HQPro1000

User’s Manual
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E&OE.
Table of Contents

TABLE OF CONTENTS .................................................................................................................. 4

LIST OF FIGURES ...................................................................................................................... 9

LIST OF TABLES ........................................................................................................................ 9

REVISION TABLE ........................................................................................................................ 10

SAFETY WARNINGS ................................................................................................................... 11

1 INTRODUCTION ...................................................................................................................... 12

1.1 SYSTEM OVERVIEW ........................................................................................................ 12

1.2 UNIT SETUP ...................................................................................................................... 13

2 UNIT DESCRIPTION ............................................................................................................... 14

2.1 FRONT PANEL LAYOUT ................................................................................................... 14

2.1.1 Front Panel Shortcuts ................................................................................................ 15

2.1.2 Button behaviour tables ............................................................................................ 16

2.1.2.1 Presets 1 thru 10 ...................................................................................................... 16

2.1.2.2 Preset Preview (PRV) ............................................................................................ 16

2.1.2.3 Test Pattern (TP), Black (BLK) ........................................................................... 16

2.1.2.4 FREEZE (FRZ) ......................................................................................................... 16

2.1.2.5 Area of Interest (AOI) ............................................................................................ 17

2.1.2.6 Layers 1 thru 4 ........................................................................................................ 17

2.1.2.7 HDMI1, HDMI2 & Input Module (Card) Inputs ...................................................... 17

2.1.2.8 LOGO ....................................................................................................................... 18

2.2 REAR PANEL LAYOUT ..................................................................................................... 19

3 MAIN UNIT PRODUCT SPECIFICATION ........................................................................... 20

3.1 Power Supply Requirement .............................................................................................. 20

3.2 INPUT SPECIFICATIONS ................................................................................................ 20

3.2.1 4K HDMI ..................................................................................................................... 20

3.2.2 4K DP Input (General Input Module Only) ................................................................. 20

3.2.3 3G-SDI Input (General Input Module Only) ............................................................. 20

3.2.4 Genlock Input with Loop through .............................................................................. 20

3.3 OUTPUT SPECIFICATIONS ............................................................................................. 21

3.3.1 HDMI Outputs ............................................................................................................. 21

3.3.2 HDCP Output encryption ............................................................................................ 21

3.3.3 Audio Output .............................................................................................................. 21

3.3.4 Supported Formats (Resolutions and Frame rates) .................................................... 22

3.4 COMMUNICATIONS SPECIFICATION ......................................................................... 23

3.4.1 TCP/IP Port .................................................................................................................. 23

3.4.2 Serial Communication Settings (RS232) .................................................................. 23

4 UNIT CONTROL ..................................................................................................................... 24

5 FRONT PANEL MENUS ......................................................................................................... 24

5.1 MAIN (TOP) MENU ........................................................................................................ 24

5.2 INPUT MENU ................................................................................................................... 25

5.2.1 Sources Config ........................................................................................................... 25

Issue 1.0

HQPro1000 User’s Guide
5.2.1.1 Colour space .............................................................................................................. 25
5.2.1.2 Range ......................................................................................................................... 25
5.2.1.3 Deep Colour ............................................................................................................... 25
5.2.1.4 EDID Resolution ....................................................................................................... 25
5.2.1.5 EDID Frame Rate ..................................................................................................... 25
5.2.1.6 HDCP .......................................................................................................................... 26
5.2.1.7 Colour Adjustments ................................................................................................. 26
5.2.1.7.1 Black-Level Offset ............................................................................................... 26
5.2.1.7.2 Brightness ............................................................................................................ 26
5.2.1.7.3 Contrast ............................................................................................................... 26
5.2.1.7.4 Saturation ............................................................................................................ 26
5.2.1.7.5 Hue ....................................................................................................................... 26
5.2.1.7.6 RGB values ......................................................................................................... 26
5.2.1.7.7 Colour Temp ......................................................................................................... 27
5.2.1.7.8 Input Gamma ........................................................................................................ 27
5.2.1.8 Picture Format .......................................................................................................... 28
5.2.1.8.1 Original ............................................................................................................... 28
5.2.1.8.2 Stretch ................................................................................................................ 28
5.2.1.8.3 Crop ...................................................................................................................... 29
5.2.1.8.4 Anamorphic: ....................................................................................................... 29
5.2.1.9 Area-of-Interest (AOI) ............................................................................................ 29
5.2.1.9.1 AOI Enable ......................................................................................................... 29
5.2.1.9.2 HSize ................................................................................................................... 29
5.2.1.9.3 Aspect Lock ........................................................................................................ 29
5.2.1.9.4 VSize .................................................................................................................. 30
5.2.1.9.5 HPos .................................................................................................................... 30
5.2.1.9.6 VPos .................................................................................................................... 30
5.2.1.9.7 AOI Reset .......................................................................................................... 30
5.2.1.10 Sharpness ................................................................................................................ 31
5.2.1.11 HDMI Audio Support ............................................................................................ 31
5.2.1.12 SDI Setup (Optional GIM card) ............................................................................ 31
5.2.1.12.1 SDI to HDMI Audio ......................................................................................... 31
5.2.1.13 SDI Level B Stream ............................................................................................... 31
5.2.2 Test Pattern Setup ...................................................................................................... 31
5.2.2.1 Test Pattern Selection ............................................................................................ 31
5.2.2.2 Test Pattern Tone ................................................................................................... 32
5.2.2.3 Moving Cross parameters ..................................................................................... 32
5.2.2.3.1 Color (FG) of the Moving Cross ....................................................................... 32
5.2.2.3.2 Moving Cross Background (BG) color ............................................................. 32
5.2.2.3.3 Moving Cross Speed ........................................................................................ 33
5.2.2.3.4 Moving Cross Width ....................................................................................... 33
5.2.3 Input Enable .............................................................................................................. 33
5.3 OUTPUT ......................................................................................................................... 34
5.3.1 Main Output and Quad Output Format ....................................................................... 34
5.3.1.1 Output Resolution ................................................................................................. 34
5.3.1.2 Output Frame Rate ............................................................................................... 34
5.3.1.3 Custom Modes (Resolutions) ............................................................................... 34
5.3.2 Gamma/Colour/Crush ............................................................................................... 35
5.3.2.1 Colour Temperature ............................................................................................... 35
5.3.2.2 Output Gamma ....................................................................................................... 35
5.3.2.3 Black Crush .......................................................................................................... 35
5.3.3 Output Config ............................................................................................................. 35
5.3.3.1 HDMI Output ........................................................................................................ 35
5.3.3.2 DVI Colour Space .................................................................................................. 36
5.3.3.3 DVI Range ............................................................................................................. 36
5.3.4 Confidence Monitor Output ....................................................................................... 37
5.3.5 I/O Lock ...................................................................................................................... 38
5.3.5.1 I/O Lock = Off (Free Run) ...................................................................................... 38
5.3.5.2 I/O Lock = Source ................................................................................................. 38
5.3.5.3 I/O Lock = Low Latency ....................................................................................... 38
### LED SCREEN SIZE

- **5.4.1** Single LED Wall Size Adjustments ............................................................... 40
- **5.4.2** Splicing Width & Height (Quad Output Module) ........................................... 41
- **5.4.3** Standard or Advanced Splicing (Quad Output Module) ................................ 41
- **5.4.4** LED Wall Splicing Examples ................................................................. 42
  - 5.4.4.1 Standard Splicing - 2x1 Example .......................................................... 42
  - 5.4.4.2 Advanced Splicing - 2x1 Example ....................................................... 43
  - 5.4.4.3 Standard Splicing - 2x2 Example .......................................................... 44
  - 5.4.4.4 Advanced Splicing - 2x2 Example ....................................................... 44

### Layers

- **5.4.5** Background .......................................................................................... 45
- **5.4.6** Layers Sources .................................................................................. 45
- **5.4.7** Layer Priorities ................................................................................ 46
  - The z-order cannot change. ............................................................................. 46
- **5.4.8** Layer Modes ..................................................................................... 46
- **5.4.9** Fade (Transition) speed .................................................................... 48
- **5.4.10** Layer (PIP) Position & Size ............................................................. 48
  - 5.4.10.1 PIP Position .................................................................................. 48
  - 5.4.10.1.1 PIP H-Pos ................................................................................ 48
  - 5.4.10.1.2 PIP V-Pos ................................................................................ 48
  - 5.4.10.2 PIP Size ......................................................................................... 49
  - 5.4.10.2.1 PIP Width .................................................................................. 49
  - 5.4.10.2.2 PIP Height .................................................................................. 49
  - 5.4.10.3 Horizontal Flip ............................................................................. 49
  - 5.4.10.4 Vertical Flip .................................................................................... 49
  - 5.4.10.5 Layer Freeze .................................................................................. 49

### Presets

- **5.5** Layer Wireframe Preview ...................................................................... 50
- **5.6** Presets .................................................................................................. 51
  - **5.6.1** Store a Preset .................................................................................. 51
  - **5.6.2** Recall a Preset ............................................................................... 51
  - **5.6.3** Erase a Preset ............................................................................... 51
  - **5.6.4** Preset Conflict ............................................................................... 51
    - 5.6.4.1 Preset Conflict examples ............................................................ 51
- **5.7** Preset Wireframe Preview ...................................................................... 52

### System

- **5.8** System .................................................................................................. 53
  - **5.8.1** Names/Profiles ............................................................................... 53
  - **5.8.2** User .................................................................................................. 53
  - **5.8.3** Menu Settings ............................................................................... 53
    - 5.8.3.1 Language ...................................................................................... 53
    - 5.8.3.2 Keypad Lock ................................................................................ 53
    - 5.8.3.3 Menu Time ................................................................................... 54
    - 5.8.3.4 LCD Backlight ............................................................................. 54
    - 5.8.3.5 Jog Push Enable .......................................................................... 54
  - **5.8.4** Network Settings ........................................................................... 55
  - **5.8.5** Security Settings ........................................................................... 55
  - **5.8.6** Factory Defaults ........................................................................... 55

### Audio

- **5.9** Audio ................................................................................................... 56
  - **5.9.1** Audio Volume ................................................................................ 56
  - **5.9.2** Audio Priority ............................................................................... 56
  - **5.9.3** Audio Delay .................................................................................. 56
  - **5.9.4** Audio Mute .................................................................................... 56

### Web Browser Control

- **6** Web Browser Control ............................................................................. 57
13 POWER.................................................................................................................................86
14 WARRANTY...........................................................................................................................86
APPENDIX A RELEASE 1 & 2 HARDWARE & FEATURES .....................................................87
List of Figures

Figure 1: HQPro1000 Front Panel ................................................................. 14
Figure 2: HQPro1000 Rear Panel .................................................................. 19

List of Tables

Table 1: Input and Outputs ............................................................................. 15
Table 2: Input and Output formats ................................................................. 22
Table 3: Serial Connector Pinout ................................................................. 23
Table 4: RS-232 communication settings ..................................................... 23
## Revision Table

<table>
<thead>
<tr>
<th>Version</th>
<th>Author</th>
<th>Modification</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>GK</td>
<td>Initial Release</td>
<td>02-Jul-2019</td>
</tr>
</tbody>
</table>
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 HQPro1000Scaler-Switcher. If you have any questions relating to this or any other Calibre product please visit our web site www.calibreuk.com.

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 cards and one optional output card. The base unit includes two 4K HDMI 2.0 inputs, one 4K HDMI 2.0 output, and a confidence monitor output. All outputs from the main output 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 is 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 defined 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
- Quick Start Guide (QSG)

STEP 2: Install the unit on a clean flat surface or on 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

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 important functions and allow for the menu navigation to setup and control the unit.

![HQPro1000 Front Panel](image)

**A: LCD Display**
Displays the system menus in a multi-line colour display and a layer 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

<table>
<thead>
<tr>
<th>HQPro1000 Main Unit</th>
<th>Base Unit</th>
<th>Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>HDMI 4K 2.0 Inputs</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>HDMI 4K 2.0 Outputs</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>HDMI 2K 1.4 Confidence Monitor Output</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Ext. Genlock Input and Loop through</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

| 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 | |
2.1.2 Button behaviour tables

2.1.2.1 Presets 1 thru 10

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

2.1.2.2 Preset Preview (PRV)

<table>
<thead>
<tr>
<th>LED Colour: White Brightness</th>
<th>Flashing Speed</th>
<th>Behaviour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dark</td>
<td>N/A</td>
<td>Function is inactive</td>
</tr>
<tr>
<td>Fully Lit</td>
<td>Solid</td>
<td>• Activated immediately as soon as the button is pressed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Function stays active until the button is pressed again</td>
</tr>
</tbody>
</table>

2.1.2.3 Test Pattern (TP), Black (BLK)

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

2.1.2.4 FREEZE (FRZ)

<table>
<thead>
<tr>
<th>LED Colour: White Brightness</th>
<th>Flashing Speed</th>
<th>Behaviour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dark</td>
<td>N/A</td>
<td>Function is inactive</td>
</tr>
<tr>
<td>Half Lit</td>
<td>Solid</td>
<td>Selected layer is frozen, but is not on screen</td>
</tr>
</tbody>
</table>
2.1.2.5 Area of Interest (AOI)

<table>
<thead>
<tr>
<th>LED Colour: White</th>
<th>Flashing Speed</th>
<th>Behaviour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dark</td>
<td>N/A</td>
<td>• Selected input doesn't have modified AOI settings. Default settings are applied</td>
</tr>
<tr>
<td>Half Lit</td>
<td>Solid</td>
<td>• The Selected input has modified AOI settings, but currently are not applied</td>
</tr>
<tr>
<td>Fully Lit</td>
<td>Solid</td>
<td>• 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</td>
</tr>
</tbody>
</table>

2.1.2.6 Layers 1 thru 4

<table>
<thead>
<tr>
<th>LED Colour: Red/Blue</th>
<th>Flashing Speed</th>
<th>Color</th>
<th>Behaviour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dark</td>
<td>N/A</td>
<td>N/A</td>
<td>• Layer not on screen</td>
</tr>
<tr>
<td>Half Lit</td>
<td>Solid</td>
<td>Blue</td>
<td>• Layer is selected and in the edit mode</td>
</tr>
<tr>
<td>Fully Lit</td>
<td>Solid</td>
<td>Red</td>
<td>• Layer is selected.</td>
</tr>
</tbody>
</table>

2.1.2.7 HDMI1, HDMI2 & Input Module (Card) Inputs

<table>
<thead>
<tr>
<th>LED Colour: Red/Green</th>
<th>Flashing Speed</th>
<th>Color</th>
<th>Behaviour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dark</td>
<td>N/A</td>
<td>N/A</td>
<td>No valid signal has been detected</td>
</tr>
<tr>
<td>Half Lit</td>
<td>Solid</td>
<td>Green</td>
<td>A valid signal has been detected, but it is not on screen</td>
</tr>
<tr>
<td>Fully Lit</td>
<td>Fast</td>
<td>Green</td>
<td>A valid source has been cued to go on screen</td>
</tr>
</tbody>
</table>
### 2.1.2.8 LOGO

<table>
<thead>
<tr>
<th>LED Colour: Red/Green</th>
<th>Flashing Speed</th>
<th>Color</th>
<th>Behaviour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brightness</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dark</td>
<td>N/A</td>
<td>N/A</td>
<td>No LOGO is stored</td>
</tr>
<tr>
<td>Half Lit</td>
<td>Solid</td>
<td>Green</td>
<td>A LOGO is stored, but it is not on screen</td>
</tr>
<tr>
<td>Fully Lit</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fast</td>
<td>Green</td>
<td></td>
<td>LOGO has been cued to go on screen</td>
</tr>
<tr>
<td>Slow</td>
<td>Green</td>
<td></td>
<td>A LOGO is not stored, but it is cued to go on screen</td>
</tr>
<tr>
<td>Solid</td>
<td>Red</td>
<td></td>
<td>LOGO is on screen, but its black because there is no image is stored</td>
</tr>
<tr>
<td></td>
<td>Red</td>
<td></td>
<td>LOGO is on screen</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>LED Colour: White</th>
<th>Flashing Speed</th>
<th>Behaviour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brightness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dark</td>
<td>N/A</td>
<td>The buttons are not pressed</td>
</tr>
<tr>
<td>Fully Lit</td>
<td>Solid</td>
<td>The button is pressed. Button goes dark, as soon as it is depressed.</td>
</tr>
</tbody>
</table>
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.

![HQPro1000 Rear Panel](image)

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: Main Output Connector:** 2x HDMI 4K50/60Hz 4:4:4

**D: Confidence Output Monitor Connector:** 1x HDMI 2K50/60Hz 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 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.
- 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

3.2.2 4K DP Input (General Input Module Only)

- Display Port without HDCP, 36-bit video compatible.
- Signal formats as HDMI 1 and HDMI 2.

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

- Level B support.
  
  When 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 Output Specifications

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.
- 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 especially 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 non-compliant 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.

<table>
<thead>
<tr>
<th>Output Channel</th>
<th>Output Format</th>
</tr>
</thead>
<tbody>
<tr>
<td>HDMI</td>
<td>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)</td>
</tr>
</tbody>
</table>

The unit will not pass through any Dolby Digital, MPEG2 or DTS audio formats.
3.3.4   Supported Formats (Resolutions and Frame rates)

Table 2: Input and Output formats

<table>
<thead>
<tr>
<th>Active Horiz. (Pix.)</th>
<th>Active Vert. (Lines)</th>
<th>60 Hz</th>
<th>59.94 Hz</th>
<th>50 Hz</th>
<th>30 Hz</th>
<th>29.97 Hz</th>
<th>25 Hz</th>
<th>24 Hz</th>
<th>23.98 Hz</th>
<th>Main HDMI</th>
<th>Mon. HDMI</th>
<th>Quad 2K HDMI</th>
</tr>
</thead>
<tbody>
<tr>
<td>640</td>
<td>480</td>
<td>√</td>
<td>√</td>
<td>√</td>
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<td>720</td>
<td>480i</td>
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<td>720</td>
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<td>720</td>
<td>576p</td>
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<tr>
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<tr>
<td>2560</td>
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<tr>
<td>2560</td>
<td>1440</td>
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<td>2560</td>
<td>1600</td>
<td>√</td>
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<tr>
<td>3840</td>
<td>2160</td>
<td>√</td>
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<td>4096</td>
<td>2160</td>
<td>√</td>
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<td>√</td>
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<td></td>
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<td></td>
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</tr>
</tbody>
</table>

Output Resolutions in faded text will be supported in release 2
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

<table>
<thead>
<tr>
<th>DB-9 Pin</th>
<th>Signal name</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>RXD</td>
<td>RS232 levels, Receive (from the HOST)</td>
</tr>
<tr>
<td>3</td>
<td>TXD</td>
<td>RS232 levels, Transmit (to the HOST)</td>
</tr>
<tr>
<td>5</td>
<td>DGND</td>
<td>Ground</td>
</tr>
</tbody>
</table>

Table 4: RS-232 communication settings

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baud rate</td>
<td>115200 Bits/second</td>
</tr>
<tr>
<td>Stop Bits</td>
<td>1</td>
</tr>
<tr>
<td>Number of bits received/transmitted in the BYTE</td>
<td>8</td>
</tr>
<tr>
<td>Parity Bits</td>
<td>No Parity</td>
</tr>
<tr>
<td>Flow Control</td>
<td>Off</td>
</tr>
</tbody>
</table>
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 website.

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 complete diagram of the menu tree is provided in a separate chapter.

5.1 Main (Top) Menu

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

- Input
- Output
- LED Screen Size
- Layers
- Presets
- 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 Sources 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
- Card-1 4K HDMI
- Card-1 4K DP
- Card-1 3G-SDI
- Card-2 4K HDMI
- Card-2 4K DP
- Card-2 3G-SDI

5.2.1.1 Colour space

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

5.2.1.2 Range

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

5.2.1.3 Deep Colour

The EDID can be configured to enable 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

5.2.1.4 EDID Resolution

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 graphic card takes notice of the preferred timing in the EDID. The PC may have to be rebooted for the driver to take notice.  
**Default:** 1920x1080p

5.2.1.5 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 graphic card takes notice of the preferred timing in the EDID. The PC most likely has to be rebooted for the driver to take notice.  
**Default:** 60Hz
5.2.1.6 HDCP

When setting HDCP Input to off, the unit pretends to be non HDCP compliant allowing the source to remove data encryption. Please note that the source will not encrypt the input data only if the source content is not copy protected. If for example, the source is a Blu-ray player and HDCP is turned off, then the player will not send any data to the unit. When HDCP is set to off, the output is unencrypted, and this menu item is greyed out.

**Settings:** On/Off  
**Default:** On

5.2.1.7 Colour Adjustments

5.2.1.7.1 Black-Level Offset

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

5.2.1.7.2 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

5.2.1.7.3 Contrast

Contrast controls the gain applied to the video signal.

**Settings:** -50 to 50 in steps of 1  
**Default:** 0

5.2.1.7.4 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

5.2.1.7.5 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

5.2.1.7.6 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
5.2.1.7.7  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 are the same, no conversion is performed.

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

5.2.1.7.8  Input Gamma

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
5.2.1.8  Picture Format

With this menu the user instructs the unit 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

5.2.1.8.1  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:

5.2.1.8.2  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:
5.2.1.8.3 Crop

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:

![image](example.png)

5.2.1.8.4 Anamorphic:

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

5.2.1.9 Area-of-Interest (AOI)

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.

When Aspect Lock is set to On, 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.

5.2.1.9.1 AOI Enable

AOI needs to be turned on before the other functions are enabled.

**Settings:** On/Off

**Default:** Off

5.2.1.9.2 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

5.2.1.9.3 Aspect Lock

When set to On the AOI window maintains the aspect ratio of the input source signal.

**Settings:** On / Off

**Default:** On
5.2.1.9.4  VSize

This setting determines the vertical size of the AOI window. If the Aspect ratio is set to on, this item is not available.

**Settings:** 0 to Vres (Vertical resolution of the input signal in lines)
**Default:** 0

5.2.1.9.5  HPos

This setting determines the horizontal coordinate of the top left corner of the AOI window.

**Settings:** 0 to Hres-Hsize

**Default:** 0

5.2.1.9.6  VPos

This setting determines the vertical coordinate of the top left corner of the AOI window.

**Settings:** -0 to Vres-Vsize (lines)

**Default:** 0

5.2.1.9.7  AOI Reset

Resets all AOI parameters to the default settings

<table>
<thead>
<tr>
<th>STEP</th>
<th>MENU ITEMS TO MODIFY</th>
<th>Set to</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Input &gt; AOI &gt; AOI Enable</td>
<td>On</td>
</tr>
<tr>
<td>2</td>
<td>Input &gt; AOI &gt; HSize</td>
<td>1900</td>
</tr>
<tr>
<td>3</td>
<td>Input &gt; AOI &gt; Lock</td>
<td>Off</td>
</tr>
<tr>
<td>4</td>
<td>Input &gt; AOI &gt; Vsize</td>
<td>1000</td>
</tr>
<tr>
<td>5</td>
<td>Input &gt; AOI &gt; Hpos</td>
<td>1000</td>
</tr>
<tr>
<td>6</td>
<td>Input &gt; AOI &gt; Vpos</td>
<td>500</td>
</tr>
</tbody>
</table>
5.2.1.10 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: -4 to 4 in steps of 1
Default: 0

5.2.1.11 HDMI Audio Support

The audio capabilities of the HDMI port can be configured by means of 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

5.2.1.12 SDI Setup (Optional GIM card)

5.2.1.12.1 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)

5.2.1.13 SDI Level B Stream

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

5.2.2 Test Pattern Setup

5.2.2.1 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 certain 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 resolution to completely 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: SMPTE

5.2.2.2 Test Pattern Tone

A test tone can be set to accompany the test pattern

Settings: On / Off

Default: Off

5.2.2.3 Moving Cross parameters

5.2.2.3.1 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

5.2.2.3.2 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
5.2.2.3.3 Moving Cross Speed

Number of pixels that the test pattern moves per frame.

Settings: 1 to 10
Default: 1

5.2.2.3.4 Moving Cross Width

The width of the moving cross in pixels

Settings: 4 to 40
Default: 40

5.2.3 Input Enable

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 Output 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 or greater than the display resolution. Then use the LED screen size adjustment to accurately 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. The 3GSDI output does not feature the PC resolutions; only 480i, 576i, 720p and 1080i/p output modes are supported.

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

5.3.1.2 Output 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 is 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 Hz
Default: 59.94Hz

5.3.1.3 Custom Modes (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
5.3.2 Gamma/Colour/Crush

5.3.2.1 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

5.3.2.2 Output Gamma

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:** 1.0 to 3.0 in steps of 0.1
**Default:** 2.2

5.3.2.3 Black Crush

The input black 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 particularly 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 completely black or even change colour.

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

5.3.3 Output Config

5.3.3.1 HDMI Output

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.

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: DVI forced, DVI/HDMI, HDMI 8-bit, 10bit, 12-bit
Default: HDMI

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

Settings: RGB, YPbPr
Default: RGB

5.3.3.3 DVI Range
When set to Default CEA, the output modes have limited range, and VESA modes have full range. Therefore, an incoming limited range mode is either passed through when the output is set to a CEA output mode or expanded when the output is set to a VESA mode. An incoming full range mode is either compressed when the output is set to a CEA output mode or passed through when the output is set to a VESA mode.

If the HDMI/DVI output does not operate properly, the range can be changed manually. A limited video range is only using the following greyscale for video information - 8 Bit System: 0x10 .. 0xEF, 10 Bit System: 0x040 .. 0x03BF, 12 Bit System: 0x100 .. 0xEFF.

Settings: Default, Limited, and Full
Default: Full
5.3.4 Confidence Monitor Output

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
5.3.5 I/O Lock

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
- Low latency
- Genlock

Default: Off (Free Run)

5.3.5.1 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.

5.3.5.2 I/O Lock = Source

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 a 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 few seconds.

5.3.5.3 I/O Lock = Low Latency

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.
5.3.5.4  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.
5.4 LED Screen Size

Often the LED size (resolution) does not exactly 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
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 different sections is equal, 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

---

All Splicing examples require the Quad Output Module (Card)
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 diagram]

<table>
<thead>
<tr>
<th>STEP</th>
<th>MENU ITEMS TO MODIFY</th>
<th>Set to:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Output &gt; I/O Lock</td>
<td>Source</td>
</tr>
<tr>
<td>2</td>
<td>LED Screen Size &gt; LED Width</td>
<td>1920</td>
</tr>
<tr>
<td>3</td>
<td>LED Screen Size &gt; LED Height</td>
<td>1080</td>
</tr>
<tr>
<td>4</td>
<td>LED Screen Size &gt; Splicing Width</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>LED Screen Size &gt; Splicing Height</td>
<td>1*</td>
</tr>
<tr>
<td>6</td>
<td>LED Screen Size &gt; Splicing Setup</td>
<td>Standard*</td>
</tr>
</tbody>
</table>

* This setting is the default value.
### 5.4.4.2 Advanced Splicing - 2x1 Example

#### 2x1 Advanced configuration

<table>
<thead>
<tr>
<th>STEP</th>
<th>MENU ITEMS TO MODIFY</th>
<th>Set to:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Output &gt; I/O Lock</td>
<td>Source</td>
</tr>
<tr>
<td>2</td>
<td>LED Screen Size &gt; LED Width</td>
<td>1920</td>
</tr>
<tr>
<td>3</td>
<td>LED Screen Size &gt; LED Height</td>
<td>1080</td>
</tr>
<tr>
<td>4</td>
<td>LED Screen Size &gt; Splicing Width</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>LED Screen Size &gt; Splicing Height</td>
<td>1*</td>
</tr>
<tr>
<td>6</td>
<td>LED Screen Size &gt; Splicing Setup</td>
<td>Advanced</td>
</tr>
<tr>
<td>7</td>
<td>LED Screen Size &gt; HPos1</td>
<td>0*</td>
</tr>
<tr>
<td>8</td>
<td>LED Screen Size &gt; VPos1</td>
<td>0*</td>
</tr>
<tr>
<td>9</td>
<td>LED Screen Size &gt; HPos2</td>
<td>1280</td>
</tr>
<tr>
<td>10</td>
<td>LED Screen Size &gt; VPos2</td>
<td>0*</td>
</tr>
</tbody>
</table>

* These settings are the default value
5.4.4.3 Standard Splicing - 2x2 Example

5.4.4.4 Advanced Splicing - 2x2 Example

<table>
<thead>
<tr>
<th>STEP</th>
<th>MENU ITEMS TO MODIFY</th>
<th>Set to:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Output &gt; I/O Lock</td>
<td>Source</td>
</tr>
<tr>
<td>2</td>
<td>LED Screen Size &gt; LED Width</td>
<td>1920</td>
</tr>
<tr>
<td>3</td>
<td>LED Screen Size &gt; LED Height</td>
<td>1080</td>
</tr>
<tr>
<td>4</td>
<td>LED Screen Size &gt; Splicing Width</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>LED Screen Size &gt; Splicing Height</td>
<td>2</td>
</tr>
<tr>
<td>6</td>
<td>LED Screen Size &gt; Splicing Setup</td>
<td>Advanced</td>
</tr>
<tr>
<td>7</td>
<td>LED Screen Size &gt; HPos1</td>
<td>0*</td>
</tr>
<tr>
<td>8</td>
<td>LED Screen Size &gt; VPos1</td>
<td>0*</td>
</tr>
<tr>
<td>9</td>
<td>LED Screen Size &gt; HPos2</td>
<td>640</td>
</tr>
<tr>
<td>10</td>
<td>LED Screen Size &gt; VPos2</td>
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<tr>
<td>11</td>
<td>LED Screen Size &gt; HPos3</td>
<td>0</td>
</tr>
<tr>
<td>12</td>
<td>LED Screen Size &gt; VPos3</td>
<td>360</td>
</tr>
<tr>
<td>13</td>
<td>LED Screen Size &gt; HPos4</td>
<td>640</td>
</tr>
<tr>
<td>14</td>
<td>LED Screen Size &gt; VPos4</td>
<td>360</td>
</tr>
</tbody>
</table>

* These settings are the default value
1.1 Layers

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

5.4.5 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
- Navy #000080
- Olive #808000
- Purple #800080
- Red #FF0000
- Silver #C0C0C0
- Teal #008080
- White #FFFFFF

**Default:**
- Black #000000

5.4.6 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*
- LOGO
  * If the optional module is installed

**Default:**
- Layer-1: HDMI-1
- Layer-2: HDMI-2
- Layer-3: Card1-HDMI
- Layer-4: Card2-HDMI
5.4.7 Layer Priorities

The background has the lowest priority, followed by layer 1, 2, 3, and 4. Layer 4 has the highest priority.

- Priorities:
  - Background (lowest)
  - Layer 1
  - Layer 2
  - Layer 3
  - Layer 4 (highest)

- When layers overlap, the priority determines what is visible on the screen; The z-order cannot change

5.4.8 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
  - 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
  - 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
5.4.9  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 selected 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 original 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

5.4.10  Layer (PiP) Position & Size

5.4.10.1  PiP Position

Selects the position of the PiP 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

5.4.10.1.1  PiP 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

5.4.10.1.2  PiP 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
5.4.10.2 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

- Layer 1 and Layer 2 can be up to 4K resolution
- Layer 3 and Layer 4 can be up to 2K resolution

**Settings:**
- Full Screen
- Small
- Medium
- Large
- Free H/V

**Default:** Full

5.4.10.2.1 PiP 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

5.4.10.2.2 PiP 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

5.4.10.3 Horizontal Flip

With this selection the layer image can be flipped horizontally.

**Settings:** Off or On

**Default:** Off

5.4.10.4 Vertical Flip

With this selection the layer image can be flipped Vertically

**Settings:** Off or On

**Default:** Off

5.4.10.5 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 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)
  - 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

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 allows users to easily restore a previously store screen layout (composition). Up-to 10 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 Store a Preset

**Settings:** 1 to 10  
**Default:** 1

5.6.2 Recall a Preset

**Settings:** 1 to 10  
**Default:** 1

5.6.3 Erase a Preset

**Settings:** 1 to 10 or all  
**Default:** 1

5.6.4 Preset Conflict

When recalling a preset causes 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.

5.6.4.1 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 it 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)
  - 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 System
This selection contains functions which are more applicable to system operation than to picture adjustment.

5.8.1 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 alpha numeric characters with a value range of 0-9, A-Z and blank.

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

5.8.2 User
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

5.8.3 Menu Settings

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

5.8.3.2 Keypad Lock
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 key press 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
5.8.3.3 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

5.8.3.4 LCD Backlight

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

5.8.3.5 Jog Push Enable

Settings: On, Off
Default: On
5.8.4  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 effective.

Settings: Static, DHCP
Default: DHCP

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

5.8.5  Security Settings

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

5.8.6  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
5.9 Audio

This selection contains functions required to manage the audio embedded in the input signal.

- The same layer can be assigned to more than one priority
- Each input has its own audio delay time and mute
- Each input can be muted separately

5.9.1 Audio Volume

The menu allows for the volume adjustment of the output audio volume.

5.9.2 Audio Priority

The Priority menu determines the audible layer in the case when multiple layers with embedded audio are on screen.

**Settings:**
- Priority 1 = Layer1 or Layer2 or Layer3 or Layer4 (Highest Priority)
- Priority 2 = Layer1 or Layer2 or Layer3 or Layer4
- Priority 3 = Layer1 or Layer2 or Layer3 or Layer4
- Priority 4 = Layer1 or Layer2 or Layer3 or Layer4 (Lowest Priority)

Default:
- Priority 1 = Layer1
- Priority 2 = Layer2
- Priority 3 = Layer3
- Priority 4 = Layer4

5.9.3 Audio Delay

This setting allows the users to adjust the delay between the video and audio sources.

**Settings:** -100 to 500 ms
Default: 0 ms

5.9.4 Audio Mute

This setting allows the users to mute each input individually or all together

**Settings:** Off and On
Default: On
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 http://xxx.xxx.xxx.xxx. The TCP/IP address assigned to the unit can be found in the System/Network Settings menu.

6.1    Connecting to the unit

The Network Settings menu of the unit allows to configure the unit’s TCP/IP address. Under Address Type a static or DHCP leased address mode can be selected. The factory default of the unit is DHCP. The static address and Netmask need 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. http://www.calibreuk.com/downloads/LEDView/DiscoveryTool_V1.0.exe

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 main page of the web browser is shown below. 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 alpha numeric 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 alpha numeric field changes. Move the mouse pointer into the alpha numeric field and click on the left mouse button. The cursor can be controlled with the right/left and back space 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, a 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. First, through a USB port with a USB memory drive and second, through 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 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 boot up 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 while pressing the Standby button 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 boot up 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.

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
  - Level B support

8.2 Quad 2K HDMI Output Card

8.2.1 Module Description
The Quad 2K Output card receives the main output signal and according to the menu settings allows 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.
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

#### Input Menu

**Factory Defaults**

**Input Sources Config**

- HDMI-1 Config.
- HDMI-2 Config
- SLOT1-HDMI
- SLOT1-DP*
- SLOT1-3GSDI
- SLOT2-HDMI
- SLOT2-DP*
- SLOT2-3GSDI

<table>
<thead>
<tr>
<th>Colorspace</th>
<th>Auto</th>
<th>RGB</th>
<th>YCbcCr</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Range</th>
<th>Auto</th>
<th>Full</th>
<th>Limited</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Deep Colour</th>
<th>Auto</th>
<th>On</th>
<th>Off</th>
</tr>
</thead>
</table>

**EDID Resolution**

3840 x 2160p

640x480p to 4096 x 2160p & custom resolutions

**EDID Frame Rate**

23.98 to 60 Hz

**Colour** 0 IRE

- BL-Offset
  - 0 IRE
  - 2.5 IRE
- Brightness
  - -50 ... 50 steps
- Contrast
  - 0
- Saturation
  - -50 ... 50 steps
- Hue
  - -50 ... 50 steps
- Red Bias
  - 0
### Input Menu

#### Factory Defaults

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red Gain</td>
<td>0</td>
</tr>
<tr>
<td>Green Gain</td>
<td>0</td>
</tr>
<tr>
<td>Blue Gain</td>
<td>0</td>
</tr>
<tr>
<td>Blue Bias</td>
<td>0</td>
</tr>
<tr>
<td>Green Bias</td>
<td>0</td>
</tr>
<tr>
<td>Colour Temp</td>
<td>6500K</td>
</tr>
</tbody>
</table>

#### Input Gamma

<table>
<thead>
<tr>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.2</td>
</tr>
</tbody>
</table>

#### Pict. Format

<table>
<thead>
<tr>
<th>Format</th>
</tr>
</thead>
<tbody>
<tr>
<td>Original</td>
</tr>
<tr>
<td>Stretch</td>
</tr>
<tr>
<td>Crop</td>
</tr>
<tr>
<td>Anamorphic</td>
</tr>
</tbody>
</table>

#### Input AOI

<table>
<thead>
<tr>
<th>AOI Enable</th>
<th>Aspect Lock</th>
<th>HSIZE</th>
<th>HPOS</th>
<th>VSIZE</th>
<th>VPOS</th>
<th>Input AOI Reset</th>
<th>Sharpness</th>
<th>HDMI Audio</th>
<th>SDI Setup*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Off, On</td>
<td>Off, On</td>
<td>Hres</td>
<td>0</td>
<td>Vres</td>
<td>0</td>
<td></td>
<td>0</td>
<td>Full</td>
<td>Card1-SDI</td>
</tr>
</tbody>
</table>

**HDMI Audio Support**
- Full
- Match Display

**SDI Setup**
- Card1-SDI
- Card2-SDI
Input Menu

SDI to HDMI Audio Map

Factory Defaults
Stereo ch(1,2)

SDI Level B Stream

Stream1

TP Setup

TP Type

Red curtain
Green curtain
Blue curtain
Grey V bars
Grey H bars
Aspect Test
Multi Test
Warp Adjust
SMPTE
PLUGE
Moving Cross
Custom 1,2,3,4

Stream 1
Stream 2

Test Line

On
Off

Moving TP Foreground Color

Black
White
Yellow
Cyan
Green
Magenta
Red
Blue

Moving TP Background Color

Black
White
Yellow
Cyan
Green
Magenta
Red
Blue
Multi
## Input Menu

<table>
<thead>
<tr>
<th>Option</th>
<th>Factory Defaults</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moving TP Speed</td>
<td>1</td>
<td>1 to 10</td>
</tr>
<tr>
<td>Moving TP Line Width</td>
<td>40</td>
<td>4 to 40</td>
</tr>
<tr>
<td>Input Enable</td>
<td>On</td>
<td></td>
</tr>
</tbody>
</table>

- **Input Enable**
  - HDMI-1
  - HDMI-2
  - SLOT1-HDMI *
  - SLOT1-DP *
  - SLOT1-SDI *
  - SLOT2-HDMI *
  - SLOT2-DP *
  - SLOT2-SDI *
  - LOGO

**On**

**Off**
## 9.1.2 Output Menu

### Output Menu

<table>
<thead>
<tr>
<th>Output</th>
<th>Factory Defaults</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Output Format</td>
<td></td>
</tr>
<tr>
<td>Quad Card</td>
<td></td>
</tr>
<tr>
<td>Output Format*</td>
<td></td>
</tr>
<tr>
<td><strong>Output Resolution</strong></td>
<td>1920x1080p</td>
</tr>
<tr>
<td>Match Display (only Main)</td>
<td></td>
</tr>
<tr>
<td>640x480p......</td>
<td></td>
</tr>
<tr>
<td>1920x1080p(Quad)</td>
<td></td>
</tr>
<tr>
<td>4096x2160(main)</td>
<td></td>
</tr>
<tr>
<td>Note: Refer to Supported Format Table for Release 1 resolutions</td>
<td></td>
</tr>
<tr>
<td>Custom Resolutions 1-4</td>
<td></td>
</tr>
<tr>
<td><strong>Output Frame Rate</strong></td>
<td>59.94Hz</td>
</tr>
<tr>
<td>Match Display (Only Main)</td>
<td></td>
</tr>
<tr>
<td>23.98Hz ... 60Hz</td>
<td></td>
</tr>
<tr>
<td>Note: Refer to Supported Format Table for Release 1 frame rates</td>
<td></td>
</tr>
<tr>
<td>Custom Resolutions</td>
<td></td>
</tr>
<tr>
<td><strong>CR 1-4 Width</strong></td>
<td></td>
</tr>
<tr>
<td>640 to 4096 (main)</td>
<td></td>
</tr>
<tr>
<td>640 to 1920 (Quad Card)</td>
<td></td>
</tr>
<tr>
<td>1920</td>
<td></td>
</tr>
<tr>
<td><strong>CR 1-4 Height</strong></td>
<td></td>
</tr>
<tr>
<td>480 to 2160 (main)</td>
<td></td>
</tr>
<tr>
<td>480 to 1080 (Quad Card)</td>
<td></td>
</tr>
<tr>
<td>1080</td>
<td></td>
</tr>
<tr>
<td><strong>Gamma/ Color/ Crush</strong></td>
<td></td>
</tr>
<tr>
<td>Native Color</td>
<td>6500K</td>
</tr>
<tr>
<td>3200K</td>
<td></td>
</tr>
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<td>3700K</td>
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<td>5500K</td>
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<td>6500K</td>
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<td>7500K</td>
<td></td>
</tr>
<tr>
<td>9300K</td>
<td></td>
</tr>
<tr>
<td><strong>Output Gamma</strong></td>
<td>2.2</td>
</tr>
<tr>
<td>1.0 ... 3.0</td>
<td></td>
</tr>
<tr>
<td><strong>Black Crush</strong></td>
<td>0</td>
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<tr>
<td>0 ... 255 steps</td>
<td></td>
</tr>
<tr>
<td><strong>Output Config</strong></td>
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<tr>
<td>HDMI Output</td>
<td>HDMI-10</td>
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<tr>
<td>DVI/HDMI</td>
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<td>DVI Forced</td>
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## Output Menu

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<th>HDMI 8-bit</th>
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<th>HDMI 12-bit</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>(main only)</td>
<td>RGB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>YPbPr</td>
</tr>
<tr>
<td>Range</td>
<td></td>
<td></td>
<td></td>
<td>Auto</td>
</tr>
<tr>
<td></td>
<td>Full</td>
<td>Limited</td>
<td>Auto</td>
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<table>
<thead>
<tr>
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<th></th>
<th>Output Resolution</th>
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<tbody>
<tr>
<td></td>
<td>640x480p..</td>
<td>1920x1080p</td>
<td>1920x1200p</td>
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<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th>Output Frame Rate</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>50 or 60Hz</td>
<td></td>
<td>59.94Hz</td>
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<table>
<thead>
<tr>
<th></th>
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<th></th>
<th>I/O Lock</th>
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<tbody>
<tr>
<td></td>
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<td></td>
<td></td>
<td>Off</td>
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<table>
<thead>
<tr>
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<tbody>
<tr>
<td></td>
<td>CARD1-DP</td>
<td>CARD1-3GSDI</td>
<td>CARD2-HDMI</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CARD2-DP</td>
<td>CARD2-3GSDI</td>
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</table>

<table>
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<tr>
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<td></td>
<td></td>
</tr>
</tbody>
</table>
### 9.1.3 LED Screen Sizing Menu

#### LED Sizing Menu

<table>
<thead>
<tr>
<th>LED Screen Size</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>LED Width</td>
<td>1... 4096</td>
</tr>
<tr>
<td>LED Height</td>
<td>1... 2160</td>
</tr>
<tr>
<td>HORZ offset</td>
<td>0... 4095</td>
</tr>
<tr>
<td>VERT offset</td>
<td>0... 2159</td>
</tr>
<tr>
<td>LED Screen Reset</td>
<td></td>
</tr>
<tr>
<td>Splicing Config*</td>
<td>1x2</td>
</tr>
<tr>
<td></td>
<td>1x3</td>
</tr>
<tr>
<td></td>
<td>1x4</td>
</tr>
<tr>
<td></td>
<td>2x1</td>
</tr>
<tr>
<td></td>
<td>3x1</td>
</tr>
<tr>
<td></td>
<td>4x1</td>
</tr>
<tr>
<td></td>
<td>2x2</td>
</tr>
<tr>
<td>Splicing Setup*</td>
<td>Standard</td>
</tr>
<tr>
<td></td>
<td>Advanced</td>
</tr>
<tr>
<td>HPos 1</td>
<td>0 pxls ... 3840pxls</td>
</tr>
<tr>
<td>VPos 1</td>
<td>0 pxls ... 2160pxls</td>
</tr>
<tr>
<td>HPos 2</td>
<td>0 pxls ... 3840pxls</td>
</tr>
<tr>
<td>VPos 2</td>
<td>0 pxls ... 2160pxls</td>
</tr>
<tr>
<td>HPos 3</td>
<td>0 pxls ... 3840pxls</td>
</tr>
<tr>
<td>VPos 3</td>
<td>0 pxls ... 2160pxls</td>
</tr>
<tr>
<td>HPos 4</td>
<td>0 pxls ... 3840pxls</td>
</tr>
<tr>
<td>VPos 4</td>
<td>0 pxls ... 2160pxls</td>
</tr>
</tbody>
</table>
## 9.1.4 Layer Menu

### Layer Menu

<table>
<thead>
<tr>
<th>Layer 1&amp;2 Mode</th>
<th>Split</th>
</tr>
</thead>
<tbody>
<tr>
<td>Layer 3&amp;4 Mode</td>
<td>Split</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fade Rate</th>
<th>1 sec</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 5 sec (in 0.25 increments)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Background Colour</th>
<th>black</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>colour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aqua #00FFFF</td>
</tr>
<tr>
<td>Black #000000</td>
</tr>
<tr>
<td>Blue #0000FF</td>
</tr>
<tr>
<td>Fuchsia #FF00FF</td>
</tr>
<tr>
<td>Gray #808080</td>
</tr>
<tr>
<td>Green #008000</td>
</tr>
<tr>
<td>Lime #00FF00</td>
</tr>
<tr>
<td>Maroon #800000</td>
</tr>
<tr>
<td>Navy #000080</td>
</tr>
<tr>
<td>Olive #808000</td>
</tr>
<tr>
<td>Purple #800080</td>
</tr>
<tr>
<td>Red #FF0000</td>
</tr>
<tr>
<td>Silver #C0C0C0</td>
</tr>
<tr>
<td>Teal #008080</td>
</tr>
<tr>
<td>White #FFFFFF</td>
</tr>
</tbody>
</table>

### Layer Enable

<table>
<thead>
<tr>
<th>Layer-1</th>
<th>All on</th>
</tr>
</thead>
<tbody>
<tr>
<td>Layer-2</td>
<td></td>
</tr>
<tr>
<td>Layer-3</td>
<td></td>
</tr>
<tr>
<td>Layer-4</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Layer Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>HDMI-1</td>
</tr>
<tr>
<td>HDMI-2</td>
</tr>
<tr>
<td>SLOT1-HDMI*</td>
</tr>
<tr>
<td>SLOT1-DP*</td>
</tr>
<tr>
<td>SLOT1-3GSDI*</td>
</tr>
<tr>
<td>SLOT2-HDMI*</td>
</tr>
<tr>
<td>SLOT2-DP*</td>
</tr>
<tr>
<td>SLOT2-3GSDI*</td>
</tr>
<tr>
<td>LOGO</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Layer/PIP Pos/Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>PIP Position</td>
</tr>
<tr>
<td>Centre for all layers</td>
</tr>
<tr>
<td>Layer Menu</td>
</tr>
<tr>
<td>------------</td>
</tr>
<tr>
<td>Top Left</td>
</tr>
<tr>
<td>Top Right</td>
</tr>
<tr>
<td>Bottom Left</td>
</tr>
<tr>
<td>Bottom Right</td>
</tr>
<tr>
<td>Center</td>
</tr>
<tr>
<td>Free H/V</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>PIP H-Pos</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-LED Width to +LED Width</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>PIP V-Pos</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-LED Height to +LED Height</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Layer/PIP Size</th>
<th>Full Screen</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Small</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Medium</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Large</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Free H/V</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PIP Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to +LED or display Width</td>
</tr>
</tbody>
</table>

| PIP Height | 0 to +LED Height |

<table>
<thead>
<tr>
<th>Horizontal Flip</th>
<th>Off</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>On</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Vertical Flip</th>
<th>Off</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>On</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Freeze</th>
<th>Off</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>On</td>
</tr>
</tbody>
</table>
9.1.5 Presets

<table>
<thead>
<tr>
<th>Presets</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Store</td>
<td>1 thru 10</td>
</tr>
<tr>
<td>Recall</td>
<td>1 thru 10</td>
</tr>
<tr>
<td>Clear</td>
<td>1 thru 10</td>
</tr>
</tbody>
</table>

9.1.6 Audio

<table>
<thead>
<tr>
<th>Audio</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Volume</td>
<td>0 to 63.5 db</td>
</tr>
<tr>
<td>Priority 4 (Highest)</td>
<td></td>
</tr>
<tr>
<td>Priority 3</td>
<td></td>
</tr>
<tr>
<td>Priority 2</td>
<td></td>
</tr>
<tr>
<td>Priority 1 (Lowest)</td>
<td></td>
</tr>
<tr>
<td>Layer 1</td>
<td></td>
</tr>
<tr>
<td>Layer 2</td>
<td></td>
</tr>
<tr>
<td>Layer 3</td>
<td></td>
</tr>
<tr>
<td>Layer 4</td>
<td></td>
</tr>
</tbody>
</table>

Audio Delay:
- HDMI-1
- HDMI-2
- CARD3-HDMI*
- CARD1-DP*
- CARD3-3GSDI*
- CARD2-HDMI*
- CARD2-DP*
- CARD2-3GSDI*  
- 100ms to +500ms

Audio Mute:
- HDMI-1
- HDMI-2
- CARD3-HDMI*
- CARD1-DP*
- CARD3-3GSDI*
- CARD2-HDMI*
- CARD2-DP*
- CARD2-3GSDI*
- All Sources  
- Off
- On

Factory Defaults:
- 0 db
- Priority X=Layer X
- Where X:1,2,3,4

Audio Delay:
- 0 secs
### System

#### HDCP
- **HDCP**
  - **On**
  - **Off**

#### Names/Profiles
- **Unit Name**
  - HDMI-1
  - HDMI-2
  - CARD1-HDMI*
  - CARD1-DP*
  - CARD1-3GSDI*
  - CARD2-HDMI*
  - CARD2-DP*
  - CARD2-3GSDI*
  - LOGO

- **Input Names**
  - HDMI-1
  - HDMI-2
  - CARD1-HDMI*
  - CARD1-DP*
  - CARD1-3GSDI*
  - CARD2-HDMI*
  - CARD2-DP*
  - CARD2-3GSDI*
  - LOGO

#### Users
- **User 1...User 4**

#### Menu Settings
- **Keypad Lock**
  - **Off**
  - **Menu Only**
  - **All Keys**

- **Menu Time**
  - **5 sec**
  - **15 sec**
  - **30 sec**
  - **Infinite**

- **LCD Backlight**
  - **0..10**

- **Jog Push Enable**
  - **On**
  - **Off**

#### Network Settings
- **Address Type**
  - **DHCP**
  - **Static**

- **IP**
  - **NET**
  - **GW**
  - **Apply**

#### Security Settings
- **FTP Passwd**
  - **user**
  - **Off**

- **WWW Passwd**
  - **On**
  - **Off**

#### Factory Defaults
- **Cancel**
- **Execute**
## 9.1.8 Status

<table>
<thead>
<tr>
<th>Status</th>
<th>Main HDMI</th>
</tr>
</thead>
<tbody>
<tr>
<td>HDCP</td>
<td>Bit Depth 8,10,12</td>
</tr>
<tr>
<td>HDCP</td>
<td>Bit Depth 8,10,12</td>
</tr>
<tr>
<td>Output Format</td>
<td></td>
</tr>
<tr>
<td>Sync Mode</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Software Info</th>
<th>SW Version</th>
</tr>
</thead>
</table>
9.2 Button Colour codes for the operation examples

<table>
<thead>
<tr>
<th>Brightness</th>
<th>Flashing Speed</th>
<th>Layer Button behavior</th>
<th>Input Button Behavior (includes LOGO)</th>
<th>Preset Button behavior</th>
<th>Function Button behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dark</td>
<td>-</td>
<td>Layer</td>
<td>No valid signal has been detected</td>
<td>No Preset is stored</td>
<td>Function is inactive</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Layer is not on screen</td>
<td>No valid signal has been detected</td>
<td>No Preset is stored</td>
<td></td>
</tr>
<tr>
<td>Half lid</td>
<td>Solid</td>
<td>Layer</td>
<td>A valid signal has been detected, but</td>
<td>A valid preset is</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>it is not on screen</td>
<td>stored, but not on</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>screen</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fast</td>
<td>Layer</td>
<td>A valid preset is stored, and has</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>been cued to be executed after</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>TAKE</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Slow</td>
<td>Layer</td>
<td>A valid source hasn't been detected,</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>but the input is cued to go on screen</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>or the input is on screen</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Solid</td>
<td>Layer</td>
<td>The layer is on screen</td>
<td>The preset is on screen</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>A valid input is on screen</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>A valid preset is stored, and has</td>
<td>Active across</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>been cued to be executed after</td>
<td>the whole screen or on</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>TAKE</td>
<td>selected layer</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Activated immediately</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>as soon as the button</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>is pressed. No TAKE</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>press is necessary</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Activated immediately</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>as soon as the button</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>is pressed. No TAKE</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>press is necessary</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Activated immediately</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>as soon as the button</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>is pressed. No TAKE</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>press is necessary</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Activated immediately</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>as soon as the button</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>is pressed. No TAKE</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>press is necessary</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Activated immediately</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>as soon as the button</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>is pressed. No TAKE</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>press is necessary</td>
<td></td>
</tr>
</tbody>
</table>
9.3 Front Panel operation examples

9.3.1 Switch between two layers with two different inputs

1. Select Layer 1: HDMI 1
2. Select Layer 2: HDMI 1
3. Press TAKE button
4. Select Layer 2: HDMI 2

Keypad

Layer 1: HDMI 1

Output

Layer 1: HDMI 1

Output

Layer 1: HDMI 1

Output

Layer 2: HDMI 2

Output
9.3.2 Switch between two inputs on the same layer

Layer 1 fades out and background color is revealed.

Layer 1: HDMI1

Output
9.3.3 Resize layers

Use Layer 1 menu to change the size and position

Use Layer 2 menu to change the size and position

Layer 1 is also on screen, but it is behind Layer 2
9.3.4 Remove a Layer

Keypad

Layer 1
HDMI 1
Layer 2
HDMI 2
Layer 3
Layer 4
BLK

Layer1: HDMI1
Layer2: HDMI2

Output

Keypad

Layer 1
HDMI 1
Layer 2
HDMI 2
Layer 3
Layer 4
BLK

Layer1: HDMI1
Layer2: HDMI2

Output

Keypad

Layer 1
HDMI 1
Layer 2
HDMI 2
Layer 3
Layer 4
BLK

Layer1: HDMI1
Layer2: HDMI2

Output

Layer2: HDMI2

Output
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

Press more than 3 seconds

Layer 1: HDMI1
Layer 2: HDMI1
Layer 3: CRD1
Layer 4: CRD2
Preset 1
Preset 2
Preset 3
Clear
Store
TAKE

Output

Layer 1: HDMI1
Layer 2: HDMI1
Layer 3: CRD1
Layer 4: CRD2
Preset 1
Preset 2
Preset 3
Clear
Store
TAKE

Press more than 3 seconds

Layer 1: HDMI1
Layer 2: HDMI1
Layer 3: CRD1
Layer 4: CRD2
Preset 1
Preset 2
Preset 3
Clear
Store
TAKE

Output

Layer 1: HDMI1
Layer 2: HDMI1
Layer 3: CRD1
Layer 4: CRD2
Preset 1
Preset 2
Preset 3
Clear
Store
TAKE

Output
9.3.7  Delete 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°C to 40°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

**CE:** 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 (1.33 in) and 489 mm (1.925 in) with front handles and real brackets installed

12 Weight

<table>
<thead>
<tr>
<th>Basic Unit without I/O cards</th>
<th>9 kg (19.8 lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic Unit with all I/O cards</td>
<td>10Kg (25.4 lbs)</td>
</tr>
</tbody>
</table>

13 Power
Input power: 100-240 VAC 50/60Hz 300W (Typical)

14 Warranty
3-years return to base (factory) warranty covers parts and labour.
APPENDIX A  Release 1 & 2 Hardware & Features

The HQPro1000 will be released in two separate releases. The first release will introduce the basic features and the product will be completed with the second release.

<table>
<thead>
<tr>
<th>HARDWARE</th>
<th>Release 1</th>
<th>Release 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inputs</td>
<td>Main Unit (Standard): 2x 4K 50/60 4:4:4 HDMI</td>
<td>Main Unit (Standard): 1x 4K 50/60 4:4:4 HDMI 2K HDMI Quad view confidence output</td>
</tr>
<tr>
<td></td>
<td>Input Card (Optional): 1x 4K 50/60 4:4:4 HDMI 1x 4K 50/60 4:4:4 DP 1x 3GSDI</td>
<td>Quad Output Card (Optional): 4x 2K 50/60 4:4:4 HDMI supporting LED splicing</td>
</tr>
<tr>
<td>Outputs</td>
<td></td>
<td>I/O Lock: Source, Low Latency, Genlock Input Card (Optional): 3GSDI: Level B support</td>
</tr>
<tr>
<td></td>
<td>Layers: 4x4K layers Split Mode Transitions: Fast Switching, +basic fade Horizontal &amp; Vertical flip Freeze Wireframes Background: Color selection</td>
<td></td>
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<tr>
<td></td>
<td>Test Patterns: Moving Test Patterns</td>
<td>Test Patterns: All other Test Patterns &amp; LOGO import</td>
</tr>
<tr>
<td></td>
<td>Picture Format: Stretch, Original, Crop</td>
<td>Picture Format: &amp; Anamorphic</td>
</tr>
<tr>
<td></td>
<td>Presets: User Defined &amp; Wireframe preview</td>
<td>Presets: Pre-defined presets</td>
</tr>
<tr>
<td></td>
<td>Colour Adjustments: Brightness &amp; Contrast</td>
<td>Colour Adjustments: Deep Color, Input &amp; Output Gamma, Colour Temp, Black crush</td>
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<tr>
<td></td>
<td>Sharpness Adjustments</td>
<td>EDID management, HDCP on/off</td>
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<tr>
<td></td>
<td>Single LED Sizing 2-pixel Sizing Adjustments</td>
<td>Single unit LED Splicing using Quad Output card 1-pixel Sizing Adjustments</td>
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<td></td>
<td>HDR Support</td>
<td>Audio Support</td>
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<tr>
<td></td>
<td>Audio Support</td>
<td>Enable Preset keypad for numeric entries</td>
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<tr>
<td></td>
<td>Scaled Aux from confidence monitor</td>
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<tr>
<td>CONTROL</td>
<td>Front Panel H1050 Remote Control Console</td>
<td>Built-in Web server API commands</td>
</tr>
<tr>
<td></td>
<td>Software update via USB</td>
<td>Software update via built-in web server</td>
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</tbody>
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