

# EX-G088

DVI Edge Blender for Projectors with  
Gamma Correction

## User Manual



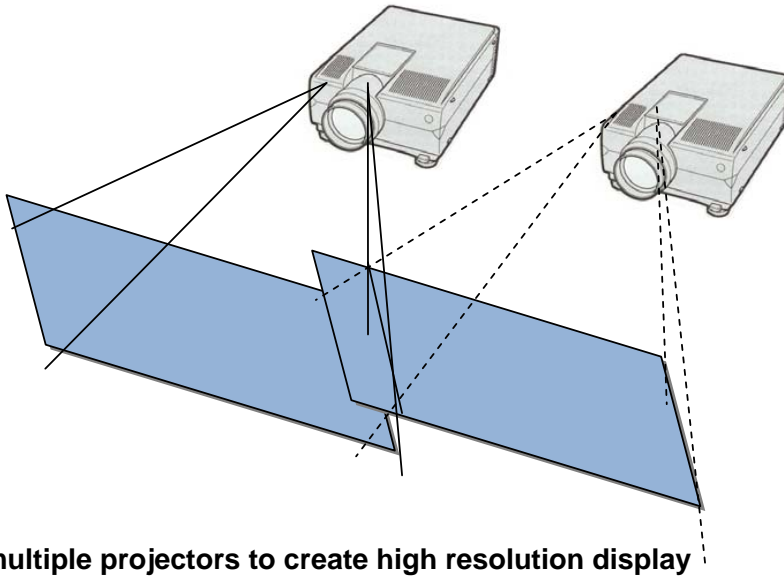
## Safety and Notice

The **EX-G088 DVI Edge Blender** has been tested for conformance to safety regulations and requirements, and has been certified for international use. However, like all electronic equipments, EX-G088 should be used with care. Please read and follow the safety instructions to protect yourself from possible injury and to minimize the risk of damage to the unit.

- Follow all instructions and warnings marked on this unit.
- Do not attempt to service this unit yourself, except where explained in this manual.
- Provide proper ventilation and air circulation and do not use near water.
- Keep objects that might damage the device and assure that the placement of this unit is on a stable surface.
- Use only the power adapter, power cords and connection cables designed for this unit.
- Do not use liquid or aerosol cleaners to clean this unit. Always unplug the power to the device before cleaning.

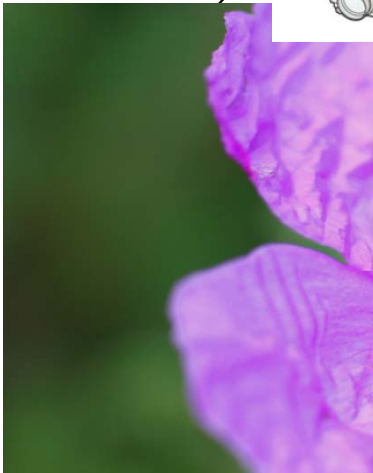
## Introduction

To create a single large display area using multiple projectors, it is unavoidable to overlap the images from projectors to get well tiled displays. Without perfect alignment, the resulting video especially for moving objects shows up with the objectionable gap or bright seam. To eliminate or lessen the effect causing by overlapped images such that the banding becomes invisible, modifying the video overlapping edges becomes a very important feature in such an application. **EX-G088 DVI Edge Blender** offers users to adjust the overlapped range horizontally or vertically, single edge or both edges on the same display at the same time. In this way, eye-catching, super high resolution, and bright display can be readily achieved. Typical applications include education, advertising, virtual reality, digital cinema, and video game.



**Setup for multiple projectors to create high resolution display**

## Concept





**Edge Blending**



## Features

- DVI 1.1 and HDMI 1.2a compatible
- Fully HDCP compliant
- DVI video up to 165MHz
- Front panel LED indicators
- RS-232 and push button control
- Serial command available
- Easy installation

## Package Contents

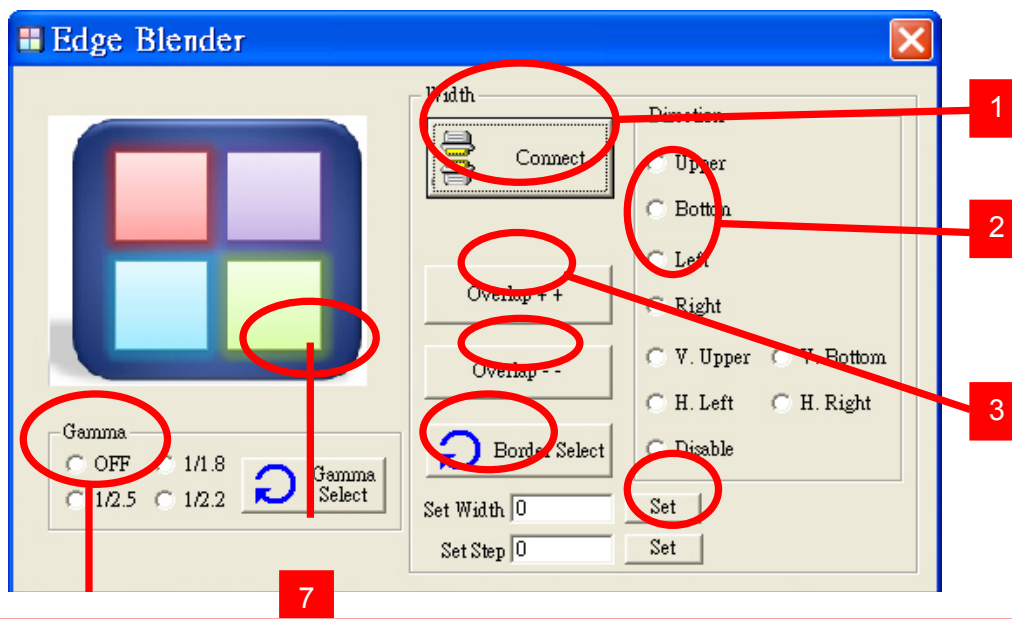
- 1x EX-G088
- 1X 5V 2A power adapter
- 1x User Manual

## Technical Specifications

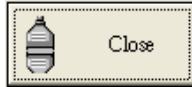
- Input Video Signal: 1.2 volts p-p
- Video Amplifier Bandwidth: 1.65Gbps
- Input DDC Signal: 5 volts p-p (TTL)
- Single Link Range: 1080p /1920x1200
- DVI Connector: DVI-I 29 pin female (digital only)
- RS-232 Connector: DSub-9
- Power Supply: 5V DC
- Power Consumption: 10 Watts (max)
- Dimensions: 125mm x 95mm x 25mm / 5"x3.7"x1" (L x W x H)
- Weight: 428g / 15oz

## RS-232 Serial Port Control

Software Control through RS-232



- 1 Connect:** Push this button will trigger the automatic search over all the available COM ports . If the blender is detected, the Connect button will show up.



Otherwise, an error message as following shows up to indicate no legal device can be found.



- 2 Direction:** Select the shadowed border position.
- 3 Overlap ++:** Increase the width of the blended edge.
- 4 Overlap --:** Decrease the width of the blended edge.
- 5 Set Step & Width:** Set the gradual step and the overlap width.
- 6 Border Select :** Circle border positions : upper -> bottom -> left -> right -> vertical -> horizontal -> disable border -> upper.
- 7 Gamma Select :** Change gamma correction : gamma off -> 1/1.8 -> 1/2.2 -> 1/2.5 -> gamma off.
- 8 Gamma mode :** Select gamma correction mode. **1**

## EX-G088 Serial Protocol

### ■ Get machine ID

Ex.	Description
0x05	Command length
0x4d	Reserved(Must be 0x4d)
0x4f	Reserved(Must be 0x4f)
0x44	Reserved(Must be 0x44)
0xe5	*Check sum

### Receive :

0xaa	ACK
0x06	Reserved
0x43	Machine ID
0x56	Machine ID
0x10	Machine ID
0x01	Machine ID
0xb0	*Check sum

### ■ Read EDID

Ex.	Description
0x08	Command length
0x43	Machine ID
0x56	Machine ID
0x10	Machine ID
0x01	Machine ID
0xff	Reserved
0x00	Command ID
0xb1	*Check sum

### Receive :

0x5a	ACK
------	-----

### ■ Write CV101 EDID to monitor

Ex.	Description
0x08	Command length
0x43	Machine ID
0x56	Machine ID
0x10	Machine ID
0x01	Machine ID
0xff	Reserved
0x01	Command ID
0xb2	*Check sum

### Receive :

0x5a	ACK
------	-----

■ Send monitor EDID

Ex.	Description
0x08	Command length
0x43	Machine ID
0x56	Machine ID
0x10	Machine ID
0x01	Machine ID
0xff	Reserved
0x03	Command ID
0xb4	*Check sum

**Receive :**

0x5a	ACK
------	-----

■ Write default EDID to CV101

Ex.	Description
0x08	Command length
0x43	Machine ID
0x56	Machine ID
0x10	Machine ID
0x01	Machine ID
0xff	Reserved
0x03	Command ID
0xb4	*Check sum

**Receive :**

0x5a	ACK
------	-----

■ Set gamma mode

Ex.	Description
0x09	Command length
0x43	Machine ID
0x56	Machine ID
0x10	Machine ID
0x01	Machine ID
0xff	Reserved
0x04	Command ID
0x09	Bit0 : 1/1.8 , Bit1 : 1/2.2 , Bit2: 1/2.5 , Bit3: ON(1)/OFF(0)
0xbf	*Check sum

**Receive :**

0x5a	ACK
------	-----

■ Set blender mode

Ex.	Description
0x09	Command length
0x43	Machine ID
0x56	Machine ID
0x10	Machine ID
0x01	Machine ID
0xff	Reserved
0x05	Command ID
0x02	Bit3: Left/Upper(0) Bit2: Both Edges ON(1)/OFF(0) Bit1: Horizontal(0)/Vertical(1) Bit0 : ON(1)/OFF(0)
0xb9	*Check sum

**Receive :**

0x5a	ACK
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■ Set blender width

Ex.	Description
0x0b	Command length
0x43	Machine ID
0x56	Machine ID
0x10	Machine ID
0x01	Machine ID
0xff	Reserved
0x06	Command ID
0x00	0x00 : Left , 0x01 : Upper , 0x02 : Right , 0x03 : Bottom .
0x01	Blender width high byte.
0x10	Blender width low byte.
0xC9	*Check sum

**Receive :**

0x5a	ACK
------	-----

■ Set blender step

Ex.	Description
0x0b	Command length
0x43	Machine ID
0x56	Machine ID
0x10	Machine ID
0x01	Machine ID
0xff	Reserved
0x11	Command ID
0x00	0x00 : Left , 0x01 : Upper , 0x02 : Right , 0x03 : Bottom .
0x01	Blender width high byte.
0x10	Blender width low byte.

0xC9	*Check sum
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**Receive :**

0x5a	ACK
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■ Disable push buttons

Ex.	Description
0x08	Command length
0x43	Machine ID
0x56	Machine ID
0x10	Machine ID
0x01	Machine ID
0xff	Reserved
0x0a	Command ID
0xbb	*Check sum

**Receive :**

0x5a	ACK
------	-----

■ Enable push buttons

Ex.	Description
0x08	Command length
0x43	Machine ID
0x56	Machine ID
0x10	Machine ID
0x01	Machine ID
0xff	Reserved
0x0b	Command ID
0xbc	*Check sum

**Receive :**

0x5a	ACK
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■ Learn monitor EDID

Ex.	Description
0x08	Command length
0x43	Machine ID
0x56	Machine ID
0x10	Machine ID
0x01	Machine ID
0xff	Reserved
0x0c	Command ID
0xbd	*Check sum

**Receive :**

0x5a	ACK
------	-----

## ■ Blender mode change

Ex.	Description
0x08	Command length
0x43	Machine ID
0x56	Machine ID
0x10	Machine ID
0x01	Machine ID
0xff	Reserved
0x0d	Command ID
0xbe	*Check sum

### Receive :

0x5a	ACK
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## ■ Blender width incremental

Ex.	Description
0x08	Command length
0x43	Machine ID
0x56	Machine ID
0x10	Machine ID
0x01	Machine ID
0xff	Reserved
0x0e	Command ID
0xbf	*Check sum

### Receive :

0x5a	ACK
------	-----

## ■ Blender width reduced

Ex.	Description
0x08	Command length
0x43	Machine ID
0x56	Machine ID
0x10	Machine ID
0x01	Machine ID
0xff	Reserved
0x0f	Command ID
0xc0	*Check sum

### Receive :

0x5a	ACK
------	-----

■ Gamma mode change

Ex.	Description
0x08	Command length
0x43	Machine ID
0x56	Machine ID
0x10	Machine ID
0x01	Machine ID
0xff	Reserved
0x10	Command ID
0xc1	*Check sum

**Receive :**

0x5a	ACK
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■ Read and send monitor region

Ex.	Description
0x08	Command length
0x43	Machine ID
0x56	Machine ID
0x10	Machine ID
0x01	Machine ID
0xff	Reserved
0x07	Command ID
0xb8	*Check sum

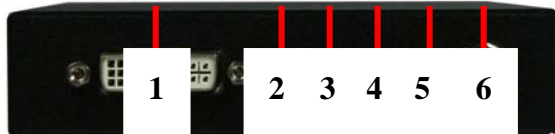
**Receive :**

0xa5	ACK
0x01	Horizontal low byte
0x03	Horizontal high byte
0x0a	Vertical low byte
0x02	Vertical high byte

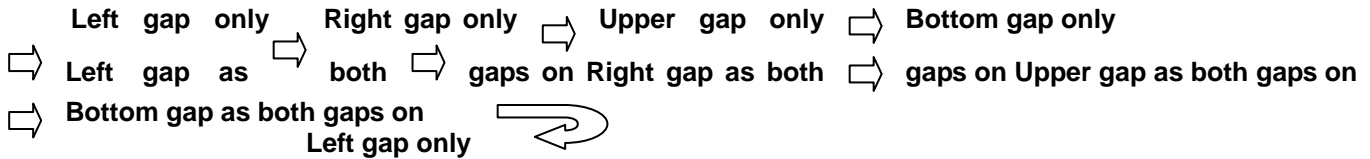
## Panel Descriptions

### Front View

1. DVI IN
2. Decrease the gap
3. Increase the gap
4. Mode
5. Gamma Correctio...



#### Mode circle:



### Rear View

7. RS-232
8. DVI Out



## Hardware Installation

1. Connect your DVI/HDMI sources to the DVI input connector.
2. Power up the EX-G088.
3. Adjust the overlap range using RS-232 or front panel push buttons.

## Notice

1. In order to have the best alignment between two images, a perfectly flat project screen is necessary to assure proper alignment.
2. Matched projectors with solid and adjustable mountings are strongly recommended. Projectors with features such as key stone correction are preferable.
3. The gamma correction has 3 sets of parameters installed: 1/1.8, 1/2.2, 1/2.5.
4. Check sum : Check sum = Transmission data amount %256.

## Limited Warranty

The SELLER warrants the **EX-G088 DVI Edge Blender** to be free from defects in the material and workmanship for 1 year from the date of purchase from the SELLER or an authorized dealer. Should this product fail to be in good working order within 1 year warranty period, The SELLER, at its option, repair or replace the unit, provided that the unit has not been subjected to accident, disaster, abuse or any unauthorized modifications including static discharge and power surges.

Unit that fails under conditions other than those covered will be repaired at the current price of parts and labor in effect at the time of repair. Such repairs are warranted for 90 days from the day of reshipment to the BUYER. If the unit is delivered by mail, customers agree to insure the unit or assume the risk of loss or damage in transit. Under no circumstances will a unit be accepted without a return authorization number.

The warranty is in lieu of all other warranties expressed or implied, including without limitations, any other implied warranty or fitness or merchantability for any particular purpose, all of which are expressly disclaimed.

Proof of sale may be required in order to claim warranty. Customers outside Taiwan are responsible for shipping charges to and from the SELLER. Cables are limited to a 30 day warranty and cable must be free from any markings, scratches, and neatly coiled.

The content of this manual has been carefully checked and is believed to be accurate. However, The SELLER assumes no responsibility for any inaccuracies that may be contained in this manual. The SELLER will NOT be liable for direct, indirect, incidental, special, or consequential damages resulting from any defect or omission in this manual, even if advised of the possibility of such damages. Also, the technical information contained herein regarding the EX-G088 features and specifications is subject to change without further notice.