	ON



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.

Video Parameter	Settings
SDI Color Range	AUTO
	SMPTE Limited
	Full Range
HDMI Color Range	Default
	SMPTE Limited
	Full Range
HDMI Colorimetry	Auto
	BT.709
	BT.2020
HDMI Colorspace	Auto
	RGB
	YCbCr 4:2:2
	YCbCr 4:4:4

Video Parameter	Settings
HDMI Bit Depth	Auto
	8 bit
	10 bit
	12 bit
HDMI EOTF	Auto
	gamma SDR
	gamma HDR
	ST.2084 PQ
	HLG
Flip Output Signal	No Flip
	H (Horizontal)

Audio Parameter	Settings
3G Level B Audio Source	Stream A
	Stream B
Audio Channels	1:1
	Convert*

*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)

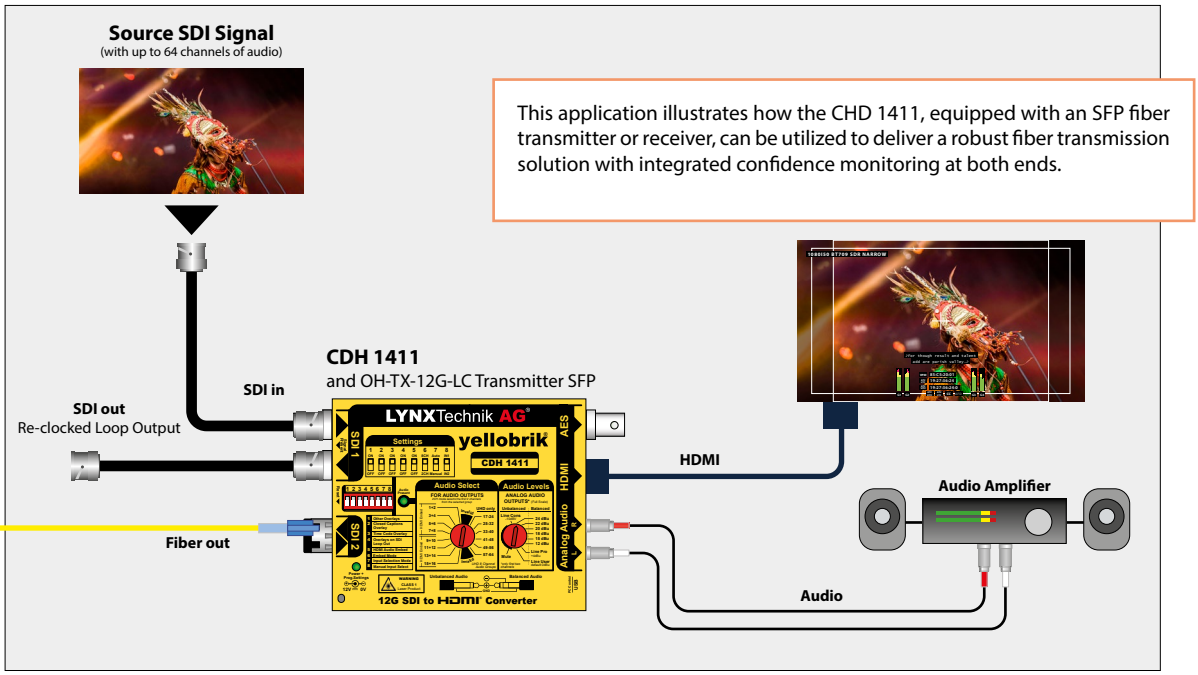
HDMI configuration settings are set automatically by the internal EDID communication between the two connected devices. These settings can be changed manually for specific applications.

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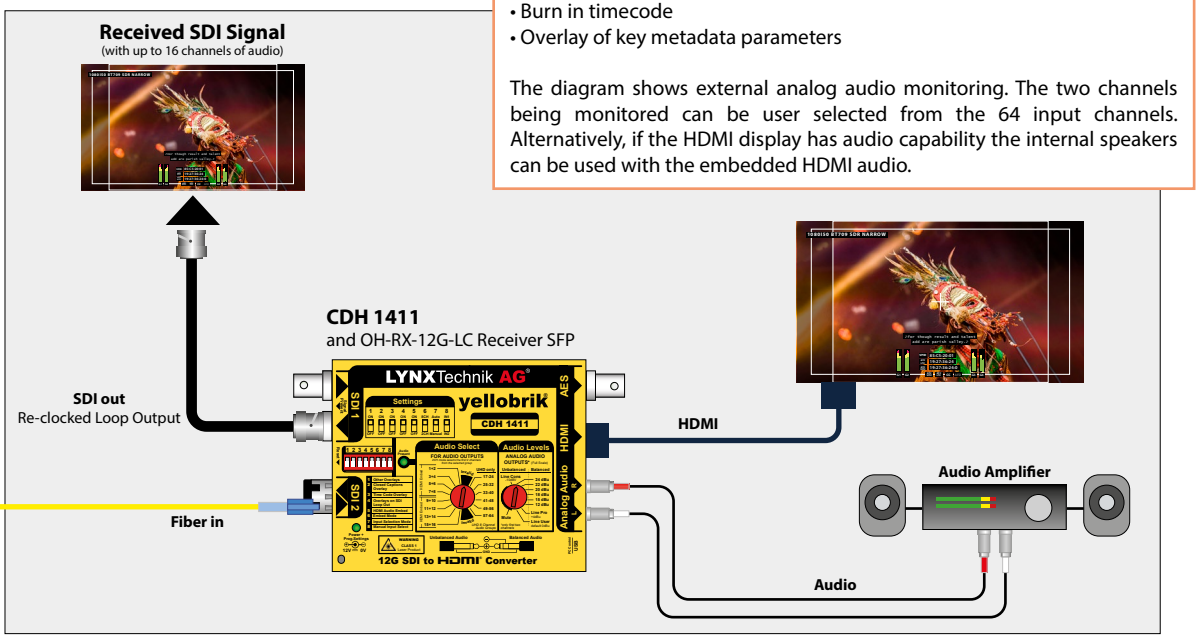
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Fiber Application Using CDH 1411 SDI to HDMI Converter

Sample application using two CDH 1411 modules for SDI fiber optic transmission up to 10km (6.2 miles) @12Gbit/s with integrated HDMI signal confidence monitoring at each end.



Fiber connection up to 10 km (6.2 miles) @ 12Gbit/s



Optional Accessories

Rack Frames

This yellobrik can be placed in a rack frame along others to build increasingly complex systems, all monitored and controlled with a rack controller (RCT 1012) and server module (SRV 1000) via a PC or MAC using LynxCentraal.

The RFR 1200 offers additional power redundancy with GPI alert. It automatically closes a connection between the A and B terminals on power failure.

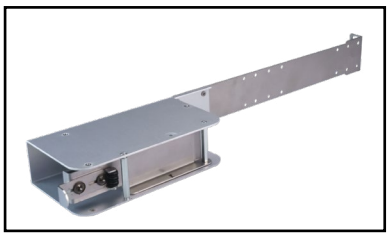
The RPS A100 is a 100W power supply, which can be mounted at the rear end of the RFR 1200 with an RXT 1001 power supply holder for rack frames.



RFR 1200: yellobrik Rack Frame



RPS A100: 100W Power supply



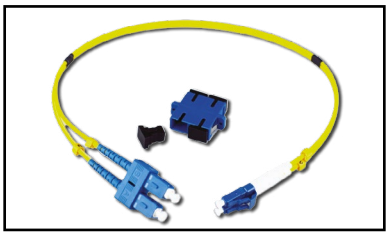
RXT 1001: Power Supply Holder

Fiber Adapter Cables

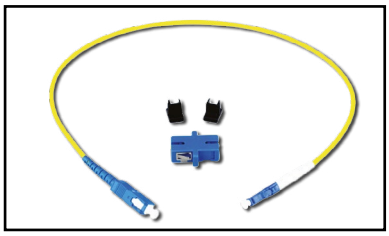
While some of our products offer LC, ST and SC fiber connectors, most SFPs in our product range offer LC fiber connectors.

To still allow the necessary flexibility in a professional setting we offer patch cables to convert LC to ST or SC fiber connections. These patch cables' insertion less and return loss are manually checked for each individual cable to allow for maximum precision when calculating the optical budget

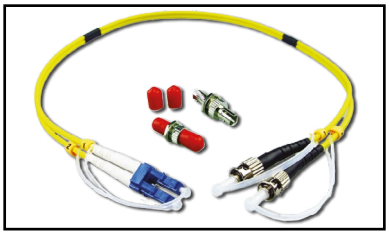
Besides the selection here we offer LC/FC and LC/LC patch cables.



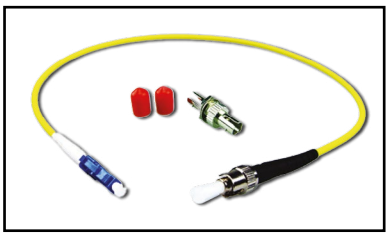
LC/SC Dup: LC/SC Duplex adapter cable



LC/SC Sim: LC/SC Simplex adapter cable



LC/ST Dup: LC/ST Duplex adapter cable



LC/ST Sim: LC/ST Simplex adapter cable

Fiber I/O Options:

A wide range of SFP modules are available for this yellobrik. The selection listed here shows the most likely SFP modules for most typical setups.

More SFP modules are available. To find the perfect solution for your setup visit lynx-technik.com for more information or contact us.

Model	Description	Power	
SDI Fiber Transmitter Options			
OH-TX-12G-LC/ST	12G SFP Fiber TX - Singlemode - LC or ST conn. - 10km	-5.. +0.5dBm	
SDI CWDM Fiber Transmitter Options			
OH-TX-12G-XXXX-LC XXXX=Wavelength	CWDM SFP Fiber TX - Singlemode LC Conn. - 10km* 18 wavelengths acc. ITU T G692.2 [1270nm - 1610nm]	-2.. +3dBm	
Model	Description	Sensitivity	
SDI Fiber Receiver Options			
OH-RX-12G-LC/ST	12G SFP Fiber RX - Singlemode - LC or ST connector	-16...-10dBm	
Model	Description	Power	Sense
SDI Fiber Transceiver Options			
OH-TR-12G-LC	SFP Fiber RX/TX - Singlemode, LC Connector - 10km	-5...+0.5 dBm	-10dBm
SDI CWDM Fiber Transceiver Options			
OH-TR-12G-XXXX-LC XXXX=Wavelength	CWDM SFP Fiber RX/TX - Singlemode LC Conn. - 10km* 18 wavelengths acc. ITU T G692.2 [1270nm - 1610nm]	-2.. +3dBm	-14 ... -10dBm