G3 NET 2K

USER MANUAL

RGBlink

CONTENTS

Thank you for choosing our product!

This User Manual is designed to show you how to use this video processor quickly and make use of all the features. Please read all directions and instructions carefully before using this product.

Declarations

FCC/Warranty

Federal Communications Commission (FCC) Statement

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 harmful interference to radio communications. Operation of this equipment in a residential area may cause harmful interference, in which case the user will be responsible for correcting any interference.

Guarantee and Compensation

RGBlink provides a guarantee relating to perfect manufacturing as part of the legally stipulated terms of guarantee. On receipt, the purchaser must immediately inspect all delivered goods for damage incurred during transport, as well as for material and manufacturing faults. RGBlink must be informed immediately in writing of any complains.

The period of guarantee begins on the date of transfer of risks, in the case of special systems and software on the date of commissioning, at latest 30 days after the transfer of risks. In the event of justified notice of compliant, RGBlink can repair the fault or provide a replacement at its own discretion within an appropriate period. If this measure proves to be impossible or unsuccessful, the purchaser can demand a reduction in the purchase price or cancellation of the contract. All other claims, in particular those relating to compensation for direct or indirect damage, and also damage attributed to the operation of software as well as to other service provided by RGBlink, being a component of the system or independent service, will be deemed invalid provided the damage is not proven to be attributed to the absence of properties guaranteed in writing or due to the intent or gross negligence or part of RGBlink.
If the purchaser or a third party carries out modifications or repairs on goods delivered by RGBlink, or if the goods are handled incorrectly, in particular if the systems are commissioned operated incorrectly or if, after the transfer of risks, the goods are subject to influences not agreed upon in the contract, all guarantee claims of the purchaser will be rendered invalid. Not included in the guarantee coverage are system failures which are attributed to programs or special electronic circuitry provided by the purchaser, e.g. interfaces. Normal wear as well as normal maintenance are not subject to the guarantee provided by RGBlink either.
The environmental conditions as well as the servicing and maintenance regulations specified in this manual must be complied with by the customer.

Operators Safety Summary

The general safety information in this summary is for operating personnel.

Do Not Remove Covers or Panels

There are no user-serviceable parts within the unit. Removal of the top cover will expose dangerous voltages. To avoid personal injury, do not remove the top cover. Do not operate the unit without the cover installed.

Power Source

This product is intended to operate from a power source that will not apply more than 230 volts rms between the supply conductors or between both supply conductor and ground. A protective ground connection by way of grounding conductor in the power cord is essential for safe operation.

Grounding the Product

This product is grounded through the grounding conductor of the power cord. To avoid electrical shock, plug the power cord into a properly wired receptacle before connecting to the product input or output terminals. A protective-ground connection by way of the grounding conductor in the power cord is essential for safe operation.

Use the Proper Power Cord

Use only the power cord and connector specified for your product. Use only a power cord that is in good condition. Refer cord and connector changes to qualified service personnel.

Use the Proper Fuse

To avoid fire hazard, use only the fuse having identical type, voltage rating, and current rating characteristics. Refer fuse replacement to qualified service personnel.

Do Not Operate in Explosive Atmospheres

To avoid explosion, do not operate this product in an explosive atmosphere.

Installation Safety Summary

Safety Precautions

For all G3 NET 2K processor installation procedures, please observe the following important safety and handling rules to avoid damage to yourself and the equipment.
To protect users from electric shock, ensure that the chassis connects to earth via the ground wire provided in the AC power Cord.
The AC Socket-outlet should be installed near the equipment and be easily accessible.

Unpacking and Inspection

Before opening G3 NET 2K processor shipping box, inspect it for damage. If you find any damage, notify the shipping carrier immediately for all claims adjustments. As you open the box, compare its contents against the packing slip. If you find any shortages, contact your sales representative.

Once you have removed all the components from their packaging and checked that all the listed components are present, visually inspect the system to ensure there was no damage during shipping. If there is damage, notify the shipping carrier immediately for all claims adjustments.
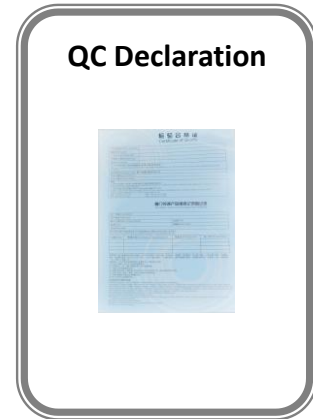
Site Preparation

The environment in which you install your G3 NET 2K should be clean, properly lit, free from static, and have adequate power, ventilation, and space for all components.

Chapter 1 Your Product

1.1 In the Box

DVI Cable	Antistatic Bag	QC Declaration

1.2 Product Overview

Truly bringing together integrated video control for LED displays, G3 NET is not only a LED display controller a video scaler and switcher, but enables full remote control and automation via the industry standard Art-Net protocol.

With Art-Net, G3 NET can be controlled from lighting controllers and any device providing Art-Net control. Art-Net networks can be widely distributed over an IP network infrastructure.

RGBlink has implemented and extensive feature set with DMX512 channels to control source switching, scaling, and on board LED Sender Card features directly.

In multi device applications, lighting, media servers, video switching and LED Display can be controlled as one system in a coordinated way.

1.2.1 Back Panel
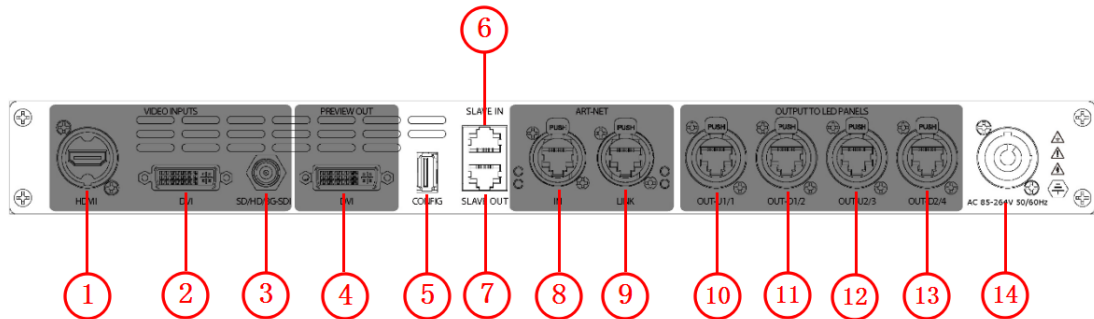
Input Connectors

1	**HDMI-A – HDMI** Standard signal from computer can input.
2	**DVI-I – DVI** Standard DVI signals can input. The DVI port supports up to HDMI 1.3 if the port format is set to HDMI.
3	**BNC – 3G-SDI** Standard 3G-SDI signals can input.

Preview Output

4	**DVI-I – DVI** Connect to the monitor or LED display which has DVI interface. (This connector does not support hotplug).

Control Connectors

5	**USB-B – USB** For product firmware upgrades.
6. 7	**RJ45-Serial Port** Used for cascade and firmware upgrade. 6: SLAVE IN is serial female port, the serial communication interface of RS-232 control protocol and multiple cascading control. 7: SLAVE OUT is serial male port, the serial communication interface of multiple devices cascading control, connect devices through DB9 serial cable. The serial port should use a DB9 to RJ45 cable.
8	**RJ45-ART-NET IN** Standard signal from control console can input.
9	**RJ45-ART-NET LINK** Connect to the ART-NET input of the next G3 NET 2K.
10. 11. 12. 13	**RJ45-Ethernet** Connect to LED screen through cable.

Power Connection

14	**<u>Neutrik – Power Input</u>**
	Main power input AC 85-264V, 50/60HZ, Max 35W.

1.2.2 Front Panel
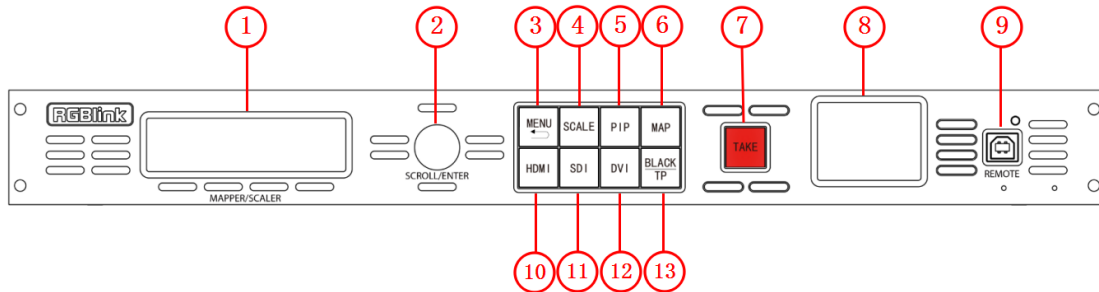
Display

	OLED Display
1	Displays current status of the product, and for feature selections provides interactive choices in conjunction with buttons on the front panel.
8	**LCD Display** Displays the video, for preview.

Multi-Function Buttons

|	Rotary Button
2	This button used for menu selections and confirmation. The button is both rotary (turn to left and right), and push-button (confirm selection)

Illuminated Buttons

3	**MENU Button** This button used for menu selections – refer to Understanding the MENU Structure. Push the button again will return to the last level menu or exit the menu.
4	**SCALE Button** This button used for size and position adjusting.
5	**PIP Button** This button used for single and double image switching – refer to PIP Setting.
6	**MAP Button** This button used for sender card controlling.
7	**TAKE Button** This button used for seamless effect switching.
13	**BLACK/TP Button** Black and TP reused button. Default as black function. Push the button, the output will be switched to black, push the button again, it will output the video image. If define this button as TP, it will enter to the test pattern setting - refer to Custom TP Button.

9	**REMOTE Interface**
	This interface used for sender card controlling.
10.11.12	**Dedicated Signal Buttons**
	For each of inputs on the back panel a dedicated backlit buttons are provided. When lit, the signal is selected for use, when red light is flashing, signal is in preview or the signal is not available.

1.2.3 Dimension

Following is the dimension of G3 NET 2K for your reference:
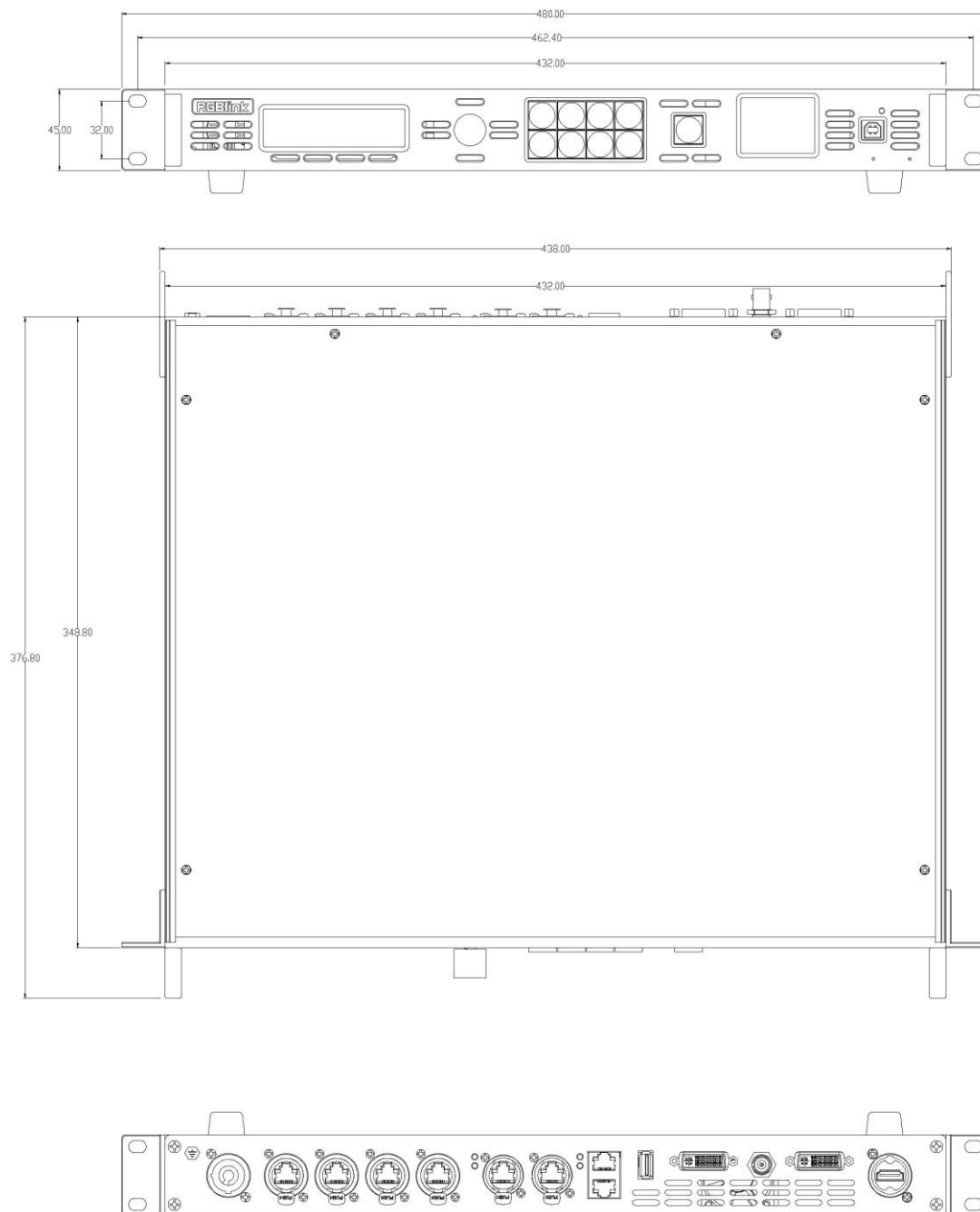
Chapter 2 Installing Your Product

2.1 Plugging in Signals

Connect signals to the product (ensure all devices are powered off first). Tighten connector screws/locks where provided.

2.2 Plugging in Main Power

Connect AC power cable to device and plug into wall socket. Turn on power at wall socket.

2.3 Turning on Your Product

OLED display will show as below, completing initialization before loading last settings and input/output configuration.

On delivery, DVI will be the default input signal at 1920x1080@60, and the output format is defaulted to 1920×1080@60.

G3 NET

Check Sending Card...

Check Sending Card...
Sending Card Type is: Linsn

Init Device   Finished!

PGM   DVI: 1920X1080@60
PRV   DVI: 1920X1080@60
OUTPUT FORMAT   : 1920X1080@60
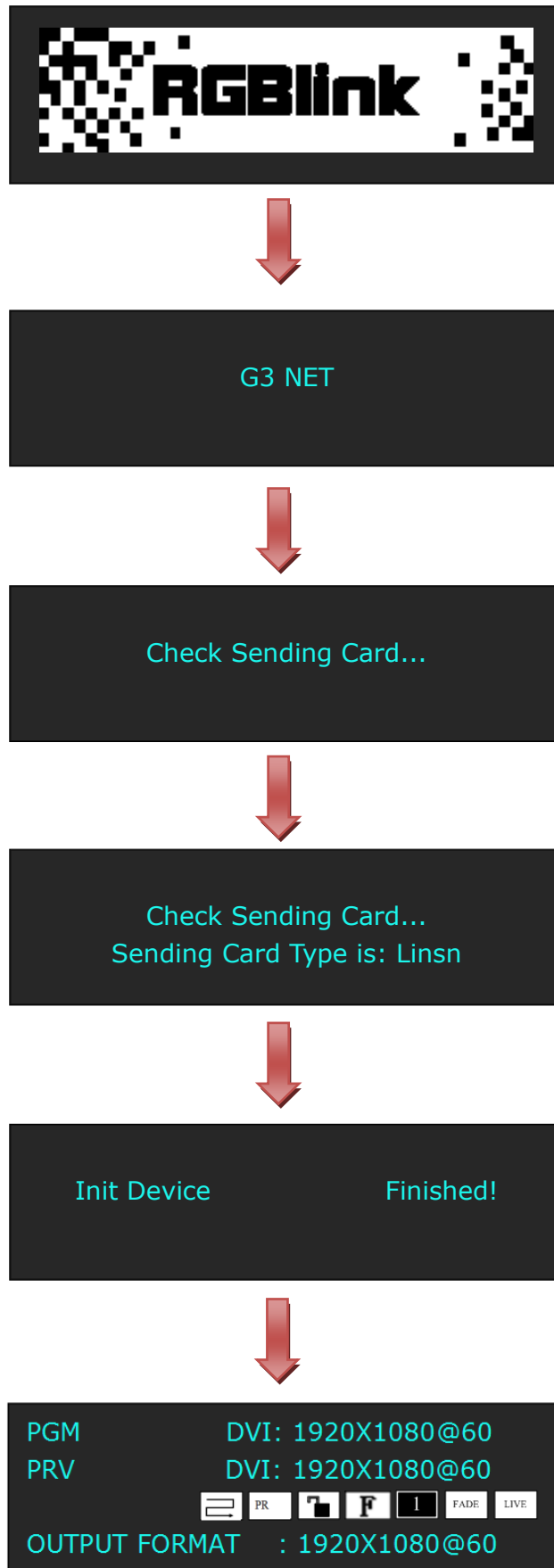
Chapter 3 Using Your Product

3.1 Using the MENU Button

Push the [MENU] button to enter the menu display.

Turn the rotary knob to navigate to the menu item required. The → symbol shows the current item. Push the knob to select and enter into the menu item.
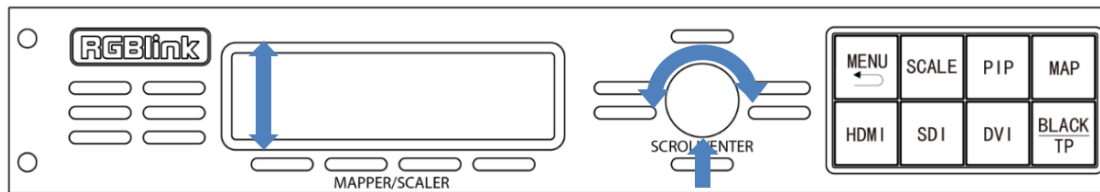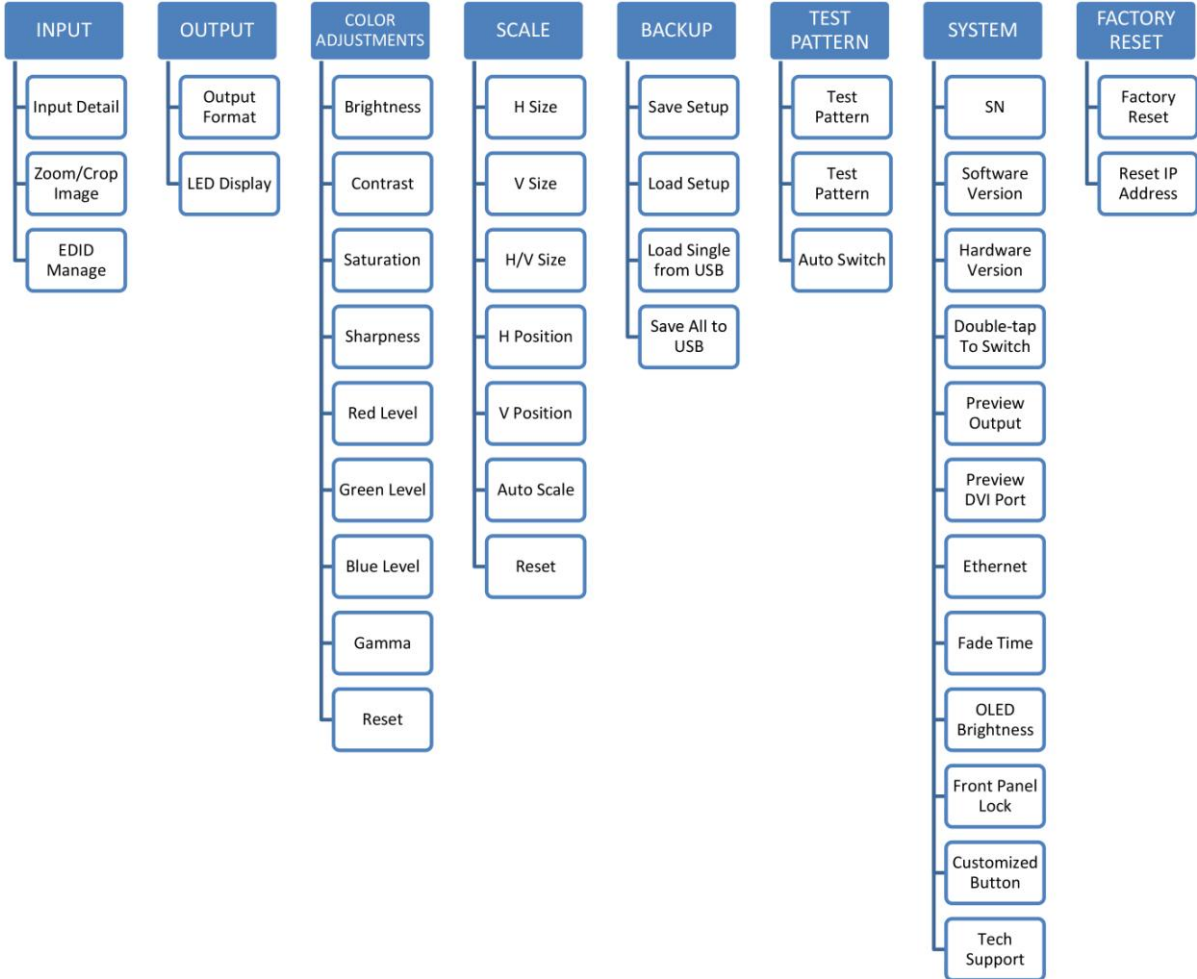
As shown in the figure below:

3.2 Understanding the MENU Structure
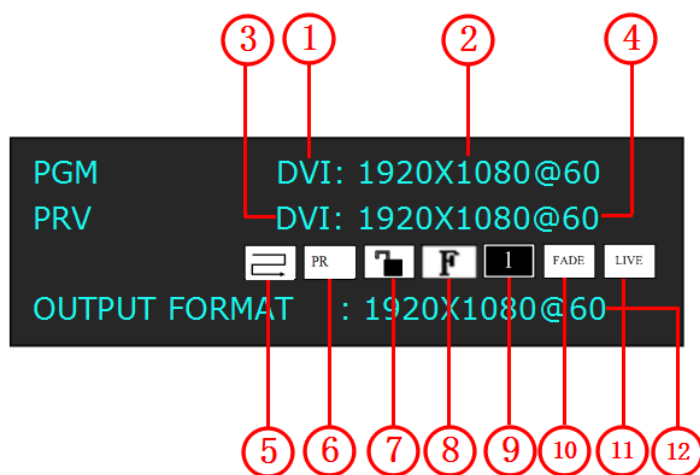
The MENU structure is shown in the figure below:

3.3 Using the Menu

Use the menu system for convenient and intuitive operation. G3 NET 2K OLED display shows the menu items. The OLED display will show the default state when the menu is not in use, or the operation has timed out. Using the MENU button and rotary knob in the front panel, the OLED display will show the corresponding menus according to user selections.

3.3.1 Understanding the Display

Turn on power, the OLED display will show the start-up interface and show the default menu after completing initialization as below:

Introduce for the above information:

1	**PGM Input Signal** Shows the current PGM Input signal that is selected. The related dedicated signal button will be lit red.
2	**PGM Input Resolution** Show the current input resolution from the selected PGM Input source. To configure input resolutions, use the EDID Management features. A wide range of input resolutions are supported depending the input – refer to Specification.
3	**PRV Input Signal** Shows the current PRV Input signal that is selected. The related dedicated signal button will flash.
4	**PRV Input Resolution** Show the current input resolution from the selected PRV Input source. To configure input resolutions, use the EDID Management features. A wide range of input resolutions are supported depending the input – refer to Specification.
5	**Connection Type** Show the current connection type.
6	**PR**

|		Show the last state before shutdown.
7		**<u>Lock</u>** Indicates if the front panel is locked.
8		**<u>Full</u>** Indicates whether the screen size is full size or screen size.
9		**<u>1</u>** Indicates the current is single image, image settings are available in the PIP menu.
10		**<u>Fade</u>** Indicates whether transitions are CUT or FADE. Configure from the Transition menu.
11		**<u>Live</u>** Indicates whether output video Live or whether FREEZE is active.
12		**<u>Output Resolution</u>** Show the current output resolution. A wide range of resolutions are supported – refer to Specification.

3.3.2 Understanding the Main Menu

Push the MENU button in the default state and turn the rotary knob, the OLED display will show the main menus as below:

```
->INPUT                          >>
   OUTPUT                        >>
   COLOR ADJUSTMENTS             >>
   SCALE                         >>
```

```
->BACKUP                         >>
   TEST PATTERN                  >>
   SYSTEM                        >>
   FACTORY RESET                 >>
```
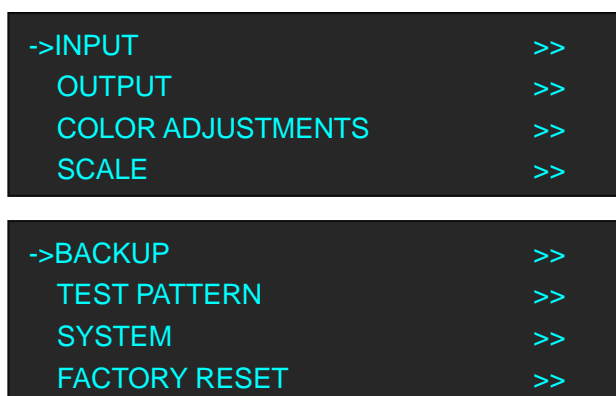
There are 8 menu items in the main menu, and display in 2 pages. Turn the rotary knob, and select any menu above, push the rotary knob to confirm, the OLED display will show the submenu. If push the MENU button, the OLED display will return to the last level menu.
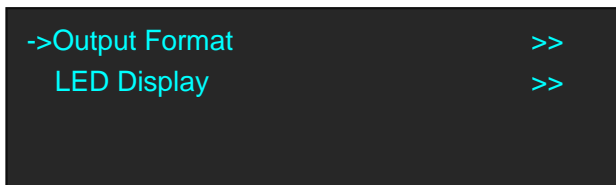
3.3.3 Input Menu

```
->Input Detail                   >>
   Zoom/Crop Image               >>
   EDID Manage                   >>
```
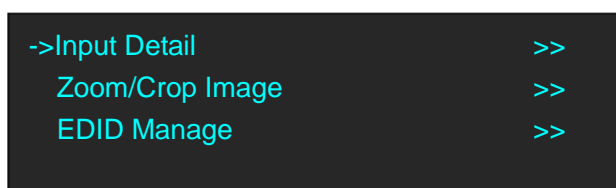
Input Detail	Display the input source and input format.

	Top
	Crop the top of the image.
	Bottom
	Crop the bottom of the image.
	Top/Bottom
	Crop the top and bottom of the image in equal proportion.
	Left
	Crop the left of the image.
Zoom/Crop Image	**Right**
	Crop the right of the image.
	Left/Right
	Crop the left and right of the image in equal proportion.
	Center
	Zoom from the center of image.
	Reset
	Reset Zoom/Crop settings to factory defaults.
	For details, please refer to Scale the Image.
EDID Manage	**Destination Port**
	Select the destination port, DVI or HDMI.
	EDID Source
	Select the EDID source.

3.3.4 Output Menu

```
->Output Format                    >>
   LED Display                     >>
```

Output Format	**Standard**	
	Include 22 kinds of standard standard resolution.	
	Customized	
	The special display project or LED display application would like to require special resolution settings to meet the requirement--refer to Set the Output Resolution.	
LED Display	Regular	**Connection Type**
		Select connection type, including crisscross, horizontal and vertical.
		Panel Pixel W*H
		Select the panel pixel for width and column.
		Save To Port
		Save all current settings with the G3 NET 2K to Port.

G3 NET 2K		**Port 1** Including settings as follows: Wall Size W*H: Select how many leds each panel has per row and column. Connection Type: Select the connection order, from the visual icons. Save to Port: Save all current settings with the G3 NET 2K to Port 1.
		Port 2 Including settings as follows: Wall Size W*H: Select how many leds each panel has per row and column. Connection Type: Select the connection order, from the visual icons. Save to Port: Save all current settings with the G3 NET 2K to Port 2.
		Port 3 Including settings as follows: Wall Size W*H: Select how many leds each panel has per row and column. Connection Type: Select the connection order, from the visual icons. Save to Port: Save all current settings with the G3 NET 2K to Port 3.
		Port 4 Including settings as follows: Wall Size W*H: Select how many leds each panel has per row and column. Connection Type: Select the connection order, from the visual icons. Save to Port: Save all current settings with the G3 NET 2K to Port 4.
	Unregular	**Port 1** Including settings as follows: Wall Size W*H: Select how many leds each panel has per row and column. Panel Pixel W*H: Select the panel pixel for width and column. Connection Type: Select the connection order, from the visual icons. Save to Port: Save all current settings with the G3 NET 2K to Port 1.
		Port 2 Including settings as follows:

G3 NET 2K		Wall Size W*H: Select how many leds each panel has per row and column. Panel Pixel W*H: Select the panel pixel for width and column. Connection Type: Select the connection order, from the visual icons. Save to Port: Save all current settings with the G3 NET 2K to Port 2.
		Port 3 Including settings as follows: Wall Size W*H: Select how many leds each panel has per row and column. Panel Pixel W*H: Select the panel pixel for width and column. Connection Type: Select the connection order, from the visual icons. Save to Port: Save all current settings with the G3 NET 2K to Port 3.
		Port 4 Including settings as follows: Wall Size W*H: Select how many leds each panel has per row and column. Panel Pixel W*H: Select the panel pixel for width and column. Connection Type: Select the connection order, from the visual icons. Save to Port: Save all current settings with the G3 NET 2K to Port 4.
	Set Width Include "H Size" and "Set Width"; H Size: Select "Auto" or "Manual". Set Width: Set the width, this is only for Linsn sender card.	
	Offset Settings Set offset X/Y for port 1/2 and port 3/4.	
	Position Settings Set X/Y position for port 1, port 2, port 3 and port 4.	

3.3.5 Color Adjustments Menu

```
  ->Brightness                        50
    Contrast                          50
    Saturation                        50
    Sharpness                         50


  ->Red Level                        255
    Green Level                      255
    Blue Level                       255
    Gamma                          Linear
```
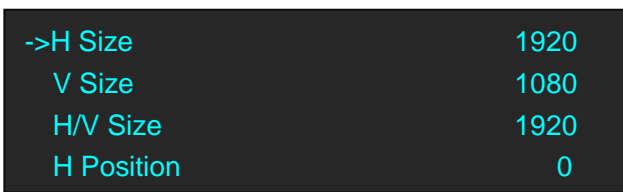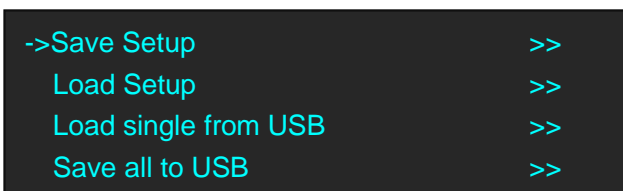
```
->Reset
```

Brightness	Adjust Master brightness of output, the adjustment range is between 0~100.
Contrast	Adjust Master Contrast of output, the adjustment range is between 0~100.
Saturation	Adjust Master Saturation of output, the adjustment range is between 0~100.
Sharpness	Adjust Master Sharpness of output, the adjustment range is between 0~100.
Red Level	Adjust Master Red Level of output, the adjustment range is between 0~255.
Green Level	Adjust Master Green Level of output, the adjustment range is between 0~255.
Blue Level	Adjust Master Blue Level of output, the adjustment range is between 0~255.
Gamma	Adjust Master Gamma of output, Linear, sRGB, -1.2, 1.2, -1.4, 1.4, -1.6 or 1.6 can be selected.
Reset	If image quality distorts by improper operation, it can be recover by reset.

3.3.6 Scale Menu

```
->H Size                          1920
  V Size                          1080
  H/V Size                        1920
  H Position                         0
```

```
->V Position                         0
  Auto Scale                        No
  Reset
```

H Size	Manually scale the image to desired width.
V Size	Manually scale the image to desired height.
H/V Size	Scale the width and height in equal proportion.
H Position	Manually position the image to the desired horizontal position.
V Position	Manually position the image to the desired vertical position.
Auto Scale	Select "Yes" or "No", if select "Yes", it will scale the image automatically.
Reset	Reset Crop settings to factory defaults.

3.3.7 Backup Menu

```
->Save Setup                       >>
  Load Setup                       >>
  Load single from USB             >>
  Save all to USB                  >>
```

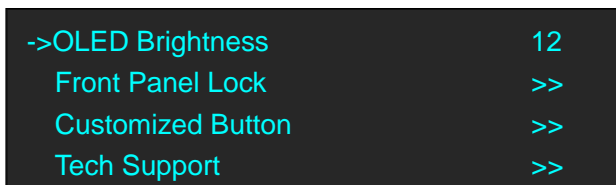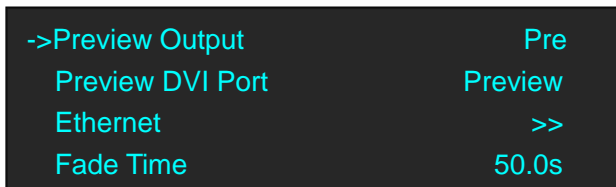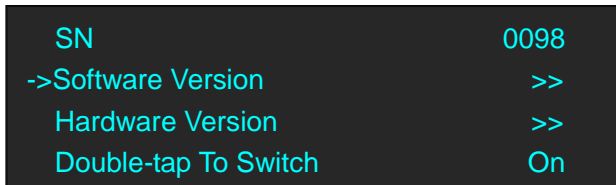| Save Setup	Save all current settings with the G3 NET 4K to 1 of the 9 available slots. For details, please refer to Saving Views.
Load Setup	Restores/Loads all current settings with the G3 NET 4K from 1 of the 9 available slots. For details, please refer to Recall Saved Settings.
Load single from USB	Select which of the 9 Setups to load from USB port.
Save all to USB	Save all 9 Setups to USB port.

3.3.8 Test Pattern Menu

```
->Test Pattern                    Off
   Mode                            1
   Auto Switch                    Off
```

| Test Pattern	Enable or disable the test pattern function.
Mode	Select the mode from 1 of the 13 available modes.
Auto Switch	Enable or disable the auto switch function.

3.3.9 System Menu

```
   SN                            0098
->Software Version                >>
   Hardware Version               >>
   Double-tap To Switch           On
```

```
->Preview Output                 Pre
   Preview DVI Port          Preview
   Ethernet                       >>
   Fade Time                    50.0s
```

```
->OLED Brightness                 12
   Front Panel Lock               >>
   Customized Button              >>
   Tech Support                   >>
```

SN	Show the serial number of the device.
Software Version	Show the current firmware, video and FPGA version.
Hardware Version	Show the current mainboard version.
Double-tap To Switch	**On** Select this to activate an additional source switching mode.
	Off

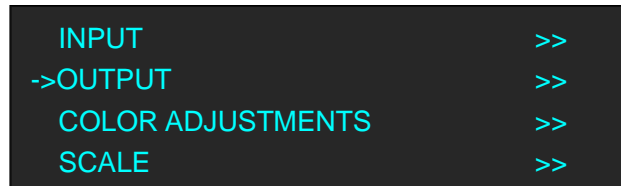|	Select this to operate in the default switching mode.
Preview Output	Select pre or post.
Preview DVI Port	Select preview or program.
Ethernet	**Art-Net Start Address** Set the start address within the selected universe for the Art-Net control protocol.
	Art-Net Universe Set the Universe assignment within the Art-Net control protocol.
	IP Address Set the IP Address for local control at 2.0.0.011.
Fade Time	Fade time setting, the adjustment range is 0~3S.
OLED Brightness	Adjust the brightness of the front OLED Menu.
Front Panel Lock	**On** If select "On", the OLED display will prompt to input new password, 4 digit password to lock the front panel (also shows lock icon on home screen) --refer to Using Front Panel Lock.
	Off Unlock the front panel.
Customized Button	**TP** Sets a custom function to the TP button--refer to Custom TP Button.
Tech Support	Show sales, customer service, email, website and telephone.

3.3.10 Factory Reset Menu

```
->Factory Reset                    >>
   Reset IP Reset                  >>


```
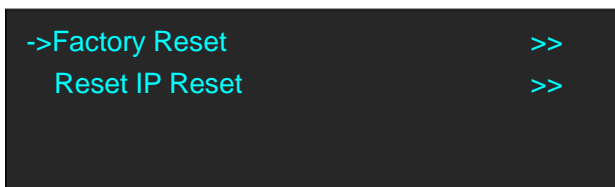
| Factory Reset	Select "YES", reset the G3 NET 2K back to the factory defaults.
Reset IP Reset	Select "YES", reset IP to default settings.

3.4 Set the Output Resolution

3.4.1 Select the Output Resolution

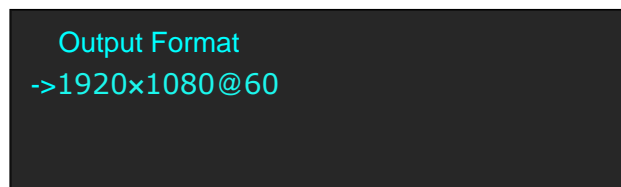1. Push the [MENU] button, and enter to the menu items, turn the rotary knob, and select <OUTPUT>:

```
    INPUT                        >>
->OUTPUT                         >>
    COLOR ADJUSTMENTS            >>
    SCALE                        >>
```

2. Push the knob to confirm, and enter to the menu items as follows:

```
->Output Format                  >>
   LED Display                   >>
```

3. Default <Output Format> option, push the knob to confirm, and enter to the menu items as follows:

```
->Standard                       >>
   Customized                    >>
```
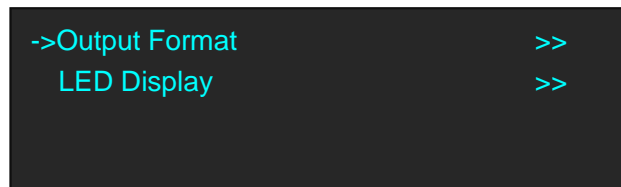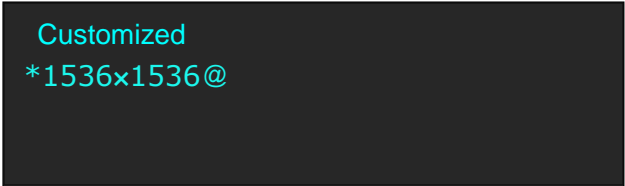
4. Default <Standard> option, push the knob to confirm. Turn the rotary knob, and select the output format according to actual need.

```
   Output Format
->1920x1080@60
```

3.4.2 Custom the Output Resolution

1. Push the [MENU] button, and enter to the menu items, turn the rotary knob, and select <OUTPUT>:

```
   INPUT                              >>
->OUTPUT                              >>
   COLOR ADJUSTMENTS                  >>
   SCALE
```

2. Push the knob to confirm, and enter to the menu items as follows:

```
->Output Format                       >>
   LED Display                        >>
```

3. Default <Output Format> option, push the knob to confirm, and enter to the menu items as follows:

```
->Standard                            >>
   Customized                         >>
```

4. Turn the rotary knob, and select <Customized>, push the knob to confirm, and enter to the menu items as follows:

```
   Standard                           >>
->Customized                          >>
```

```
   Customized
->1920×1080@60
```

5. Turn the knob on each digital position, and change the value of the digital by the digital buttons on the front panel. For example, input 1536 as following:

```
   Customized
*1536×
```
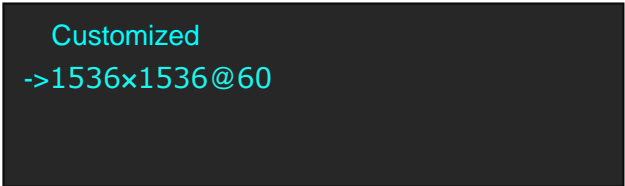
6. After the digital, push the knob will add *, means before the * is the horizontal size. Same operation for vertical size, for example, input 1536 as following:

```
 Customized
 *1536×1536@
```

7. After the digital, push the knob will add @, means before the @ is the vertical size, and after the @ is the refresh rate. Only digital 50 or digital 60 supports for the refresh rate. Use the digital buttons to finish the settings, For example, input refresh rate 60:
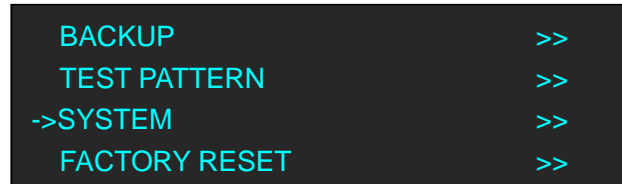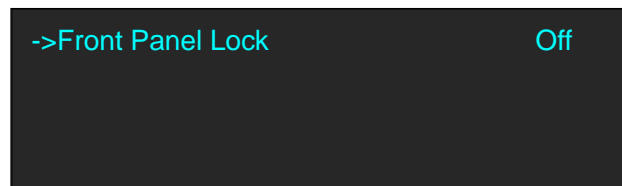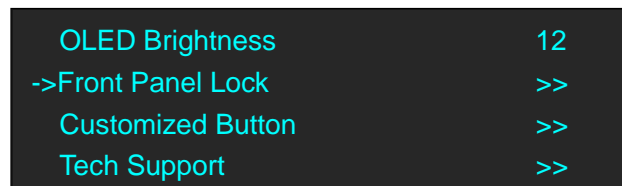
```
 Customized
 ->1536×1536@60
```

8. After input all the values, push the knob to enable G3 NET 2K to output this resolution. G3 NET 2K will take 5~10 seconds to enable this output resolution.

3.5 Using Front Panel Lock

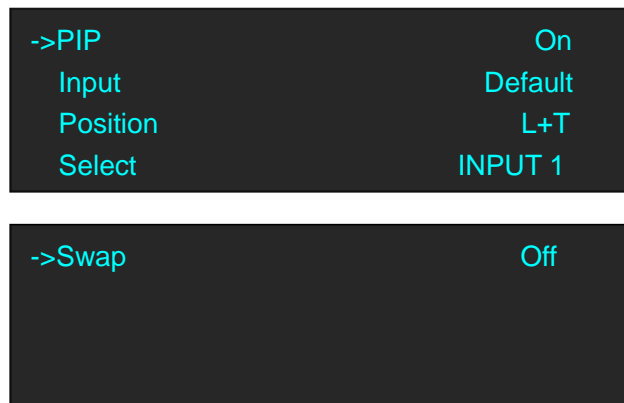1. Push the [MENU] button, and enter to the menu items. Turn the rotary knob, and select <SYSTEM>.

```
    BACKUP                      >>
    TEST PATTERN                >>
->SYSTEM                        >>
    FACTORY RESET               >>
```

2. Push the knob to confirm. Turn the rotary knob, and select <Front Panel Lock>, push the knob to confirm.

```
    OLED Brightness             12
->Front Panel Lock              >>
    Customized Button           >>
    Tech Support                >>
```

```
->Front Panel Lock             Off
```

3. Push the knob to confirm. Turn the rotary knob again, and select "On" or "Off".
   If select "On", the OLED display will prompt to input new password, input 4 digit password for two times, and the front panel will be locked. User needs to input the password for operating.
   If select "Off", the front panel is unlock.

3.6 PIP Setting

G3 NET 2K supports seamless switching for single image and double images.

Push the [PIP] button, the LED light is on, and enter to the PIP menu items. OLED module show as follows:

```
->PIP                        On
   Input                  Default
   Position                  L+T
   Select                 INPUT 1
```

```
->Swap                       Off


```

PIP: The other options do not appear in the menu if select "Off".

Input: Select which inputs to do PIP with.

Position: PIP layout selection, the corresponding results are as follows:

PIP L+T   PBP L+R   PBP T+B
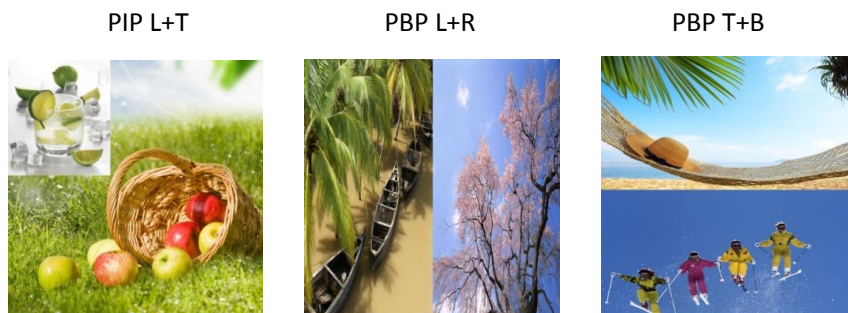
Select: Send input 1 or input 2 to do PIP with.

Swap: Select "On" or "Off", select "On" to swap the 2 selected inputs.

3.7 Scale the Image

Push the [MENU] button, and enter to the menu items. Turn the rotary knob, and select <SCALE>, push the knob to confirm. (Or push the [SCALE] button)

```
INPUT                          >>
OUTPUT                         >>
COLOR ADJUSTMENTS              >>
->SCALE                        >>
```

```
->Scale                        >>
  Advanced                     >>
```
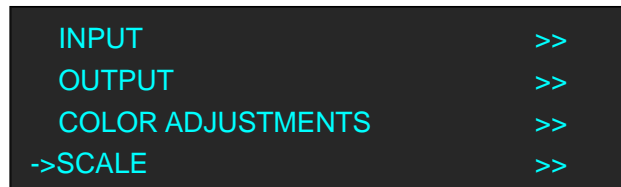
Scale: Select "Scale", push the knob to confirm.

```
->H Size                     1920
  V Size                     1080
  H/V Size                   1920
  H Position                    0
```

```
->V Position                    0
  Auto Scale                   No
  Reset
```

H Size: Manually scale the image to desired width.

V Size: Manually scale the image to desired height.

H/V Size: Scale the width and height in equal proportion.

H Position: Manually position the image to the desired horizontal position.

V Position: Manually position the image to the desired vertical position.

Auto Scale: Select "Yes" or "No", if select "Yes", it will scale the image automatically.

Reset: Reset Crop settings to factory defaults.

Advanced: Turn the rotary knob, and select<Advanced>, push the knob to confirm.

```
  Scale                        >>
->Advanced                     >>
```

```
->Scale Mode              Global Scale
   Zoom/Crop Image                >>
```

1. If select <Scale Mode>, it will enter to the menu items as follows:

```
->Scale Mode              Global Scale
   Zoom/Crop Image                >>
```

```
->Global Scale                      No
   Individual Scale                 No
```

Global Scale: Set the single scale mode to all 3 inputs.

Individual Scale: Allow separate scale/position settings for each of the 3 inputs (HDMI, SDI, DVI).

2. If select <Zoom/Crop Image>, it will enter to the menu items as follows:

```
   Scale Mode             Global Scale
->Zoom/Crop Image                >>
```

```
->Top                                0
   Bottom                            0
   Top/Bottom                        0
   Left                              0
```

```
->Right                              0
   Left/Right                        0
   Center                            0
   Reset
```

Top: Crop the top of the image.

Bottom: Crop the bottom of the image.

Top/Bottom: Crop the top and bottom of the image in equal proportion.

Left: Crop the left of the image.

Right: Crop the right of the image.

Left/Right: Crop the left and right of the image in equal proportion.

Center: Zoom from the center of image.

Reset: Reset Zoom/Crop settings to factory defaults.

3.8 Zoom the Image

1. Push the [MENU] button, and enter to the menu items. Default <INPUT> option, push the knob
   to confirm.
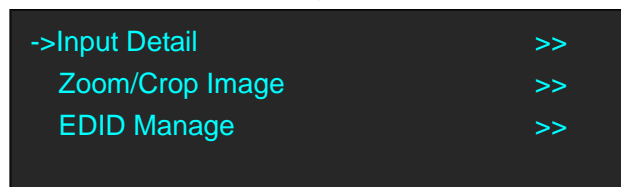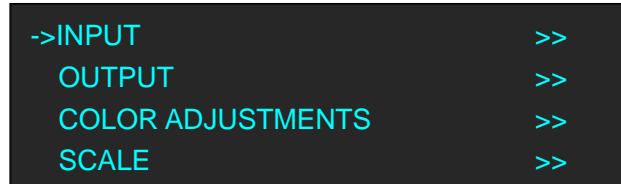
->INPUT	>>
OUTPUT	>>
COLOR ADJUSTMENTS	>>
SCALE	>>

->Input Detail	>>
Zoom/Crop Image	>>
EDID Manage	>>

2. Turn the rotary knob, and select <Zoom/Crop Image>, push the knob to confirm:

Input Detail	>>
->Zoom/Crop Image	>>
EDID Manage	>>

->Top	0
Bottom	0
Top/Bottom	0
Left	0

->Right	0
Left/Right	0
Center	0
Reset	

Top: Crop the top of the image.

Bottom: Crop the bottom of the image.

Top/Bottom: Crop the top and bottom of the image in equal proportion.

Left: Crop the left of the image.

Right: Crop the right of the image.

Left/Right: Crop the left and right of the image in equal proportion.

Center: Zoom from the center of image.
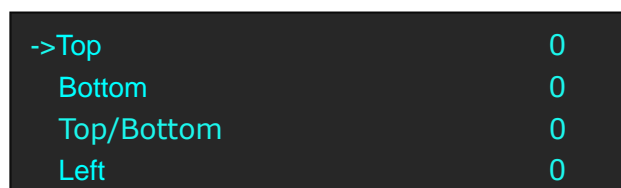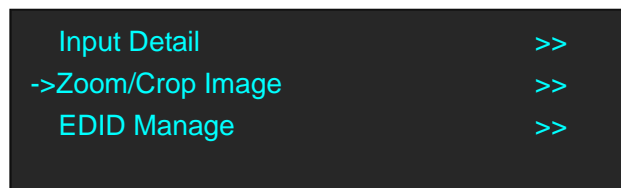
Reset: Reset Zoom/Crop settings to factory defaults.

3.9 Custom TP Button

1. Push the [MENU] button, and enter to the menu items. Turn the rotary knob, and select <SYSTEM>.

```
    BACKUP                      >>
    TEST PATTERN                >>
->SYSTEM                        >>
    FACTORY RESET               >>
```

2. Push the knob to confirm. Turn the rotary knob, and select <Customized Button>, push the knob to confirm.

```
    OLED Brightness             12
    Front Panel Lock            >>
->Customized Button             >>
    Tech Support                >>
```

```
    Customized Button
->TP                            TP
```

3. Push and turn the rotary knob, TP and BLACK can be selected.
   If select <TP>, push [BLACK/TP] button, the button is lit, and enter to the TP menu items.

```
->Port                       Port 1
   Test Grid                    Off
   Grid Color                   Red
   Type                       Cross
```

```
->Test Patterns          Auto Move
   Moving                        30
   Patterns Color             White
```

Port: Select the port.

Test Grid: Select "On" or "Off".

Automatic: The test grid automatically matches the port, based on the LEDs/Row and Column.

Manual size: Set the width and height of each cell in the test grid.

Grid Color: Assign the grid color.

Type: Assign the grid type, to align on the cross perimeter, panel perimeter, row perimeter, column perimeter or rectangle perimeter.
Test Patterns: Select auto move or manual (manual can be selected when user select "On").
Moving: Set the moving grids time.
Patterns Color: Set or custom the patterns color bar.
If select <BLACK>, push [BLACK/TP] button, the button is lit, and the output will be switched to black.

Black Out
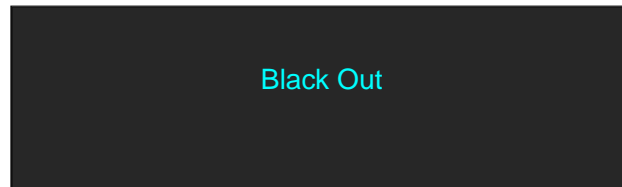
The effect as shown in the figure below:

Push the button again, its LED light is off, and output the live image.

Live Image
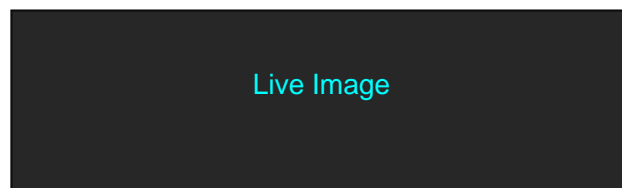
3.10 Set the LED Display Connection

G3 NET 2K can connect any port to the LED display and set the layouts for the panel and select the connection order, such as connect with one port, H 1⁄2, V 1⁄2, H 1⁄4, V 1⁄4 and cross, etc, concrete operations as follows:

3.10.1 Regular

3.10.1.1 Crisscross

1. First, make sure that the device is in normal operation.
2. Select the input source, for example, DVI.
3. Connect the cable to 4 outputs, OUT-U1⁄1, OUT-D1⁄2, OUT-U2⁄3 and OUT-D2⁄4.
4. Push the [MAP] button (Or push the [MENU] button, and enter to the menu items. Turn the rotary knob, and select <OUTPUT>, push the knob to confirm. Turn the rotary knob again, and select <LED Display> option).

```
->Regular                        >>
   Unregular                     >>
   Set Width                     >>
   Offset Settings               >>
```

```
->Position Settings              >>
```

5. Default <Regular> option, push the knob and enter to the regular menu items.

```
->Connection Type          Horizontal
   Panel Pixel W*H:           1*1
   Save to Port
   Port 1
```

6. Turn the rotary knob, and select <Connection Type>, push the knob to confirm. Turn the rotary again, and select <Crisscross>.

```
->Connection Type          Crisscross
   Panel Pixel W*H:           1*1
   Save to Port
   Port 1
```
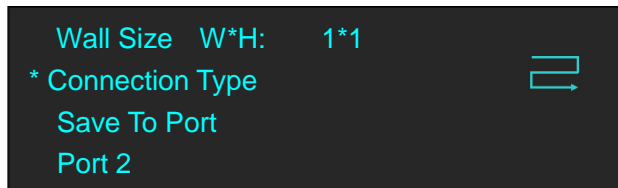
7. Turn the rotary knob, and set <Panel Pixel W*H>. For example, set Panel Pixel W as 128 and Panel Pixel H as 256, shown as follows:
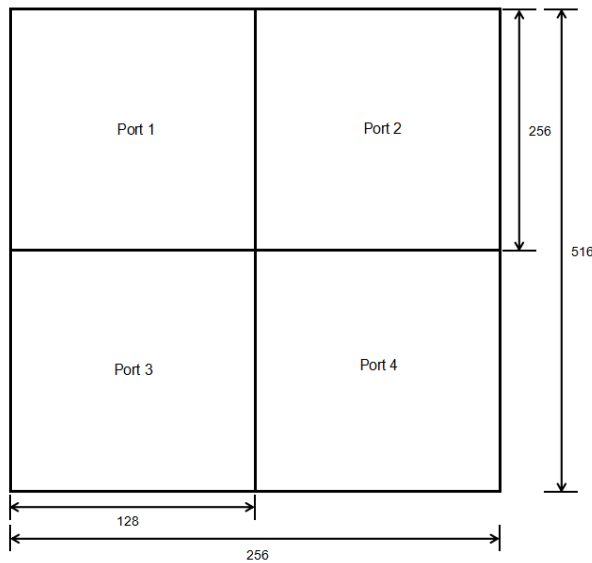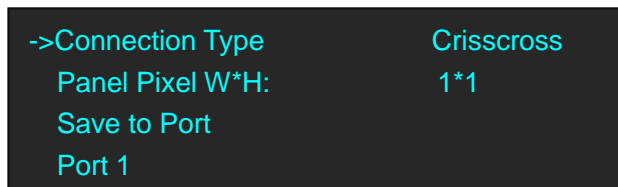
Connection Type	Crisscross
->Panel Pixel W*H:	128*256
Save to Port	
Port 1	

8. Select <Port 1>, <Port 2>, <Port 3>, <Port 4>, and set the Wall Size W/H. For example, set Wall Size W and Wall Size H as 1, shown as follows:

->Wall Size W*H: 1*1	
Connection Type	
Save To Port	
Port 2	

9. Turn the rotary knob, and select <Connection Type> for <Port 1>, <Port 2>, <Port 3>, <Port 4>, push the knob to confirm. G3 NET 2K support 8 kinds of connection type, including ⊐, ⊑,

⊑, ⊒, ⊔, ⊓, ⊓ and ⊔. For example:

Wall Size W*H: 1*1	
* Connection Type	
Save To Port	
Port 2	

The connection figure is shown as below:

3.10.1.2 Horizontal

1. First, make sure that the device is in normal operation.
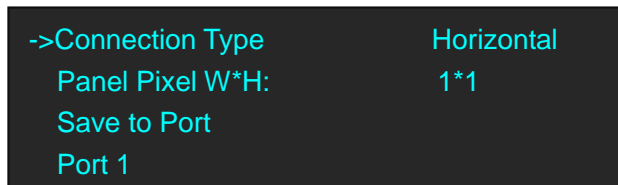2. Select the input source, for example, DVI.

3. Connect the cable to outputs, for example, OUT-U1/1 and OUT-D1/2.

4. Push the [MAP] button (Or push the [MENU] button, and enter to the menu items. Turn the rotary knob, and select <OUTPUT>, push the knob to confirm. Turn the rotary knob again, and select <LED Display> option).
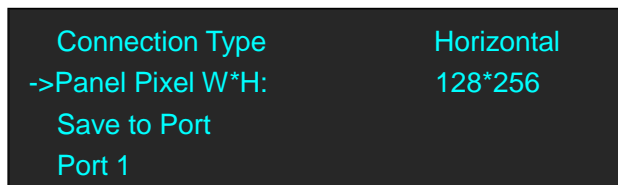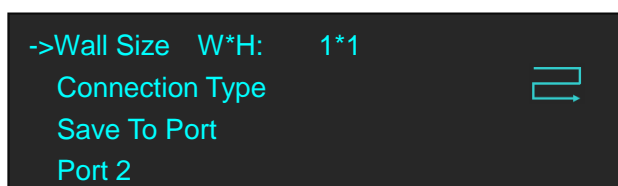
```
->Regular                           >>
   Unregular                        >>
   Set Width                        >>
   Offset Settings                  >>
```

```
->Position Settings                 >>
```

5. Default <Regular> option, push the knob and enter to the regular menu items.

```
->Connection Type          Crisscross
   Panel Pixel W*H:          1*1
   Save to Port
   Port 1
```

6. Turn the rotary knob, and select <Connection Type>, push the knob to confirm. Turn the rotary again, and select <Horizontal>.

```
->Connection Type          Horizontal
   Panel Pixel W*H:          1*1
   Save to Port
   Port 1
```

7. Turn the rotary knob, and set <Panel Pixel W*H>. For example, set Panel Pixel W as 128 and Panel Pixel H as 256, shown as follows:

```
   Connection Type          Horizontal
->Panel Pixel W*H:          128*256
   Save to Port
   Port 1
```
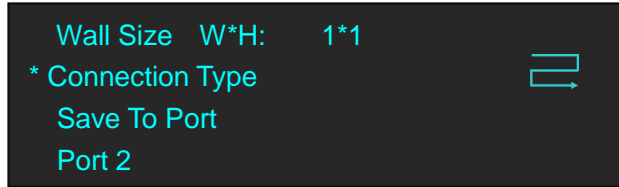
8. Select <Port 1>, and set the Wall Size W/H. For example, set Wall Size W and Wall Size H as 1, shown as follows .

```
->Wall Size   W*H:      1*1
   Connection Type
   Save To Port
   Port 2
```

9. Turn the rotary knob, and select <Connection Type>, push the knob to confirm. G3 NET 2K support 8 kinds of connection type, including ⊒, ⊑, ⊑, ⊒, ⊔, ⊓, ⊓ and ⊔.

```
    Wall Size   W*H:      1*1
  * Connection Type                      ⊒
    Save To Port
    Port 2
```

10. Select <Port 2>, and set the Wall Size W/H. For example, set Wall Size W and Wall Size H as 1, shown as follows .

```
  ->Wall Size   W*H:   1*1
    Connection Type                      ⊒
    Save To Port
    Port 3
```

11. Turn the rotary knob, and select <Connection Type>, push the knob to confirm. G3 NET 2K support 8 kinds of connection type, including ⊒, ⊑, ⊑, ⊒, ⊔, ⊓, ⊓ and ⊔.

```
    Wall Size   W*H:   1*1
  * Connection Type                      ⊒
    Save To Port
    Port 3
```

The connection figure is shown as below:

3.10.1.3 Vertical

1. First, make sure that the device is in normal operation.

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2. Select the input source, for example, DVI.

3. Connect the cable to outputs, for example, OUT-U1/1 and OUT-D1/2.

4. Push the [MAP] button (Or push the [MENU] button, and enter to the menu items. Turn the rotary knob, and select <OUTPUT>, push the knob to confirm. Turn the rotary knob again, and select <LED Display> option).

```
->Regular                          >>
   Unregular                       >>
   Set Width                       >>
   Offset Settings                 >>
```

```
->Position Settings                >>
```

5. Default <Regular> option, push the knob and enter to the regular menu items.

```
->Connection Type        Crisscross
   Panel Pixel W*H:       1*1
   Save to Port
   Port 1
```

6. Turn the rotary knob, and select <Connection Type>, push the knob to confirm. Turn the rotary again, and select <Vertical>.

```
->Connection Type        Vertical
   Panel Pixel W*H:       1*1
   Save to Port
   Port 1
```

7. Turn the rotary knob, and set <Panel Pixel W*H>. For example, set Panel Pixel W as 128 and Panel Pixel H as 256, shown as follows:

```
   Connection Type       Vertical
->Panel Pixel W*H:        128*256
   Save to Port
   Port 1
```

8. Select <Port 1>, and set the Wall Size W/H. For example, set Wall Size W and Wall Size H as 1, shown as follows.

```
->Wall Size   W*H:      1*1
   Connection Type
   Save To Port
   Port 2
```
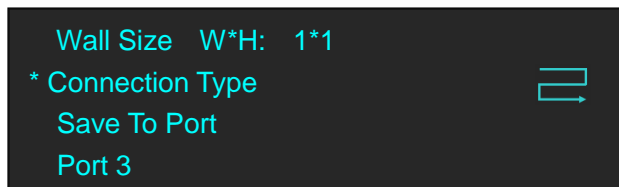
9. Turn the rotary knob, and select <Connection Type>, push the knob to confirm. G3 NET 2K support 8 kinds of connection type, including ⊇, ⊆, ⊆, ⊇, ⨆, ⊓, ⊓ and ⨆.
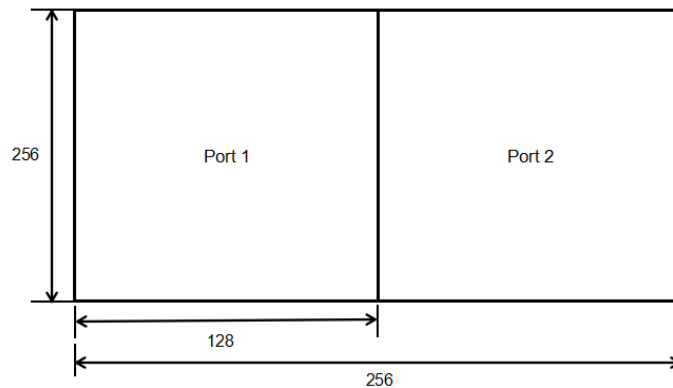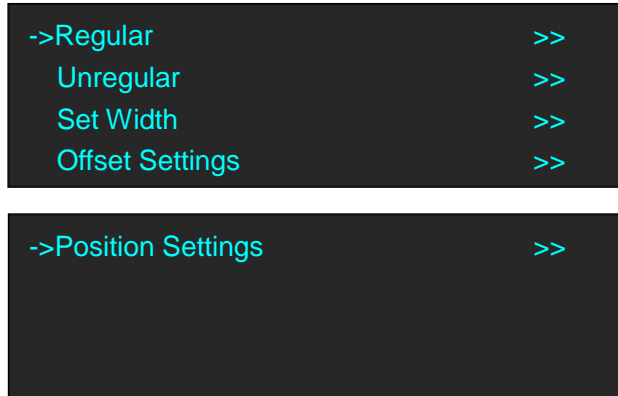
```
   Wall Size  W*H:     1*1
 * Connection Type                ⊇
   Save To Port
   Port 2
```

10. Select <Port 2>, and set the Wall Size W/H. For example, set Wall Size W and Wall Size H as 1, shown as follows.

```
 ->Wall Size  W*H:     1*1
   Connection Type                ⊇
   Save To Port
   Port 3
```

11. Turn the rotary knob, and select <Connection Type>, push the knob to confirm. G3 NET 2K support 8 kinds of connection type, including ⊇, ⊆, ⊆, ⊇, ⨆, ⊓, ⊓ and ⨆.

```
   Wall Size  W*H:     1*1
 * Connection Type                ⊇
   Save To Port
   Port 3
```

The connection figure is shown as below:
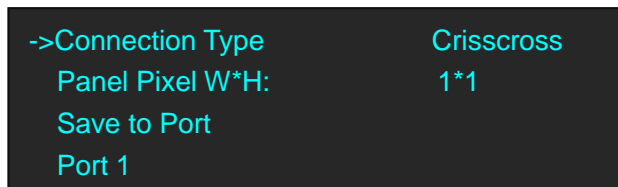
3.10.2 Unregular

3.10.2.1 One Port

1. First, make sure that the device is in normal operation.

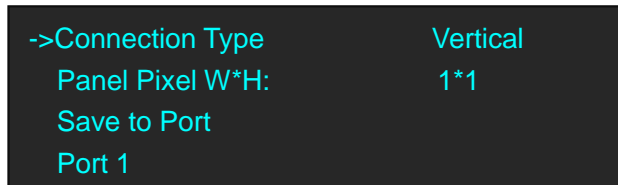2. Select the input source, for example, DVI.

3. Connect the cable to any output, for example, OUT-U1/1.

4. Push the [MAP] button (Or push the [MENU] button, and enter to the menu items. Turn the rotary knob, and select <OUTPUT>, push the knob to confirm. Turn the rotary knob again, and select <LED Display> option).
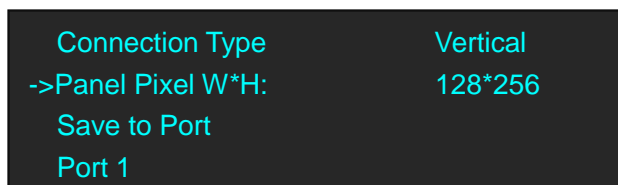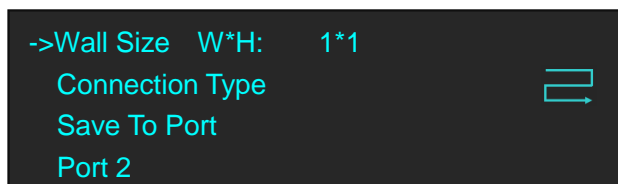
```
->Regular                        >>
   Unregular                     >>
   Set Width                     >>
   Offset Settings               >>
```

```
->Position Settings              >>
```

5. Turn the rotary knob, and select <Unregular> option, push the knob and enter to the unregular menu items.

```
   Regular                       >>
->Unregular                      >>
   Set Width                     >>
   Offset Settings               >>
```

```
   Port 1
->Wall Size   W*H:   1*1
   Panel Pixel   W*H:   1*1
   Connection Type
```

6. Select <Port 1>, and set the Wall Size W/H and Panel Pixel W/H. For example, set Wall Size W as 3, Wall Size H as 2, Panel Pixel W as 128 and Panel Pixel H as 256, shown as follows.
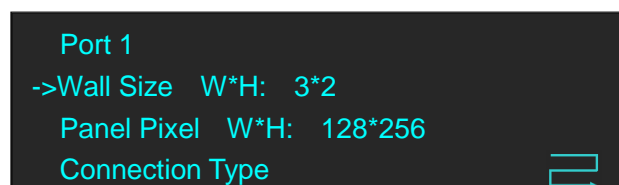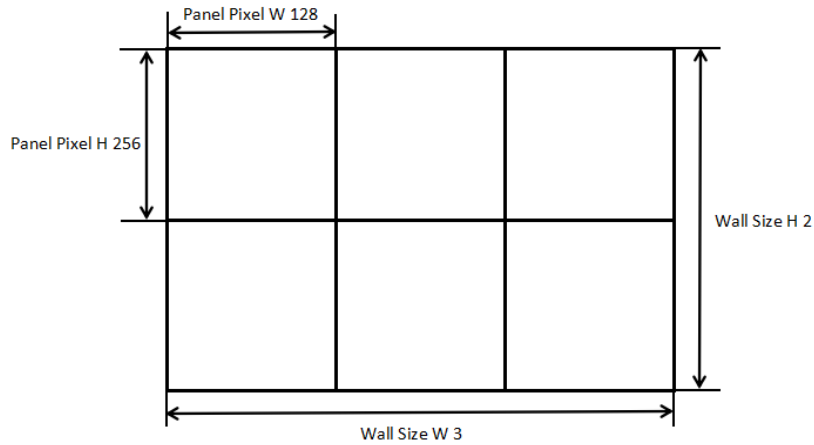
```
   Port 1
->Wall Size   W*H:   3*2
   Panel Pixel   W*H:   128*256
   Connection Type
```
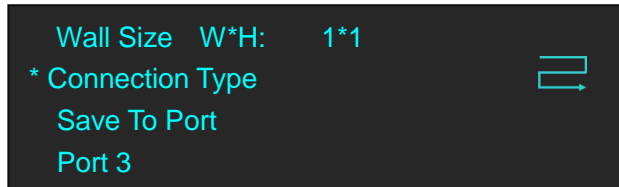
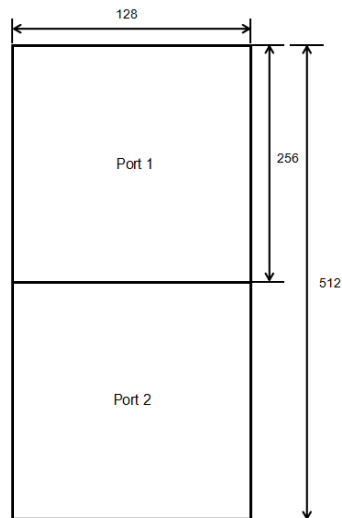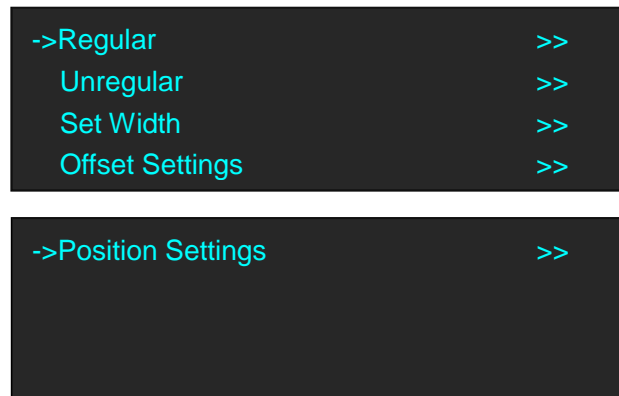7. Turn the rotary knob, and select <Connection Type>, push the knob to confirm. G3 NET 2K support 8 kinds of connection type, including ⊐, ⊑, ⊑, ⊐, ⊔, ⊓, ⊓ and ⊔.

```
Port 1
Wall Size   W*H:   3*2
Panel Pixel   W*H:   128*256
->Connection Type                ⇄
```
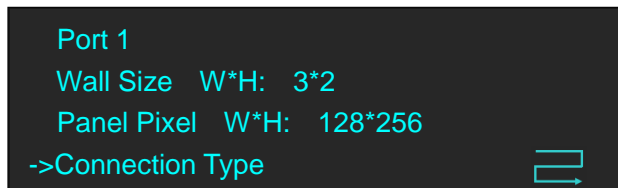
8. Turn the rotary knob, and select <Send To Port>, push the knob to confirm. All current settings with the G3 NET 2K are saved to Port 1.

```
->Save To Port
  Port 2
  Wall Size   W*H:   1*1
  Panel Pixel   W*H:   1*1
```
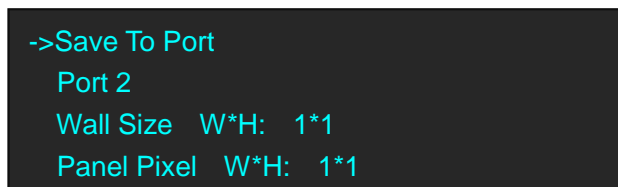
9. Same operation for Port 2, Port 3 and Port 4.

3.10.2.2 H 1/2 (Connect Port1 and Port 2, or connect Port 3 and Port 4)
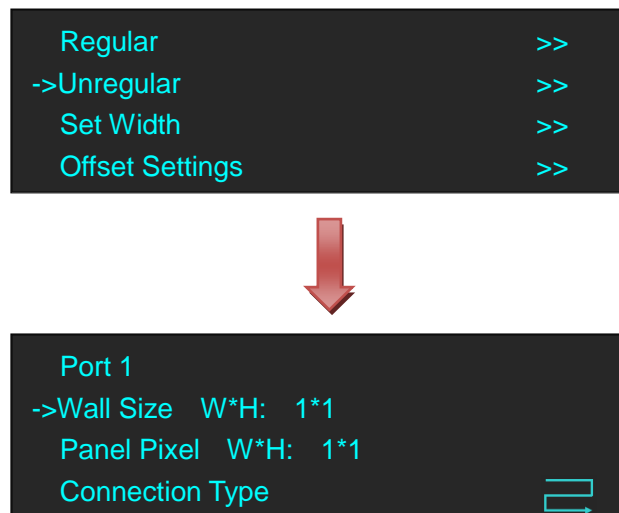
1. First, make sure that the device is in normal operation.
2. Select the input source, for example, DVI.
3. Connect the cable to outputs, for example, OUT-U1/1 and OUT-D1/2.
4. Push the [MAP] button (Or push the [MENU] button, and enter to the menu items. Turn the rotary knob, and select <OUTPUT>, push the knob to confirm. Turn the rotary knob again, and select <LED Display> option).

```
->Regular                        >>
  Unregular                      >>
  Set Width                      >>
  Offset Settings                >>
```

```
->Position Settings                    >>
```

5. Turn the rotary knob, and select <Unregular> option, push the knob and enter to the unregular menu items.
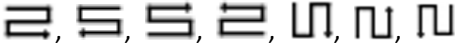
```
   Regular                           >>
->Unregular                          >>
   Set Width                         >>
   Offset Settings                   >>
```

```
   Port 1
->Wall Size   W*H:   1*1
   Panel Pixel   W*H:   1*1
   Connection Type
```

6. Select <Port 1>, and set the Wall Size W/H and Panel Pixel W/H. For example, set Wall Size W and Wall Size H as 1, Panel Pixel W as 128 and Panel Pixel H as 256, shown as follows.

```
   Port 1
->Wall Size   W*H:   1*1
   Panel Pixel   W*H:   128*256
   Connection Type
```

7. Turn the rotary knob, and select <Connection Type>, push the knob to confirm. G3 NET 2K support 8 kinds of connection type, including ⊐, ⊑, ⊑, ⊒, ⊔, ⊓, ⊓ and ⊔.

```
   Port 1
   Wall Size   W*H:   1*1
   Panel Pixel   W*H:   128*256
->Connection Type
```

8. Select <Port 2>, and set the Wall Size W/H and Panel Pixel W/H. For example, set Wall Size W and Wall Size H as 1, Panel Pixel W as 128 and Panel Pixel H as 256, shown as follows.

```
   Save To Port
   Port 2
->Wall Size   W*H:   1*1
   Panel Pixel   W*H:   128*256
```

9. Turn the rotary knob, and select <Connection Type>, push the knob to confirm. G3 NET 2K

support 8 kinds of connection type, including ⊐, ⊑, ⊑, ⊐, ⊔, ⊓, ⊓ and
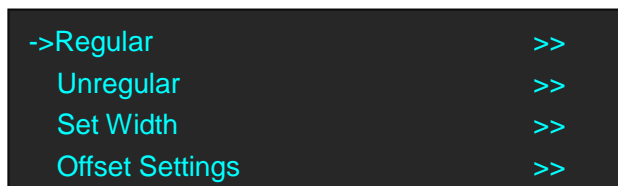
⊔.

```
* Connection Type              ⇄
   Save To Port
   Port 3
   Wall Size   W*H:   1*1
```

10. Turn the rotary knob, and select <Offset Settings>, push the knob to confirm, turn the rotary
    knob, and set Port 1/2 Offset X and Port 1/2 Offset Y as 0, shown as follows:

```
->Port 1/2 Offset X                    0
   Port 1/2 Offset Y                   0
   Port 3/4 Offset X                   0
   Port 3/4 Offset Y                   0
```

11. Turn the rotary knob, and select <Position Settings>, push the knob to confirm, turn the
    rotary knob, and set Port 1 X Position, Port 1 Y Position, Port 2 Y Position as 0 and set Port 2 X
    Position as 128, shown as follows:

```
->Port 1 X Position                    0
   Port 1 Y Position                   0
   Port 2 X Position                 128
   Port 2 Y Position                   0
```
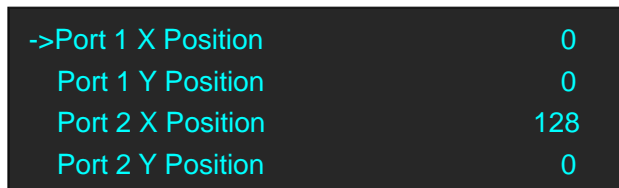
The connection figure is shown as below:

3.10.2.3 H 1/2 (Connect Port1 and Port 3 or 4, or connect Port 2 and

Port 3 or 4)

Note: This connection is not recommended.

1. First, make sure that the device is in normal operation.

2. Select the input source, for example, DVI.

3. Connect the cable to outputs, for example, OUT-U1/1 and OUT-U2/3.

4. Push the [MAP] button (Or push the [MENU] button, and enter to the menu items. Turn the rotary knob, and select <OUTPUT>, push the knob to confirm. Turn the rotary knob again, and select <LED Display> option).

```
->Regular                        >>
  Unregular                      >>
  Set Width                      >>
  Offset Settings                >>
```
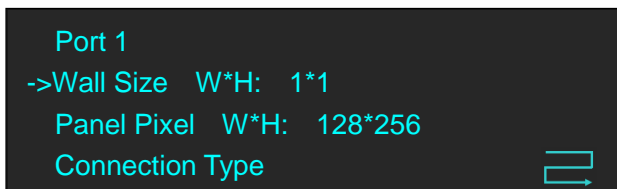
```
->Position Settings              >>
```
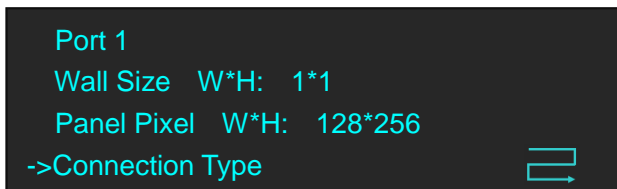
5. Turn the rotary knob, and select <Unregular> option, push the knob and enter to the unregular menu items.

```
  Regular                        >>
->Unregular                      >>
  Set Width                      >>
  Offset Settings                >>
```

```
  Port 1
->Wall Size   W*H:   1*1
  Panel Pixel   W*H:   1*1
  Connection Type
```

6. Select <Port 1>, and set the Wall Size W/H and Panel Pixel W/H. For example, set Wall Size W and Wall Size H as 1, Panel Pixel W as 128 and Panel Pixel H as 256, shown as follows.

```
  Port 1
->Wall Size   W*H:   1*1
  Panel Pixel   W*H:   128*256
  Connection Type
```

7. Turn the rotary knob, and select <Connection Type>, push the knob to confirm. G3 NET 2K support 8 kinds of connection type, including ⊒, ⊑, ⊑, ⊒, Ⅲ, Ⅲ, Ⅲ and

⊔∏.

```
   Port 1
   Wall Size   W*H:   1*1
   Panel Pixel   W*H:   128*256
->Connection Type                    ⇄
```
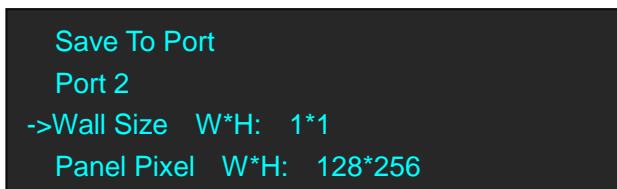
8. Select <Port 3>, and set the Wall Size W/H and Panel Pixel W/H. For example, set Wall Size W and Wall Size H as 1, Panel Pixel W as 128 and Panel Pixel H as 256, shown as follows.
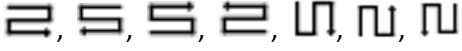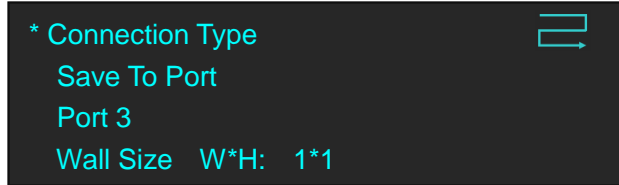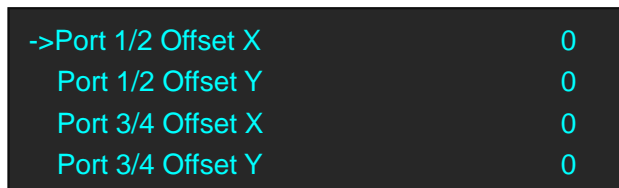
```
   Connection Type                   ⇄
   Save To Port
   Port 3
->Wall Size   W*H:   1*1
```

```
->Panel Pixel   W*H:   128*256
   Connection Type                   ⇄
   Save To Port
   Port 4
```

9. Turn the rotary knob, and select <Connection Type>, push the knob to confirm. G3 NET 2K support 8 kinds of connection type, including �, �, �, �, ⊔∏, ∏⊔, ∏⊔ and ⊔∏.

```
   Panel Pixel   W*H:   128*256
->Connection Type                    ⇄
   Save To Port
   Port 4
```
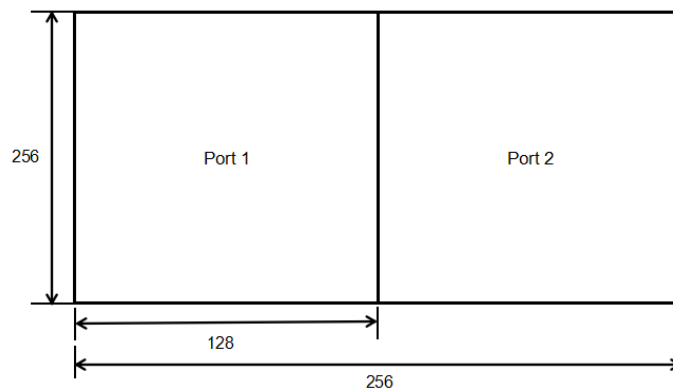
10. Turn the rotary knob, and select <Offset Settings>, push the knob to confirm, turn the rotary knob, and set Port 1/2 Offset X, Port 1/2 Offset Y, Port 3/4 Offset Y as 0, and set Port 3/4 Offset X as 128, shown as follows:

```
->Port 1/2 Offset X                     0
   Port 1/2 Offset Y                    0
   Port 3/4 Offset X                  128
   Port 3/4 Offset Y                    0
```

11. Turn the rotary knob, and select <Position Settings>, push the knob to confirm, turn the rotary knob, and set all the parameters as 0, shown as follows:

```
->Port 1 X Position                     0
   Port 1 Y Position                    0
   Port 2 X Position                    0
   Port 2 Y Position                    0
```

```
->Port 3 X Position                    0
   Port 3 Y Position                   0
   Port 4 X Position                   0
   Port 4 Y Position                   0
```

The connection figure is shown as below:

3.10.2.4 V 1/2 (Connect Port1 and Port 2, or connect Port 3 and Port 4)
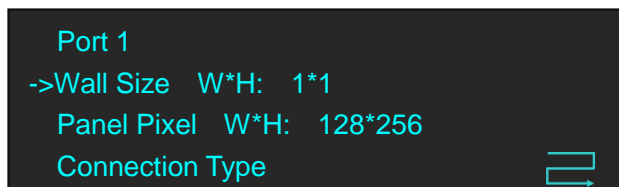
1. First, make sure that the device is in normal operation.

2. Select the input source, for example, DVI.

3. Connect the cable to outputs, for example, OUT-U1/1 and OUT-D1/2.

4. Push the [MAP] button (Or push the [MENU] button, and enter to the menu items. Turn the rotary knob, and select <OUTPUT>, push the knob to confirm. Turn the rotary knob again, and select <LED Display> option).

```
->Regular                             >>
   Unregular                          >>
   Set Width                          >>
   Offset Settings                    >>
```

```
->Position Settings                   >>
```

5. Turn the rotary knob, and select <Unregular> option, push the knob and enter to the unregular menu items.

```
   Regular                            >>
->Unregular                           >>
   Set Width                          >>
   Offset Settings                    >>
```

```
   Port 1
->Wall Size  W*H:  1*1
   Panel Pixel  W*H:  1*1
   Connection Type
```
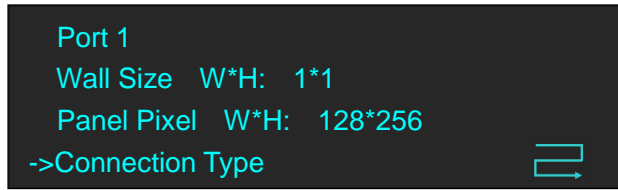
6. Select <Port 1>, and set the Wall Size W/H and Panel Pixel W/H. For example, set Wall Size W and Wall Size H as 1, Panel Pixel W as 128 and Panel Pixel H as 256, shown as follows.

```
   Port 1
->Wall Size  W*H:  1*1
   Panel Pixel  W*H:  128*256
   Connection Type
```

7. Turn the rotary knob, and select <Connection Type>, push the knob to confirm. G3 NET 2K support 8 kinds of connection type, including ⧜, ⧓, ⧓, ⧜, ⊔, ⊓, ⊓ and ⊔.

```
   Port 1
   Wall Size  W*H:  1*1
   Panel Pixel  W*H:  128*256
->Connection Type
```

8. Select <Port 2>, and set the Wall Size W/H and Panel Pixel W/H. For example, set Wall Size W and Wall Size H as 1, Panel Pixel W as 128 and Panel Pixel H as 256, shown as follows.
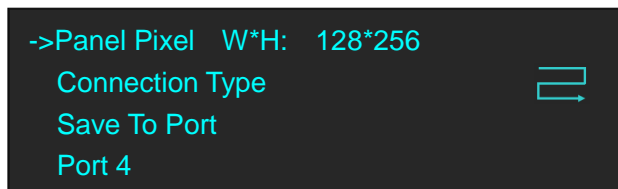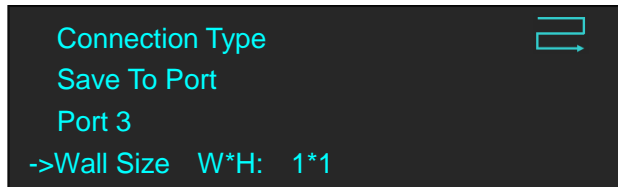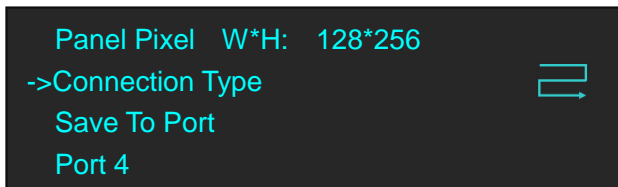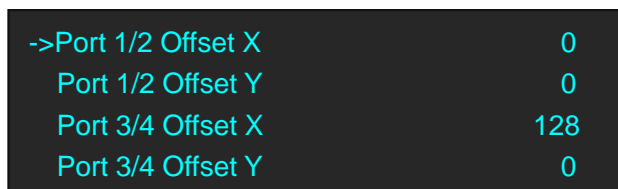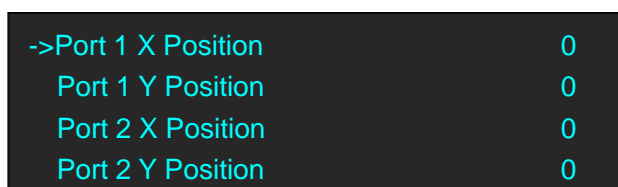
```
   Save To Port
   Port 2
->Wall Size  W*H:  1*1
   Panel Pixel  W*H:  128*256
```

9. Turn the rotary knob, and select <Connection Type>, push the knob to confirm. G3 NET 2K support 8 kinds of connection type, including ⧜, ⧓, ⧓, ⧜, ⊔, ⊓, ⊓ and ⊔.

```
   Save To Port
   Port 2
->Wall Size  W*H:  1*1
   Panel Pixel  W*H:  128*256
```

10. Turn the rotary knob, and select <Offset Settings>, push the knob to confirm, turn the rotary knob, and set Port 1/2 Offset X and Port 1/2 Offset Y as 0, shown as follows:

->Port 1/2 Offset X	0
Port 1/2 Offset Y	0
Port 3/4 Offset X	0
Port 3/4 Offset Y	0

11. Turn the rotary knob, and select <Position Settings>, push the knob to confirm, turn the rotary knob, and set Port 1 X Position, Port 1 Y Position, Port 2 X Position as 0 and set Port 2 Y Position as 256, shown as follows:

->Port 1 X Position	0
Port 1 Y Position	0
Port 2 X Position	0
Port 2 Y Position	256

The connection figure is shown as below:

3.10.2.5 V 1/2 (Connect Port1 and Port 3 or 4, or connect Port 2 and Port 3 or 4)

Note: This connection is not recommended.

1. First, make sure that the device is in normal operation.

2. Select the input source, for example, DVI.

3. Connect the cable to outputs, for example, OUT-U1/1 and OUT-U2/3.

4. Push the [MAP] button (Or push the [MENU] button, and enter to the menu items. Turn the rotary knob, and select <OUTPUT>, push the knob to confirm. Turn the rotary knob again, and select <LED Display> option).

```
->Regular                              >>
   Unregular                           >>
   Set Width                           >>
   Offset Settings                     >>
```

```
->Position Settings                    >>
```
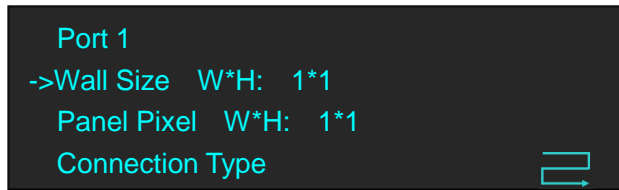
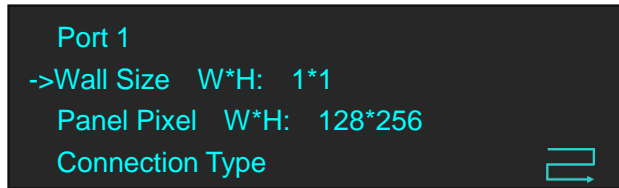5. Turn the rotary knob, and select <Unregular> option, push the knob and enter to the unregular menu items.

```
   Regular                             >>
->Unregular                            >>
   Set Width                           >>
   Offset Settings                     >>
```
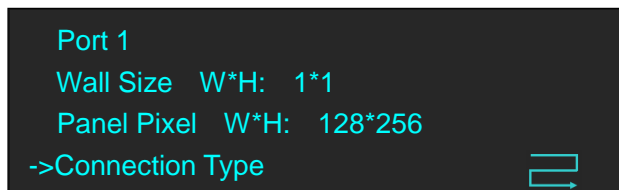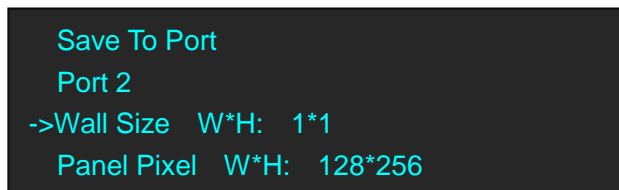
```
   Port 1
->Wall Size    W*H:    1*1
   Panel Pixel    W*H:    1*1
   Connection Type
```

6. Select <Port 1>, and set the Wall Size W/H and Panel Pixel W/H. For example, set Wall Size W and Wall Size H as 1, Panel Pixel W as 128 and Panel Pixel H as 256, shown as follows.

```
   Port 1
->Wall Size    W*H:    1*1
   Panel Pixel    W*H:    128*256
   Connection Type
```

7. Turn the rotary knob, and select <Connection Type>, push the knob to confirm. G3 NET 2K support 8 kinds of connection type, including ⎰, ⎱, ⎲, ⎳, ⊔, ⊓, ⊔ and ⊓.

```
   Port 1
   Wall Size    W*H:    1*1
   Panel Pixel    W*H:    128*256
->Connection Type
```

8. Select <Port 3>, and set the Wall Size W/H and Panel Pixel W/H. For example, set Wall Size W and Wall Size H as 1, Panel Pixel W as 128 and Panel Pixel H as 256, shown as follows.
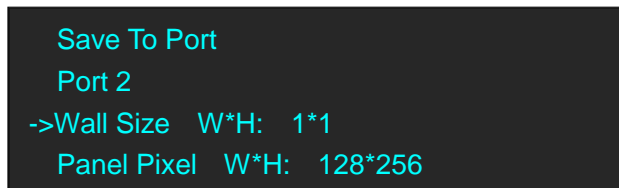
```
    Connection Type                    ⇄
    Save To Port
    Port 3
->Wall Size   W*H:   1*1
```

```
->Panel Pixel   W*H:   128*256
    Connection Type
    Save To Port                       ⇄
    Port 4
```

9. Turn the rotary knob, and select <Connection Type>, push the knob to confirm. G3 NET 2K support 8 kinds of connection type, including ⊇, ⑤, ⑤, ⊇, Ш, Ⅲ, Ⅲ and Ш.

```
    Panel Pixel   W*H:   128*256
->Connection Type
    Save To Port                       ⇄
    Port 4
```

10. Turn the rotary knob, and select <Offset Settings>, push the knob to confirm, turn the rotary knob, and set Port 1/2 Offset X, Port 1/2 Offset Y, Port 3/4 Offset X as 0, and set Port 3/4 Offset Y as 256, shown as follows:

```
->Port 1/2 Offset X                    0
    Port 1/2 Offset Y                  0
    Port 3/4 Offset X                  0
    Port 3/4 Offset Y                  256
```
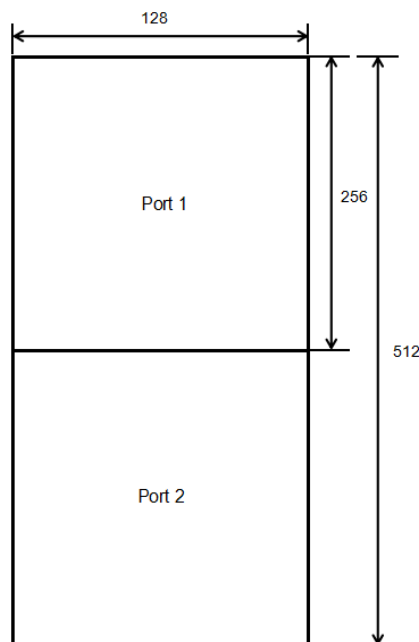
11. Turn the rotary knob, and select <Position Settings>, push the knob to confirm, turn the rotary knob, and set all the parameters as 0, shown as follows:

```
->Port 1 X Position                    0
    Port 1 Y Position                  0
    Port 2 X Position                  0
    Port 2 Y Position                  0
```
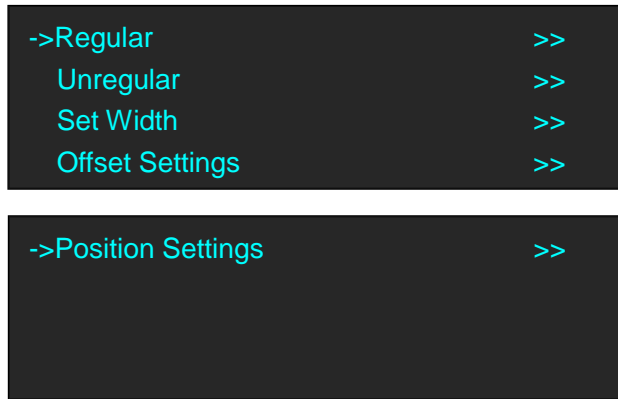
```
->Port 3 X Position                    0
    Port 3 Y Position                  0
    Port 4 X Position                  0
    Port 4 Y Position                  0
```
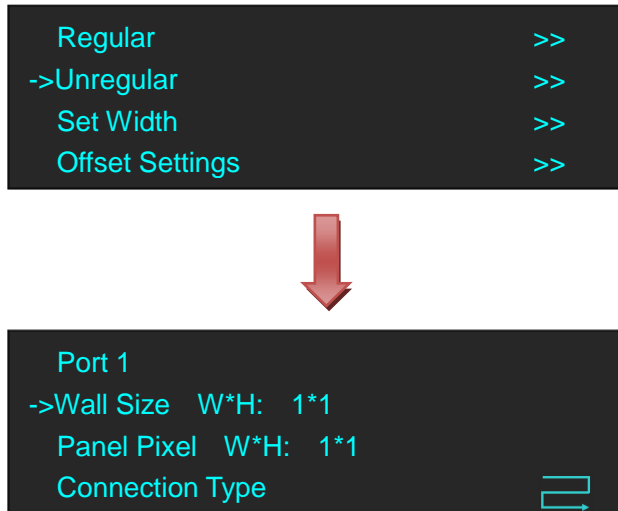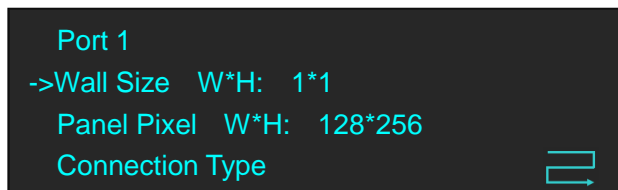
The connection figure is shown as below:

3.10.2.6 H 1/4

1. First, make sure that the device is in normal operation.
2. Select the input source, for example, DVI.
3. Connect the cable to 4 outputs, OUT-U1/1, OUT-D1/2, OUT-U2/3 and OUT-D2/4.
4. Push the [MAP] button (Or push the [MENU] button, and enter to the menu items. Turn the rotary knob, and select <OUTPUT>, push the knob to confirm. Turn the rotary knob again, and select <LED Display> option).

->Regular	>>
Unregular	>>
Set Width	>>
Offset Settings	>>

->Position Settings	>>

5. Turn the rotary knob, and select <Unregular> option, push the knob and enter to the unregular menu items.

Regular	>>
->Unregular	>>
Set Width	>>
Offset Settings	>>

```
    Port 1
->Wall Size   W*H:   1*1
    Panel Pixel   W*H:   1*1
    Connection Type                    ⇄
```
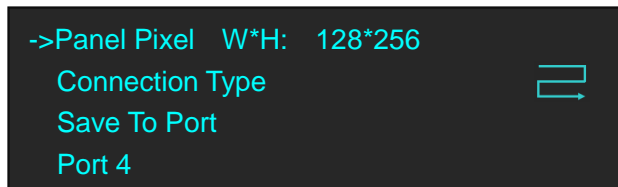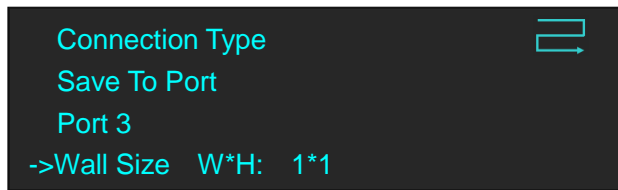
6. Select <Port 1>, <Port 2>, <Port 3>, <Port 4>, and set the Wall Size W/H and Panel Pixel W/H. For example, set Wall Size W and Wall Size H as 1, Panel Pixel W as 128 and Panel Pixel H as 256, shown as follows.
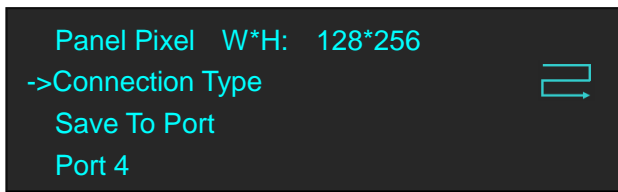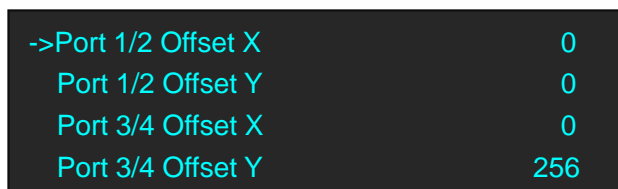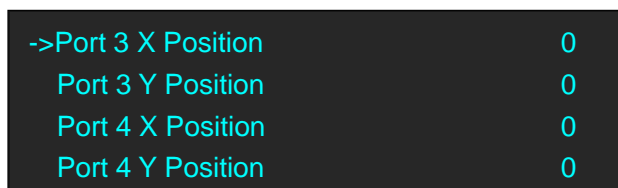
```
    Port 1
->Wall Size   W*H:   1*1
    Panel Pixel   W*H:   128*256
    Connection Type                    ⇄
```

7. Turn the rotary knob, and select <Connection Type> for <Port 1>, <Port 2>, <Port 3>, <Port 4>, push the knob to confirm. G3 NET 2K support 8 kinds of connection type, including ⇉, ⇆,

⇆, ⇉, ⊓, ⊓, ⊓ and ⊔. For example:

```
    Port 1
    Wall Size   W*H:   1*1
    Panel Pixel   W*H:   128*256
->Connection Type                    ⇄
```

8. Turn the rotary knob, and select <Offset Settings>, push the knob to confirm, turn the rotary knob, and set Port 1/2 Offset X, Port 1/2 Offset Y, Port 3/4 Offset Y as 0, and set Port 3/4 Offset X as 256, shown as follows:

```
->Port 1/2 Offset X                    0
    Port 1/2 Offset Y                    0
    Port 3/4 Offset X                    256
    Port 3/4 Offset Y                    0
```

9. Turn the rotary knob, and select <Position Settings>, push the knob to confirm, turn the rotary knob, and set Port 1 X Position and Port 1 Y Position as 0, set Port 2 X Position as 128, Port 2 Y Position as 0, set Port 3 X Position and Port 3 Y Position as 0, set Port 4 X Position as 128, Port 4 Y Position as 0, shown as follows:

```
->Port 1 X Position                    0
    Port 1 Y Position                    0
    Port 2 X Position                    128
    Port 2 Y Position                    0
```

```
->Port 3 X Position                    0
  Port 3 Y Position                    0
  Port 4 X Position                  128
  Port 4 Y Position                    0
```

The connection figure is shown as below:
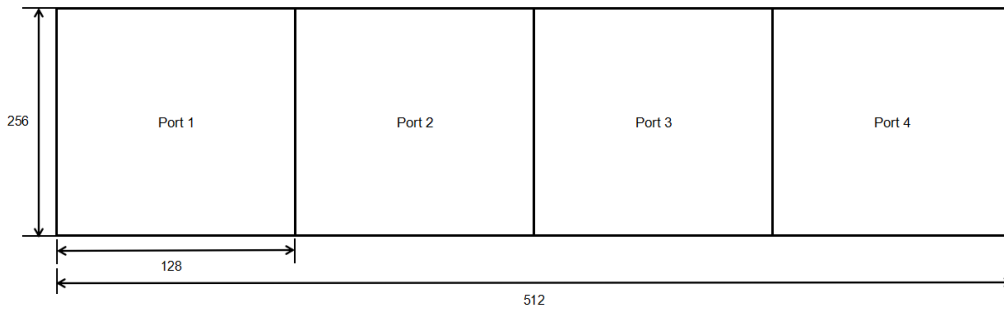
3.10.2.7 V 1/4

1. First, make sure that the device is in normal operation.

2. Select the input source, for example, DVI.

3. Connect the cable to 4 outputs, OUT-U1/1, OUT-D1/2, OUT-U2/3 and OUT-D2/4.

4. Push the [MAP] button (Or push the [MENU] button, and enter to the menu items. Turn the rotary knob, and select <OUTPUT>, push the knob to confirm. Turn the rotary knob again, and select <LED Display> option).

```
->Regular                            >>
  Unregular                          >>
  Set Width                          >>
  Offset Settings                    >>
```

```
->Position Settings                  >>
```

5. Turn the rotary knob, and select <Unregular> option, push the knob and enter to the unregular menu items.

```
  Regular                            >>
->Unregular                          >>
  Set Width                          >>
  Offset Settings                    >>
```

```
    Port 1
->Wall Size   W*H:   1*1
    Panel Pixel   W*H:   1*1
    Connection Type
```

6. Select <Port 1>, <Port 2>, <Port 3>, <Port 4>, and set the Wall Size W/H and Panel Pixel W/H. For example, set Wall Size W and Wall Size H as 1, Panel Pixel W as 128 and Panel Pixel H as 256, shown as follows.
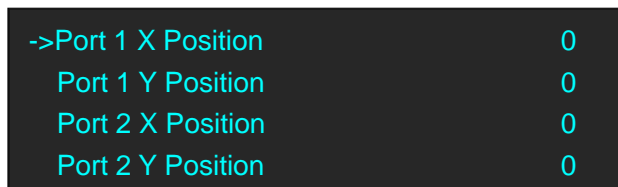
```
    Port 1
->Wall Size   W*H:   1*1
    Panel Pixel   W*H:   128*256
    Connection Type
```

7. Turn the rotary knob, and select <Connection Type> for <Port 1>, <Port 2>, <Port 3>, <Port 4>, push the knob to confirm. G3 NET 2K support 8 kinds of connection type, including ⊒, ⊑,

⊑, ⊒, ⊔, ⊓, ⊔ and ⊔. For example:

```
    Port 1
    Wall Size   W*H:   1*1
    Panel Pixel   W*H:   128*256
->Connection Type
```

8. Turn the rotary knob, and select <Offset Settings>, push the knob to confirm, turn the rotary knob, and set Port 1/2 Offset X, Port 1/2 Offset Y, Port 3/4 Offset X as 0, and set Port 3/4 Offset Y as 512, shown as follows:

```
->Port 1/2 Offset X                    0
    Port 1/2 Offset Y                    0
    Port 3/4 Offset X                    0
    Port 3/4 Offset Y                  512
```

9. Turn the rotary knob, and select <Position Settings>, push the knob to confirm, turn the rotary knob, and set Port 1 X Position and Port 1 Y Position as 0, set Port 2 X Position as 0, Port 2 Y Position as 256, set Port 3 X Position and Port 3 Y Position as 0, set Port 4 X Position as 0, Port 4 Y Position as 256, shown as follows:

```
->Port 1 X Position                    0
    Port 1 Y Position                    0
    Port 2 X Position                    0
    Port 2 Y Position                  256
```

```
->Port 3 X Position                    0
  Port 3 Y Position                    0
  Port 4 X Position                    0
  Port 4 Y Position                  256
```

The connection figure is shown as below:

3.10.2.8 Cross

1. First, make sure that the device is in normal operation.
2. Select the input source, for example, DVI.
3. Connect the cable to 4 outputs, OUT-U1/1, OUT-D1/2, OUT-U2/3 and OUT-D2/4.
4. Push the [MAP] button (Or push the [MENU] button, and enter to the menu items. Turn the rotary knob, and select <OUTPUT>, push the knob to confirm. Turn the rotary knob again, and select <LED Display> option).

```
->Regular                            >>
  Unregular                          >>
  Set Width                          >>
  Offset Settings                    >>


->Position Settings                  >>



```

5. Turn the rotary knob, and select <Unregular> option, push the knob and enter to the unregular menu items.

```
    Regular                         >>
->Unregular                         >>
    Set Width                       >>
    Offset Settings                 >>
```

```
    Port 1
->Wall Size    W*H:    1*1
    Panel Pixel    W*H:    1*1
    Connection Type
```

6. Select <Port 1>, <Port 2>, <Port 3>, <Port 4>, and set the Wall Size W/H and Panel Pixel W/H. For example, set Wall Size W and Wall Size H as 1, Panel Pixel W as 128 and Panel Pixel H as 256, shown as follows.

```
    Port 1
->Wall Size    W*H:    1*1
    Panel Pixel    W*H:    128*256
    Connection Type
```

7. Turn the rotary knob, and select <Connection Type> for <Port 1>, <Port 2>, <Port 3>, <Port 4>, push the knob to confirm. G3 NET 2K support 8 kinds of connection type, including ⊐, ⊑,

⊑, ⊒, ⊔, ⊓, ⊔ and ⊓. For example:

```
    Port 1
    Wall Size    W*H:    1*1
    Panel Pixel    W*H:    128*256
->Connection Type
```

8. Turn the rotary knob, and select <Offset Settings>, push the knob to confirm, turn the rotary knob, and set Port 1/2 Offset X, Port 1/2 Offset Y, Port 3/4 Offset X as 0, and set Port 3/4 Offset Y as 256, shown as follows:

```
->Port 1/2 Offset X                 0
    Port 1/2 Offset Y               0
    Port 3/4 Offset X               0
    Port 3/4 Offset Y               256
```

9. Turn the rotary knob, and select <Position Settings>, push the knob to confirm, turn the rotary knob, and set Port 1 X Position and Port 1 Y Position as 0, set Port 2 X Position as 128, Port 2 Y Position as 0, set Port 3 X Position and Port 3 Y Position as 0, set Port 4 X Position as 128, Port 4 Y Position as 0, shown as follows:

| ->Port 1 X Position	0
Port 1 Y Position	0
Port 2 X Position	128
Port 2 Y Position	0

->Port 3 X Position	0
Port 3 Y Position	0
Port 4 X Position	128
Port 4 Y Position	0

The connection figure is shown as below:

3.11 Saving Views

G3 NET 2K provides 9 positions for saving or recording parameters. To save current parameters and settings:

1. Push the [MENU] button, and enter to the menu items. Turn the rotary knob, and select <BACKUP>, push the knob to confirm.

```
->BACKUP                        >>
   TEST PATTERN                 >>
   SYSTEM                       >>
   FACTORY RESET                >>
```

```
->Save Setup                    >>
   Load Setup                   >>
   Load single from USB         No
   Save all to USB              No
```

2. Default <Save Setup> option, push the knob and enter to the menus as follows:

```
   Save Setup
->Save9
Button Knob can be saved
Button Menu will be quit
```

3. Turn the rotary knob, and save all current settings to 1 of the 9 available slots.

3.12 Recall Saved Settings

G3 NET 2K provides 9 positions for saving or recording parameters. To recall saved settings:

1. Push the [MENU] button, and enter to the menu items. Turn the rotary knob, and select <BACKUP>, push the knob to confirm.

```
->BACKUP                        >>
   TEST PATTERN                 >>
   SYSTEM                       >>
   FACTORY RESET                >>
```

```
->Save Setup                    >>
   Load Setup                   >>
   Load single from USB         No
   Save all to USB              No
```

2. Turn the rotary knob, and select <Load Setup>, push the knob to confirm.

```
   Save Setup                   >>
->Load Setup                    >>
   Load single from USB         No
   Save all to USB              No
```

```
   Load Setup
->Save1
Button Knob is ready for Load
Button Menu will be quit
```

3. Turn the rotary knob, and select which of the 9 setups to load from USB port.

Chapter 4 Ordering Codes

4.1 Product

820-0222-01-0	G3 NET 2K w/2 ColorLight Sender Card
820-0222-02-0	G3 NET 2K w/2 Linsn Sender Card
820-0422-01-0	G3 NET 4K w/2 ColorLight Sender Card
820-0422-02-0	G3 NET 4K w/2 Linsn Sender Card

4.2 Options

4.2.1 Accessories

RAP00H0001-F5	DB9 to RJ45 cable
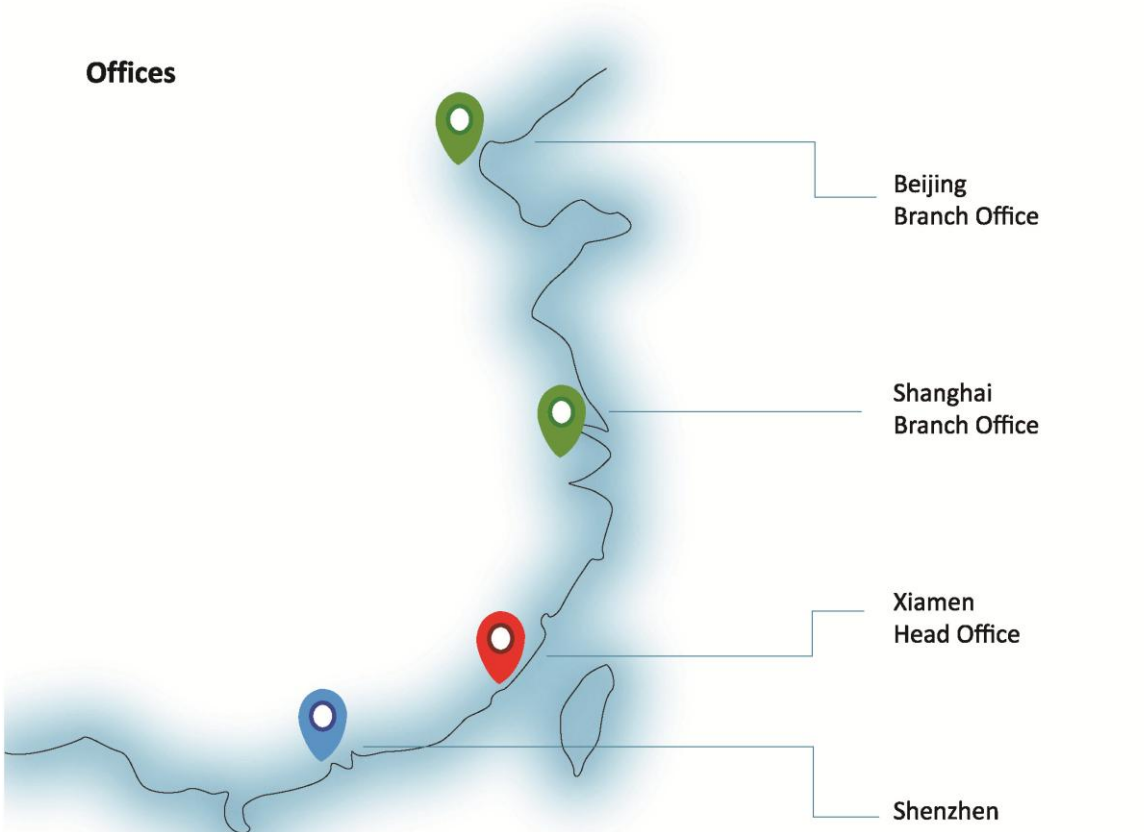
Chapter 5 Support

5.1 Contact Us

Offices

Beijing
Branch Office

Shanghai
Branch Office

Xiamen
Head Office

Shenzhen
Region Sales & Support
Centre

Web
www.rgblink.com

Phone
+86-592-577-1197

Email
Sales   sales@rgblink.com
Support   support@rgblink.com

Social Media

@RGBLINK   /rgblink   +rgblink   /rgblink   rgblink

Chapter 6 Appendix

6.1 Specification

DVI Input	
Number of Inputs	1
Connector	Standard DVI-I socket
Supported Resolution	SMPTE: 625/25/50 PAL, 525/29.97/59.94 NTSC, 1080P50/59.94/60 I 1080i50/59.94/60 I 720p50/59.94/60 VESA: 800×600@60 I 1024×768@60 I 1280×768@60 I 1280×1024@60 I 1600×1200@60 I 1920×1080@60
Signal Level	TMDS pwl, single pixel input,165MHz bandwidth
Format Standard	DVI 1.0
HDMI Input	
Number of Inputs	1
Connector	HDMI standard type A interface
Supported Resolution	SMPTE: 625/25/50 PAL, 525/29.97/59.94 NTSC, 1080P50/59.94/60 I 1080i50/59.94/60 I 720p50/59.94/60 VESA: 800×600@60 I 1024×768@60 I 1280×768@60 I 1280×1024@60 I 1600×1200@60 I 1920×1080@60
Embedded Audio Channels	Choose one from the two inputs
Format Standard	HDMI 1.3
3G-SDI Input	
Number of Inputs	1
Connector	BNC
Data Rate	2.97Gb/s, 2.97/1.001Gb/s, 1.485Gb/s, 1.485/1.001Gb/s and 270Mb/s
Supported Standard	SMPTE 425M - 3G Level A Format
Supported Resolution	SMPTE 425M (3G Level A) 4:2:2: 1920×1080/60 (1:1), 1920×1080/50 (1:1). SMPTE 274M (HD): 1920×1080I/60 (2:1) or 1920×1080/30 (PsF) I 1920×1080I/50 (2:1) or 1920×1080/25 (PsF) I 1920×1080/30 (1:1), 1920×1080/25 (1:1) I 1920×1080/24 (1:1), 1920×1080/24 (PsF) SMPTE 125M (SD): 1440×487/60 (2:1) SMPTE ITU-R BT.656 (SD): 1440×576/50 (2:1) Or dual link progressive, 625-line generic.
Balance	Belden 1694A cable: 150m at 2.97Gb/s 250m at 1.485Gb/s 480m at 270Mb/s

DVI Preview Output	
Number of Outputs	1
Connector	Standard DVI-I Socket
Signal Level	TMDS pw, 165MHz bandwidth
Supported Resolution	SMPTE: SMPTE: 625/25/50 PAL, 525/29.97/59.94 NTSC, 1080P50/59.94/60 l 1080i50/59.94/60 l 720p50/59.94/60 VESA: 720×480@50i l 720×480@60i l 1024×768@60 l 1024×768@75 l 1024×768@85 l 1280×720@50 l 1280×720@59.94 l 1280×720@60 l 1280×800@60 l 1280×1024@60 l 1280×1024@75 l 1280×1024@85 l 1360×768@60 l 1366×768@60 l 1400×1050@60 l 1440×900@60 l 1600×1200@60 l 1680×1050@60 l 1920×1080@50i l 1920×1080@59.94i l 1920×1080@60i l 1920×1080@50 l 1920×1080@59.94 l 1920×1080@60 l 1920×1200@60 l 2048×1152@60 l 2560×816@60
LAN Output	
Number of outputs	4
Connector	RJ45 interface
Supported Resolution	640 x 480 ~ 2560 x 1600（Depend on the sending card）
ART-NET In	
Number of Inputs	1
Connector	RJ45 interface
ART-NET Link	
Number of outputs	1
Connector	RJ45 interface
Extras	
Communication	RS232, USB
Power Supply	AC 85-264V, 50/60HZ, 3A, Max 35W
Working Environment	-20°C~65°C
Stored Environment	20% to 90%
Product Warranty	3 years parts and labor warranty

6.2 Art-Net DMX512 Commands

No.	Group	Function	Value	Type	Note
1		Master Brightness	0-255		
2		Output#1 Brightness/Dimmer	0-255		The functions are not ready
3		Output#2 Brightness/Dimmer	0-255		
4		Output#3 Brightness/Dimmer	0-255		
5		Output#4 Brightness/Dimmer	0-255		
6		Contrast	0-255		
7		Saturation	000:050-Negative Values 051:051-Home Position 052:255-Increased Values		
8		Control	000:010-No function 011:020-Soft reset (no settings changed, only reboot/reset) 021:189-Reserved for later use 190:195-Map function-hold values for 3 seconds 196:200-Factory Default-hold values for 30 seconds 201:255: Reserved for later use	Instant	
9		Test patterns	000:009: No Function 010:019: Test Pattern 1 020:029: Test Pattern 2 030:039: Test Pattern 3 040:049: Test Pattern 4 050:059: Test Pattern 5 060:069: Test Pattern 6 070:079: Test Pattern 7 080:089: Test Pattern 8 090:099: Test Pattern 9 100:109: Test Pattern 10 110:255: No function		
10		HDMI	000-255-Input Trigger/Brightness Control		The functions are not ready
11	Video Inputs	DVI	000-255-Input Trigger/Brightness Control		
12		SDI	000-255-Input Trigger/Brightness Control		
13	Color	Red	0-255		

14	**Control**	Green	0-255		
15		Blue	0-255		
16		H Position-coarse	000:050: Negative Values		
			051:255: Positive Values		
17		H position-fine	000:127: Negative Values		
			128:255: Positive Values		
18		V Position-coarse	000:050: Negative Values		
			051:255: Positive Values		
19		V Position-fine	000:127: Negative Values		
			128:255: Positive Values		
20		H Size-coarse	000:050: Negative Values		
			051:255: Positive Values		
21		H Size-fine	000:127: Negative Values		
			128:255: Positive Values		
22	**Image**	V Size-coarse	000:050: Negative Values		
	Layer 1		051:255: Positive Values		
23		V Size-fine	000:127: Negative Values		
			128:255: Positive Values		
24		Zoom-Center Coarse	000:127: Negative Values		
			128:255: Positive Values		
25		Zoom-Center Fine	000:127: Negative Values		
			128:255: Positive Values		
26		Zoom-Left/Right Coarse	000:127: Negative Values		
			128:255: Positive Values		
27		Zoom-Left/Right Coarse	000:127: Negative Values		
			128:255: Positive Values		
28		Zoom=Top/Bottom Coarse	000:127: Negative Values		
			128:255: Positive Values		
29		Zoom=Top/Bottom Fine	000:127: Negative Values		
			128:255: Positive Values		
30		H Position-coarse	000:050: Negative Values		
			051:255: Positive Values		
31	**Image**	H position-fine	000:127: Negative Values		
	Layer 2		128:255: Positive Values		
32		V Position-coarse	000:050: Negative Values		
			051:255: Positive Values		
33		V Position-fine	000:127: Negative Values		
			128:255: Positive Values		

34		H Size-coarse	000:050: Negative Values		
			051:255: Positive Values		
35		H Size-fine	000:127: Negative Values		
			128:255: Positive Values		
36		V Size-coarse	000:050: Negative Values		
			051:255: Positive Values		
37		V Size-fine	000:127: Negative Values		
			128:255: Positive Values		
38		Zoom-Center Coarse	000:127: Negative Values		
			128:255: Positive Values		
39		Zoom-Center Fine	000:127: Negative Values		
			128:255: Positive Values		
40		Zoom-Left/Right Coarse	000:127: Negative Values		
			128:255: Positive Values		
41		Zoom-Left/Right Coarse	000:127: Negative Values		
			128:255: Positive Values		
42		Zoom=Top/Bottom Coarse	000:127: Negative Values		
			128:255: Positive Values		
43		Zoom=Top/Bottom Fine	000:127: Negative Values		
			128:255: Positive Values		
44		Port 1/2 Master Horizontal Start-coarse	000:050: Negative Values		
			051:255: Positive Values		
45		Port 1/2 Master Horizontal Start-fine	000:050: Negative Values		
			051:255: Positive Values		
46		Port 1/2 Master Vertical Start-coarse	000:050: Negative Values		
			051:255: Positive Values		
47		Port 1/2 Master Vertical Start-fine	000:050: Negative Values		
			051:255: Positive Values		
48		Port 3/4 Master Horizontal Start-coarse	000:050: Negative Values	Command Base	
			051:255: Positive Values		
49		Port 3/4 Master Horizontal Start-fine	000:050: Negative Values		
			051:255: Positive Values		
50		Port 3/4 Master Vertical Start-coarse	000:050: Negative Values		
			051:255: Positive Values		
51		Port 3/4 Master Vertical Start-fine	000:050: Negative Values		
			051:255: Positive Values		
52	Port 1	H Position-coarse	051:255: Positive Values		
53		H position-fine	000:127: Negative Values		
			128:255: Positive Values		
54			000:050: Negative Values		

		V Position-coarse	051:255: Positive Values		
55			000:127: Negative Values		
		V Position-fine	128:255: Positive Values		
56	Port 2		000:127: Negative Values		
		H Position-coarse	051:255: Positive Values		
57			000:127: Negative Values		
		H position-fine	128:255: Positive Values		
58			000:050: Negative Values		
		V Position-coarse	051:255: Positive Values		
59			000:127: Negative Values		
		V Position-fine	128:255: Positive Values		
60	Port 3	H Position-coarse	051:255: Positive Values		
61			000:127: Negative Values		
		H position-fine	128:255: Positive Values		
62			000:050: Negative Values		
		V Position-coarse	051:255: Positive Values		
63			000:127: Negative Values		
		V Position-fine	128:255: Positive Values		
64	Port 4		000:127: Negative Values		
		H Position-coarse	051:255: Positive Values		
65			000:127: Negative Values		
		H position-fine	128:255: Positive Values		
66			000:050: Negative Values		
		V Position-coarse	051:255: Positive Values		
67			000:127: Negative Values		
		V Position-fine	128:255: Positive Values		
68	Port 1	Panel Quantity-columns	0-255		
69		Panel Quantity-rows	0-255		
70		pixels/panel-Horizontal coarse	0-255		
71		pixels/panel-Horizontal fine	0-255		
72		pixels/panel-Vertical coarse	0-255		
73		pixels/panel-Vertical fine	0-255		
74		Connection Style	000-009: no function		
			010-019: Top, Left Z		
			020-029: Top, Right Z		
			030-039: Bottom, Left Z		
			040-049: Bottom, Right Z		
			050-059: Top, Left N		
			060-069: Top, Right N		

			070-079: Bottom, Left N		
			080-089: Bottom, Right N		
			081-255: Reserved		
75	**Port 2**	Panel Quantity-columns	0-255		
76		Panel Quantity-rows	0-255		
77		pixels/panel-Horizontal coarse	0-255		
78		pixels/panel-Horizontal fine	0-255		
79		pixels/panel-Vertical coarse	0-255		
80		pixels/panel-Vertical fine	0-255		
81		Connection Style	000-009: no function		
			010-019: Top, Left Z		
			020-029: Top, Right Z		
			030-039: Bottom, Left Z		
			040-049: Bottom, Right Z		
			050-059: Top, Left N		
			060-069: Top, Right N		
			070-079: Bottom, Left N		
			080-089: Bottom, Right N		
			081-255: Reserved		
82	**Port 3**	Panel Quantity-columns	0-255		
83		Panel Quantity-rows	0-255		
84		pixels/panel-Horizontal coarse	0-255		
85		pixels/panel-Horizontal fine	0-255		
86		pixels/panel-Vertical coarse	0-255		
87		pixels/panel-Vertical fine	0-255		
88		Connection Style	000-009: no function		
			010-019: Top, Left Z		
			020-029: Top, Right Z		
			030-039: Bottom, Left Z		
			040-049: Bottom, Right Z		
			050-059: Top, Left N		
			060-069: Top, Right N		
			070-079: Bottom, Left N		
			080-089: Bottom, Right N		
			081-255: Reserved		
89	**Port 4**	Panel Quantity-columns	0-255		
90		Panel Quantity-rows	0-255		
91		pixels/panel-Horizontal coarse	0-255		
92		pixels/panel-Horizontal fine	0-255		

93		pixels/panel-Vertical coarse	0-255		
94		pixels/panel-Vertical fine	0-255		
95		Connection Style	000-009: no function		
			010-019: Top, Left Z		
			020-029: Top, Right Z		
			030-039: Bottom, Left Z		
			040-049: Bottom, Right Z		
			050-059: Top, Left N		
			060-069: Top, Right N		
			070-079: Bottom, Left N		
			080-089: Bottom, Right N		
			081-255: Reserved		

6.3 Software Upgrade

Ensure the power supply is stable before upgrading software, and power failure is not allowed during upgrading.

1. Connect to PC via a VGA to RJ45 cable.
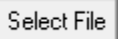
2. Start up the G3 NET 2K.

3. Double click the software and enter to the program interface.

4. Click the icon , and pop-up the window as follows, select the serial No., and set the baud rate as 115200, then select "OK".
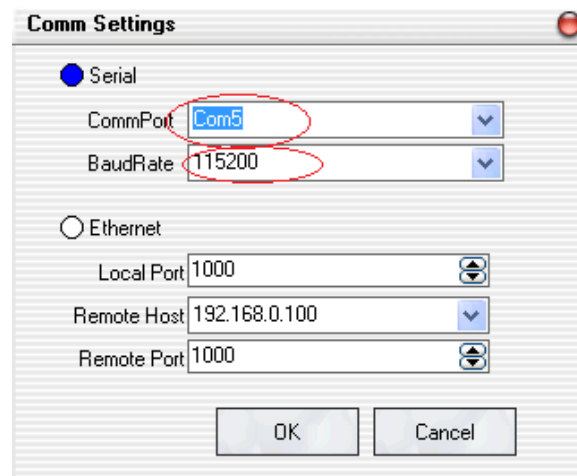
5. Select "Select File" , then pop-up the window as follows, and load the *.bin program file:
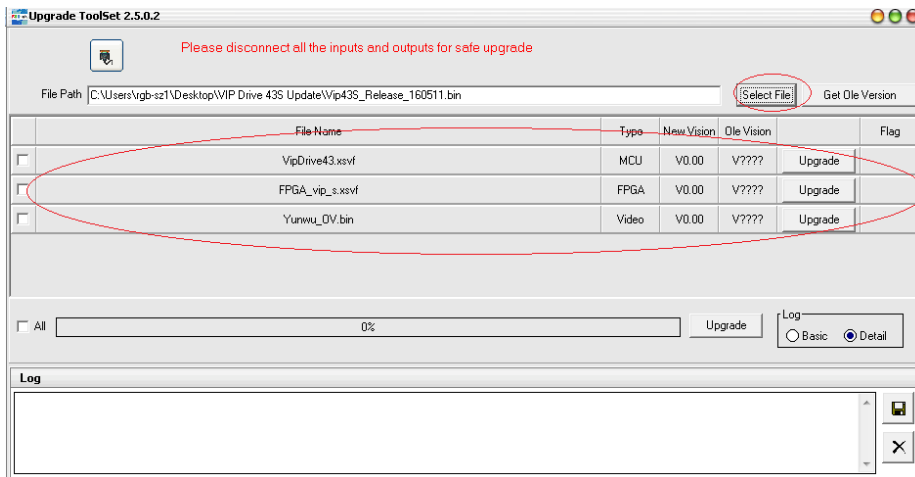
6. Click to select all program files, or select one of them, then click to start upgrade:
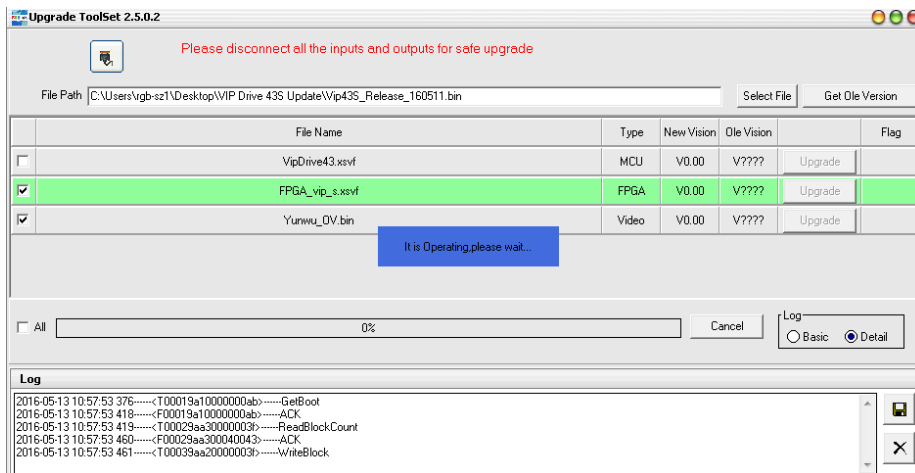
7. During upgrading, the upgrading files is marked with light green for distinguishing, and prompt with , power failure is not allowed now.
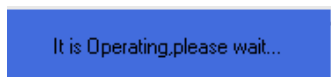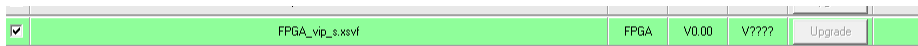
Additionally, the communication status is shown in Log area.
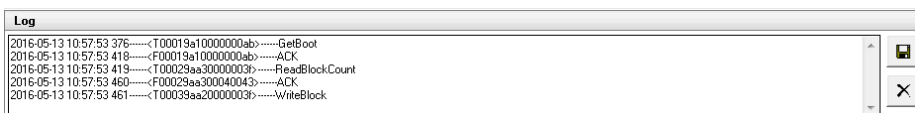
8. After upgrading, the light green is disappear, and the progress bar shows "100%".

	File Name	Type	New Vision	Ole Vision		Flag
☐	VipDrive43.xsvf	MCU	V0.00	V????	Upgrade	
☑	FPGA_vip_s.xsvf	FPGA	V0.00	V????	Upgrade	OK
☑	Yunwu_OV.bin	Video	V0.00	V????	Upgrade	OK

☐ All [100%] Upgrade   Log ○ Basic ◉ Detail

9. Confirm again if the file is upgraded successfully. Disconnect the power and reboot the device.

6.4 Terms & Definitions

The following terms and definitions are used throughout this guide.

- **"ASCII":** American Standard for Information Interchange. The standard code consisting of 7-bit coded characters (8 bits including parity check) used to exchange information between data processing systems, data communication systems, and associated equipment. The ASCII set contains control characters and graphic characters.

- **"Aspect ratio":** The relationship of the horizontal dimension to the vertical dimension of an image. In viewing screens, standard TV is 4:3, or 1.33:1; HDTV is 16:9, or 1.78:1. Sometimes the ":1" is implicit, making TV = 1.33 and HDTV = 1.78.

- **"AV":** Audio visual, or audio video.

- A **"Background"** is an unscaled source, typically originating from a computer. A background source appears at the system's lowest priority — visually in back of all other sources.

- **"Baudrate":** Named of J.M.E. Baudot, the inventor of the Baudot telegraph code. The number of the electrical oscillations per second, called baud rate. Related to, but not the same as, transfer rate in bits per second (bps).

- **"Blackburst":** The video waveform without the video elements. It includes the vertical sync, horizontal sync, and the chroma burst information. Blackburst is used to synchronize video equipment to align the video output. One signal is normally used to set up an entire video system or facility. Sometimes it is called House sync.

- **"BNC":** Bayonet Neill-Concelman. A cable connector used extensively in television and named for its inventors. A cylindrical bayonet connector that operates with a twist-locking motion. To make the connection, align the two curved grooves in the collar of the male connector with the two projections on the outside of the female collar, push, and twist. This allows the connector to lock into place without tools.

- **"Brightness":** Usually refers to the amount or intensity of video light produced on a screen without regard to color. Sometimes called "black level.

- "**CAT 5**": Category 5. Describes the network cabling standard that consists of four unshielded twisted pairs of copper wire terminated by RJ-45 connectors. CAT 5 cabling supports data rates up to 100 Mbps. CAT 5 is based on the EIA/TIA 568 Commercial Building Telecommunications Wiring Standard.

- **"Color bars":** A standard test pattern of several basic colors (white, yellow, cyan, green, magenta, red, blue, and black) as a reference for system alignment and testing. In NTSC video, the most commonly used color bars are the SMPTE standard color bars. In PAL video, the most commonly used color bars are eight full field bars. In the computer, the most commonly used color bars are two rows of reversed color bars.

- **"Color burst":** In color TV systems, a burst of subcarrier frequency located on the back porch of the composite video signal. This serves as a color synchronizing signal to establish a frequency and phase reference for the chroma signal. Color burst is 3.58 MHz for NTSC and 4.43 MHz for PAL.

- **"Color temperature":** The color quality, expressed in degrees Kelvin(K), of a light source. The higher the color temperature, the bluer the light. The lower the temperature, the

redder the light. Benchmark color temperature for the A/V industry include 5000°K, 6500°K, and 9000°K.

- **"Contrast ratio":** The radio of the high light output level divided by the low light output level. In theory, the contrast radio of the television system should be at least 100:1, if not 300:1. In reality, there are several limitations. In the CRT, light from adjacent elements contaminate the area of each element. Room ambient light will contaminate the light emitted from the CRT. Well-controlled viewing conditions should yield a practical contrast ratio of 30:1 to 50:1.

- **"DVI":** Digital Visual Interface. The digital video connectivity standard that was developed by DDWG (Digital Display Work Group). This connection standard offers two different connectors: one with 24 pins that handles digital video signals only, and one with 29 pins that handles both digital and analog video.

- **"EDID":** Extended Display Identification Data – EDID is a data structure used to communicate video display information, including native resolution and vertical interval refresh rate requirements, to a source device. The source device will then output the optimal video format for the display based on the provided EDID data, ensuring proper video image quality. This communication takes place over the DDC – Display Data Channel.

- **"Ethernet":** A Local Area Network (LAN) standard officially known as IEEE 802.3. Ethernet and other LAN technologies are used for interconnecting computers, printers, workstations, terminals, servers, etc. within the same building or campus. Ethernet operates over twisted pair and over coaxial cable at speeds starting at 10Mbps. For LAN interconnectivity, Ethernet is physical link and data link protocol reflecting the two lowest layers of the OSI Reference Model.

- **"Frame":** In interlaced video, a frame is one complete picture. A video frame is made up of two fields, or two sets of interlaced lines. In a film, a frame is one still picture of a series that makes up a motion picture.

- **"Gamma":** The light output of a CRT is not linear with respect to the voltage input. The difference between what you should have and what is actually output is known as gamma.

- **"HDMI" - High – Definition Multimedia Interface:** An interface used primarily in consumer electronics for the transmission of uncompressed high definition video, up to 8 channels of audio, and control signals, over a single cable. HDMI is the de facto standard for HDTV displays, Blu-ray Disc players, and other HDTV electronics. Introduced in 2003, the HDMI specification has gone through several revisions.

- **"HDSDI":** The high-definition version of SDI specified in SMPTE-292M. This signal standard transmits audio and video with 10 bit depth and 4:2:2 color quantization over a single coaxial cable with a data rate of 1.485 Gbit/second. Multiple video resolutions exists including progressive 1280x720 and interlaced 1920x1080 resolution. Up to 32 audio signals are carried in the ancillary data.

- **"JPEG" (Joint photographic Expects Group):** Commonly used method of lossy compression for photographic images using a discreet cosine transfer function. The degree of compression can be adjusted, allowing a selectable tradeoff between storage size and image quality. JPEG typically achieves 10:1 compression with little perceptible loss in image quality. Produces blocking artifacts.

- **"MPEG":** Motion Picture Expect Group. A standard committee under the auspices of the

International Standards Organization working on algorithm standards that allow digital compression, storage and transmission of moving image information such as motion video, CD-quality audio, and control data at CD-ROM bandwidth. The MPEG algorithm provides inter-frame compression of video images and can have an effective compression rate of 100:1 to 200:1.

- **"NTSC":** The color video standard used in North America and some other parts of the world created by the National Television Standards Committee in the 1950s. A color signal must be compatible with black-and-white TV sets. NTSC utilizes an interlaced video signals, 525 lines of resolution with a refresh rate of 60 fields per second (60 Hz). Each frame is comprised of two fields of 262.5 lines each, running at an effective rate of 30 frames per second.

- **"Operator":** Refers to the person who uses the system.

- **"PAL":** Phase Alternate Line. A television standard in which the phase of the color carrier is alternated from line to line. It takes four full pictures (8 fields) for the color-to-horizontal phase relationship to return to the reference point. This alternation helps cancel out phase errors. For this reason, the hue control is not needed on a PAL TV set. PAL, in many transmission forms, is widely used in Western Europe, Australia, Africa, the Middle East, and Micronesia. PAL uses 625-line, 50-filed (25 fps) composite color transmission system.

- **"PIP":** Picture-in-Picture. A small picture within a larger picture created by scaling down one of the images to make it smaller. Each picture requires a separate video source such as a camera, VCR, or computer. Other forms of PIP displays include Picture-by-Picture (PBP) and Picture-with-Picture (PWP), which are commonly used with 16:9 aspect display devices. PBP and PWP image formats require a separate scaler for each video window.

- **"Polarity":** The positive and negative orientation of a signal. Polarity usually refers to the direction or a level with respect to a reference (e.g. positive sync polarity means that sync occurs when the signal is going in the positive direction).

- **"RJ-45":** Registered Jack-45. A connector similar to a telephone connector that holds up to eight wires, used for connecting Ethernet devices.

- "**RS-232**": An Electronic Industries Association (EIA) serial digital interface standard specifying the characteristics of the communication path between two devices using either DB-9 or DB-25 connectors. This standard is used for relatively short-range communication and does not specify balanced control lines. RS-232 is a serial control standard with a set number of conductors, data rate, word length, and type of connector to be used. The standard specifies component connection standards with regard to the computer interface. It is also called RS-232-C, which is the third version of the RS-232 standard, and is functionally identical to the CCITT V.24 standard.

- **"Saturation":** Chroma, chroma gain. The intensity of the color, or the extent to which a given color in any image is free from white. The less white in a color, the truer the color or the greater its saturation. On a display device, the color control adjusts the saturation. Not to be confused with the brightness, saturation is the amount of pigment in a color, and not the intensity. Low saturation is like adding white to the color. For example, a low-saturated red looks pink.

- **"Scaling":** A conversion of a video or computer graphic signal from a starting resolution to a new resolution. Scaling from one resolution to another is typically done to optimize the

signal for input to an image processor, transmission path or to improve its quality when presented on a particular display.

- **"SDI":** Serial Digital Interface. The standard based on a 270 Mbps transfer rate. This is a 10-bit, scrambled, polarity independent interface with common scrambling for both component ITU-R 601 and composite digital video and four channels of (embedded) digital audio.

- **"Seamless Switching":** A feature found on many video switchers. This feature causes the switcher to wait until the vertical interval to switch. This avoid a glitch (temporary scrambling) which normally is seen when switching between sources.

- **"SMPTE":** Society of Motion Picture and Television Engineers. A global organization, based in the United States, that sets standards for baseband visual communications. This includes film as well as video and television standards.

- **"S-Video":** A composite video signal separated into the luma ("Y" is for luma, or black and white information; brightness) and the chroma ("C" is an abbreviation for chroma, or color information).

- **"Sync":** Synchronization. In video, sync is a means of controlling the timing of an event with respect to other events. This is accomplished with timing pulses to insure that each step in a process occurs at the correct time. For example, horizontal sync determines exactly when to begin each horizontal scan line. Vertical sync determines when the image is to be refreshed to start a new field or frame. There are many other types of sync in video system.(Also known as "sync signal" or "sync pulse.")

- **"TCP/IP":** Transmission Control Protocol/Internet Protocol. The communication protocol of the Internet. Computers and devices with direct access to the Internet are provided with a copy of the TCP/IP program to allow them to send and receive information in an understandable form.

- **"USB":** Universal Serial Bus. USB was developed by seven PC and telecom industry leaders (Compaq, DEC, IBM, Intel, Microsoft, NEC, and Northern Telecom). The goal was easy plug-and-play expansion outside the box, requiring no additional circuit cards. Up to 127 external computer devices may be added through a USB hub, which may be conveniently located in a keyboard or monitor. USB devices can be attached or detached without removing computer power. The number of devices being designed for USB continues to grow, from keyboards, mice, and printers to scanners, digital cameras, and ZIP drives.

- **"VESA":** Video Electronics Standards Association. A nonprofit number organization dedicated to facilitating and promoting personal computer graphics through improved standards for the benefit of the end-user. www.vesa.org

- **"VGA":** Video Graphics Array. Introduced by IBM in 1987, VGA is an analog signal with TTL level separate horizontal and vertical sync. The video outputs to a 15-pin HD connector and has a horizontal scan frequency of 31.5 kHz and vertical frequency of 70 Hz (Mode 1, 2) and 60 Hz (Mode 3). The signal is non-interlaced in modes 1, 2, and 3 and interlaced when using the 8514/A card (35.5 kHz, 86 Hz) in mode 4. It has a pixel by line resolution of 640×480 with a color palette of 16 bits and 256,000 colors.

- **"YCrCb":** Used to describe the color space for interlaced component video.

- **"YPbPr":** Used to describe the color space for progressive-scan (non-interlaced) component video.

6.5 Revision History

The table below lists the changes to the Video Processor User Manual.

Format	Time	ECO#	Description	Principal
V1.0	2017-01-18	0000#	Release	Vira