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Alcorn McBride Inc V4X Show Controller User Guide

Contents

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PRODUCT FEATURES

SHOW CONTROL FEATURES

This product features the powerful and flexible Alcorn McBride ControlCore. This technology provides the ability to control and monitor components deployed in themed attractions like PLCs, animation controllers, video playback, projection, DSP systems, matrix switchers, and much more.
The control feature set is as follows:

- Alcorn McBride Show Control Core
  - Control of 3rd Party Devices (PLC, DSP, Animation, AV, etc.)
  - Timeline Programming
  - ShowTouch Integration
  - PLC Integration – ride control
  - monitoring/triggering
  - Advanced Scripting Control
- 2 x Network Control Ports (Isolated)
- 4 x Serial Control Ports
  - 4 x RS422/RS232
  - 1 x DMX
- 8 x CC/Voltage Inputs
- 8 x CC Outputs /w Self-Healing Polymer Fuse
- 8 x User-Programmable Front-Panel Buttons
- 4.3" Touch-Enabled TFT Display

PHYSICAL FEATURES

This product's solid-state design enables it to integrate well into any commercial A/V installation. It's designed to be mounted into a standard 19" equipment rack and requires only 2RU of space. The rear-panel of the unit offers professional-grade phoenix terminals for easy wire termination in the field, and industry standard connectors for network, and power.

- Phoenix connectors for solder-free installation
- Flexible Power Supply Options
  - V4X – Built-in 110-240VAC Auto-sensing power supply
  - V4X-DC – Built-in 24VDC power supply
- 4.3" TFT Display
- Control status LEDs
- IO status LEDs
- Front-panel buttons
- Removable SD Card for storage of scripts and panels

- Dimensions – 19" W x 14" D x 3.5" H – 2U Rack Mount
- Weight – 10 Lbs.

TECHNICAL SUPPORT

Now that we've tantalized you with all of the wonderful things this product can do, I'll bet you're chomping at the bit to flip all the switches and push all the buttons. Not so fast! Before we get to the fun stuff, we just want to take a moment to remind you that we are here to help. Chances are that you're building something really cool and we want you to have access to the resources and support you need to be successful.

Training	**https://www.alcorn.com/training**
Application Notes	**https://www.alcorn.com/applications**
Support Resources	**https://www.alcorn.com/support**
Knowledge Base (FAQ)	**https://alcornmcbride.zendesk.com/hc/en-us**
Email Support	**support@alcorn.com**
Telephone Support	(407) 296-5800 (Mon-Fri 9am-6pm EST)

To start, you'll find a wealth of information on our website. This includes Application Notes that give you detailed documentation and examples for how this product is used in common types of themed entertainment projects. You'll also find the latest downloads for software, firmware, drawings, 3D models, cutsheets, and other helpful resources on our Support page. The Knowledge Base is especially handy for common questions and helpful troubleshooting tips. And last, but certainly not least, you always have our friendly and mildly entertaining staff available by email or telephone.

GETTING STARTED

Alright, time to roll up your sleeves and get to work! This section will guide you through basic concepts that will help you get on your way with an V4X.

WIRING AND CONNECTIVITY

A few connections are required to experience the core functionality of an V4X. If you're the DIY-type that's comfortable with purchasing and terminating your own connectors, you'll be happy to know that this product uses industry-standard connectors which are documented in detail in the Hardware Information section of this User's Guide.

POWER
The V4X can be ordered with one of two power supply options:

110- 240VAC
50-60Hz

- V4X – Built-in 110-240VAC Auto-sensing power supply
- V4X-DC – Built-in 24VDC power supply

The AC option is the standard and preferred by many customers; however, there are many applications that benefit from having a DC power input. Whichever your preference, be sure to order the appropriate version of the V4X for your power needs.

For the standard V4X, you simply need to connect AC power using the included IEC power cable.
For the V4X-DC, you need to apply a 24VDC power source to the power input terminals. Be sure to observe the correct polarity for the Positive (+24VDC) and Negative (-) terminals.
Once you have connected the power source, the V4X can be powered up by simply flipping the power switch to the ON position. HEY!!! What are you doing?!? We didn't actually say to power up yet, but you went ahead and did it anyway didn't you?!?! <Head Slap> Alright… clearly you're excited so I guess we'll cut you some slack, but could you at least try to follow instructions next time?

NETWORK CONTROL
While the V4X sure looks pretty when you power it up, network connectivity is required to actually make it do magical things. The goal here is to interface a V4X to your Windows or macOS computer running our WinScript Live software. This application empowers you to configure, program and monitor the unit.
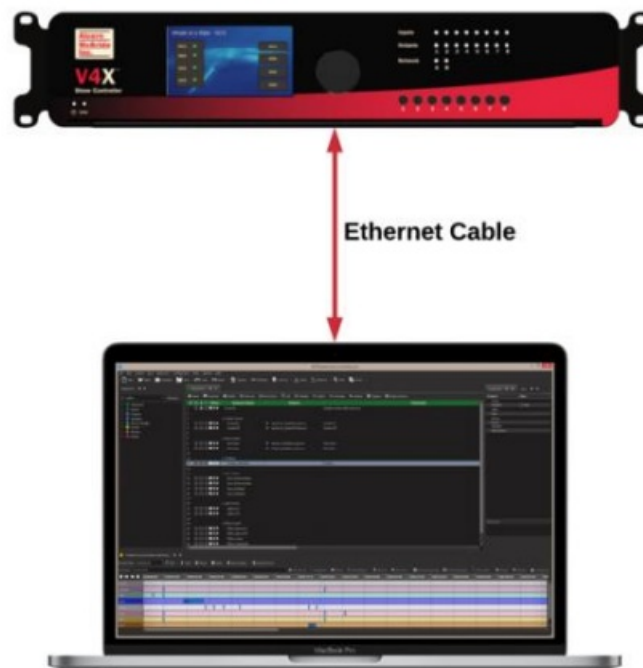
Ethernet Cable

The V4X has 2 standard RJ45 Ethernet connectors that support 10/100/1000BT networks. They provide access to 2 isolated networks labeled Network A and B that can be used by the V4X to control and monitor devices that are

connected to the networks.

Let's go ahead and plug in one end of your Ethernet cable to Port A and the other end to your computer.

NETWORK CONFIGURATION

Now that we're good to go with connections, we just need to do a little bit of configuration before we can connect your computer to an V4X. Before we get started, it's helpful to know that a V4X ships with the following default IP address configurations:

Port A	
Control IP	192.168.0.254
Subnet Mask	255.255.255.0

Port B	
Control IP	192.168.1.254
Subnet Mask	255.255.255.0

If you're at ease in the world of networking, you can easily adjust these settings for your V4X to operate on an existing network. For more information on how to access the network configuration menu, see the Display and Navigation Buttons section of this User's Guide.

For those that just wish to connect a computer directly to Network A of the V4X, the easiest way is to set your computer to a static IP address that is compatible with V4X default network settings. For example, this configuration would work nicely for your computer:

Computer Ethernet Port	
IP	192.168.0.100
Subnet Mask	255.255.255.0

**CONFIGURING STATIC IP – WINDOWS 10**

1. Right-click on the Windows icon in the bottom-left and select Network Connections
2. Select Change adapter options
3. Right-click on the network interface that is connected to the V4X and select Properties
4. Select Internet Protocol Version 4 (TCP/IPv4) from the list of items and click the Properties button below.
5. Select Use the following IP address, enter the IP address as 192.168.0.100, and enter the Subnet Mask as 255.255.255.0 as indicated in the screenshot below:

6. Click the Ok button to apply the static IP address.

CONFIGURING STATIC IP – OS X

1. Click on the network icon in the OS X menu bar and select Open Network Preferences.
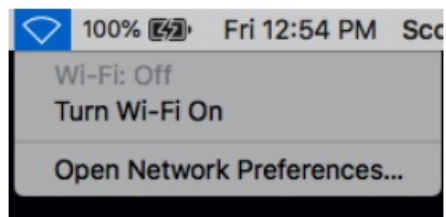
2. Select the network interface that is connected to the V4X from the available interfaces on the left.

3. Configure the network interface Manually, specify an IP address of 192.168.0.100, and a Subnet Mask of 255.255.255.0 as indicated in the screenshot below.
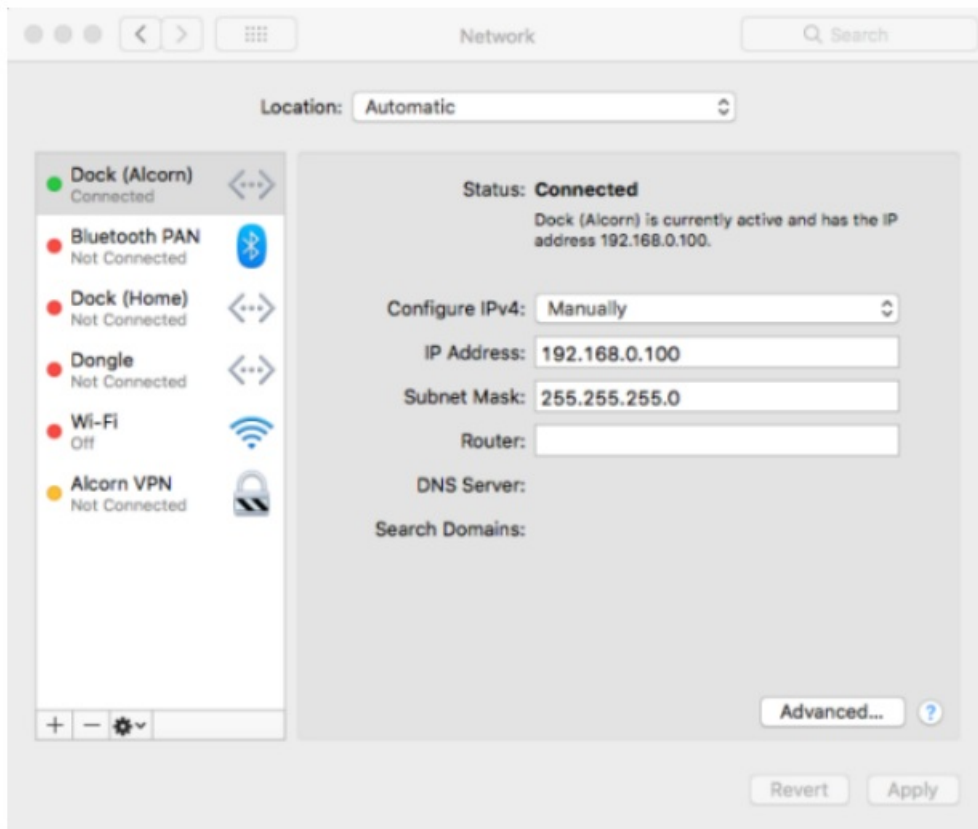
4. Click Apply to enable the new static IP configuration

CONTROLLING WITH WINSCRIPT LIVE

At this point, everything should be wired up, configured, and ready to go. The next step is to connect to the V4X using our WinScript Live software. Once connected, you will have access to configure, control, and monitor your V4X unit.
Before we can get started, you'll want to make sure to install the latest version of WinScript Live on your Windows or macOS computer. This software can be downloaded for free from our website at **www.alcorn.com**.

Once the software is installed, follow these instructions to start a test sequence:

1. Launch WinScript Live and click the Connect button on the splash screen
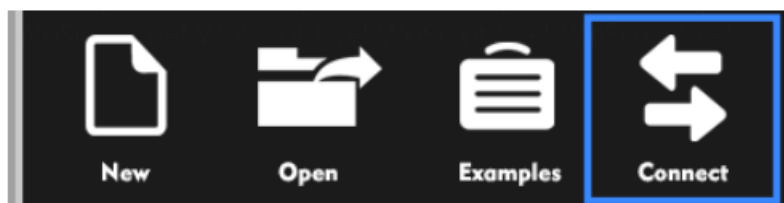
2. Your V4X unit should automatically appear in the connection list. Click it once to select, and then click the OK button to connect.

3. Select Retrieve and click OK. WinScript Live will then load the project currently stored on the V4X.
4. Congratulations! You are in control of your V4X unit. There are many places you can go from here, but here

are some helpful suggestions:

- The powerful show control engine of the V4X empowers you with advanced scripting capability, timeline features, and device control. To learn more, the detailed documentation of our show control platform is built right into the WinScript Live software. If you are new to Alcorn McBride show control, we also strongly encourage you to access the training content included with WinScript Live using the Examples screen and/or sign up for our next training class.

- Visit our Applications page at www.alcorn.com to access more detailed examples on application-specific topics.

HARDWARE INFORMATION

OVERVIEW

The V4X has an assortment of dedicated hardware for the purpose of configuration, status monitoring, and interfacing to other hardware. This section covers these features in more detail.

DISPLAY AND NAVIGATION WHEEL

The V4X features a 4.3" TFT display. This display is primarily used to share project-specific information (i.e. "Preshow – Running – 01:02:03.00") from the show control script. However, this display also offers a full menu system that can be accessed using the navigation wheel adjacent to the display.
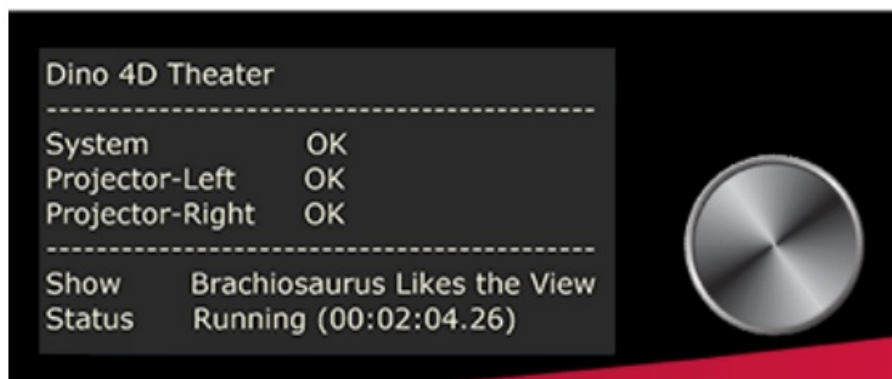
To access the menu system, simply press in the navigation wheel. The wheel can then be rotated and pressed to browse the menu system, select items, and change settings.

MAIN MENU

This menu provides access to the following sub-menus:

- Control – Monitor show control performance and script status
- Sync – View sync configuration
- Network – Configure network interfaces
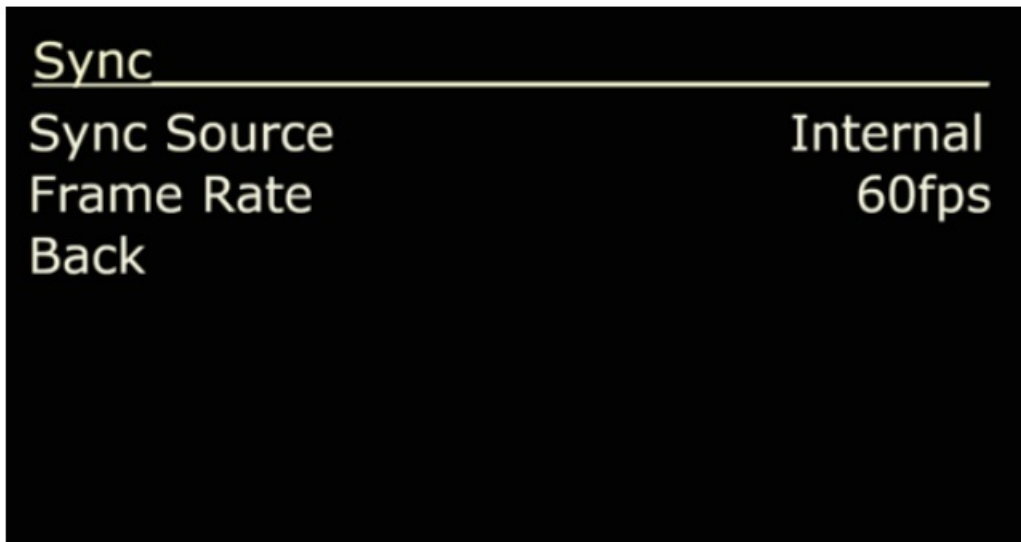- System – Configure and monitor generic system status
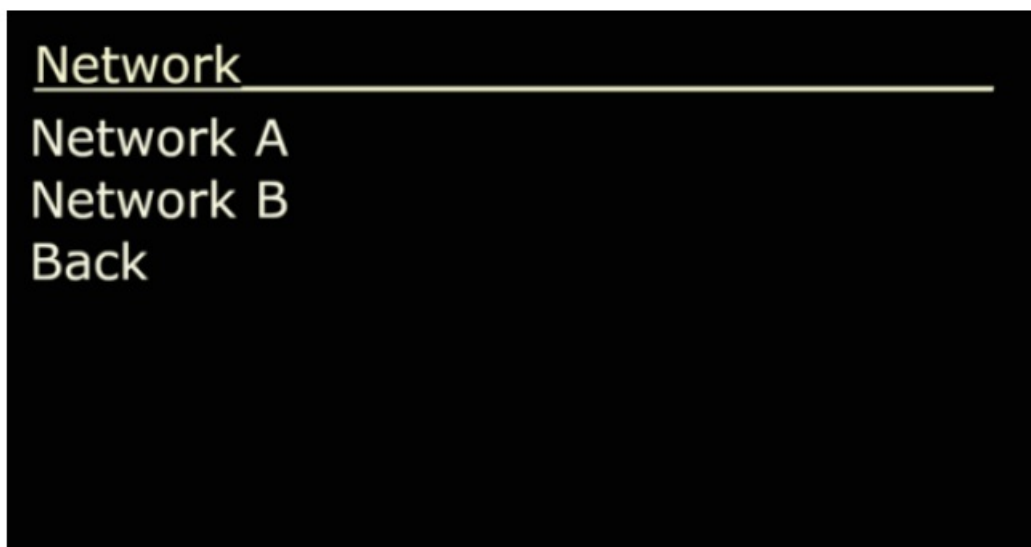
CONTROL MENU

- Script – View currently active show control script
  - Select to access a screen to view full script name and load different scripts
- CPU Load – View current load of show control processor

SYNC MENU

- Sync Source – View sync clock reference ('Internal' only for V4X).
- Frame Rate – View operating frame rate of show control core.

NETWORK MENU

- Network A – View Status and Configure 'Network A'.
- Network B – View Status and Configure 'Network B'.

NETWORK SETUP MENU

- DHCP – Enable/Disable DHCP network configuration
- IP – View/Configure Show Control IP address
- Subnet Mask – View/Configure subnet mask
- Gateway – View/Configure gateway IP address
- DNS – View/Configure DNS address
- MAC – View MAC address for Show Control Ethernet interface
- Link – Current link status of network port

SYSTEM MENU

- Name – Shows the user-assigned device name of the V4X unit.
- Version – Firmware version
- Build – Build revision of firmware
- Status – View status info such as temperature, fan speed, input voltage, etc.
- Format SSD – Erase and Format internal SSD media
- Reset Settings – Reset all configuration data (i.e. network, device name, etc.) to factory defaults
- Reboot – Reboot V4X and re-launch script

INDICATOR LEDS

The front-panel of a V4X has a full set of indicator LEDs to provide an overall status of different features of the device.

STATUS

Power – ON whenever power is applied to the unit and the power switch is on Live – ON whenever WinScript Live is connected to the unit
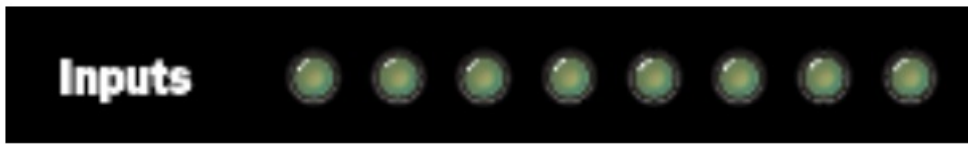
NETWORK

These indicators display both network link and activity for all of the Control Network ethernet ports.

LED State	Description
OFF	No network link
SOLID ORANGE	Network link active – No network activity detected
BLINKING ORANGE	Network link active – Network activity detected

INPUTS

These are digital inputs that can be used to trigger show control events. These inputs can be configured via software to accept contact-closure or voltage triggers (5-24VDC).

| LED State	Description
OFF	Inactive – No contact closure detected or voltage input is <9VDC
GREEN	Active – Contact closure detected or voltage input is 9-24VDC

OUTPUTS

These are dry-contact relay outputs that are rated to 900mA and protected with inline self-healing polymer fuses. These relays are normally open (NO) and both relay contacts (COMMON = C, and NORMALLY OPEN = NO) are accessible for each output.

| LED State	Description
OFF	Inactive – Relay contact is OPEN
RED	Active – Relay contact is CLOSED

BUTTONS
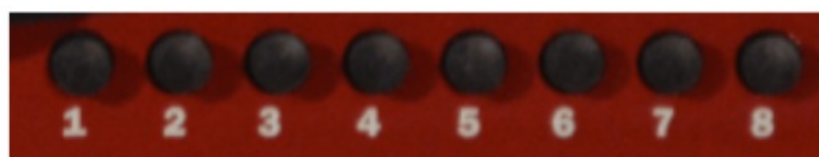
The front panel buttons can be configured by WinScript Live software to trigger show control. Panel space is left

above these buttons to allow for labels to be installed.

CONNECTORS

NETWORK PORTS

These are standard RJ45 Ethernet connectors that support 10/100/1000BT networks. They provide access to 2 isolated networks that can be used by the V4X to control and monitor devices that are connected to the networks. They are also used by a computer running our WinScript Live software to connect to the V4X to configure, program, and monitor the unit.
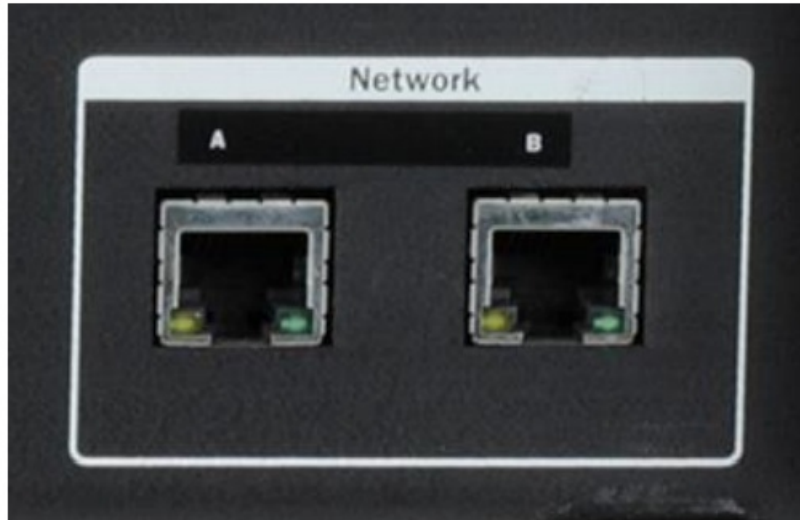
Connector Information

Connector Type	RJ45 Female
Mating Plug	RJ45 Male

Some portions of the network interface, such as FTP access, are protected with a configurable username and password. By default, these credentials are configured to:

| User Name	admin
Password	password

SERIAL PORTS

The V4X has a total of 4 serial ports that can be used to control devices. These ports can be configured to operate in either RS422 or RS232 mode. Port 1 can also be configured to output DMX512 for basic lighting control applications.
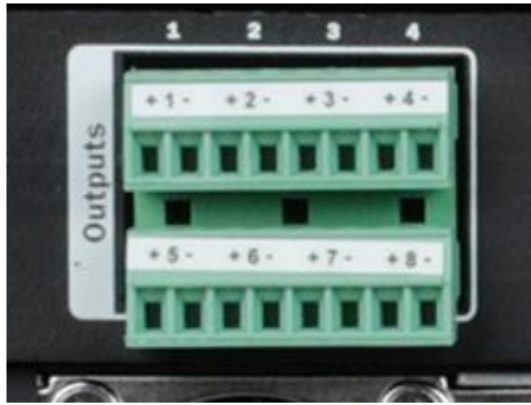
Connector Information

Connector Type	Phoenix
Mating Plug	Phoenix Contact 5447890
Recommended Wire	18 AWG Stranded

DIGITAL INPUTS
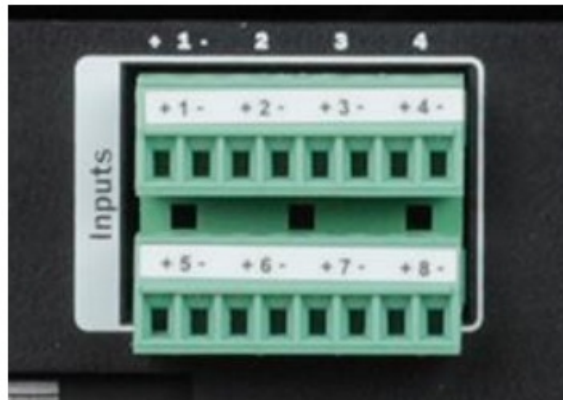
These are digital inputs that can be used to trigger show control events. These inputs can be configured via software to accept contact-closure or voltage triggers (5-24VDC).

DIGITAL OUTPUTS

These are dry-contact relay outputs that are rated to 900mA and protected with inline self-healing polymer fuses. These relays are normally open (NO) and both relay contacts (COMMON = C, and NORMALLY OPEN = NO) are accessible for each output.

WIRING GUIDE

DIGITAL INPUT WIRING

VOLTAGE
Using Voltage Inputs instead of Contact Closures will add complexity to the wiring but will provide greater reliability over long distance cable runs.
Advantages

- The installer can overcome long distances when connecting contact closures by using higher voltage sources to compensate for resistance in wiring.
- Inputs can be completely isolated from one another.

Disadvantages

The installer must provide an external power supply for the contact closure(s).

CONTACT CLOSURE
Using Contact Closures over Voltage Inputs provides a simple installation but limits cabling distance. Advantages

- Contact closure installations require only wiring and contacts
- No external power supply is required.

Disadvantages

- To be reliable, the contact closure must be located close (10-20 ft) from the unit.
- The wiring will not be isolated. Errors and problems in any circuit could affect other contact closure inputs.
- A high voltage short to this wiring could damage the V4X.

SPECIFICATIONS

CONTROL	
Show Control	Advanced Scripted Control Timeline Programming ShowTouch Touch Panel Integration Intuitive Device Control (PLC, DSP, Animation, AV, etc.)
Display	4.3" TFT LCD /w navigation wheel
LED Indicators	Power, Live Mode, Ethernet, Inputs, Outputs
Ethernet	2 x 100/1000BT (RJ45) Isolated Networks – No internal switch/bridge Device Control Programming
Serial	4 x RS232/RS422 (5-pin Phoenix)
DMX	1 x DMX512 Output (Serial Port 1 – 5-pin Phoenix)
Digital Inputs	8 x Contact/Voltage Inputs (2 x 8-pin Phoenix) Software Configurable for Voltage (5-24VDC) or Contact Closure
Relay Outputs	8 x N.O. Dry-contact Relay Outputs (2 x 8-pin Phoenix) Self-restoring Polymer Fuses (900mA)
Show Memory	Removable SD Card /w Captive Socket

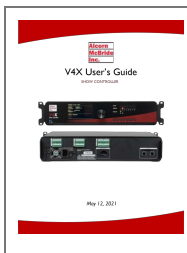| PHYSICAL	
Power	**V4X** – 110-240VAC **V4X-DC** – 24VDC
Dimensions	19"W x 14"L x 3.5"H (483mm x 356mm x 89mm)
Weight	14lbs (6.4kg)
Environment	0ºC (32ºF) to 38ºC (100ºF) 0-90% Relative Humidity
Mounting	2U 19" Rack Mount
Compliance	UL, CE, CB, WEEE, RoHS

BLOCK DIAGRAM
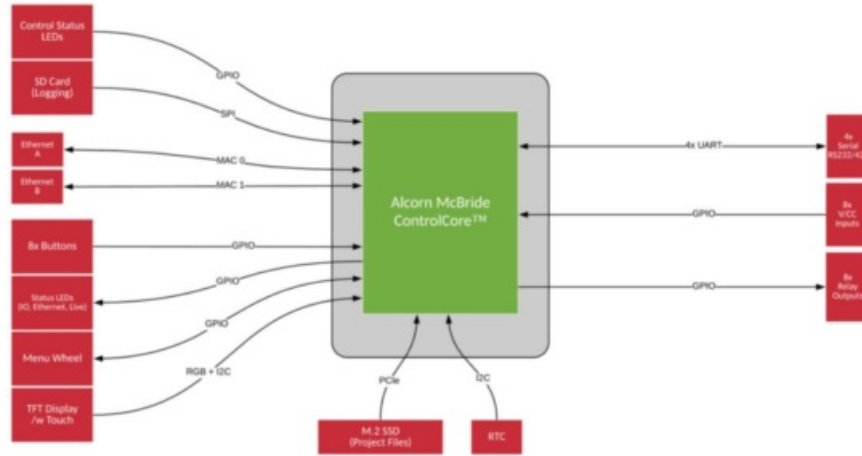
PRODUCT PHOTOS

Front View

Rear View

Documents / Resources

[Alcorn McBride Inc V4X Show Controller](#) [pdf] User Guide
V4X Show Controller, V4X, Show Controller

References

- **[Alcorn McBride | Leading Manufacturer Of Audio And Video Players, AV Control Manufacturer, Lighting And Show Controllers For Broadcast, Casinos, Theme Parks, Transportation, Museums And Retail](#)**
- **[Alcorn McBride | Leading Manufacturer Of Audio And Video Players, AV Control Manufacturer, Lighting And Show Controllers For Broadcast, Casinos, Theme Parks, Transportation, Museums And Retail](#)**