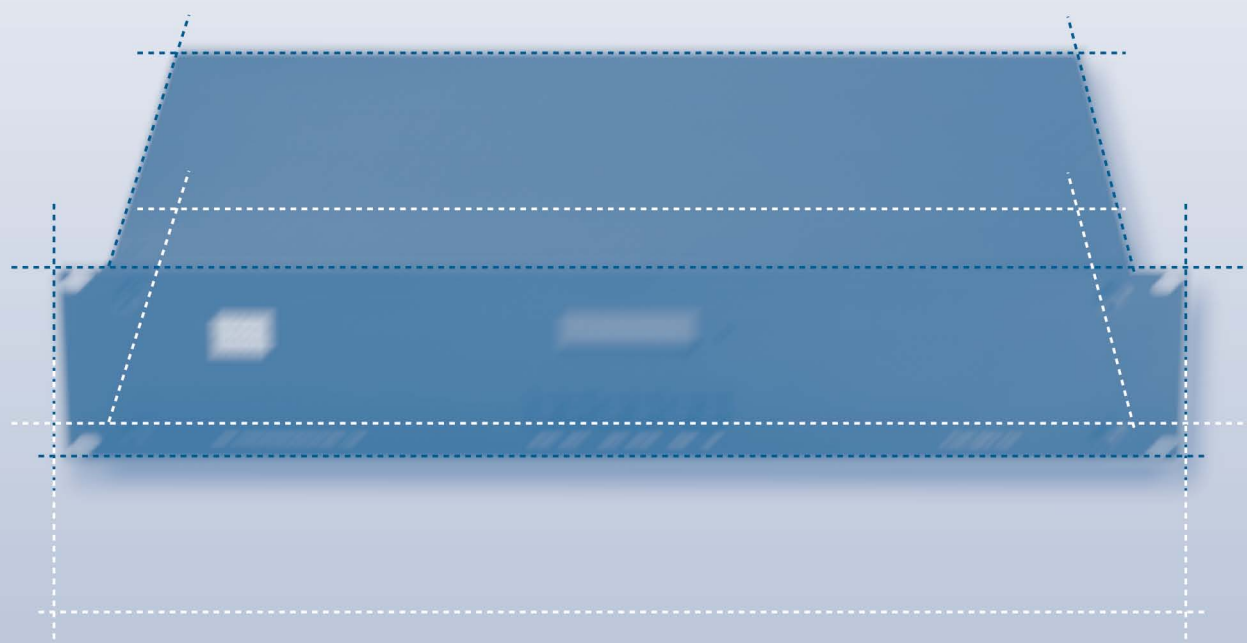


PIXEL-GATE OPERATING INSTRUCTIONS

Version 0.4.818



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1.0 Introduction

1.1 Schnick-Schnack-Systems and the Pixel-Gate

Schnick-Schnack-Systems GmbH are manufacturers of LED backlighting systems, founded in 2004 by Erhard Lehmann and based in Cologne (Germany) with a UK office located on the London/Kent border.

Although best known for their LED products, the company devotes equal time and effort to producing the Power Supplies, accessoires and interfaces, which combine with these to create complete, bespoke systems and solutions.

The Pixel-Gate by Schnick-Schnack-Systems is a hardware interface, designed to convert digital video signals (DVI or SDI) into ArtNet data.

Pixel/Videodata can be patched directly by using the built-in Quick Patch mode, or created with Schnick-Schnack-Systems' Pixel-Patch software.

1.2 Video Inputs

The Pixel-Gate can accept the following digital video signals as inputs:

DVI*: (progressive, 50 Hz/60 Hz)

640x480
768x576 (576 p)
800x600

} Doublebuffered

1024x768
1152x864
1280x720(720 p)
1280x960
1280x1024
1368x768

} Cropped if doublebuffered**

SDI:

720x576 (PAL, 25 Hz interlaced)
720x486 (NTSC, 29 Hz interlaced)

1.3 ArtNet Output

Min. 150 Universes
Unicast if supported
10/100 Mbit

**Supported resolutions in firmware version 1.0. Further resolutions are forthcoming.*

*** See 4.4: Doublebuffer Information.*

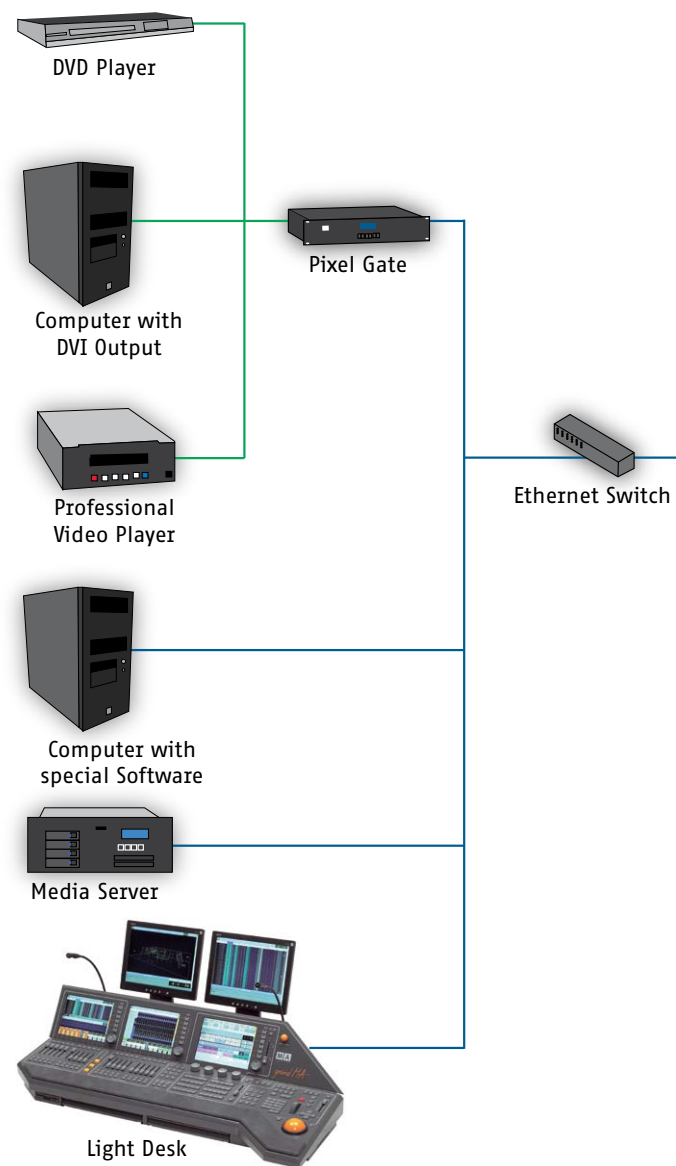
2.0 System Overviews

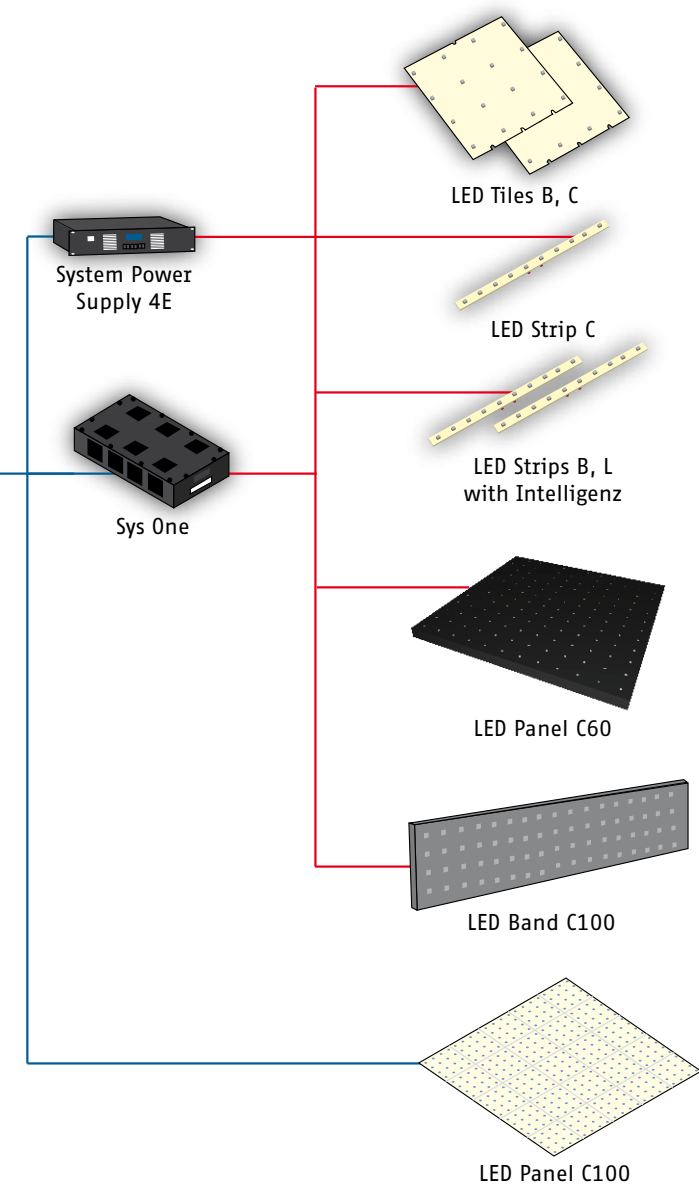
2.1 System Architecture



2.2 Cabling Examples

Simple system diagram, showing the topological position of the Pixel-Gate in an LED lighting system, relative to the other system components.





3.0 Installation Advice

Examine the Pixel-Gate immediately after unpacking, for any damage which may have occurred during transit. A damaged unit should not be used under any circumstances.

If the Pixel-Gate is moved from a cold to a warm environment, then a period of three hours should be result of the temperature change.

If the Pixel-Gate is to be installed in a rack, care must be taken to ensure that there is sufficient airflow around both the front and back of the unit. The temperature of the surrounding air should not exceed 35° C.

The use of rails is recommended for rack-mounting, to relieve strain on the front panel.

Connect the video input and ArtNet output cables.

Power-up the Pixel-Gate, by connecting the mains input connector. After a few seconds, the Pixel-Gate is ready for use.

Do not operate the Pixel-Gate in direct sunlight. Do not use water or aggressive solvents to clean the Pixel-Gate, wiping with a damp cloth should be sufficient. Heavy soiling may be removed using a mild detergent.

4.0 Menu System and Operation

4.1 Controls

The Pixel-Gate uses a similar LCD menu system and operating philosophy to other Schnick-Schnack-Systems rack-mount products and features the following six buttons:

- Shift** Use in conjunction with...
 - Edit** to scroll the cursor backwards through data entry fields.
 - Enter** to confirm certain operations.
 - Up** and **Down** to increase the rate at which selected values are changed.
- Edit** Scrolls the cursor through data entry fields.

- Quit** Used to exit the currently selected mode.
- Enter** Used to confirm operations, e.g. mode changes.
- Up** Scrolls up through list of modes. Increases the value in the currently highlighted data field.
- Down** Scrolls down through list of modes. Decreases the value in the currently highlighted data field.

4.2 Basic Operation

To change modes, press **Quit** to exit the current mode, then **Enter** to select the mode Menu list. Alternatively, press **Quit** a second time to cancel the change and return to the currently selected mode.

Use **Up** and **Down** to scroll through the mode menu list, until the desired mode is displayed, then press **Enter** to select it.

Use the **Edit** button to scroll through available data entry fields. Use **Shift+Edit** to scroll through the data entry fields in reverse order.

Use **Up** and **Down** to change the value in the selected (highlighted) data entry field. Use **Shift+Up/Down** to change the value in larger jumps.

If the selected mode has a sub-menu (e.g. **Setup**), press **Enter**, then use **Up** and **Down** to scroll through it. When the desired sub-menu parameter has been reached, use **Edit** to select, scroll through its data entry fields (even if there is only one).

When the desired data entry field has been selected, use **Up** and **Down** to change the value. When the desired value has been set, press **Enter** to return to the sub-menu and use **Up** and **Down** to scroll through it.

Press **Enter** again to return to the mode menu list.

4.3 Detailed Operation

4.3.1 Power-up

On power-up, the Pixel-Gate will initially display its info menu and software version for a few seconds.

Following this, the Pixel-Gate will go to the last-set Patch Mode –Quick-Patch or Pixel-Patch.



4.3.2 Changing Modes

To change mode press the **Quit** button. The LCD will display the following message:

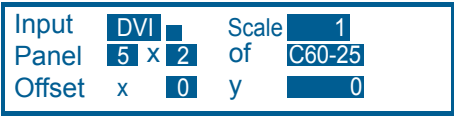


Press **Quit** again to cancel the change, or **Enter** to confirm. If Enter is chosen, the Mode Menu will be displayed –use the **Up** and **Down** buttons to scroll through it.



4.3.3 Quick-Patch Mode

Quick-Patch mode is used to create simple Pixel-Patches, which use just one type of LED Panel (C100, C60-50 or C60-25) directly from the Pixel-Gate menu.



Use **Edit** to move the cursor through the data entry fields. Use the **Input** field to select the type of input signal –DVI or SDI. A check mark (tick) in the small blue square to the right of this field, indicates that a valid input signal is being received by the Pixel-Gate.

Use the **Panel** and **Of** fields to select the number of Panels in the **x** and **y** planes, along with the Panel type.

Use the **Scale** and **Offset** fields to adjust the video to fit the installation.

For more complex installations, using multiple Panel and/or PCB illuminants, the Pixel-Patch mode is used.

4.3.4 Pixel-Patch Mode

The Pixel-Patch mode accesses a patch which has been pre-prepared using Schnick-Schnack-Systems' Pixel-Patch software and stored on a standard SD card. Use the **Edit** key to scroll through the three data entry fields on the left of the display.

Input	DVI No Input
File	<not set>
Patch	<not set>
Status	no input

The **Input** field is used to choose between a DVI or SDI input signal. **File** is used to load a Pixel-Patch file from the SD card.

Patch selects an output Patch to suit the input resolution.

The Patch must be reloaded, using the **Edit** and **Enter** buttons, if the file or input settings are altered.

If everything is working correctly, then the **Status** field on the display will read Running. In the case of an error, a message will be displayed. Possible error messages are shown on the next page.

4.3.4.1 Error Messages

Error Message	Description	Solution
No Input	No input signal is being received.	Check that the input cable connection is secure.
No Patch file loaded	No Patch has been loaded.	Check that an SD card with a valid Patch file has been loaded.
No output Patch loaded	No output Patch has been loaded.	Select an output Patch.
Resolution error	The output Patch has a different resolution from the input.	Choose another output Patch or Patch file. Change the resolution of the source or create a new Patch file.
Patch overflow	The output Patch is trying to access addresses with a pixel which does not lie in the memory range.	Switch off the doublebuffer in the setup menu. Build a new Patch file with the Schnick-Schnack-Systems Pixel-Patch software and choose another resolution, or shift the desired part of the content towards the upper part of the picture area.

4.3.5 Debug Mode – Do not use!

DO NOT ADJUST THE SETTINGS IN THIS MODE. This mode is intended for development purposes. Altering the values in the data entry fields may severely and irrevocably alter the performance of the Pixel-Gate.

DEBUG:	/
Adr	0x000000
Value	0x000000ffff

4.3.6 Factory Defaults

Pressing **Shift+Enter** together when in this mode, will restore the factory default settings to the Pixel-Gate interface. **WARNING: THIS ACTION CANNOT BE UNDONE!**

Restore Factory Defaults?	
Quit	Shift+Enter

4.3.7 Info

Displays the type of unit and currently installed software version.

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4.3.8 Setup

The following attributes can be adjusted using this menu:

- **Black Level**
- **Gamma Correction**
- **ArtNet**
- **Doublebuffer**
- **Save Patch internally**
- **DVI DDC framerate**

Press the **Enter** button to access the setup sub-menu.

New Mode:
Setup

4.3.8.1 Black Level

Use the Edit button to select the data entry field. With a Black Level greater than zero, any pixels which fall below the adjusted threshold value are faded out. Adjustment of this attribute can be helpful, if the content originated from an analogue source.

Black Level

0

4.3.8.2 DVI DDC Framerate

Use the **Edit** button to select the data entry field. Setting the preferred framerate does not actually specify the framerate, either for the in- or output. It merely serves Extended Display Identification Data (EDID) the information to the Display Data Channel (DDC) of the source PC graphic card or DVD player, in order to match the resolution with Pixel-Gate.

DVI DDC Framerate

50 Hz

4.3.8.3 Doublebuffering

Switches doublebuffer on or off. Doublebuffer is necessary in order to be able to play the full, desired framerate over ArtNet (see doublebuffer information). Without doublebuffer every second frame is dropped, so that a 60 Hz DVI source will only be reproduced at 30 Hz on the ArtNet side.

Doublebuffering

Off

4.3.8.4 Save Patch Internally

By switching this attribute on, the currently loaded patch is stored internally.

Save Patch internally

On

4.3.8.5 ArtNet

The ArtNet menu is used to select either unicast or broadcast output. The unicast parameter indicates the number of System Power Supply PSUs, requesting the same universe and can be switched off if desired.



The polling rate indicates the rate at which new devices/system power packs in the network are searched for by the Pixel-Gate. If **Pollrate** is switched off, then the unit will check only once, on power-up, **this action is not recommended**.

4.3.8.6 Gamma Correction

Switches this function on or off.



4.4 Doublebuffer Information

N.B. – The following restrictions apply until further notice, for firmware version 1.0 and should be waived with future updates:

The maximum number of pixels that can be stored in a patch is limited to approximately one million. Therefore, all pixels can be patched for resolutions of up to 1152x864 pixels.

Above the one megapixel limit the later lines are not stored, e.g. at a resolution of 1280x1024 the last 205 lines of the picture cannot be patched.

Furthermore: Doublebuffering requires twice the memory and therefore reduces the highest resolution that can be patched up to the latest pixel in the picture, e.g. a resolution of 1024x768 can be only be patched to line 512, if doublebuffering is activated.

If a pixel cannot be patched because it lies outside this range, then an error message will be shown in the display. If this occurs, the content should then be shifted using the Offset functions, or the resolution reduced.

Without doublebuffering, only every other frame is sent, so a 60 Hz DVI source will be reproduced at just 30 Hz on the ArtNet output side.

4.4.1 Doublebuffer tips

- Doublebuffering must be activated
- Since DMX 512 with a full packet length is limited to 44.1 Hz, the doublebuffer should be deactivated, if all 512 channels are to be used and/or standard DMX equipments is to be driven (Special cases where this does not apply: LED Panels C100, C60-50 and C60-25).
- When using higher resolutions, it is a good idea to have the desired content in the upper part of the image to be displayed.

4.4.2 Table of doublebuffer cropping

Input Resolution	Doublebuffer ON	Doublebuffer OFF
640x480	+	+
720x486 (NTSC)	+	+
720x576 (PAL)	+	+
800x600	+	+
1024x768	+	Cropped at line 512
1152x864	+	Cropped at line 455
1368x768	+	Cropped at line 383
1280x960	+	Cropped at line 409
1280x1024	+	Cropped at line 409

4.5 Interlaced formats

Interlaced DVI is not supported. SDI is interlaced by definition and is therefore supported.

4.6 Menu Overview (v0.4.818)

Press **Quit** to change mode.



Change Mode?

QuitEnter



New Mode:

Quick Patch



New Mode:

Pixel Patch



New Mode:

DEBUG



New Mode:

Factory Defaults



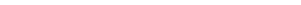
New Mode:

Info



New Mode:

Setup



Press **Quit** again to restore previous mode.

Input	DVI	Scale	1
Panel	5 x 2	of	C60-25
Offset	x 0	y	0

Input	DVI No Input
File	<not set>
Patch	<not set>
Status	no input

DEBUG:	
Adr	0x000000
Value	0x000000ffff

Restore Factory Defaults?	
Quit	Shift+Enter

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Black Level
0

DVI DDC Framerate
50 Hz

Doublebuffering
Off

Save Patch internally
On

ArtNet
Pollrate 1s
Broadcast Level 0

Gamma Correction
Off

8.0 Declaration of EU conformity

SCHNICK
SCHNACK
SYSTEMS

EC-Declaration of conformity

I hereby declare that the product

LED-Beleuchtungssystem bestehend aus „LED-Systemnetzteil 4“, „LED-Kachel B“, „LED Streifen 25“ mit „Intelligenz“ und Verkabelung nach Bedienungsanleitung.

(Name of product, type or model, batch or serial number)

meets the essential requirements referred to in Article 3 of the Council Directive 99/5/EC.

The following harmonized standards have been applied:

EN 60950-1:2003

EN 55015:2000

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Koeln, 7th. February 2005

(Place, Date of issue)



(Signature)

Dipl. Ing. (FH) Erhard Lehmann

(Name in block letters)