

VIP-5000 SERIES
VIDEO IMAGE PROCESSOR
OPERATION MANUAL
P1603

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DAKTRONICS

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1 Introduction

This manual is intended to help Daktronics customers operate the 5000 series Video Image Processor (VIP). Review all of the information in this manual in order to understand the features that the processor offers.

This manual assumes the operator has a basic working knowledge of computer operating systems, including using menus and folders. Terms that describe commonly used personal computer operations are used frequently in this manual.

Daktronics Contact Information

This VIP-5000 Series Operation Manual is accessible via the **Help** button on the right-side menu. If further assistance is required, Daktronics Customer Service is available 24/7 via telephone or online.

Daktronics Customer Service be reached via telephone by calling either number below:

- Domestic (U.S. and Canada): 1-800-325-8766
- International: +1-605-697-4000

Daktronics online customer support can be reached by entering the address below into a web browser:

- www.daktronics.com/support

Product Information

This manual references images from two versions of the VIP-5000 series: display-mount (or embedded) and rack-mount. **Figure 1** shows the ports of the display-mount VIP-5000 series and **Figure 2** shows the ports of the rack-mount VIP-5000 series. Refer to **Section 2: First-Time System Setup & Launch (p. 2)** for additional information.

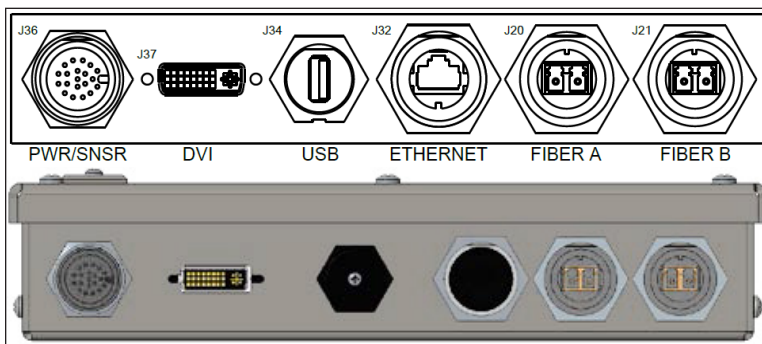


Figure 1: Display-Mount VIP Ports

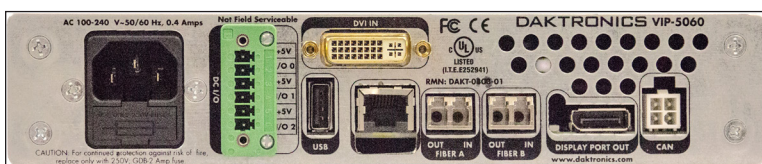


Figure 2: Rack-Mount VIP Ports

Several Daktronics products are based on the VIP-5000 series platform and much of the information in this manual is valid for the platform as a whole, however, there may be differences for specific products. For information on the VIP-5150, refer to the standard Galaxy® GS6 series documentation.

2 First-Time System Setup & Launch

Physical Connections

LED Video Display

Connecting the Video Image Processor (VIP) to an LED video display requires duplex LC fiber-optic cables. To connect the processor to the display, follow the directions below while referring to **Figure 3** and **Figure 4**:

1. Locate Port A and Port B on the back of the processor.

Note: Both ports can be used to connect primary data and backup data to the display.



Figure 3: Display-Mount Fiber-Optic Port



Figure 4: Rack-Mount Fiber-Optic Ports

2. Insert the duplex LC fiber-optic cables into their corresponding ports. The cables will click into place when seated properly. Match the supplied cable label to the port label.

Note: Remove fiber dust covers from cables prior to inserting into ports.

Video System

There is one DVI-D (DVI Digital) video feed option for connecting a video feed to the processor. The following DVI resolutions are supported:

- **VIP-5060** - 800x600, 1280x720
- **VIP-5160** - 800x600, 1280x720, 1440x900 with reduced blanking

Connecting the Video Source

To connect DVI video, follow the steps below:

1. Insert the male plug into the female jack.
2. Turn the screws on the male plug clockwise to lock. Refer to **Figure 5** and **Figure 6**.

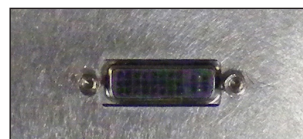


Figure 5: Display-Mount DVI Video Input



Figure 6: Rack-Mount DVI Video Input

Connecting to the Network

To connect the processor to the network, follow the steps below:

1. Connect an RJ45 network cable to the network port on the processor. Refer to **Figure 7** and **Figure 8**.

Note: For a display-mount system, rotate the input a quarter turn clockwise to lock the connector.

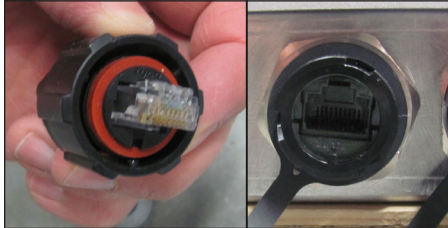


Figure 7: Display-Mount Network Input

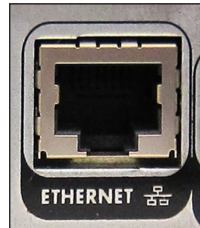


Figure 8: Rack-Mount Network Input

2. Connect the other end of the cable to a computer or Ethernet network.

Power and Sensors

Display Mount

To connect power to the processor in a display-mount system, follow the steps below:

1. Connect the Daktronics-provided breakout cable to the power/sensor port on the processor. Refer to **Figure 9** and **Figure 10**.
2. Twist the connector to secure it properly.
3. Connect the power cord to the breakout cable.
4. Terminate the cord at the display's power panel.



Figure 9: Display-Mount Power Input



Figure 10: Display-Mount Power & Sensor Breakout Panel

To enable temperature and light sensors on a display-mount processor, follow the steps below:

1. Connect a breakout cable to the power/sensor port on the processor. Refer to **Figure 9** and **Figure 10**.
2. Twist the connector to secure it properly.
3. Connect the Daktronics-supplied sensor cable to the breakout cable.

Rack Mount

To connect power to the processor in a rack-mount system, follow the steps below:

1. Connect the power cord to the power jack on the processor. Refer to **Figure 11**.
2. Plug the other end of the cord into an outlet.

To enable temperature and light sensors on the rack-mount processor, connect the Daktronics-supplied sensor cable to the CAN port. Refer to **Figure 12**.



Figure 11: Rack-Mount Power Input

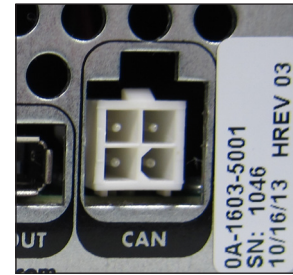


Figure 12: Rack-Mount Sensor CAN Port

Phoenix Connection

The Phoenix connection may be used for DCIO ports only. The DCIO ports allow the processor to communicate with up to six external devices. Refer to **Peripherals (p. 27)** for additional information.

Computer-to-VIP Communication

Once the physical connections have been made, navigate to the network address of the processor to run the configuration application stored within the device. The IP address is located in the documentation that arrived with the equipment or on the label on the back of the processor.

Note: New customers receive the processor with a factory-determined IP address in the equipment documentation.

Downloading DisplayFind Utility

The DisplayFind utility is used to find devices on a local network when the IP address is unknown. The computer running the DisplayFind utility must be on the same subnet as the target processor.

Operators can download the application software from either the control software CD or from the internet. To download the DisplayFind file from the internet, follow the steps below:

1. Open a web browser (i.e. Internet Explorer® or Firefox® browser).
2. Navigate to **dakfiles.daktronics.com**.
3. Click **venus1500 > Utils > DisplayFind > DisplayFind.exe**.
4. Select **Run** to download the DisplayFinder utility or **Save** to save the file to the computer for later use.

Launching DisplayFind Utility

The DisplayFind file automatically opens if **Run** was selected in Step 4 above.

If **Save** was selected instead of **Run**, locate where the DisplayFind.exe file was saved during download and double-click the icon to open the program. Refer to **Figure 13**.

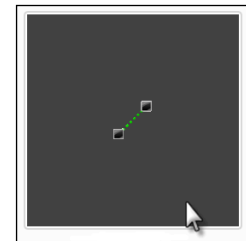


Figure 13: DisplayFind Icon

Configuring DisplayFind Utility

After launching the DisplayFind utility, review the list of associated items. The top two items in the list should have a green check mark. Refer to **Figure 14**.

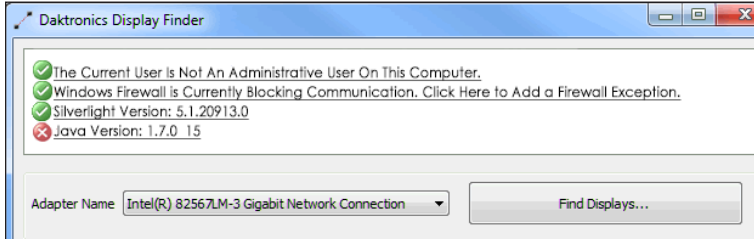


Figure 14: DisplayFind Utility Window

If one of the top two items has a red **x** icon  next to it as shown in **Figure 15**, click it for additional information or to access the download.

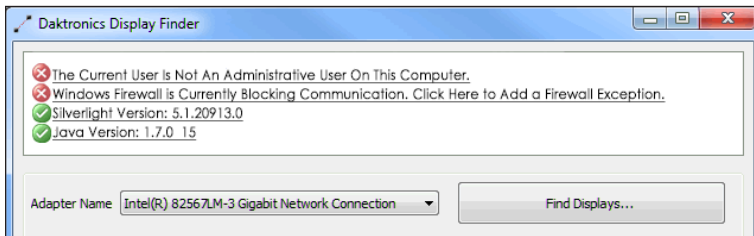




Figure 15: DisplayFind Utility Errors

Note: The Silverlight® plug-in is not required for VIP firmware version 2016.09.30-b1688 or newer. A few functions that are not yet available in the newer firmware are only available in the legacy system; in this case the Silverlight® plug-in is necessary. Any firmware version 2016.03.10-b1550 or older requires the plug-in.

If the Silverlight® plug-in is required, ensure that there is a green check mark next to **Silverlight Version**. A red **x**  indicates that the Silverlight® plug-in is not installed or that the installed version is not Silverlight® 5.0 or newer.

A red **x**  next to **The Current User Is Not An Administrative User On This Computer** indicates that the operator does not have administrative rights on the computer being used. After installation, administrative rights are no longer necessary.

A red **x**  next to **Windows Firewall is Currently Blocking Communication** indicates that the Windows® firewall is not disabled. Temporarily disable the Windows® firewall to allow discovery responses to be received from any displays. Temporarily disable other third party anti-virus/firewall applications (i.e. McAfee®, Symantec®, ZoneAlarm® software etc.).

Note: Configure firewall exceptions to allow inbound TCP and UDP traffic on Port 3702 if temporarily disabling the firewall is not desired.

Ignore a red **x**  next to **Silverlight Version** and **Java Version** as these programs are no longer required by the system.

Increase the Discovery Timeout value if the connection is slow. Follow the steps below:

1. Click the icon to the left of the **Daktronics Display Finder** text in the application header.
2. Click **Settings**. Refer to **Figure 16**.
3. Set a new **Discovery Timeout** using the **up** and **down** arrow buttons. Refer to **Figure 17**.
4. Click **OK**.

Computer System Requirements

The VIP-5000 series configuration utility requires a computer running the latest version of one of the following web browsers:

- Apple® Safari®
- Google® Chrome®
- Microsoft Edge®
- Microsoft® Internet Explorer®
- Mozilla® Firefox®

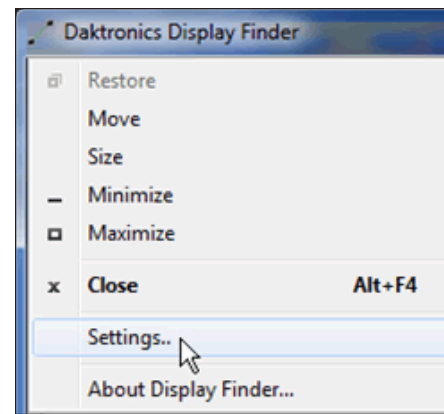


Figure 16: Display Finder Settings

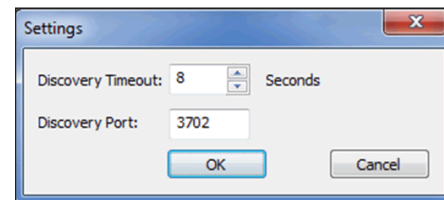


Figure 17: Discovery Timeout Settings

Connecting to a Display

Prior to connecting to the display, verify that the display is turned on and connected to the network currently in use. To connect to the display, follow the steps below:

1. Select the correct network adapter used to communicate with the display from the **Adapter Name** drop-down menu. Refer to **Figure 18**.

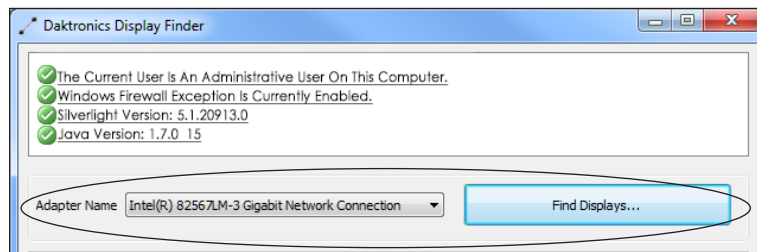


Figure 18: Network Adapter Selection

2. Click **Find Displays** to detect any displays using the selected network adapter. Detected displays are listed in the bottom window of the utility. Refer to **Figure 19**.

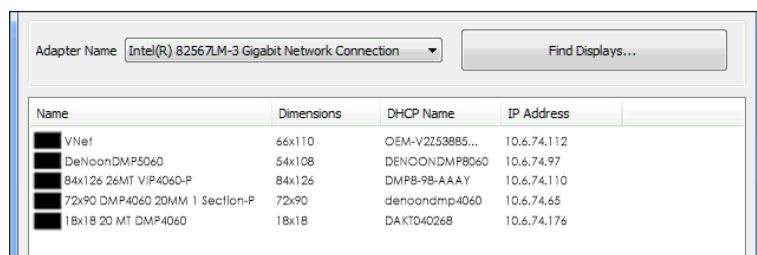


Figure 19: Detected Displays

3. Double-click the desired display to launch the configuration utility within a web browser.

VIP-5000 Series System Login

To log in to the VIP, follow the steps below:

1. Navigate to **http://<IPaddress>:<Port>**. The port is typically **85**.
2. Type **Dak** in the **User name** text box and the appropriate password in the **Password** text box. Refer to **Figure 20**.

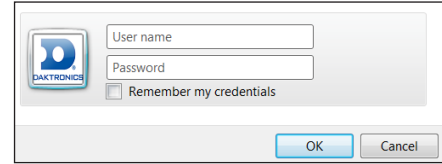


Figure 20: VIP-5000 Series Login

Note: By default, the login user name is **Dak** and common to all operators. The VIP is configured with the password **DakPassword!**, which should be changed after initial configuration.

3. Click **OK** to complete the login process.

Dashboard

After logging into the VIP the first time, an initial screen opens showing status tiles for various aspects of the device. This initial interface screen is called the **Dashboard**. For a general overview of the system interface, refer to **Interface Elements (p. 8)**. For details on the dashboard, refer to **Section 4: Dashboard (p. 11)**.

Click **Show Menu**  in the upper-left corner of the screen to expand the left-side menu. The left-side menu links are listed in **Left-Side Menu (p. 10)**. For more detailed information on each menu item, refer to Section 4 - Section 10 of this manual.

3 User Interface Basics

Interface Elements

The VIP-5000 series processor interface includes elements that are always visible to the operator, including a header bar, left-side menu, right-side menu, and main window. Refer to **Figure 21**.

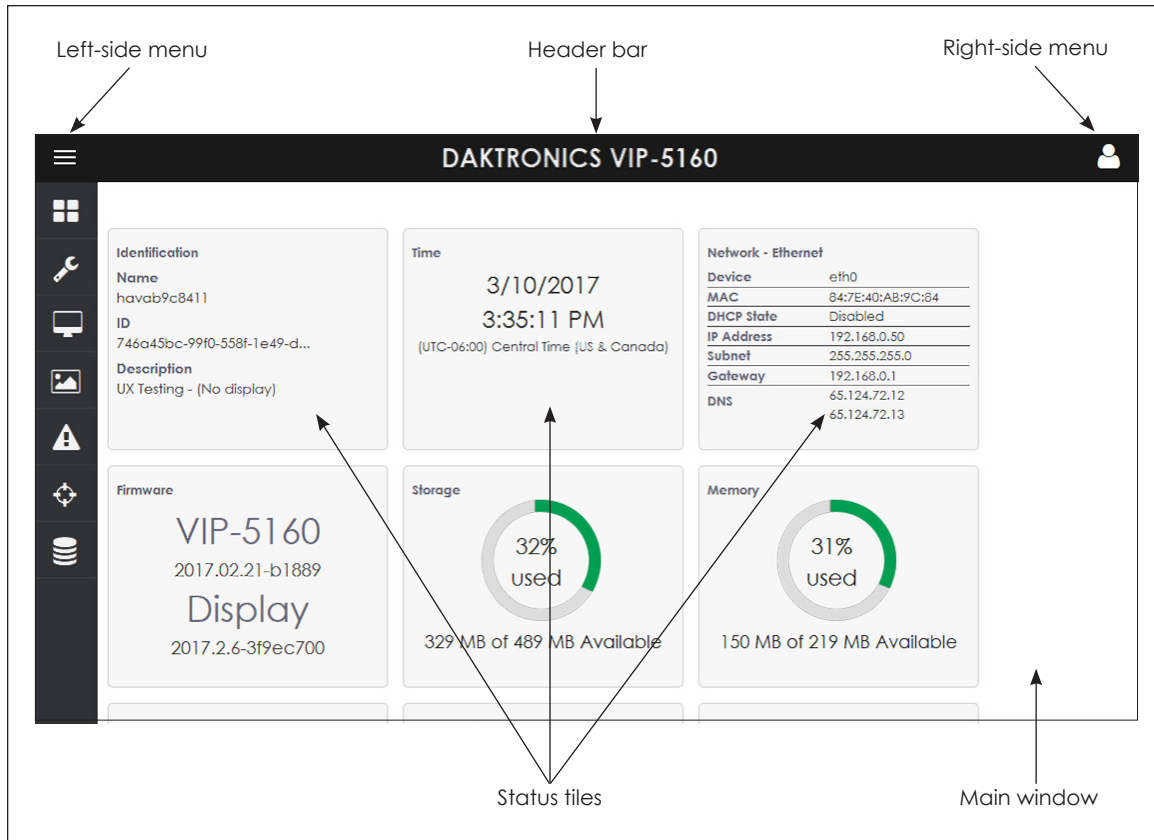










Figure 21: Interface Elements

- **Header bar** contains the application title across the top of the screen.
- **Right-side menu** is in the upper-right corner of the screen. Click **User**  to expand the menu panel to show the full session-specific navigation information. Refer to **Right-Side Menu (p. 9)** for more information.
- **Left-side menu** is on the left side of the screen. Click **Show Menu**  in the upper-left corner of the screen to expand the menu panel to show the full navigation information. Refer to **Left-Side Menu (p. 10)** for more information.
- **Main window** displays elements, information, and data related to current operator selections and system triggers. The example in **Figure 21** above shows the initial **Dashboard** screen with status tiles in the main window.

Right-Side Menu

This section describes the tools and features available in the right-side menu. Click **User**  to expand the menu panel to show the full session-specific navigation information. Refer to the table below.

Menu Item	Description
 Settings	Opens the Settings window with Communications Settings and Monitoring Settings options
 Password	Opens the Change Password window allowing an operator to change the system password
 Help	Provides access to the system help file including an electronic version of this manual
 About	Opens a window showing Daktronics contact information and open source / licenses used to build the VIP-5000 series processor
 Legacy	Opens a link to the previous VIP user interface in order to access a few functions that are not yet operational in the new user interface

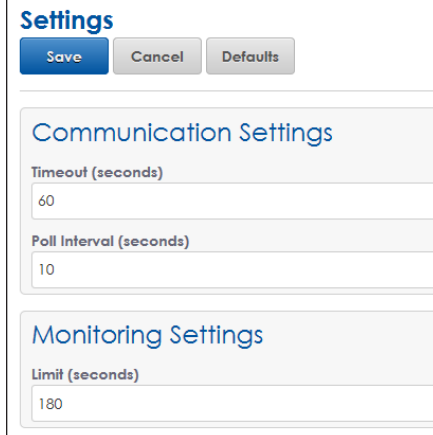
Settings

Settings opens a window that enables the operator to set **Communication Settings** and **Monitoring Settings**. To change any of these values, enter the new value(s) and click **Save** at the top of the screen to save the changes. Click **Cancel** to cancel any changes made before saving them. Click **Defaults** to restore the values to default settings. Refer to **Figure 22**.

The **Timeout** field sets the length of time (in seconds) that is allowed to pass before the VIP reports a connection problem. The server-client connection closes after this period of inactivity (timeout period). The default setting is 30 seconds.

The **Poll Interval** field sets how frequently the processor is polled for status information. This rate (in seconds) controls how often the dashboard is refreshed with new data. The default setting is 10 seconds.

The **Limit** field controls how long (in seconds) the monitored output is shown when the **Monitor** tile is selected from the dashboard. The default setting is 180 seconds. Refer to **Monitor** under **Dashboard Tiles** (p. 11).



The screenshot shows a window titled "Settings" with three buttons at the top: "Save" (highlighted in blue), "Cancel", and "Defaults". Below the buttons, there are two sections: "Communication Settings" and "Monitoring Settings". Under "Communication Settings", there are two input fields: "Timeout (seconds)" with the value "60" and "Poll Interval (seconds)" with the value "10". Under "Monitoring Settings", there is one input field: "Limit (seconds)" with the value "180".

Figure 22: Settings Function

Password

Password opens a window that enables the operator to change their password. Enter the new password and confirm the change. Refer to **Figure 23**.

After entering a new password and confirming it, click **Save** at the top to save the changed password. Click **Cancel** to close the **Password** window without saving the new password and return to the **Dashboard**.

After a new password is saved, the operator is logged out and returned to the login prompt. Log in again using the new password.

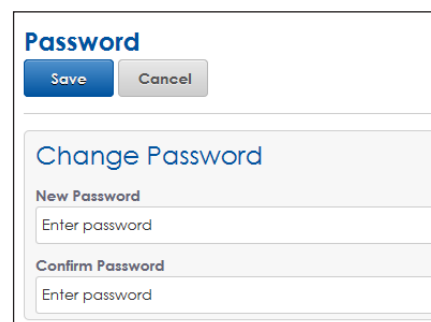


Figure 23: Password Function


Help

Help opens a window that provides an online version of this manual.


About








About opens a window with a link to the Daktronics website and the Daktronics customer support number. There is a link to licensing information showing the open source libraries and licenses used to build the VIP-5000 series processor.

Legacy


Legacy opens the older version of the VIP user interface in a new browser window. Within the legacy interface, click the help button  in the upper-left corner to access the legacy interface's manual.

Left-Side Menu

This section describes the tools and features available in the left-side column. Click **Show Menu**  in the upper-left corner of the screen to expand the main menu panel to show the full system navigation information. Refer to the table below. Refer to **Section 4: Dashboard (p. 11) - Section 10: System Backup (p. 43)** for a description of each left-side menu item.

Menu Item	Description
 Dashboard	Shows status tiles for various aspects of the processor; most tiles trigger operational windows but some tiles only provide information
 Configuration	Lists all current configuration settings and tools including tools for setting the input, output, brightness levels, local time, and location
 Monitor	Opens a window showing a video feed of the display content
 Stored Content	Shows existing stored content files and allows images to be added or removed
 Troubleshooting	Lists troubleshooting options including testing, resetting power, and resetting the processor
 Calibration	Lists calibration tools used to adjust individual modules to blend with surrounding modules
 System Backup	Lists system backup options including creating a system backup and restoring a system backup

4 Dashboard

The **Dashboard** icon  shows status files for the Video Image Processor (VIP). These status tiles include standard tiles that are always visible and an **Important Messages** tile that is shown only when an important setting has been changed recently within the configuration settings. Refer to **Figure 24**.

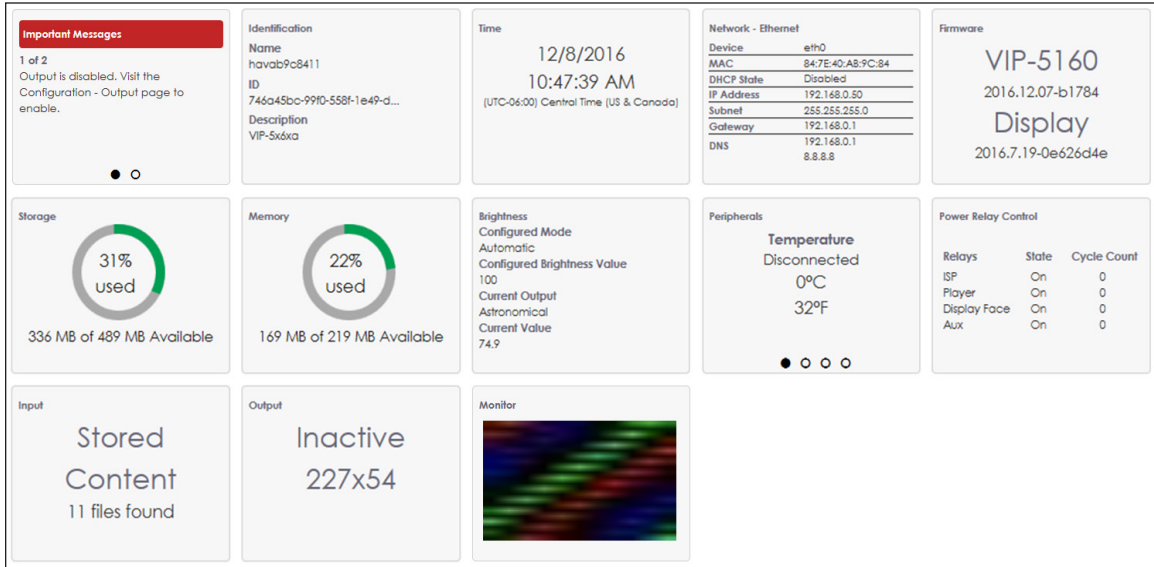



Figure 24: Dashboard Status Tiles


Dashboard Tiles

Most of the dashboard status tiles are interactive; click an interactive tile to open an operational window or menu item. The **Important Messages** tile and two other tiles (**Storage** and **Memory**) provide information only. When the cursor is placed over an interactive tile, the arrow changes to a hand symbol . If the tile is not interactive, the cursor remains as an arrow symbol. Clicking an open circle at the bottom of any tile opens another page of information within that tile.

- **Important Messages** - This tile warns the operator that an important setting has changed. The number of important messages is indicated by the number listed at the top of the tile and the dots at the bottom of the tile. Refer to the **Important Messages** tile in **Figure 24**. Normally this tile is not present.
- **Identification** - This tile provides the processor's descriptive data including the name, ID number, and description. Click this tile to open the **Identification** link under the **Configuration** menu.
- **Time** - This tile shows the current date, time, and time zone. Click this tile to open the **Time** link under the **Configuration** menu.
- **Network-Ethernet** - This tile shows network device and address information. Click this tile to open the **Network** link under the **Configuration** menu.
- **Firmware** - This tile shows the current version of VIP firmware and display firmware. Click this tile to open an operational window that allows a VIP firmware update.
- **Storage** - This tile shows how much file storage is currently being used and how much is available on the VIP.
- **Memory** - This tile shows how much memory is currently being used and how much is available on the processor.

- **Brightness** - This tile shows brightness settings and current output. The **Configured** information shows how the brightness is determined and the brightness value that the processor is attempting to achieve. The **Current** information shows the actual brightness settings in use. Click this tile to open the **Brightness** link under the **Configuration** menu.
- **Peripherals** - This tile provides information about any associated peripheral device. If more than one peripheral device is configured, the tile contains more than one page of information. Refer to the **Peripherals** tile in **Figure 24**. Click an open circle at the bottom of the tile to open information about another peripheral device. Click the tile itself to open the **Peripherals** link under the **Configuration** menu.
- **Power Relay Control** - This tile provides information about the power relay controls that were configured under **Configuration > Peripherals**. Click this tile to open the **Power Control** link under the **Troubleshooting** menu.
- **Input** - This tile provides details about the type of display input (**Display Mode**) that is currently being received by the display. Click this tile to open the **Input** link under the **Configuration** menu.
- **Output** - This tile shows whether or not the display output state is currently active or inactive along with the display dimensions. Click this tile to open the **Output** link under the **Configuration** menu.
- **Monitor** - This tile shows a thumbnail of the current display input or output. The content shown in this thumbnail is not a live video feed. Click this tile to open a monitoring window that shows a larger image of the display output. Refer to **Section 6: Monitor (p. 33)**. The image is shown for the length of time as defined under the **Right-side menu > Settings > Monitoring Settings > Limit**; refer to **Settings (p. 9)**.

5 Configuration

Click **Configuration**  to open a **Configuration** window with a number of options. Refer to **Figure 25**. The currently selected link is underlined. In the example in **Figure 25**, the **Identification** link is selected.

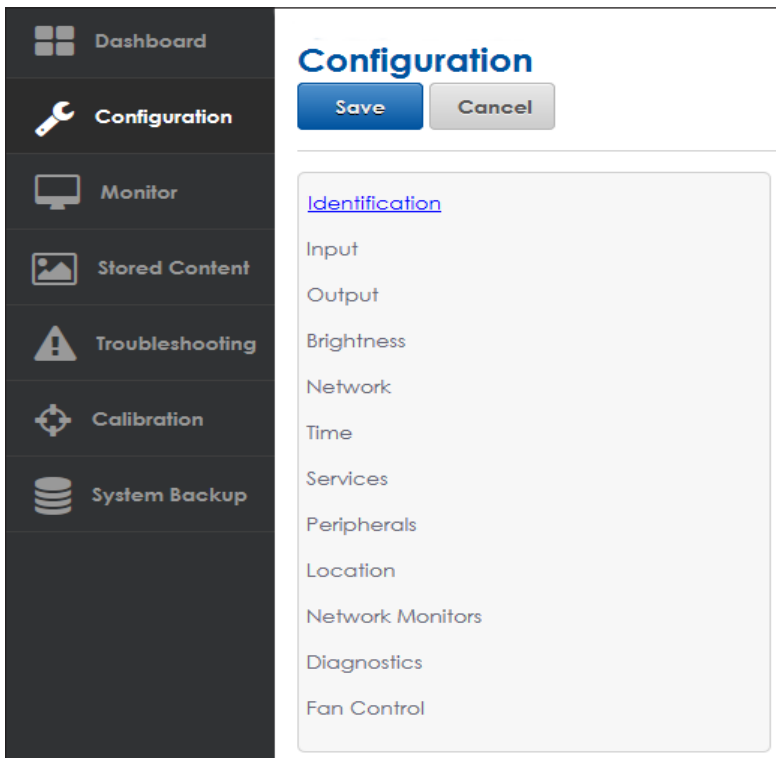


Figure 25: Configuration Menu

After making a change to any configuration setting, save that change by clicking the **Save** button. If a change is made but not saved, an **Unsaved Changes** warning notice opens in a blue banner across the top of the screen. Refer to **Figure 26**.

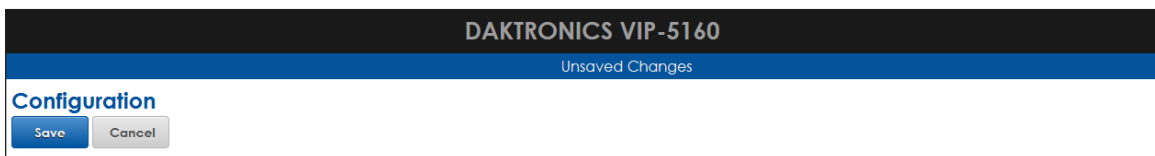


Figure 26: Unsaved Changes to Configuration Settings

Cancel any entered changes at any time before the change is saved; click the **Cancel** button to cancel the change and restore the previous information. A prompt opens to confirm that the change will be discarded.

After making a configuration change and saving it, a **Successfully updated configuration** message opens in a green banner across the top of the screen. Refer to **Figure 27**

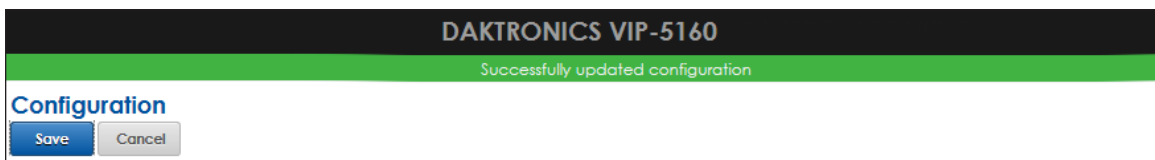
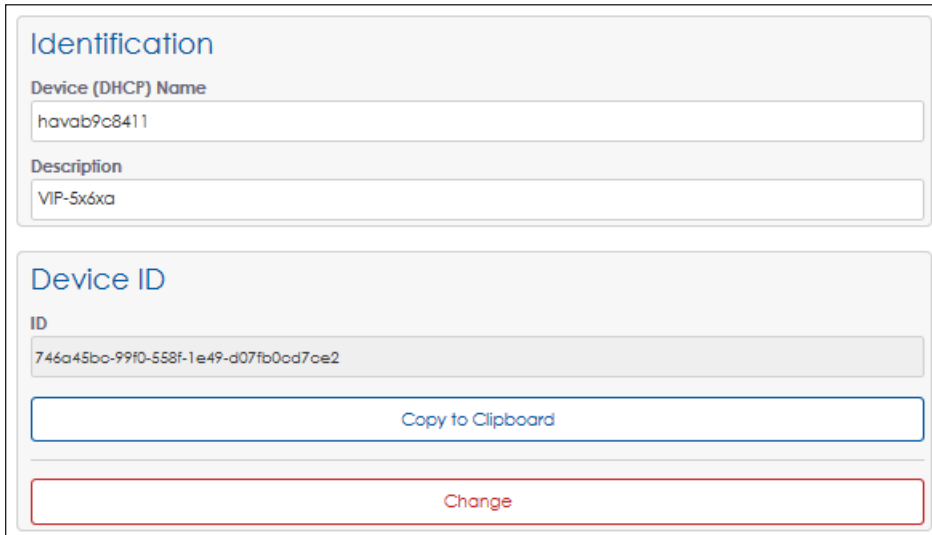


Figure 27: Changes Made to Configuration Settings

Identification

Identification shows the processor's Dynamic Host Configuration Protocol (DHCP) device name, a brief description, and the device identification number. Refer to **Figure 28**.



The screenshot shows two sections. The first section, titled "Identification", contains two text input fields: "Device (DHCP) Name" with the value "havab9c8411" and "Description" with the value "VIP-5x6xa". The second section, titled "Device ID", contains a text input field with the value "746a45bc-99f0-558f-1e49-d07fb0cd7ce2". Below this field is a blue "Copy to Clipboard" button. At the bottom of the section is a red "Change" button.

Figure 28: Identification

The information in the **Device (DHCP) Name**, **Description**, and **Device ID** fields is set by Daktronics during system installation.

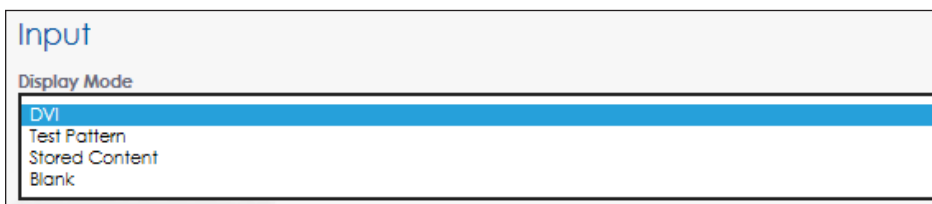
The **Device ID** is used to uniquely identify the processor to Daktronics Services. If the **Device ID** character string is needed for other operations, use the **Copy to Clipboard** function to easily copy this information to the computer's temporary clipboard.

Click the red **Change** button to change the device ID; however, changing the ID will result in a loss of communication with any registered services.

Note: Do not use this feature unless instructed to do so by Daktronics technicians.

Input

Input sets the type of processor input. The operator can select a DVI video source, choose a built-in test pattern, load images to the display, or blank the display. These options are listed in the **Display Mode** drop-down menu: **DVI**, **Test Pattern**, **Stored Content**, and **Blank**. Refer to **Figure 29**.



The screenshot shows the "Input" section with a "Display Mode" dropdown menu. The menu is open, showing four options: "DVI" (highlighted in blue), "Test Pattern", "Stored Content", and "Blank".

Figure 29: Input - Display Mode

DVI

Select **DVI** from the drop-down menu to set the display input as an incoming DVI video signal. The processor must be connected to a video signal for the DVI display mode to function properly.

Change the **Color Adjustment** settings of the DVI video signal with the **Brightness**, **Contrast**, **Saturation**, and **Hue** slider bars or by typing in the desired percentage values. Refer to **Figure 30** and the table below.

Figure 30: Input - Color Adjustment

Adjustment	Description
Brightness	Adjusts the overall gray level of the display. Increasing brightness makes blacks appear gray. Reducing brightness blackens low-level colors.
Contrast	Adjusts the difference between light and dark. A higher contrast creates a larger difference between dark and light areas. It can appear to improve the sharpness of the display, but it may remove the ability to discern between bright objects and cause low color depth.
Saturation	Adjusts the overall color composition of the video. Decreasing saturation makes colorful images gray. Increasing saturation makes colorful images more color rich, but can over-accentuate the colors of common objects. Over-saturated skin tones appear redder.
Hue	Rotates color. Increasing the hue rotates colors (R→B, B→G, G→R); decreasing the hue rotates colors (R→G, G→B, B→R).

Set the **Source Dimensions** as either **Automatic** or **Manual** to define what portion of the incoming video signal is shown on the display. If **Automatic** is chosen, the controller handles the content positioning and the dimensions will match the configured display size. If **Manual** is chosen, the operator manually defines the visible area. **Top** and **Left** define the beginning X and Y location on the display. **Height** and **Width** determine the size. Refer to **Figure 31**.

Figure 31: Input - Source Dimensions

Set the **Target Dimensions** as either **Automatic** or **Manual** to position the incoming video signal on the display. If **Automatic** is chosen, the controller handles content placement and positioning and the dimensions will match the configured display size. If **Manual** is chosen, the operator manually defines the content placement and positioning. *This feature should not be used unless instructed to do so by Daktronics technicians.* Refer to **Figure 32**.

Note: Take care to avoid shifting the output from the display's viewable area.

Figure 32: Input - Target Dimensions

Test Pattern

Select **Test Pattern** from the **Display Mode** drop-down menu to open the **Test Pattern** drop-down menu and the **Minimum Hold Time (Seconds)** field. Refer to **Figure 33** and **Figure 34**. Test patterns are used during display installation and troubleshooting, and to test display operation when no video sources are available.

Figure 33: Input - Test Pattern Display Mode

Figure 34: Test Patterns

After selecting a test pattern from the drop-down menu and entering the **Minimum Hold Time**, click **Save** to start the test pattern. The **Minimum Hold Time** sets the time between pattern changes for test patterns that consist of multiple patterns.

Note: Test patterns play immediately when selected, interrupt any currently playing video, and continue to run until the **Display Mode** is changed.

Change the **Color Adjustment** settings, the **Source Dimensions**, and the **Target Dimensions** as described in **DVI (p. 14)**.

Note: Take care to avoid shifting the output from the display's viewable area.

Refer to the table below for a list of all available test patterns and their descriptions.

Test Pattern	Description
Module Locator	Displays an alternating pattern showing the row and then the column of each module
Module ID	Displays a pattern that numbers each display module
Module ID 48x48	Displays a module ID pattern rendered at 48x48 for non-square/non-matrix modules
Module ID 32x32	Displays a module ID pattern rendered at 32x32 for non-square/non-matrix modules
Module ID 16x16	Displays a module ID pattern rendered at 16x16 for non-square/non-matrix modules
Color Bars	Displays a pattern similar to SMPTE color bars
Diagonal Pattern	Displays scrolling red, green, and blue diagonal lines from left to right across the display
All On	Displays red, green, blue, and white on the entire display
All On Red	Displays red on every pixel of the display
All On Green	Displays green on every pixel of the display
All On Blue	Displays blue on every pixel of the display
All On White	Displays white on every pixel of the display
All Off	Displays black on the entire display as the LEDs are turned off
Calibration Corners	Displays a pattern of dots on the corners of every module to aid in field calibration
Calibration Half On	Displays a RGB sequence with reduced brightness for field calibration

Stored Content

Select **Stored Content** from the drop-down menu to use locally stored image files as the input source. Refer to **Section 6: Monitor (p. 33)** for supported image file types and instructions for uploading content. Stored content must be available for the **Stored Content** display mode to function. Refer to **Figure 35**.

The **Minimum Hold Time** sets how long the stored content is displayed.

The screenshot shows a configuration window titled "Input". It contains two main settings:

- Display Mode:** A dropdown menu with "Stored Content" selected and highlighted in blue.
- Minimum Hold Time (Seconds):** A text input field containing the number "1".

Figure 35: Input - Stored Content Display Mode

Change the **Color Adjustment** settings, the **Source Dimensions**, and the **Target Dimensions** as described in **DVI (p. 14)**.

Blank

Select **Blank** from the drop-down menu to cause the display to show a blank output.

Output

Output sets the entire display output as **Active** or **Inactive**.

Displays can be configured to use primary and backup processor systems. If the processor system is the primary system, the **Output State** should be set as **Active**. If the processor system is the backup system, the **Output State** should be set as **Inactive**. Both primary and backup systems cannot be set as **Active** at the same time.

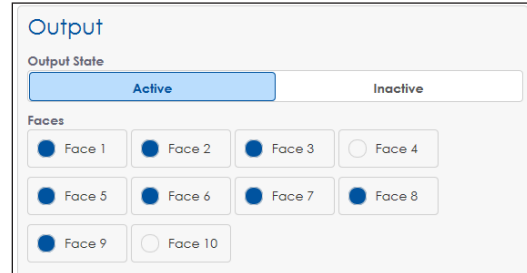


Figure 36: Output State - Multiple Faces

Note: If the **Output State** is not set as **Active** and there is no backup system, the display will be blank.

If the **Output State** is set to **Active** and the display system has more than one face, the operator can also set specific display faces as either **Active** or **Inactive**. This option may be used in a venue with a four-sided centerhung display where the three display faces facing the audience are set as **Active** and the fourth face (the one facing the performer) is set as **Inactive**. Refer to **Figure 36**.

The **Boot Sequence** drop-down menu allows the operator to select what is shown during the display's startup procedure. Refer to **Figure 37**.



Figure 37: Boot Sequence Mode

- **Full** mode shows the description, display dimensions, color depth, time zone, list of communication services, firmware version, and the IP address. Playback begins after this is shown. **Full** is the default mode.
- **Compact** mode shows only product and version information. Playback begins after this is shown.
- **None** mode shows no information and playback starts immediately following start-up.

The **Green Mode** percentage field and slider bar sets a threshold for dimming the content shown on the display.

This option is used to conserve power by adjusting content dimming when it exceeds the maximum threshold limit. If full-motion video is displayed, this setting should be 100 percent. Refer to **Figure 38**.

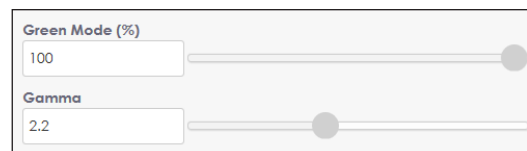


Figure 38: Output - Green Mode & Gamma

The **Gamma** number field and slider bar adjusts the image's middle ranges of color but does not alter its full white or black values.

The **Color Space** setting changes how data looks on the display to match the selected video input color profile. HDTV/sRGB and Adobe RGB are common color profiles for computer sources. Other color profiles include NTSC, NTSC Obsolete, and PAL. The operator can set the **Color Space** to **Disabled** or create custom settings. The default setting is **Disabled**. Refer to **Figure 39**.

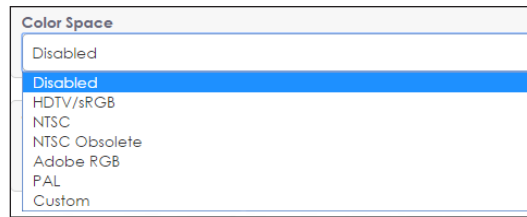


Figure 39: Output - Color Space

The **Translation Table** function enables the operator to upload a new translation table file. The translation table defines the display's internal component types as well as the internal wiring. Translation tables vary based on display size and type. Refer to **Figure 40**.

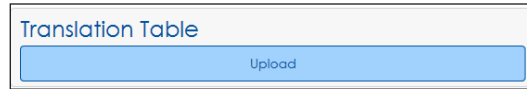


Figure 40: Output - Translation Table Upload

Contact Daktronics Technical Services to obtain the correct translation table.

Note: After uploading the translation table, the display output may be temporarily out-of-sync while the translation is applied.

The **Display Information** section provides information on the physical characteristics of the display. This information cannot be modified by the operator. Refer to **Figure 41** and the table below.

Display Information

Dimensions (W x H)
22 x 44

Number of Faces
10

ED Number
Not specified

Contract
Not specified

Title
16MT 10 Faces 20PLRs-P

Date Created
13:07:24 Mar 09 2011

Figure 41: Output - Display Information

Display Information	Description
Dimensions (W x H)	Width and height of the display's active area (in pixels)
Number of Faces	Number of display faces the controller is designed to operate
ED Number	Daktronics document number assigned to the translation table
Contract	Daktronics contract number for the equipment and installation (CXXXXX)
Title	Translation table name that includes the display series number, display size, pixel pitch, LED color, etc.
Date Created	Date the translation table was created

Brightness

Brightness sets the brightness (or dimming) level of the display. The operator can determine how the brightness of the display is controlled with the **Mode** drop-down menu. Refer to **Figure 42**.

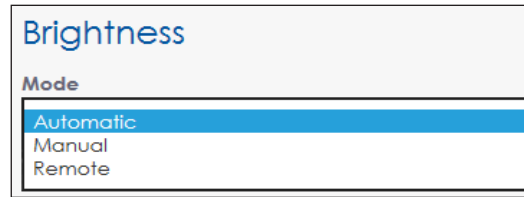


Figure 42: Brightness - Mode

- **Automatic** - Brightness values are determined by a light sensor and automatically adjusted according to ambient light conditions. Values vary to reflect the information received from the light sensor. During the day or in bright areas, display brightness will be the maximum set percentage. At night or in dim areas, the display brightness will be the minimum set percentage.
- **Manual** - Brightness values are set manually by using the slider bar or by entering a value in the field labeled **Manual level (%)**. The display will continue to run at this brightness level until changed by the operator.
- **Remote** - Brightness values are set within a host-client processor system. One VIP acts as the host and dictates the dimming level for the client systems. This dimming mode requires at least two VIP systems as well as a light sensor or VPMP (Video Processor Management Protocol) program to send dimming commands.

Brightness Limits

The settings under **Brightness Limits** determine the minimum and maximum brightness for either **All Day** (24-hours) or for the **Day and Night**.

The **All Day** option sets the display's minimum and maximum brightness for a 24-hour period by typing in percentage values or by using the slider bars. Limits do not change based on time of day. Refer to **Figure 43**.

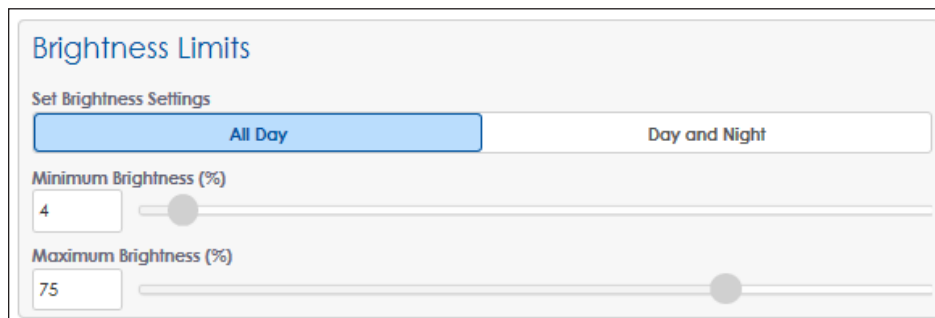


Figure 43: Brightness Limits

The **Day and Night** option sets the display's minimum and maximum brightness values based on the time of day. The time of day can be set as either the sunrise/sunset times or by entering in specific times of the day. Clicking the **Day and Night** option under **Set Brightness Settings** opens a graph showing minimum and maximum brightness levels. These values are entered under the **Day** and **Night** sections as shown in **Figure 44** and **Figure 45**.

To set the brightness limits based on the sunrise and sunset, the status file retrieves the sunrise/sunset times in HH:MM:SS. If this time cannot be retrieved, the firmware defaults to a value of 6:00 AM for sunrise and 9:00 PM for sunset.

The operator can set an offset time either before or after sunset/sunrise. For example, the brightness level can be set to take effect 30 minutes before sunrise each day by entering **-30** in the sunrise **Offset** field or 30 minutes after sunset each day by entering **30** in the **Offset** field.

The area between the red and blue lines on the graph in **Figure 44** shows the brightness values that the display can operate within.

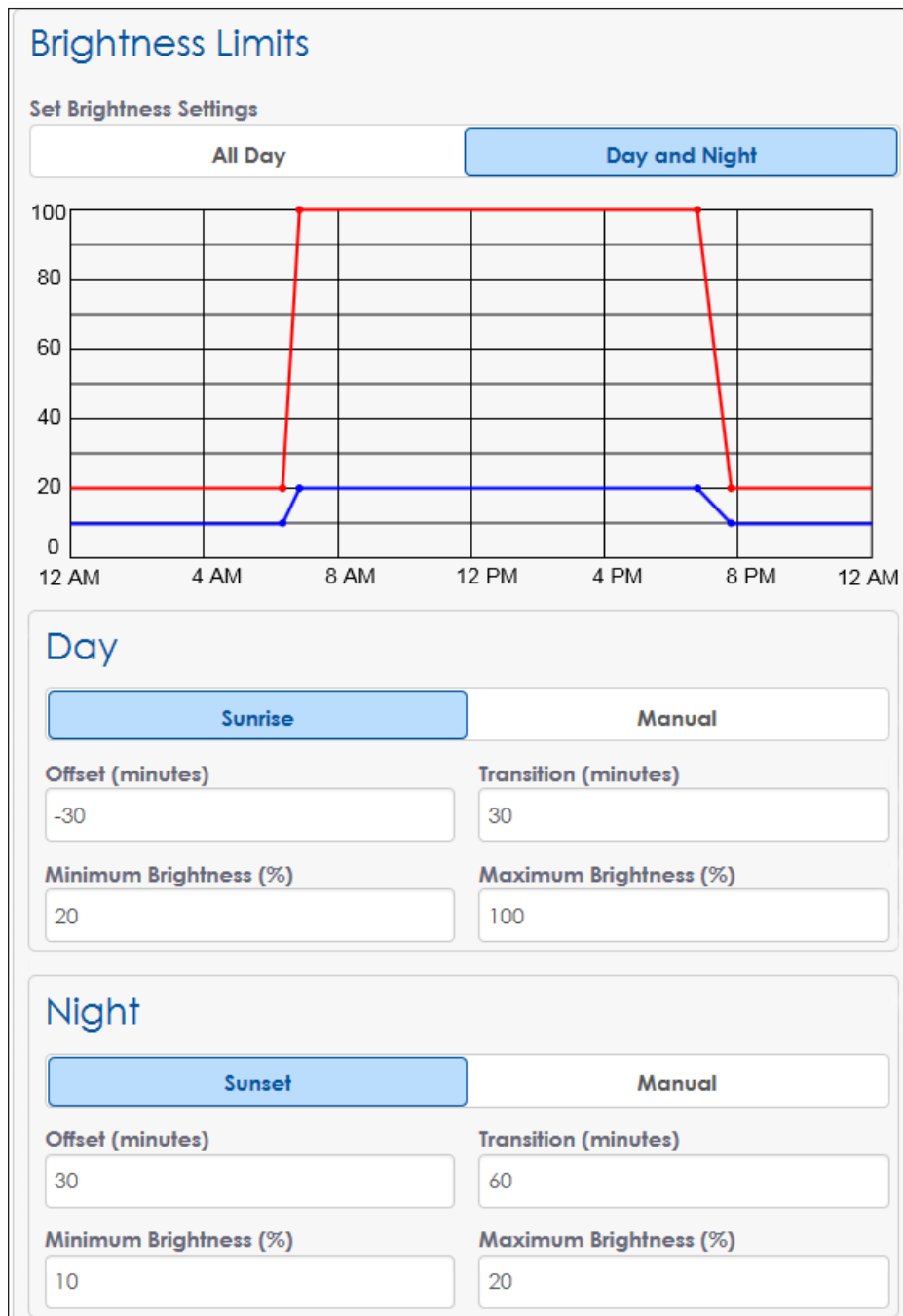


Figure 44: Brightness Limits - Day and Night, Sunrise and Sunset

The operator can set the transition time between brightness levels (how long it takes for the sign to change brightness levels between day and night settings). For example, **Figure 45** shows the transition from the 100% brightness level during the day to the maximum nighttime brightness level of 20% will take 60 minutes. The transition from the 20% brightness level during the night to the maximum daytime brightness level of 100% will take 30 minutes. This difference in transition time is shown in the graph.

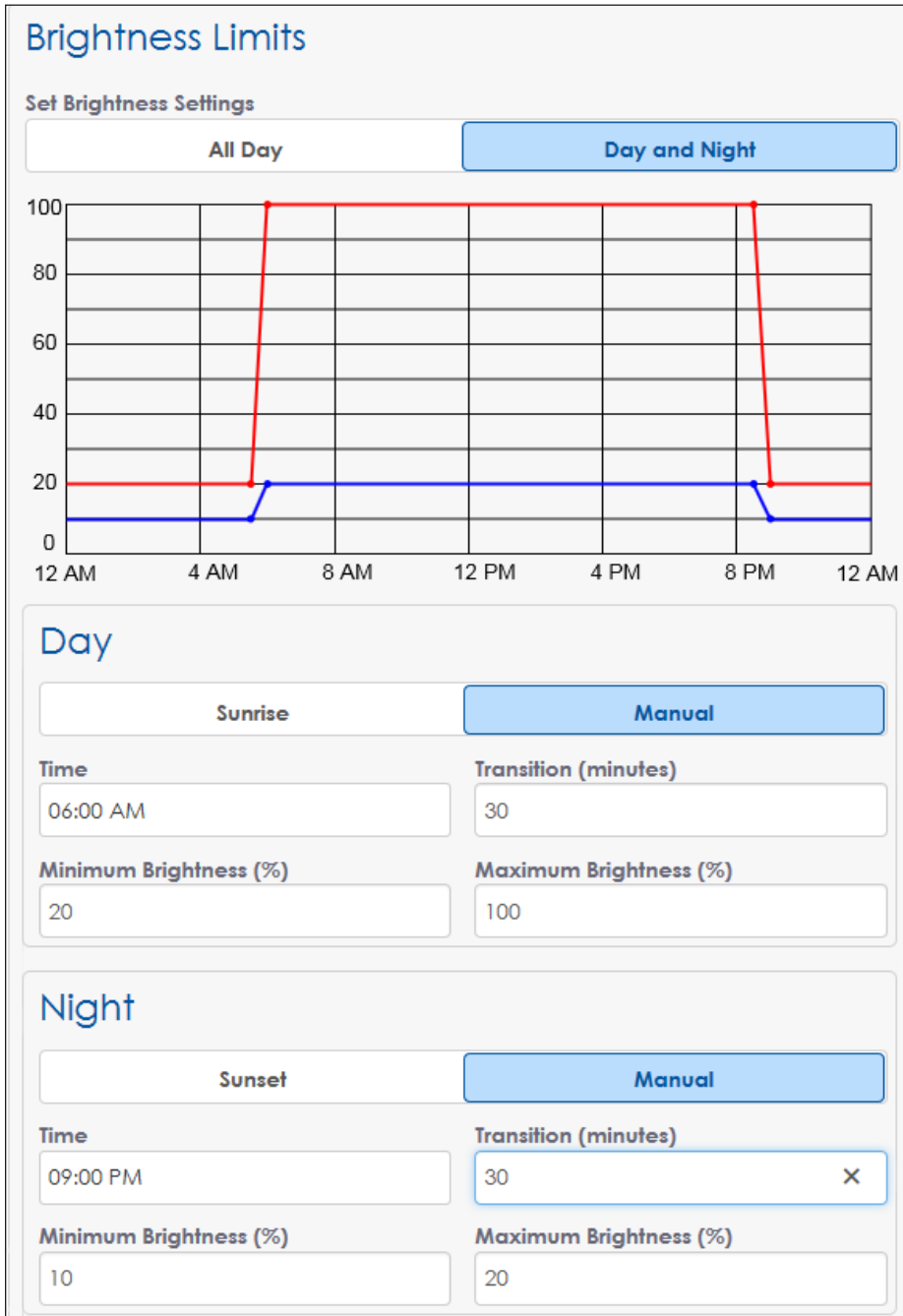


Figure 45: Brightness Limits - Day and Night, Manual

Note: Time-based dimming control depends on GPS coordinates. The interface will not allow time-based brightness limiters if GPS coordinates are not set. To set GPS coordinates, refer to **Location (p. 30)**.

Thermal Dimming Override

The **Thermal Dimming Override** function disables the thermal dimming safeguard. Thermal dimming is triggered automatically during temperature extremes to preserve the life of a display's electrical components. Refer to **Figure 46**.

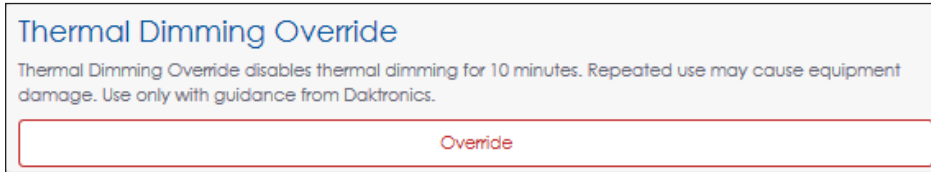


Figure 46: Thermal Dimming Override

The default thermal dimming trip point is set at 80 °C in the translation table. Dimming is triggered when display electronics reach or exceed this trip point. Once the display temperature falls below the trip point, the display brightness will increase to the original value. The VIP uses an advanced algorithm to determine thermal dimming, but in rare cases, the VIP may enter or exit thermal dimming mode when the display temperature is slightly above or below the trip point. When thermal dimming is active, a notice opens under the **Important Messages** tile in the **Dashboard** to warn the operator of this state.

The **Thermal Dimming Override** feature allows users to temporarily override the automatic dimming function during temperature extremes if the display becomes too dim for normal viewing. The override function times out after 30 minutes, and the display will begin to dim again if the temperature remains above the trip point. Even if the override is activated, each component in the display also has a maximum allowable operating temperature; if this is exceeded, the component will blank itself. Components will automatically return to normal operation once the temperature falls into a safe range.

Note: Repeatedly using the **Thermal Dimming Override** or repeatedly increasing the trip point temperature may result in shortened display life or permanent damage to electronics, and may void portions of the display warranty. Use the override function and increase the trip point only when instructed to do so by Daktronics technicians.

Network

Network sets the network configuration for the processor. Configure both the Internet Protocol (IP) address and the Domain Name Server (DNS) address to communicate with the local area network (LAN).

Choose how the network is configured with the **Mode** drop-down menu. Refer to **Figure 47**.

- **Ethernet Only** - The processor is not paired directly with a playback device such as a PC. The processor is the endpoint on the network and does not pass traffic to a connected device. This mode is typically used in standalone situations.
- **Ethernet-USB Bridge** - The processor passes all network traffic to a USB-connected device. Both the processor and USB-connected device appear as endpoints on the local network. This mode is typically used in billboard systems.
- **NAT** - The processor acts as a routing device to make a USB-connected device and the processor appear as one endpoint on a network.

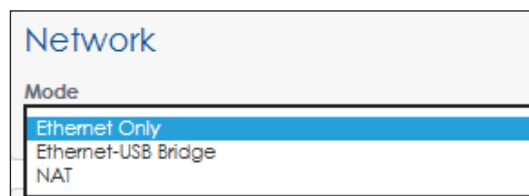
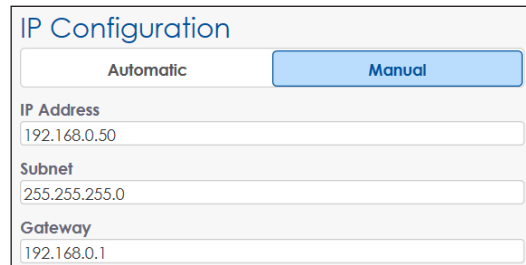


Figure 47: Network - Mode

IP Configuration

Configure the Internet Protocol (IP) address either automatically or manually. Refer to **Figure 48**.

- **Automatic:** The Dynamic Host Configuration Protocol (DHCP) automatically assigns an IP address to the VIP. A DHCP server is required on the network for proper operation. If the network configuration is left in this mode and no DHCP server exists on the network, the address will default to **169.254.x.y**, where **x** and **y** will vary to assign a unique address on the network.
- **Manual:** The VIP is manually configured to use a specific IP address. Enter the **IP Address**, **Subnet**, and **Gateway** values manually when a DHCP server does not exist or when the installation requires the VIP to always use a static IP address.

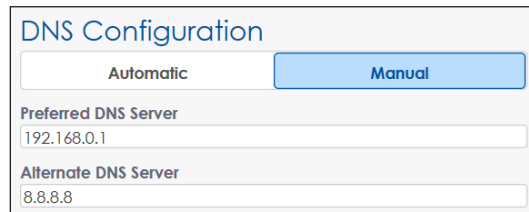


IP Configuration	
<input type="radio"/> Automatic	<input checked="" type="radio"/> Manual
IP Address	192.168.0.50
Subnet	255.255.255.0
Gateway	192.168.0.1

Figure 48: Network - IP Configuration

DNS Configuration

Domain Name Server (DNS) configuration is required to resolve host names for several services running on the VIP. Services such as diagnostics (IDM), control (Venus® Control Suite), and time servers require internet host names to be expressed in their dotted IP address format. An example of such a name resolution is the internet host name **www.daktronics.com** resolved to **64.233.169.147**. Refer to **Figure 49**.



DNS Configuration	
<input type="radio"/> Automatic	<input checked="" type="radio"/> Manual
Preferred DNS Server	192.168.0.1
Alternate DNS Server	8.8.8.8

Figure 49: Network - DNS Configuration

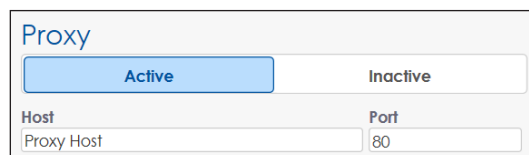
Configure the DNS address either automatically or manually.

- **Automatic:** Information is received from a local Dynamic Host Configuration Protocol (DHCP) server to assign the address. To use this option, the **IP Configuration** also must be set to **Automatic**.
- **Manual:** The VIP is manually configured to use a specific DNS server on the internet or on the network. This option is used when a DHCP server is not available on the local network or the network administrator want to use a specific DNS server. Enter a **Preferred DNS Server** (primary server) and an **Alternate DNS Server**. The VIP will query the alternate DNS server address in the event that the primary server does not respond.

Proxy

In systems with a proxy server, the operator defines the proxy host name and port number. Refer to **Figure 50**. Contact the local network administrator for more information.

- **Active:** Select **Active** to activate the proxy server. Enter the host name into the **Host** field and the proxy port into the **Port** field.
- **Inactive:** Select **Inactive** to inactivate the proxy server.



Proxy	
<input checked="" type="radio"/> Active	<input type="radio"/> Inactive
Host	Port
Proxy Host	80

Figure 50: Network - Proxy

Network Test

Network Test is used to troubleshoot possible network issues. The operator tests the signal being received and being sent out. **Network Test** tests the processor using information from the server, not the remote computer used for control. This is used for questions such as “Can the VIP connect to IDM?”. The default target address **fusion.daktronics.com** is the IDM URL. This URL may be changed to any target site. Choose the type of network test from the drop-down menu. Refer to **Figure 51**.

- **Ping** - This test verifies successful communication between the control computer and the devices connected to it. The processor sends out a ping signal request to the target address and receives back a live output. The results of the test are listed as ping statistics in the main window. The results include the number of signal packets transmitted, the number of packets received, the percentage of packet loss, and the time it took for the signal packets to travel round-trip (minimum, average, maximum time). Refer to **Figure 52**.

Note: Review the **Ping** test results with caution. If the target address has ping disabled, it cannot send back a response.

- **Trace** - This test sends out a signal request to a target address and receives back information on how many hops the packet requires to reach the host and how long each hop takes. Refer to **Figure 53**.

```
tracert to fusion.daktronics.com (63.85.214.54), 30 hops max, 38 byte packets
 1  my.meraki.net (192.168.0.1)  1.269 ms  1.037 ms  0.927 ms
 2  10.0.61.1 (10.0.61.1)  2.254 ms  1.393 ms  1.256 ms
 3  66-17-99-145-swiftel.brookings.net (66.17.99.145)  9.293 ms  9.930 ms  9.201 ms
 4  66-17-96-226-swiftel.brookings.net (66.17.96.226)  9.597 ms  10.367 ms  9.728 ms
 5  gw1.daktronics.com (63.85.214.4)  10.897 ms  10.156 ms  10.648 ms
 6  63.85.214.54 (63.85.214.54)  10.804 ms  * 11.124 ms
```

Figure 53: Network Test - Trace

- **Lookup** - This test uses the configured DNS servers to look up the IP address of the specified domain name. Refer to **Figure 54**.
- **Bandwidth** - This test sends and receives information from the remote computer to the processor. The test lists the average and maximum speeds for uploading and downloading data. Refer to **Figure 55**.

```
Server: 192.168.0.1
Address 1: 192.168.0.1 my.meraki.net

Name: fusion.daktronics.com
Address 1: 63.85.214.54
```

Figure 54: Network Test - Lookup

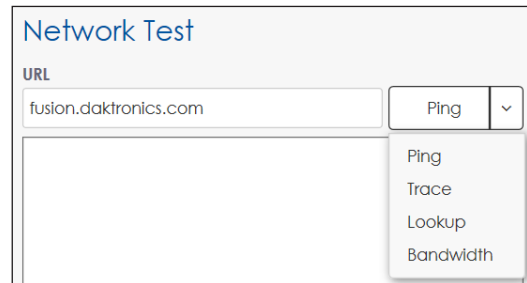


Figure 51: Network - Network Test

```
PING fusion.daktronics.com (63.85.214.54): 56 data bytes
64 bytes from 63.85.214.54: seq=0 ttl=123 time=10.604 ms
64 bytes from 63.85.214.54: seq=1 ttl=123 time=10.856 ms
64 bytes from 63.85.214.54: seq=2 ttl=123 time=11.254 ms
64 bytes from 63.85.214.54: seq=3 ttl=123 time=10.219 ms

--- fusion.daktronics.com ping statistics ---
4 packets transmitted, 4 packets received, 0% packet loss
round-trip min/avg/max = 10.219/10.733/11.254 ms
```

Figure 52: Network Test - Ping

```
Running bandwidth test... 100% completed

Upload
Average: 6.04 Mbits/s
Max: 11.75 Mbits/s

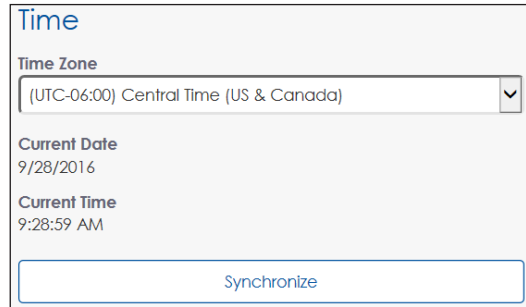
Download
Average: 256.25 Mbits/s
Max: 341.33 Mbits/s
```

Figure 55: Network Test - Bandwidth

Time

Time sets the time zone for the processor, synchronizes the time, and configures the Network Time Protocol (NTP) servers.

Use the **Time Zone** drop-down menu to pick the correct time zone for the display. The correct time zone is necessary for accurate astronomical brightness control and system log time stamps. The default time zone is **(UTC-06:00) Central Time (US & Canada)**. Refer to **Figure 56**.

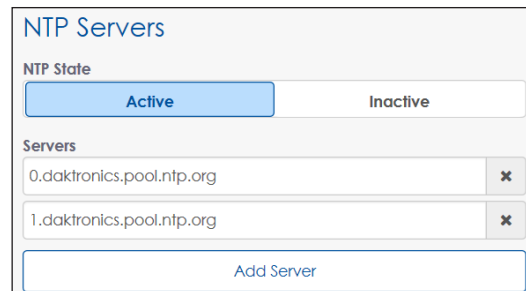


The screenshot shows the 'Time' configuration interface. At the top, the title 'Time' is displayed. Below it, the 'Time Zone' is set to '(UTC-06:00) Central Time (US & Canada)' in a dropdown menu. The 'Current Date' is shown as '9/28/2016' and the 'Current Time' is '9:28:59 AM'. At the bottom of the panel, there is a 'Synchronize' button.

Figure 56: Time - Time Zone

Click the **Synchronize** button to synchronize the display's clock with the laptop's internal clock.

Network Time Protocol (NTP) servers synchronize the controller's clock with the selected time server. This setting is the default clock source and runs in the background to automatically maintain a precise time. The controller's network settings must be correct and the operator must have access to the time server for this function to operate.



The screenshot shows the 'NTP Servers' configuration interface. The 'NTP State' is set to 'Active' (indicated by a blue button). Below this, there are two 'Servers' listed: '0.daktronics.pool.ntp.org' and '1.daktronics.pool.ntp.org', each with a delete icon (x). At the bottom, there is an 'Add Server' button.

Figure 57: Time - NTP Servers

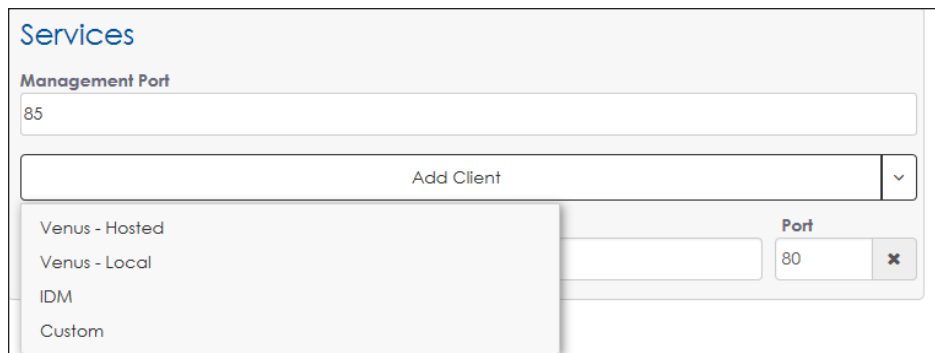
Set the NTP state as **Active** or **Inactive**. If the state is **Active**, two default addresses are used for synchronizing the time. Refer to **Figure 57**.

- The first address is the primary NTP server. The default address is **0.daktronics.pool.ntp.org**.
- The second address is the secondary NTP server. The default address is **1.daktronics.pool.ntp.org**.

These default addresses may be changed and additional NTP servers can be added by clicking the **Add Server** button.

Services

Services configures the processor to communicate with other related software programs. The **Management Port** number is appended to the IP address or host name to connect to the user interface. The **Management Port** is usually **85** but may be **80**. Choose the desired client program from the drop-down menu. Refer to **Figure 58**.



The screenshot shows the 'Services' configuration interface. The 'Management Port' is set to '85'. Below it, there is an 'Add Client' dropdown menu. A list of client programs is shown: 'Venus - Hosted', 'Venus - Local', 'IDM', and 'Custom'. To the right of this list, there is a 'Port' field set to '80' with a delete icon (x).

Figure 58: Services - Add Client

- **Venus - Hosted:** This option is the Daktronics-hosted (remote, cloud-based) Venus® Control Suite software program. When this is chosen, the **Host** field is set as **venus.daktronics.com** and the **Port** field is set as **443** by default. Refer to **Figure 59**.

The screenshot shows the 'Services' configuration interface. At the top, the 'Management Port' is set to 85. Below it is an 'Add Client' button with a dropdown arrow. At the bottom, the 'Host' field is populated with 'venus.daktronics.com' and the 'Port' field is set to 443.

Figure 59: Services - Venus-Hosted

The screenshot shows the 'Services' configuration interface. The 'Management Port' is 85. The 'Host' field is empty, and the 'Port' field is 8811. A red error message 'Please enter a Host' is displayed below the Host field.

Figure 60: Services - Venus Local

- **Venus - Local:** This option is the Venus® Control Suite software program that is hosted from a local computer server. When this is chosen, the **Host** field is blank and the **Port** field is set as **8811** by default. Fill in the correct **Host** information before saving. Refer to **Figure 60**.
- **IDM:** This option is the Daktronics Intelligent Device Management (IDM) system, an internet-based monitoring and diagnostic system. When this is chosen, the **Host** field is set as **fusion.daktronics.com** and the **Port** field is set as **443** by default. Refer to **Figure 61**.

The screenshot shows the 'Services' configuration interface. The 'Management Port' is 85. The 'Host' field is populated with 'fusion.daktronics.com' and the 'Port' field is set to 443.

Figure 61: Services - IDM

The screenshot shows the 'Services' configuration interface. The 'Management Port' is 85. The 'Host' field is empty, and the 'Port' field is 80. A red error message 'Please enter a Host' is displayed below the Host field.

Figure 62: Services - Custom

- **Custom:** This option allows the operator to configure the processor to communicate with any other software program not on the drop-down menu. When this is chosen, the **Host** field is blank and the **Port** field is set as **80** by default. Refer to **Figure 62**.

Peripherals

Peripherals contains display sensor information. Peripheral sensors can be added from the **Add Peripheral** drop-down menu. Refer to **Figure 63**.

The screenshot shows the 'Peripherals' configuration interface. A dropdown menu labeled 'Add Peripheral' is open, displaying a list of sensor types: Light, Temperature, Power Control, Run LED, Power Monitor, and Door Switch.

Figure 63: Peripherals - Add Peripheral

If a peripheral device is configured but the VIP is unable to receive responses, a red banner opens at the top of the device configuration section. Refer to **Figure 64**.



Figure 64: Disconnected Peripheral Device

Light

A light sensor automatically controls display brightness based on ambient light conditions. To configure the light sensor, follow the instructions below while referring to **Figure 65**.

1. Select the type of light sensor from the **Type** drop-down menu. The default light sensor is **CAN** (Controlled Area Network).

- **CAN** – A controller area network-based sensor that returns light intensity readings
- **CAN LUX** – A controller area network-based sensor that returns light intensity readings in LUX units
- **CAN Multi Direction** – A controller area network-based sensor that returns light intensity readings or LUX unit light readings from several directions

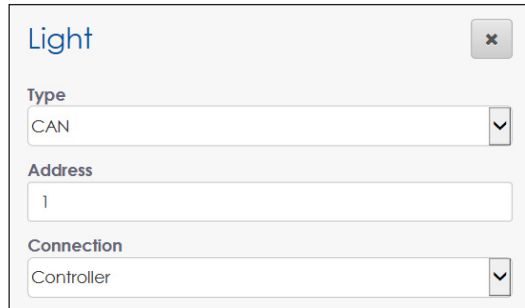


Figure 65: Peripherals - Light Sensor

2. Enter the sensor's configured address in the **Address** field.
3. Select the connection type from the **Connection** drop-down menu.
4. Click **Save** at the top of the screen to save the changes.

Temperature

An external temperature sensor is connected to the controller and used for logging the current temperature at the display location. To configure the temperature sensor, follow the instructions below while referring to **Figure 66**.

1. Enter the sensor's configured address in the **Address** field.
2. Select the connection type from the **Connection** drop-down menu.
3. Adjust the temperature offset if necessary by typing in a value in the **Offset** field or by moving the offset slider. The default offset is **0**.



Figure 66: Peripherals - Temperature Sensor

Note: The offset adjusts the external temperature sensor at the display site to compensate for environmental conditions such as a sensor mounted too close to a heat source or in the shade. These conditions will affect the temperature reading by a specified amount (-9 °C to +9 °C).

4. Click **Save** at the top of the screen to save the changes.

Power Control

There are four standard power control relays. To configure these relays, follow the instructions below while referring to **Figure 67**.

1. Type a descriptive name for the power control relay in the **Relay** field. The example in **Figure 67** shows four relay names typically used in a standard billboard display.
2. Choose the power control option from the drop-down menu. This choice determines the reset option(s) available for the power relay under **Troubleshooting**. Refer to **Power Control (p. 39)**.
 - **Cycle** – sends a command to turn the relay off for 10 seconds and then turns it back on
 - **On/Off** – sends an On or Off command. The relay remains in the On or Off state until the operator makes a change. Be careful to not turn off relays that may be connected to the processor.
 - **Full** – includes both the **Cycle** and **On/Off** options listed below
3. Click **Save** at the top of the screen to save the changes.

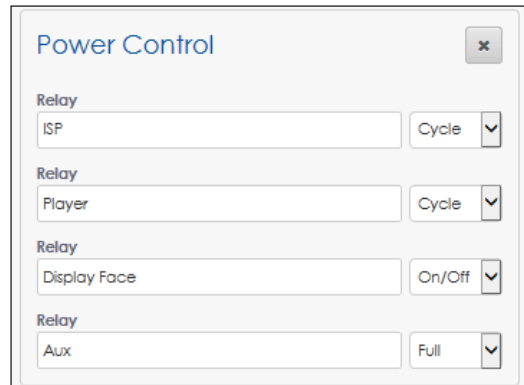


Figure 67: Peripherals - Power Control

Note: Not all displays are shipped with power relay controls.

Run LED

The run LED sensor configures the processor's external "heartbeat" LED indicating the processor is on and operational. To configure the run LED sensor, follow the instructions below while referring to **Figure 68**.

1. Choose **Automatic** or **Manual**.
 - **Automatic** – the address is automatically detected by the processor. The default address is 4.
 - **Manual** - the address is set manually.
2. Enter the address in the **Address** field if **Manual** was chosen in Step 1.
3. Click **Save** at the top of the screen to save the changes.

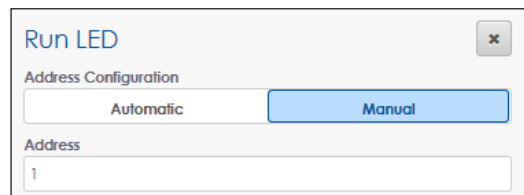


Figure 68: Peripherals - Run LED

Power Monitor

The power monitor sensor detects power loss. If the display is connected to a Daktronics power supply, a power loss sends an immediate diagnostic notice to IDM indicating a power failure condition has occurred.

To configure the power monitor sensor, follow the instructions below while referring to **Figure 69**.

1. Choose **Automatic** or **Manual**.
 - **Automatic** – the address is automatically detected by the processor. The default address is **3**.
 - **Manual** - the address is set manually.
2. Enter the address in the **Address** field if **Manual** was chosen in Step 1.
3. Click **Save** at the top of the screen to save the changes.

Figure 69: Peripherals - Power Monitor

Door Switch

The door switch sensor detects door openings. By default, an open door disables video input and switches to the **Default Content** mode. To configure the door sensor, follow the instructions below while referring to **Figure 70**.

1. Choose **Automatic** or **Manual**.
 - **Automatic** – the address is automatically detected by the processor. The default address is **2**.
 - **Manual** - the address is set manually.
2. Enter the address in the **Address** field if **Manual** was chosen in Step 1.
3. Click **Save** at the top of the screen to save the changes.

Figure 70: Peripherals - Door Switch

Location

Location configures the display's location. The options enable the operator to manually set the display's location which can be used to calculate the appropriate dimming level. Refer to **Figure 71**.

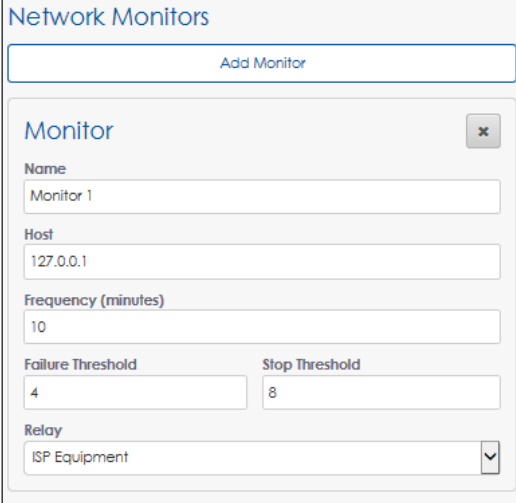
- **Continent:** Selects the continent where the display is installed. If the appropriate continent is not shown, select **Other**.
- **Country:** Selects the country where the display is installed
- **State/Province:** Selects the state or province where the display is installed if **North America** is selected as the **Continent**
- **City:** Selects the city where the display is installed
- **Latitude/Longitude:** Selects the display's latitude and longitude coordinates. These values populate automatically based on the **Continent**, **Country**, **State/Province**, and **City** information or the operator can manually enter location coordinates.

Figure 71: Location

Network Monitors

Network Monitors configures the monitoring system for the network. Monitors are used in conjunction with Power Relay control and attempt a recovery if a device becomes unresponsive on the network. Network monitors ping the player to determine why the display is not working, possibly eliminating the need for a service call. To configure network monitors, follow the instructions below while referring to **Figure 72**.

1. Type a descriptive name in the **Name** field.
2. Type the host address in the **Host** field.
3. Type in the **Frequency** field how often the monitor checks the network in minutes (1 to 60).
4. Type the number of times the system will receive a failure message before an action is taken in the **Failure Threshold** field.
5. Type the number of times the system will receive a failure message before the action is stopped in the **Stop Threshold** field.
6. Choose the desired power control relay from the **Relay** drop-down menu.
7. Click **Save** at the top of the screen to save the changes.



The screenshot shows the 'Network Monitors' configuration window. At the top, there is a title bar with the text 'Network Monitors' and a button labeled 'Add Monitor'. Below the title bar is a form titled 'Monitor' with a close button (X) in the top right corner. The form contains several input fields: 'Name' with the value 'Monitor 1', 'Host' with the value '127.0.0.1', 'Frequency (minutes)' with the value '10', 'Failure Threshold' with the value '4', and 'Stop Threshold' with the value '8'. At the bottom, there is a 'Relay' dropdown menu with 'ISP Equipment' selected.

Figure 72: Network Monitors

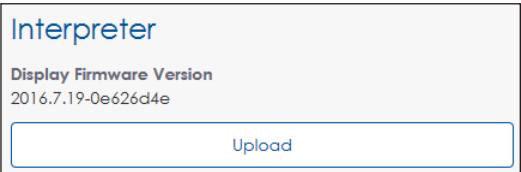
Diagnostics

Diagnostics enables the operator to update the diagnostic files used by the processor to return data to IDM. The current version for the diagnostic files is listed under **Display Firmware Version**. Refer to **Figure 73**.

Note: This action does not update the VIP processor firmware. To update the processor firmware, click the **Firmware** tile in the **Dashboard** and then click **Update**.

To update the display firmware, follow the instructions below.

1. Click **Upload** under the **Interpreter** section as shown in **Figure 73**. This triggers an **Open** dialog box.
2. Select the desired firmware package to upload (.deb or .hex file type). The name of the selected file will populate the **File name** text box.
3. Click **Open** to complete the upload and return to **Diagnostics**.
4. Click **Save** at the top of the screen to save the changes. The new file will be transferred to the display and the update will be performed.



The screenshot shows the 'Interpreter' section of the Diagnostics interface. It features a title bar with the text 'Interpreter'. Below the title bar, it displays 'Display Firmware Version' with the value '2016.7.19-0e626d4e'. At the bottom of the section, there is a button labeled 'Upload'.

Figure 73: Diagnostics

Fan Control

Fan Control provides three different methods for controlling the internal ventilation of the display cabinet. The **Fan Control** settings determine when the display fans will turn on and off. Refer to **Figure 74**.

PLR Fan Control

This sets the high and low temperatures that trigger the display fans. The fans will turn on once 10% or more of the modules exceed the **High** value. The fans will continue to run until all modules reach the **Low** value.

Brightness Fan Control

If set to **Active**, the **Brightness Fan Control** sets high and low brightness percentages that trigger the display fans. The fans will turn on once the display brightness percentage reaches the **High** value. The fans will continue to run until the brightness percentage reaches the **Low** value. The default state is **Inactive**.

Cabinet Fan Control

If set to **Active**, the **Cabinet Fan Control** sets the high and low temperatures that trigger the display fans. The fans will turn on once the PLR temperature sensor reaches the **High** value. The fans will continue to run until the PLR temperature sensor reaches the **Low** value. This control is used most often with the Street Furniture product line.

The screenshot shows a configuration interface for fan control with three sections:

- PLR Fan Control:** High (°C) is 65, Low (°C) is 55.
- Brightness Fan Control:** A toggle switch is set to **Active**. High (%) is 20, Low (%) is 10.
- Cabinet Fan Control:** A toggle switch is set to **Active**. Offset (°C) is 15, High (°C) is 40, Low (°C) is 30.

Figure 74: Fan Control



Note: The **Cabinet Fan Control** offset adjusts the PLR temperature sensor reading up or down (-30 °C to +30 °C). As shown in **Figure 74**, if the PLR sensor reads 40 °C with an offset of +15 °C, the effective reading is 55 °C. In this case, the fans will not be triggered since this is below the configured high point of 65 °C.

6 Monitor


Click **Monitor**  to open a window showing a video feed of the display input or output content. This video plays on a canvas that represents the display size. Refer to **Figure 75**.



Figure 75: Monitor


Use the arrow and magnifying glass icons    at the top of the video feed to re-size the monitor window to scale, larger, or smaller.

7 Stored Content

Stored Content  opens a display mode that uses locally stored content when the primary video source is unavailable or when a specific trigger occurs (i.e. a door switch is triggered when a cabinet door opens). **Stored Content** is a library for stored image files. Image files are easily added or deleted from this list.

Managing Stored Content Files

To manage the stored content files, follow the instructions below while referring to **Figure 76**.

1. Click **Add Image**. This triggers an **Open** dialog box.
2. Select the desired image(s) to upload. The name of the selected file(s) will populate the **File name** text box and the image(s) will be added to the list in the order they are uploaded.
3. Click the download icon  to download an image from the processor.
4. Click the delete icon  to remove any uploaded image.

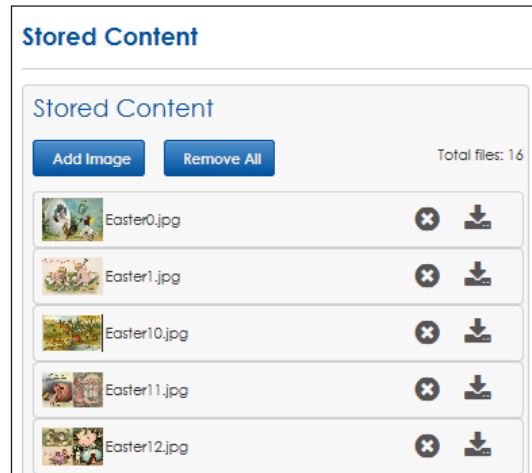


Figure 76: Stored Content

Note: Use caution when deleting any stored content files. The file is deleted as soon as the operator clicks the delete icon next to the file name.

5. Click **Remove All** at the top of the screen to remove all stored content files.


Note: Use caution when removing all stored content files. The files are deleted as soon as the operator clicks the **Remove All** button.

Supported image types are JPEG, PNG, and 24- and 32-bit. Multiple files can be added at the same time. The number of stored images is limited only by the storage space available on the processor. The available storage space is shown on the dashboard **Storage** file, refer to **Dashboard Tiles (p. 11)**.

Images should be added in the order the operator wants them to appear on the display. The order of images can be verified by the list of thumbnail images. Refer to **Figure 76**.

Note: Stored content only plays when **Stored Content** is selected from the **Display Mode** drop-down menu under **Configuration > Input > Display Mode**. Each image is displayed for the length of time set under **Minimum Hold Time**. Refer to **Stored Content (p. 17)**.

8 Troubleshooting

Click **Troubleshooting**  to open a troubleshooting window with a number of tests and options used to solve problems encountered with the processor. Refer to **Figure 77**.

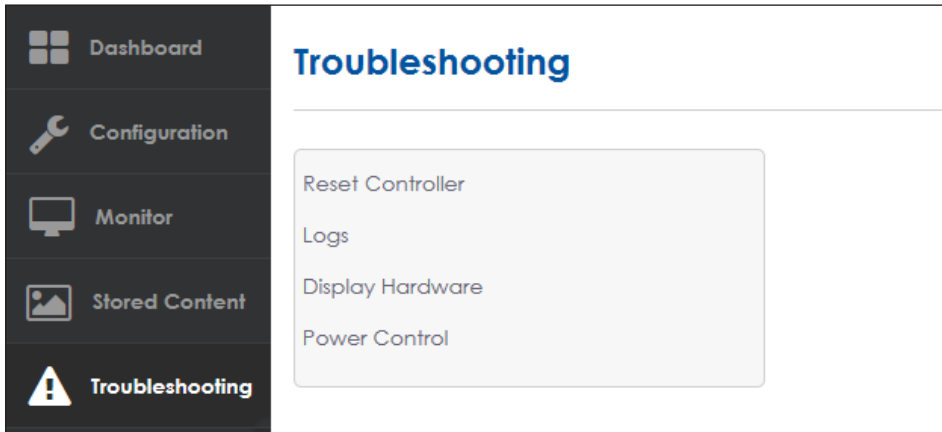


Figure 77: Troubleshooting

Reset Controller

This action restarts the controller remotely and interrupts the current display operation.

Click the red **Reset** button to restart the controller. Refer to **Figure 78**.

A prompt opens to confirm this action since this causes the display to be blank temporarily. Refer to **Figure 79**.



Figure 78: Reset Controller

Logs

This action exports and saves all the log information from the controller.

Click **Save** to export the log information. Refer to **Figure 80**.

A dialog box opens prompting the operator to either open the log file or save it to a default download directory.

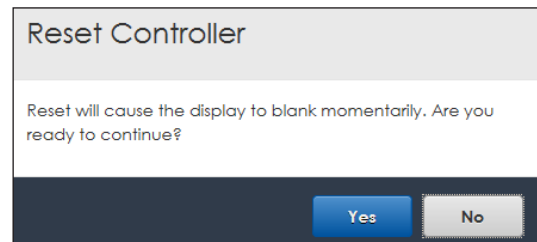


Figure 79: Reset Controller Prompt

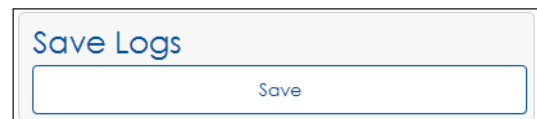


Figure 80: Save Logs

Note: Daktronics Technical Support may ask to review these exported log files when troubleshooting.

Display Hardware

These diagnostic test patterns verify that all wiring connections are made properly and that all hardware components are working correctly. During the tests, the processor sends modifiers to the PLR systems every five seconds, triggering the display modules to turn red or green.

Green modules indicate a pass status and red modules indicate a fail status. Modules with connection issues will turn red.

After choosing the test parameters, click **Run** to start the test. Once the test is complete, click **Stop** to stop the test. Refer to **Figure 81**. After either starting or stopping the test, a **Successfully updated test patterns** message opens in a green banner across the top of the screen.

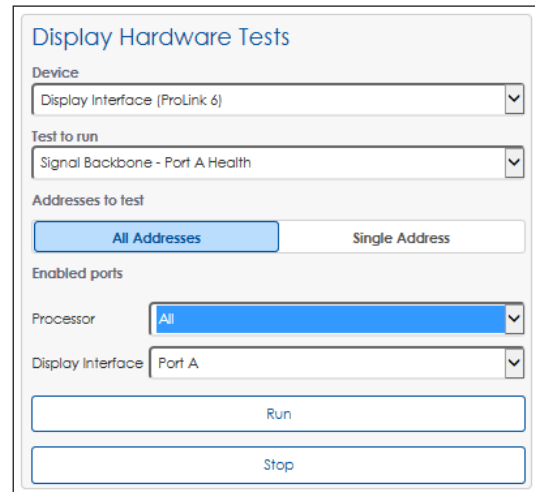


Figure 81: Display Hardware Tests

Note: For complete test results, run each test a few times making corrections in between tests.

Device

Select the device type from the drop-down list. Choose **Display Interface (ProLink 6)** to test the display's ProLink 6 PLR signal connections and firmware versions. Choose **Module (ProLink 5)** to test the ProLink 5 connections on the modules and firmware versions.

Test to Run

Select the desired hardware test from the drop-down list. Refer to **Figure 82**.

- **Signal Backbone - Port A Health** - available for the **Display Interface (ProLink 6)** device type only, this tests the ProLink 6 connections via fiber Port A on the PLRs. If the fiber going into Port A on a PLR is disconnected, the module(s) connected to that PLR will turn red. If the PLR has proper connection and communication via Port A, the module(s) connected to that PLR will turn green.
- **Signal Backbone - Port B Health** - available for the **Display Interface (ProLink 6)** device type only, this tests the ProLink 6 connections via fiber Port B on the PLRs. If the fiber going into Port B on a PLR is disconnected, the module(s) connected to that PLR will turn red. If the PLR has proper connection and communication via Port B, the module(s) connected to that PLR will turn green.
- **Output to Module - Port A Health** - tests the SATA Port A on the PLR. If the SATA Port A is connected to the modules properly, all the modules will turn green. If SATA Port A is not connected to the modules correctly, all the modules will turn red.
- **Output to Module - Port B Health** - tests the SATA Port B on the PLR. If the SATA Port B is connected to the modules properly, all the modules will turn green. If SATA Port B is not connected to the modules correctly, all the modules will turn red.

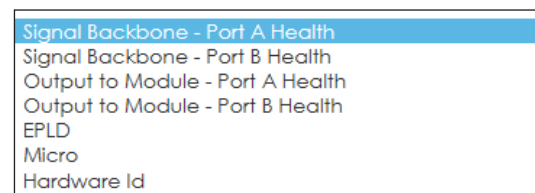


Figure 82: Test to Run Drop-Down List

- **EPLD** - tests the EPLD firmware. If all EPLD firmware is the same, all the modules will turn green. If there are modules with different firmware, all the modules connected to those PLRs will turn red.
- **Micro** - tests the Micro firmware. If all Micro firmware is the same, all the modules will turn green. If there are modules with different firmware, all the modules connected to those PLRs will turn red.
- **Hardware Id** - tests the hardware ID versions. If all the hardware ID versions are the same, all the modules will turn green. If there are modules with different hardware ID versions, all the modules connected to those PLRs will turn red.
- **Temperature** - available for the **Module (ProLink 5)** device type only, this tests indicates if a module is too hot or cold. If a module is too hot or cold, it will turn red. If the module temperature is within the acceptable range, it will turn green.

Addresses to Test

Choose **All Addresses** to test all connections. To target the test to a specific device, enter that device's address.

Enabled Ports

Choose the desired **Processor** or **Display Interface** output port to test. Refer to **Figure 83**. Enabling a specific port allows technicians to test the primary and secondary processor links without unplugging the fiber-optic or SATA cables.

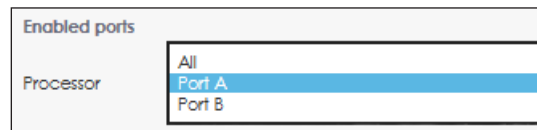


Figure 83: Processor Menu

Note: Do not use this feature unless instructed to do so by Daktronics technicians.

If **Port A** is selected from the drop-down list, Port B will be disabled, forcing the display to run only on its Port A link to the processor. Refer to **Figure 84**.

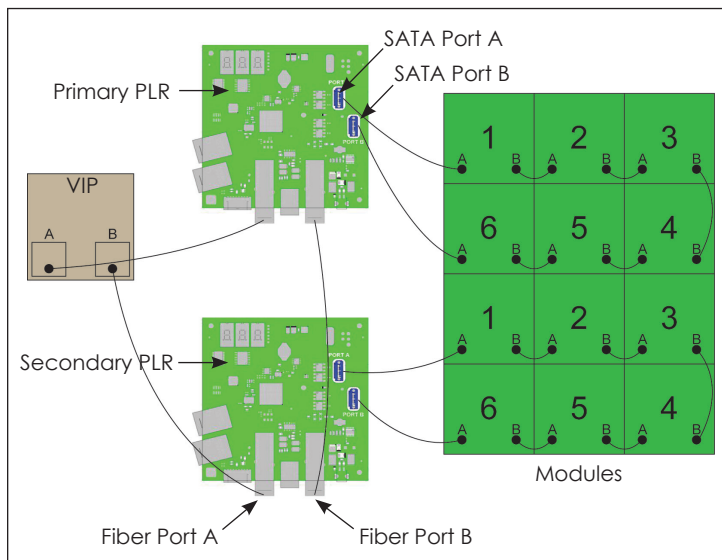


Figure 84: Primary and Secondary Processor Connections

In a system using a single PLR to run a group of modules, selecting **Port A** from the drop-down list has no effect on the display section. Selecting **Port B** causes the display to be blank.

In a system using two PLRs to run a display section, one PLR output is the primary link, and the other PLR is the secondary link. In this setup, selecting **Port A** from the display interface drop-down list will show problems detected by the primary PLR. Selecting **Port B** from the drop-down list will show problems detected by the secondary PLR. Refer to **Figure 85**.

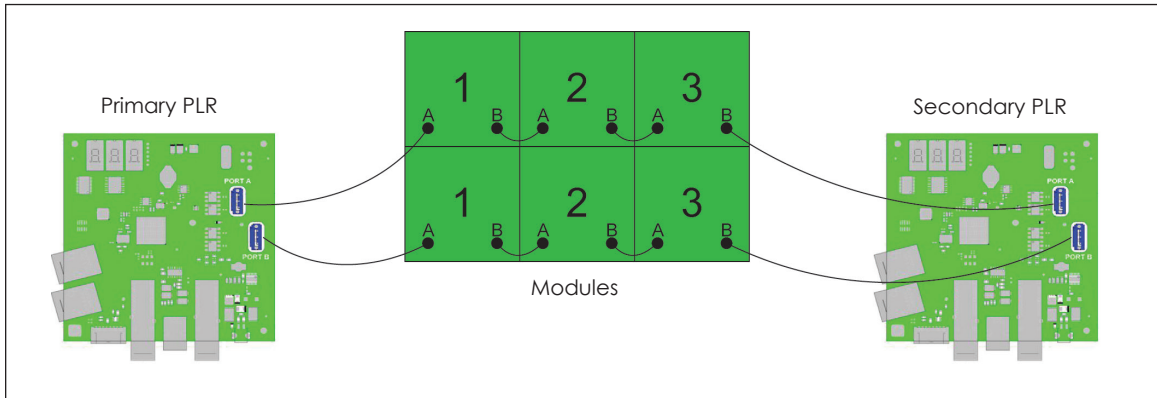


Figure 85: Setup Using Two PLRs

In a system using three PLRs to run display sections, one PLR output is the primary link, and the other PLR ports are secondary links. For the setup shown in **Figure 86**, PLR B is the primary link and PLR A and PLR C are the secondary links. PLR B is determined to be the primary link because the starting points of each module group connect to the SATA ports of PLR B.

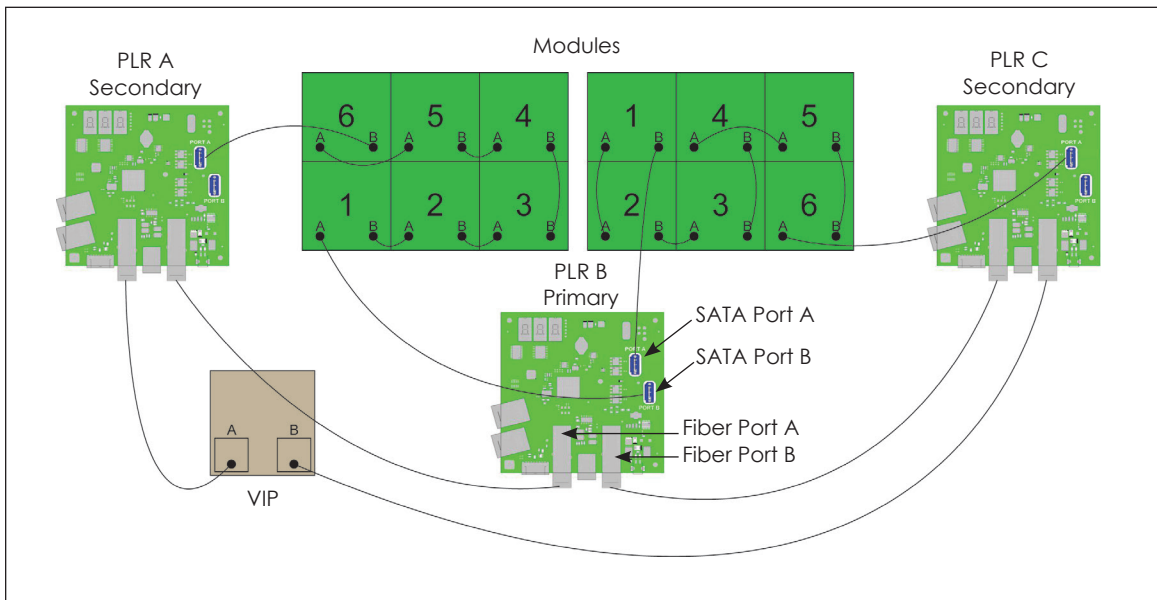


Figure 86: Setup Using Three PLRs

Power Control

Serial Loopback Test

This test verifies the serial cable functionality of a configured power relay control device.

After Clicking **Run Loopback Test**, the operator is prompted to connect the transmit and receive pins on the serial cable. Refer to **Figure 87**. Click **Yes** to start the test or **No** to exit.

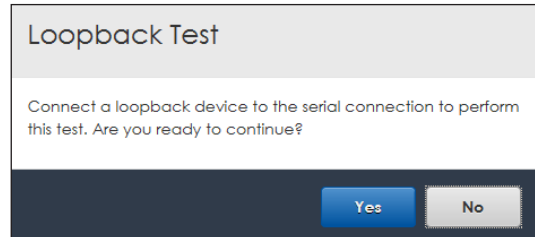


Figure 87: Serial Loopback Test Prompt

After the loopback test is completed, a success or failure banner opens at the top of the page.

ISP

The ISP relay is a standard power control relay. Refer to **Power Control (p. 29)** for information about configuring relays. Click **Cycle** to restart the ISP relay (the power is turned off and then back on). Refer to **Figure 88** After the relay test is completed, a success or failure banner opens at the top of the page.

Player

The Player relay is a standard power control relay. Refer to **Power Control (p. 29)** for information about configuring relays. Click **Cycle** to restart the Player relay (the power is turned off and then back on). Refer to **Figure 88** After the relay test is completed, a success or failure banner opens at the top of the page.

Display Face

The Display Face relay is a standard power control relay. Refer to **Power Control (p. 29)** for information about configuring relays. Click **On/Off** to restart the Display Face relay (the power is turned either on or off). Refer to **Figure 88**. After the relay test is completed, a success or failure banner opens at the top of the page.

Aux

The Aux relay is a standard power control relay. Refer to **Power Control (p. 29)** for information about configuring relays. In the example shown in **Figure 88**, there are two options for starting testing this relay. Click **On/Off** to restart the Aux relay (the power is turned either on or off) or click **Cycle** to restart the Aux relay (the power is turned off and then back on). After the relay test is completed, a success or failure banner opens at the top of the page.

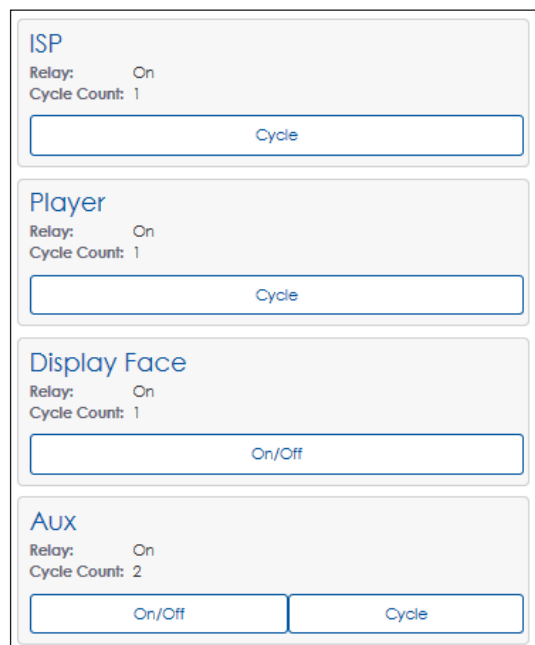


Figure 88: Power Relay Controls

Power Relay Control

Click the red **Reset Power Control** button to perform a soft restart of the power relay control device. Refer to **Figure 89**.

After clicking **Reset Power Control**, a prompt opens to confirm the action since this clears all cycle counts and returns relays to the default state.



Figure 89: Reset Power Control

9 Calibration

Click **Calibration**  to open a **Calibration** window with options for adjusting the display output. Refer to **Figure 90**.

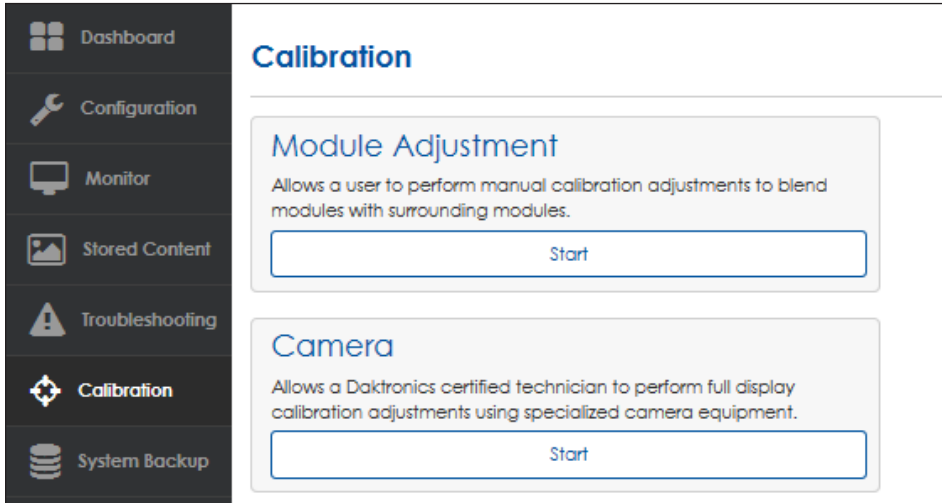


Figure 90: Calibration

Module Adjustment

Module Adjustment manually adjusts individual modules to improve the uniform intensity of the entire display. Press **Start** to begin manually calibrating the display. A prompt opens to confirm this action since this interrupts the active content on the display. Press **Start** again to open the **Module Adjust** tool.

A graphic representation of the display modules opens with adjustment tools along the right side. Refer to **Figure 91**.

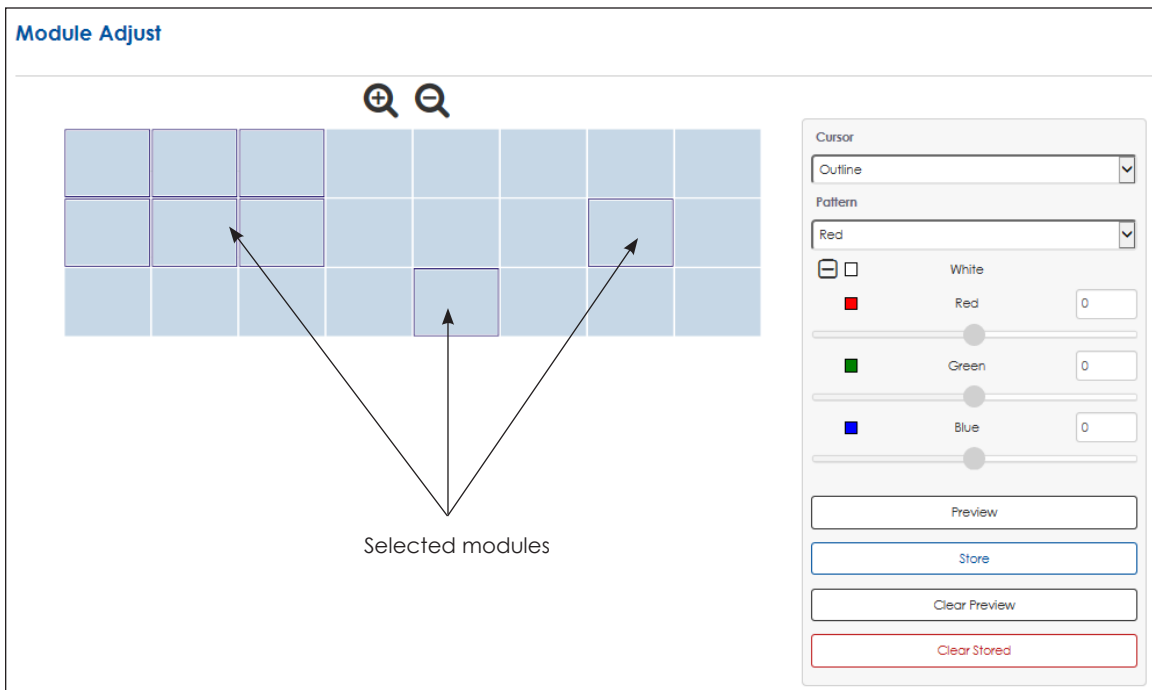


Figure 91: Calibration Module Adjustment

Select individual modules or groups of modules for adjustment by highlighting them with the cursor. Select non-adjacent modules using the cursor and **Ctrl** key.

Choose the desired display output color to check from the **Pattern** drop-down menu. Refer to **Figure 92**.

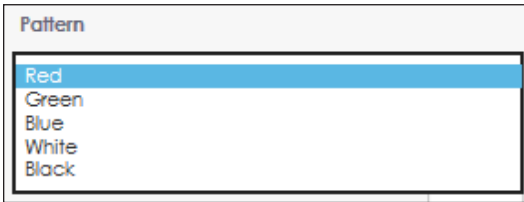



Figure 92: Module Adjust Pattern

Adjust the selected module(s) using the **White** slider bar. This action uniformly adjust the red, green and blue values. Refer to **Figure 93**.

Click the expand icon  as shown in **Figure 93** to open the red, green, and blue slider bars. Adjust the values for any of these colors with the slider bars. Refer to **Figure 94**.

Click **Preview** to see how the adjusted modules look on the display. Click **Store** to keep the changed calibration values. Click **Clear Preview** to clear the changes.

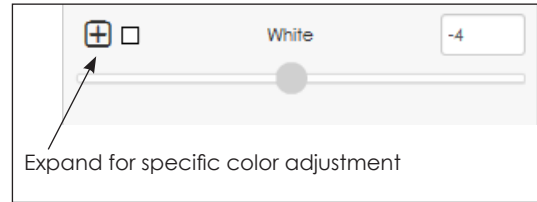


Figure 93: White Adjustment

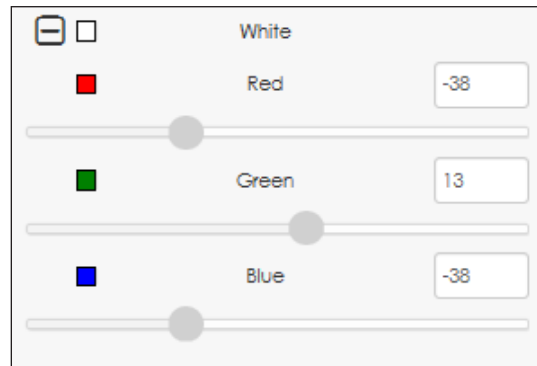


Figure 94: Color Adjustment

Click the red **Clear Stored** button to delete the module calibration. A prompt opens to confirm this action since this removes the stored calibration from the entire display and loads the factory calibration settings. Press **Yes** to reset the calibration to factory settings or **No** to exit. Refer to **Figure 95**.

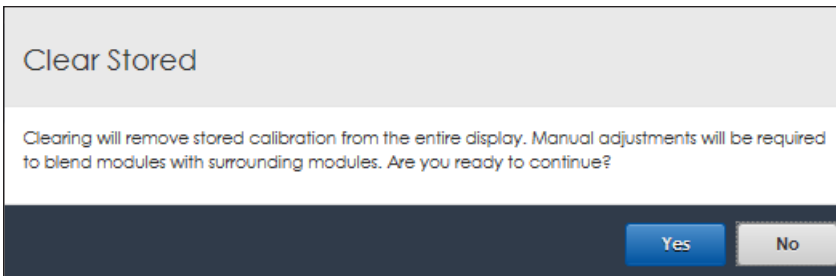



Figure 95: Clear Stored Calibration Settings

Camera

Camera calibration adjusts the intensity level of each pixel in a Daktronics LED video display as needed to improve the uniform intensity of the entire display. A prompt opens to confirm this action since this interrupts the active content on the display.

Note: Camera calibration should only be performed by Daktronics technicians.

10 System Backup

Click **System Backup**  to open a window with options for cloning the current system files or restoring previously saved system files. Refer to **Figure 96**.

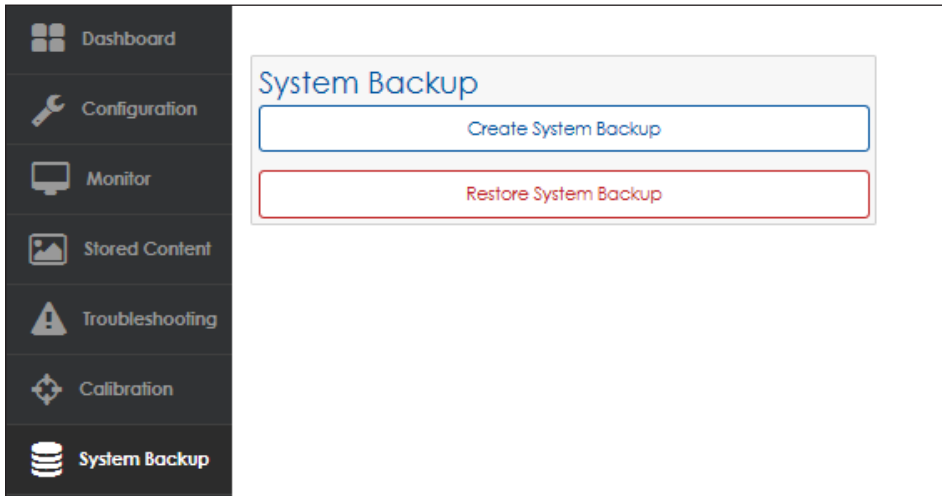


Figure 96: System Backup

Click **Create System Backup** to save the current system configuration files and translation table. A prompt opens to determine whether or not to open these files and where to save them.

Click **Restore System Backup** to replace the current system configuration files and translation table with previously saved versions. A prompt opens to confirm this action. Refer to **Figure 97**.

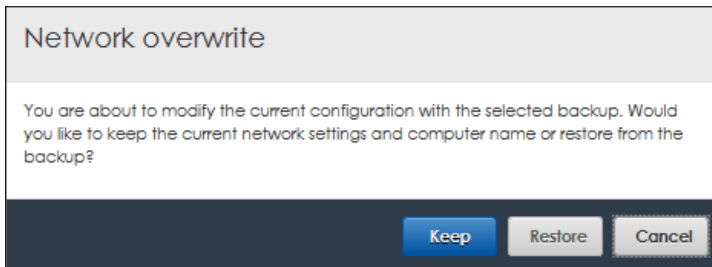


Figure 97: Restore System Backup Prompt

11 Exchange / Repair & Return Programs

To serve customers' repair and maintenance needs, Daktronics offers both an Exchange Program and a Repair & Return Program.

Exchange Program

Daktronics unique Exchange Program is a quick service for replacing key parts in need of repair. If a part requires repair or replacement, Daktronics sends the customer a replacement, and the customer sends the defective part to Daktronics. This decreases display downtime.

Before contacting Daktronics, identify these important part numbers:

Display Serial Number: _____

Display Model Number: _____

Contract Number: _____

Installation Date: _____

Sign Location: _____

Daktronics Customer ID Number: _____

To participate in the Exchange Program, follow these steps:

1. Call Daktronics Customer Service.

Market Description	Customer Service Number
Schools (primary through community/junior colleges, religious organizations, municipal clubs, and community centers)	877-605-1115
Universities and professional sporting events, live events for auditoriums, and arenas	866-343-6018
Financial institutions, petroleum, sign companies, gaming, and wholesale/retail establishments	866-343-3122
Department of Transportation, mass transits, airports, and parking facilities	800-833-3157

2. When the new exchange part is received, mail the old part to Daktronics.

If the replacement part fixes the problem, send in the problem part which is being replaced.

- a. Package the old part in the same shipping materials in which the replacement part arrived.
- b. Fill out and attach the enclosed UPS shipping document.
- c. Ship the part to Daktronics.

Daktronics will charge for the replacement part immediately, unless a qualifying service agreement is in place. In most cases, the replacement part will be invoiced at the time it is shipped.

3. **Return the part within 30 working days if the replacement part does not solve the problem, or Daktronics will charge the full purchase price.**

If the part is still defective after the exchange is made, please contact Daktronics Customer Service immediately. Daktronics expects immediate return of an exchange part if it does not solve the problem. Daktronics also reserves the right to refuse parts that have been damaged due to acts of nature or causes other than normal wear and tear.

Repair & Return Program

For items not subject to exchange, Daktronics offers a Repair & Return Program. To send a part for repair, follow these steps:

1. **Call Daktronics Customer Service.**

Refer to the telephone number listed on the previous page.

2. **Receive a Return Materials Authorization (RMA) number before shipping.**

Refer to the telephone number listed on the previous page.

3. **Package and pad the item carefully to prevent damage during shipping.**

Electronic components, such as printed circuit boards, should be placed in an antistatic bag before boxing. Daktronics does not recommend packing peanuts when shipping.

4. **Enclose the following information:**

- Name
- Address
- Phone number
- RMA number
- Clear description of symptoms

Shipping Address

Daktronics Customer Service
PO Box 5128
201 Daktronics Drive
Brookings, SD 57006

Warranty & Limitation of Liability

The Daktronics Warranty & Limitation of Liability statement is located in **Section B: Daktronics Warranty & Limitation of Liability (p. 49)**. The warranty is independent of extended service agreements and is the authority in matters of service, repair, and display operation.

12 Glossary

Boot Loading: Process that allows changes to the firmware.

Brightness: Adjustment of the overall brightness or dimming of a sign. The brightness level should be highest during the day to compete with daylight and lower at night for comfortable viewing. Manual brightness adjustment is performed by the operator; automatic brightness adjustment is performed by the software based on information received from a light sensor.

Calibration: Process of adjusting the intensity level of each pixel in a Daktronics LED video display as needed to improve the uniform intensity of the entire display.

CAN (Controller Area Network): Serial network of microcontrollers that enables real-time control applications by connecting devices and sensors.

CAN LUX (Controller Area Network Luxmeters): SI measurement of light intensity.

DHCP (Dynamic Host Configuration Protocol): System that includes a server that assigns IP addresses.

Firmware: Software (programs or data) that has been written onto read-only memory as a permanent part of a computing device. It allows software to be read and executed but does not allow modification. Firmware is embedded in a hardware device and is considered a combination of software and hardware.

Gamma: Process used with video images to correct brightness and internal micro-contrast within the image; it allows a change of ratio between the brightest red component and weakest red component.

Refresh Rate: Number of times per second a display is updated or “repainted.” NTSC signals have a refresh rate of 30 times per second; PAL signals have a refresh rate of 25 times per second; LED displays should be refreshed at least 120 times per second.

RGB (Red-Green-Blue): Colors of LEDs used in full-color Daktronics displays. All colors are defined in terms of a combination of these three colors. For example, the RGB abbreviation for the color blue is 0-0-255.

Screen Brightness: Color intensity of an image. An image high in saturation will appear very bright, while an image low in saturation will appear duller and more neutral. A 100 percent saturated color does not contain any white; adding white reduces saturation. An image without any saturation is also referred to as a grayscale image.

Sensor Cable: Wire link between a controller and its corresponding temperature sensor.

Temperature Sensor: Outdoor electrical component used to detect the ambient air temperature outside a display.

Video Image Processor (VIP): Device primarily intended to accept and process live video and/or computer graphics feeds before sending them to a display.

Video Processor: Device used to convert incoming video signals to V-Max™ signal, allowing for direct display of video. It also applies video image enhancement tools.

V-Max™ Signal: Proprietary signal used with Daktronics displays.

VPMP (Video Processor Management Protocol): Device management protocol.

A Supplementary Documents

This section includes the following:

- **DD2773153** VIP-5000 Series Quick Guide

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The VIP-5000 series processor is the interface that drives video to a digital display and meets operational needs such as dimming, displaying test patterns, and adjusting gamma and color controls. The VIP-5060 accepts standard DVI input of 1280x720; the VIP-5160 has an additional input resolution allowing 1440x900 DVI input with reduced blanking. This quick guide explains basic VIP-5000 series connections and setup as shown in **Figure 1**.

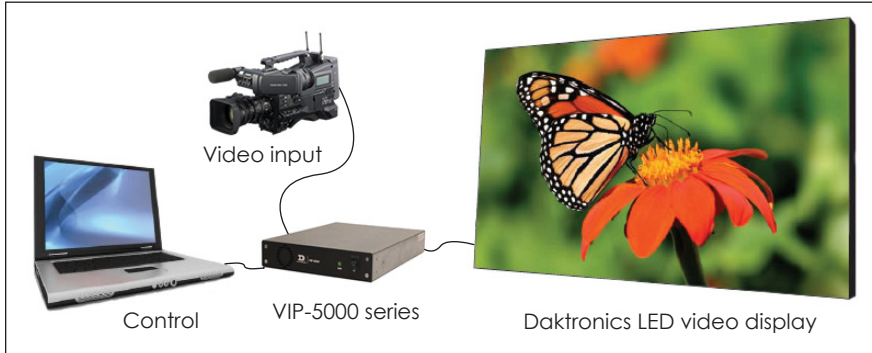


Figure 1: VIP-5000 Series Connections

Hardware Setup

Connecting to the LED Video Display

1. Locate fiber-optic Port A and Port B on the processor.
2. Insert duplex LC fiber-optic cables into their corresponding ports. The cables will click into place when seated properly. Refer to **Figure 2** and **Figure 3**.

Note: Remove fiber dust covers from cables and connectors prior to inserting into ports.

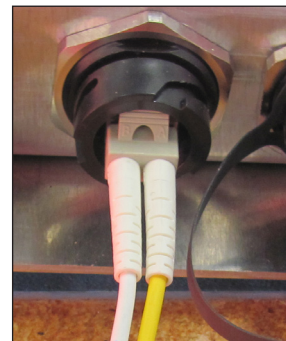


Figure 2: Display-Mount Fiber-Optic Port

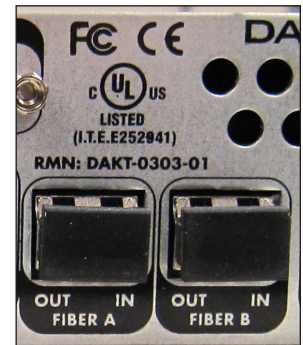


Figure 3: Rack-Mount Fiber-Optic Ports

Connecting to the DVI Video Source

1. Insert the male plug into the female jack.
2. Turn the screws on the male plug clockwise to lock. Refer to **Figure 4** and **Figure 5**.



Figure 4: Display-Mount DVI Video Input Jack



Figure 5: Rack-Mount DVI Video Input Jack

Note: The processor supports a refresh rate of 60Hz and has a playback window at 0,0 (upper-left) of DVI input. The playback window matches the display size in pixels.

Connecting to the Network

1. Connect one end of the RJ45 network cable to the network port. Refer to **Figure 6** and **Figure 7**.

Note: For a display-mount system, rotate the connector $\frac{1}{4}$ turn clockwise to lock.

2. Connect the other end of the cable to the computer or network.



Figure 6: Display-Mount Network Port

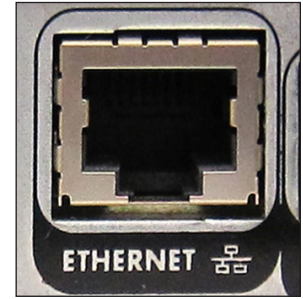


Figure 7: Rack-Mount Network Port

Connecting Power

Display-Mount Systems (12VDC)

1. Connect the breakout cable to the power/sensor port. Refer to **Figure 8**.
2. Rotate the connector $\frac{1}{4}$ turn clockwise to lock.
3. Connect the breakout cable to the power cord.
4. Terminate the cord at the display's power panel.



Figure 8: Display-Mount Power/Sensor Port

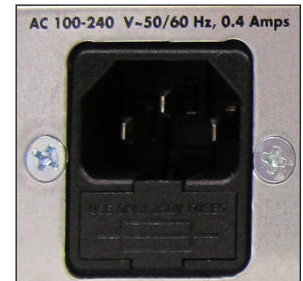


Figure 9: Rack-Mount Power Jack

Rack-Mount Systems (120/240VAC)

1. Connect the power cord to the power jack. Refer to **Figure 9**.
2. Plug the other end of the cord into an outlet.

Connecting Temperature/Light Sensors

Display-Mount Systems

1. Connect the sensor cable's M12 connector to the temperature/light port. Refer to **Figure 10**.
2. Turn the connector ring clockwise until tightened.

Rack-Mount Systems

Connect the sensor cable to the CAN port. Refer to **Figure 11**.



Figure 10: Display-Mount Sensor Port

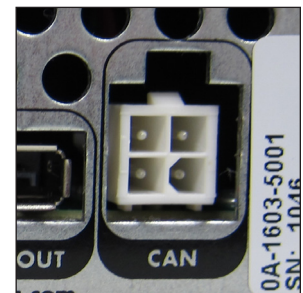


Figure 11: Rack-Mount Sensor Port

Computer-to-Processor Setup

Connecting to the Processor

1. Download the DisplayFind application from either the control software CD or the internet.
 - a. Navigate to **dakfiles.daktronics.com**.
 - b. Click **venus1500>Utils>DisplayFind>DisplayFind.exe**.
 - c. Click **Run** to download the program or **Save** to save the file for later use.

2. Launch the DisplayFind application by double-clicking the **DisplayFind** icon. Refer to **Figure 12**.
3. Connect to the display using the DisplayFind utility.
 - a. Select the appropriate **Network Adapter**.
 - b. Click **Find Displays** to detect displays. Refer to **Figure 13**.

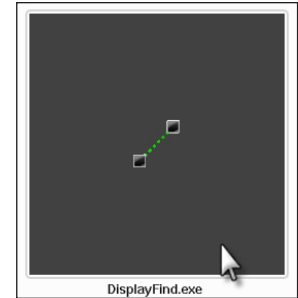


Figure 12: DisplayFind Icon

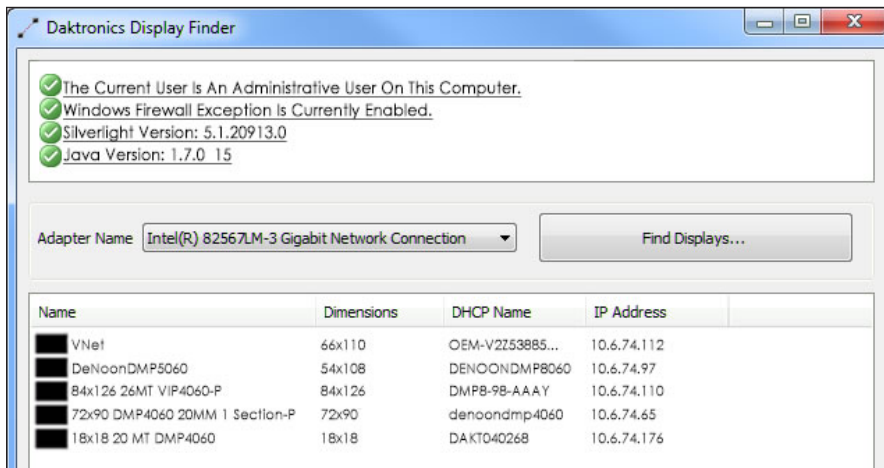


Figure 13: Daktronics DisplayFind Application

- c. Click the desired display to launch the configuration utility within a web browser.

Note: If multiple displays are found, use the IP address or name to confirm the identity of the correct display.

Logging in to the Processor

1. Navigate to **http://<IPaddress>:<Port>**. The port is typically **85**.
2. Type **Dak** into the **User name** text box. Refer to **Figure 14**.
3. Type **DakPassword!** into the **Password** text box.
4. Click **OK**.

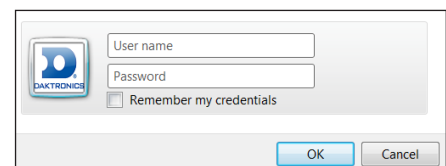


Figure 14: VIP-5000 Series Login

These are the factory-configured login credentials. *Daktronics strongly recommends changing the password after initial configuration.*


After setting a new password, this new password must be entered into the **Password** text box during login.





Note: Do not lose the password; losing it may require a service call.

Newer display-mount VIP-5160s have an internal reset switch that can be used to reset the password and/or configuration. Remove the switch cover to access the reset switch and press down for 5-15 seconds. The user name and password will revert to the factory-configured login credentials.

Note: Use caution when using an internal reset switch. Pressing the switch for longer than 15 seconds can reset the configuration.

Processor Menu Overview

After initial login, the **Dashboard** window opens showing status files for various aspects of the device. Click the **Show Menu** icon  in the upper-left corner to expand the left-side menu. Refer to the table below.

Menu Item	Description
 Dashboard	Shows status files for various aspects of the processor; most files trigger operational windows but some files only provide information
 Configuration	Lists all available configuration settings and tools including setting the input, output, brightness levels, local time, and location
 Stored Content	Shows existing stored content files and allows images to be added or removed
 Troubleshooting	Lists troubleshooting options including testing and resetting power relays

System Configuration

Configuring Input

Select the processor's type of input including selecting a DVI video source, choosing a built-in test pattern, loading static images, or blanking the display. Refer to **Figure 15**. To configure the processor for a DVI video source, follow the steps below:

1. Select **Configuration** from the main menu or click the **Input** tile on the dashboard.
2. Click **Input**.
3. Choose **DVI** from the **Display Mode** drop-down menu.
4. Change the **Color Adjustment** settings of the DVI video signal with the **Brightness**, **Contrast**, **Saturation**, and **Hue** slider bars if desired.
5. Set the **Source Dimensions** as either **Automatic** or **Manual** to define what portion of the incoming video signal is shown on the display. This setting is normally determined at the factory.
 - **Automatic** - the controller positions the content and the dimensions will match the configured display size.
 - **Manual** - the operator manually defines the visible area.
6. Set the **Target Dimensions** as either **Automatic** or **Manual** to position the incoming video signal on the display. *This feature should not be used unless instructed to do so by Daktronics technicians.*
 - **Automatic** - the controller positions the content and the dimensions will match the configured display size.
 - **Manual** - the operator manually defines the content placement and positioning.
7. Click **Save**.

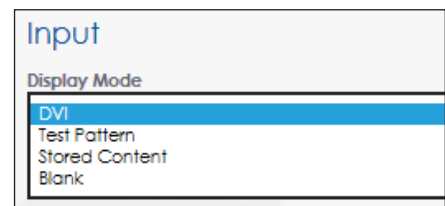


Figure 15: Input Display Mode

Configuring Output

Set the display output as either **Active** or **Inactive**. If the processor system is the primary system, the **Output State** should be set as **Active**. If the processor system is the backup system, the **Output State** should be set as **Inactive**. Refer to **Figure 16**. To configure the output, follow the steps below:

1. Select **Configuration** from the main menu.
2. Click **Output**.
3. Choose the **Output State** as **Active** or **Inactive**. If **Inactive** is selected, proceed to Step 8.
4. Select the **Boot Sequence** from the drop-down list to choose what is shown during display startup.
 - **Full** - shows full display information (description, dimensions, time zone etc.)
 - **Compact** - shows product and version information
 - **None** - shows no information, playback starts immediately
5. Adjust the **Green Mode** percentage to set a threshold for dimming the display content.
6. Adjust the **Gamma** number to adjust the middle ranges of color.
7. Choose the **Color Space** setting from the drop-down menu.
8. Click **Save**.

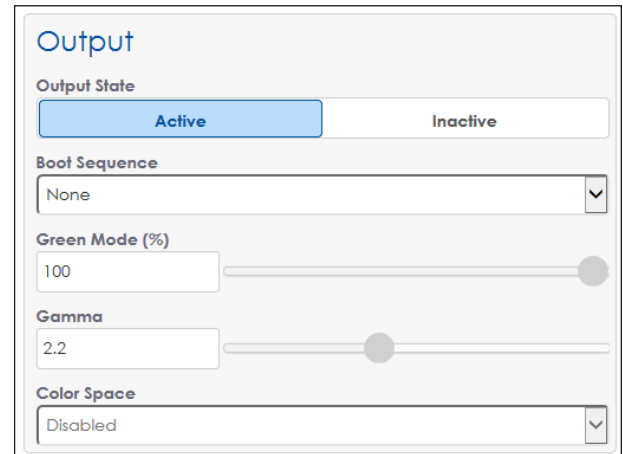


Figure 16: Configuring Output

Configuring Brightness

To adjust display brightness, refer to **Figure 17** and follow the steps below:

1. Select **Configuration** from the main menu.
2. Click **Brightness**.
3. Select the **Mode** from the drop-down menu.
 - **Automatic** – brightness values adjust according to data received from a light sensor.
 - **Manual** – brightness values are set at a constant level using a slider bar.
 - **Remote** – dimming values are determined by a host processor in a multi-VIP host-client system.
4. Choose either **All Day** or **Day and Night** under **Set Brightness Settings**.
 - **All Day** - sets display minimum and maximum brightness for a 24-hour period.
 - **Day and Night** - sets display minimum and maximum brightness based on the time of day.

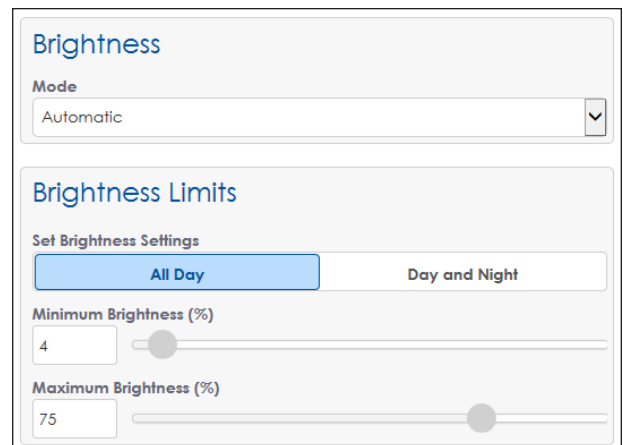



Figure 17: Configuring Brightness

Contact Info and Where to Get Help

Click **Help** under the **User** icon  in the upper-right corner of the screen to access the VIP-5000 Series Video Image Processor Operator's Manual **DD2773152**.

Click **About** under the **User** icon  in the upper-right corner of the screen to access the Daktronics website. Refer to **Figure 18**.

If further assistance is required, Daktronics Customer Service is available 24/7 via phone or online.

Telephone

- Domestic (U.S. and Canada): 1-800-325-8766
- International: +1-605-697-4000

Online

- www.daktronics.com/support

DAKTRONICS VIP-5160

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Visit us at: <http://www.Daktronics.com>

For support information
Call: 1-800-DAKTRONICS

[Open Source attributions](#)

VIP Version Information

Web	2.3.241
User Agent	Mozilla/5.0 (Windows NT 6.1; WOW64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/56.0.2924.87 Safari/537.36

Figure 18: Contact Information

B Daktronics Warranty & Limitation of Liability

This section includes the Daktronics Warranty & Limitation of Liability statement.

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DAKTRONICS WARRANTY & LIMITATION OF LIABILITY

This Warranty and Limitation of Liability (the "Warranty") sets forth the warranty provided by Daktronics with respect to the Equipment. By accepting delivery of the Equipment, Purchaser and End User agree to be bound by and accept these terms and conditions. Unless otherwise defined herein, all terms within the Warranty shall have the same meaning and definition as provided elsewhere in the Agreement.

DAKTRONICS WILL ONLY BE OBLIGATED TO HONOR THE WARRANTY SET FORTH IN THESE TERMS AND CONDITIONS UPON RECEIPT OF FULL PAYMENT FOR THE EQUIPMENT.

1. Warranty Coverage

A. Daktronics warrants to the original end user (the "End User") that the Equipment will be free from Defects (as defined below) in materials and workmanship for a period of one (1) year (the "Warranty Period"). The Warranty Period shall commence on the earlier of: (i) four weeks from the date that the Equipment leaves Daktronics' facility; or (ii) Substantial Completion as defined herein. The Warranty Period shall expire on the first anniversary of the commencement date.

"Substantial Completion" means the operational availability of the Equipment to the End User in accordance with the Equipment's specifications, without regard to punch-list items, or other non-substantial items which do not affect the operation of the Equipment.

B. Daktronics' obligation under this Warranty is limited to, at Daktronics' option, replacing or repairing, any Equipment or part thereof that is found by Daktronics not to conform to the Equipment's specifications. Unless otherwise directed by Daktronics, any defective part or component shall be returned to Daktronics for repair or replacement. This Warranty does not include on-site labor charges to remove or install these components. Daktronics may, at its option, provide on-site warranty service. Daktronics shall have a reasonable period of time to make such replacements or repairs and all labor associated therewith shall be performed during regular working hours. Regular working hours are Monday through Friday between 8:00 a.m. and 5:00 p.m. at the location where labor is performed, excluding any holidays observed by Daktronics.

C. Daktronics shall pay ground transportation charges for the return of any defective component of the Equipment. All such items shall be shipped by End User DDP Daktronics designated facility. If returned Equipment is repaired or replaced under the terms of this Warranty, Daktronics will prepay ground transportation charges back to End User and shall ship such items DDP End User's designated facility; otherwise, End User shall pay transportation charges to return the Equipment back to the End User and such Equipment shall be shipped Ex Works Daktronics designated facility. All returns must be pre-approved by Daktronics before shipment. Daktronics shall not be obligated to pay freight for any unapproved return. End User shall pay any upgraded or expedited transportation charges.

D. Any replacement parts or Equipment will be new or serviceably used, comparable in function and performance to the original part or Equipment, and warranted for the remainder of the Warranty Period. Purchasing additional parts or Equipment from the Seller does not extend the Warranty Period.

E. Defects shall be defined as follows. With regard to the Equipment (excepting LEDs), a "Defect" shall refer to a material variance from the design specifications that prohibit the Equipment from operating for its intended use. With respect to LEDs, "Defects" are defined as LED pixels that cease to emit light. Unless otherwise expressly provided, this Warranty does not impose any duty or liability upon Daktronics for partial LED pixel degradation. Notwithstanding the foregoing, in no event does this Warranty include LED pixel degradation caused by UV light. This Warranty does not provide for the replacement or installation of communication methods including but not limited to, wire, fiber optic cable, conduit, trenching, or for the purpose of overcoming local site interference radio equipment substitutions.

EXCEPT AS OTHERWISE EXPRESSLY SET FORTH IN THIS WARRANTY, TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, DAKTRONICS DISCLAIMS ANY AND ALL OTHER PROMISES, REPRESENTATIONS AND WARRANTIES APPLICABLE TO THE EQUIPMENT AND REPLACES ALL OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTIES OR CONDITIONS OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR ACCURACY OR QUALITY OF DATA. OTHER ORAL OR WRITTEN INFORMATION OR ADVICE GIVEN BY DAKTRONICS, ITS AGENTS OR EMPLOYEES, SHALL NOT CREATE A WARRANTY OR IN ANY WAY INCREASE THE SCOPE OF THIS LIMITED WARRANTY.

THIS LIMITED WARRANTY IS NOT TRANSFERABLE.

2. Exclusion from Warranty Coverage

This Warranty does not impose any duty or liability upon Daktronics for any:

A. damage occurring at any time, during shipment of Equipment unless otherwise provided for in the Agreement. When returning Equipment to Daktronics for repair or replacement, End User assumes all risk of loss or damage, agrees to use any shipping containers that might be provided by Daktronics, and to ship the Equipment in the manner prescribed by Daktronics;

B. damage caused by: (i) the improper handling, installation, adjustment, use, repair, or service of the Equipment, or (ii) any physical damage which includes, but is not limited to, missing, broken, or cracked components resulting from non-electrical causes; altered, scratched, or fractured electronic traces; missing or gauged solder pads; cuts or clipped wires; crushed, cracked, punctured, or bent circuit boards; or tampering with any electronic connections, provided that such damage is not caused by personnel of Daktronics or its authorized repair agents;

C. damage caused by the failure to provide a continuously suitable environment, including, but not limited to: (i) neglect or misuse; (ii) improper power including, without limitation, a failure or sudden surge of electrical power; (iii) improper air conditioning, humidity control, or other environmental conditions outside of the Equipment's technical specifications such as extreme temperatures, corrosives and metallic pollutants; or (iv) any other cause other than ordinary use;

DAKTRONICS WARRANTY & LIMITATION OF LIABILITY

D. damage caused by fire, flood, earthquake, water, wind, lightning or other natural disaster, strike, inability to obtain materials or utilities, war, terrorism, civil disturbance, or any other cause beyond Daktronics' reasonable control;

E. failure to adjust, repair or replace any item of Equipment if it would be impractical for Daktronics personnel to do so because of connection of the Equipment by mechanical or electrical means to another device not supplied by Daktronics, or the existence of general environmental conditions at the site that pose a danger to Daktronics personnel;

F. statements made about the product by any salesperson, dealer, distributor or agent, unless such statements are in a written document signed by an officer of Daktronics. Such statements as are not included in a signed writing do not constitute warranties, shall not be relied upon by End User and are not part of the contract of sale;

G. damage arising from the use of Daktronics products in any application other than the commercial and industrial applications for which they are intended, unless, upon request, such use is specifically approved in writing by Daktronics;

H. replenishment of spare parts. In the event the Equipment was purchased with a spare parts package, the parties acknowledge and agree that the spare parts package is designed to exhaust over the life of the Equipment, and as such, the replenishment of the spare parts package is not included in the scope of this Warranty;

I. security or functionality of the End User's network or systems, or anti-virus software updates;

J. performance of preventive maintenance;

K. third-party systems and other ancillary equipment, including without limitation front-end video control systems, audio systems, video processors and players, HVAC equipment, batteries and LCD screens;

L. incorporation of accessories, attachments, software or other devices not furnished by Daktronics; or

M. paint or refinishing the Equipment or furnishing material for this purpose.

3. **Limitation of Liability**

Daktronics shall be under no obligation to furnish continued service under this Warranty if alterations are made to the Equipment without the prior written approval of Daktronics.

It is specifically agreed that the price of the Equipment is based upon the following limitation of liability. In no event shall Daktronics (including its subsidiaries, affiliates, officers, directors, employees, or agents) be liable for any claims asserting or based on (a) loss of use of the facility or equipment; lost business, revenues, or profits; loss of goodwill; failure or increased cost of operations; loss, damage or corruption of data; loss resulting from system or service failure, malfunction, incompatibility, or breaches in system security; or (b) any special, consequential, incidental or exemplary damages arising out of or in any way connected with the Equipment or otherwise, including but not limited to damages for lost profits, cost of substitute or replacement equipment, down time, injury to property or any damages or sums paid to third parties, even if Daktronics has been advised of the possibility of such damages. The foregoing limitation of liability shall apply whether any claim is based upon principles of contract, tort or statutory duty, principles of indemnity or contribution, or otherwise.

In no event shall Daktronics be liable for loss, damage, or injury of any kind or nature arising out of or in connection with this Warranty in excess of the Purchase Price of the Equipment. The End User's remedy in any dispute under this Warranty shall be ultimately limited to the Purchase Price of the Equipment to the extent the Purchase Price has been paid.

4. **Assignment of Rights**

The Warranty contained herein extends only to the End User (which may be the Purchaser) of the Equipment and no attempt to extend the Warranty to any subsequent user-transferee of the Equipment shall be valid or enforceable without the express written consent of Daktronics.

5. **Governing Law**

The rights and obligations of the parties under this Warranty shall not be governed by the provisions of the United Nations Convention on Contracts for the International Sales of Goods of 1980. The parties consent to the application of the laws of the State of South Dakota to govern, interpret, and enforce each of the parties' rights, duties, and obligations arising from, or relating in any manner to, the subject matter of this Warranty, without regard to conflict of law principles.

6. **Availability of Extended Service Agreement**

For End User's protection, in addition to that afforded by the warranties set forth herein, End User may purchase extended warranty services to cover the Equipment. The Extended Service Agreement, available from Daktronics, provides for electronic parts repair and/or on-site labor for an extended period from the date of expiration of this warranty. Alternatively, an Extended Service Agreement may be purchased in conjunction with this Warranty for extended additional services. For further information, contact Daktronics Customer Service at 1-800-DAKTRONICS (1-800-325-8766).