CV-101P

Edge Blender for Projectors with Gamma Correction and Video Converter

User Manual

Made in Taiwan

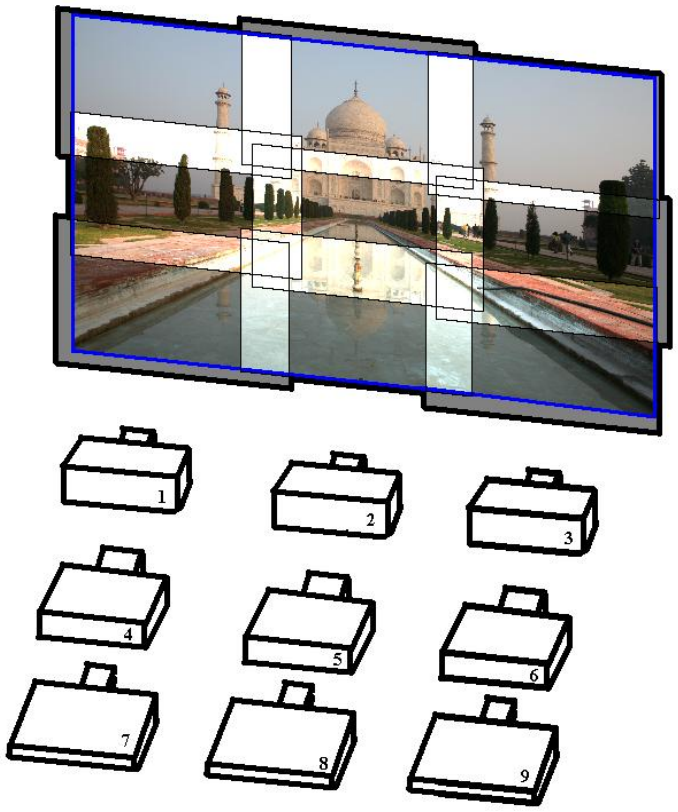
Safety and Notice

The **CV-101P Edge Blender for Projectors with Gamma Correction and Video Converter** has been tested for conformance to safety regulations and requirements, and has been certified for international use. However, like all electronic equipments, the CV-101P 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 and 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.

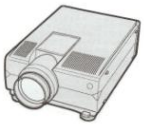
Introduction

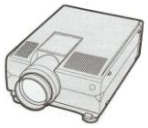
To create a single large display area using multiple projectors, it is unavoidable to overlap the images from projectors to get well tiled displays. Without perfect alignment, the resulting video especially for moving objects shows up with the objectionable gap or bright seam. To eliminate or lessen 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. **CV-101P Edge Blender for Projectors with Gamma Correction and Video Converter** 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. In addition to handle overlapped edges, CV-101P is also built up with graphics format conversion, for instance, VGA to DVI or DVI to VGA.

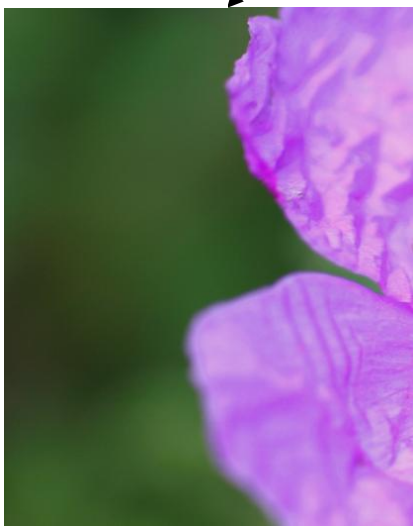


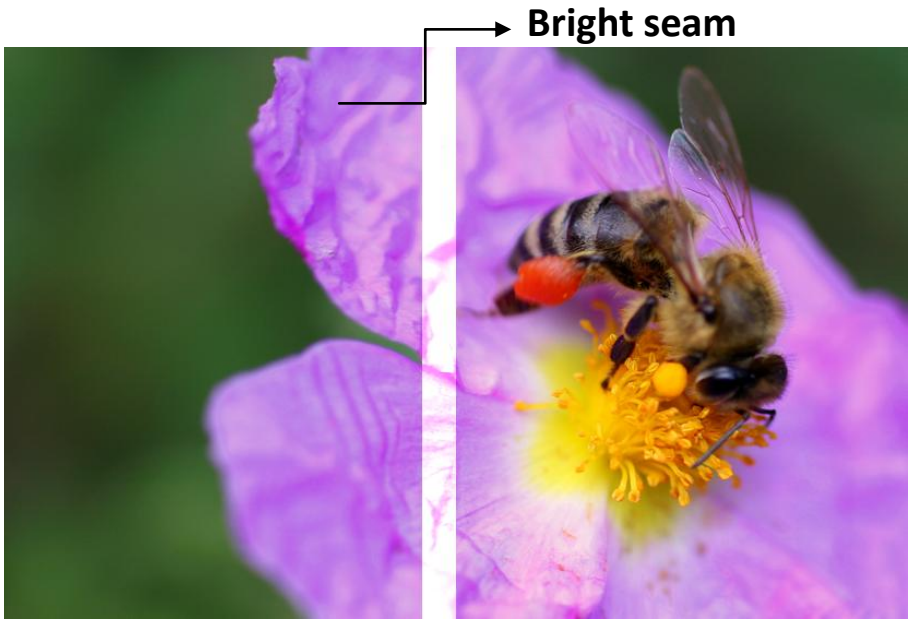
Setup for multiple projectors to create high resolution display

Concept

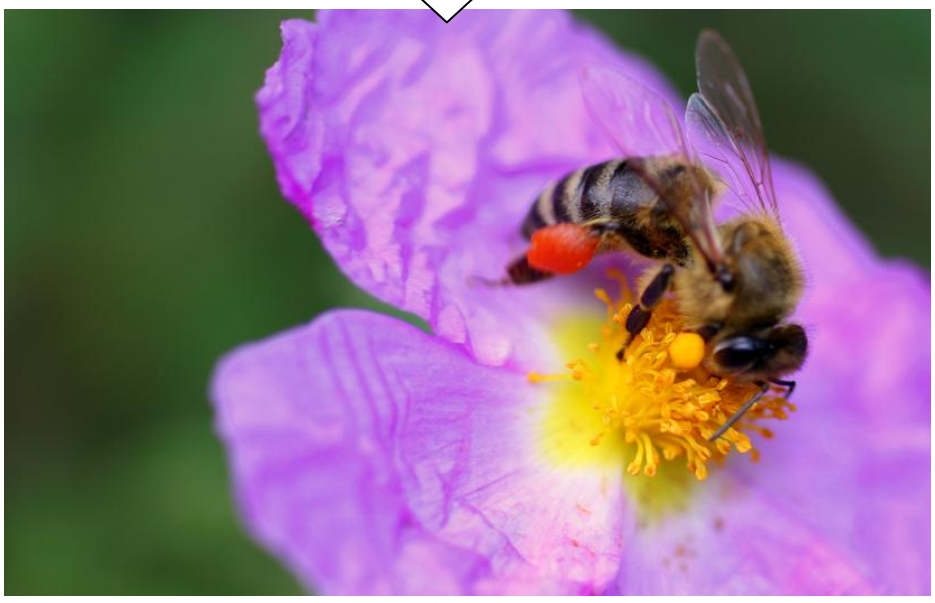








Edge Blending



Features

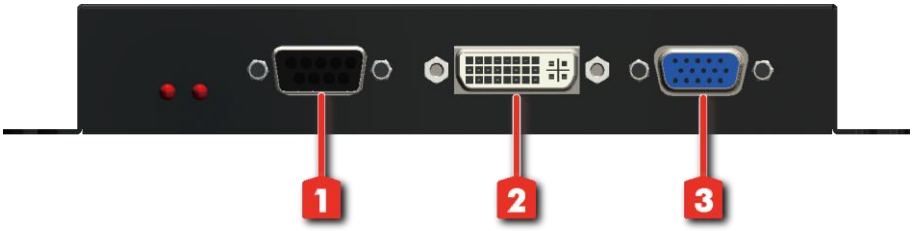
- DVI 1.1 compatible
- Fully HDCP compliant
- Video up to 165MHz for either DVI or VGA
- DVI and VGA output
- Front panel LED indicators
- RS-232 and push button control
- Serial command available
- Easy installation

Specifications

Model Name		CV-101	CV-101P
Technical			
Role of usage		Edge blending processor	
Video format support		DVI / HDMI	DVI / HDMI / VGA
Output support		DVI / HDMI	DVI / HDMI / VGA
HDCP compliance		Yes	
Video bandwidth		DVI/HDMI [Single-link 4.95Gbps]	DVI/HDMI [Single-link 4.95Gbps] VGA[165MHz]
Video support		Up to 1920x1200@60 / 1600x1200@60	
Audio support		No	
Control		RS-232	
Embedded video scaler		No	
Cascadable		Yes	
Input TMDS signal		1.2 Volts [peak-to-peak]	
ESD protection		Human body model — ±19kV [air-gap discharge] & ±12kV [contact discharge]	
PCB stack-up		4-layer board [impedance control — differential 100Ω; single 50Ω]	
Input		1x DVI + 1x RS-232	1x DVI + 1x RS-232 + 1x VGA
Output		1x DVI	1x DVI + 1x VGA
DVI connector		DVI-I [29-pin female, digital only]	
VGA connector		HD-15 [15-pin D-sub female]	
RS-232 connector		DE-9 [9-pin D-sub female]	
Mechanical			
Housing		Metal enclosure	
Dimensions [L x W x H]	Model	113 x 93 x 26mm [4.4" x 3.7" x 1"]	TBA
	Package	140 x 200 x 75mm [5.5" x 7.9" x 3"]	140 x 200 x 75mm [5.5" x 7.9" x 3"]
	Carton	420 x 400 x 300mm [1'5" x 1'4" x 11.8"]	420 x 400 x 300mm [1'5" x 1'4" x 11.8"]
Weight	Model	310g [11oz]	TBA
	Package	740g [1.6 lbs]	TBA
Fixedness		Wall-mounting case with screws upon request	
Power supply		Inter-locked 5V 2A DC	
Power consumption		7 Watts [max]	10 Watts [max]
Operation temperature		0~40°C [32~104°F]	
Storage temperature		-20~60°C [-4~140°F]	
Relative humidity		20~90% RH [no condensation]	
Package Contents		1x CV-101/CV-101P 1x Installation software CD 1x User Manual 1x RS-232 to USB adapter 1x 5V 2A interlocked wall wart power adapter	

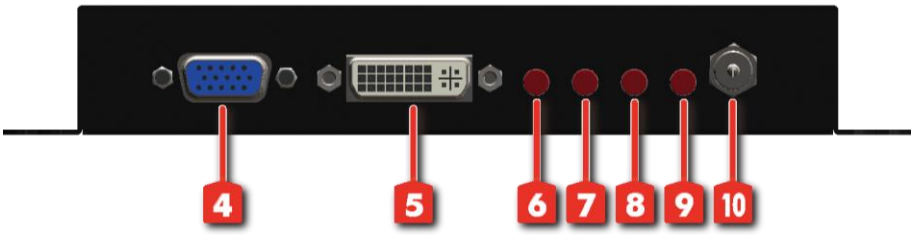
Panel Descriptions

Front View



1. RS-232
2. DVI / HDMI Out
3. VGA Out

Rear View



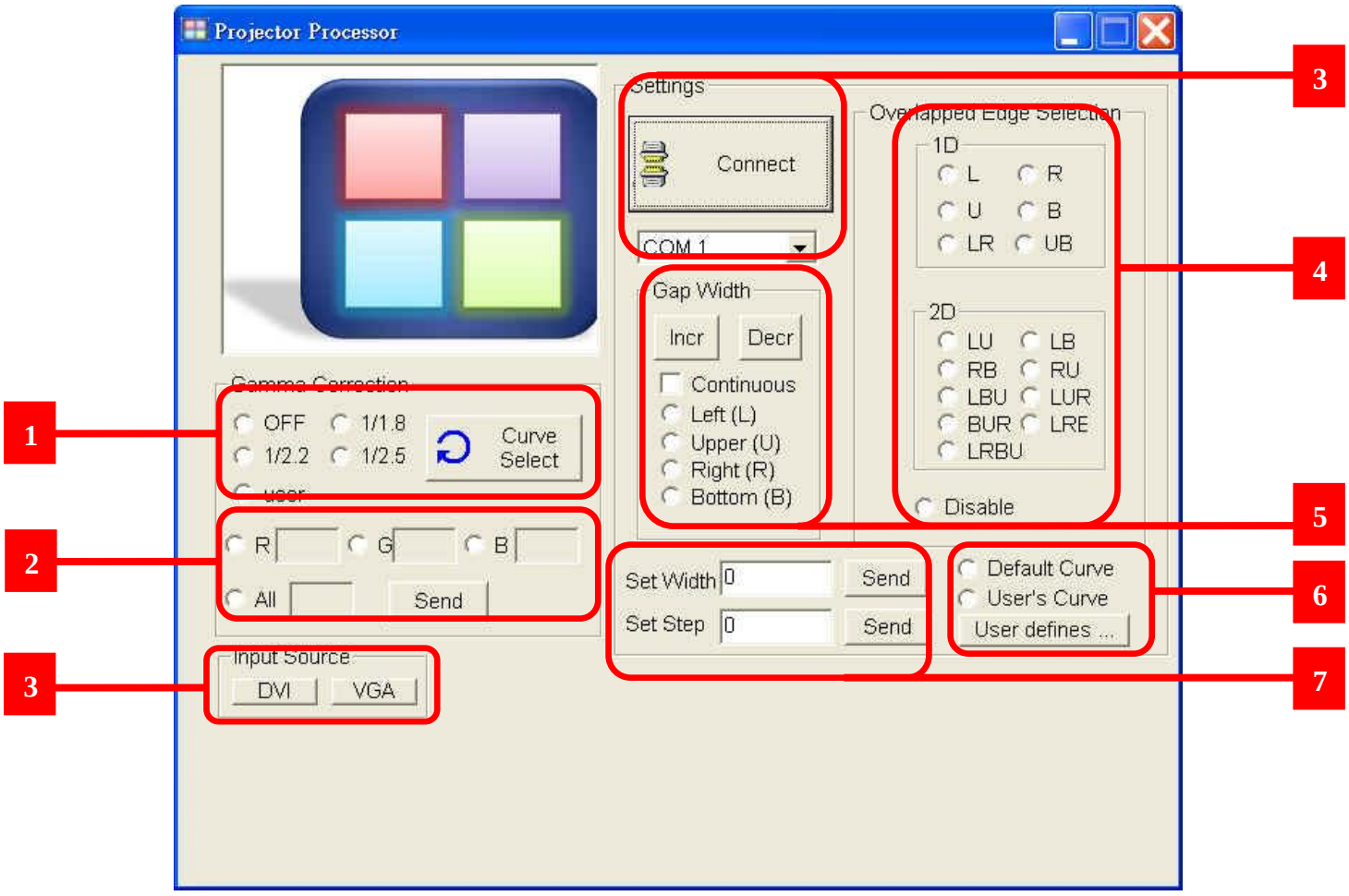
4. VGA IN
5. DVI /HDMI IN
6. Decrease the gap width
7. Increase the gap width
8. Mode
9. Gamma Correction
10. 5V power

Mode circle:

Left gap only ⇨ Right gap only ⇨ Upper gap only ⇨ Bottom gap only ⇨ Left gap as both gaps on ⇨ Right gap as both gaps on ⇨ Upper gap as both gaps on ⇨ Bottom gap as both gaps on ⇨ Left gap only

Edge Blending

In this section, we will demonstrate how to use software to present the video with overlapped and compensated edges through projectors. Coming with CV-101P, the control software provides the easy way to control edge blending processor. This will expedite user's application for projector video wall settings.



1 **Gamma Correction**:

Click the radio button to select a Gamma table!

If push the "Curve Select" button, it will circular select one of the radio button.

2 With the "user" button being selected, this area turns active.

User can enter some value for R,G,B or All ,then click it's corresponding radio button and push "send" button.

3 Select the RS232 port and connect to device.

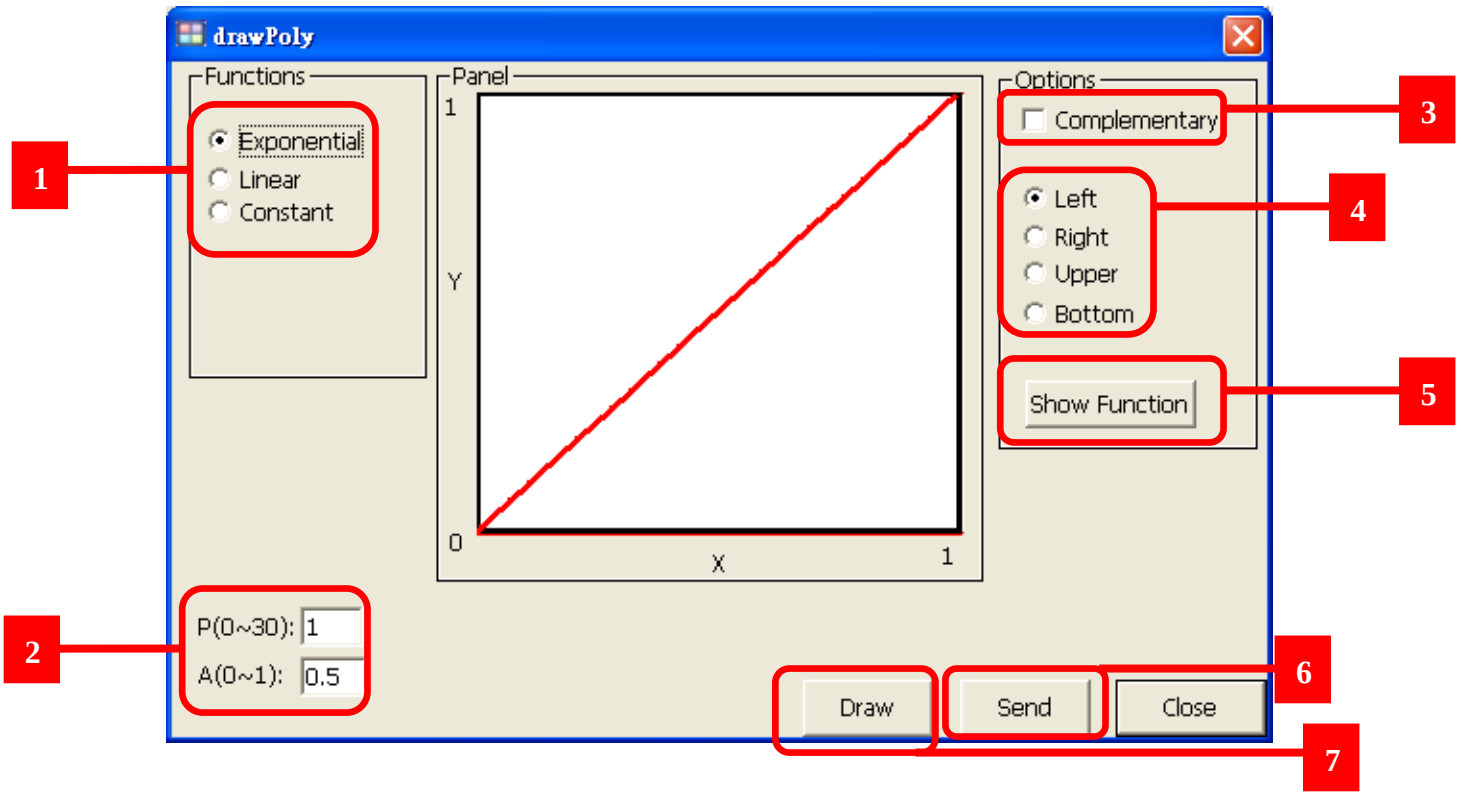
4 Chooses “ONE” desired direction in which blending effect for target video applied.
(where “L”=left, “R”=right, ”U”=upper, ”B”=bottom, “LU”=left-upper and vice versa.)

5 Select a direction first and then push the “Incr” and “Decr” to increase and decrease gap width of edge respectively.
If checkbox “continuous” checked, press button “Incr” and “Decr” to add or reduce gap width continuously.

6 Select the curve blending edge that is defined by system default or user define.
We can press the “User defines” button to define curve in “drawPoly” dialogue.

7 Enter the values of width and steps of edge, press “send” as confirmed.

8 Select the input source either from VGA or DVI/HDMI.



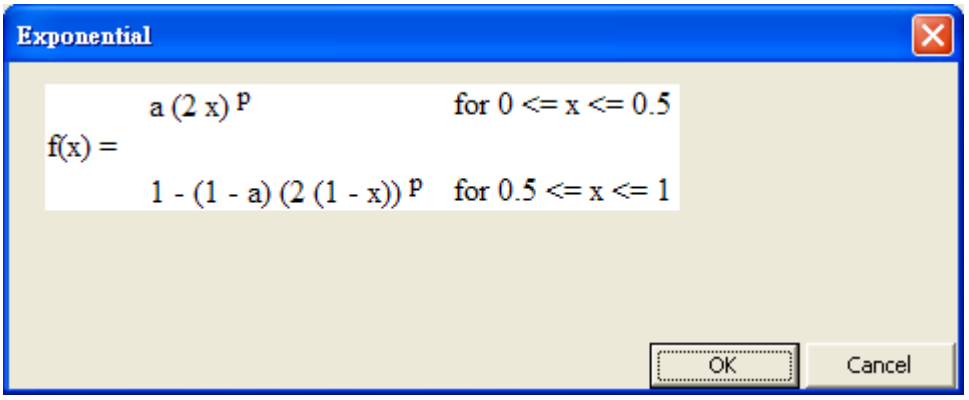
1 A total 3 functions available for user to set curve.

2 This is parameter of polynomial that user can setup within a limit.

3 If this item has been checked , the three functions will become it's complementary.

4 To apply specific curve to one individual side of target video, select one corresponding setting on left.

5 Button "Show Function" is available ONLY when "Exponential" function is selected.

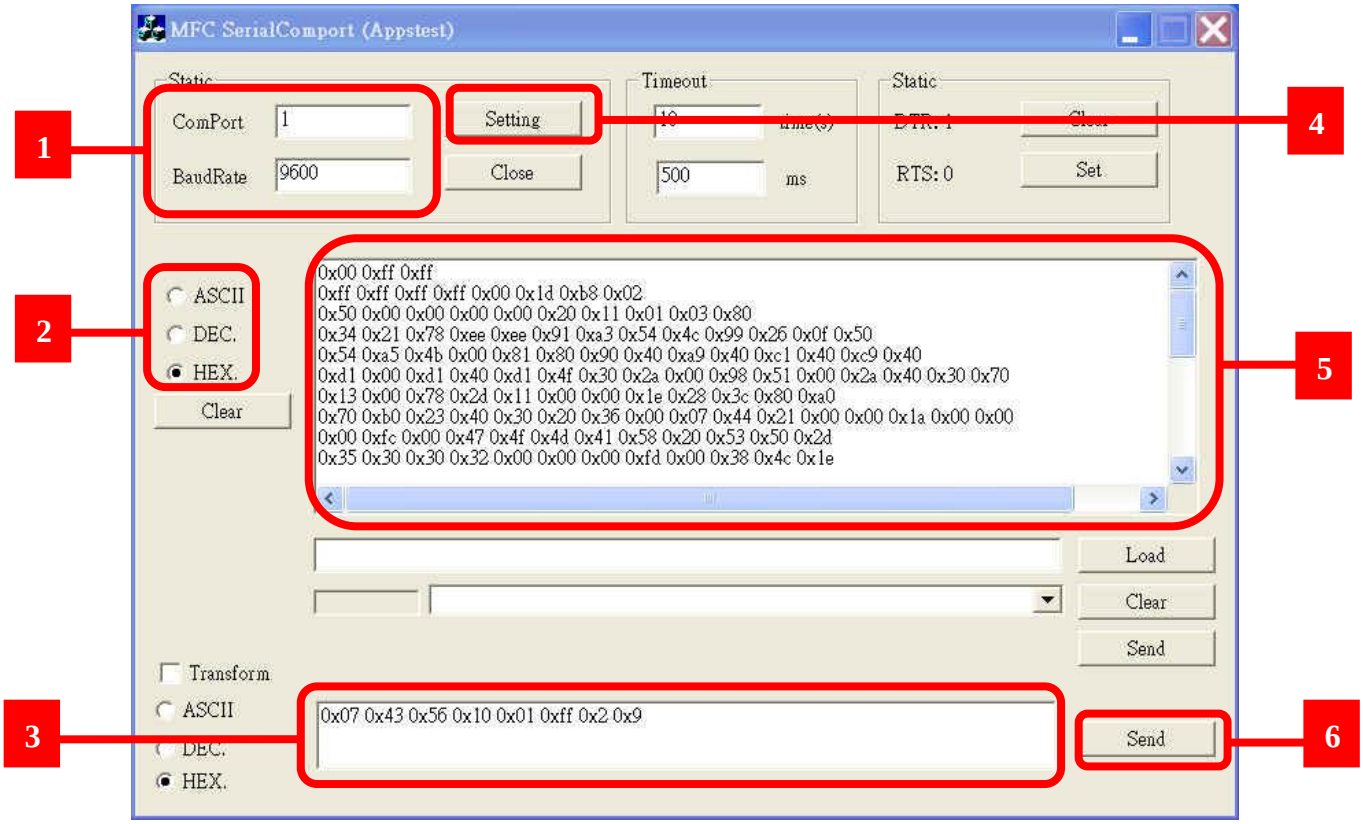


6 This button sends our setting to the device.

7 This button draws our setting to the panel.

Serial Protocol

For some specific cases, integrate edge blender into a huge system can be expected. Therefore, in this section, the serial command set will be presented for users who would like to develop their own system with the new edge blending features. In order to assist software or hardware developers to explore all the serial commands, a test program for **MS Windows** is provided for ease of function testing. Through this toolkit, users can get themselves familiar with the structure of protocols, and hence speed up the integration to build up a more powerful system.



1 **ComPort**: Select the communication COM port which is connected to Edge blender!
BaudRate: 115200 BPS

2 **Data Format:** There are 3 data formats for returned or sent commands:
ASCII, Decimal (DEC), and Hexadecimal (HEX).

3 **Command Window:** Please type the command in the command for the testing.

4 Setting: While the RS-232 is successfully connected, this button shows “Setting”. To close the connection, simply click on tis button again, and it will show “Open” instead.

5 **Message Window:** While stable communication channel is established and the command sent is accurate, the feedback acknowledge and data will be displayed here!

6 **Send:** To send the test serial command in Command Window to the chosen COMPort, user has to click on this button!

Sender issues the verification code			
Byte	Name	Value	Comment
0	Command Length	0x04	Reserved
1	Header #1	0x4d	Reserved
2	Header #2	0x4f	Reserved
3	Header #3	0x44	Reserved
Edge Blender feedback the confirmation code			
0	ACK #1	0xaa	Reserved
1	ACK #2	0x06	Reserved
2	ACK #3	0x43	Reserved
3	ACK #4	0x56	Reserved
4	ACK #5	0x10	Reserved
5	ACK #6	0x01	Reserved
6	ACK#7	0xB0	Reserved

Read Monitor EDID			
Function Description: To maximize the support, edge blender can read back the connected monitor's EDID for analysis or replaced the current EDID with the read EDID from monitor. This command will read monitor's EDID and store into flash!			
Command			
Byte	Name	Value	Comment
0	Command Length	0x07	
1	Header #1	0x43	Reserved
2	Header #2	0x56	Reserved
3	Header #3	0x10	Reserved
4	Header #4	0x01	Reserved
5	Header #5	0xff	Reserved
6	Command ID	0x00	
Command Acknowledgement character			
1	ACK	0x78	Command Done
Example			
0x07 0x43 0x56 0x10 0x01 0xff 0x00			

Write Monitor EDID to Edge Blender			
Function Description: To maximize the support, edge blender can read back the connected monitor's EDID for analysis or replaced the current EDID with the read EDID from monitor. This command will replace edge blender 's EDID with previously read EDID!			
Command			
Byte	Name	Value	Comment
0	Command Length	0x07	
1	Header #1	0x43	Reserved
2	Header #2	0x56	Reserved
3	Header #3	0x10	Reserved
4	Header #4	0x01	Reserved
5	Header #5	0xff	Reserved
6	Command ID	0x01	
Command Acknowledgement character			
1	ACK	0x78	Command Done
Example			
0x07 0x43 0x56 0x10 0x01 0xff 0x01			

Before writing monitor's EDID to replace the EDID in edge blender, please make sure to connect the monitor to the output port of edge blender and execute command ID 0!

Send Monitor EDID			
Function Description: This command will serially send out the read back monitor's EDID!			
Command			
Byte	Name	Value	Comment
0	Command Length	0x07	
1	Header #1	0x43	Reserved
2	Header #2	0x56	Reserved
3	Header #3	0x10	Reserved
4	Header #4	0x01	Reserved
5	Header #5	0xff	Reserved
6	Command ID	0x02	
Receive			
1	1st byte of EDID		
2	2nd byte of EDID		
255	CheckSum of EDID		
Command Acknowledgement character			
1	ACK	0x78	Command Done
Example			
0x07 0x43 0x56 0x10 0x01 0xff 0x02			

Restore the default EDID for Edge Blender			
Function Description: This command restore the default EDID back!			
Command			
Byte	Name	Value	Comment
0	Command Length	0x07	
1	Header #1	0x43	Reserved
2	Header #2	0x56	Reserved
3	Header #3	0x10	Reserved
4	Header #4	0x01	Reserved
5	Header #5	0xff	Reserved
6	Command ID	0x03	
Command Acknowledgement character			
1	ACK	0x78	Command Done
Example			
0x07 0x43 0x56 0x10 0x01 0xff 0x03			

Gamma Correction			
Function Description: This command will serially send out the read back monitor's EDID!			
Command			
Byte	Name	Value	Comment
0	Command Length	0x08	
1	Header #1	0x43	Reserved
2	Header #2	0x56	Reserved
3	Header #3	0x10	Reserved
4	Header #4	0x01	Reserved
5	Header #5	0xff	Reserved
6	Command ID	0x04	
7	Gamma Curve		0x00: Gamma Correction Off 0x09: 1/1.18 0x0a: 1/2.2 0x0b: 1/2.5
Command Acknowledgement character			
1	ACK	0x78	Command Done
Example			
0x08 0x43 0x56 0x10 0x01 0xff 0x04 0x09			

Blender Mode 1D			
Function Description: Select the overlapped area in the output. Please change the edge Blending mode to 1D first!			
Command			
Byte	Name	Value	Comment
0	Command Length	0x08	
1	Header #1	0x43	Reserved
2	Header #2	0x56	Reserved
3	Header #3	0x10	Reserved
4	Header #4	0x01	Reserved
5	Header #5	0xff	Reserved
6	Command ID	0x05	
7	Edge selection		0x00: Edge blending off 0x01: Left edge alone 0x09: Right edge alone 0x03: Upper edge alone 0x0b: Bottom edge alone 0x05: Left edge while both edges on 0x0d: Right edge while both edges on 0x07: Upper edge while both edges on 0x0f: Bottom edge while both edges on
Command Acknowledgement character			
1	ACK	0x78	Command Done
Example			
0x08 0x43 0x56 0x10 0x01 0xff 0x05 0x0d			

Edge Width			
Function Description: Setup the overlapped edge width			
Command			
Byte	Name	Value	Comment
0	Command Length	0x0a	
1	Header #1	0x43	Reserved
2	Header #2	0x56	Reserved
3	Header #3	0x10	Reserved
4	Header #4	0x01	Reserved
5	Header #5	0xff	Reserved
6	Command ID	0x06	
7	Edge position		0: Left 1: Upper 2: Right 3: Bottom
8	High byte of Width		
9	Low byte of Width		
Command Acknowledgement character			
1	ACK	0x78	Command Done
Example			
0x0a 0x43 0x56 0x10 0x01 0xff 0x06 0x02 0x01 0x20			

There are width limitations for all directions:
For left & right edges, the width is limited to be no more than 1/3 of the current active video width. For upper & bottom edges, the width is limited to be no more than 1/4 of the current active video height.

Get the active video size			
Function Description: Read the width (HActive) and height (VActive) of the current active video.			
Command			
Byte	Name	Value	Comment
0	Command Length	0x07	
1	Header #1	0x43	Reserved
2	Header #2	0x56	Reserved
3	Header #3	0x10	Reserved
4	Header #4	0x01	Reserved
5	Header #5	0xff	Reserved
6	Command ID	0x07	
Receive			
1	Low byte of HActive		
2	High byte of HActive		
3	Low byte of VActive		
4	High byte of VActive		
Command Acknowledgement character			
1	ACK	0x78	Command Done
Example			
0x07 0x43 0x56 0x10 0x01 0xff 0x07			

Factory Reset			
Function Description: This command will bring all the flash based variables back to default including EDID!			
Command			
Byte	Name	Value	Comment
0	Command Length	0x07	
1	Header #1	0x43	Reserved
2	Header #2	0x56	Reserved
3	Header #3	0x10	Reserved
4	Header #4	0x01	Reserved
5	Header #5	0xff	Reserved
6	Command ID	0x09	
Command Acknowledgement character			
1	ACK	0x78	Command Done
Example			
0x07 0x43 0x56 0x10 0x01 0xff 0x09			

Disable Push Buttons			
Function Description: This command will disable the front panel control! Notice that push button control will be automatically enable after reboot!			
Command			
Byte	Name	Value	Comment
0	Command Length	0x07	
1	Header #1	0x43	Reserved
2	Header #2	0x56	Reserved
3	Header #3	0x10	Reserved
4	Header #4	0x01	Reserved
5	Header #5	0xff	Reserved
6	Command ID	0x0a	
Command Acknowledgement character			
1	ACK	0x78	Command Done
Example			
0x07 0x43 0x56 0x10 0x01 0xff 0x0a			

Enable Push Buttons			
Function Description: This command will enable the front panel control!			
Command			
Byte	Name	Value	Comment
0	Command Length	0x07	
1	Header #1	0x43	Reserved
2	Header #2	0x56	Reserved
3	Header #3	0x10	Reserved
4	Header #4	0x01	Reserved
5	Header #5	0xff	Reserved
6	Command ID	0x0b	
Command Acknowledgement character			
1	ACK	0x78	Command Done
Example			
0x07 0x43 0x56 0x10 0x01 0xff 0x0b			

Learn EDID			
Function Description: This command will provide a quick way to learn EDID from monitor!			
Command			
Byte	Name	Value	Comment
0	Command Length	0x07	
1	Header #1	0x43	Reserved
2	Header #2	0x56	Reserved
3	Header #3	0x10	Reserved
4	Header #4	0x01	Reserved
5	Header #5	0xff	Reserved
6	Command ID	0x0c	
Command Acknowledgement character			
1	ACK	0x78	Command Done
Example			
0x07 0x43 0x56 0x10 0x01 0xff 0x0c			

Simulated ‘Increase’ button			
Function Description: User can consider this command as the software version of ‘Increase’ button!			
Command			
Byte	Name	Value	Comment
0	Command Length	0x07	
1	Header #1	0x43	Reserved
2	Header #2	0x56	Reserved
3	Header #3	0x10	Reserved
4	Header #4	0x01	Reserved
5	Header #5	0xff	Reserved
6	Command ID	0x0e	
Command Acknowledgement character			
1	ACK	0x78	Command Done
Example			
0x07 0x43 0x56 0x10 0x01 0xff 0x0e			

Simulated ‘Decrease’ button			
Function Description: User can consider this command as the software version of ‘Decrease’ button!			
Command			
Byte	Name	Value	Comment
0	Command Length	0x07	
1	Header #1	0x43	Reserved
2	Header #2	0x56	Reserved
3	Header #3	0x10	Reserved
4	Header #4	0x01	Reserved
5	Header #5	0xff	Reserved
6	Command ID	0x0f	
Command Acknowledgement character			
1	ACK	0x78	Command Done
Example			
0x07 0x43 0x56 0x10 0x01 0xff 0x0f			

Simulated ‘Gamma’ button			
Function Description: User can consider this command as the software version of ‘Gamma’ button!			
Command			
Byte	Name	Value	Comment
0	Command Length	0x07	
1	Header #1	0x43	Reserved
2	Header #2	0x56	Reserved
3	Header #3	0x10	Reserved
4	Header #4	0x01	Reserved
5	Header #5	0xff	Reserved
6	Command ID	0x10	
Command Acknowledgement character			
1	ACK	0x78	Command Done
Example			
0x07 0x43 0x56 0x10 0x01 0xff 0x10			

Gradual step			
Function Description: The step or change rate for the selected edge!			
Command			
Byte	Name	Value	Comment
0	Command Length	0x09	
1	Header #1	0x43	Reserved
2	Header #2	0x56	Reserved
3	Header #3	0x10	Reserved
4	Header #4	0x01	Reserved
5	Header #5	0xff	Reserved
6	Command ID	0x11	
7	Edge selection		0x00: Left 0x01: Upper 0x02: Right 0x03: Bottom
8	Step		
Command Acknowledgement character			
1	ACK	0x78	Command Done
Example			
0x09 0x43 0x56 0x10 0x01 0xff 0x11 0x02 0x03			

Switch to 1D Mode			
Function Description: Change the edge blending mode to 1D!			
Command			
Byte	Name	Value	Comment
0	Command Length	0x09	
1	Header #1	0x43	Reserved
2	Header #2	0x56	Reserved
3	Header #3	0x10	Reserved
4	Header #4	0x01	Reserved
5	Header #5	0xff	Reserved
6	Command ID	0x17	
7	Parameter1	0x1b	
8	Parameter2	0x00	
Command Acknowledgement character			
1	ACK	0x4c	Command receive
2	ACK	0x78	Command Done
Example			
0x09 0x43 0x56 0x10 0x01 0xff 0x17 0x1b 0x00			

Switch to 2D Mode			
Function Description: Change the edge blending mode to 2D!			
Command			
Byte	Name	Value	Comment
0	Command Length	0x09	
1	Header #1	0x43	Reserved
2	Header #2	0x56	Reserved
3	Header #3	0x10	Reserved
4	Header #4	0x01	Reserved
5	Header #5	0xff	Reserved
6	Command ID	0x17	
7	Parameter1	0x0e	
8	Parameter2	0x11	
Command Acknowledgement character			
1	ACK	0x4c	Command receive
2	ACK	0x78	Command Done
Example			
0x09 0x43 0x56 0x10 0x01 0xff 0x17 0x0e 0x11			

Blender Mode 2D			
Function Description: Select the overlapped area in the output. Please change the edge Blending mode to 2D first!			
Command			
Byte	Name	Value	Comment
0	Command Length	0x09	
1	Header #1	0x43	Reserved
2	Header #2	0x56	Reserved
3	Header #3	0x10	Reserved
4	Header #4	0x01	Reserved
5	Header #5	0xff	Reserved
6	Command ID	0x17	
7	Parameter1	0x1b	
8	Edge selection		L:Left, R:Right , B:Bottom , U:Upper 0x5f: LU 0x6f: RU 0x7f: LUR 0x9f: LB 0xaf: RB 0xbf:LRB 0xdf:LBU 0xef: BUR 0xff:LRBU
Command Acknowledgement character			
1	ACK	0x4c	Command receive
2	ACK	0x78	Command Done
Example			
0x09 0x43 0x56 0x10 0x01 0xff 0x17 0x1d 0x5f			

Switch Input Source			
Function Description: Select the input source for display!			
Command			
Byte	Name	Value	Comment
0	Command Length	0x09	
1	Header #1	0x43	Reserved
2	Header #2	0x56	Reserved
3	Header #3	0x10	Reserved
4	Header #4	0x01	Reserved
5	Header #5	0xff	Reserved
6	Command ID	0x1a	0x1a:change input 0x17:save to flash
7	Parameter1	0x8a	0x8a:param1 0x0a:flash address
8	Parameter1	0x00	0x00:DVI 0x80:VGA
Command Acknowledgement character			
1	ACK	0x4c	Command receive
2	ACK	0x78	Command Done
Example			
0x09 0x43 0x56 0x10 0x01 0xff 0x1a 0x8a 0x00 0x09 0x43 0x56 0x10 0x01 0xff 0x17 0x0a 0x00			

Configurable Gamma Correction			
Function Description: Gamma Correction. Define by user!			
Command			
Byte	Name	Value	Comment
0	Command Length	0x0a	
1	Header #1	0x43	Reserved
2	Header #2	0x56	Reserved
3	Header #3	0x10	Reserved
4	Header #4	0x01	Reserved
5	Header #5	0xff	Reserved
6	Command ID	0x18	
7	Parameter1	0x8a	Decimal value
8	Parameter2	0x00	Decimal values fraction multiplication by 255
9	Parameter3	0x00	0x00:apply to r,g,b 0x01: apply to red 0x02: apply to green 0x03: apply to blue
Command Acknowledgement character			
1	ACK	0x4c	Command receive
2	ACK	0x78	Command Done
Example			
Gamma Correction:2.1 **Param1 = 2** **Param2 = 0.1x255 = 25** 0x0a 0x43 0x56 0x10 0x01 0xff 0x18 0x02 0x19 0x00			

Configurable Curve Function :Exponential

Function Description:

User can define the blending edge's curve by exponential function!

$$f(x) = \begin{cases} a\,(2x)^{p} & \text{for } 0 <= x <= 0.5 \\ 1 - (1 - a)\,(2\,(1 - x))^{p} & \text{for } 0.5 <= x <= 1 \end{cases}$$

Command

Byte	Name	Value	Comment
0	Command Length	0x0d	
1	Header #1	0x43	Reserved
2	Header #2	0x56	Reserved
3	Header #3	0x10	Reserved
4	Header #4	0x01	Reserved
5	Header #5	0xff	Reserved
6	Command ID	0x1d	
7	Parameter a	0xff	Type: Float(0~1.0) multiplication by 255
8	Parameter p(decimal)	0x01	Decimal value
9	Parameter p (decimal fraction)	0x19	Decimal values fraction multiplication by 255
10	type	0x00	
11	ascending	0x01	Default: 0x01: LEFT 0x00:RIGHT 0x01:UPPER 0x00:BOTTOM
12	direction	0x00	0x00: LEFT 0x01:RIGHT 0x02:UPPER 0x03:BOTTOM

Command Acknowledgement character			
1	ACK	0x4c	Command receive
2	ACK	0x78	Command Done
Example			
a:0.1 p:5.1 Parameter a = **0.1x255 = 25** Parameter p(decimal) = **5** Parameter p(decimal fraction) = **0.1x255=25** 0x0d 0x43 0x56 0x10 0x01 0xff 0x1d 0x19 0x05 0x19 0x00 0x01 0x00			

Configurable Curve Function :Linear			
Function Description: User can define the blending edge’s curve by linear function!			
Command			
Byte	Name	Value	Comment
0	Command Length	0x0d	
1	Header #1	0x43	Reserved
2	Header #2	0x56	Reserved
3	Header #3	0x10	Reserved
4	Header #4	0x01	Reserved
5	Header #5	0xff	Reserved
6	Command ID	0x1d	
7	Parameter	0x00	unused
8	Parameter	0x00	unused
9	Parameter	0x00	unused
10	type	0x01	
11	ascending	0x01	Default: 0x01: LEFT 0x00:RIGHT 0x01:UPPER 0x00:BOTTOM
12	direction	0x00	0x00: LEFT 0x01:RIGHT 0x02:UPPER 0x03:BOTTOM
Command Acknowledgement character			
1	ACK	0x4c	Command receive
2	ACK	0x78	Command Done
Example			
0x0d 0x43 0x56 0x10 0x01 0xff 0x1d 0x00 0x00 0x00 0x01 0x01 0x00			

Configurable Curve Function :Constant			
Function Description: User can define the blending edge's curve by constant value!			
Command			
Byte	Name	Value	Comment
0	Command Length	0x0d	
1	Header #1	0x43	Reserved
2	Header #2	0x56	Reserved
3	Header #3	0x10	Reserved
4	Header #4	0x01	Reserved
5	Header #5	0xff	Reserved
6	Command ID	0x1d	
7	Parameter constant	0x00	Range(0~1) multiplication by 127
8	Parameter	0x00	unused
9	Parameter	0x00	unused
10	type	0x03	If direction is "ALL" Type = 0x02
11	ascending	0x01	0x01
12	direction	0x00	0x00: LEFT 0x01:RIGHT 0x02:UPPER 0x03:BOTTOM 0x04:ALL
Command Acknowledgement character			
1	ACK	0x4c	Command receive
2	ACK	0x78	Command Done
Example			
0x0d 0x43 0x56 0x10 0x01 0xff 0x1d 0x50 0x00 0x00 0x03 0x01 0x00			

Hardware Installation

1. Connect your DVI/HDMI sources to the DVI input connector.
2. Power up the CV-101P.
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 **CV-101P Edge Blender for Projectors with Gamma Correction and Video Converter** 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 CV-101P features and specifications is subject to change without further notice.