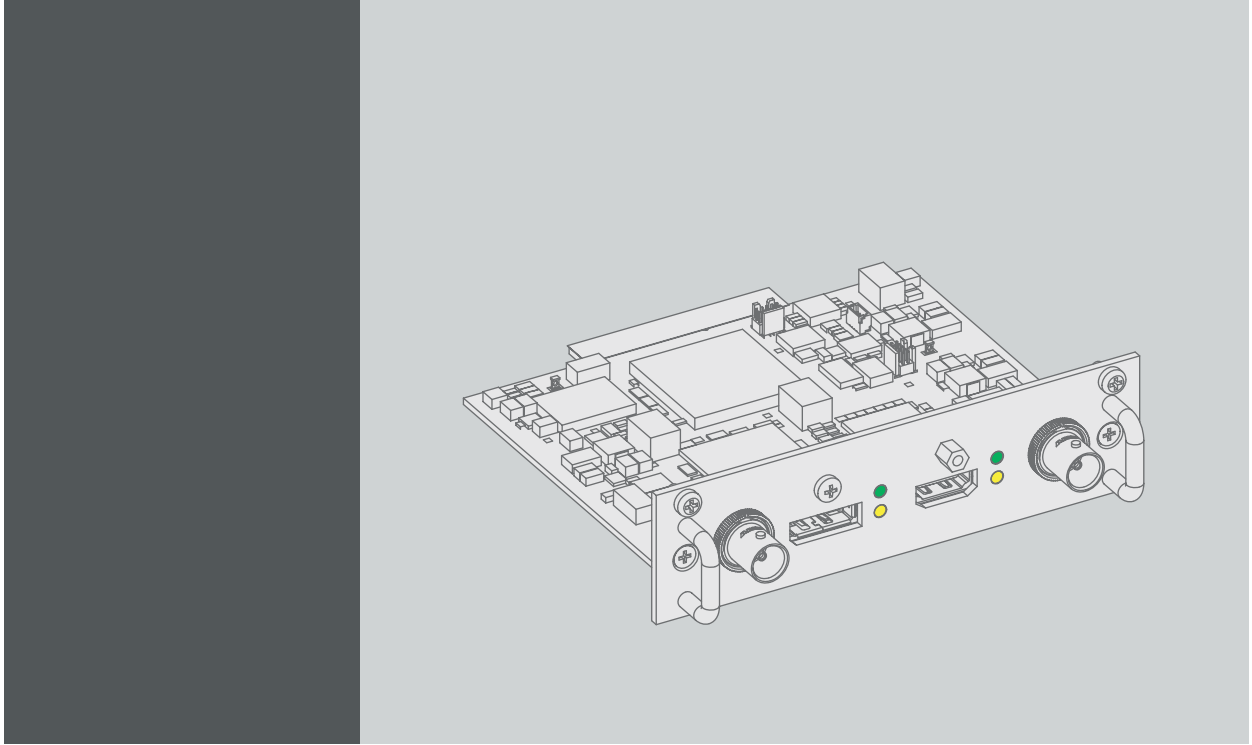


HDx 3D Input Module



Installation manual

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1. HDX 3D INPUT MODULE

About the HDx 3D Input Module

The HDx 3D Input Module is exclusively designed for Barco projectors based on the **HDX** platform, such as the HDX W12, HDX W14, ... , HDF W22, etc.



Image 1-1
HDx 3D Input Module

Overview

- Functionality HDx 3D Input Module
- Physical installation

1.1 Functionality HDx 3D Input Module

Front panel

- **3D SYNC IN**
BNC socket to apply an external 3D synchronization signal. Used for sequential modes. If signal is not present an internal 3D sync is generated.
- **DISPLAYPORT**
DisplayPort connector to connect a video source.
- **DisplayPort selection LED + sync LED**
SEL: lights up if the DisplayPort is selected.
SYNC: lights up if the applied source has a valid DisplayPort sync.
- **HDMI**
Connector for HDMI™ cable (with optional locking mechanism).
- **HDMI selection LED + sync LED**
SEL: lights up if the HDMI input port is selected.
SYNC: lights up if the applied source has a valid HDMI sync.
- **3D SYNC OUT**
BNC socket. Generates 3D synchronization signal to drive an infra red transmitter for active 3D glasses. In case an 3D synchronization signal is applied on the “3D SYNC IN” for a single channel 3D stream then the generated 3D output sync is derived from this applied sync.

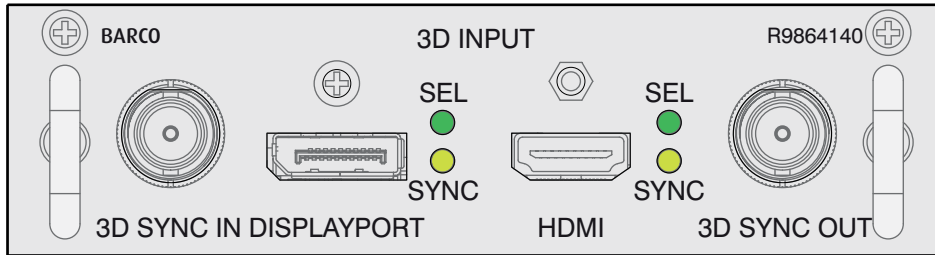


Image 1-2

Input Specifications

- **HDMI™** (High-Definition Multimedia Interface)
HDMI: Supports 3D and Deep Color up to 12 bit per color (36-bit mode).
- **DisplayPort**
DisplayPort 1.1a up to 210 MHz pixel clock. Support for 'Deep Color' up to 12 bit per color.



In all cases, the minimum input frequency for 3D is 23 Hz per eye. Below this frequency the image will not be displayed correctly.



The 3D SYNC IN/OUT only works if the module is inserted in slot 3 or 4 of the Input Communication Unit. (See installation procedure).



With 3D activated, warping can be enabled for sources up to 30Hz per eye. Above this frequency, warping is disabled.

1.2 Physical installation

Requirements

- The projector software must be version V1.4.x or higher.
- The Projector Toolset must have version V2.6 to support the HDx 3D Input Module.
- Use latest version of the User Guides for the Projector and the Projector Toolset.



Projector software (update package), Projector Toolset, and User Guides can be downloaded from the Barco secured website <https://my.barco.com>.

What needs to be done?

First the version of the installed projector software has to be checked. Then the HDx 3D Input Module has to be installed in one of the free slots of the Input & Communication Unit of the projector. For that the dummy cover of the free input slot has to be removed.

Necessary tools

- PH2 Phillips screwdriver.
- Projector Toolset version V2.6

Installing the HDx 3D Input Module

1. Check the version of the installed projector software. Projector software must be version V1.4.x or higher.

Download latest projector software from <https://my.barco.com> and upgrade if necessary. See User Guide of the projector or Projector Toolset.

2. Switch off the projector.
3. Remove the dummy cover from one of the two free input slots (slot 3 or slot4, reference 1) at the bottom of the Input & Communication Unit. Use a PH2 Phillips screwdriver to loosen the two retaining screws (reference 2) of the dummy cover.

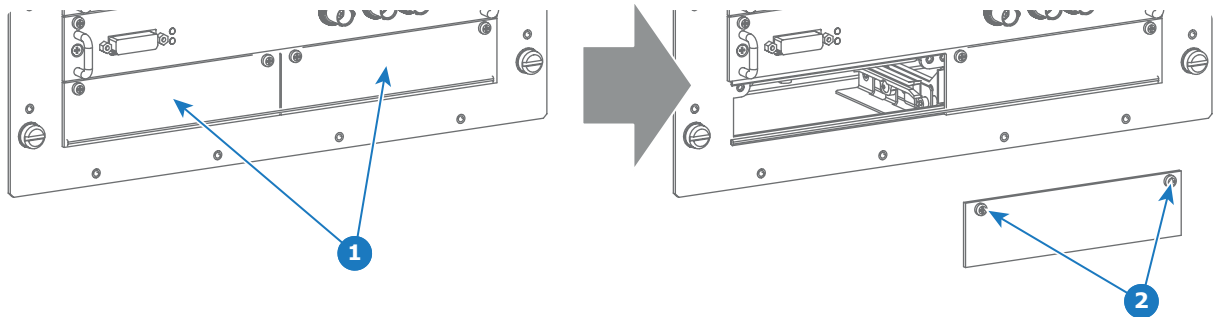


Image 1-3

4. Insert the HDx 3D Input Module into the free input slot. Make sure the module seats in its sliders. Push in the module until the contacts are fully inserted into the connectors.

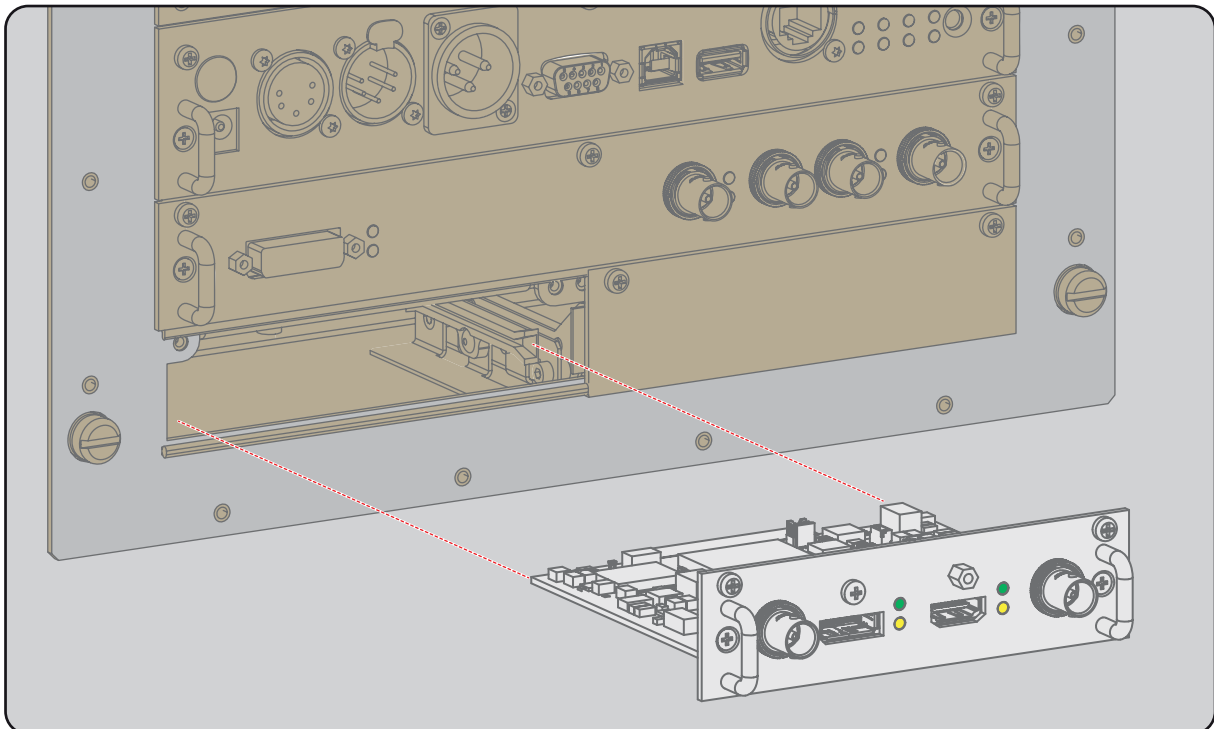


Image 1-4

5. Fasten the two retaining screws (reference 3) of the HDx 3D Input Module. Use a PH2 Phillips screwdriver.

1. HDx 3D Input Module

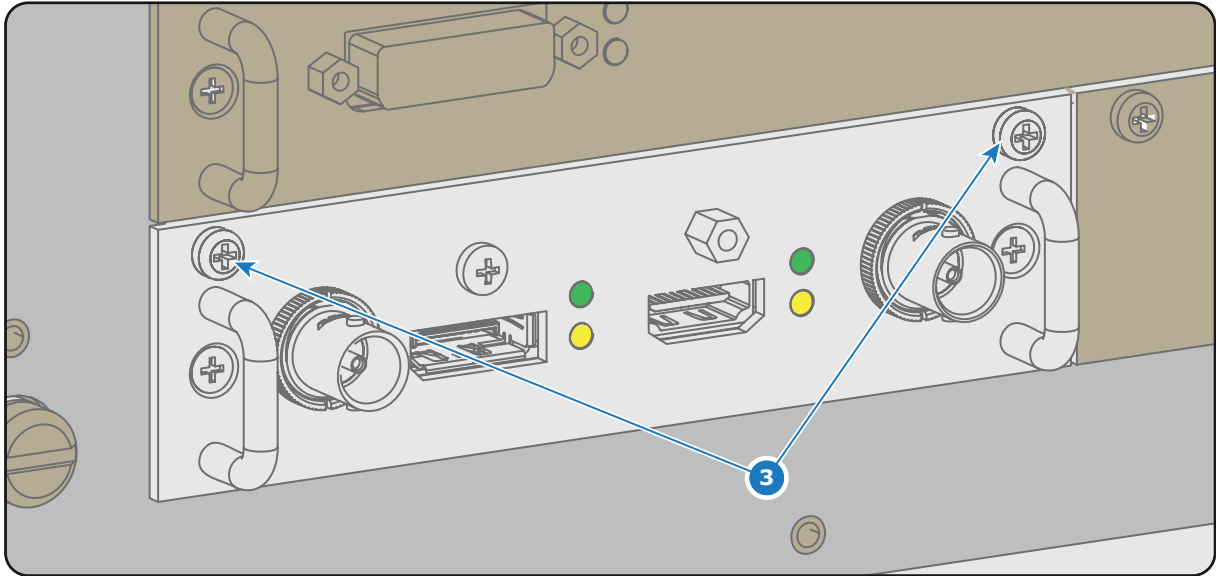


Image 1-5

6. Connect a 3D input source with the HDx 3D Input Module.
7. Power up the projector.
8. Verify with the Projector Toolset (version V2.6) if the projector recognizes the HDx 3D Input Module and that the HDx 3D Input Module has the latest firmware installed.

The projector is now ready to apply a 3D source to the HDx 3D Input Module.

2. 3D MODES



3D functionality can be set up and activated for each input independently.

2.1 Single 3D channel

Single 3D channel - Full resolution - sequential mode

Content is displayed by one 3D source. The frames for the left eye and right eye are displayed alternately (sequential mode). Optional an external 3D sync can be used. The external 3D sync has to be applied to the “3D SYNC INPUT” port (BNC socket at the left) of the HDx 3D Input Module. If the external 3D sync is not available an internal 3D sync is generated by the projector. With the setting “**Field dominance**” the 3D SYNC INPUT signal can be inverted to match the left and right eye fields.

MENU > Input > 3D > L/R Synchronisation > Field dominance [L/R] or [R/L]

Example: A DisplayPort source with a frequency of 120Hz consisting of content for the left and right eye results in a 60 Hz video per eye.

To activate the single channel 3D mode select:

MENU > Input > 3D > Frame Sequential - Single Channel

Possible sources: DisplayPort, HDMI, dual-link DVI, 5-cable analog (up to 210 MHz), DVI analog (up to 170 MHz), SDI (up to 150 MHz).



With the “**Invert 3D sync out**” setting the content can be switched between the left and right eye of the user.

The “**Field dominance**” setting has only effect in the 3D mode: **Frame sequential** → **Single channel** (in all other modes this setting is grayed out). Furthermore, the input frequency must be equal or lower than 100 Hz (50 Hz per eye). In case the input frequency is higher than 100 Hz (50 Hz per eye, 59.94 & 60 Hz in practice), the “**Field dominance**” setting will have no effect.

Single 3D channel - Full resolution - other formats

Contains Frame packing and Line Alternating (3G-B).

To activate the single channel 3D mode select:

MENU > Input > 3D > Frame packing (FHD3D)

or

MENU > Input > 3D > Line Alternating (3G-B) (only for SDI input)

Single 3D channel - Half resolution

3D content is distributed by one 3D source by means of “Side By Side”, “Top Bottom” or “SENSIO® Hi-Fi 3D”..

To activate this single channel 3D mode select one of the three options:

MENU > Input > 3D > Side-By-Side (Half)

MENU > Input > 3D > Top-and-Bottom (Half)

MENU > Input > 3D > SENSIO® 3D Decoder - FFC (only on 3D input)

2. 3D Modes

Example: A 3D HDMI source with a Side by Side video of 60 Hz results in a 60 Hz video per eye.

In this mode the HDx 3D Input Module also generates the 3D SYNC OUT.

Possible sources: DisplayPort, HDMI, DVI , SDI.



Download the latest version of the projector manual for more detailed information about projecting 3D content such as dark time, L/R output reference delay, field dominance, invert 3D sync etc.

2.2 Dual 3D channel

Two parallel 3D content streams

3D content is applied to the projector via two input ports. One port is used for content of the left eye, the other port for the right eye.

MENU > Input > 3D > Input Type

Example: Two parallel DVI streams of 60 Hz: DVI cable 1 is connected with the DVI port of the projector. DVI cable 2 is connected via a HDMI converter cable with the HDMI port of the HDx 3D Input Module. To switch the HDMI/DP input to HDMI, select

MENU > Input > Advanced Settings > HDMI/DP > HDMI

For the second source the correct type has to be selected as follows with the first source already selected:

MENU > Input > 3D > Second Input > "select corresponding slot number"

The HDx 3D Input Module is activated for Dual 3D channel:

MENU > Input > 3D > Frame Sequential - Dual channel

Possible sources: 2 x DVI , 2 x SDI. If two HDx 3D Input Modules are installed: 2 x HDMI or 2 x DisplayPort.



Download the latest version of the projector manual for more detailed information about projecting 3D content.

2.3 SENSIO® Hi-Fi 3D

Overview

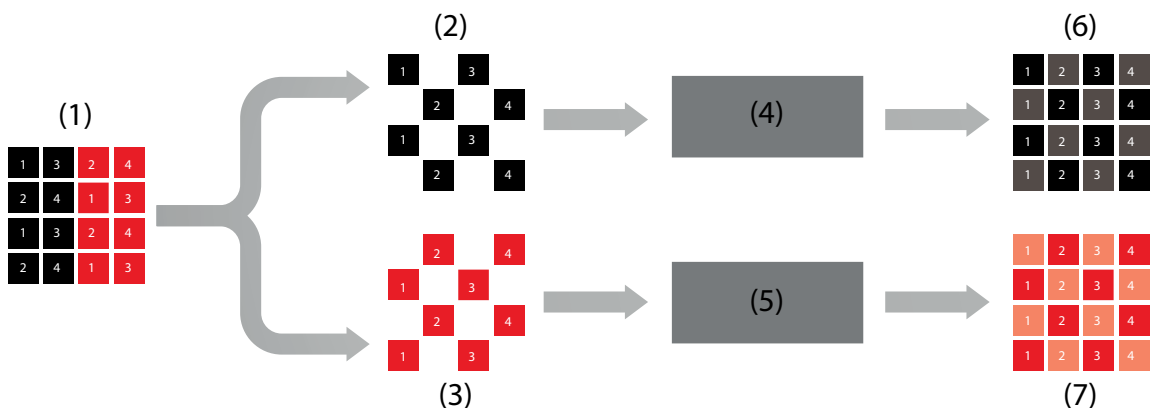


Image 2-1
SENSIO® HI-FI 3D decoding

- 1 SENSIO® Hi-Fi 3D stream
- 2 Left expansion
- 3 Right expansion
- 4 SENSIO® Hi-Fi 3D interpolation
- 5 SENSIO® Hi-Fi 3D interpolation
- 6 Right stream
- 7 Left stream

SENSIO® 3D Decoder - FFC is using both the SENSIO® 3D Decoder as well as the SENSIO® Autodetect functionality. This mode enables an automatic detection of 2D, Top-and-Bottom, Side-by-Side and the SENSIO® Hi-Fi 3D format, with a clean transition and fast detection time between these formats. Only progressive formats are supported. Interlaced formats will be displayed in 2D (one eye only). The SENSIO® Autodetect feature requires a minimum of 1120x540 active pixels per field/frame to operate.

The acronym FFC stands for 'Full Frame Compatible', in other words, the decoder handles all full frame based 3D formats.

2.4 Other settings to use the 3D glasses

Overview

Adjust the following settings:

- Darktime
- L/R output reference delay
- 3D Sync Loop Through

For more information about these settings, see the projector manual.

A. SUPPORTED FORMATS

A.1 HDx 3D Input Module Supported Formats

Supported formats

	DVI/HDMI/DP	5-cable analog	DVI analog	SDI
	Fpix ≤ 210 MHz	Fpix ≤ 210 MHz	Fpix ≤ 170 MHz	Fpix ≤ 150 MHz
Frame sequential Single channel	Max. resolution: 1920x1200@60Hz or 2048x1080@60Hz. 1400x1050@120Hz or 1600x900@120Hz.	Max. resolution: 1920x1200@60Hz or 2048x1080@60Hz. 1400x1050@120Hz or 1600x900@120Hz.	Max. resolution: 1920x1200@60Hz or 2048x1080@60Hz. 1280x720@120Hz or 1280x800@120Hz.	Max. resolution: 1920x1200@60Hz, 2048x1080@60Hz or 1280x720@120Hz.
	Interlaced/progressive	Interlaced/progressive	Interlaced/progressive	Interlaced/progressive
Frame Packing (FHD3D)	HD formats only. Max. resolution: 1920x1080@30Hz or 1280x720@60Hz.	HD formats only. Max. resolution: 1920x1080@30Hz or 1280x720@60Hz.	HD formats only. Max. resolution: 1920x1080@30Hz or 1280x720@60Hz.	HD formats only. Max. resolution: 1920x1080@30Hz or 1280x720@60Hz.
	Progressive only	Progressive only	Progressive only	Progressive only
Side-by-Side	Max. resolution: 1920x1200@60Hz or 2048x1080@60Hz.	Max. resolution: 1920x1200@60Hz or 2048x1080@60Hz.	Max. resolution: 1920x1200@60Hz or 2048x1080@60Hz.	Max. resolution: 1920x1200@60Hz or 2048x1080@60Hz.
	Interlaced/progressive	Interlaced/progressive	Interlaced/progressive	Interlaced/progressive
Top-and-Bottom	Max. resolution: 1920x1200@60Hz or 2048x1080@60Hz.	Max. resolution: 1920x1200@60Hz or 2048x1080@60Hz.	Max. resolution: 1920x1200@60Hz or 2048x1080@60Hz.	Max. resolution: 1920x1200@60Hz or 2048x1080@60Hz.
	Progressive only	Progressive only	Progressive only	Progressive only

	2xDVI/2xHDMI/2xDP ¹	2xSDI ²
Frame Sequential	Fpix ≤ 210MHz.	Fpix ≤ 150MHz.
Dual Channel	Max. resolution: 1920x1200@60Hz or 2048x1080@60Hz.	Max. resolution: 1920x1200@30Hz, 2048x1080@30Hz or 1280x720@60Hz.
	Progressive only	Progressive only

1. 2x HDMI and 2x DP requires 2 3D input modules. 2xDVI can be done with a DVI input and a 3D input with DVI to HDMI convertor
 2. For 2xSDI, IN1 and IN2 of the SDI input can be used. The input settings under MENU -> Input -> Advanced Settings -> SDI/HDSDI/3G must be set to 'DUAL SDI'

A. Supported Formats

	SDI (3G - Level B)³
Line Alternating (3G-B)	Fpix ≤ 150MHz.
	Max. resolution 1920x1200@30Hz, 2048x1080@30Hz or 1280x720@60Hz.
	HDMI/DP
SENSIO® 3D Decoder - FFC	Fpix ≤ 162MHz & Vfreq ≤ 60Hz.
	Max. resolution: 1920x1200@60Hz or 2048x1080@60Hz.
	Progressive only

3. For SDI (3G- Level B), IN1 or IN2 of the SDI input can be used. The input settings under MENU -> Input -> Advanced Settings -> SDI/HDSDI/3G must be set to 'Input 1' or 'Input 2', with or without Priority