

VX400s-N

All-in-One Controller



User Manual

Change History

| Document Version | Release Date | Description |
|------------------|--------------|---------------|
| V1.0.0 | 2023-07-03 | First release |

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1 Introduction

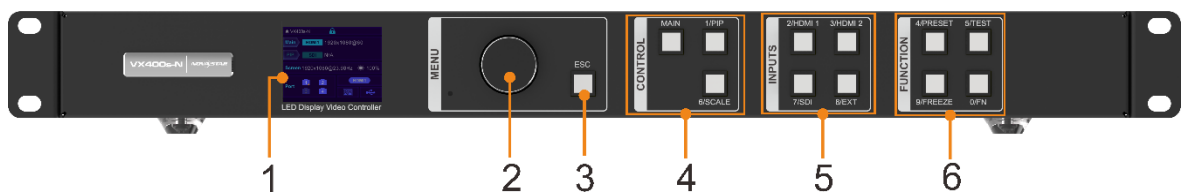
The VX400s-N is NovaStar's new all-in-one controller that integrates video processing and video control into one box. It features 4 Ethernet ports. A VX400s-N unit can drive up to 2.6 million pixels, with the maximum output width and height both up to 3840 pixels.

The VX400s-N is capable of receiving a variety of video signals and processing high-resolution images. In addition, the device features stepless output scaling and chroma calibration and more, to present you with an excellent image display experience.

Thanks to its powerful video processing and sending capabilities and other outstanding features, the VX400s-N can be widely used applications such as rental, stage control systems and fin-pitch LED screens.

2 Appearance

Front Panel



| No. | Area | Function |
|-----|---------------------------|---|
| 1 | LCD screen | Display the device status, menus, submenus and messages. |
| 2 | Knob | <ul style="list-style-type: none"> Rotate the knob to select a menu item or adjust the parameter value. Press the knob to confirm the setting or operation. |
| 3 | ESC button | Exit the current menu or cancel an operation. |
| 4 | Control area | <ul style="list-style-type: none"> MAIN/PIP: Open or close a layer, and show the layer status. <ul style="list-style-type: none"> On (blue): The layer is opened. Flashing (blue): The layer is being edited. On (white): The layer is closed. SCALE: A shortcut button for the full screen function. Press the button to make the layer of the lowest priority fill the entire screen. <ul style="list-style-type: none"> On (blue): Full screen scaling is turned on. On (white): Full screen scaling is turned off. |
| 5 | Input source buttons | Show the input source status and switch the layer input source. Status LEDs: <ul style="list-style-type: none"> On (blue): An input source is accessed. Flashing (blue): The input source is not accessed but used by the layer. On (white): The input source is not accessed or the input source is abnormal. |
| 6 | Shortcut function buttons | <ul style="list-style-type: none"> PRESET: Access the preset settings menu. TEST: Access the test pattern menu. FREEZE: Freeze the output image. FN: A customizable button |

Note:

Hold on the knob and **ESC** button simultaneously for 3s or longer to lock or unlock the front panel buttons.

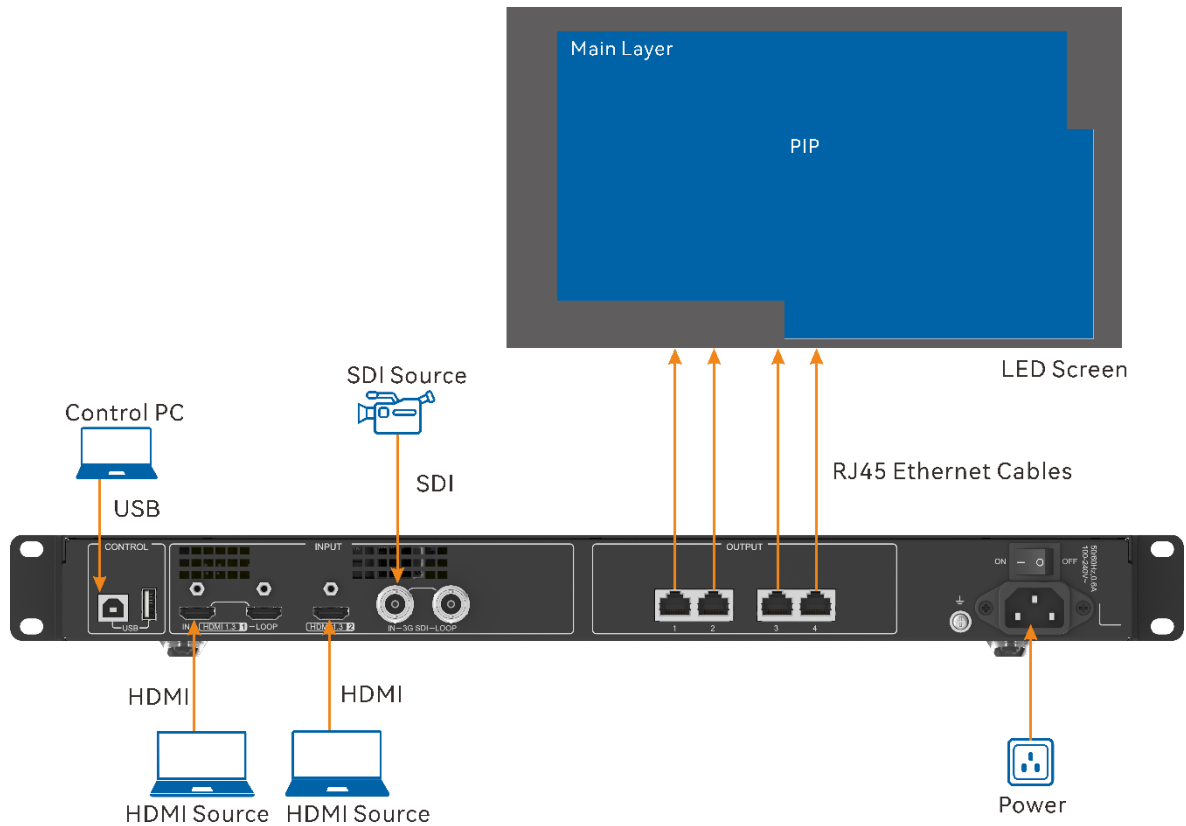
Rear Panel



| Input Connectors | | |
|--------------------|-----|--|
| Connector | Qty | Description |
| 3G-SDI | 1 | <ul style="list-style-type: none"> • ST-424 (3G), ST-292 (HD) and ST-259 (SD) standard video inputs supported • Max. input resolution: 1920×1080@60Hz • Deinterlacing processing supported • 3G-SDI loop output supported • Does Not support input resolution and bit depth settings. • Does Not support the signal source in Level B format. |
| HDMI 1.3 | 2 | <ul style="list-style-type: none"> • Max. input resolution: 2K×1K@60Hz • HDCP 1.4 compliant • Does Not support deinterlacing processing. • Does Not support interlaced signal inputs. • Custom resolutions supported <ul style="list-style-type: none"> – Max. width: 3840 (3840×600@60Hz) – Max. height: 1920 (800×1920@60Hz) – Force inputs supported: 600×3840@60Hz • Accompanied audio input supported • Loop output supported on HDMI 1.3-1 |
| Output Connectors | | |
| Connector | Qty | Description |
| Ethernet ports | 4 | <p>Gigabit Ethernet port</p> <ul style="list-style-type: none"> • Max. loading capacity: 2.6 million pixels • Max. width: 3840 pixels • Max. height: 3840 pixels <p>Only Ethernet port 1 supports audio output. When you use a multifunction card to parse the audio, be sure to connect the card to Ethernet port 1.</p> <p>Status LEDs:</p> <ul style="list-style-type: none"> • The top left one (green) indicates the connection status. <ul style="list-style-type: none"> – On: The port is well connected. – Flashing: The port is not well connected, such as loose connection. – Off: The port is not connected. • The top right one (yellow) indicates the communication status. <ul style="list-style-type: none"> – On: The Ethernet cable is short-circuited. – Flashing: The communication is good and data is being transmitted. – Off: No data transmission |
| Control Connectors | | |
| Connector | Qty | Description |
| USB | 2 | <ul style="list-style-type: none"> • USB (Type-B): <ul style="list-style-type: none"> – Connect to the control PC. |

| | | |
|--|--|---|
| | | <ul style="list-style-type: none"> - Input connector for device cascading • USB (Type-A): Output connector for device cascading |
|--|--|---|

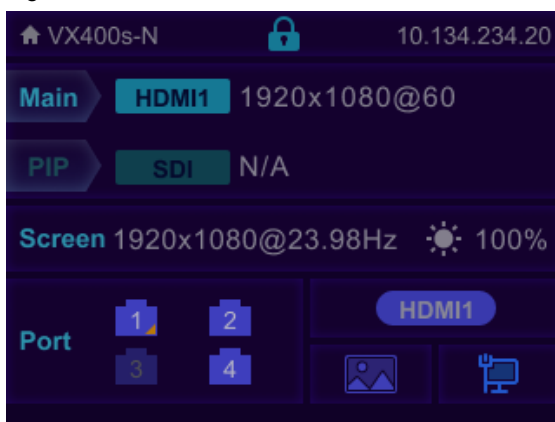
3 Applications




















4 Home Screen

4.1 Home Screen

Figure 4-1 Home Screen



| Icon | Description |
|---------------|-----------------------|
| VX400s-N | The device name |
| 10.134.234.20 | The device IP address |

| Icon | Description |
|---|--|
| <ul style="list-style-type: none"> • Main • PIP | The layer input source and resolution |
| Screen | The current screen resolution |
|  | The screen brightness, 0% (black) to 100% (brightest) |
| Port | <p>The Ethernet port number and port status</p> <ul style="list-style-type: none"> • : The Ethernet port is connected and serves as the primary output port. • : The Ethernet port is not connected. • : The Ethernet port is connected and serves as the backup output port. • When  at the bottom right flashes, there is data transmission on the port. |
| Synchronization | <p>The sync status and sync source</p> <ul style="list-style-type: none"> • : The sync function is enabled and the synchronization succeeded. Sync source: HDMI • : The sync function is enabled and the synchronization is in progress. Sync source: HDMI • : The sync function is enabled but the synchronization failed. Sync source: HDMI • : The sync function is not enabled. HDMI indicates the sync source you used last time. |
| Display control | <p>The output image status</p> <ul style="list-style-type: none"> • : The output image is displayed. • : The output is black. • : The output image is frozen. • : The test pattern is shown. |
| Connection method | <ul style="list-style-type: none"> • : The device processes USB information to Ethernet information. • : The device does not process USB information to Ethernet information. • : The device is connected to the control PC via a USB port. • : The device is in cascading mode via a USB port. |

5 Menu Operations

Operating Instructions

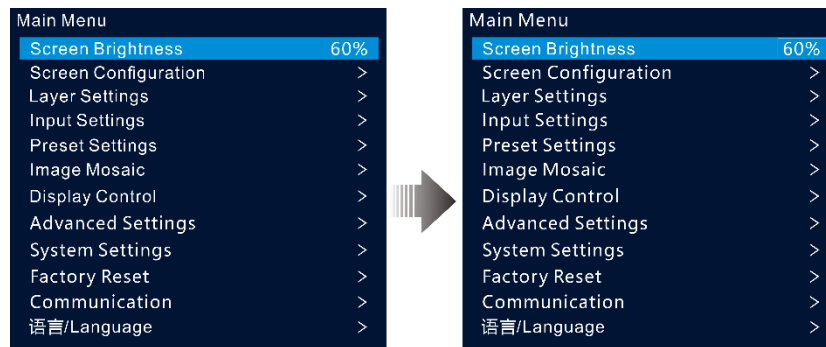
- Knob:
 - On the home screen, press the knob to enter the operation menu screen.
 - On the operation menu screen, rotate the knob to select a menu item and press the knob to confirm the selection or enter the submenu.
 - When a menu item with parameters is selected, you can rotate the knob to adjust the parameters. Please note that after the adjustment, you need to press the knob again to confirm the adjustment.
- **ESC**: Exit the current menu or cancel an operation.
- Hold down the knob and ESC button simultaneously for 3s or longer to lock or unlock the front panel buttons.

After the settings, if you need to shut down the device, please wait at least 5 seconds; otherwise, the parameter settings may not be saved.

5.1 Screen Brightness

Screen brightness allows you to adjust the LED screen brightness in an eye-friendly way according to the current ambient illuminance. Besides, appropriate adjustment of screen brightness can extend the service life of the LED screen.

Figure 5-1 Screen brightness



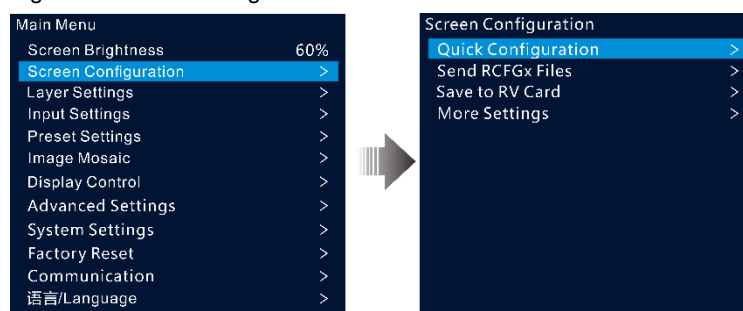
- Step 1 On the home screen, press the knob to enter the main menu screen.
- Step 2 Select **Screen Brightness** and press the knob to confirm the selection.
- Step 3 Rotate the knob to adjust the brightness value. You can see the adjustment result on the LED screen in real time. Press the knob to apply the brightness you set when you are satisfied with it.

5.2 Screen Configuration

Screen configuration allows you to perform the following operations, including configuring the screen, sending the cabinet configuration file, saving configuration to the receiving card and setting output frame rate.

On the home screen, press the knob to enter the main menu screen. Rotate the knob to select **Screen Configuration** and press the knob to enter the screen configuration screen.

Figure 5-2 Screen configuration



5.2.1 Quick Configuration

When the LED screen is a regular one composed of cabinets from the same batch, you can use the quick configuration function to configure the LED screen.

Prerequisites

- The LED screen must be a regular one.
- The cabinets of the screen must be regular cabinets with the same resolution.

- The following data flow settings are supported. During data flow settings, ensure that each port's physical connection is along the same direction and downward to the next one.
- During data flow settings, ensure that Ethernet Port 1 is at the beginning of the actual physical connection.

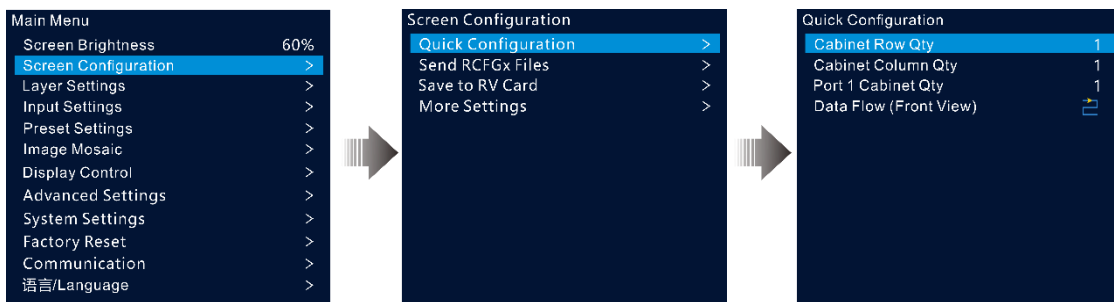
Figure 5-3 Data flow



Operating Procedure

- Step 1 On the main menu screen, rotate the knob to go to **Screen Configuration > Quick Configuration** to enter the quick configuration screen.
- Step 2 Set **Cabinet Row Qty** and **Cabinet Column Qty** according to the cabinets' actual row and column quantities.

Figure 5-4 Quick configuration



- Step 3 Rotate the knob to select **Port 1 Cabinet Qty** to set the quantity of the cabinets loaded by Ethernet port 1.

Notes:

- Cabinets loaded by Ethernet port 1 \geq cabinets loaded by Ethernet port 2 \geq ... \geq cabinets loaded by Ethernet port 10
- The number of cabinets loaded by each Ethernet port must be an integer multiple of **Cabinet Row Qty** or **Cabinet Column Qty** of the screen.
- The total pixels of the cabinets loaded by Ethernet port 1 cannot exceed 650,000.

- Step 4 Rotate the knob to select **Data Flow (Front View)** and press the knob to confirm. Select a physical connection for the cabinets.

During data flow settings, you can see the result on the LED screen in real-time. If the entire screen displays content correctly, that is, no overlapping or repetition, press the knob to save the settings.

5.2.2 Send Cabinet Configuration File

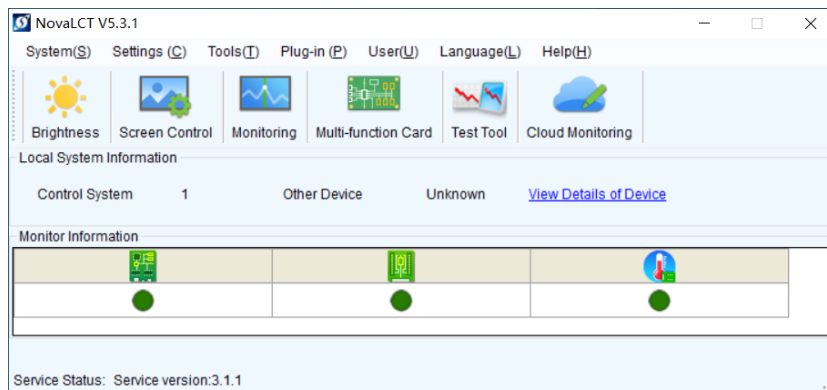
After the LED screen is powered on, if a cabinet or the whole LED screen can not be lit, you can update the configuration file in the cabinet and re-light the cabinet by using this function. Then you can perform the screen configuration and the screen can display the output image as usual.

The cabinet configuration file is a file with the suffix ".rcfgx", which stores the module, cabinet, data flow information and more.

Add Cabinet Configuration File

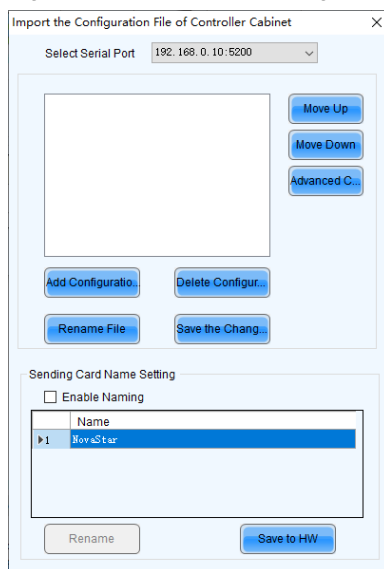
- Step 1 Run the NovalCT software. On the menu bar, go to **User > Advanced Synchronous System User Login**.

Figure 5-5 Log in to NovaLCT



Step 2 Go to **Tools > Controller Cabinet Configuration File Import** to enter the controller cabinet configuration file importing page.

Figure 5-6 Import cabinet configuration file



Step 3 Click **Add Configuration File** and select the desired file from the window that appears.

Step 4 Click **Save the Change to HW** to save the configuration file to the device.

Send Cabinet Configuration File

After you have added the cabinet configuration file to the device via NovaLCT, you can send the configuration file to the receiving cards in the cabinets of the LED screen.

Step 1 On the main menu screen, rotate the knob to go to **Screen Configuration > Send RCFGx Files**.

Step 2 Rotate the knob to select the desired configuration file and press the knob to confirm. The system will automatically send the selected file to all the receiving cards of the LED screen.

5.2.3 Save to RV Card

After the screen configuration information is sent to the receiving card, you can save the configuration to the card by using this function so that the configuration data will not be lost after a power failure.

On the main menu screen, go to **Screen Configuration > Save to RV Card** and press the knob to confirm.

5.2.4 Output Frame Rate

This function allows you to set the frame rate of the output. The frame rate defaults to 60 Hz.

On the main menu screen, go to **Screen Configuration > More Settings > Output Frame Rate**. Rotate the knob to select the desired frame rate and press the knob to confirm.

The supported frame rates include 23.98Hz, 24Hz, 25Hz, 29.97Hz, 30Hz, 47Hz, 48Hz, 50Hz, 59.94Hz, 60Hz, 71.93Hz, 72Hz, 75Hz, 85Hz, 95Hz, 100Hz, 119.88Hz, 120Hz.

5.3 Layer Settings

The VX400s-N supports two layers. The layer properties and settings are shown in [Table 5-1](#).

Table 5-1 Layer properties

| Menu | Description |
|--------------|---|
| Status | Open or close the layer. The main layer is opened and PIP layer is closed by default. |
| Input source | Select an input source for the current layer. Note: Press an input source button in the SOURCE area on the device front panel to quickly select an input source for the layer. |
| Scaling Mode | The layer supports the following three scaling modes. <ul style="list-style-type: none"> • Full Screen: The layer image fills the whole screen. • Pixel to Pixel: The layer image is not scaled but displayed in the original size of the input source or the cropped source. • Custom: Customize the layer size and the output image is scaled according to the layer size. |
| H Width | Set the layer size in the horizontal direction. The width value ranges from 64 to 32768. |
| V Height | Set the layer size in the vertical direction. The height value ranges from 64 to 32768. |
| Initial X | Set the horizontal distance between the top left corner of the layer and the top left corner of the screen. |
| Initial Y | Set the vertical distance between the top left corner of the layer and the top left corner of the screen. |
| Priority | Adjust the layer z-order. The greater the value, the more front the layer. The value ranges from 1 to 2. <ul style="list-style-type: none"> • 1: The layer locates at the bottom. • 2: The layer locates on the top. |
| Input Crop | Crop the input source image and display the cropped part on full screen. <ul style="list-style-type: none"> • Status: Turn on or turn off the cropping function. • H Width: The size of the cropped part in the horizontal direction. The value ranges from 64 to the width of the current input source. • V Height: The size of the cropped part in the vertical direction. The value ranges from 64 to the height of the current input source. • Initial X: Set the start position for the cropping in the horizontal direction. The value defaults to 0. • Initial Y: Set the start position for the cropping in the vertical direction. The value defaults to 0. |

5.3.1 Add Layers

Button Operations

Step 1 Press the **MAIN, 1/PIP** button in the **CONTROL** area on the device front panel to quickly open the layer and the device screen displays the corresponding layer settings screen.

- MAIN: Main layer
- PIP: PIP layer

Step 2 Press an input source button in the **INPUTS** area to quickly select an input source for the layer.

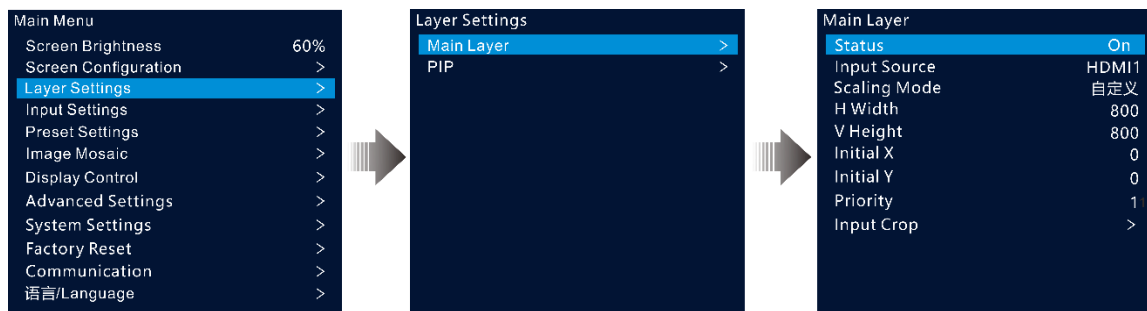
Menu Operations

Step 1 On the home screen, press the knob to enter the main menu screen.

Step 2 Rotate the knob to select **Layer Settings** and press the knob to enter the layer settings screen.

Step 3 Rotate the knob to select **Main Layer, PIP** and press the knob to enter the corresponding settings screen.

Figure 5-7 Layer settings

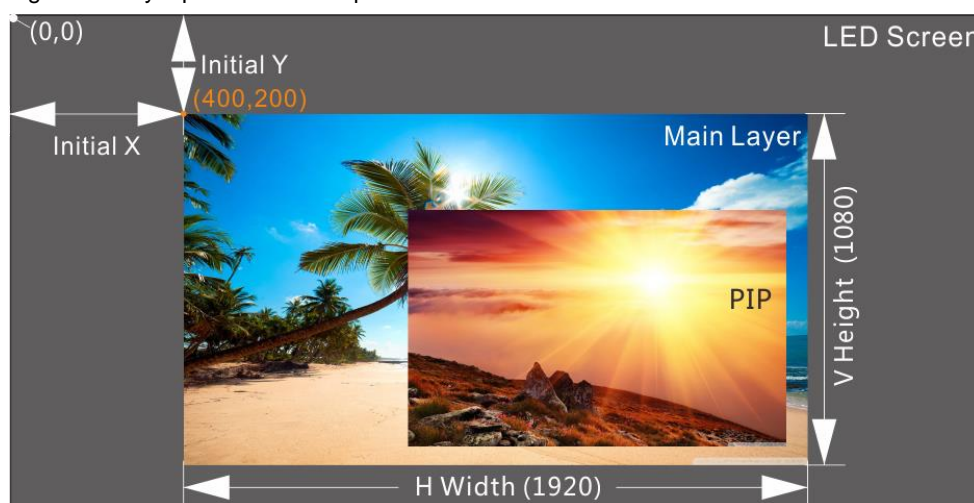


Step 4 Select **Status** and press the knob to confirm. Rotate the knob again to select **On** and press the knob to confirm.

Step 5 Rotate the knob to select **Input Source** and select the desired input source for the layer.

Step 6 Rotate the knob to select other layer parameters and set them if needed. The layer parameter descriptions are shown in [Table 5-1](#) and [Figure 5-8](#).

Figure 5-8 Layer parameter descriptions



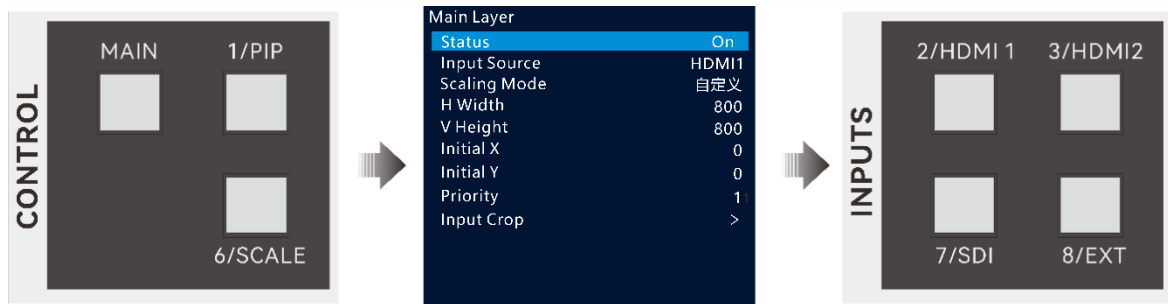
Step 7 Rotate the knob to select **Priority** and set the layer z-order.

5.3.2 Switch Layer Input Sources

Button Operations

- Step 1 Press the **MAIN, 1/PIP** button in the **CONTROL** area on the device front panel to quickly open the layer and the device screen displays the corresponding layer settings screen.
- Step 2 After pressed, the layer button becomes flashing.
- Step 3 Press an input source button in the **INPUTS** area to quickly switch the layer input source.

Figure 5-9 Switch layer input sources



Notes:

- When switching the input source of the main layer, you do not need to press the **MAIN** button first. Press an input source button directly.
- Press the **SCALE** button to make the bottom layer fill the whole screen quickly.

Menu Operations

- Step 1 On the home screen, press the knob to enter the main menu screen.
- Step 2 Go to **Layer Settings > Main Layer/PIP > Input Source** to enter the input source settings screen.
- Step 3 Rotate the knob to select the target input source and press the knob to confirm.

5.3.3 Input Crop

This function allows you to crop the input source image and make the cropped part display on full screen.

- Step 1 On the home screen, press the knob to enter the main menu screen.
- Step 2 Go to **Layer Settings > Main Layer/PIP > Input Crop** to enter the input source cropping screen.
- Step 3 Select **Status** and press the knob to confirm. Rotate the knob again to select **On** and press the knob to confirm.
- Step 4 Rotate the knob to select other cropping parameters and set them if needed. The cropping parameter descriptions are shown in [Table 5-1](#) and [Figure 5-11](#).

Figure 5-10 Input crop

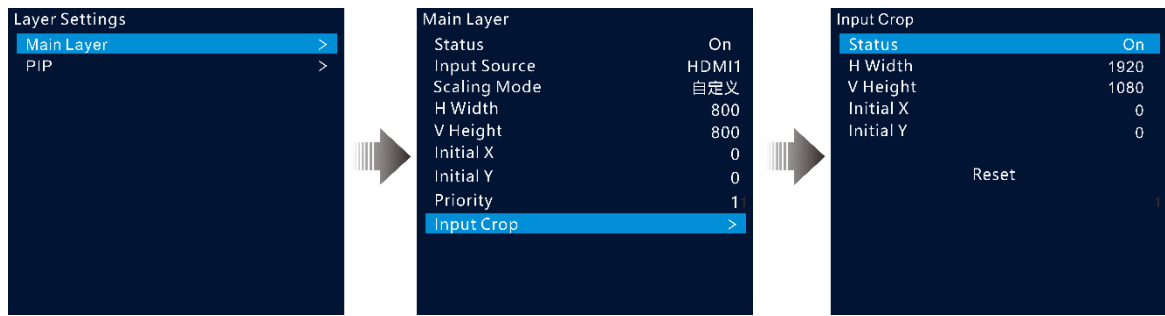
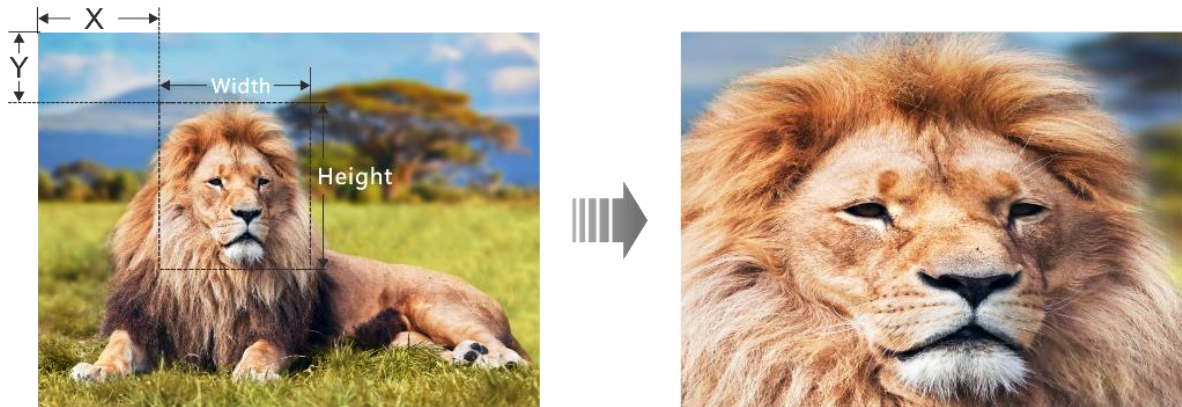


Figure 5-11 Input crop effect



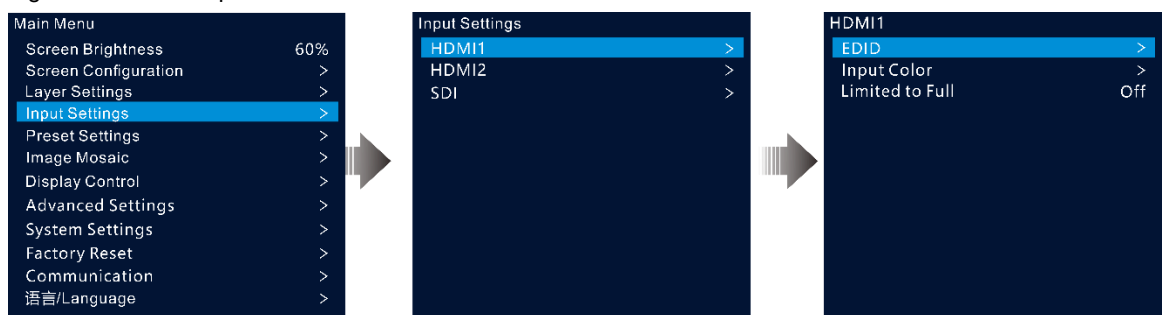
Input Source: 1920x1080@60Hz

Layer Size: 1920x1080

5.4 Input Settings

On the main menu screen, rotate the knob to select **Input Settings** and press the knob to enter the input source screen.

Figure 5-12 Select input source



5.4.1 Set Input Resolution

The VX400s-N provides the HDMI and 3G-SDI (optional) input connectors.

When an HDMI input source is output by a graphics card, the resolution settings are supported. The following two methods are provided to set the input resolution:

- Standard resolution
- Custom resolution

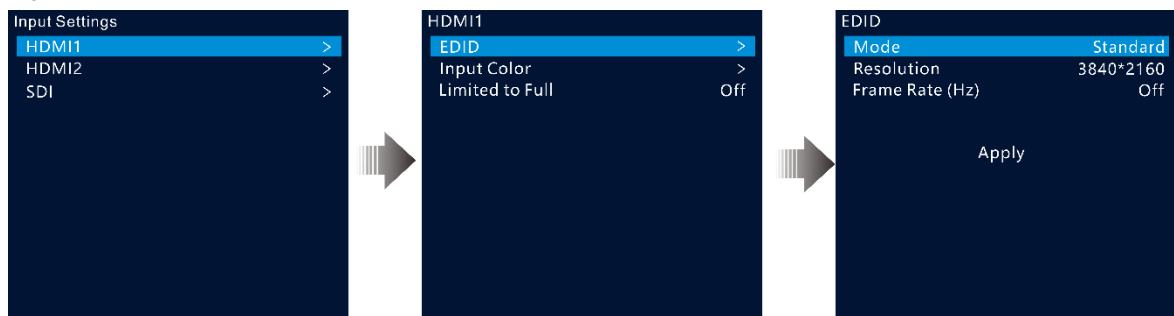
Note:

The SDI input source does not support resolution settings.

Standard Resolution

- Step 1 On the input settings screen, select the desired input source and press the knob to enter the input resolution settings screen.
- Step 2 Select **EDID** and press the knob to enter the EDID settings screen.
- Step 3 Set the EDID mode to **Standard**.
- Step 4 Rotate the knob to select **Resolution**, and press the knob to show the resolution list.
- Step 5 Rotate the knob to select the desired resolution from the list and then press the knob to confirm.
- Step 6 Rotate the knob to select **Frame Rate**, and press the knob to show the frame rate list.
- Step 7 Rotate the knob to select the desired frame rate from the list and then press the knob to confirm.

Figure 5-13 Standard resolution

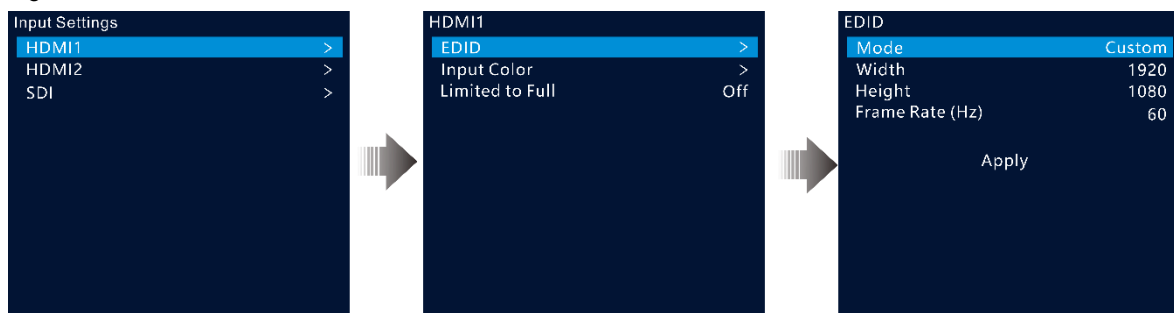


- Step 8 Rotate the knob to select **Apply** and press the knob to complete the standard resolution settings.

Custom Resolution

- Step 1 On the input settings screen, select the desired input source and press the knob to enter the input resolution settings screen.
- Step 2 Select **EDID** and press the knob to enter the EDID settings screen.
- Step 3 Set the EDID mode to **Custom**.
- Step 4 Rotate the knob to select **Width** and press the knob to confirm. Rotate the knob again to select the desired width and press the knob to confirm.
- Step 5 Rotate the knob to select **Height** and press the knob to confirm. Rotate the knob again to select the desired height and press the knob to confirm.
- Step 6 Rotate the knob to select **Frame Rate** and press the knob to show the frame list. Rotate the knob again to select the desired frame rate and press the knob to confirm.

Figure 5-14 Custom resolution



5.4.2 Set Input Source Color

On the input settings screen, select the desired input source and press the knob to enter the input resolution settings screen. Rotate the knob to select **Input Color** and press the knob to enter the input color settings screen. The color parameter descriptions are shown in [Table 5-2](#).

Figure 5-15 Input color

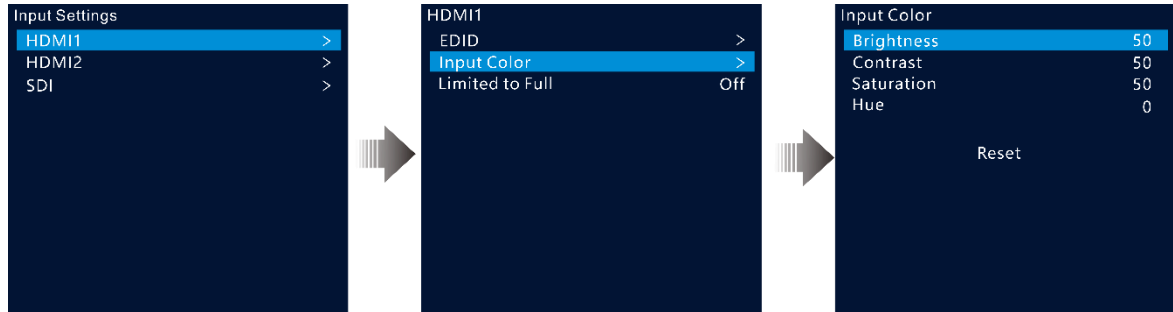


Table 5-2 Input color parameters

| Menu | Description |
|------------|--|
| Brightness | Adjust the brightness or darkness of an input source image. The value ranges from 0 to 100 and defaults to 50. |
| Contrast | Adjust the difference in brightness between light and dark areas of an input source image. The value ranges from 0 to 100 and defaults to 50. |
| Saturation | Adjust the strength or purity of the colors of an input source image. The larger the saturation, the more vivid the input source image; the smaller the saturation, the larger the image grayscale. The value ranges from 0 to 100 and defaults to 50. |
| Hue | Adjust the distinction between colors (white, black and gray tones are not included). The value ranges from -180 to +180 and defaults to 0. |
| Reset | Reset the input color parameters to factory defaults. |

5.4.3 Set Color Range

The input source color range includes RGB Full and RGB Limited. This function automatically converts the color range of the input source from RGB Limited to RGB Full, allowing for more accurate video processing.

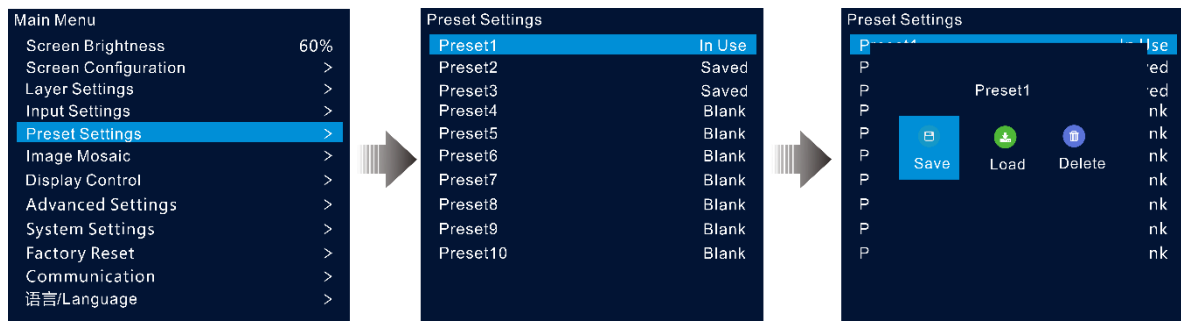
- Off: Do not convert RGB Limited to RGB Full.
- On: Convert RGB Limited to RGB Full. You are advised to turn on this function when the input source has a limited color range.

5.5 Preset Settings

A preset is a set of parameters that save the layer and layer-related information. The VX400s-N supports ten user-defined presets. After a preset is saved, you can load the preset simply by its name. The preset operations include **Save**, **Load** and **Clear**.

On the home screen, press the knob to enter the main menu screen. Rotate the knob to select **Preset Settings** and press the knob to enter the preset settings screen.

Figure 5-16 Preset settings



5.5.1 Save Presets

After the layer settings, you can save those settings as a preset.

- Step 1 On the preset settings screen, rotate the knob to select a preset.
- Step 2 Press the knob to open the preset operations window.
- Step 3 Rotate the knob to select **Save** and press the knob to save the layer settings to this preset.

After a preset is saved, the preset status on the right side changes to **Saved**.

Note:

The layer settings data include the layer status, input source, size, initial position, priority, input cropping and input source color.

5.5.2 Load Presets

This operation allows you to send a saved preset to an LED screen.

- Step 1 On the preset settings screen, rotate the knob to select a saved preset.
- Step 2 Press the knob to open the preset operations window.
- Step 3 Rotate the knob to select **Load** and press the knob to load the preset.

After a preset is loaded, the preset status on the right side changes to **In Use**.

5.5.3 Clear Presets

This operation allows you to clear the data saved in the preset. The preset name will not be cleared. After a preset is cleared, the preset status on the right side changes to **Blank**.

- Step 1 On the preset settings screen, rotate the knob to select a saved preset.
- Step 2 Press the knob to open the preset operations window.
- Step 3 Rotate the knob to select **Clear** and press the knob to open a confirmation window.

Rotate the knob to select **Yes** and press the knob to clear the preset.

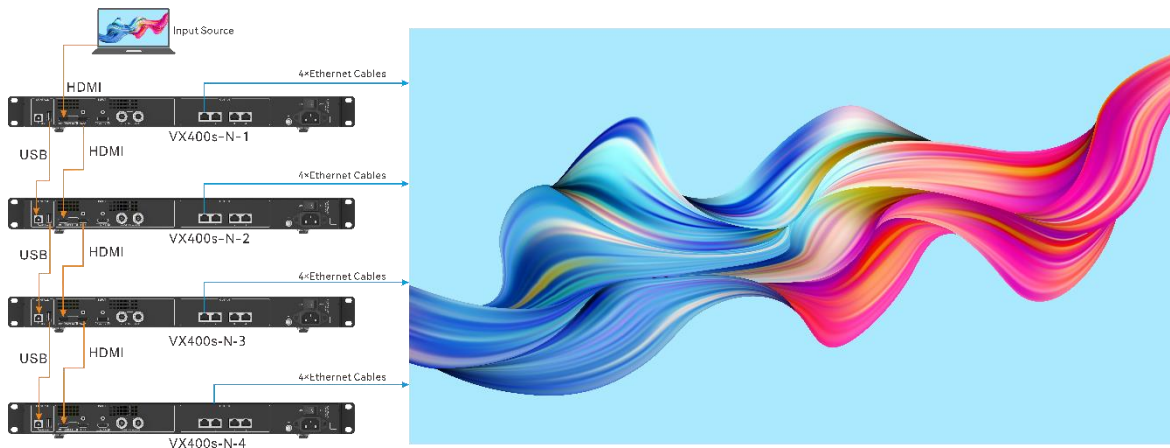
5.6 Image Mosaic

When the pixel count of an LED screen is larger than the loading capacity of a single VX400s-N unit, the image mosaic function is required. You can use multiple device units together to load the LED screen.

Prerequisites

Before using the image mosaic function, ensure that you turn on the synchronization function on each device and all the devices use the same input source as the sync source.

Figure 5-17 Connection method for image mosaic



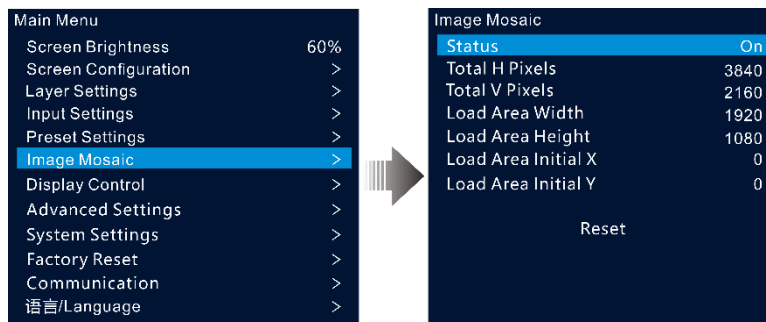
Notes

After the image mosaic function is turned on, the full screen scaling and pixel to pixel display of the layer are unavailable.

Operating Procedure

- Step 1 On the main menu screen, rotate the knob to select **Image Mosaic** and press the knob to enter the image mosaic settings screen.
- Step 2 Rotate the knob to select **Status** and press the knob to confirm. Rotate the knob again to select **On** and press the knob to confirm.

Figure 5-18 Image mosaic

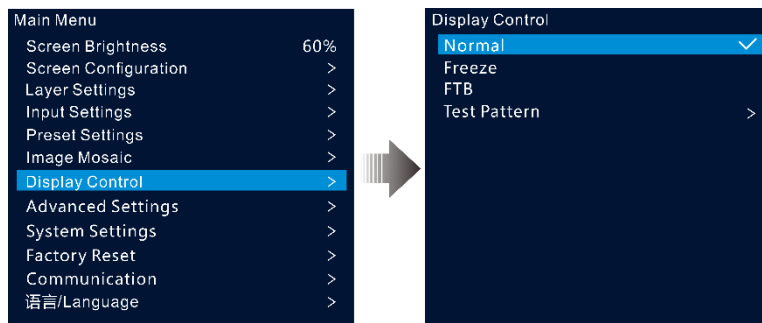


- Step 3 Set the mosaic-related parameters for each device.
 - Total H Pixels: The number of pixels in the horizontal direction of the LED screen
 - Total V Pixels: The number of pixels in the vertical direction of the LED screen
 - Load Area Width: The number of pixels in the horizontal direction of the area loaded by the current device
 - Load Area Height: The number of pixels in the vertical direction of the area loaded by the current device
 - Load Area Initial X: The initial horizontal coordinate of the top-left corner of the area loaded by the current device. The unit is pixel.
 - Load Area Initial Y: The initial vertical coordinate of the top-left corner of the area loaded by the current device. The unit is pixel.

5.7 Display Control

On the main menu screen, rotate the knob to select **Display Control** and press the knob to enter the display control settings screen.

Figure 5-19 Display control



- Normal: Display the content of the current input source.
- Freeze: Freeze the current frame of the output image.
- FTB: Make the output image fade to black.
- Test Pattern: Display the test pattern on the screen.

The test patterns are used to test the display effect of the LED screen and the working status of each LED. The test patterns include Pure Color, Gradient, Grid and more.

Note:

If the freeze or FTB function is turned on, the test pattern function is unavailable.

5.8 Advanced Settings

The advanced settings allow you to set the device backup, synchronization, audio and input source HDCP.

5.8.1 Device Backup

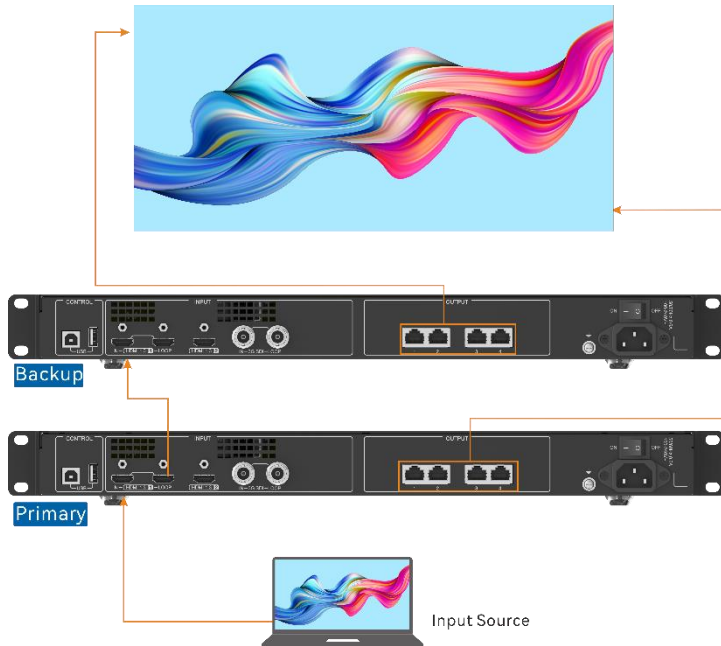
The VX400s-N supports both the backup between devices and Ethernet ports.

Backup Between Devices

Device backup allows you to set the backup relationship between two devices. You can set one of the devices as the primary device or the backup device. When the primary device has a problem or the primary device's Ethernet cable fails, the backup device will take over the responsibilities of the primary device seamlessly and continue to work well to ensure the LED screen will not go black.

- The connection diagram for the device backup:

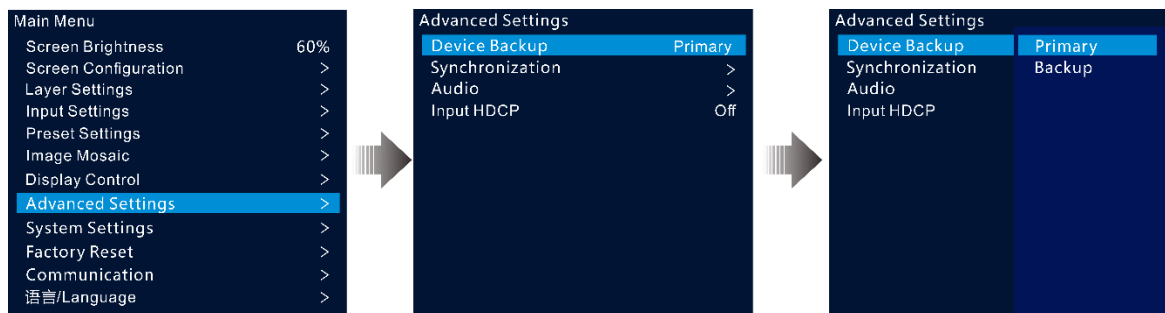
Figure 5-20 Device backup connection



- The setting procedure for the device backup:

Step 1 On the main menu screen, go to **Advanced Settings > Device Backup** to enter the device backup screen.

Figure 5-21 Device Backup



Step 2 Rotate the knob to select **Primary**.

Follow the same procedure to set the other device as **Backup**.

Notes:

- In the device backup mode, the quantity of the cabinets loaded by each Ethernet port on both the primary and backup devices must be the same, but their data flow must be in a reversed way.
- The layers and layer property settings on both the primary and backup devices must be the same.

Backup between Ethernet Ports

Ethernet port backup allows you to set the backup relationship between two Ethernet ports. When the primary port has a problem or the primary port's Ethernet cable fails, the backup port will take over the responsibilities of the primary port seamlessly and continue to work well to ensure the LED screen will not go black. When setting the backup between the Ethernet ports, you need to complete it in NovaLCT.

- The connection diagram for the Ethernet port backup:

Figure 5-22 Ethernet port backup connection



- The setting procedure for the Ethernet port backup:

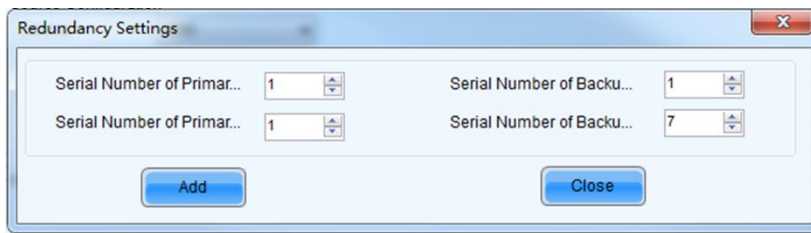
- Step 1 Run the NovaLCT software. On the menu bar, go to **User > Advanced Synchronous System User Login**. Enter the password and click **Login**.
- Step 2 Click **Screen Configuration** to enter the screen configuration page.
- Step 3 Click **Next** to enter the screen configuration page.

Figure 5-23 Screen configuration



- Step 4 Select the **Sending Card** tab, and then click **Add** in the **Redundancy** area.
- Step 5 Set the serial numbers of both the primary device and backup device to **1**.
- Step 6 Set the serial number of the primary port and the serial number of the corresponding backup port.

Figure 5-24 Ethernet port backup



Step 7 Click **Add** to complete the backup settings of an Ethernet port, and the system will automatically list the primary ports and backup ports.

Figure 5-25 Primary Ethernet ports



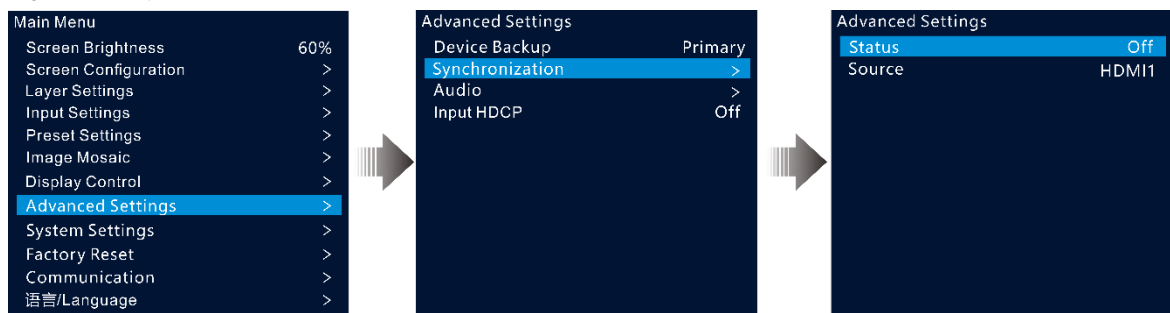
Step 8 Repeat [Step 6](#) and [Step 7](#) to complete the backup settings for other Ethernet ports.

5.8.2 Synchronization

This function allows you to select a synchronization signal to synchronize all the cascaded device units or synchronize the primary and backup devices to display the output images of all the units in sync.

Step 1 On the main menu screen, go to **Advanced Settings > Synchronization** to enter the synchronization settings screen.

Figure 5-26 Synchronization



Step 2 Rotate the knob to select **Status** and press the knob to confirm. Rotate the knob again to select **On** and press the knob to confirm.

Step 3 Rotate the knob to select **Source** and press the knob to confirm. Then rotate the knob again to select the desired sync source.

Note:

If two or more VX400s-N units load an LED screen, the sync sources used by each device must be the same.

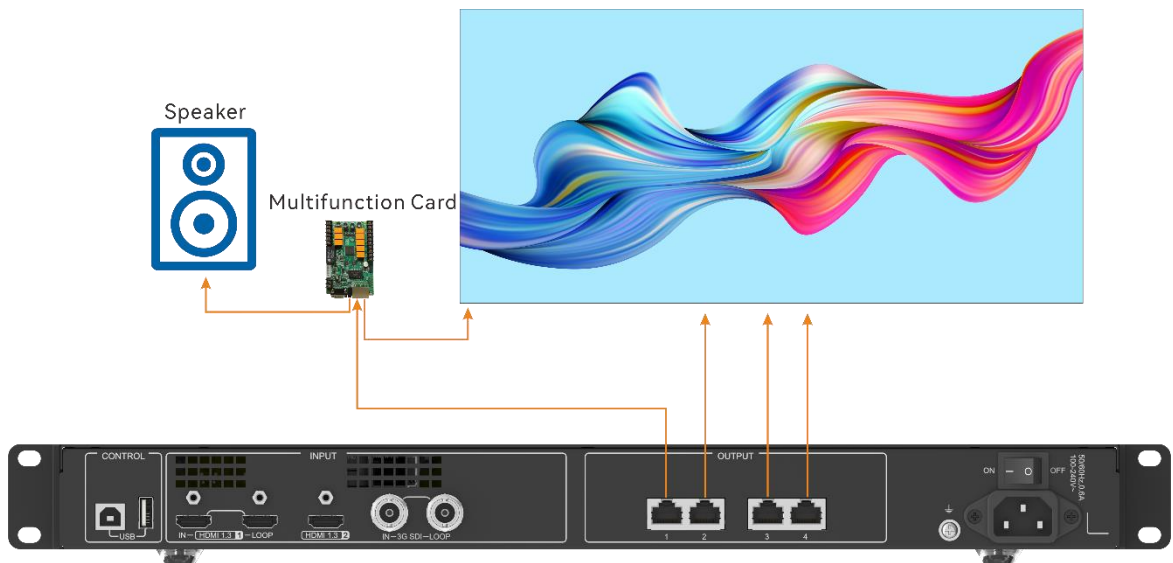
5.8.3 Audio

This function allows you to set the audio output and audio volume.

The VX400s-N supports audio connection via a multifunction card.

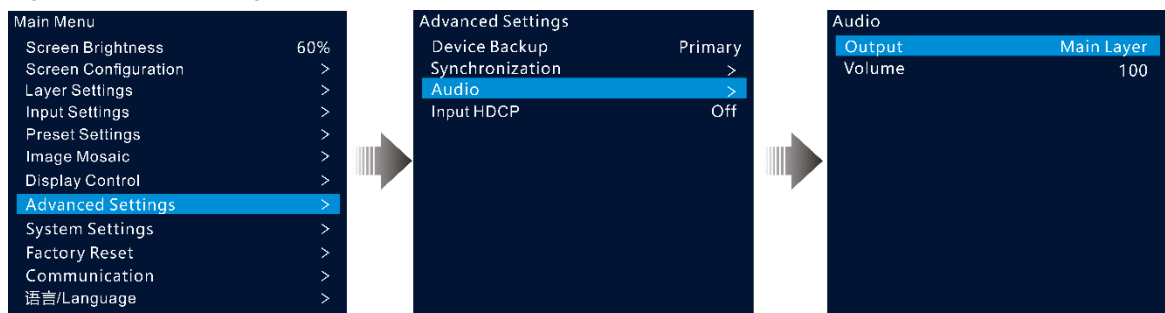
Connect the Ethernet port 1 to a multifunction card, and then connect the multifunction card to an external speaker.

Figure 5-27 Audio output connection



On the main menu screen, go to **Advanced Settings** > **Audio** to enter the audio settings screen.

Figure 5-28 Audio settings



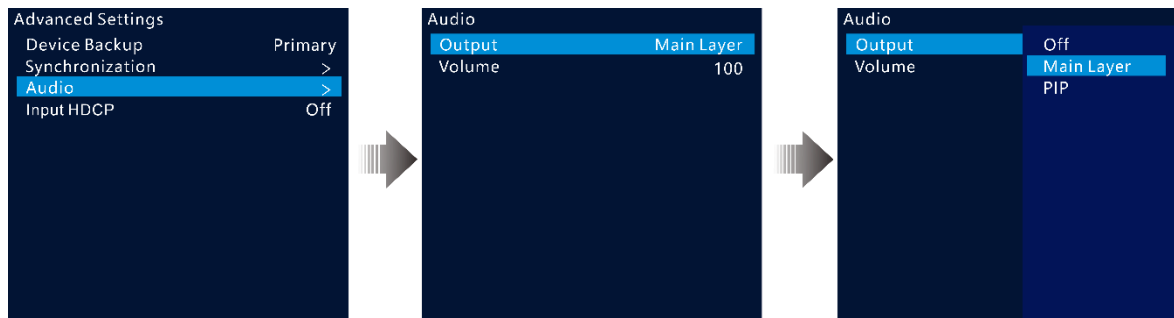
5.8.3.1 Output

Set to play which audio on the external speaker.

Step 1 On the audio settings screen, rotate the knob to select **Output**.

Step 2 Press the knob to open the available output list and rotate the knob to select where the output audio is from.

Figure 5-29 Audio output



- Off: Turn off the audio.
- Main Layer/PIP: Play the audio that comes with the main layer or PIP layer.

Step 3 Press the knob to complete the selection.

5.8.3.2 Volume

Adjust the audio volume.

The value ranges from 0 (silent) to 100 (loudest) and defaults to 50.

On the audio settings screen, rotate the knob to select **Volume** and press the knob to confirm. Then rotate the knob again to adjust the audio volume and press the knob to confirm.

5.8.4 Input HDCP

High-bandwidth Digital Content Protection (HDCP) is a form of digital copy protection to prevent copying of digital audio and video content as it travels across connections. When the accessed input source is an HDCP-encrypted one, you need to turn on this function to enable the device to transmit and process the source.

On the main menu screen, go to **Advanced Settings > Input HDCP** and press the knob to enable the settings. Then rotate the knob again to select **On** or **Off** and press the knob to confirm the selection.

- On: Turn on the transmission and processing functions for the input source.
- Off: Turn off the transmission and processing functions for the input source.

5.9 System Settings

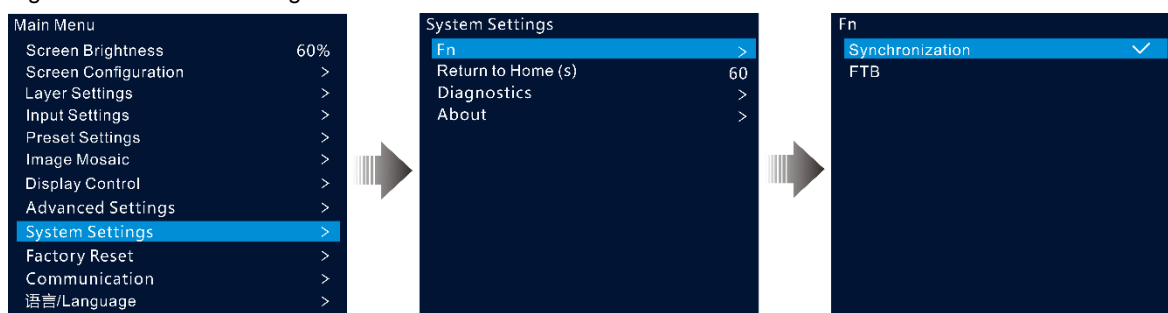
The system settings allow you to set the Fn shortcut button, return to home time, diagnose the device, and view other related information.

5.9.1 Fn

This function allows you to set a shortcut button for an assigned function. By using the Fn button, you can quickly navigate to the target menu screen and never need to access a specified menu item by entering the menus level by level.

On the main menu screen, go to **System Settings > Fn** and press the knob to enter the Fn button settings screen. Rotate the knob to select the desired function and press the knob to confirm.

Figure 5-30 Fn button settings



5.9.2 Return to Home (s)

You can set the period when the system stays at the current screen before returning to the homepage automatically when there is no operation performed. The value ranges from 60s to 3600s.

On the main menu screen, go to **System Settings > Return to Home (s)** and press the knob to confirm. Rotate the knob to select the desired time value and press the knob to confirm.

5.9.3 Diagnostics

The diagnostics function helps you to diagnose the system and troubleshoot the malfunctioned device components.

- When the device fails, you can run the diagnostics function to test the device. You can send your test to our technical support staff for problem locating and processing.
- For daily maintenance, you can run the diagnostics function to do the routine health check for the system.

On the main menu screen, go to **System Settings > Diagnostics** and press the knob to open the confirmation window. Rotate the knob to select **Yes** and press the knob to confirm.

Note:

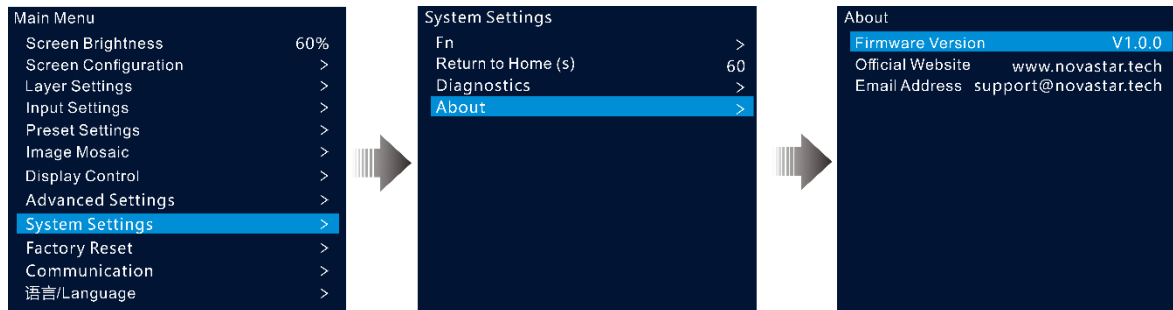
Running diagnostics will transiently disrupt the output, and the output will resume after the diagnostics are completed.

5.9.4 About

Under this menu item, you can view the firmware version, official website and email address. On our official website, you can check the latest device information and the updates for this device. You can also send your feedback or suggestion to us for improvements via the supplied email address.

On the main menu screen, go to **System Settings > About** and press the knob to show all the information.

Figure 5-31 About

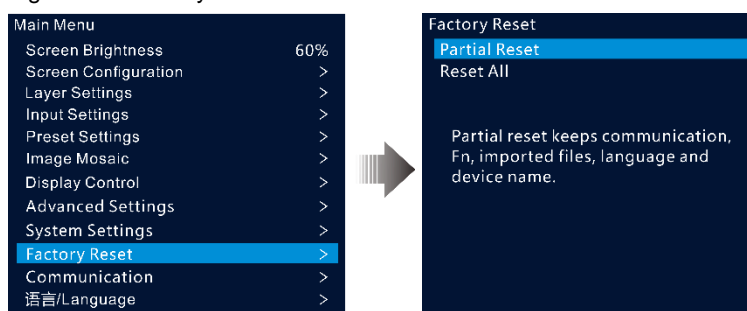


5.10 Factory Reset

Factory reset function allows you to reset all the parameter settings of the device to factory defaults after the device update or when you think the parameters are improperly set.

On the main menu screen, rotate the knob to select **Factory Reset** and press the knob to enter the factory reset screen.

Figure 5-32 Factory reset



- Partial Reset: Reset the parameter settings to factory defaults, except for the communication, Fn and language settings, imported files and device name.
- Reset All: Reset all the parameter settings to factory defaults.

5.11 Communication Settings

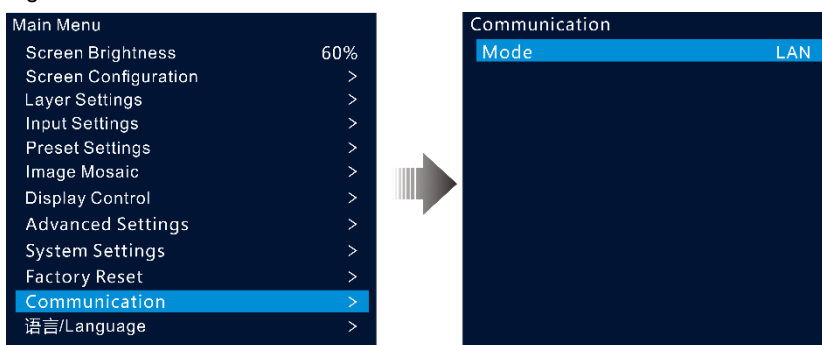
You can set the communication information to enable the device to communicate with the control PC smoothly.

5.11.1 Set Communication Mode

The VX400s-N can communicate with the control PC via the USB cable. You can select your preferred communication mode.

- Step 1 On the main menu screen, rotate the knob to select **Communication** and press the knob to enter the communication settings screen.

Figure 5-33 Communication mode



- Step 2 Rotate the knob to select **Mode** and press the knob to confirm. Rotate the knob again to select the desired mode and press it to confirm.

The options include **LAN** and **USB**.

- LAN: The device processes USB information to Ethernet information.
- USB: The device communicates with the control PC via the USB cable.

Note:

When updating the device via NovalCT, you need to set the communication mode to **LAN**.

5.12 Language

The language options include English and Simplified Chinese. You can switch to your preferred language.

6 Specifications

| | | |
|-------------------------|-------------------------|---------------------------------|
| Electrical Parameters | Power connector | 100-240V~, 0.6A, 50/60Hz |
| | Rated power consumption | 28W |
| Operating Environment | Temperature | -20°C to +60°C |
| | Humidity | 0% RH to 80% RH, non-condensing |
| Storage Environment | Temperature | -20°C to +70°C |
| | Humidity | 0% RH to 95% RH, non-condensing |
| Physical Specifications | Dimensions | 482.6 mm × 250 mm × 50.1 mm |
| | Net weight | 3.2kg |

| | | |
|------------------------------------|--------------|--|
| Packing Information | Accessories | 1x Power cord 1x USB cable 1x HDMI cable 1x Certificate of Approval 1x Safety Manual |
| | Packing size | 550.0mm x 175.0mm x 400.0mm |
| | Gross weight | 5.3kg |
| Noise Level (typical at 25°C/77°F) | | 45 dB (A) |

7 Video Source Features

| Input Connectors | Bit Depth | | Max. Input Resolution |
|------------------|--|---------------|---------------------------|
| • HDMI 1.3 | 8bit | RGB4:4:4 | 1920×1200@60Hz (Standard) |
| | | YCbCr4:4:4 | 3840×600@60Hz (Custom) |
| | | YCbCr4:2:2 | 600×3840@60Hz (Forced) |
| | YCbCr4:2:0 | Not supported | |
| | 10bit / 12bit | | Not supported |
| 3G-SDI | <ul style="list-style-type: none"> • Max. input resolution: 1920×1080@60Hz • Does Not support input resolution and bit depth settings. • Supports ST-424 (3G), ST-292 (HD) and ST-259 (SD) standard video inputs. | | |

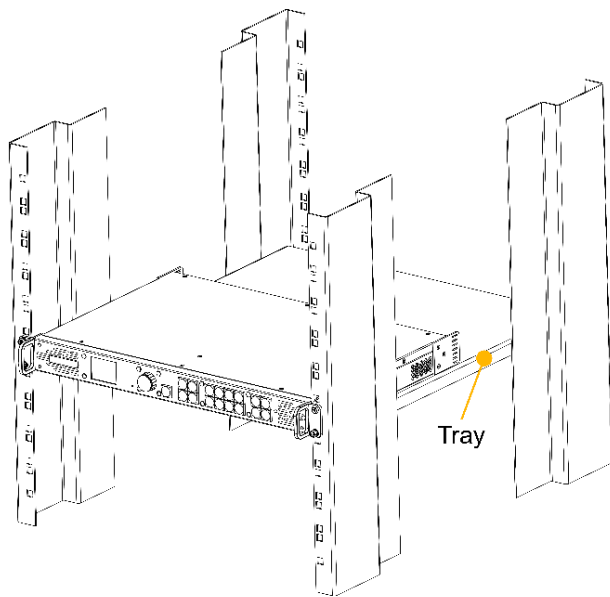
8 Notes and Cautions

Notes For Battery

- The battery is not intended to be replaced.
- Disposal of a battery into fire or a hot oven, or mechanically crushing or cutting of a battery can result in an explosion.
- Leaving a battery in an extremely high temperature surrounding environment can result in an explosion or the leakage of flammable liquid or gas.
- A battery subjected to extremely low air pressure may result in an explosion or the leakage of flammable liquid or gas.

Notes For Installation

When the product needs to be installed on the rack, 4 screws at least M5*12 should be used to fix it. The rack for installation shall bear at least 32kg weight.



- Elevated Operating Ambient - If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature (T_{ma}) specified by the manufacturer.
- Reduced Air Flow – Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.
- Mechanical Loading – Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.
- Circuit Overloading – Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.
- Reliable Earthing – Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g. use of power strips).

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