Scheimpflug adjustment points

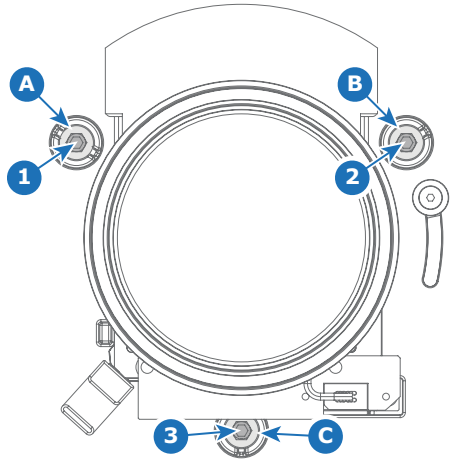


Image 5-18
Scheimpflug adjustments

Indication on drawing	Function
1, 2 and 3	Scheimpflug adjustment screws
A, B and C	Lock screws

1, 2 and 3 are adjustment points.

Necessary tools

- Allen wrench 5 mm
- Allen wrench 8 mm

Preparation steps:

1. Project a green focus test pattern in 4k.

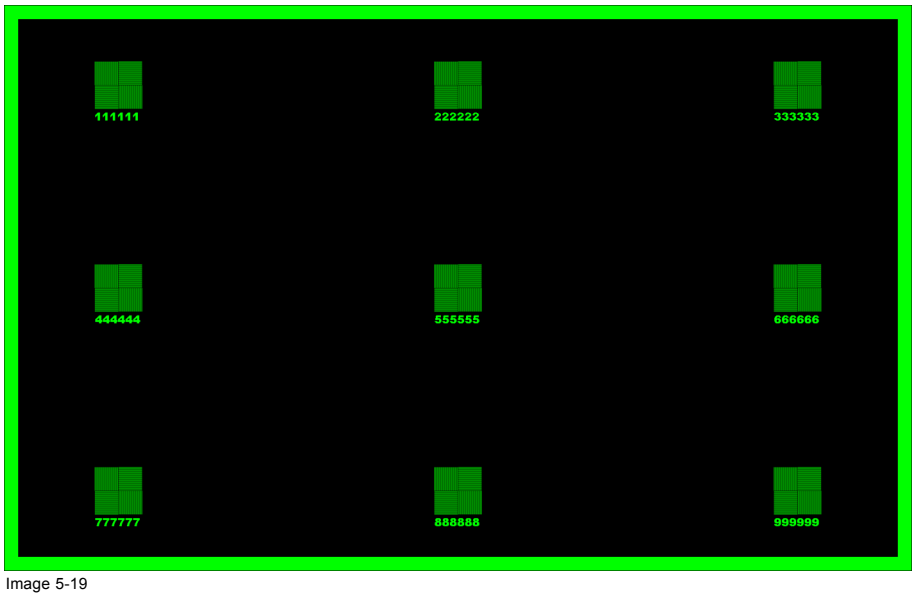


Image 5-19

2. Unlock and turn out the lock screws (reference A, B and C, image 5-20) of the Lens Holder . Use a 8 mm Allen wrench for the lock screws.
3. Optimize the focus of the projected image in the center of the screen (F) using the motorized focus control (Local Keypad).

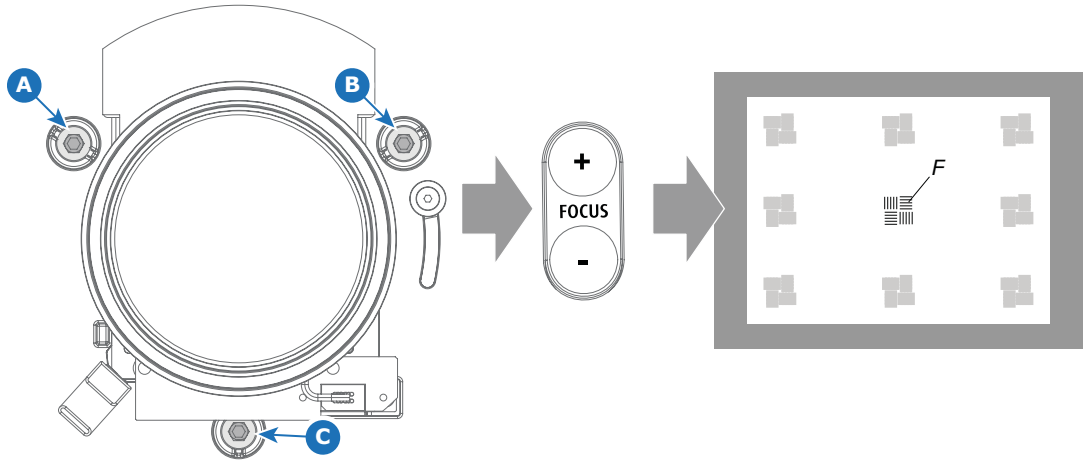


Image 5-20
Center focusing

Scheimpflug adjustment steps

1. Sharpen the image at the bottom left corner of the screen by turning the upper left Scheimpflug adjustment screw either clockwise or counterclockwise (reference 1 image 5-21). Use a 5 mm Allen wrench.

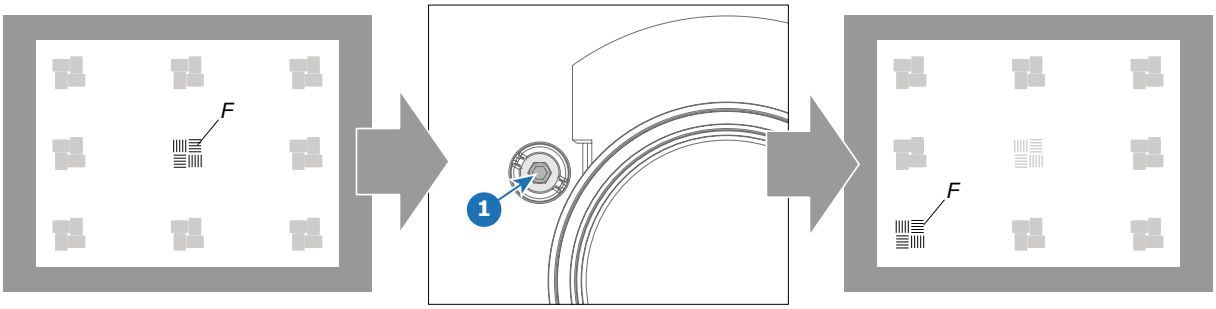


Image 5-21
Left bottom focusing

As a result of this action, the focus in the center will fade a bit. This is expected behavior.

2. Sharpen the image at the lower right corner of the screen by turning the upper right Scheimpflug adjustment screw (reference 2 image 5-22).

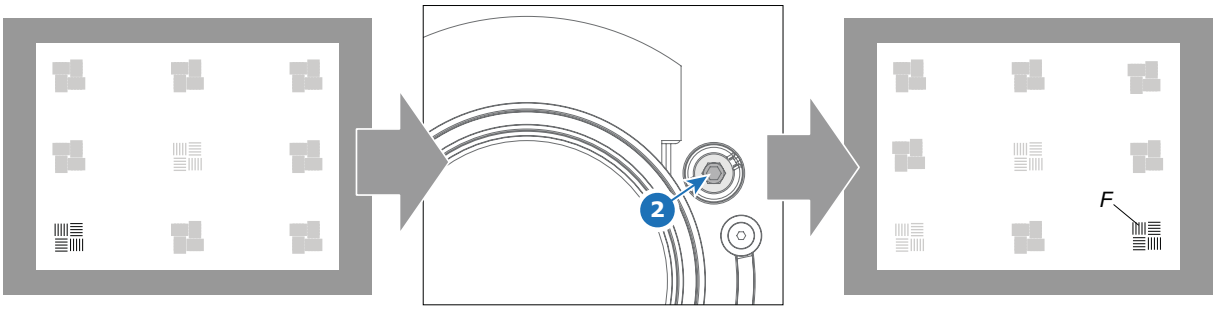


Image 5-22
Right bottom focusing

3. Sharpen the image at the top center of the screen by turning the lower Scheimpflug adjustment screw (reference 3 image 5-23).

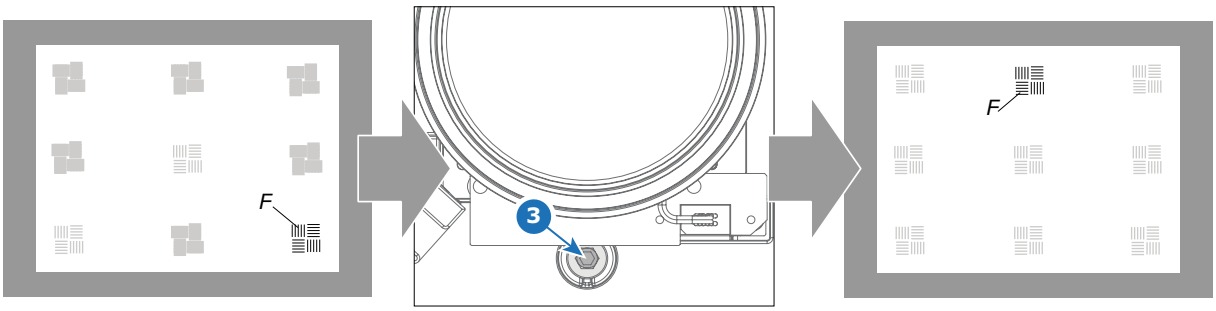


Image 5-23
Top focusing

4. Optimize the focus of the projected image in the center of the screen using the motorized focus control (Local Keypad).

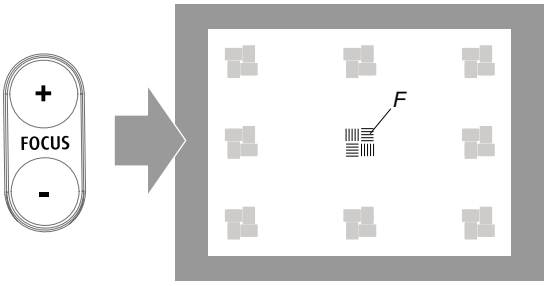


Image 5-24

5. Repeat from step 1 until the projected focus pattern is as sharp as possible in the center, left, right, top and bottom of the screen.
6. Fasten all three lock screws again.

6. INPUT & COMMUNICATION

Overview

- Introduction
- Removal of an input board
- Installation of an input board or a communication board
- Input source connections – Venue & Hospitality Input (V&H) – 12G variant
- Input source connections – Venue & Hospitality Input (V&H)
- Input source connections – Virtual & Augmented Reality Input (V&AR) (Optional)
- Communication connections
- LED and Button indication chart

6.1 Introduction

General

The Input & Communication side of the projector consists of a local keypad, a communication panel, a venues & hospitality Input (V&H) and a free input slot. The free input slot can be used for optional modules (e.g. Virtual & Augmented Reality Input (V&AR)).

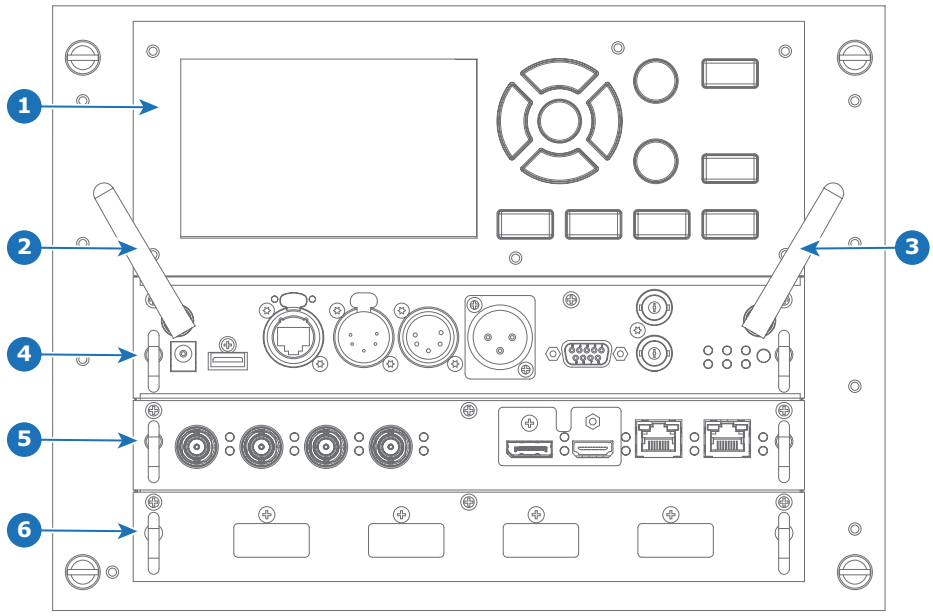


Image 6-1
1 Local Keypad and touch panel
2 Optional antenna for WiFi connection
3 Optional antenna for GSM
4 Communication Panel
5 Venues & Hospitality Input (V&H)
6 Free input slot (here filled with the V&AR module)

6.2 Removal of an input board

WARNING: The procedures below may only be performed by Barco trained and qualified technicians.

CAUTION: Always wear a wrist band which is connected to the ground while handling the electrostatic discharge (ESD) sensitive parts.

The procedure below is applicable to all the input modules of the Input & Communication Unit of the projector.

How to remove

1. Switch off the projector and unplug the power cord at the projector back side.
2. Release the 3 captive screws of the input module (4).

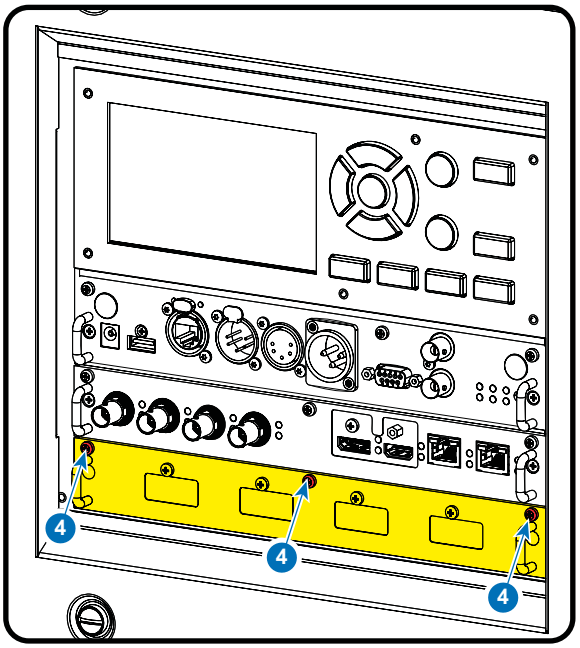


Image 6-2

3. Pull out the input module of the Input & Communication using the handles.

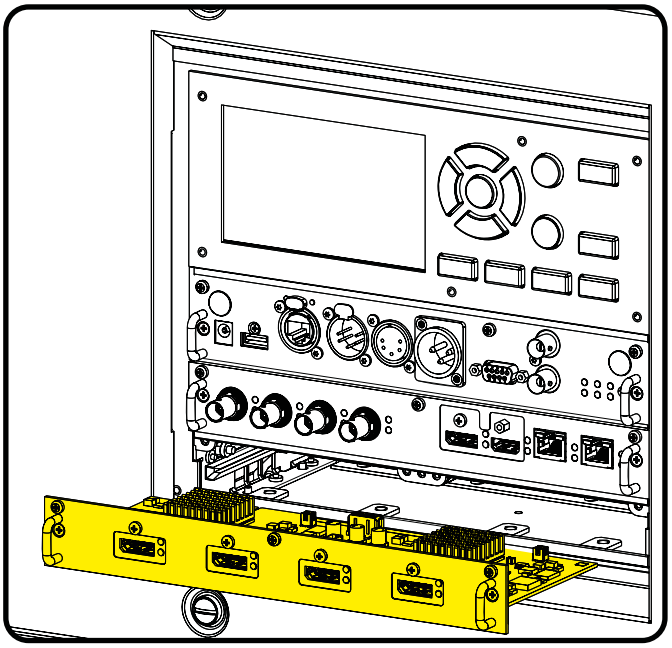


Image 6-3

CAUTION: Ensure that unused input slots of the Input & Communication Unit are always covered with a dummy front plate. After removing one of the input modules, immediately replace with an other one or install a dummy front plate on the unused input slot.

6.3 Installation of an input board or a communication board

WARNING: The procedures below may only be performed by Barco trained and qualified technicians.

CAUTION: Always wear a wrist band which is connected to the ground while handling the electrostatic discharge (ESD) sensitive parts.

Necessary tools

PH1 Phillips screwdriver

The procedure below is applicable to all the input modules of the Input & Communication Unit of the projector.

How to install

1. Switch off the projector and unplug the power cord at the projector back side.
2. Push the input module in the Input & Communication Unit using the handles. Make sure the module seats in its sliders (2). Pull in the module until the contacts (3) are fully inserted into the connectors.

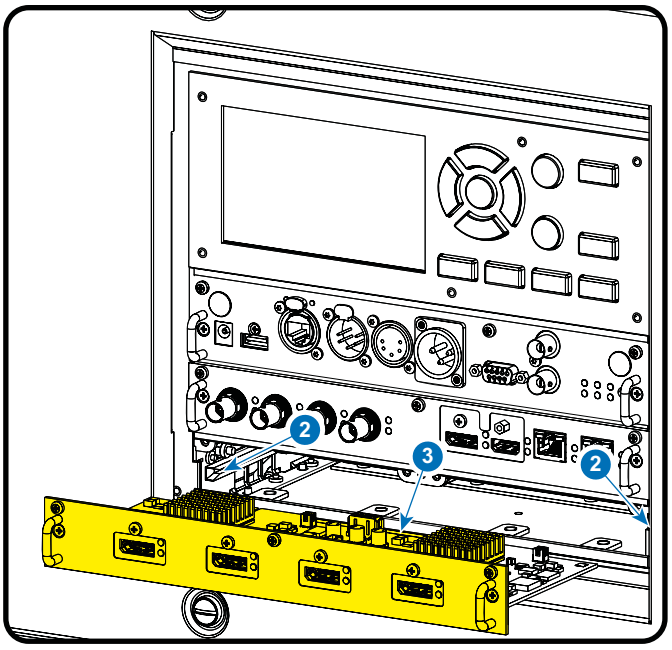


Image 6-4

3. Tighten the captive screws of the input module.

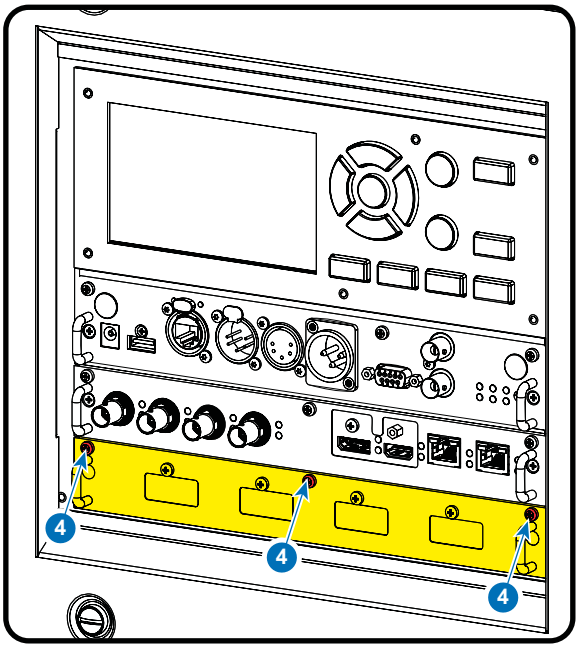


Image 6-5

4. Plug in the power cord at the projector back side.
5. **IMPORTANT LAST STEP** — Update the firmware of the installed module. Use the complete software package to install the firmware via Projector Toolset or USB stick.
   Tip: *When a complete new software image is placed on the projector, all programmable components will be updated with the latest version.*

6.4 Input source connections – Venue & Hospitality Input (V&H) – 12G variant

About the 12G V&H Input board

Due to demand from the market, Barco has created a new variant of the V&H Input to support 12G input and throughput on the SDI connectors. From the release of this board onward, the 12G SDI V&H Input will be supported and will be the standard V&H board in every Input & Communication Unit, effectively replacing the 3G SDI variant.

The updates on this 12G board include the following compared to its 3G counterpart:

- **SDI Input A** now also supports **12G** input signals.
- **SDI Input C** now also functions as a **loop-through output** for any signal placed on **Input A**.
- **SDI Input D** now also functions as a **loop-through output** for any signal placed on **Input B**.
- **HDBaseT Input 1** now also supports **network connectivity**.

SDI Input & output – How does it work?

When connecting an SDI source to the projector and the signal is HD or 3G, you can choose any of the four input connectors.

When connecting multiple projectors with the same signal, you can connect the signal as follows:

- Connect the source signal to Input A or B of the first projector.
- If the source signal is connected to **Input A**, connect **Input/Output C** to the Input of the following projector.
- If the source signal is connected to **Input B**, connect **Input/Output D** to the Input of the following projector.
- Continue in the same fashion until all projectors are connected.

When connecting a 12G SDI source to the projector, you can only connect that source to input A.

Only Input A accepts 12G SDI signals . While it is technically possible to connect a 12G SDI source to Input B and connect that source to another projector in line (using Input/Output D), this first projector itself will not be able to process the 12G signal.

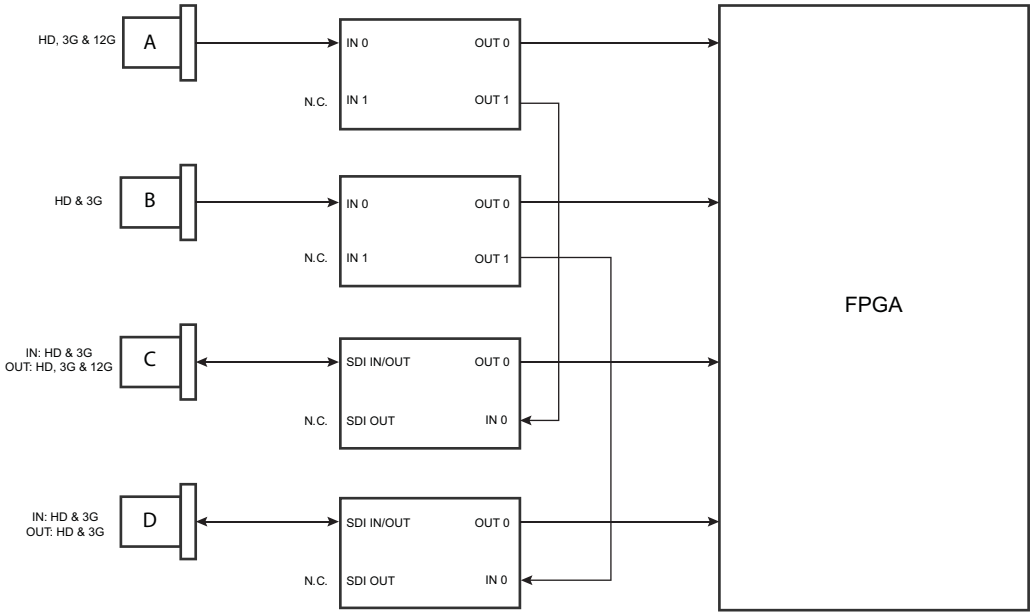


Image 6-6

Spotting the difference between the 3G and 12G Input boards

Since there will be projectors in the field that have the 3G Input Board and others that have the 12G input board, it is important to know the difference between the two variants.

While there are several minor and barely noticeable differences between the two boards, there is one real visual aid to tell the two variants apart. There are visual markings added on the 12G Input board, marking which connector supports 12G and which only supports 3G.

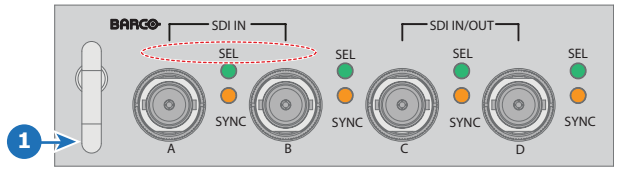


Image 6-7
3G V&H Input, without markings above the SDI inputs

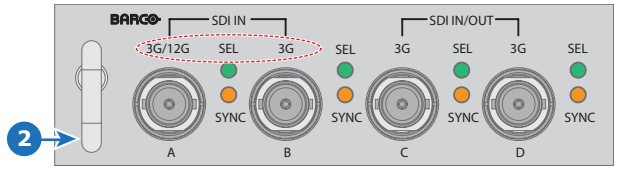


Image 6-8
12G V&H Input, with 3G/12G markings above the SDI inputs/outputs.

Overview Venues & Hospitality Input (V&H) – 12G variant

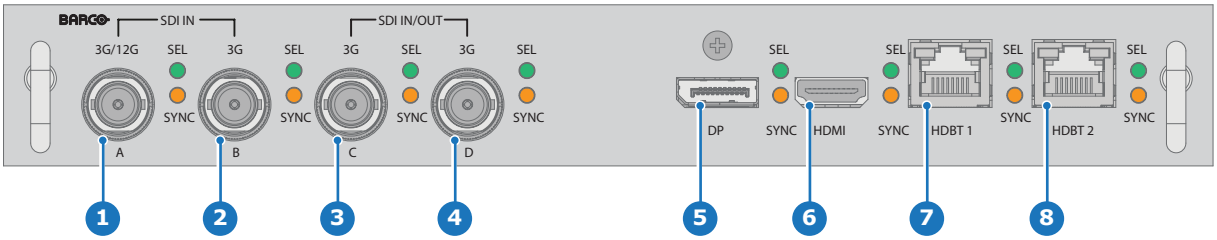


Image 6-9
1 Quad SDI channel A: 3G/12G input
2 Quad SDI channel B: 3G input
3 Quad SDI channel C: 3G SDI input + 3G/12G output
4 Quad SDI channel D: 3G SDI input / output
5 DisplayPort Input
6 HDMI input
7 HDBaseT input 1
8 HDBaseT input 2

The yellow LED lights up when valid input sync is detected.

The green LED lights up when the input is selected.

Input specifications – SDI Inputs

HD-SDI follows the SMPTE 292M standard

3G SDI follows the SMPTE 425M standard Level A

12G-SDI follows the SMPTE ST-2082-1 and ST-2082-10 standards.

Color space	YCbCr		
Color depth	10 bpc		
Chroma sampling	4:2:2		
Audio support	not supported		
For future release	• 3D support • Interlaced support • Segmented frame support		
Video timings progressive	**Type**	**Port type**	**Format**
	HD-SDI	Single link	Up to 1920 x 1080 @24 Hz Up to 1920 x 1080 @25 Hz Up to 1920 x 1080 @30 Hz Up to 1280 x 720 @50 Hz Up to 1280 x 720 @60 Hz
	3G-SDI Level A	Single link	Up to 2048 x 1080 @50 Hz Up to 2048 x 1080 @60 Hz
	3G-SDI “BarcoLink”	Single link	1920 x 1200 @50 Hz, @59.94 Hz and @60 Hz.
	12G-SDI (Channel A only)	Single link	3840 x 2160 @50 Hz and @60 Hz 4096 x 2160 @50 Hz and @60 Hz

Input specifications – HDMI Input

Pixel rate	25 – 600 MHz pixel clock
HDCP support	• HDCP 1.x • HDCP 2.2 • RGB 4:4:4
Color space	• YCbCr 4:2:0 • YCbCr 4:2:2 • YCbCr 4:4:4 • RGB 4:4:4
Color depth	• 24 bpp • 30 bpp • 36 bpp
For future release	• 3D support • Interlaced support

Audio	not supported
Video timings	• Up to 4096 x 2160 @24 Hz • Up to 4096 x 2160 @25 Hz • Up to 4096 x 2160 @30 Hz • Up to 2048 x 1080 @48 Hz • Up to 4096 x 2160 @50 Hz • Up to 4096 x 2160 @60 Hz

CAUTION: The HDBaseT inputs can bridge a distance of 100 m but is sensitive to radiated electromagnetic interference: radiated electromagnetic interference (e.g. from GSM or switching inductive or capacitive loads) within the limits of electromagnetic compatibility requirements of 3 V/m can cause random flashes or temporary loss of the projected image.

As such, shielded CAT-6 cables with metal RJ-45 connectors are recommended; choose cable length no longer than required and route HDBT cable optimally screened from possible sources of electromagnetic emission.

Input specifications – HDBaseT inputs

Pixel rate	25 – 297 MHz pixel clock
Color space	• YCbCr 4:2:2 • YCbCr 4:4:4 • RGB 4:4:4
Color depth	• 24 bpp • 30 bpp • 36 bpp
HDCP support	HDCP 1.x supported on HDBaseT Input 1
Network support	Yes, on HDBaseT Input 1
For future release	• 3D support • Interlaced support
Audio	not supported

Video timings progressive

Layout mode	Supported formats
Standard layout (1x1 layout)	• Up to 4096 x 2160 @24 Hz • Up to 4096 x 2160 @25 Hz • Up to 4096 x 2160 @30 Hz • Up to 2048 x 1080 @48 Hz • Up to 2560 x 1600 @50 Hz • Up to 2560 x 1600 @60 Hz
2 Column mode (2x1 layout)	• 1920 x 2160 @50 Hz • 1920 x 2160 @60 Hz • 2048 x 2160 @50 Hz • 2048 x 2400 @60 Hz

CAUTION: In order to display high resolution images (ex.: 3840 x 2160 @60 Hz) via the DP1.2 input, the quality of the cable must be adequate, in addition the length of the cable can also influence the performance. In case there is an issue with one of these criteria the automatic link-training initiated by the DP-standard may decide to switch to a lower resolution.

Input specifications – DisplayPort 1.2 input

Pixel rate	Up to 600 MHz pixel clock
Color space	• YCbCr 4:2:2 • YCbCr 4:4:4 • RGB 4:4:4

Color depth	• 24 bpp • 30 bpp • 36 bpp		
Data rate support	• 1.62 Gbps: Reduced Bit Rate (RBR) • 2.7 Gbps: High Bit Rate (HBR) • 5.4 Gbps: High Bit Rate 2 (HBR2)		
HDCP support	HDCP 1.4		
For future release	• Interlaced support		
Audio	not supported		
3D support	• Field sequential 3D (Active 3D) • Passive 3D not supported on this board.		
Video timings progressive	**2D / 3D**	**Layout Mode**	**Supported formats**
	2D	Standard layout (1x1 layout)	• Up to 4096 x 2160 @24 Hz • Up to 4096 x 2160 @30 Hz • Up to 2048 x 1080 @48 Hz • Up to 4096 x 2160 @50 Hz • Up to 4096 x 2160 @60 Hz • Up to 2560 x 1600 @120 Hz
	2D	2 column mode (2x1 layout)	• 1920 x 2160 @60 Hz • 1920 x 2160 @120 Hz • 1920 x 2400 @60 Hz
	2D	4 quadrant mode (2x2 layout)	• 960 x 1080 @120 Hz • 960 x 1200 @120 Hz • 1280 x 1080 @60 Hz • 1280 x 1080 @120 Hz • 1280 x 1600 @60 Hz • 1280 x 1600 @120 Hz • 1920 x 1080 @120 Hz • 1920 x 1200 @120 Hz • 2048 x 1080 @120 Hz
	2D	4 column mode (4x1 layout)	• 960 x 2160 @120 Hz • 960 x 2400 @120 Hz • 1024 x 2160 @60 Hz
	Active 3D	Standard layout (1x1 layout)	• 1600 x 1200 @120 Hz • 2560 x 1080 @120 Hz • 2560 x 1600 @120 Hz

6.5 Input source connections – Venue & Hospitality Input (V&H)

Overview Venues & Hospitality Input (V&H)

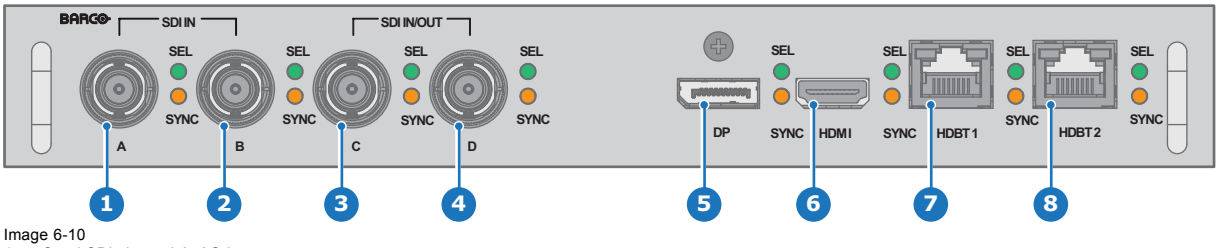


Image 6-10
1 Quad SDI channel A: 3G input

2 Quad SDI channel B: 3G input
3 Quad SDI channel C: 3G SDI input / output
4 Quad SDI channel D: 3G SDI input / output
5 DisplayPort Input
6 HDMI input
7 HDBaseT input 1
8 HDBaseT input 2

The yellow LED lights up when valid input sync is detected.

The green LED lights up when the input is selected.

Input specifications – SDI Inputs

3G SDI follows the SMPTE 425M standard Level A

HD-SDI follows the SMPTE 292M standard

Color space	YCbCr		
Color depth	10 bpc		
Chroma sampling	4:2:2		
Not supported	• Audio support • 3D support • Interlaced support • Segmented frame support		
Video timings progressive	**Type**	**Port type**	**Format**
	HD-SDI	Single link	Up to 1920 x 1080 @24 Hz Up to 1920 x 1080 @25 Hz Up to 1920 x 1080 @30 Hz Up to 1280 x 720 @50 Hz Up to 1280 x 720 @60 Hz
	3G-SDI Level A	Single link	Up to 2048 x 1080 @50 Hz Up to 2048 x 1080 @60 Hz
	3G-SDI “BarcoLink”	Single link	1920 x 1200 @50 Hz, @59.94 Hz and @60 Hz.

Input specifications – HDMI Input

Pixel rate	25 – 600 MHz pixel clock
HDCP support	• HDCP 1.x • HDCP 2.2 • RGB 4:4:4
Color space	• YCbCr 4:2:0 • YCbCr 4:2:2 • YCbCr 4:4:4 • RGB 4:4:4
Color depth	• 24 bpp • 30 bpp • 36 bpp
For future release	• 3D support • Interlaced support

Audio	not supported
Video timings	• Up to 4096 x 2160 @24 Hz • Up to 4096 x 2160 @25 Hz • Up to 4096 x 2160 @30 Hz • Up to 2048 x 1080 @48 Hz • Up to 4096 x 2160 @50 Hz • Up to 4096 x 2160 @60 Hz

CAUTION: The HDBaseT inputs can bridge a distance of 100 m but is sensitive to radiated electromagnetic interference: radiated electromagnetic interference (e.g. from GSM or switching inductive or capacitive loads) within the limits of electromagnetic compatibility requirements of 3 V/m can cause random flashes or temporary loss of the projected image.

As such, shielded CAT-6 cables with metal RJ-45 connectors are recommended; choose cable length no longer than required and route HDBT cable optimally screened from possible sources of electromagnetic emission.

Input specifications – HDBaseT inputs

Pixel rate	25 – 297 MHz pixel clock
Color space	• YCbCr 4:2:2 • YCbCr 4:4:4 • RGB 4:4:4
Color depth	• 24 bpp • 30 bpp • 36 bpp
HDCP support	HDCP 1.x supported on HDBaseT Input 1
Network support	Yes, on HDBaseT Input 1
For future release	• 3D support • Interlaced support
Audio	not supported

Video timings progressive

Layout mode	Supported formats
Standard layout (1x1 layout)	• Up to 4096 x 2160 @24 Hz • Up to 4096 x 2160 @25 Hz • Up to 4096 x 2160 @30 Hz • Up to 2048 x 1080 @48 Hz • Up to 2560 x 1600 @50 Hz • Up to 2560 x 1600 @60 Hz
2 Column mode (2x1 layout)	• 1920 x 2160 @50 Hz • 1920 x 2160 @60 Hz • 2048 x 2160 @50 Hz • 2048 x 2400 @60 Hz

CAUTION: In order to display high resolution images (ex.: 3840 x 2160 @60 Hz) via the DP1.2 input, the quality of the cable must be adequate, in addition the length of the cable can also influence the performance. In case there is an issue with one of these criteria the automatic link-training initiated by the DP-standard may decide to switch to a lower resolution.

Input specifications – DisplayPort 1.2 input

Pixel rate	Up to 600 MHz pixel clock
Color space	• YCbCr 4:2:2 • YCbCr 4:4:4 • RGB 4:4:4

Color depth	• 24 bpp • 30 bpp • 36 bpp		
Data rate support	• 1.62 Gbps: Reduced Bit Rate (RBR) • 2.7 Gbps: High Bit Rate (HBR) • 5.4 Gbps: High Bit Rate 2 (HBR2)		
HDCP support	HDCP 1.4		
For future release	• Interlaced support		
Audio	not supported		
3D support	• Field sequential 3D (Active 3D) • Passive 3D not supported on this board.		
Video timings progressive	**2D / 3D**	**Layout Mode**	**Supported formats**
	2D	Standard layout (1x1 layout)	• Up to 4096 x 2160 @24 Hz • Up to 4096 x 2160 @30 Hz • Up to 2048 x 1080 @48 Hz • Up to 4096 x 2160 @50 Hz • Up to 4096 x 2160 @60 Hz • Up to 2560 x 1600 @120 Hz
	2D	2 column mode (2x1 layout)	• 1920 x 2160 @60 Hz • 1920 x 2160 @120 Hz • 1920 x 2400 @60 Hz
	2D	4 quadrant mode (2x2 layout)	• 960 x 1080 @120 Hz • 960 x 1200 @120 Hz • 1280 x 1080 @60 Hz • 1280 x 1080 @120 Hz • 1280 x 1600 @60 Hz • 1280 x 1600 @120 Hz • 1920 x 1080 @120 Hz • 1920 x 1200 @120 Hz • 2048 x 1080 @120 Hz
	2D	4 column mode (4x1 layout)	• 960 x 2160 @120 Hz • 960 x 2400 @120 Hz • 1024 x 2160 @60 Hz
	Active 3D	Standard layout (1x1 layout)	• 1600 x 1200 @120 Hz • 2560 x 1080 @120 Hz • 2560 x 1600 @120 Hz

6.6 Input source connections – Virtual & Augmented Reality Input (V&AR) (Optional)

Virtual & Augmented Reality Input (V&AR) (Optional)

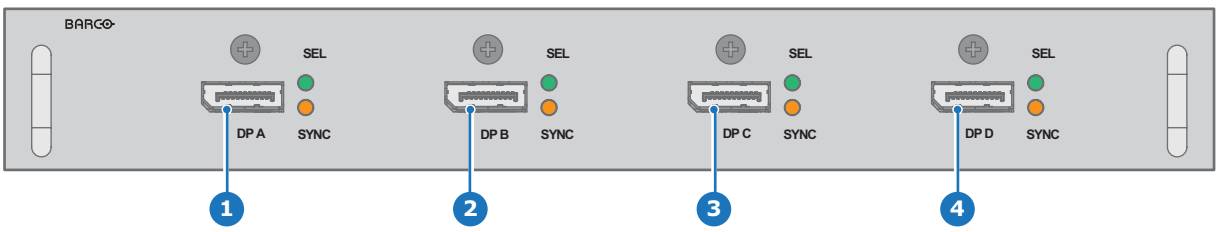


Image 6-11
1 Quad DisplayPort channel A input

2 Quad DisplayPort channel B input
3 Quad DisplayPort channel C input
4 Quad DisplayPort channel A input

The yellow LED lights up when valid input sync is detected.

The green LED lights up when the input is selected.

Input specifications – DisplayPort 1.2 inputs

Pixel rate	Up to 600 MHz pixel clock		
Color space	• YCbCr 4:2:2 • YCbCr 4:4:4 • RGB 4:4:4		
Color depth	• 24 bpp • 30 bpp • 36 bpp		
Data rate support	• 1.62 Gbps: Reduced Bit Rate (RBR) • 2.7 Gbps: High Bit Rate (HBR) • 5.4 Gbps: High Bit Rate 2 (HBR2)		
For future release	• Interlaced support • HDCP 1.4		
Audio	not supported		
3D support	• Field sequential 3D (Active 3D) • Passive stereoscopic 3D (Passive stereo) converted to active 3D		
Video timings progressive	**2D / 3D**	**Layout Mode**	**Supported formats**
	2D	Standard layout (1x1 layout)	• Up to 4096 x 2160 @24 Hz • Up to 4096 x 2160 @30 Hz • Up to 2048 x 1080 @48 Hz • Up to 4096 x 2160 @50 Hz • Up to 4096 x 2160 @60 Hz • Up to 2560 x 1600 @120 Hz
	2D	2 column mode (2x1 layout)	• 1920 x 2160 @60 Hz • 1920 x 2160 @120 Hz • 1920 x 2400 @60 Hz
	2D	4 quadrant mode (2x2 layout)	• 960 x 1080 @120 Hz • 960 x 1200 @120 Hz • 1280 x 1080 @60 Hz • 1280 x 1080 @120 Hz • 1280 x 1600 @60 Hz • 1280 x 1600 @120 Hz • 1920 x 1080 @120 Hz • 1920 x 1200 @120 Hz • 2048 x 1080 @120 Hz
	2D	4 column mode (4x1 layout)	• 960 x 2160 @120 Hz • 960 x 2400 @120 Hz • 1024 x 2160 @60 Hz
	Active 3D	Standard layout (1x1 layout)	• 1600 x 1200 @120 Hz • 2560 x 1080 @120 Hz • 2560 x 1600 @120 Hz
	Active 3D	2 column mode (2x1 layout)	1920 x 2160 @120 Hz

Active 3D	4 quadrant mode (2x2 layout)	• 1920 x 1080 @120 Hz • 1920 x 1200 @120 Hz • 2048 x 1080 @120 Hz
Active 3D	4 column mode (4x1 layout)	• 960 x 2160 @120 Hz • 960 x 2400 @120 Hz • 1024 x 2160 @120 Hz
Passive stereo	Standard layout (1x1 layout)	3840 x 2160 @60 Hz
Passive stereo	2 column mode (2x1 layout)	1920 x 2160 @60 Hz

6.7 Communication connections

Communication Panel

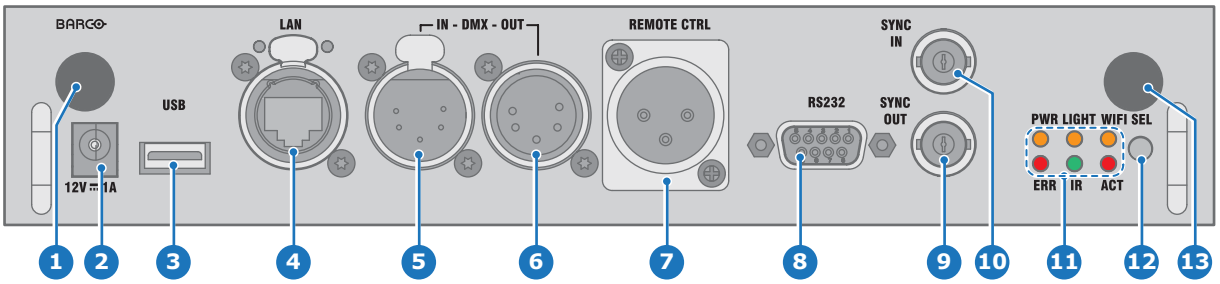


Image 6-12

1 WIFI antenna for wireless IP (optional)
2 12V 1A output
3 Firmware update / USB backup custom settings
4 10/100 base-T for external control over IP and Art-Net
5 DMX interface input
6 DMX interface output
7 XLR input for wired projector control
8 RS232 for serial communication
9 Sync Out 3D
10 Sync In 3D
11 Status lights
12 IR receive sensor
13 GSM antenna input (optional)

12 V output

12 V output, maximum 1 A, available when projector is not in stand by.

DMX interface

DMX is used as communication bus between different devices in the light technic. Each device has an input and an output, so that the bus can be looped between the different devices. According the standard a five wire cable with XLR connector is used.

You can use the DMX input port to connect a DMX device (DMX console) to the projector. This way you can control the projector from that DMX device (console). The DMX output port can be connected with the next device in the loop.

Pin	Description
1	Earth
2	Cold
3	Hot
4	Return - (or not used)
5	Return + (or not used)

DMX

DMX-512 Lighting protocol over RS-485 interface. Carries information of 512 channels from a lighting controller to lighting devices. Standardized by USITT.

RS232/RS422 input

The communication interface of the UDX series projector supports RS232 and RS422 serial communication on two different types of input connectors, a Sub-D connector and an USB connector acting as RS input when connected to an USB input of a PC.

You can use the RS232/RS422 input to connect a local PC to your UDX series projector. By this way you can configure and control your projector from your local PC.

Advantages of using RS232/RS422 serial communication:

- easy adjustment of the projector via PC (or MAC).
- allow storage of multiple projector configurations and set ups.
- wide range of control possibilities.
- address range from 0 to 255.
- sending data to the projector (update).
- copying data from the projector (backup).

RS232/422 input (Sub-D) port	
Pin	**Description**
1	DCD : Data Carrier Detect
2	RXD- : Receive Data
3	TXD- : Transmitted Data
4	DTR : Data Terminal Ready [RS232]
	TXD+ : Transmitted Data [RS422]
5	GND : Ground
6	DSR : Data Set Ready [RS232]
	RXD+ : Received Data [RS422]
7	— (not connected) —
8	CTS : Clear To Send
9	RI : Ring Indicator

RS232

An Electronic Industries Association (EIA) serial digital interface standard specifying the characteristics of the communication path between two devices using either D-SUB 9 pins or D-SUB 25 pins connectors. This standard is used for relatively short-range communications and does not specify balanced control lines. RS-232 is a serial control standard with a set number of conductors, data rate, word length and type of connector to be used. The standard specifies component connection standards with regard to computer interface. It is also called RS-232-C, which is the third version of the RS-232 standard, and is functionally identical to the CCITT V.24 standard. Logical ’0’ is > + 3V, Logical ’1’ is < -3V. The range between -3V and +3V is the transition zone.

RS422

An EIA serial digital interface standard that specifies the electrical characteristics of balanced (differential) voltage, digital interface circuits. This standard is usable over longer distances than RS-232. This signal governs the asynchronous transmission of computer data at speeds of up to 920,000 bits per second. It is also used as the serial port standard for Macintosh computers. When the difference between the 2 lines is < - 0.2V that equals with a logical ’0’. When the difference is > +0.2V that equals to a logical ’1’..

USB port

The communication interface is equipped with a master USB port, type “A” connector. This USB port will simplify the service procedures for firmware updates or for taking backup files from the projector without network connection. Simply plug a USB-stick into the USB port and files can be transferred from or to the projector using the local or remote control unit.

If the only file on the USB device is the firmware upgrade file (a “*.fw” file), the projector will automatically start the upgrade process.

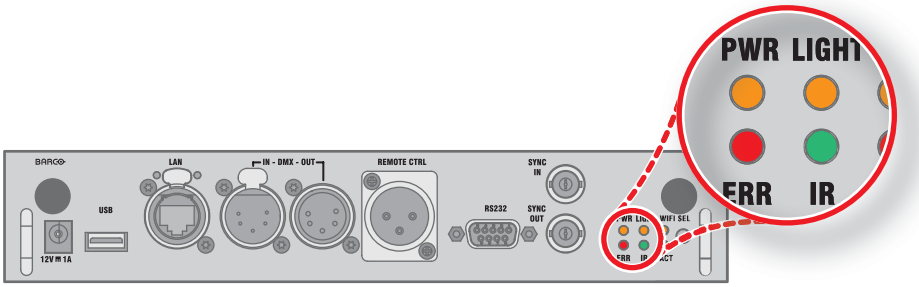
Make sure that any used USB-stick is FAT32 compatible.

6.8 LED and Button indication chart

Button Backlight Status

Button	Color status	Description
Standby button	Blinking WHITE (slow)	Projector starts up (booting)
	Blinking WHITE (fast)	Firmware upgrade
	Solid WHITE	Projector is in Standby mode
	Blinking BLUE	Projector goes to ON mode
	Solid BLUE	Projector is ON
	Blinking RED	Error condition
Shutter button	Off (no color)	Projector is OFF, starts up, or is in Standby mode.
	Solid WHITE	Projector is ON, shutter is open
	Solid RED	Projector is ON, shutter is closed

LED Status



LED	Color status	Description
PWR (power LED)	Off	Projector powers up
	RED	Projector is in Standby
	ORANGE	Projector is Ready
	GREEN	Projector is on
LIGHT (Illumination LED)	Off	Light source is off
	RED	No light source detected
	ORANGE	Light source is on in ECO mode
	GREEN	Light source is on in normal mode
	GREEN-ORANGE	Light source is on in CLO mode
ERR (error LED)	Off	No error
	RED toggles on/off	Error
	ORANGE toggles on/off	Warning
IR	RED	IR signal received
	GREEN	IR signal acknowledged

7. WIFI & GSM MODULE

The Part 15.19 statement mentioned in this chapter can be accessed in the OSD of the projector. In order access it, select *System Settings → Regulatory Information → US FCC*.

7.1 Compliance FCC

Federal Communication Commission Interference Statement

You are cautioned that changes or modifications not expressly approved by the part responsible for compliance could void the user's authority to operate the equipment.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation of the device.

FCC RF Radiation Exposure Statement:

1. This Transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.
2. This equipment complies with RF radiation exposure limits set forth for an uncontrolled environment.
   This equipment should be installed and operated with a minimum distance of 20 cm between the radiator and your body.

FCC ID: 2AOUF-R8767900X

7.2 Compliance IC

Radio Frequency (RF) Exposure Information

The radiated output power of the Barco Wireless Device is below the Industry Canada (IC) radio frequency exposure limits. The Barco Wireless Device should be used in such a manner such that the potential for human contact during normal operation is minimized.

IC ID: 23575-R8767900X

IC Antenna statement

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

This radio transmitter 23575-R8767900X has been approved by Industry Canada to operate with the antenna types listed below with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

Type: Dipole

Maximum Peak Gain: 3 dBi

Impedance: 50 Ohm

Informations concernant l'exposition aux fréquences radio (RF)

La puissance de sortie émise par l'appareil de sans fil Barco est inférieure à la limite d'exposition aux fréquences radio d'Industry Canada (IC). Utilisez l'appareil de sans fil Barco de façon à minimiser les contacts humains lors du fonctionnement normal.

IC ID: 23575-R8767900X

Déclaration d'antenne d'Industrie Canada (IC)

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.

Le présent émetteur radio 23575-R8767900X a été approuvé par Industrie Canada pour fonctionner avec les types d'antenne énumérés ci-dessous et ayant un gain admissible maximal et l'impédance requise pour chaque type d'antenne. Les types d'antenne non inclus dans cette liste, ou dont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l'exploitation de l'émetteur.

Type: Dipole

Gain maximum: 3 dBi

Impédance: 50 Ohm

7.3 Installation of the WiFi module

WARNING: The procedures below may only be performed by Barco trained and qualified technicians.

CAUTION: Always wear a wrist band which is connected to the ground while handling the electrostatic discharge (ESD) sensitive parts.

After the installation, the WiFi module needs to be configured.

Necessary tools

Phillips screwdriver PH1

How to install

1. Remove the Communication board.
2. Remove the drive fastener (D) from the front side of the Communication module.

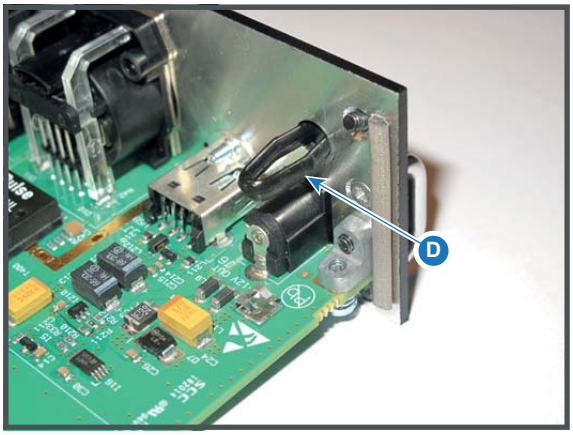


Image 7-1

3. Plug in the antenna wire connector on the WIFI module. Ensure to use bottom connection.

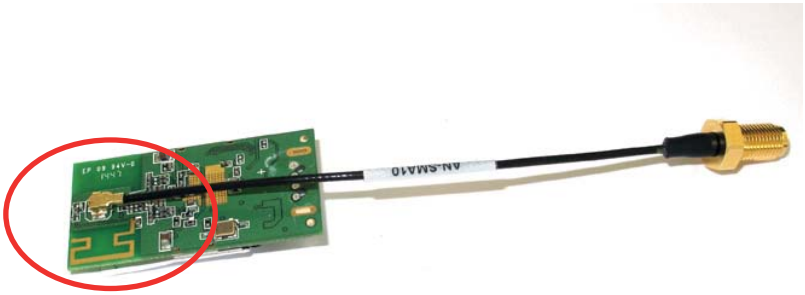


Image 7-2

4. Place the WiFi module (2) upon the plastic socket (1). Note that the plastic socket is provided with two positioning pins which fits the small holes of the WiFi module.
5. Press the plastic cover (3) upon the plastic socket containing the WIFI module as illustrated.

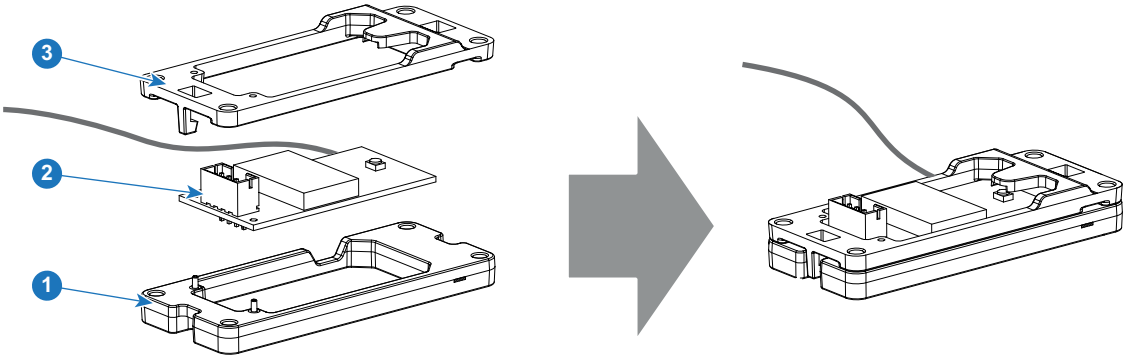


Image 7-3

6. Install the WiFi assembly on the Communication board as illustrated. Use four screws (4) and 4 nuts (5) to secure the WiFi assembly.

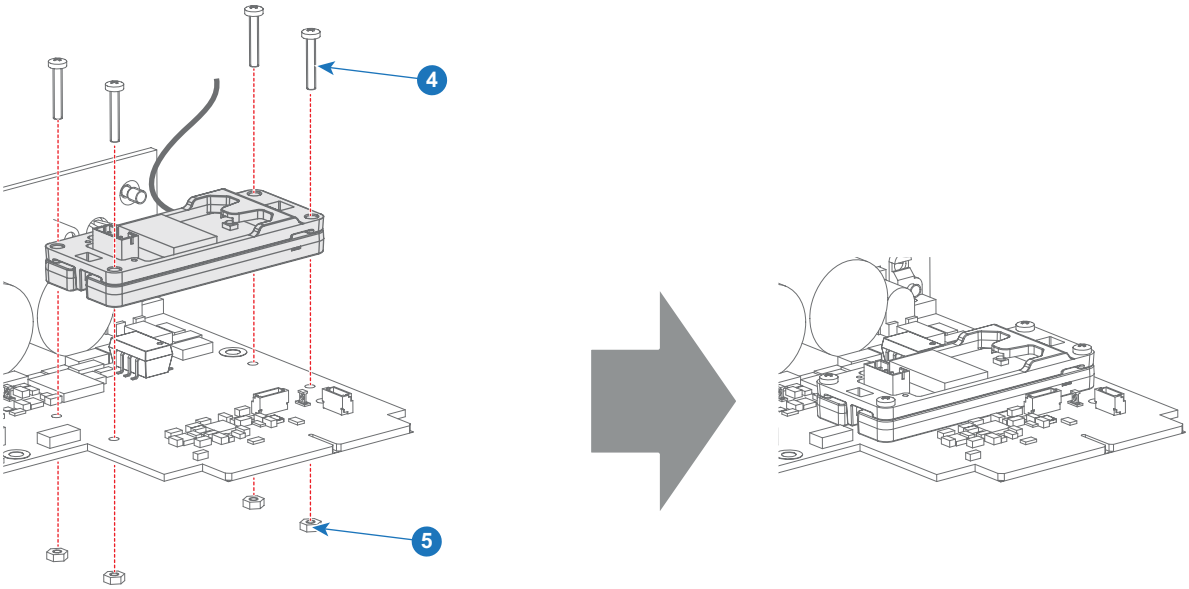


Image 7-4

7. Install the data wire by plugging in the electrical connectors (connector J327, reference 1).

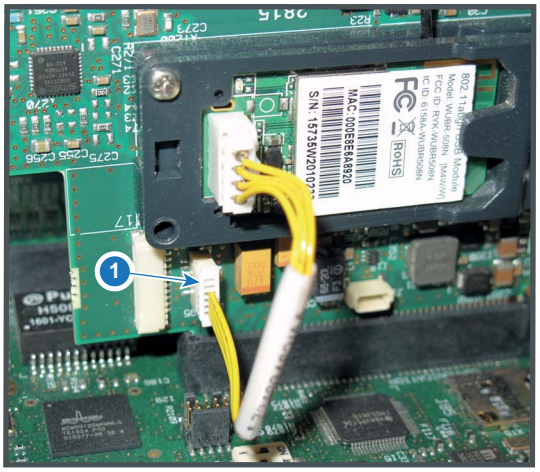


Image 7-5

8. Position the antenna (7) in the hole on the front side of the Communication module.
9. Secure the antenna wire by installing the lock washer and nut (8).

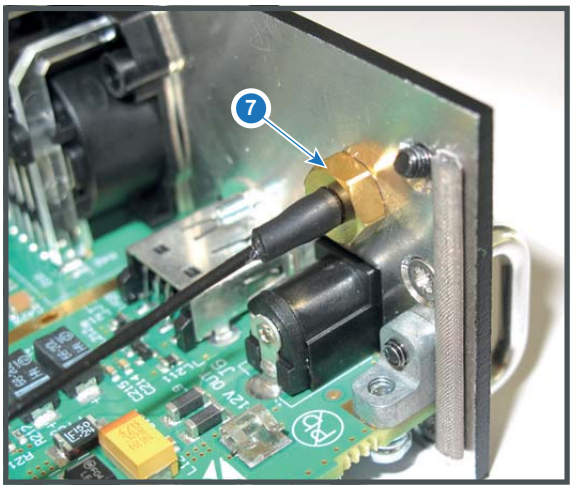


Image 7-6

10. Turn on the antenna (9).

Image 7-7

11. Stick the black label with certification numbers on the front plate of the communication board.

Image 7-8
Example of the black label on the communication board

12.Reinsert the communication board.

7.4 Installation of the GSM module

WARNING: The procedures below may only be performed by Barco trained and qualified technicians.

CAUTION: Always wear a wrist band which is connected to the ground while handling the electrostatic discharge (ESD) sensitive parts.

Necessary tools

Phillips screwdriver PH1

Necessary parts

SIM card (not delivered)

How to install

1. Remove the Communication board.
2. Remove the drive fastener (1) from the front side of the Communication module.

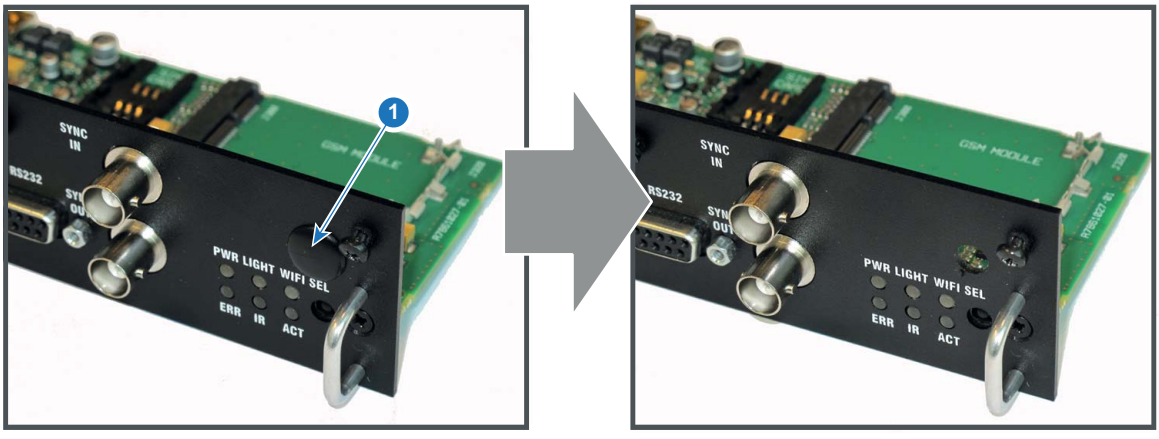


Image 7-9

3. Slide in the SIM card into the SIM card holder (2).
   Ensure that the truncated corner of the SIM card is facing the edge of the module (3).

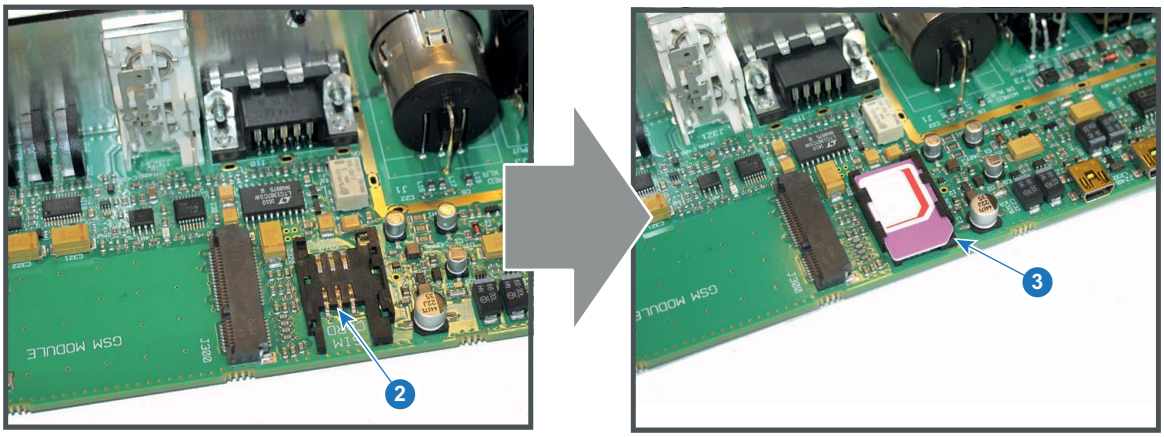


Image 7-10

4. Plug in the antenna wire connector on the front side of the GSM module (4).

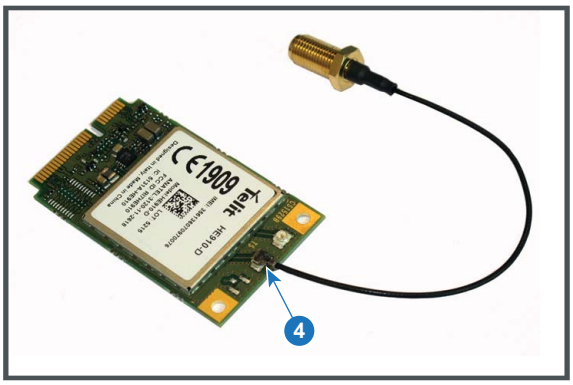


Image 7-11

5. Insert the GSM module with antenna wire into the connector (5). Push the other side of the module down until it clicks so that the module is secured (6).

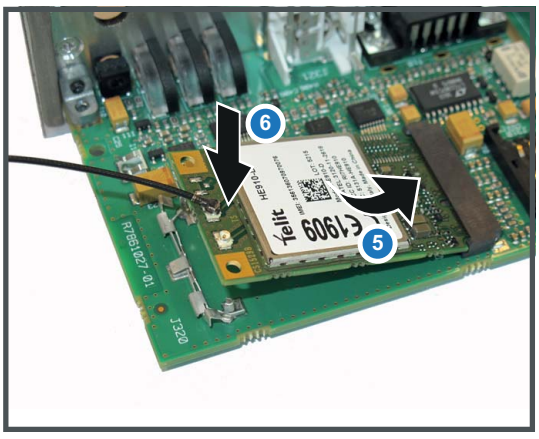


Image 7-12

6. Push the antenna connector through the hole in the front plate and secure the antenna wire by installing the lock washer and nut (7).

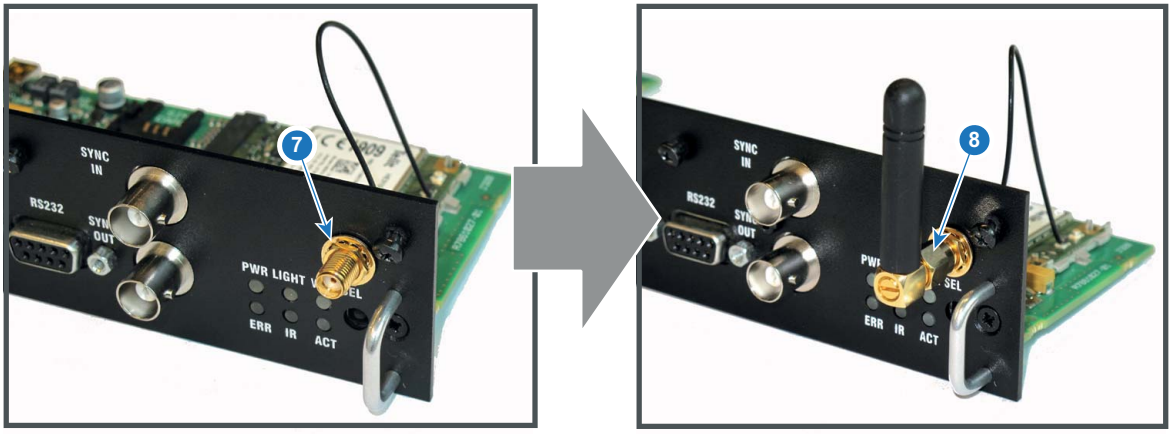


Image 7-13

7. Install the antenna by screwing it on its base (8).
8. Stick the black label with certification numbers on the front plate of the communication board.

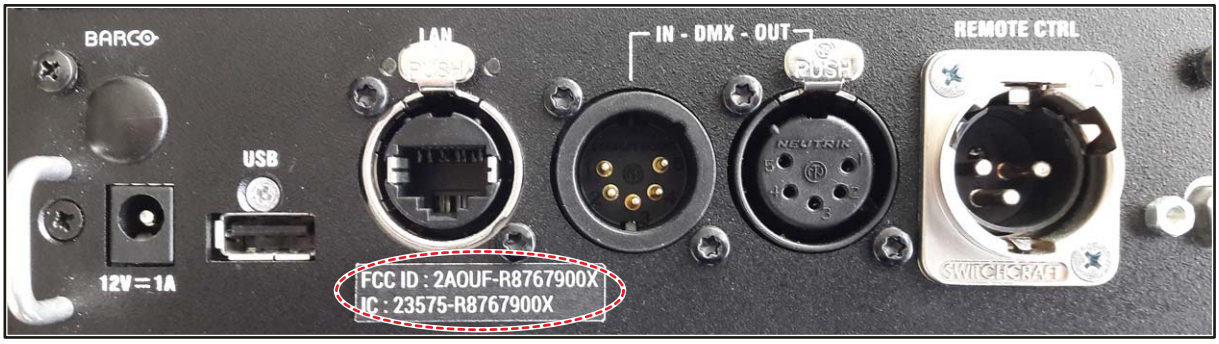


Image 7-14
Example of the black label on the communication board

9. Reinsert the communication board.

8. GETTING STARTED

How controlling the projector ?

The projector can be controlled by the local keypad, by the remote control unit or by browser application.

Location of the local keypad ?

The local keypad is located on the input side of the projector.

Remote control functions.

This remote control includes a battery powered infrared (IR) transmitter that allows the user to control the projector remotely. This remote control is used for source selection, control, adaptation and set up.

Other functions of the remote control are :

- switching between stand by and operational mode.
- switching to "pause" (blanked picture, full power for immediate restarting)
- direct access to all connected sources.

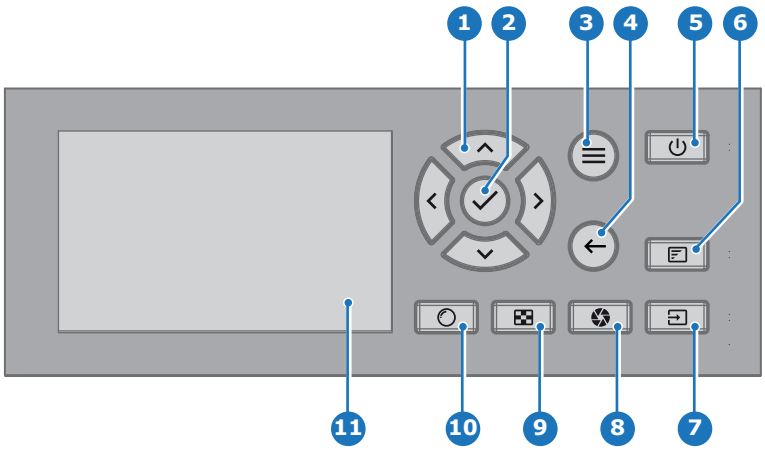
Overview

- Functionality overview
- Power on projector
- Switching to standby
- Power off projector
- Using the RCU
- Projector Address
- Quick setup via Direct access
- Software update

8.1 Functionality overview

Local Keypad overview

1. Menu Selection.
2. Menu Activation, OK button
3. OSD On/Off.
4. Menu Back.
5. Power On/Off.
6. LCD Panel On/Off.
7. Input Selection.
8. Shutter Open/Close.
9. Test Patterns.
10. Lens Menu.
11. LCD Panel.

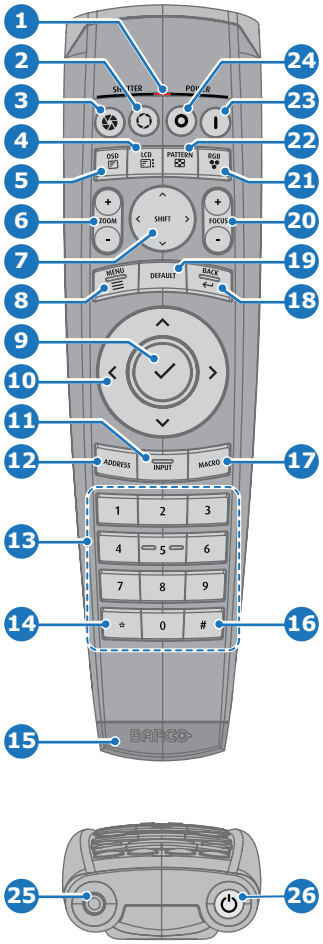


The Keypad gives direct access to several functions, in addition to access to the menu system.

The keypad has a back light that can be switched on and off manually. The light turns off automatically after a preselected time.

The Power button and Shutter buttons are equipped with white, blue and red backlit LEDs. The other keys are only equipped with white and blue backlit LEDs. The LEDs are controlled according to the features available.

Remote Control Unit buttons



1. Button pressed indicator.
2. Shutter Open.
3. Shutter Close.
4. LCD Panel On/Off.
5. OSD On/Off.
6. Lens Zoom.
7. Lens Shift.
8. Menu Activation.
9. Menu Selection, OK button.
10. Menu Navigation.
11. Input Selection.
12. Address button.
13. Numeric buttons.
14. Backspace (while entering values)
15. XLR connector.
16. Decimal mark (while entering values)
17. Macro button.
18. Menu Back.
19. Default button.
20. Lens Focus.
21. Color On/Off.
22. Test Patterns.
23. Power On.
24. Power Off.
25. Stereo Jack.
26. RCU On/Off.

The projector remote control is a full feature wireless remote control, powered by two (2) standard AA batteries. The battery compartment is on the back side of the remote control.

The remote control is backlit for use in dark environments. It also has an XLR connector for wired connection to the projector. When the wire is connected, the IR beam is switched off.

LCD panel

The LCD panel has two main functions:

1. Showing the menus and adjustment information. and also a mirror of the OSD, (On Screen Display) described in *User Interface* when this is enabled.
2. Information regarding the status of the projector showing this data:
   - Projector status
   - Network address
   - Active source
   - Current firmware version
   - Operation Data
   - Active functions (Enabled Functions).

Toggle between the two indications by using the **Menu** button on the keypad, or on the remote control

The LCD Display will fade out 30 seconds after the last key operation.

8.2 Power on projector

How to power on

1. Press the mains switch at the side of the projector to switch on this projector.

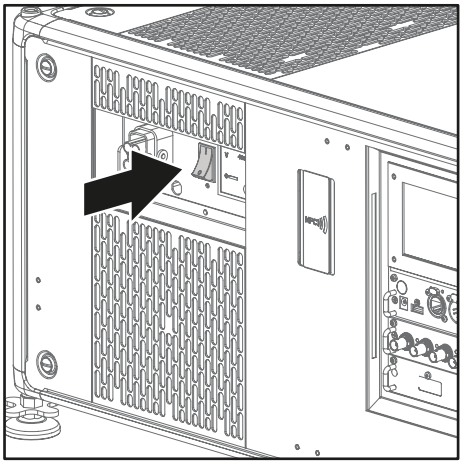


Image 8-1
Mains switch

- When ’0’ is pressed, the projector is switched off.
- When ’I’ is pressed, the projector is switched on.

The projector starts up to standby mode. The **Power on/off** button will blink until standby mode is achieved. Once in standby mode, the Power on/off button will be lit WHITE, but the display will be off.

2. Press the **Power on/off** button on the projector, or the **Power On** button on the remote control.

   The projector will continue to power on mode. The **Power on/off** button will blink until the projector is ready. Once the projector is ready, the Power button will be lit BLUE.

   The start up screen is displayed on the touch panel and when fully started up, it changes to the overview screen.

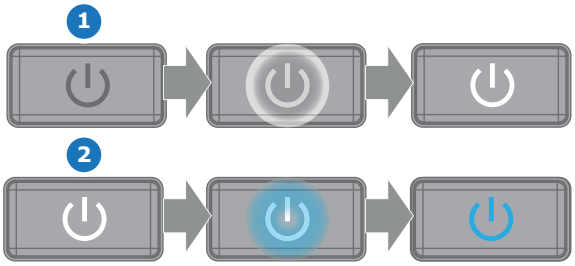


Image 8-2

The current mains input voltage is indicated on the voltmeter just above the power switch.

The background image of the startup screen and info screens can be changed with Projector Toolset with an installed UDX plug-in.

Status overview

Once the projector is started, press **Status** to get an overview of parameters such as :

- Device serial number and article number
- Current firmware version and model name
- Current illumination (in percentage)
- Projector runtime in hours
- Uptime in hours
- Chosen source
- Current resolution and refresh rate
- Chosen communication method and IP address (if connected)
- Active functions

Starting image projection

1. Make sure the available sources are connected to the appropriate input ports.
   Tip: *If properly connected, the "SYNC" LED will light up ORANGE.*
2. Press the **Input Selection** button on the keypad or on the remote control until:
   - the LED of the selected source (the "SEL" LED) lit up GREEN, and
   - the image of the selected source is projected.

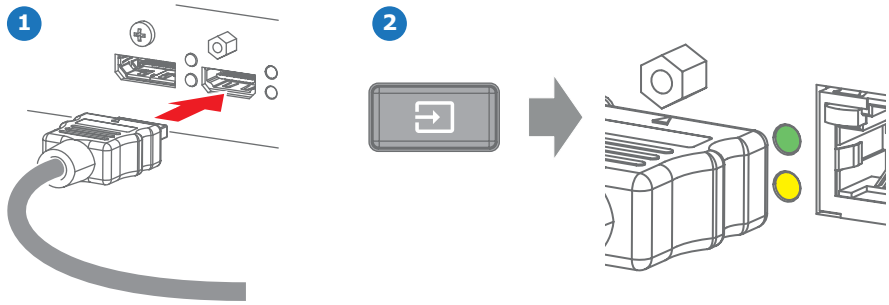


Image 8-3

8.3 Switching to standby

How to switch to standby

1. Press and hold the **Power on/off** button for 3 seconds on the local keypad, or press the **Power Off** button on the remote control.

   The projector goes to standby mode. The after-cooling cycle will start (about 30 seconds). During this period the Power on/off button will blink. Once the after-cooling cycle has ended, the projector will be in standby mode and the Power on/off button will be lit WHITE.

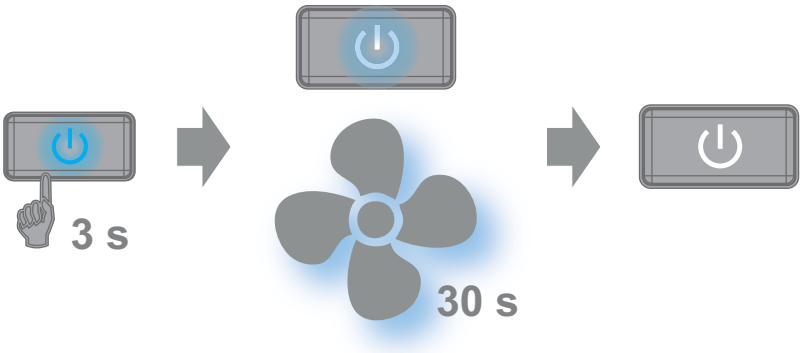


Image 8-4

8.4 Power off projector

CAUTION: This procedure assumes the projector is in standby mode.

How to power off

1. Switch off the projector with the mains switch. '0' must be pressed.