

HQPro1000

User Guide





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Table of Contents

TABLE OF	CONTENTS	4			
LIST OF FI	GURES	8			
LIST OF TA	ABLES	8			
REVISION	REVISION TABLE				
SAFETY W	ARNINGS	10			
1 INTRO	DDUCTION	11			
1.1 Syst	rem Overview	11			
1.2 Uni	T SETUP	12			
2 UNIT	DESCRIPTION	13			
21 FRO	ητ Ρανεί Ι ανομτ	13			
211	Front Panel Shortcuts	13			
2.1.2	Button behaviour tables				
2.2 REA	R PANEL LAYOUT				
3 MAIN	UNIT PRODUCT SPECIFICATION	19			
3.1.1	Power Supply Requirement	19			
3.2 INPU	JT SPECIFICATIONS	19			
3.2.1	4K HDMI	19			
3.2.2	4K DP Input (General Input Module Only)	19			
3.2.3	3G-SDI Input (General Input Module Only)				
3.2.4	Genlock Input with Loop through				
3.3 Out	IPUT SPECIFICATIONS	20			
3.3.1	HDMI Outputs	20			
3.3.2	HDCP Output encryption	20			
3.3.3	Audio Output	20			
3.3.4	Supported Formats (Resolutions and Frame rates)				
3.4 CON	MUNICATIONS SPECIFICATION				
3.4.1	TCP/IP Port	22			
3.4.2	Serial Communication Settings (RS232)	22			
4 UNIT	CONTROL	23			
5 FRON	T PANEL MENUS	23			
5.1 MAI	IN (TOP) MENU	23			
5.2 INPU	JT MENU	24			
5.2.1	Slot 1 and Slot 2 Sources	24			
5.2.2	Source Config	24			
5.2.3	Picture Control	24			
5.2.3.1	Colour space	24			
5.2.3.2	Sharpness	25			
5.2.3.3 5 <i>7 1</i>	Video Ranae	25			
5.2.5	EDID				
5.26	Picture Format				
5.2.6.1	Scaling				
Issue 2	2.5 HQPro1000 User's (Guide			



5.2.6.2	Aspect Ratio	Error! Bookmark not defined.
5.2.6.3	HDMI Audio Support (Future Release)	
5.2.6.4	SDI Setup (Optional GIM card) (Future Release)	
5.2.6.5	SDI Level B Stream (Future Release)	
5.2.7	Input Enable (Future release)	
5.3 Out	PUT	29
5.3.1	Main Output and Quad Output Format	
5.3.1.1	Resolution	
5.3.1.2	Frame Rate	29
5.3.2	Chroma Control	
5.3.2.1	HDMI Deep Colour	
5.3.2.2	Colour Space	
5.3.2.3	DVI Kange	
5 3 3	Luma Control	30
5331	Gamma Correction	30
5332	Black Crush	30
534	Sync Mode	30
5341	I/O Lock = Off (Free Run)	30
5.3.4.2	I/O Lock = Source	
5.3.4.3	I/O Lock = Low Latency	
5.3.4.4	I/O Lock = Genlock	
5.3.5	Confidence Monitor Output (Future Release)	
5.4 LED	SCREEN SIZE	
541	Sinale I FD Wall Size Adjustments	33
512	Shight LED Wall She Hajdstrict & Junt Module)	21
5.4.2	Spricing Whith & Height (Quad Output Would)	
5.4.3		
5.4.4	LED Wall Splicing Examples	
5.4.4.1	Standard Splicing - 2x1 Example	
5.4.4.2	Advanced Splicing - 2x2 Example	
5.4.5	Standara Splicing - 2x2 Example	
5.4.5.1	Advanced Spilcing - 2x2 Example	
5.5 LAYE	RS	
5.5.1	Background	
5.5.2	Layer Enable	
5.5.3	Layers Sources	
5.5.4	Layer Modes	
5.5.5	Fade (Transition) speed	
5.5.6	Laver (PiP) Position & Size	
5.5.6.1	Laver Pos	
5.5.6.2	Layer Size	
5.5.6.3	Fade Curves	
5.5.6.4	Curve Control	44
5.5.6.5	Opacity	
5.5.6.6	Horizontal Flip	
5.5.6.7	Vertical Flip	
5.5.0.8	Area-or-Interest (AOI Select)	
5 5 6 10) laver Freeze	40
5 5 7	l aver Wireframe Preview	
5.6 Dpr		
	Drocot Dago	
5.0.1	rieset ruge	
5.6.2	Store	
5.6.3	Recall	
5.6.4	Clear	51
5.6.5	Export Page	
5.6.6	Import Page	
5.6.7	Preset Conflict	
Issue 2	.5 н	IOPro1000 User's Guide
15500 2		



5.6	6.7.1 Preset Conflict examples	51
5.7	PRESET WIREFRAME PREVIEW	52
5.8	UTILITIES	53
5.8.1	1 Custom Res (Resolutions)	53
5.8.2	2 Test Pattern Setup	
5.8	8.2.1 Test Pattern Selection	53
5.8	8.2.2 Test Pattern Tone	53
5.8	8.2.3 Moving Cross parameters	
5.9	AUDIO	55
5.9.1	1 Audio Sys Enable	
5.9.2	2 Layer Control	
5.9	9.2.1 Audio Set	55
5.9	9.2.2 Priorities	
5.9.3	3 Output Control	
5.9	9.3.1 Global Mute	
5.9	9.3.2 Global Gain	
5.9	9.3.4 Processing	
594	4 Innut Control	56
5.9	9.4.1 Source Gain	56
5.9	9.4.2 Source Mute	
5.10	System	
5.10.	0.1 Names/Profiles	
5.10).2 Unit Name	
5 10) 3 Innut Names	57
5.10) A Llser (Euture release)	
5.10. E 10	0.5 Manu Sattings	
5.10.	1.5 IVIEIIU SELLIIIYS	
5.1	10.5.2 Keynad Lock (Future Release)	
5.1	10.5.3 Menu Time	
5.1	10.5.4 LCD Backlight	58
5.1	10.5.5 Jog Push Enable	58
5.10.	0.6 Network Settings	59
5.10.	0.7 Security Settings	59
5.10.	0.8 Factory Defaults	
5.11	AUDIO (FUTURE RELEASE) ERROR! B	OOKMARK NOT DEFINED.
5.11.	.1 Audio VolumeError! B	ookmark not defined.
5.11.	2 Audio Priority	ookmark not defined.
5 11	3 Audio Delay Frror B	ookmark not defined.
5 11	A Audio Mute	ookmark not defined
5.11.		bokinark not acjinca.
6 WE	B BROWSER CONTROL	60
6.1	CONNECTING TO THE UNIT	
6.2	WEB PAGE MENU ORIENTATION	
63		62
6.0		67
6.5		
0.5	LOGO & COSTOM TEST PATTERNS	02
7 FIRI	MWARE UPDATE	63
71		63
7.1		دی دع
7.2	SVSTEM DESTORE EDOM AN IMAGE EILE	دی
/.) .		



8	OF	ντιο	NAL MODULES	64
	3.1	Gen	ieral Input Module (GIM)	64
	8.1	.1	Module Description	64
	8.1	.2	Module Specification	65
	8	8.1.2.1	4K 2.0 HDMI	65
	8	3.1.2.2	4K 1.2 DP Input	65
	א רכ	5.1.2.3 Out		
	5.2 Q7	Q04 1	AD ZK HDIMI OUTPUT CARD	05
	0.2 0.2	.1	Module Description	
	0.2 2 2	.z 0114	AD 12G-SDI INDUT (EUTUDE BELEACE)	
	ן. פ פ	1 1	Module Description	
	<i>2</i> .3	.1	Module Description	
	0.5	.2		
9	US	SING	i THE FRONT PANEL	67
9	9.1	Fro	NT PANEL MENU TREE	67
	9.1	.1	Input Menu	
	9.1	.2	LED Screen Sizing Menu	
	9.1	.3	Layer Menu	71
	9.1	.4	Presets	
	9.1	.5	Utilities	
	9.1	.6	System	
	9.1	.7	Status	
9	9.2	Вит	TON COLOUR CODES FOR THE OPERATION EXAMPLES	74
9	Э.З	Fro	INT PANEL OPERATION EXAMPLES	75
	9.3	.1	Switch between two layers with two different inputs	
	9.3	.2	Switch between two inputs on the same layer	
	9.3	.3	Resize layers	77
	9.3	.4	Remove a Layer	
	9.3	.5	Assign source to the same layer from the same input card	
	9.3	.6	Store a Preset	
	9.3	.7	Delete a Preset	81
10		-		82
TC.				02
	10.1	0	JPERATING CONDITIONS	
	10.2	S		
	10.3	C		
	10.4	Ρ.	AT TESTING	82
11	0	ЭΙΜΙ	ENSIONS	83
12		NEIC	GHT	83
13			/ED	83
13	, r	000	/ LIV	03
14	1	NOIS	SE LEVEL	83
15		NAR	RANTY	83
AI	PEN		A RELEASE HARDWARE & FEATURES	84
A	PEN	VDIX	(B INPUT AND OUTPUT MODULE CARD INSTALLATION	85



List of Figures

Figure 1: HQPro1000 Front Panel	13
Figure 2: HQPro1000 Rear Panel	18

List of Tables



Revision Table

Version	Author	Modification	Date
1.0	GK	Initial Release	02-Jul-2019
1.01	GK	Corrected a chapter numbering error	21-Jul-2019
		Corrected an error on the rear panel image	
1.02	RAS	Updated Menu Control	11-Nov-2019
1.03	RAS	Added Menu features for R2	28-Nov-2019
1.04	RAS	Release 2	13-Mar-2020
1.05	RAS	Minor Edits to menus	22-Mar-2020
1.06	RAS	Edited EMC, Added Noise Levels and power consumption	31-Mar-2020
2.0	RAS	R2.0 initial Features included	09-Apr-2020
2.1	RAS	New Features and Menus added	01-Jul -2020
2.5	RAS	R2.5 Features added	05-Feb-2021



Safety Warnings

- THERE ARE NO USER-SERVICEABLE PARTS WITHIN THE UNIT. REMOVAL OF THE TOP COVER WILL EXPOSE THE USER TO DANGEROUS VOLTAGES. DO NOT OPERATE THE UNIT WITHOUT THE TOP COVER INSTALLED.
- ENSURE THAT ALL ELECTRICAL CONNECTIONS (INCLUDING THE MAINS PLUG AND ANY EXTENSION LEADS) COMPLY WITH ELECTRICAL SAFETY REGULATIONS.
- CONNECT ONLY LOW VOLTAGE ISOLATED CIRCUITS TO THE INPUT AND OUTPUT CONNECTORS. IF ANY QUESTIONS REGARDING THIS ISSUE, PLEASE CONSULT QUALIFIED SERVICE PERSONNEL.
- TO PREVENT SHOCK OR FIRE HAZARD DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE. IF SUCH EXPOSURE OCCURS, REMOVE THE POWER CABLE FROM THE MAINS OUTLET AND HAVE THE EXPOSED UNIT CHECKED BY QUALIFIED SERVICE PERSONNEL.
- DO NOT OPERATE THE EQUIPMENT IF IT APPEARS THAT IS NOT OPERATING NORMALLY, OR IF IT IS DAMAGED IN ANY WAY. REMOVE THE POWER CABLE FROM THE MAINS OUTLET AND CONSULT QUALIFIED SERVICE PERSONNEL.
- DO NOT REMOVE ANY FIXED COVERS UNLESS YOU ARE A QUALIFIED SERVICE PERSONNEL. ALWAYS DISCONNECT THE POWER CABLE FROM THE MAINS OUTLET BEFORE ANY COVER IS REMOVED.
- THIS EQUIPMENT CONTAINS NO USER-SERVICEABLE PARTS. REFER ALL SERVICING AND MAINTENANCE TO QUALIFIED SERVICE PERSONNEL.



1 Introduction

This manual explains how to operate your HQPro1000 Scaler-Switcher. If you have any questions relating to this or any other Calibre product, please visit our web site <u>www.calibreuk.com</u>.

1.1 System Overview

The new Calibre HQPro1000 scaler-switcher features 4K50/60Hz 4:4:4 image processing algorithms that generate vivid, sharp, and detailed images. The HQPro1000 also supports true seamless switching, 4K I/O interfaces, four layers, and numerous other high-end processing features.

The HQPro1000 is a modular system composed of a base unit, two optional input card slots, and one optional output card slot. The base unit includes two 4K HDMI 2.0 inputs, one 4K HDMI 2.0 output, and a confidence monitor output. The main outputs and the optional output card are active simultaneously. The confidence monitor displays in a quadrant configuration the two sources connected to the unit via the main HDMI inputs and the sources selected by the two optional input cards.

The first optional input card to be released is the General Input Module (GIM). The GIM card includes three inputs: one HDMI 2.0, one Display Port 1.2, and a 3G-SDI input. The first optional output card to be released will be the Quad Output Module (QOM). The QOM card has 4 HDMI 1.4 outputs that allow the user to slice the main 4K output into four segments. Each segment can be of any size according to the application requirement.

The main unit also includes a genlock input connector with loop-through, allowing the output frame to lock to an externally provided synchronization signal. Alternatively, the output frame rate can also lock to the input frame rate dynamically without frame rate conversion to reduce system latency; or it can be set to a fixed output frame rate.

If an HDCP encrypted signal is connected to the unit, then the output signals will also be HDCP encrypted. HDCP capability can be switched off per input so that a source can transmit non-protected content material.

The LED sizing menu allows users to easily and quickly define the area within the output raster where the scaled image will be placed. This area is set to match exactly the size of the LED wall. The image can be reduced to an area as small as 128x96 pixels.

All units can be operated via the front panel, through a built-in web page, or via an API interface. The API commands are presented as an appendix at the end of this manual.



1.2 Unit Setup

Inspect the shipping box and make sure that no damage was caused during transportation. If you see any damage, immediately contact the shipping carrier. Remove the unit and ensure that there is no damage caused during shipping.

STEP 1: Verify that the following items are included with the unit:

• 3 pin plug IEC mains cable



STEP 2: Install the unit on a clean flat surface or an equipment rack using the rack-mount ears. The unit should always be installed in a well ventilated,

static-free environment and close to the AC power source. Max. operating temperature is 0° C to 40° C and 5% to 95% non-condensing humidity.



STEP 3: Connect the display device (Monitor, LED Wall, Projector, etc.) to the HDMI output connector.

STEP 4: Connect a monitor to the Confidence monitor output

-
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- 11-1

STEP 5: Connect the Input sources (Blu-Ray Player, Set-Top Box, PC, etc.).

STEP 6: Insert the power cord and power-up the unit. The boot-up process takes about one minute.



2 Unit Description

2.1 Front Panel Layout

The front panel buttons allow users to select between the different inputs, provide direct access to essential functions, and allow for the menu navigation to set up and control the unit.



A: LCD Display - Displays the unit menus and also provides a layer and preset wireframe illustration.

B: Layer keys - Layer 1 through 4: These keys select the corresponding layer

C: PRV (Preset Preview) - Enables the layer wireframe representation allowing users to preview the selected preset

D: Jog wheel - The wheel is used for navigating through the menu system and making value changes. The jog wheel has a push function that creates the same effect as pushing the Menu/Sel key.

E: Menu navigational keys:

- Menu/Sel key acts as an Enter or Select key for menu changes.
- Esc to exit the menu or any submenu

F: Input keys

All input channels are directly selected with these buttons.

- First Row: 2xHDMI-1 & 2 (UHD/4k) inputs, LOGO, Test Pattern
- Second Row: Optional Card 1: Inputs 1 through 4
- Third Row: Optional Card 2: Inputs 1 through 4

G: Function keys

These keys provide direct access (shortcuts) to several important functions and menus.

- LED Setup: Shortcut to the LED sizing menu
- Freeze: Freezes the selected layer. Pressing the button again, deactivates the action and resumes the live output.
- AOI (Input Area-of-Interest): Shortcut to the input AOI menu. Also activates or deactivates the feature.
- Black: Sets the whole output to black. Pressing the button again, deactivates the action and enables the live output to reappear.

H: Preset keys

These keys provide direct access to preset

- 10 Preset Keys
- Preset Store and Clear Keys



2.1.1 Front Panel Shortcuts:

ESC + Preset 1: Keypad Lock ESC + Preset 2: Keypad Unlock ESC + Preset 3: Firmware Rev. no. ESC + Preset 4: Network Settings

Note: First press and hold the Esc button and then press the second button.

Table 1: Input and Outputs

	Base Unit	Optional
HQPro1000 Main Unit		
HDMI 4K 2.0 Inputs	2	
HDMI 4K 2.0 Outputs	1	
HDMI 2K 1.4 Confidence Monitor Output	1	
 Ext. Genlock Input and Loop through 	1	
General Input Module (GIM)		
HDMI 4K 2.0 Input		1
 DisplayPort 4K 1.2 Input 		1
3G-SDI Input		1
Quad Output Module (QOM)		
HDMI 2K 1.2 Output		4
12G-SDI Input Module (IM)		
• 12G-SDI Input		4



2.1.2 Button behaviour tables

LED Colour: White Brightness	Flashing Speed	Behaviour
Dark	N/A	No Preset is stored
Half Lit	Solid	A valid preset is stored, but not on the
		screen
	Fast	A valid preset is stored and has been cued to be executed after TAKE
Fully Lit	Slow	A preset has been selected, but conflict has been detected with the existing layout or Nothing is stored in the preset
	Solid	The preset is on screen

2.1.2.1 Presets 1 thru 10

2.1.2.2 Preset Preview (PRV)

LED Colour: White Brightness	Flashing Speed	Behaviour
Dark	N/A	Function is inactive
Fully Lit	Solid	 Activated immediately as soon as the button is pressed Function stays active until the button is pressed again

2.1.2.3 Test Pattern (TP), Black (BLK)

LED Colour: Red Brightness	Flashing Speed	Behaviour
Dark	N/A	Functions are inactive
Fully Lit	Solid	 Activated immediately across the whole output screen as soon as the button is pressed. Pressing these buttons has an immediate effect. TRANS or CUT buttons are not needed to be pressed for these functions to be activated Function stays active until the button is pressed again



2.1.2.4 FREEZE (FRZ)

<u>LED Colour: White</u> Brightness	Flashing Speed	Behaviour
Dark	N/A	Function is inactive
Half Lit	Solid	Selected layer is frozen, but is not on screen
Fully Lit	Solid	 If a layer button is pressed prior to pressing the FRZ button, then the corresponding layer will be frozen If no layer button is pressed prior to pressing the FRZ button, then all layers will be frozen Pressing FRZ has an immediate effect. TRANS or CUT buttons are not needed to be pressed for this function to be activated Function stays active until the button is pressed again

2.1.2.5 Area of Interest (AOI)

LED Colour: White Brightness	Flashing Speed	Behaviour
Dark	N/A	 Selected input doesn't have modified AOI settings. Default settings are applied
Half Lit	Solid	 The Selected input has modified AOI settings, but currently, are not applied
Fully Lit	Solid	 Selected input has modified AOI settings, and are applied Pressing AOI has an immediate effect. TRANS or CUT buttons are not needed to be pressed for this function to be activated

2.1.2.6 Layers 1 thru 4

LED Colour: Red/Blue Brightness	Flashing Speed	Color	Behaviour
Dark	N/A	N/A	Layer not on screen
Half Lit	Solid	Blue	 Layer is selected and in the edit mode
Fully Lit	Solid	Red	Layer is selected.



2.1.2.7 HDMI1, HDMI2 & Input Module (Card) Inputs

LED Colour: Red/Green Brightness	Flashing Speed	Color	Behaviour
Dark	N/A	N/A N/A No valid signal has	
Half Lit	Solid	Green	A valid signal has been detected, but it is not on screen
	Fast	Green	A valid source has been cued to go on screen
Fully Lit	Slow	Green	A valid source hasn't been detected, but the input is cued to go on screen
	Slow	Red	An invalid input is on screen
	Solid	Red	A valid input is on screen

2.1.2.8 LOGO

LED Colour: Red/Green Brightness	Flashing Speed	Color	Behaviour		
Dark	N/A	N/A N/A No LOGO is stored			
Half Lit	Solid	Green	A LOGO is stored, but it is not on screen		
	Fast	Green	LOGO has been cued to go on screen		
Eville 134	Slow	Green	A LOGO is not stored, but it is cued to go on screen		
Fully Lit	Slow	Red	LOGO is on screen, but it's black because there is no image is stored		
	Solid	Red	LOGO is on screen		

Other Buttons

- ESC
- Sel
- LED Size
- (Layer size)
- Store (Preset)
- Erase (Preset)
- Next (Preset)
- Toggle (Preset)

LED Colour: White Brightness	Flashing Speed	Behaviour	
Dark	N/A The buttons are not pressed		
Fully Lit	Solid The button is pressed. Button goes		
		as soon as it is depressed.	



2.2 Rear Panel Layout

The rear panel features all input and output connectors, genlock connectors, communication ports, power supply connector with switch and the input and output optional slots.



Figure 2: HQPro1000 Rear Panel

A: Communication Ports

These keys provide direct access to preset

- TCP/IP
- USB
- RS232 port
- B: Input Connectors: 2x HDMI 4K50/60Hz 4:4:4
- C: Confidence Output Monitor Connector: 1x HDMI 2K50/60Hz 4:4:4
- D: Main Output Connector: 2x HDMI 4K50/60Hz 4:4:4
- E: Genlock input (BNC) with loop-through
- **F:** Optional Output Card slot
- G: Optional Input Card slots
- H: Power supply connector with switch



3 Main Unit Product Specification

This section provides a technical specification for all models. The following topics are discussed:

- Power Supply Requirements
- Input Specifications
- Output Specifications
- Analog Audio
- Supported Formats
- Communication Specifications

3.1.1 Power Supply Requirement

100V-264VAC 50/60Hz connected via a standard IEC connector located on the rear panel.

3.2 Input Specifications

3.2.1 4K HDMI

- HDMI with or without HDCP, 36-bit video compatible support
- DVI-D input with or without HDCP
- Signal formats video
 - SD: 625i (576i) and 525i (480i) in double-rate formats;
 - ED: 480p, 576p;
 - HD: 1280x720p, 1920x1080i, 1920x1080psf; 1920x1080p 23.97, 24, 25, 29.94, 30, 50, 59.94 & 60Hz; 2048x1080p 23.97, 24, 25, 29.94, 30, 50, 59.94 & 60Hz.
 - 4K: 3840x2160p & 4096x2160p @ 23.97, 24, 25, 29.94, 30, 50, 59.94 & 60Hz
- Signal formats computer
 - Common VESA graphics formats from VGA up-to 4K including 2560x1440p,
 2560x1600p, 3840x2160p & 4096x2160p @ 23.97, 24, 25, 29.94, 30, 50, 59.94 & 60Hz
 at 4:4:4 colour space format

3.2.2 4K DP Input (General Input Module Only)

- Display Port without HDCP, 36-bit video compatible.
- Signal formats as HDMI

3.2.3 3G-SDI Input (General Input Module Only)

- Format: SD-SDI, HD-SDI and 3G-SDI YCbCr 4:2:2 serial digital component video.
- Level B support. When the input is 3G Level B (2 stream mapping), there is an option to select which of the two video streams (Stream 1 or 2) to use. Otherwise, it works with whatever mapping is specified in the SMPTE 352 packet (or defaults to 10bit 4:2:2 if none).
- Input impedance: 75 ohms.
- SMPTE 292M, SMPTE 259M-C and SMPTE 424M compliant, accepts 484i, 576i, 720, 1080i and 1080p single link formats at 270Mb, 1.485Gb or 2.97Gb rates.

3.2.4 Genlock Input with Loop through

The Genlock input supports the following signals:

- NTSC and PAL Blackburst
- HD tri-level sync, per SMPTE 274M & 296M.

The passive loop-through passes the genlock signal to another unit downstream. The loop through functionality is active when the unit is turned on.





3.3.1 HDMI Outputs

- HDMI with or without HDCP, 36-bit video compatible.
- Signal formats video
 - SD: 625i (576i) and 525i (480i) in double-rate formats;
 - ED: 480p, 576p;
 - HD: 1280x720p, 1920x1080i, 1920x1080psf; 1920x1080p 23.97, 24, 25, 29.94, 30, 50, 59.94 & 60Hz; 2048x1080p 23.97, 24, 25, 29.94, 30, 50, 59.94 & 60Hz.
 - 4K: 3840x2160p & 4096x2160p @ 23.97, 24, 25, 29.94, 30, 50, 59.94 & 60Hz
- Common VESA graphics formats from VGA up-to 4K including 3840x2160p & 4096x2160p 23.97, 24, 25, 29.94, 30, 50, 59.94 & 60Hz at 4:4:4 colour space format

Note: Optional Quad Output Module only supports progressive formats up-to 2048x1080p.

3.3.2 HDCP Output encryption

When the input signal is HDCP encrypted, the output will also be encrypted. If the display device does not support HDCP, the output will be black and a message indicating that the presence of an HDCP signal will be shown on the screen.

The user can turn off the unit's HDCP compliance to allow non-encrypted content to pass through the unit. This is an important feature specially when using a MAC computer as the source. The MAC will encrypt its output signal if a compliant device is seen attached to its output regardless of the copy protection requirements of the content. By turning off HDCP, the MAC will see a noncompliant device and therefore will not encrypt its output. When HDCP compliance is turned off, encrypted sources will not be displayed.

3.3.3 Audio Output

Audio embedded in HDMI video streams is passed through the system and re-embedded into the HDMI output signal. When HDMI is selected as the input channel, the HDMI EDID is read by a video source such as a Blu- Ray Player. The unit allows the source to provide the formats shown under output formats for HDMI in the below table. All formats are re-embedded into the HDMI output data stream, those which are not allowed on the SDI or SPDIF output are muted on the individual channels.

Output Channel	Output Format
HDMI	PCM up to 8ch (4 pairs of stereo R-L), up to 24Bit, up to 192kHz sampling rate
	(incl. 32kHz,44.1kHz,48kHz,96kHz,192kHz)

The unit will not pass through any Dolby Digital, MPEG2 or DTS audio formats



3.3.4 Supported Formats (Resolutions and Frame rates)

	I			1								
Active Horiz. (Pix.)	Active Vert. (Lines)	60 Hz	59.94 Hz	50 Hz	30 Hz	29.97 Hz	25 Hz	24 Hz	23.98 Hz	Main HDMI	Mon. HDMI	Quad 2K HDMI
640	480	V	V	V						V		
720	480i		\checkmark							\checkmark		
720	480p		V							V		
720	576i			\checkmark						\checkmark		
720	576p			V						V		
800	600	V	V	V						V		V
1024	768	V	V	V						V		V
1280	720	V	V	V	V	V		V	V	V		v
1280	768	V	V	V						V		V
1280	800	V	V	V						V		V
1280	1024	V	V	V						V		V
1360	768	V	V	V						V		V
1366	768	V	V	V						V		V
1440	900	V	V	V						V		V
1400	1050	V	V	V						V		V
1600	1200	V	V	V						V		V
1680	1050	V	V	V						V		V
1920	1080i	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark		\checkmark	\checkmark	\checkmark		
1920	1080p	V	V	V	V	V	٧	V	V	V	V	V
1920	1200	V	V	V						V		V
2048	1080	V	V	V	V	V	V	V		V		V
2048	1200		V	V						\checkmark		\checkmark
2560	1080	V	V	V	V	V	٧	V	V	V		
2560	1440	V	V	V	V	V	٧	V	V	V		
2560	1600	V	V	V	V	v				V		
3840	2160	V	V	V	V	V	٧	V	V	V		
4096	2160	V	V	V	V	V	٧	V	V	V		

Table 2: Input and Output formats

Output Resolutions in faded text will be supported in future releases



3.4 Communications Specification

The unit supports both TCP/IP and RS-232 serial protocols. Either port can be used to send API commands to the unit. The built-in webpage interfaced is accessed via the Ethernet port. Restoring the unit to the factory default state, doesn't affect the communication settings.

3.4.1 TCP/IP Port

The unit supports DHCP and static modes. If DHCP is active, the unit will be assigned an IP address by the network's DHCP master. If the unit is set in the static mode, the user needs to set the IP address manually.

Port 30000 is used.

3.4.2 Serial Communication Settings (RS232)

Table 3: Serial Connector Pinout

DB-9	Signal	Function	
Pin	name		
2	RXD	RS232 levels, Receive (from the HOST)	
3	TXD	RS232 levels, Transmit (to the HOST)	
5	DGND	Ground	



Table 4: RS-232 communication settings

Parameter	Value
Baud rate	115200 Bits/second
Stop Bits	1
Number of bits received/transmitted in the BYTE	8
Parity Bits	No Parity
Flow Control	Off



4 Unit Control

The HQPro1000 can be controlled via the front panel, a web page built-in into the unit or an API protocol interface. The next two chapters describe the Front Panel and Web Browser control methods. The API interface can be found in a separate document that will be available on our web site.

5 Front Panel Menus

The unit can be fully controlled by navigating through the menus and using the buttons and the jog wheel.

You can enter the main menu by pressing the Menu/Sel key from the status screen. You can also use the jog wheel and Menu/Sel and Esc buttons to navigate through the different menus.

A separate chapter provides the complete diagram of the menu tree.

5.1 Main (Top) Menu

Under the main menu is the sub-menus that allow the user to set up and operate the unit. These sub-menus are:

- Inputs
- Output
- LED Screen Size
- Layers
- Presets
- Utilities
- System
- Status

Each menu includes an exit option to return to the previous level. Some adjustments are not applicable to all signal types or operating modes.

The unit is designed to have separate memories for all the settings in each section. All Input parameters are specific to your chosen input channel and input signal type and are not global to the unit



5.2 Input Menu

5.2.1 Slot 1 and Slot 2 Sources

Shows the availability of the Slot Cards and lets you choose the source from the card

Settings: SLOTX-1, SLOTX-1, SLOTX-1 Default: SLOTX-1

X will be either SLOT1 or SLOT2.

5.2.2 Source Config

This menu contains adjustments related with each input. HDMI-1 and HDMI-2 input adjustments are always present, but inputs from the optional input cards only appear if the card is installed.

- HDMI-1
- HDMI-2
- Slot 1-1
- Slot 1-2
- Slot 1-3
- Slot 2-1
- Slot 2-2
- Slot 2-3

5.2.3 Picture Control

5.2.3.1 Colour space

Settings: RGB or YCbCr, if the Auto setting does not give the desired result **Default:** Auto

5.2.3.1.1 Black-Level Offset (Future Release)

Used to select 7.5 IRE black level set-up adjustment. Should always be set to 7.5 IRE for HDMI video and NTSC video inputs and should usually be off for PAL analog video inputs. Settings: 0 IRE, 7.5 IRE Default: 0 IRE

5.2.3.1.2 Brightness

Brightness controls the offset applied to the video signal. (same as the brightness control on a TV) **Settings:** -50 to 50 in steps of 1 **Default:** 0

5.2.3.1.3 Contrast

Contrast controls the gain applied to the video signal. Settings: -50 to 50 in steps of 1 Default: 0

5.2.3.1.4 Saturation

Controls the video colour saturation, (applies individually to all video inputs but not computer input signals or formats). Settings: -50 to 50 in steps of 1 Default: 0

Issue 2.5



5.2.3.1.5 Hue

Adjusts the colour hue of NTSC signals. This is not applicable for computer input signals or formats. **Settings:** -50 to 50 in steps of 1 **Default:** 0

5.2.3.1.6 RGB values

This is a user-defined colour temperature setting where R,G,B gain (white balance) and offset/bias (black balance) can be adjusted separately in order to match the display device. Settings: Red/Green/Blue Gain/Bias: -512 to 512 Default: 0

5.2.3.1.7 Colour Temp

A preset range of Colour Temperature allowing the user to select from pre-configured colour temperatures to match the colour temperature of the incoming signal. If this value Native Colour Temp value in the Output menu is the same, no conversion is performed. **Settings:** 3200K, 3700K, 5500K, 6500K, 7500K, 9300K Default: 6500K

5.2.3.2 Sharpness

Control of the sharpening enhancement filters' levels. These are peaking filters to improve high-frequency response. Note that setting this control too high on a signal which already has good high-frequency response will cause ringing or ghosting.

Settings: -10 to 10 in steps of 1 Default: 0

5.2.3.3 Reset All

Option to reset all Input Attributes to the factory default settings

5.2.4 Video Range

Settings: Limited. Full or Auto range. Default: Auto

5.2.5 EDID

5.2.5.1 EDID In Format

The preferred video resolution can be selected from this menu. This setting requests the source to output the selected format provided the driver of the graphics card takes notice of the preferred timing in the EDID. The PC may have to be rebooted for the driver to take note.

5.2.5.2 EDID Frame Rate

The preferred video frame rate can be selected from this menu. This setting requests the source to output the selected frame rate provided the driver of the graphics card takes notice of the preferred timing in the EDID. The PC may need to be rebooted for the driver to take notice.



5.2.5.3 Deep Colour

The EDID can be configured to enable the deep colour capability. The unit can process colour depth of 24/30/36 per channel. Deep Colour can be off, if the source outputs 24bits, or set to on when the source outputs 30 or 36bits. The detected source output colour depth is reported on the corresponding menu. **Settings:** On/Off

Default: Off

5.2.5.4 4K Support

The 4K Colorspace can be adjusted allowing the user to set the preferred mode

Settings: 444+420, 444 Only, 420 Only **Default:** 444+420

5.2.5.5 Gamma

5.2.5.5.1 Input Gamma (Future Release)

Set this value to match the gamma of the input signal. Input and output gamma both default to 1.0. If they are both set to the same value, there is no effect on the image. Settings: 1.0 to 3.0 in steps of 0.1 Default: 2.2



5.2.6 Picture Format

5.2.6.1 Aspect Ratio

The aspect ratio of the overall image can be adjusted in this menu from the below options

Settings: Auto, 4:3, 5:4, 16:9, 16:10, 21:9 **Default:** Auto

5.2.6.2 Scaling

With this menu, the user instructs the unit on how to scale the input signal when the aspect ratio of the output image is different from the display's aspect ratio. Four formats are available:

- Original
- Full Screen
- Crop
- Anamorphic (Future Release)

5.2.6.2.1 Original

The input image is scaled to completely fit the display area either horizontally or vertically without any distortion. The input aspect ratio is preserved, the whole input image is shown on the output, but some areas on the top/bottom or left/right are set black. Example:

1920x1080 (16:9)



5.2.6.2.2 Stretch

The input image is scaled to completely fit the display area without preserving the aspect ratio of the source without any black areas on the output. If the aspect ratio of the input and the output is different, this action will cause distortion.

Example:





The input image is scaled to completely fit the display area while preserving the aspect ratio of the source. Portions of the input image on the top/bottom or left/right will be cropped out of the output image.

Example:

Issue 2.5





5.2.6.2.4 Anamorphic: (Future Release)

The image will be treated as in crop, but it is always scaled to a 16:9 aspect ratio.

5.2.6.3 Input Area of Interest

Refer to Section 5.5.6.8

5.2.6.4 HDMI Audio Support (Future Release)

The audio capabilities of the HDMI port can be configured by overwriting the EDID. The unit described in this manual is part of an audio/video processing chain, and devices behind the unit may not be able to cope with advanced audio. By setting this parameter to "Match Display", the unit signals the source to match with the audio capabilities of the display. If the parameter is set to "Full", the capabilities of the unit are communicated via EDID to the audio source.

Settings: Match Display/Full Default: Full

5.2.6.5 SDI Setup (Optional GIM card) (Future Release) 5.2.6.5.1 SDI to HDMI Audio

SDI audio input is routed to the HDMI output connector. Two consecutive SDI audio channels can be output on the HDMI/3GSDI output interface. The group can be chosen, or all eight SDI audio channels can be transmitted

Settings: Stereo Ch. (1,2)/(3,4)/(5,6)/(7,8)/Multichannel **Default:** Stereo Ch. (1,2)

5.2.6.6 SDI Level B Stream (Future Release) Selects which of the two video streams (Stream 1 or 2) to use.

Settings: SDI Level B Stream 1 or SDI Level B Stream 2 Default: Stream 1

5.2.7 Input Enable (Future release)

Each input can be disabled locking the associated front panel button. Settings: 0: Disable or 1: Enable Default: 1; All Enabled

5.3 Output



This menu contains adjustments related with the outputs of the unit.

5.3.1 Main Output and Quad Output Format

5.3.1.1 Resolution

The selected output resolution should match the native resolution of the imaging device to avoid double scaling. When you are connected to an LED display, choose a resolution that is equal to or greater than the display resolution. Then use the LED screen size adjustment to scale to the LED wall. Some low-cost LED walls display artefacts when using lower resolution settings. To deal with these artefacts it is sometimes necessary to choose a much higher resolution, and then use the LED screen size adjustment as described above.

Settings: See the Supported format table in the Product Specification chapter Default: 1920x1080p

5.3.1.2 Frame Rate

As with the output resolution, the output frame rate should match the native frame of the imaging device. Some frame rates may not be available depending on the selected resolution.

In auto mode, the output frame rate follows the input frame rate if it supported by the output resolution. If the input frame rate is not supported by the output resolution, then the unit determines the output frame according to a procedure programmed in the software.

Settings: 60 Hz, 59.94 Hz, 50 Hz, 48 Hz, 25Hz, 24 Hz, 23.97 Default: 59.94Hz

5.3.2 Chroma Control

5.3.2.1 HDMI Deep Colour

Internally, the output interface processes data at a full ten bits per colour. The colour depth on the HDMI outputs is determined by the supported standard of the attached monitor or device when set to DVI/HDMI.

5.3.2.2 Colour Space This menu allows users to select between the RGB and YPbPr colour spaces

Settings: Auto, RGB, YCbCr444, YV422, YYC420 Default: Auto

5.3.2.3 DVI Range

DVI 1.0 and HDMI 1.1/1.2 devices are set at 24 bit, for HDMI 1.3 or later compliant devices it is up to 36 bit. The DVI forced selection will output video with 24 bit colour depth irrespective of the supported standard of the attached monitor.

Settings: Auto, Full, Limited Default: Auto

Issue 2.5



5.3.2.4 Colour Temperature

Native Colour Temp allows the user to select from pre-configured colour temperatures to match the display. If this value is the same as the Colour Temp value in the (Input) Colour menu, no conversion is performed.

Settings: 3200K, 3700K, 5500K, 6500K, 7500K, 9300K Default: 6500K

5.3.3 Luma Control

5.3.3.1 Gamma Correction

Output gamma allows to re-gamma video signals with pre-configured gamma values to match the display. Input gamma and output gamma both default to 1.0. If they are both set to the same value, there is no effect on the image.

Settings: 0.3x100 to 3.00x100 in steps of 0.1 Default: 1.0

5.3.3.2 Black Crush

The black input level should be optimized prior to using Black Crush and any filter settings should also be optimized first. Black Crush is not a replacement for correct input settings, but it is available to clean up any remaining black level noise on the signal which may be visible on very bright LED screens without reducing the peak white brightness. This function is not the same as adjusting the overall black level.

It is recommended to use a setting between 0 and 16 and not more than 20. For most LED screens, the optimum setting for Black Crush is between 8 and 20. For unusually noisy subject material, 24 can be used but detail loss may occur in dark areas. If too high a setting is chosen, image solarization may be observed where dark image areas turn entirely black or even change colour.

Settings: 0 to 255 in steps of 1 Default: 0

5.3.4 Sync Mode

From this menu, the user selects the I/O lock mode of the generated output frame sync. There are 3 choices to select from:

Settings:

- Off (Free Run)
- Source (Future Release)
- Low latency (Future Release)
- Genlock

Default: Off (Free Run)

5.3.4.1 I/O Lock = Off (Free Run)

If I/O Lock is set to "off" and the frame rate is a fixed value (60, 59.94...), the output sync free-runs at a fixed rate determined by the frame rate fixed value setting.

Switching between the different inputs is clean without any artefacts.

Issue 2.5



5.3.4.2 I/O Lock = Source (Future Release)

If I/O Lock is set to Source, the output refresh rate follows the refresh rate of the source that was selected from the menu: Output>I/O Lock>Source

If a lock condition cannot be achieved, then the output will free run and the refresh rate is determined by the output frame rate setting.

If the user selects an I/O lock source from one of the GIM card inputs, then the software restricts the video input selection from this card only to the selected i/o lock source. For example, if the user selects the 3G-SDI input as the I/O lock source, then the software will restrict only the selection of the 3G-SDI video from this card.

In this mode, switching between the different inputs is not clean and will take a few seconds.

5.3.4.3 I/O Lock = Low Latency (Future Release)

If I/O Lock is set to Low Latency, the output vertical sync follows the vertical sync of the selected source with one frame delay.

If a lock condition cannot be achieved, then the output will free run and the refresh rate is determined by the output frame rate setting.

If more than one source is displayed on the output, the software will select the low latency sync source according to the following order: Layer 1 (highest), Layer2, Layer 3 and Layer 4(lowest)

If a lock condition cannot be achieved and the frame rate is a fixed value, then the output refresh rate determined by the output frame rate setting.

In this mode, switching between the different inputs is not clean and will take few seconds.

5.3.4.4 I/O Lock = Genlock

If I/O Lock is set to Genlock, the output refresh rate will follow the vertical sync of the signal connected to the Genlock BNC connector. Genlock is achieved when the Genlock vertical sync rate matches the vertical sync rate set in the output menu. Valid combinations are 50Hz/50Hz, 59.94Hz/59.94H and 60Hz/60Hz.

If genlock is not achieved, the output frame rate refresh rate is determined by the output frame rate setting.

Switching between the different inputs is clean without any artefacts.



5.3.5 Confidence Monitor Output (Future Release)

A secondary Output displays in a quadrant configuration the two sources connected to the unit via the two main HDMI inputs and the sources selected by the two optional input cards.

If an input card is not installed, the related quadrant will be black



Resolution:

Settings: See the Supported format table in the Product Specification chapter up to 1920x1200 Default: 1920x1080p

Frame Rate Settings: 60 Hz, 59.94 Hz, 50 Hz, 48 Hz, 25Hz, 24 Hz, 23.97 Default: 59.94Hz



5.4 LED Screen Size

Often the LED size (resolution) does not precisely match standard video resolutions. This menu allows users to enter the LED size (width and height) so the unit can scale the output image accordingly. The LED wall-size can be as small as 128x96 pixels and as large as 4196x2160.

The LED size values entered in this menu needs to be equal or less than the output resolution set in the output menu. For example, if the LED wall is 3800x2000, then the output resolution needs to be set to 3840x2160.



5.4.1 Single LED Wall Size Adjustments

The user defines the LED size using the width and height parameters. The scaled output image is placed in the most top left corner of the output raster as defined by the output resolution. The offset parameters allow the image position to be placed anywhere within the output raster.

Settings:

- LED Width=0...4096
- LED Height=0...2160
- HORZ offset= 0...4096
- VERT offset= 0...2160

Default:

- LED Width=Output Horizontal resolution
- LED Height=Output Vertical resolution
- HORZ offset= 0
- VERT offset= 0





All Splicing examples require the Quad Output Module (Card) (Future Release)

5.4.2 Splicing Width & Height (Quad Output Module)

This menu defines the configuration of LED wall(s) that the Quad output card is connected to. The Quad output card has 4 outputs, so supported configurations are: 1x1, 1x2, 1x3, 1x4, 2x1, 3x1, 4x1 or 2x2

Settings:

- Width: 1, 2, 3, 4
- Height: 1, 2, 3, 4

Default:

- Width: 2
- Height: 2

5.4.3 Standard or Advanced Splicing (Quad Output Module)

The Quad output card can drive different sections of a large LED wall that can be equal or unequal in size. If the size of the various segments is the same, then the configuration setup is standard. For standard configurations, the settings discussed so far are enough to define the area where the output image will be displayed. If the size of the sections is unequal, then the Advanced splicing setup needs to be enabled to define the size of the area each section.

Settings: Standard / Advanced Default: Standard



2x2 Standard configuration



3x1 Advanced configuration



5.4.4 LED Wall Splicing Examples

The following figure illustrates how to setup two units in the standard configuration mode.

5.4.4.1 Standard Splicing - 2x1 Example





2x1 Standard configuration

STEP	MENU ITEMS TO MODIFY	Set to:
1	Output > I/O Lock	Source
2	LED Screen Size > LED Width	1920
3	LED Screen Size > LED Height	1080
4	LED Screen Size> Splicing Width	2
5	LED Screen Size> Splicing Height	1*
6	LED Screen Size> Splicing Setup	Standard*
		* This setting is the default value



5.4.4.2 Advanced Splicing - 2x1 Example





2x1 Advanced configuration

STEP	MENU ITEMS TO MODIFY	Set to:
1	Output > I/O Lock	Source
2	LED Screen Size > LED Width	1920
3	LED Screen Size > LED Height	1080
4	LED Screen Size> Splicing Width	2
5	LED Screen Size> Splicing Height	1*
6	LED Screen Size> Splicing Setup	Advanced
7	LED Screen Size> HPos1	0*
8	LED Screen Size> VPos1	0*
9	LED Screen Size> HPos2	1280
10	LED Screen Size> VPos2	0*
		* These settings are the default value


5.4.5 Standard Splicing - 2x2 Example





2x2 Standard configuration

STEP	MENU ITEMS TO MODIFY	Set to:
1	Output > I/O Lock	Source
2	LED Screen Size > LED Width	1920
3	LED Screen Size > LED Height	1080
4	LED Screen Size> Splicing Width	2
5	LED Screen Size> Splicing Height	2
6	LED Screen Size> Splicing Setup	Standard*
		* This setting is the default value

5.4.5.1 Advanced Splicing - 2x2 Example





STEP	MENU ITEMS TO MODIFY	Set to:
1	Output > I/O Lock	Source
2	LED Screen Size > LED Width	1920
3	LED Screen Size > LED Height	1080
4	LED Screen Size> Splicing Width	2
5	LED Screen Size> Splicing Height	2
6	LED Screen Size> Splicing Setup	Advanced
7	LED Screen Size> HPos1	0*
8	LED Screen Size> VPos1	0*
9	LED Screen Size> HPos2	640
10	LED Screen Size> VPos2	0*
11	LED Screen Size> HPos3	0
12	LED Screen Size> VPos3	360
13	LED Screen Size> HPos4	640
14	LED Screen Size> VPos4	360
		* These settings are the default value



5.5 Layers

The HQPro1000 features four layers that can be resized and positioned anywhere on the output screen.

5.5.1 Layer Modes

The four layers can be configured to operate in one of three modes. The characteristics of each mode are as follows:

- Split mode
 - o All layers can be on or off-screen independently from each other.
 - Each layer can have a different size and position
- Mix mode
 - Layer 1 is paired with layer 2, and/or layer 3 is paired with layer 4
 - The paired layers can't be on screen the same time. If one is transitioned on screen, the other layer will fade out
 - The paired layers have the same size and position. If the user changes the size of one, then it also changes the size of the other.
- Swap mode (Future Release)
 - o Layer 1 is paired with layer 2, and/or layer 3 is paired with layer 4
 - The paired layers can't be on screen the same time. If one is transitioned on screen, the other layer will fade out
 - The paired layers can have different size and position.

Settings: Split, Mix and Swap Default: Split



Layer transition example 1

- Layer 1 is paired with layer 2 in mix mode
- Layer 3 is paired with layer 4 in mix mode
- The paired layers are not on screen the same time
- The paired layers have the same size and position





Layer transition example 2

- Layer 1 is paired with layer 2 in swap mode
- Layer 3 is paired with layer 4 in swap mode
- The paired layers are not on screen the same time
- The paired layers have different size and position when they are on screen



Layer transition example 3

- Layer 1 is paired with layer 2 in swap mode
- Layer 3 and layer 4 are not paired, they are in split mode
- Layers 1 & 2 are not on screen the same time.
- Layers 1 & 2 have different size and position when they are on screen
- Layers 3 & 4 are on screen the same time
- Layers 3 & 4 have different size and position



5.5.2 Fade (Transition) speed

The speed (rate) of the seamless transition between layers can be from 0 seconds to 5 sec. If 0 seconds is selected, then the transition is defined as a "cut" transition.

If a layer source is changed while the layer is on screen, the layer will fade out to the background and fade back in with the new source. The speed of the fade-out and fade-in action will be the same as the selected transition time, but with a minimum of 0.5 seconds. For example, if the chosen transition speed is a "cut", then the fade-out and fade-in will be 0.5 seconds. If the selected layer transition speed is a 1 second, then the fade-out and fade-in will also be 1 second.

Another special transition case occurs when the layer input originates from the general input card and a different source from the same card is selected for the same layer. In this case, the layer will fade to the background and then fade back in with the new input. If however, the same source is utilised in a different layer, then the transition will not be allowed.

Settings: 0 to 5 seconds in 0.1 increments **Default:** 1 second

5.5.3 Trans Sequence

Determines the sequence of the layer transition

Settings: Sync End, Sync Start, Layer Seq Default: Sync End

5.5.4 Layer Enable

Allows the chosen later to be turned on or off in the menu **Settings:**

- On
- Off

5.5.5 Background

The composite image created by the layers is drawn on top of a background layer. The background is a flat colour that can be select from the following list.

Settings:

- Aqua #00FFFF
- Black #000000
- Blue #0000FF
- Fuchsia #FF00FF
- Grey #808080
- Green #008000
- Lime #00FF00
- Maroon #800000

Issue 2.5



- Navy #000080
- Olive #808000
- Purple #800080
- Red #FF0000
- Silver #C0C0C0
- Teal #008080
- White #FFFFFF

Default:

• Black #000000

5.5.6 Layer Control

5.5.6.1 Layer Enable

Allows the chosen later to be turned on or off in the menu **Settings:**

- On
- Off

5.5.6.2 Layers Sources

Each layer can be selected to have any of the following sources

Settings:

- HDMI-1
- HDMI-2
- CARD1-HDMI*
- CARD1-DP*
- CARD1-3GSDI*
- CARD2-HDMI*
- CARD2-DP*
- CARD2-3GSDI*
- IMGFILE 1-4**
 - * If the optional module is installed
 - ** Applies to Static Layer only

Default:

- Layer-1: HDMI-1
- Layer-2: HDMI-2
- Layer-3: Card1-HDMI
- Layer-4: Card2-HDMI



5.5.7 Layer (PiP) Position & Size

5.5.7.1 Layer Size

Pip size selects the size of the PiP within the output pixel space. The first four selections are provided for ease of use. If one of these selections is chosen, the software automatically sizes the PiP. If the last choice is selected, the user can manually size the PiP by using the PiP-Width and PiP-Height settings

Settings:

- Full Screen
- Small
- Medium
- Large
- Lock H/V
- Free H/V

Default: Lock H/V

5.5.7.1.1 Layer Width

This setting defines the PiP's width. This is enabled only if the PiP size "Free W/H" is selected.

Settings: 0 to LED or Display Width Default: 0

5.5.7.1.2 Layer Height

This setting defines the PiP's height. This is enabled only if the PiP size "Free W/H" is selected.

Settings: 0 to LED or display height **Default:** 0

5.5.7.2 Layer Pos

This menu selects the position of the layer (excluding the static layer which is full screen) within the output pixel space. The first five selections are provided for ease of use. If one of these selections is chosen, the software automatically places the PiP at the indicated location. If the last choice is selected, the user can place the PiP anywhere on the screen by using the PiP H-Pos and V-Pos settings

Settings:

- Top Left
- Top Right
- Bottom Left
- Bottom Right
- Centre
- Free H/V

Default: Top Left

5.5.7.2.1 Layer H-Pos

This setting defines the PiP's top left horizontal position. This is enabled only if the PiP position "Free H/V" is selected.

Settings: 0 to LED or Display Width Default: 0



5.5.7.2.2 Layer V-Pos

This setting defines the PiP's top left vertical position. This is enabled only if the Free H/V is selected. **Settings:** 0 to LED or Display height **Default:** 0

5.5.7.3 Fade Curves

Defines the curve type when using fade transition effect on layer

Settings:

- Linear
- S Curve
- Exponential
- Logarithmic

5.5.7.4 Curve Control

Defines the Curve strength of the fade in steps of 1 Settings: 1.0 - 4.0 Default: 1.6

5.5.7.5 Opacity

Allows you to adjust the transparency of the layer when on screen in steps of 10% **Settings:** 0 - 100

5.5.7.6 Horizontal FlipWith this selection, the layer image can be flipped horizontally.Settings: Off or OnDefault: Off

5.5.7.7 Vertical Flip With this selection, the layer image can be flipped Vertically Settings: Off or On Default: Off

5.5.7.8 Freeze With this selection, the layer image can be frozen Settings: Off or On Default: Off

5.5.7.9 Area-of-Interest (AOI Select)

This menu allows the user to select a custom portion of the input image to be scaled and appear on the output. Settings applied to the input are applied in all layers the input is used.

First option is to determine whether to use AOI per layer or per input

Settings: Layer AOI / Input AoI Default: Layer AOI

Issue 2.5



When Aspect Lock is set to On, the vertical setting is disabled, and the horizontal values are used to determine the vertical values according to the input signal's aspect ratio. When Aspect Lock is Off, horizontal and vertical scaling factors are set separately, regardless of the input image aspect ratio.

Off raster panning is also allowed, i,e, the image can be shifted outside the active area of the display. The AOI settings can be set to the default settings with the reset button.

5.5.7.9.1 AOI Enable

AOI needs to be turned on before the other functions are enabled. Settings: On/Off Default: Off

5.5.7.9.2 Aspect Lock

When set to On the AOI window maintains the aspect ratio of the input source signal. Settings: On / Off Default: On

5.5.7.9.3 HSize

This setting determines the horizontal length of the AOI window. Settings: 0 to Hres (Horizontal resolution of the input signal in pixels) Default: Hres

5.5.7.9.4 VSize (Future Release)

This setting determines the vertical size of the AOI window. If the Aspect ration is set to on, this item is not available. **Settings:** 0 to Vres (Vertical resolution of the input signal in lines) **Default:** 0

5.5.7.9.5 HPos

This setting determines the horizontal coordinate of the top left corner of the AOI window. **Settings:** -0 to Hres-Hsize **Default:** 0

5.5.7.9.6 VPos

This setting determines the vertical coordinate of the top left corner of the AOI window. Settings: -0 to Vres-Vsize (lines) Default: 0

5.5.7.9.7 AOI Reset

Resets all AOI parameters to the default settings



Issue 2.5

HQPro1000 User's Guide



STEP	MENU ITEMS TO MODIFY	Set to:
1	Input > AOI > AOI Enable	On
2	Input > AOI > HSize	1900
3	Input > AOI > Lock	Off
4	Input > AOI > Vsize	1000
5	Input > AOI > Hpos	1000
6	Input > AOI > Vpos	500

Settings: -4 to 4 in steps of 1 Default: 0

5.5.7.10 Color Keying

5.5.7.10.1 Load Keyset

Allows the user to load some default keying values

Settings: Chroma Green Chroma Blue Pure Green Luma Black Luma White

5.5.7.10.2 Save Keyset

This menu allows current Keying settings to be saved and recalled at a later stage, upto 4 can be saved on the unit at any one time

Settings: KeySet1 KeySet2 KeySet3 KeySet4

5.5.7.10.3 Color Key Type

This menu allows for Luma and Chroma adjustments Settings: Off Chroma Key Luma Key

Default: Off

5.5.7.10.4 Chroma Hue Value

Defines the Chroma Hue Value Settings: 0.0 to 359.5 deg (steps of 0.5) Default: 141.0



5.5.7.10.5 Chroma Hue Range

Defines the Chroma Hue Range Settings: 0.0 to 90 deg (steps of 0.5) Default: 40.0 deg

5.5.7.10.6 Chroma Hue Gain

Adjust the white level within the selected chroma range **Settings:** 0 to 100 (steps of 1) **Default:** 73

5.5.7.10.7 Chroma Saturation Level

Defines the Chroma Saturation Levels Settings: 0.0 – 100 deg (steps of 0.1) Default: 17.0

5.5.7.10.8 Chroma Saturation Gain

Intensifys or reduces the colour saturation Settings: 0 to 100 (steps of 1) Default: 70

5.5.7.10.9 Chroma Saturation Inv

Option to invert the Saturation Level Settings: 0: Off 1: On

Default: Off

5.5.7.10.10 Chroma Reset

Resets the Chroma levels back to factory defaults

5.5.7.10.11 Spill Control

Spill Control is used to suppress excessive colour spill from the green screen and the content. Resets the Chroma levels back to factory defaults

5.5.7.10.12 Ambient BG Light

Changes ambient light levels **Settings:** -50 to 50 (steps of 1)

5.5.7.10.13 Ambient BG Hue

Edits for Ambient hue range Settings: 0 to 359 degrees (steps of 1)

5.5.7.10.14 Ambient BG Tone

Chanages Ambient tone for additional control over keying **Settings:** 0 to 50 (steps of 1)

5.5.7.10.15 Ambient BG Reset

Resets all ambient background changes

Issue 2.5



5.5.7.10.16 Spill Advance

Turns advance Spill controls on or off Settings: Off or On Default: Off

5.5.7.10.17 SpillCtrlHR

Controls the Hue Range for Advance Spill control **Settings:** 0 to 120 degrees (steps of 0.5) **Default:** 90 Degrees

5.5.7.10.18 SpillCtrlHG

Controls the Hue Gain for Advance Spill control Settings: 0 to 100 (steps of 1) Default: 0

5.5.7.10.19 SpillCtrlSL

Controls the Saturation Level for Advance Spill control **Settings:** 0 to 100 (steps of 0.1) **Default:** 0.0

5.5.7.10.20 SpillCtrISG

Controls the Saturation Gain for Advance Spill control **Settings:** 0 to 100 (steps of 1) **Default:** 40

5.5.7.10.21SpillClip

Turns spill clipping on or off Settings: Off or On Default: On

5.5.7.10.22 Spill Reset

Resets all Spill controls Settings: Off or On Default: On

5.5.7.10.23 Luma Key

Settings: 0: Off 1: On Default: Off

5.5.7.10.24Luma Level

Defines the Luma Level value Settings: 0.0 – 100 deg (steps of 0.1) Default: 0

5.5.7.10.25Luma Gain

Adjusts the white point for the luma controls

Issue 2.5



Settings: 0.0 – 100 deg (steps of 0.1) Default: 0

5.5.7.10.26Luma Inv

Option to Invert the Luma levels Settings: 0: Off 1: On Default: Off

5.5.7.10.27 Luma Reset

Resets the levels back to factory defaults

5.5.7.11 Layer Freeze

With this selection, the layer image can be frozen. The user can also freeze the layer by selecting the then pressing the freeze button. (No TAKE press required)

Freeze is applied on the whole screen when the freeze button is pressed, without first pressing a layer button.

Settings: Off or On Default: Off



5.5.8 Layer Wireframe Preview



The size and position for all layers can be viewed on the front panel display by pressing the PRV button. The layers will be shown in a wireframe representation as shown above.

The soft-key button at the button of the display will display the letters "CUR", for current

The wireframes provide a visual representation of each layer regarding their size, position, z-order and whether they are on or off screen.

- Each layer is colour coded with a different colour easily indicating their z-order on the screen
 - Layer 1: Red (lowest priority)
 - o Layer 2: Green
 - Layer 3: Blue

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- Layer 4: White (highest priority)
- A solid line indicates that the layer is on-screen and a dotted line that the layer is off screen.
- The source for each layer and the preset number are indicated at the bottom of the display

The wireframes are not dynamically updated as the layer size and position is adjusted. To view the update size and position the PRV button needs to be pressed again



5.6 Presets

Presets allow users to save the layer attributes and quickly recall them. Recalling a preset will enable users to restore a previously store screen layout (composition).

Up-to 30 Presets are available, and each preset saves the following parameters for each layer

- Layer Mode
- Source
- Size
- Position
- Flip State
- Freeze State

The preset also save the background colour

5.6.1 Preset Page

Settings: Page 1 to 3 Default: Page 1

5.6.2 Store

Settings: 1 to 10 Default: 1

5.6.3 Recall

Settings: 1 to 10 Default: 1

5.6.4 Clear

Settings: 1 to 10 or all Default: 1

5.6.5 Export Page

Settings: Pagefile 1 to 4

5.6.6 Import Page

Settings: Pagefile 1 to 4

5.6.7 Preset Conflict

When recalling a preset cause a conflict, the software will remove the offending layers (dissolve them to the background) and bring up the layers as defined by the recalled preset.

5.6.7.1 Preset Conflict examples

- Layer mode for the next preset is different from the current mode
- The recalled preset violates the mix or swap rules
- The recalled preset relocates or resize a PiP that is on screen



5.7 Preset Wireframe Preview



If a preset button is pressed followed by the PRV button the front panel display will show the size and position for all layers that are stored in the preset.

The soft-key button at the button of the display will display the preset number. The wireframe mode allows users to preview the preset before is executed.

The wireframes provide a visual representation of each layer regarding their size, position, z-order and whether they are on or off-screen.

- Each layer is colour coded with a different colour easily indicating their z-order on the screen
 - Layer 1: Red (lowest priority)
 - o Layer 2: Green
 - Layer 3: Blue
 - Layer 4: White (highest priority)
- A solid line indicates that the layer is on-screen and a dotted line that the layer is off screen.
- The source for each layer and the preset number are indicated at the bottom of the display



5.8 Utilities

5.8.1 Custom Res (Resolutions)

From this menu, the user can create up to four custom output progressive or interlaced resolutions. These resolutions are available for selection from the Format sub-menu under the Output menu. These custom resolutions can also be selected for each input from the Input Conf. sub-menu under the System menu. Only progressive formats are supported

Settings: CMx Width: from 640 to 4096; CMx Height: from 480 to 2160; CMx **Default:** CMx Width: 1920; CMx Height: 1080; CMx

5.8.2 Test Pattern Setup

- 5.8.2.1 Test Pattern Selection
 - When the Test button is pressed on the front panel, different patterns can be selected by turning the jog wheel. For unit control through a web browser or to set up a specified default test pattern, please use the input configuration menu.
 - Custom test patterns loaded into the unit through the web interface and selected as the other test patterns.
 - Depending on the Output resolutions, test pattern images are resized dynamically by the software to fit the output raster space.

Settings:

- Red Curtain
- Green Curtain
- Blue Curtain
- Grey V Bars
- Grey H Bars
- Aspect Test
- Multi-Test
- Warp Adjust
- SMPTE
- PLUGE
- Moving Cross
- Custom 1
- Custom 2
- Custom 3
- Custom 4

Default: Pattern: Warp Adjust

5.8.2.2 Test Pattern Tone

A test tone can be set to accompany the test pattern Settings: Mute / Enable Default: Mute

5.8.2.2.1 Tone Frequency

Adjust the freq uency of the test tone Settings: 200 – 1600 (steps of 100Khz)



- 5.8.2.3 Moving Cross parameters
- 5.8.2.3.1 Color (FG) of the Moving Cross

Settings: 0 to 7

- 0 = black
- 1 = white
- 2 = yellow
- 3 = cyan
- 4 = green
- 5 = magenta
- 6 = red
- 7 = blue

Default: 1 White

5.8.2.3.2 Moving Cross Background (BG) color

Settings: 0 to 8

- 0 = black;
- 1 = white;
- 2 = yellow;
- 3 = cyan;
- 4 = green;
- 5 = magenta;
- 6 = red;
- 7 = blue;

8 = multicolour, sets the four quadrant colours as red, green, blue and black

Default: 8: Multicolour

5.8.2.3.3 Moving Cross Speed

The number of pixels that the test pattern moves per frame. Settings: 1 to 10 Default: 1

5.8.2.3.4 Moving Cross Width

The width of the moving cross in pixels Settings: 4 to 40 Default: 40



5.9 Audio

5.9.1 Audio Sys Enable

Settings: On/Off Default: Off

5.9.2 Layer Control

5.9.2.1 Audio Set

Settings: 0-4

0: Layer 1 1: Layer 2 2: Layer 3 3: Layer 4 4: Priority

5.9.2.2 Priorities This menu allows for setting the Audio Priority for each layer

Choose from the 1st to 4th Priority and then assign the required layer to each one

5.9.3 Output Control

5.9.3.1 Global Mute

Settings: On/Off Default: Off

5.9.3.2 Global Gain

Set the Audio Gain Levels across all layers at the same rate

Settings: -42 – 6 dB (steps of 1)

5.9.3.3 Global Delay

Sets the audio delay across all layers

Settings: -100 – 500 ms (steps of 1)

5.9.3.4 Processing

Changes the audio processing mode, options are Mix or Pass thru. When Mix is chosen you are then able to choose the Sampling rate **Settings:** 32000, 44100, 48000, 88200, 96000, 176400, 192000 Khz



5.9.4 Input Control

5.9.4.1 Source Gain

This menu allows you to configure the gain across each source rather than a global adjustment

Settings: -42 – 6 dB (steps of 1)

5.9.4.2 Source Mute

Allows for individual sources to be muted or un muted as required

Settings: On/Off Default: Off



5.10 System

This selection contains functions which are more applicable to system operation than to picture adjustment.

5.10.1 Names/Profiles

The Names/Profiles menu provides input masks to rename the generic input channels and user names. User names and input channel names can be changed to any word with a maximum of 12 alphanumeric characters with a value range of 0-9, A-Z and blank.

The unit itself can be given a name. The default name is VIDEOPD. This name followed by the MAC address is used by the web server and is displayed in the unit line of the webpage.

5.10.2 Unit Name

The unit name can be changed from the default to name to help identify on your network, using a string of a maximum of 7 characters

5.10.3 Input Names

Input names can be changed and stored under different names to help when connecting equipment. Max 7 Characters per input

5.10.4 User (Future release)

Several unit settings can be stored under a user name. Different users can store their preferred settings and recall them by selecting their user name.

User settings are stored automatically, and no special action is required by the user. For example, if the setting is changed from USER1 to USER2, then all of unit's parameters at the time of the change will be stored under USER1. When the unit is changed back to USER1, the USER1 settings will be loaded back to the unit.

Using the Web interface, any number of settings can also be stored/restored to/from the PC. **Settings:** USER 1, 2, 3, 4 **Default:** USER 1

5.10.5 Menu Settings

5.10.5.1 Language From this menu, you can change the language and lock the keyboard. Settings: English (AE), English (BE), Deutsch Default: English (AE)

5.10.5.2 Keypad Lock (Future Release)

To unlock the keyboard, a combination of keys must be pressed at the same time. The locking of the keyboard is indicated by a message that the keypad is locked. The message also specifies the keypress combination necessary to unlock the unit. When successfully unlocking the keypad, the message is displayed: Keypad unlocked. **Settings:** Off, Menu Only, All Keys

Default: Lock: Off

Issue 2.5



5.10.5.3 Menu Time

This menu allows users define the time that the display will remain at the current menu without any user interaction. After this time is reached, the menu remains at the current level when no activity is detected.

Settings: 5, 15, 30, Infinite Default: Infinite

5.10.5.4 LCD Backlight The backlight level of the LCD can be set in this menu. Settings: 0 ..10 Default: 10

5.10.5.5 Jog Push Enable Settings: On, Off Default: On



5.10.6 Network Settings

The Network Settings menu allows users to configure the unit's TCP/IP address. Under Address Type a static or DHCP leased address can be chosen. The static address, gateway address and netmask need to be entered manually.

The Network Settings menu provides information on the DHCP Status and IP address assigned to the unit, as well as the fixed MAC Address programmed into the unit. The DHCP status can be Off when a static assignment is used. When DHCP is on, the menu displays the leased address. If the lease is unsuccessful, the menu displays "none"

If you select Static, ensure that the IP address of the computer is on the same network and it has the same subnet mask and is in the same range as the unit. If the unit is at 169.254.0.1 and the computer address is at 192.168.215.5, you need to change the unit's IP address to an address that is in close range with the computer, for example, 192.168.215.25. The unit's IP address can be changed with the rotary wheel. First push knob to enter the edit mode. Then turn the knob to increment or decrement each digit and press the knob to move the cursor to the next digit. When you finish changing the IP address, scroll down the menu and select "Apply" for the Network setting changes to become active.

Settings: Static, DHCP Default: Static

Make sure that no devices on the network that share the same IP address

5.10.7 Security Settings

The password for ftp and web access to the unit can be changed in this menu. FTP password Default: user Enable password: Off

5.10.8 Factory Defaults

This button allows users to restore all settings to the default values of the unit, allowing the unit to return to a known (good) system state. A confirmation is requested prior to actual system settings restore.

Factory default does not affect the Network Settings



6 Web Browser Control

The unit can be remotely controlled from a PC or any mobile device. No additional software needs to be installed on the PC. The PC web browser is used as the graphical user interface for all control items. To connect to the unit the TCP/IP address of the unit must be entered into the address list box of the web browser in the following format <u>http://xxx.xxx.xxx.xxx</u>. The TCP/IP address assigned to the unit can be found in the System/Network Settings menu.

6.1 Connecting to the unit

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The Network Settings menu of the unit allows configuring the unit's TCP/IP address. Under Address Type a static or DHCP leased address mode can be selected. he factory default of the unit is DHCP. The static address and Netmask needs to be entered manually.

The Network Settings menu provides information on the DHCP Status and the IP address assigned to the unit as well as the fixed MAC Address of the unit. The DHCP status is Off when the static assignment is selected. If the unit has an assigned address, then the menu displays the address, or "None" if the lease was not successful.

When changing from DHCP to Static mode or vice versa, it is strongly recommended that you cycle the power to the unit in order the change is properly recognized by other devices on the network

After the correct IP address is entered into the address bar, the web browser starts to load the menus mirroring the status of the unit. All menu items are shown as their respective buttons, sliders and list boxes and can be accessed and altered with the PC mouse or corresponding navigational key presses.

From the web Browser, under security settings, the user name and Password can be turned on. The default settings are:

User Name: user Password: user

Calibre provides a DiscoveryTool.exe Windows application to identify Calibre boxes on the network. The tool can be downloaded from <u>www.calibreuk.com</u>

Clicking on the link of the recognized box will open a browser and make a connection to the corresponding box. The box identifier is made up of "PV8" in followed by the MAC address. The MAC address of the box can be found in the System/Network Settings menu.

Note: This tool is for use on a network and not on a single wire connection.



6.2 Web page menu Orientation

The Unit ID is displayed on the first line and is composed of the H1000 identifier followed by the MAC address. The firmware version number and information on the input mode are listed next.

Under the information pane, the available input channels are shown and can be activated directly.

The menu system can be navigated with the PC mouse. Move the mouse pointer over the menu item and click the left mouse button to open a submenu. Submenus have three dots followed by the menu name. Move the mouse pointer over the Back item and click the left mouse button to go back to the prior menu.

Menu items can be lists, sliders or alphanumeric fields.

A list item can be activated by moving the mouse pointer over the list item and clicking the left mouse button. The list comes up and an item can be selected by moving the mouse pointer to the desired value (here: 0 IRE) and clicking the left mouse button again.

A slider value can be changed by moving the mouse pointer over the slider, click and hold the left mouse button and move the mouse to the right or left to decrease or increase the value. Also, the slider can be controlled in single steps with the mouse wheel. Or by moving the mouse pointer over the - or + fields and clicking the left mouse button.

Values can be entered directly in the field beneath the slider. Click into the field, enter the new value through the PC keyboard and click with the left mouse button to any location outside the field to update to the new value.

Renaming the input channel is used as an example to explain the alphanumeric field changes. Move the mouse pointer into the alphanumeric field and click on the left mouse button. The cursor can be controlled with the right/left and backspace keys of the PC keyboard. The new name for the input channel can be entered.

The new name is stored when clicking with the left mouse button to any location outside the field.



6.3 Software Update

A page for file uploads is provided. Browse a firmware file (extension .bin) and select it. The path and name will be shown in the field left to the Browse button. Now click the update button.

6.4 Backup and restore

The unit set-ups can be backed up to a PC and restored later through the web browser. When pressing the Backup button, the file download dialog box appears. The default name of a backup is nvram.bin. This name can be changed and stored on the PC in any location.

To restore the unit's settings, browse and select the file on your PC. The selected file will be shown in the field left to the Browse button. Now press the restore button.

6.5 LOGO & Custom Test Patterns

Any image in PNG format can be selected from your PC and loaded to the unit to be used as a LOGO. This name can be changed and stored on the PC in any location. The image size limitation is 64MB. From the same menu, you can select up to four images and download them as custom test patterns. These images will appear as Custom1,2,3 or 4 in the Test pattern menu

If there is not a valid PNG image stored in LOGO memory, then the output image will be black. Resetting the unit to the original default factory settings, will wipe out the LOGO image.



7 Firmware Update

The latest firmware is found on Calibre's download website

There are two methods of updating your unit's firmware:

- Through the USB port and second
- Through the TCP/IP connection with the built-in web server.

7.1 USB update

- From the firmware dropdown menu, select the file with the latest firmware built number.
- Download the .bin file and rename it "H1000update.bin"
- Copy the file to the root directory of a USB memory stick
- Power Off the unit and plug the USB drive into one of the USB ports
- Power On the unit and wait a few seconds for the message to remove the USB drive
- After the USB is removed, the unit will continue the boot-up process.
- When the bootup processes is completed, and the status menu appears on the front panel screen. The Status menu indicates the detected source, Output resolution and I/O lock state.

7.2 Web Browser update

To update via the web server, please follow the steps outlined previously in the web browser control chapter.

7.3 System restore from an image file

If power is lost during the update procedure, the unit may fail to complete the process and even fail to bootup. In this case, the system software can be restored to a previous version using an image file found on the website.

- Download the file to your computer. Be aware that this is a large file, approximately 130MB, and depending on your internet connection the download time may be long.
- Copy the file to the root directory of a USB memory stick
- Power Off the unit and plug the USB drive into one of the USB ports
- Power On the unit <u>while pressing the Standby button</u> on the front panel
- Keep the Standby button pressed and wait a few seconds until a message appears asking you to remove the USB drive
- After the USB is removed, the unit will continue the restore and boot-up process.
- When the bootup process is completed, the status menu will appear on the front panel screen.
- Press the Esc button and while the button is pushed in, press the Standby button to view the software version loaded into the unit. Hit the Menu Sel button to exit to the Status menu

Next, follow either of the methods described earlier in this chapter to update the unit to the latest software release.



8 Optional Modules

8.1 General Input Module (GIM)

8.1.1 Module Description

The General Input Card (GIM) expands the system's input connectivity by adding three more inputs:



- HDMI 4K 2.0
- DisplayPort 4K 1.2
- 3G-SDI

One of the three inputs is selected and sent to the main processing unit. Any of these inputs can be used as a source to any of the layers. Also, the same input can be used in multiple layers.



Only one of these inputs is available as a layer source. If an input is used as a layer source and a different input from the same module is selected for the same layer, the previous input will fade down and the new input will fade up.



If however, an input is used as a layer source and a different input from the same module is selected for a different layer, the system software will prevent the new selection.



HQPro1000 User's Guide



8.1.2 Module Specification

- 8.1.2.1 4K 2.0 HDMI
 - HDMI with or without HDCP, 36-bit video compatible.
 - DVI-D input with or without HDCP
 - Signal formats video
 - SD: 625i (576i) and 525i (480i) in double-rate formats;
 - ED: 480p, 576p;
 - HD: 1280x720p, 1920x1080i, 1920x1080psf; 1920x1080p 23.97, 24, 25, 29.94, 30, 50, 59.94 & 60Hz; 2048x1080p 23.97, 24, 25, 29.94, 30, 50, 59.94 & 60Hz.
 - Signal formats computer
 - Common VESA graphics formats from VGA up-to 4K including 2560x1440p, 2560x1600p, 3840x2160p & 4096x2160p
 @ 23.97, 24, 25, 29.94, 30, 50, 59.94 & 60Hz at 4:4:4 colour space format
- 8.1.2.2 4K 1.2 DP Input
 - Display Port, 36-bit video compatible.
 - Signal formats as HDMI input
- 8.1.2.3 3G-SDI Input
 - Format: SD-SDI, HD-SDI and 3G-SDI YCbCr 4:2:2 serial digital component video.
 - Level B support
- 8.2 Quad 2K HDMI Output Card



The Quad 2K Output card receives the main output signal, and according to the menu, settings allow users to slice it up-to four segments. Each segment can drive different segments for an LED wall.

Please refer to the LED Screen Size chapter in this manual regarding the different options how to slice the main input.

8.2.2 Module Specification

All outputs of the Output quad card are vertically locked to the main output sync, but data lacks by one frame. The timing of all outputs is the same, and they can be selected from the Output menu.

Supported formats: All VESA resolution up to 2048x1080p at 50, 59.94 & 60Hz. 8 & 10 bits.



8.3 Quad 12G-SDI Input (Future Release)

8.3.1 Module Description

12G-SDI input module provides 12G-SDI input capability to the Calibre HQPro Series Scalers and selected AiO LED TV slots. The card has four SDI input channels with one loop out port. It is designed to take SDI formats from 270Mhz SDI signals upto 12G-SDI signals with support for different transport schemes (including square processing) for true compatibility. This is then converted internally to HDMI for specific connections to our internal bus systems



8.3.2 Module Specification

Compatible with SDI formats from 270Mhz SDI signals upto 12G-SDI signals with support for different transport schemes (including square processing) for true compatibility. This is then converted internally to HDMI for specific connections to our internal bus systems



9 Using the Front Panel

9.1 Front Panel Menu Tree

After the unit boots up, the Status menu is presented on the front panel display. The user can enter the main menu by pressing the MenuSel button or the jog wheel.

The Main Menu tree is composed of the following sections:

- Input
- Output
- LED Screen Size
- Layers
- Presets
- Audio
- System
- Status



9.1.1 Input Menu

Inputs





Output Menu





9.1.2 LED Screen Sizing Menu

LED Screen Size

HPos 1
VPos 1
HPos 2
VPos 2
HPos 3
VPos 3
HPos 4
VPos 4

Note: Splicing is a future item



9.1.3 Layer Menu

Layers

	_	
Layer12 Mode		
Layer34 Mode		
Fade Speed		
Trans Sequence		
BG Colour		
Static Layer	Layer Enable	
	Layer Source	
	Layer Pos	
	Layer H-Pos	
	Layer V-Pos	
	Trans Type	
	Fade Curves	
	Curve Control	Strength
		Video Gamma
	Opacity	
	Horz Flip	
	Vert Flip	
Laver *X*	r	1
- / -	Laver Enable	
	Laver Source	
	Laver Size	
	Laver Width	
	Laver Height	
	Laver Pos	
	Laver H-Pos	
	Layer V-Pos	
	Trans Type	
	Fade Curves	
	Curve Control	Strength
	curve control	Video Gamma
	Onacity	Video Gamina
	Horz Elin	
	Vort Elin	
	Froozo	
	A OI Soloct	
		AOI Enable
	Layer AUI	Aspect Lock
		HSizo
		VSizo
		VSIZE
		V POS
		AUI Reset



9.1.4 Presets

Presets

Preset Page	
Store	
Recall	
Clear	
Export Page	
Import Page	

9.1.5 Utilities

Utilities

	1
Custom Res	
	CM1 Width
	CM1 Height
	CM2 Width
	CM2 Height
	CM3 Width
	CM3 Height
	CM4 Width
	CM4 Height
TestPat Setup	
	Test Pattern
	FG Color
	BG Color
	TestPat Speed
	Line Width
	Test Tone


9.1.6 System

System

Names/Profiles]
	Unit Name
	Input Names
	User Names
Menu Settings	
	Language
	Keypad Lock
	Menu Show Time
	LCD Backlight
Network Settings	
	Address Type
	IP Address
	Netmask
	Gateway
	Apply
	View
Security Settings	
	FTP Password
	Enable Password
	WWW Password
Factory Defaults	
	Reset to Default
MAC Address	

9.1.7 Status

Status

Main HDMI
Inputs Status
Network Info
Software Info



9.2 Button Colour codes for the operation examples

Brightness	Flashing Speed	Layer Button behavior	Input Button Behavior (includes LOGO)	Preset Button behavior	Function Button behavior
Dark	-	Layer Layer not on screen	Input No valid signal has been detected	Preset No Preset is stored	Test BLACK FRZ AOI Function is inactive
Half lid	Solid	Layer	Input A valid signal has been detected, but it is not on screen	Preset A valid preset is stored, but not on screen	FRZ AOI Selected layer is frozen, but is not on screen settings, but currently are not applied
Fully lid	Fast	-	A valid source has been cued to go on screen	Preset A valid preset is stored, and has been cued to be executed after TAKE	-
	Slow	-	A valid source hasn't been detected, but the input is cued to go on screen or the input is on screen	Preset A preset has been selected, but a conflict has been detected with existing layout	-
	Solid	Layer The layer is on screen	A valid input is on screen	Preset The preset is on screen	TestBLACKFRZAOIActive acrossActive acrossSelectedthe wholethe wholeinput hasscreenscreen or onmodifiedActivated immediately assoon as the button isand arepressed. No TAKE press isnecessaryapplied











9.3.2 Switch between two inputs on the same layer

















9.3.5 Assign source to the same layer from the same input card

Only one input from the same input card can viewed on the output.



9.3.6 Store a Preset









If the CLEAR button is pressed more than 3 secs, then all presets are deleted



10 Environmental and EMC

10.1 Operating Conditions

Temperature:	0 ^o C to 40 ^o C (ambient 25 ^o C)
Humidity (non-condensing)	5% to 95%

10.2 Storage

Temperature	-25°C to +85°C
Humidity	0% to 95%

10.3 CE and FCC Compliance

<u>CE:</u> This product complies with the requirements of 2004/108/EC Electromagnetic Compatibility Directive, and 2006/95/EC Low Voltage Directive. Compliance is to EN55022 Class A.

FCC: WARNING: 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 when the equipment is operated in a commercial environment. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause interference to radio communications. Operation of this equipment in a residential area is likely to cause interference in which case the user will be required to correct the interference at their own expense.

The user is cautioned that changes and modifications made to the equipment without approval of the manufacturer could void the user's authority to operate this equipment.

It is suggested that the user use only shielded and grounded signal cables to ensure compliance with FCC rules.

10.4 PAT Testing

Earth continuity testing under PAT regulations shall be done to the product with 8A or 10A only. A test with 25A may damage the product.

Since this unit is classified as an IT equipment, according to the IEE Code of Practice, the test can also be performed with 20-200mA. If this method is not available, and a high current test is to be used instead, a 8A or 10A test is also acceptable (a minimum of 1.5 times of the internal 5A fuse).

Always connect the test lead (mains earth) to the metal chassis. DO NOT CONNECT to the connectors of the rear panel (signal earth), because you may damage the unit beyond repair. This type of damage is not covered by warranty.



11 Dimensions

Height: 890 mm (3.5 in) - 2 RU rack mount Width: 482 mm (19 in) Depth: 435 mm (21.33 in) and 489 mm (19.25 in) with front handles and real brackets installed



12 Weight

	Unit Weight
Basic Unit without I/O cards	9 kg (19.8 lbs)
Basic Unit with all I/O cards	10Kg (25.4 lbs)

13 Power

Input power: 100-240 VAC 50/60Hz 300W (Typical) Consumption: 106 Watts

14 Noise Level

At normal Operation: 40.3 dB(A)

15 Warranty

3-years return to base (factory) warranty covers parts and labour.



APPENDIX A Release Hardware & Features

The HQPro1000 is being released in two separate releases. The first release will introduce the basic features, release 2 provides extended functionality and the product will be completed with the second release.

Release1			Release2	Release3 (TBC) Advanced
HARDWARE	Inputs Main Unit (Standard): 2x 4K 50/60 4:4:4 HDMI Input Card (Optional): 1x 4K 50/60 4:4:4 HDMI 1x 4K 50/60 4:4:4 DP 1x 3GSDI	Outputs <u>Main Unit</u> (<u>Standard):</u> 1x 4K 50/60 4:4:4 HDMI 1x HDMI Quad view confidence output	<u>Outputs</u> : Extended Resolution Support	Quad Output Card (Optional): 4x 2K 50/60 4:4:4 HDMI <u>12G-SDI intput Card (Optional):</u> 4x 4K60p 4:2:2 10 Bit
	I/O Lock: Off (Free Run)	L	I/O Lock: Genlock	I/O Lock: Source, Low Latency
	Layers: 4x 4K Layers Split Mode Transitions: Fast Switching Horizontal & Vertical Flip Freeze Wireframes Background: Color Selecti	g+ Basic fade on	Layers: Mode: Mix and Swap Mode Transitions: Fully configurable Fade and Cut control for switching and Preset changes.	
FEATURES	Test Patterns: Moving Tes	st Patterns	Test Patterns: All other Test Patterns & Logo import	
	Picture Format: Stretch, C	Driginal, Crop	Picture Format: Anamorphic	
	Presets: User Defined & V	Vireframe preview	Presets: Pre-defined presets	
	<u>Colour Adjustments:</u> Brig	htness & Contrast	<u>Colour Adjustments:</u> Deep Color, Output Gamma, Colour Temp, Black crush	
	Sharpness Adjustments		EDID Management, HDCP on/off	
	Single LED Sizing 2-pixel Sizing Adjustments	;	Input Card (Optional): 3GSDI: Level B support	Single unit LED Splicing using Quad Output card 1-pixel Sizing Adjustments
			Enable Preset Keypad for numeric entries	HDR Support
			Scaled Aux from confidence monitor	Audio Support
			AOI (Area of interest)	
CONTROL	Front Panel HQPro1050 Remote Contr	rol Console	Web Server Control API commands	Crestron system avaliable
	Software update via USB		Software update via built-in web server	



APPENDIX B Input and output Module Card installation

HQPro1000 can be supplied with modules fitted from the factory or modules can be purchased separately and installed by the user.

Output Module	Input Modules

Steps for installation

Note: Follow appropriate ESD precautions when handling the modules.

- 1) Power off the unit (if running) and place on a stable surface.
- 2) Remove the blanking plate or previous module from the rear of the unit (if installed) by untightening the captive screws anti-clockwise
- 3) If a blanking plate, this will just simply pop out revealing the tray for the module. If a previous module is installed, this will slide out



- 4) The new module can be installed ensuring the sides of the module follow the tray guiders in the image above
- 5) Tighten the captive screws by pushing inwards to lock and then turn each one clockwise, do not over tighten
- 6) Re-apply power and allow the unit to boot.