

B-STATION MANUAL



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Declaration of Conformity

We, manufacturer Visual Productions BV, hereby declare under sole responsibility, that the following device:

B-Station

Is in conformity with the following EC Directives, including all amendments:
EMC Directive 2004/108/EG

And the following harmonized standards have been applied:
NEN-EN-IEC 61000-6-1:2007
NEN-EN-IEC 61000-6-3:2007

Full name and identification of the person responsible for product quality and accordance with standards on behalf of the manufacturer

Date:
April 29th, 2013

Place:
Haarlem, The Netherlands



ing. Maarten Engels
Managing Director
Visual Productions BV

Chapter 1

Introduction

Thank you for choosing the B-Station. The B-Station is solid-state controller designed for two purposes.

Firstly, for remote-controlling a lighting system like CueCore or CueluxPro. The buttons can be freely assigned to any function in the lighting controller, e.g. select a cue or start/stop a show. Because the B-Station uses communication protocols that are open (in the public domain) such as UDP and OSC, it can also be used for controlling third-party equipment like show-controllers, lighting consoles, media servers or audio devices.

Furthermore, the B-Station is designed as a standalone lighting control system for small lighting setups like LED or architectural projects. It can control up to 32 individual DMX fixtures and supports 6 cue-lists with each 128 cues. It even features a dynamic FX-generator.

An internal web-server provides the web-interface through which you can program the B-Station. A modern browser is required to access this web-interface during set-up. A browser or computer is not required for standalone use after the initial set-up.



Figure 1.1: B-Station

This manual discussing setting up and programming the unit. Chapter 2 provides background information on the communication protocols used the B-

Station. Chapters 4 and 5 cover how to set up the unit and configure the network connection.

When the B-Station is just used for controlling external equipment then the chapters 6 and 7 can be ignored. Setting up this functionality is done in the 8 chapter discussed on page 26.

Setting up the B-Station for stand-alone lighting control will involve the following steps:

- Patching fixtures (discussed in chapter 6)
- Creating cues (discussed in chapter 7)
- Assigning buttons to trigger the cues (discussed in chapter 8)

1.1 Features

The feature set of the B-Station includes:

- 6 user-assignable push-buttons
- PWM controlled white LEDs
- Ethernet based, supporting protocols like UDP, OSC and Art-Net
- DMX-512 output
- Web-based user-interface for programming
- Standalone control for 6 zones, 32 fixtures and 768 cues
- Standalone FX-generator
- PoE (Power Over Ethernet) Class I
- Compatible with CueCore, QuadCore and IoCore
- Bundled with CueluxPro, vManager and VisualTouch software

1.2 What's in the box?

The B-Station packaging contains the following items (see figure 1.2):

- Info card
- B-Station
- 4 label sheets

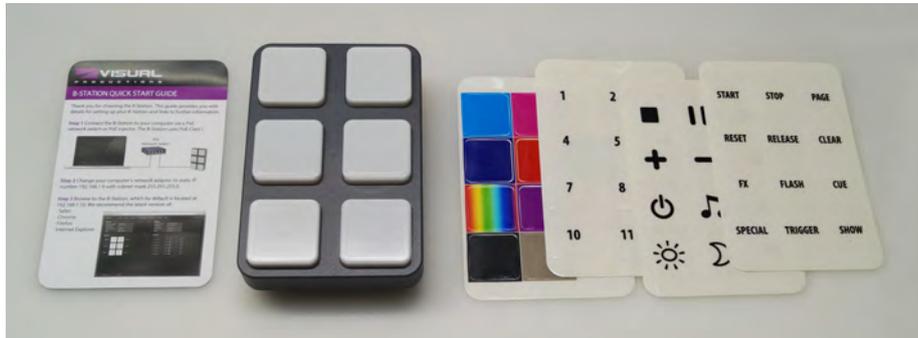


Figure 1.2: B-Station box contents

1.3 Saving data to memory

This manual will describe how to configure the B-Station and program cue lists, action, etc. The unit's web-interface is used for editing these kinds of elements. When changes are made, these changes are directly stored in the RAM memory of the B-Station and the programming will directly influence the behaviour of the unit. RAM memory is, however, volatile and its content will be lost through a power cycle. For this reason the B-Station will copy any changes in the RAM memory to its onboard flash memory. Flash memory retains its data even when not powered. The B-Station will load all its data back from the flash memory upon startup.

This memory copy process is conducted automatically by the B-Station and should not be of any concern of the user. One point of consideration is, however, that after making a change the unit should be given time to perform the copy to flash. As a rule of thumb, do not disconnect the power from the device within 30 seconds from making a programming change.

1.4 Further Help

If, after reading this manual, you have further questions then please consult the online forum at <http://forum.visualproductions.nl> for more technical support.

Chapter 2

Protocols

The B-Station is fitted with several communication ports and supports various protocols. This chapter describes these protocols and to which extent they are implemented in the B-Station

2.1 DMX-512

DMX-512 is the standard communication protocol for stage lighting. Its official name is E1.11-2008 USITT DMX512-A. Nowadays the reach of the DMX protocol has extended beyond entertainment lighting and is also used for architectural lighting. Originally one DMX network contained 512 channels which is called a 'universe'. With the growing size and complexity of lighting systems it is now very common for a system to compose of multiple universes, each conveying 512 channels. It is advised to use a shielded twisted pair cable for DMX cabling. The cable should be terminated with an 120 Ohm resistor.

DMX-512 is a very successful protocol with, however, a few limitations. The maximum number of attached devices is limited to 32 and they all have to be connected in bus-topology having one cable running via each device. Furthermore, a DMX-512 cable should not be longer than 300 meters.

The DIN Rail RdmSplitter from Visual Productions (See figure 2.1) helps tackle those inconvenient limitations. The Splitter takes a DMX signal and sends it out again on its 6 DMX output ports for scaling group topology. Each output port is capable of driving 32 more devices. The Splitter can also function as a signal booster as each port supports another 300 meter long connection.

The B-Station has one DMX port and is therefor able control 512 channels.

2.2 Art-Net

The Art-Net protocol primarily transfers DMX-512 data over Ethernet. The high bandwidth of an Ethernet connection allows Art-Net to transfer up to 256 universes. The data sent out for Art-Net does put a certain load on the



Figure 2.1: Visual Productions' RdmSplitter

network, therefore it is recommended to disable Art-Net when not in use. The B-Station can receive and send out one DMX universe over Art-Net. Art-Net can be used for outputting the stand-alone DMX levels. Also, Art-Net can be used for creating triggers in the show control programming.

2.3 UDP

User Datagram Protocol (UDP) is a simple protocol for sending messages across the network. It is supported by various media devices like video projectors and Show Controllers. It does not incorporate error checking, therefore it is faster than TCP but less reliable.

The B-Station can receive and send UDP messages. This can be programmed in the Show Control page (see page 26).

2.4 OSC

Open Sound Control (OSC) is a protocol for communicating between software and various multi-media type devices. OSC uses the network to send and receive messages, it can contain MIDI and custom information. There are apps available for creating custom-made user interfaces on iOS (iPod, iPhone, iPad) and Android. These tools allow to program fool-proof user-interfaces for controlling the device. E.g. TouchOSC from <http://hexler.net/software/touchosc>. There is a TouchOSC layout available from <http://www.visualproductions.nl/products/b-station.html> that is configured to control the playbacks of the B-Station.

The B-Station can receive and send OSC messages. This can be programmed in the Show Control page (see page 26).

Chapter 3

Quickstart

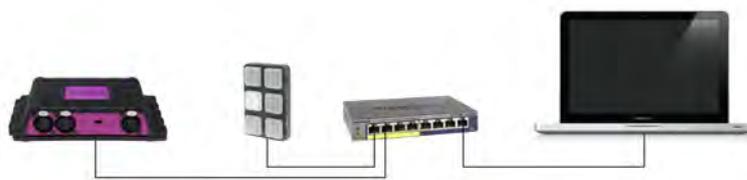
This chapter provides step by step tutorials on how to program your B-Station for some typical tasks:

- Remote control the playbacks in a CueCore2
- Standalone control of a RGB fixture

3.1 Remote control the playbacks in a CueCore2

This tutorial shows how to use the B-Station to remote the CueCore2. Follow the next few steps in order to link the B-Station's buttons to the CueCore2's playbacks.

1. Setup power and network
Connect the B-Station, CueCore2 and the computer to a PoE capable network switch.



2. Connect to the network
Configure the equipment to have the following static IP addresses:

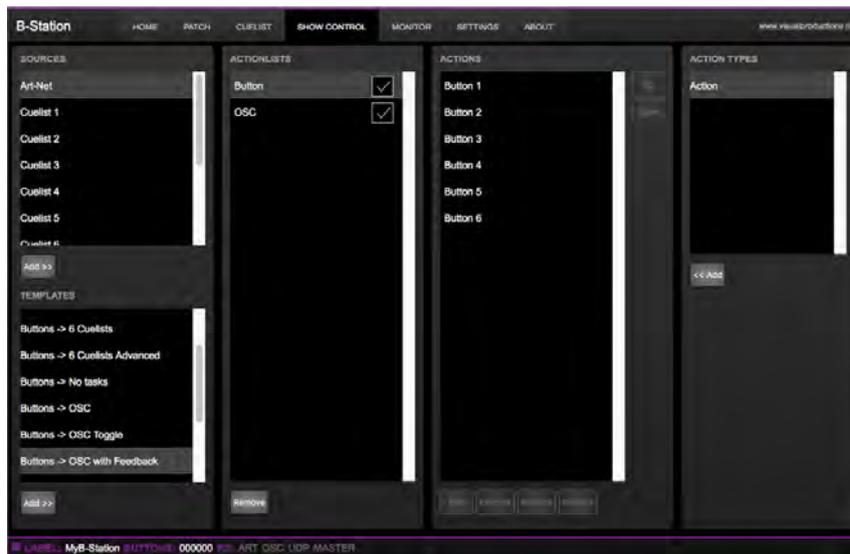
	IP	Subnet
Computer	192.168.1.9	255.255.255.0
B-Station	192.168.1.10	255.255.255.0 (Default setting)
CueCore2	192.168.1.11	255.255.255.0

3. Prepare the CueCore2
Make sure the CueCore2 has six cues inside playback 1. Each cues should

refer to a track with a certain lighting scene. Also, its OSC 'In port' should be set to 8000. Please refer to the CueCore2's manual for more information.

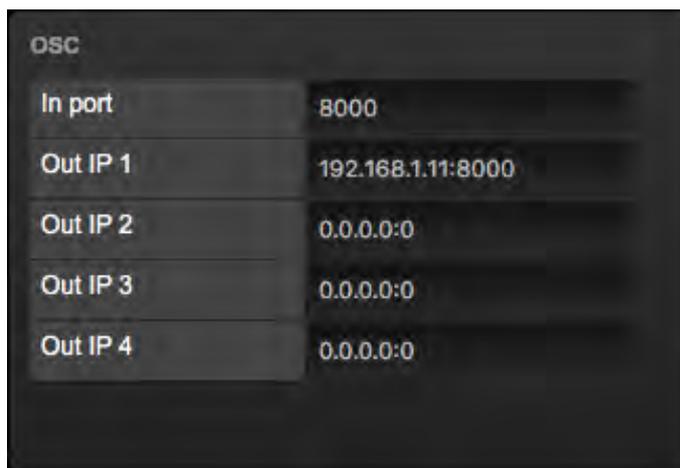
4. Add template

Open a browser on the computer and browse to the web-interface of the B-Station by typing '192.168.1.10' in the browser's address field. Go to the Show Control page and select the 'Buttons ->OSC with Feedback' template. Press the 'Add >>' button in the lower left corner of the screen.



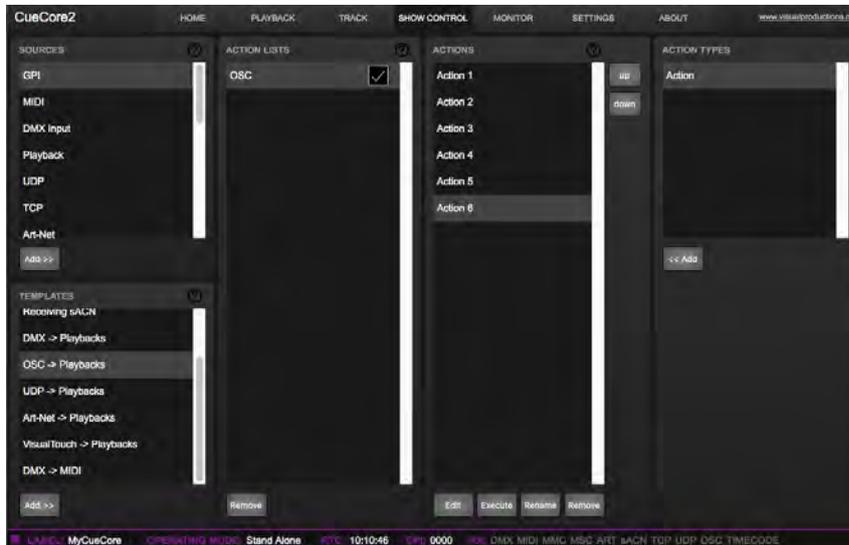
5. Set OSC IP address

Go to the B-Station Settings page and fill in '192.168.1.11:8000' in the 'Out IP 1' field in the OSC settings.



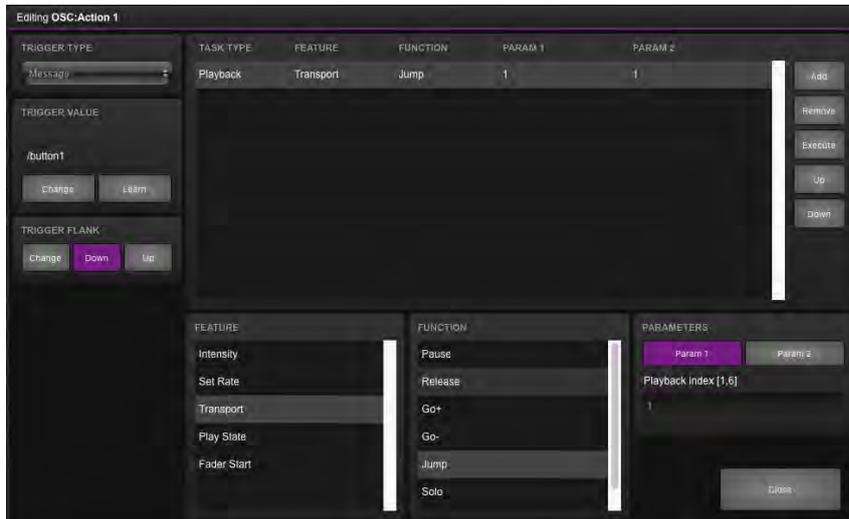
6. Add actions in the CueCore2

Open the web-interface of the CueCore2 and go to the Show Control page. Create an OSC actionlist. Add six actions.



7. Program actions in the CueCore2

Each action should have its trigger value set to '/button1', '/button2', '/button3', etc. The trigger flank should be set to 'Down'. Each action should have one 'Playback' task with the feature set to 'Transport' and the function set to 'Jump'. These tasks have parameter 1 set to '1' and parameter 2 set to '1', '2', '3', etc.



Pressing the buttons on the B-Station should now activate cues within the CueCore2.

3.2 Standalone control of a RGB fixture

This example will patch one RGB fixture, create a cuelist with three cues and assign buttons to those cues. Please take the following steps:

1. Setup power and network

Connect the B-Station and the computer to a PoE capable network switch. Connect the fixture to the B-Station's DMX connector.



2. Patch

Use the browser to go to the B-Station's 'Patch' page. Select the first fixture slot and assign a RGB personality from the table on the right.

RGB 1 Fixture 1	Not used 0 Fixture 2	Not used 0 Fixture 3	Not used 0 Fixture 4	Not used 0 Fixture 5	Not used 0 Fixture 6	Not used 0 Fixture 7	Not used 0 Fixture 8
Not used 0 Fixture 9	Not used 0 Fixture 10	Not used 0 Fixture 11	Not used 0 Fixture 12	Not used 0 Fixture 13	Not used 0 Fixture 14	Not used 0 Fixture 15	Not used 0 Fixture 16
Not used 0 Fixture 17	Not used 0 Fixture 18	Not used 0 Fixture 19	Not used 0 Fixture 20	Not used 0 Fixture 21	Not used 0 Fixture 22	Not used 0 Fixture 23	Not used 0 Fixture 24
Not used 0 Fixture 25	Not used 0 Fixture 26	Not used 0 Fixture 27	Not used 0 Fixture 28	Not used 0 Fixture 29	Not used 0 Fixture 30	Not used 0 Fixture 31	Not used 0 Fixture 32

Personality

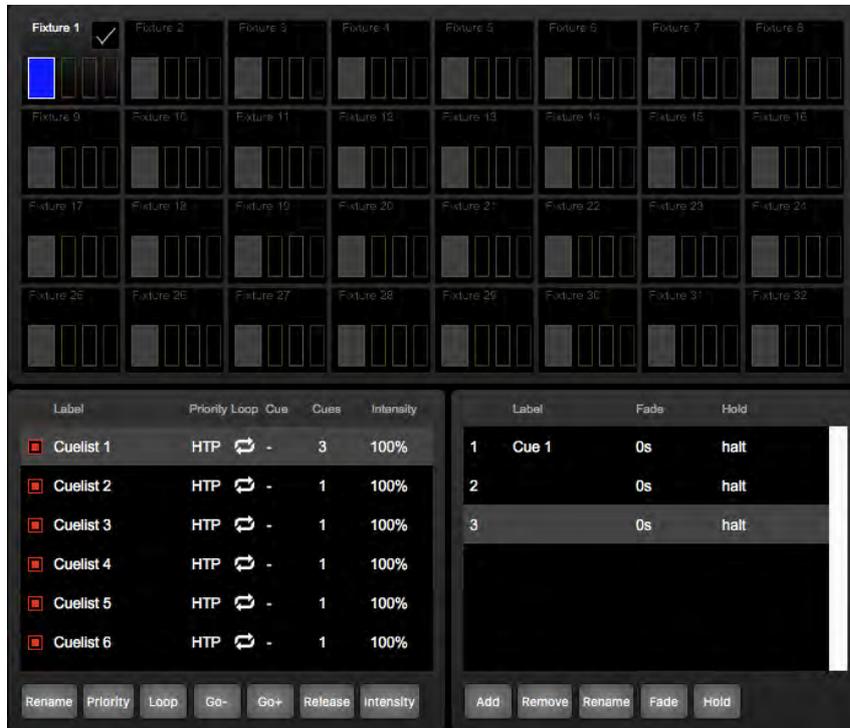
- Not used 0
- ActWw 4
- AW 2
- I 1
- II 2
- IRGB 4
- IRGBS 5
- IS 2
- RGB 3**
- RGBA 4
- RGBAW 5
- RGBI 4
- RGBIS 5

Address
1

Label
Fixture 1

3. Prepare cuelist

Go to the Cuelist page and select the first cuelist. Enable the checkbox on fixture 1. Make sure the cuelist has three cues.



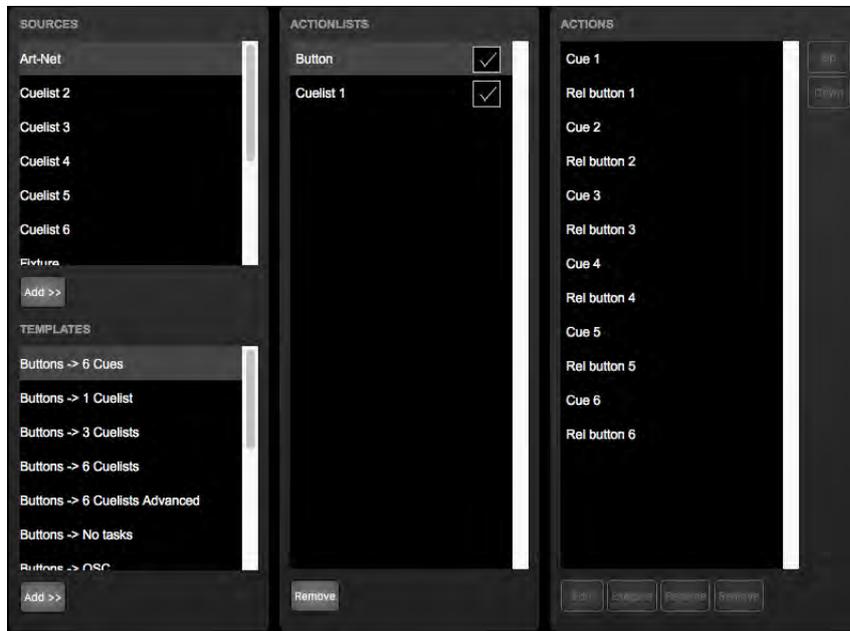
4. Program cues

Press the Go+ button to activate the cuelist. Select cue 1. Select fixture 1. Bring the intensity and red levels 100% in order to create a red scene. Now also make a green scene in cue 2 and a blue scene in cue 3.



5. Assign buttons

Go to the 'Show control' page. Add the 'Buttons ->6 Cues' template.



Pressing the buttons 1 till 3 will now activate cues 1 till 3. The button's LEDs will indicate which cue is active.

Chapter 4

Setting up

This chapter discusses how to set up the B-Station.

4.1 Mounting

The B-Station is wall-mount, it is compatible with European and American gang boxes. If no gang box is available then the B-Station can also be surface mounted. The inside of the B-Station's enclosure suggests where you can create a hole for the cable to enter.

4.2 Power

The B-Station is Power-over-Ethernet (PoE) enabled, it requires PoE Class I.

4.3 Labels

The B-Station is shipped with various adhesive labels that you can apply to the buttons. If you wish to create your own labels then please use the following dimensions.

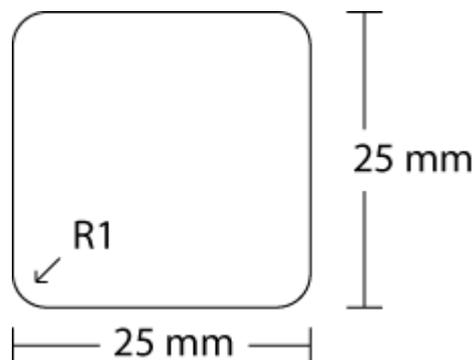


Figure 4.1: Label dimensions

Chapter 5

Network

The B-Station is a network capable device. A network connection between a computer and the unit is required to configure and program the B-Station, however, once the device is programmed then it is not necessary anymore for the B-Station to be connected to an Ethernet network.

There are multiple arrangements possible for connecting the computer and the B-Station. They can be connected via a network switch or peer-to-peer. Figures 5.1 and 5.2 illustrate these arrangements. The only way to power a B-Station is to connect it to a PoE source. If the B-Station is operating standalone then it still needs to be powered by a PoE Injector , however, this injector does not need to be connected to the network. See figure 5.3.



Figure 5.1: PoE switch

The Ethernet port on the B-Station is auto-sensing; it does not matter whether a cross or straight network-cable is being used.



Figure 5.2: PoE injector

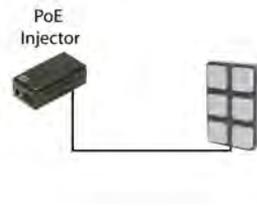


Figure 5.3: PoE Injector for standalone

5.1 IP Address

The B-Station only supports static IP addresses. By default, the B-Station is set to 192.168.1.10.

There are three ways to change the IP address setting of the B-Station.

- **vManager** can be used to detect a B-Station on the network. Once found, the vManager software (figure 5.5) allows for changing the IP address and subnet mask.
- If the IP address is already known then browsing to this address using the computer's browser will show the B-Station's **web-interface**. The Settings page on this web-interface enables changing the IP address and subnet mask settings.
- By pressing the **reset button** on the device for 3 seconds, it will reconfigure the unit to the factory default IP address and subnet mask. No other settings will be changed. The default IP address is 192.168.1.10 with the subnet mask set to 255.255.255.0.

5.2 Access via Internet

The B-Station can be accessed through the Internet. There are two ways to achieve this: Port-Forwarding and VPN.



Figure 5.4: Reset button

- **Port-Forwarding** Is relatively easy to setup in the router. Each router is different so it is advised to consult the router's documentation (sometimes it is referred to as NAT or Port-Redirecting). Please note that port forwarding is not secure, since anybody could access the B-Station this way.
- Accessing via a **Virtual Private Network** (VPN) tunnel requires more setup efforts, also the router needs to support the VPN feature. Once set up, this is a very secure way to communicate with the B-Station. A VPN is a network technology that creates a secure network connection over a public network such as the Internet or a private network owned by a service provider. Large corporations, educational institutions, and government agencies use VPN technology to enable remote users to securely connect to a private network. For further information about VPN please refer to <http://whatismyipaddress.com/vpn>.

5.3 vManager Software Tool

A free-of-charge software tool called vManager has been developed to manage the devices. This tool is available on Microsoft Windows, OSX and Ubuntu Linux via the Visual Productions website. vManager allows for:

- Setup the IP address, subnet mask and router
- Backup and restore the device's internal data and settings
- Perform firmware updates
- Identify a specific device (in a multi device set-up) by blinking its LED
- Revert to factory defaults

The following section explain the buttons in the vManger, as seen in figure 5.5.

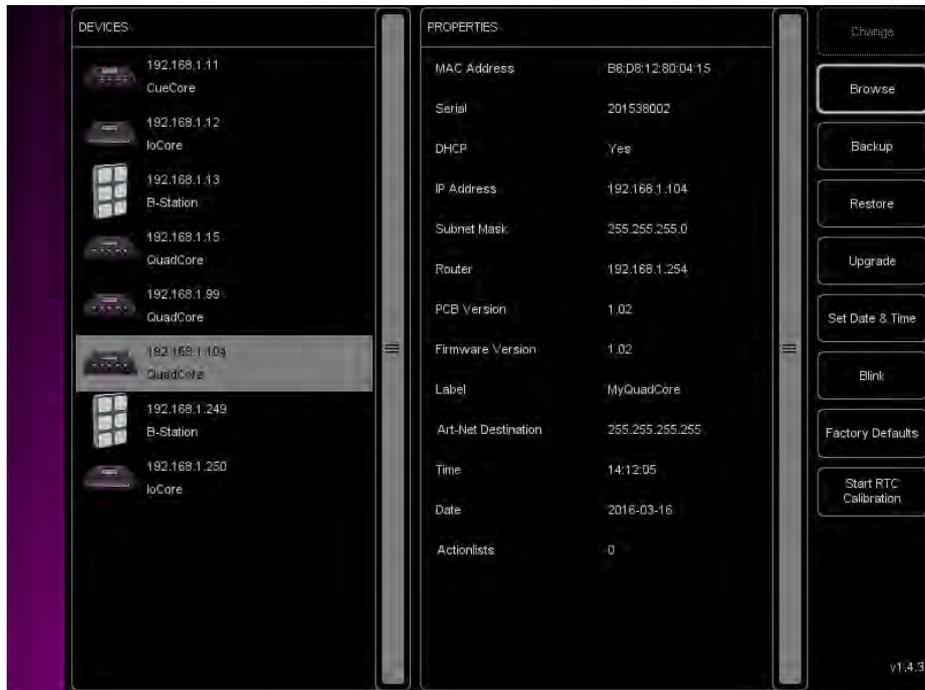


Figure 5.5: vManager

5.3.1 Backup

Backups of all the programming data inside the device can be made. This backup file (an XML) is saved on the computer's hard-disk and can be easily transferred via e-mail or USB stick. The data of the backup can be restored via the Restore button.

The backup files created by vManager can be found at the following locations:

Microsoft Windows		\Users\[username]\Documents\Visual Productions\Common\Backups
OSX		/Users/[username]/Visual Productions/Common/Backups
Ubuntu Linux		/home/[username]/Visual Productions/Common/Backups

5.3.2 Upgrade Firmware

To upgrade the firmware, first select the device and press the Upgrade Firmware button. The dialogue allows for selecting from the list of firmware versions available.

Warning: Make sure the power to the device is not interrupted during the upgrade process.

5.3.3 Blink

The device's LED can be set to blink fast for identifying the particular unit amongst multiple devices. The blinking is enabled by double-clicking on a device in the Devices list or by selecting a device and then clicking the Blink button.

5.3.4 Factory Defaults

All the user data like cues, tracks and actions are stored on the memory. They will be completely erased and all settings will be reverted to their defaults by pressing the Factory Defaults button. This action does not affect the device's IP settings.

Chapter 6

Patch

The Patch page (see figure 6.1) allows you to setup the fixtures that you will be controlling in the standalone mode.

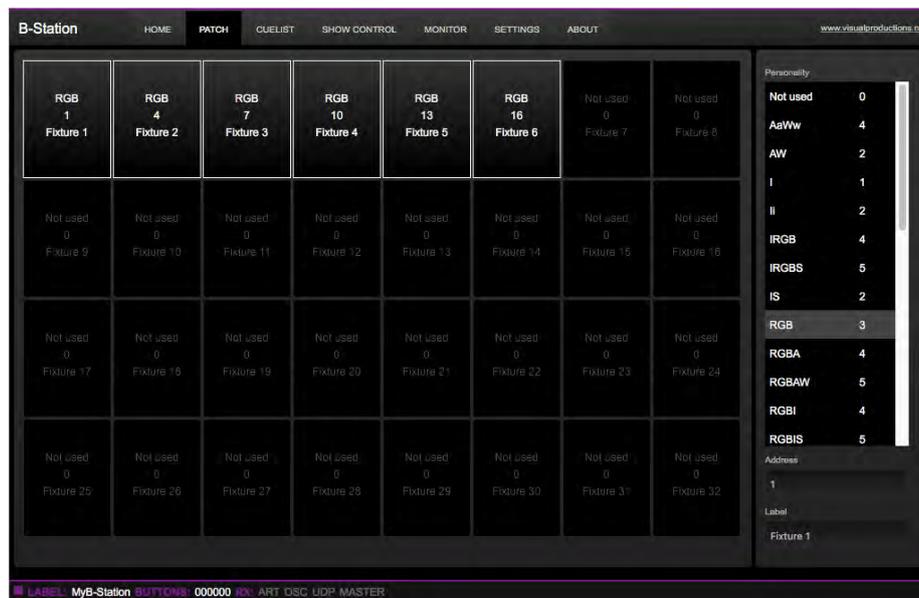


Figure 6.1: Patch page

There are 32 fixture slots available. For each fixture you can set a 'personality' (a profile that matches the fixture's DMX traits). The listed personalities are all LED, conventional or architectural type fixtures; moving lights are not supported by the B-Station. The personalities feature the following parameters:

I	Intensity
R	Red
G	Green
B	Blue
A	Amber
W	White
S	Special

To keep a fixture slot empty, set it to the 'Not used' personality.

6.1 Virtual Dimmer

Personalities with RGB but without Intensity will automatically be given an virtual dimmer. This means that the B-Station will act as if the fixture has an intensity channel and allows for RGB and intensity to be programmed separately, however, it will modulate the intensity on the RGB values.

6.2 16-Bit

16-Bit parameters are also supported, e.g. for a 16-bit RGB fixture please select the RrGgBb personality.

6.3 Address

DMX starting addresses are set by selecting one or more fixture 'cells' and typing in the value in the Address field. In case multiple fixtures are selected then the B-Station will automatically address the fixtures consecutively starting from the address you have provided.

6.4 Label

The fixtures can also be given a label for your own reference, again multiple fixtures can be renamed in which case the B-Station will automatically add a number suffix.

Chapter 7

Cuelist

Cuelists are only needed for standalone operation. After patching the fixtures the next step is to program the cuelists. There are six cuelists and each cuelist can have up to 128 cues. The cuelist web-page (see figure 7.1) shows the content of the selected cue.

In order to see editing changes live on the fixtures connected via DMX it is required for the playback to be activated and playing back the cue that is currently being edited.



Figure 7.1: Cuelist page

7.1 Zones

For each cuelist you can define which fixtures are present in that cuelist. When you have the cuelist selected, you can alter the fixture's checkboxes to include

them in the cuelist. This way you can create six different zones: you spread the fixtures over different cuelists. Each cuelist is then capable of independently controlling a group of fixtures.

7.2 Precedence

You can specify the 'precedence' for a cuelist. You can choose between HTP (Highest Takes Precedence) and LTP (Latest Takes Precedence). In the case of HTP, the B-Station will take all the values generated by the cuelists and send the highest value to the fixture. This is done per attribute (e.g. intensity values are compared with other intensity values and RGB values are compared with other RGBs). When two or more cuelists are set to LTP then only one of those cuelists will be used in the value comparison; i.e. the cuelist that has been activated most recently.

7.3 Loop

The 'loop' property can be set for each individual cuelist. This property determines what the cuelist does after finishing the last cue. Does it start over again at the first cue (loop is on) or does it automatically release (loop is off).

7.4 Cue Timing

Each cue has a fade time. Once it has finished fading it will pause the cuelist if the 'hold' value is set to 'halt'. Alternatively, if you specify a time in the 'hold' value then as soon as the cue has finished fading it will hold the cue for this time and then automatically progress to the next cue.

7.5 FX generator

The B-Station is equipped with a FX generator capable of creating sinus, random and RGB-spectrum effects. You can choose within a list of FX algorithms. The output of the algorithm is manipulated by four faders: Intensity, Speed, Density and Phase. The settings of the FX generator are stored inside the cue; so each cue can have different effect.

Chapter 8

Show Control

The B-Station can interact with the outside world; it can receive messages and values through various protocols and it can send out many protocols. It is possible to automate the B-Station by having it respond automatically to incoming signals. An example of this would be to start a cuelist upon receiving a specific UDP network message. The Show Control page (See figure 8.1) enables this kind of programming to be made.

When using the B-Station as a standalone lighting controller then the show control page allows for assigning buttons to the cuelists and cues. To setup the B-Station quickly for this purpose it is recommended to add a template. Templates are discussed on page 29.

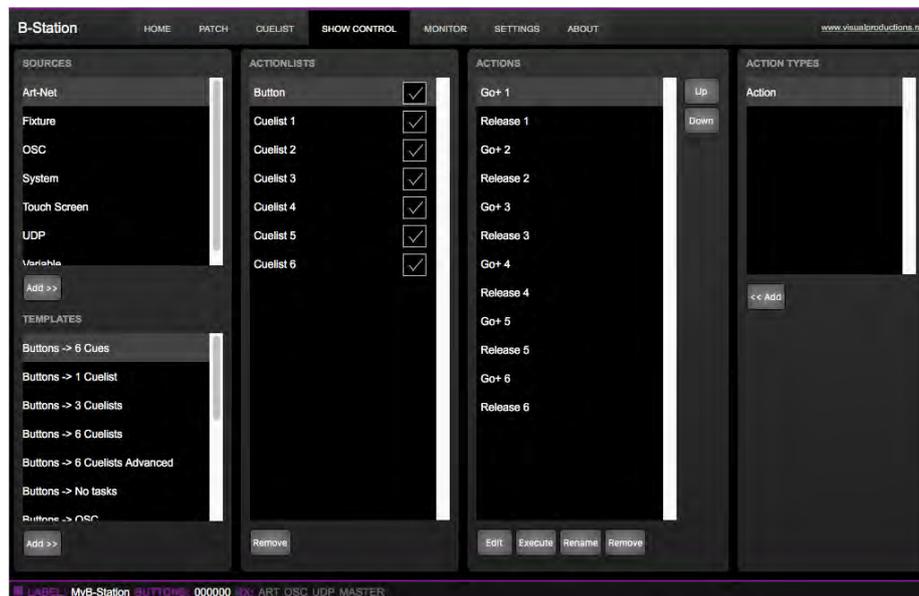


Figure 8.1: Show Control page

The Show Control page presents a system of 'actions'. A signal that the B-Station needs to respond to or perhaps convert into some other signal, needs

to be expressed in an actions. Before programming actions please consider the Show Control structure in figure 8.2.

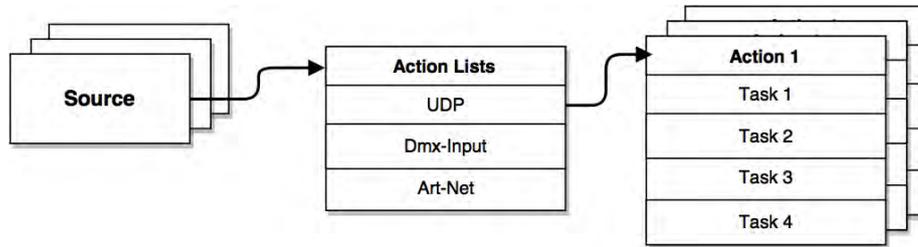


Figure 8.2: Show Control structure

The B-Station is capable of listening to various protocols. These available protocols are listed in Sources, however, the B-Station can only actively listen to 8 protocols at once. The active protocols are listed in 'Action Lists'. Each action list can contain actions. Within a protocol/source each individual signal requires its own action. For example, when listening to channel 1 and 2 on the incoming DMX, the DMX action list needs two actions; one for each channel.

Inside the action we define the trigger and tasks. The trigger specifies for which signal to filter. In the above DMX example the trigger would be set to 'channel 1' and 'channel 2' respectively. The tasks determine what the B-Station will do when this action is triggered. Several tasks can be placed in the action. There are tasks available for a wide range of B-Station features and external protocols. Task types are detailed in Appendix B on page 41.

8.1 Sources and Action Lists

The Sources listing presents all protocols that the B-Station is capable of receiving. It also includes internal features that can create events that can be used for triggering actions, such as the push-buttons. These sources are available, however, they will only be actively listened to once moved to the action-list table.

Source	Description
Art-Net	Art-Net DMX data
Button	Button movements
Cuelist 1-6	Events generated by the cuelists
Fixture	Events generated by the fixtures
OSC	OSC network message
System	Events such as 'Power on'
Touch Screen	Triggers from VisualTouch. For each Action various controls can be chosen such as buttons and sliders, colour picker etc. The order of the actions will control the arrangement in VisualTouch.
UDP	UDP network messages
Variable	The Variable source works in combination with the variable task (For more information about the Variable task please refer to Task Types). The Variable task will set a value of which an enabled action-list type with Variable as Source will use as a trigger. The B-Station will keep the values of the 8 variables even after shut down so long as the RTC battery is not empty.

Action-lists can be temporarily suspended by disabling their checkbox in the Show Control page. There is also a task available to automate changing the state of this checkbox.

8.2 Actions

Actions are executed when a certain signal is received. This signal is defined by the trigger. A trigger is always relative to the action-list the action belongs to. For example, when the trigger-type is set to 'Channel' then it refers to a single DMX channel if the action is placed inside a 'DMX Input' list and it means a single Art-Net channel if the action resides in an Art-Net action-list.

A trigger is determined by the trigger-type, trigger-value and trigger-flank fields. Although these fields are not applicable for all action-lists and are therefore sometimes omitted in the web GUI. The trigger-type field specifies what kind of signal the action will be triggered by. For example, when making an action in the Art-Net list there is the choice between 'Channel' and 'Receiving' trigger-types. The trigger-value specifies the actual signal value. In the Art-Net example the trigger-value could be set to 'channel 1' or 'channel 2'.

In some action-lists actions do also need to specify the trigger-flank. The flank further specifies the value that the signal should have before triggering the action. For example, when an action is triggered from a Touch Screen list and it is linked to a button in the VisualTouch software, the flank will determine whether to trigger only when the button goes down or only when it goes up.

Appendix A provides an overview of the available trigger-types.

An action-list can have up to 48 actions, system-wide there is a maximum of 64 actions.

8.3 Tasks

Tasks are added to an action in order to specify what to do when it gets executed. Up to 8 tasks can be included in an action, systemwide there is a maximum of 128 tasks. The tasks are executed in the order of the list. There is a wide selection of tasks available to choose from, they include altering any of the internal software features like cuelists and LEDs but also sending out messages through any of the supported protocols. The tasks are organised in categories. Once a task is chosen from these categories each task allows for further choice between several 'Features' and 'Functions'. Tasks contain up to two parameters that might be required for its execution.

A task can be tested by selecting it and pressing the 'execute' button in the action-edit dialog. The complete action can also be tested; go to the Show Control page, select the action and press the 'execute' button.

Appendix B provides a detailed overview of the available tasks, features, functions and parameters.

8.4 Templates

The Show Control page presents a list of templates. A template is a set of action-list, actions and task. These templates configure the B-Station to perform typical functions; for example convert Art-Net to DMX or control the 6 playbacks through OSC. The templates thus save time; otherwise actions should have been set up manually. They can also function as a guide to soften the learning curve on actions; a lot can be learned from adding a template and then exploring the actions and tasks it created.

Please note that some templates require settings to be changed in the settings page; for example the 'Receiving Art-Net' template needs the Art-Net subnet/universe to be specified in order to achieve an Art-Net to DMX conversion. Appendix C gives an overview of the available templates.

8.5 Variables

Variables are internal memories that can hold a value; a number in the range of [0,255]. There are 8 variables and they are typically used for advanced show control programming. In the B-Station, the content of the variable is not stored between power cycles.

Variables can be set by tasks. Variables can be added as sources in order to have actions triggered when a variable changes value.

Chapter 9

Monitors

This page allows the user to inspect the incoming and outgoing data, both DMX-type data (See figure 9.1) as well as control messages (See figure 9.2). Monitoring incoming and outgoing data can help the user troubleshoot during programming.

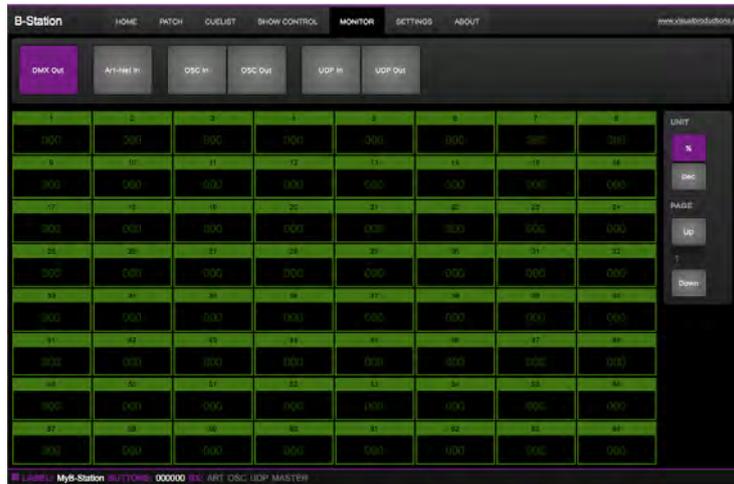


Figure 9.1: DMX Monitor page

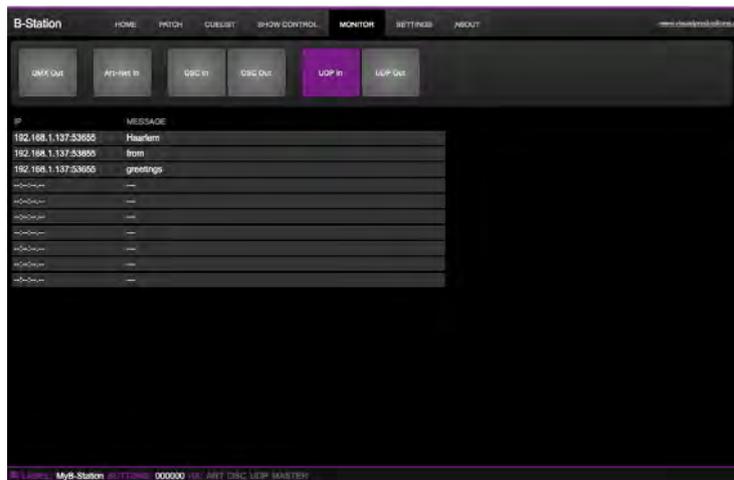


Figure 9.2: UDP Monitor page

Chapter 10

Settings

The B-Station's settings are organised into sections, see the Settings page figure 10.1. This chapter will discuss each section.

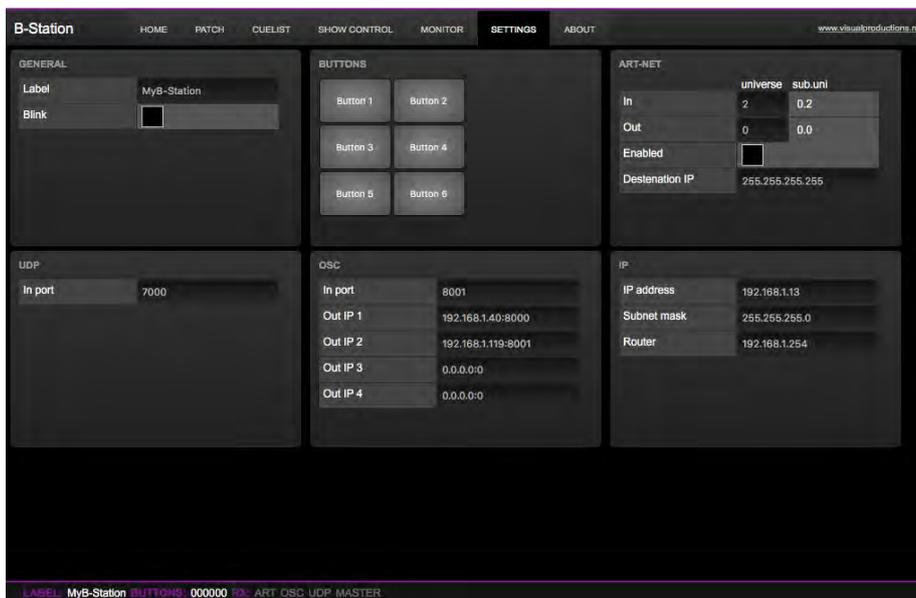


Figure 10.1: Settings page

10.1 General

You can change the B-Station's label. This label can be used to distinguish the unit in a set-up with multiple devices. By enabling the 'Blink' checkbox the device's LED will blink to help to identify it amongst multiple devices.

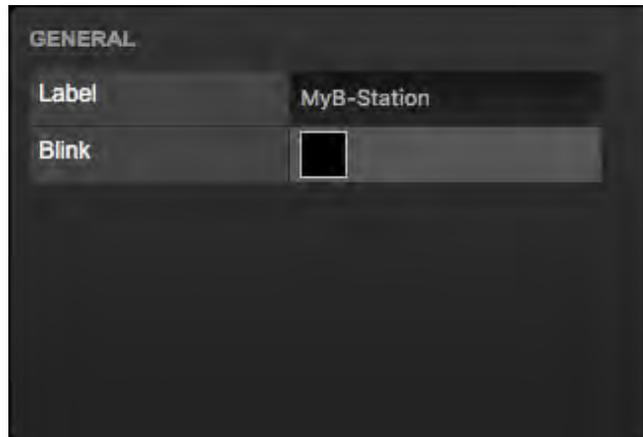


Figure 10.2: General Settings

10.2 IP

The IP fields are for setting up the IP address and subnet mask of the B-Station. The 'Router' field is only required when Port Forwarding is used.

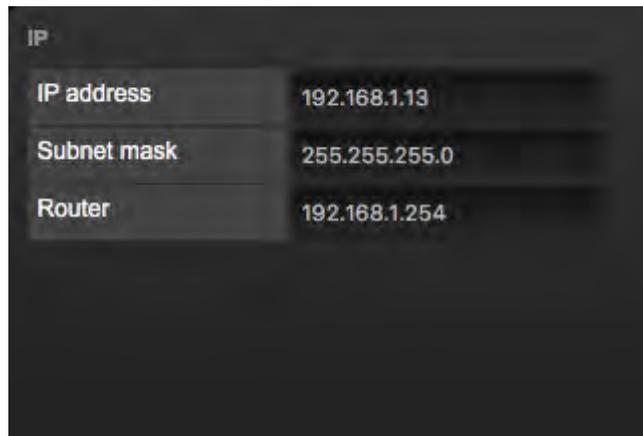


Figure 10.3: IP Settings

10.3 OSC

External equipment sending OSC messages to the B-Station need to be aware of the number specified in the 'Port' field. This is the port the B-Station listens to for incoming messages.

The B-Station will send its outgoing OSC messages to the IP addresses specified in the 'Out IP' fields. Up to four IPs can be specified here. Use the 'ipaddress:port' format in these fields, e.g. "192.168.1.11:9000". If a field should not be used that it can be filled with IP 0.0.0.0. It is possible to enter a broadcast

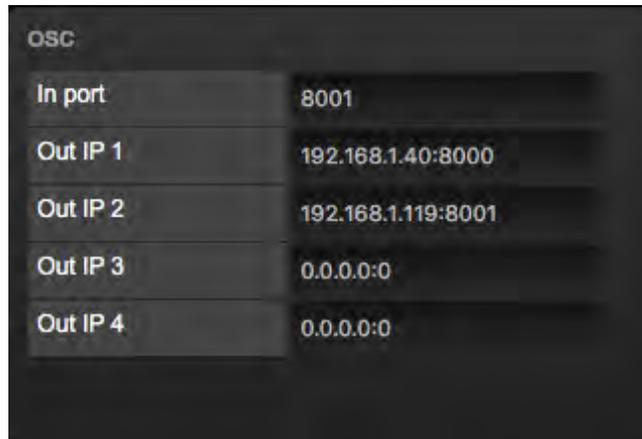


Figure 10.4: OSC Settings

IP address like 192.168.1.255 in order to reach more than four recipients.

10.4 UDP

Defines the listening ports for UDP messages. External system intending to send UDP message to the B-Station should need to know the unit's IP address and this port number. By default the port is set to 7000.

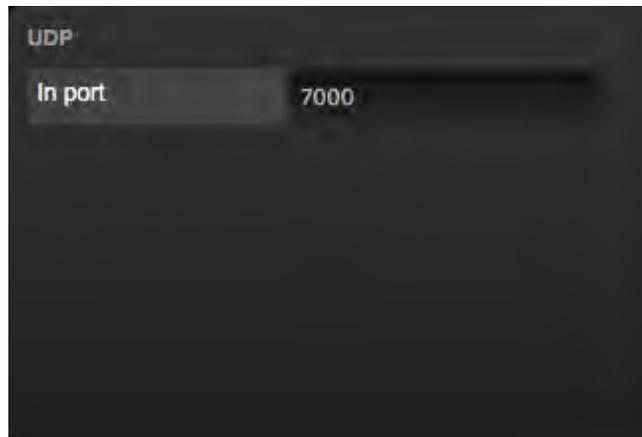


Figure 10.5: UDP settings

10.5 Art-Net

The B-Station supports sending out 1 universe or and receiving 1 universe of Art-Net. These universes can be mapped to any of the 256 available universes in the Art-Net protocol. The universe is entered in the 'subnet.universe' format,

i.e. the lowest universe number is written as '0.0' and the highest universe number is denoted as '15.15'. The outgoing Art-Net transmission can be disabled by disabling the checkbox.



Figure 10.6: Art-Net settings

The vManager software also allows you to change the Art-Net destination IP. The destination IP determines where the outgoing Art-Net data will be sent to. Typically, this field contains a broadcast address like 2.255.255.255 which will send the Art-Net data to the 2.x.x.x IP range. Another typical Art-Net broadcast address is 10.255.255.255. When using broadcast address 255.255.255.255 then all the devices on the network will receive the Art-Net data.

It is also possible to fill in a unicast address like 192.168.1.11; in this case the Art-Net data will be sent to one IP address only. This keeps the rest of the network clean of any Art-Net network messages.

Appendices

Appendix A

Trigger Types

The following tables list the different types of triggers that can be used in the B-Station. The different types are accompanied with values and flanks.

A.1 Art-Net

Trigger Type	Trigger Value	Flank	Description
Channel	DMX address	Change	Channel changes
Channel	DMX address	Down	Channel becomes non-zero
Channel	DMX address	Up	Channel becomes zero
UniverseA	-	-	A DMX level change in the universe
Receiving	-	Change	Start receiving or loose Art-Net signal
Receiving	-	Down	Lost Art-Net signal
Receiving	-	Up	Start receiving Art-Net signal

A.2 Button

Trigger Type	Trigger Value	Flank	Description
Button	Button number	Change	Button state changes
Button	Button number	Down	Button is depressed
Button	Button number	Up	Button is released
Binary	Combination value	-	A combination of buttons is pressed
Short press	Button number	-	Button is depressed momentary
Long press	Button number	-	Button is depressed for long time

Use the Binary trigger type to catch button combinations. Specify the button combination by adding the values that correspond to the buttons (see table

below). This value is entered as the trigger value.

Button	Value
1	1
2	2
3	4
4	8
5	16
6	32

For example, to trigger on both button 1 and 2 being pressed fill in trigger value 3 (1+2). To trigger on button 5 and 6, fill in value 48 (16+32).

A.3 Cuelist 1-6

Trigger Type	Trigger Value	Flank	Description
Active	-	Change	Cuelist active state changes
Active	-	Down	Cuelist became active
Active	-	Up	Cuelist was released
Cue	Cue index	Change	Cue active state changes
Cue	Cue index	Down	Cue became active
Cue	Cue index	Up	Cue exited
Intensity	-	-	Cuelist's intensity changes

A.4 Fixture

Trigger Type	Trigger Value	Flank	Description
Intensity	Fixture index	-	Fixture's intensity changes

A.5 OSC

Trigger Type	Trigger Value	Flank	Description
Message	URI	Change	Receive a message that matches the URI
Message	URI	Down	Receive a message that matches the URI and the value non-zero
Message	URI	Up	Receive a message that matches the URI and the value is zero
Receiving	-	-	Receive any message

The user can define his own URI as the trigger value of a message, however, the OSC specification dictate this string must start with a '/' sign. Please note that this string has a maximum length of 25 characters, including the '/'.

A.6 System

Trigger Type	Trigger Value	Flank	Description
Startup	-	-	The B-Station has been power up
Network Connection	-	Change	Network connection established or lost
Network Connection	-	Stop	Network connection lost
Network Connection	-	Start	Network connection established
ReleasedByMaster	-	Change	Master (e.g. CueluxPro) released or obtained connection
ReleasedByMaster	-	Stop	Master released connection
ReleasedByMaster	-	Start	Master obtained connection

A.7 Touch Screen

Trigger Type	Trigger Value	Flank	Description
-	-	Change	Button/Fader goes up or down
-	-	Down	Button is pressed
-	-	Up	Button is released

When editing the Touch Screen actionlist it will be possible to add different kind of actions such as Button, Fader and Colour Picker. These elements will be displayed in the VisualTouch software which is available free-of-charge from the Visual Productions website.

A.8 UDP

Trigger Type	Trigger Value	Flank	Description
Message	String	-	Receive a message that matches the trigger-value
Receiving	-	-	Receive any message

The user can define his own string as the trigger value of a message. Please note that this string has a maximum length of 25 characters.

A.9 Variable

Trigger Type	Trigger Value	Flank	Description
Channel	Variable Index	-	The specified variable changes
Variable 1	Number [0,255]	Change	Variable 1 becomes = or # to the value
Variable 1	Number [0,255]	Down	Variable 1 becomes = to the value
Variable 1	Number [0,255]	Up	Variable 1 becomes # to the value
Variable 2	Number [0,255]	Change	Variable 2 becomes = or # to the value
Variable 2	Number [0,255]	Down	Variable 2 becomes = to the value
Variable 2	Number [0,255]	Up	Variable 2 becomes # to the value
Variable 3	Number [0,255]	Change	Variable 3 becomes = or # to the value
Variable 3	Number [0,255]	Down	Variable 3 becomes = to the value
Variable 3	Number [0,255]	Up	Variable 3 becomes # to the value
Variable 4	Number [0,255]	Change	Variable 4 becomes = or # to the value
Variable 4	Number [0,255]	Down	Variable 4 becomes = to the value
Variable 4	Number [0,255]	Up	Variable 4 becomes # to the value
Variable 5	Number [0,255]	Change	Variable 5 becomes = or # to the value
Variable 5	Number [0,255]	Down	Variable 5 becomes = to the value
Variable 5	Number [0,255]	Up	Variable 5 becomes # to the value
Variable 6	Number [0,255]	Change	Variable 6 becomes = or # to the value
Variable 6	Number [0,255]	Down	Variable 6 becomes = to the value
Variable 6	Number [0,255]	Up	Variable 6 becomes # to the value
Variable 7	Number [0,255]	Change	Variable 7 becomes = or # to the value
Variable 7	Number [0,255]	Down	Variable 7 becomes = to the value
Variable 7	Number [0,255]	Up	Variable 7 becomes # to the value
Variable 8	Number [0,255]	Change	Variable 8 becomes = or # to the value
Variable 8	Number [0,255]	Down	Variable 8 becomes = to the value
Variable 8	Number [0,255]	Up	Variable 8 becomes # to the value

Appendix B

Task Types

Tasks allow you to automate the functionality in the B-Station. All this functionality is categorized in task-types. This appendix provides a listing of the various task-types. The tables present an overview of all available features and functions per task-type.

B.1 Action

Trigger another action.

Feature	Function	Parameter 1	Parameter 2
Link	Set	Action	-

B.2 Action List

Manipulate an action-list.

Feature	Function	Parameter 1	Parameter 2
Enable	Set	Action-list	On or Off
Enable	Toggle	Action-list	-
Enable	Control	Action-list	-
Enable	Inverted Control	Action-list	-

B.3 GPI

Force the GPI actions to be triggered.

Feature	Function	Parameter 1	Parameter 2
Refresh	Set	-	-

B.4 Cuelist 1-6

Manipulate one of the six cuelists.

Feature	Function	Parameter 1	Parameter 2
Go+	Set	-	-
Go-	Set	-	-
Jump	Set	Cue [1,128]	-
Jump	Control	-	-
Intensity	Set	Percentage [0%,100%]	-
Intensity	Control	-	-
Intensity	Decrement	Delta [1,255]	-
Intensity	Increment	Delta [1,255]	-
Intensity	Continuous decrement	Delta [1,255]	-
Intensity	Continuous increment	Delta [1,255]	-
Intensity	Stop continuous	-	-
Release	Set	-	-
Playstate	Set	On or off	-
Playstate	Toggle	-	-
Playstate	Control	-	-
Playstate	Restart	-	-

B.5 Cuelist Selected

Manipulate the currently selected cuelist.

Feature	Function	Parameter 1	Parameter 2
Go+	Set	-	-
Go-	Set	-	-
Jump	Set	Cue [1,128]	-
Jump	Control	-	-
Intensity	Set	Percentage [0%,100%]	-
Intensity	Control	-	-
Intensity	Decrement	Delta [1,255]	-
Intensity	Increment	Delta [1,255]	-
Intensity	Continuous decrement	Delta [1,255]	-
Intensity	Continuous increment	Delta [1,255]	-
Intensity	Stop continuous	-	-
Release	Set	-	-
Playstate	Set	On or off	-
Playstate	Toggle	-	-
Playstate	Control	-	-
Playstate	Restart	-	-
Select	Set	-	Cuelist [1,128]
Select	Control	-	-
Select	Decrement	-	-
Select	Increment	-	-

B.6 Cuelist all

Manipulate settings that affect all cuelists.

Feature	Function	Parameter 1	Parameter 2
Release	Set	-	-
Solo	Set	-	Cuelist [1,128]
Solo	Control	-	-
Blackout	Set	On or off	-
Blackout	Control	-	-

B.7 DMX

Manipulate the DMX levels. These are the levels that can also be send out via Art-Net.

Feature	Function	Parameter 1	Parameter 2
Set Value	Set	Channel [1,512]	Value [0,255]
Set Value	Toggle	Channel [1,512]	-
Set Value	Control	Channel [1,512]	-
Set Value	Inverted Control	Channel [1,512]	-
Set Value	Decrement	Channel [1,512]	-
Set Value	Increment	Channel [1,512]	-
Set Value	Universe A	-	-
Set Value	Switch	DMX Channel	-
Set Value	Control scaled	Channel [1,512]	Percentage [0%,100%]
Set Value	Control offset	Channel [1,512]	Offset [0,255]
Bump Channel	Set	Channel [1,512]	Value [0,255]
Bump Channel	Control	Channel [1,512]	-
Clear All	Set	-	-
Spectrum	Control	Channel [1,510]	-

B.8 Fixture

Manipulate the fixtures directly.

Feature	Function	Parameter 1	Parameter 2
Intensity	Set	Fixture [1,32]	Percentage [0%,100%]
Intensity	Control	Fixture [1,32]	-
Intensity	Decrement	Fixture [1,32]	Delta [1,255]
Intensity	Increment	Fixture [1,32]	Delta [1,255]
Intensity	Continuous decrement	Fixture [1,32]	Delta [1,255]
Intensity	Continuous increment	Fixture [1,32]	Delta [1,255]
Intensity	Stop continuous	Fixture [1,32]	-
Colour	Set	Fixture [1,32]	Colour
Colour	Control	Fixture [1,32]	-
White	Set	Fixture [1,32]	Percentage [0%,100%]
White	Control	Fixture [1,32]	-
Amber	Set	Fixture [1,32]	Percentage [0%,100%]
Amber	Control	Fixture [1,32]	-
Special	Set	Fixture [1,32]	Percentage [0%,100%]
Special	Control	Fixture [1,32]	-

B.9 LED

Control the button's LEDs.

Feature	Function	Parameter 1	Parameter 2
Intensity	Set	LED [1,6]	Percentage [0%,100%]
Intensity	Toggle	LED [1,6]	-
Intensity	Control	LED [1,6]	-
Intensity	Decrement	LED [1,6]	Delta [1,255]
Intensity	Increment	LED [1,6]	Delta [1,255]
Intensity	Fade in 0.3s	LED [1,6]	Percentage [0%,100%]
Intensity	Fade in 1s	LED [1,6]	Percentage [0%,100%]
Intensity	Fade in 3s	LED [1,6]	Percentage [0%,100%]
Flash	Set	LED [1,6]	Percentage [0%,100%]
Flash	Control	LED [1,6]	-
Blink	Set	LED [1,6]	Percentage [0%,100%]
Blink	Control	LED [1,6]	-
Playstate	Control	LED [1,6]	Percentage [0%,100%]
Solo	Set	LED [1,6]	Percentage [0%,100%]
Solo Flash	Set	LED [1,6]	Percentage [0%,100%]
Clear All	Set	-	-

B.10 OSC

Send an OSC message via the network. The OSC recipients are specified in the Settings page.

Feature	Function	Parameter 1	Parameter 2
Send	Set	URI	floating point number
Send	Control	URI	-
Send Float	Set	URI	floating point number
Send Float	Control	URI	-
Send Unsigned	Set	URI	positive number
Send Unsigned	Control	URI	-
Send Bool	Set	URI	true or false
Send Bool	Control	URI	-
Send String	Set	URI	String of characters
Send String	Control	URI	-
Colour	Set	URI	RGB colour
Colour	Control	URI	-

Please note that string in parameter 1 has a maximum length of 25 characters, including the compulsory leading '/' sign.

B.11 UDP

Send an UDP message via the network. Specify the recipient in Parameter 2. For example "192.168.1.11:7000".

Feature	Function	Parameter 1	Parameter 2
Send Float	Set	floating point number	IP address & port
Send Float	Control	-	IP address & port
Send Unsigned	Set	positive number	IP address & port
Send Unsigned	Control	-	IP address & port
Send Bool	Set	true or false	IP address & port
Send Bool	Control	-	IP address & port
Send String	Set	text string	IP address & port
Send String	Control	-	IP address & port
Send String Hex	Set	hex string	IP address & port
Send String Hex	Control	String	IP address & port
Send Bytes	Set	Hex string	IP address & port

Please note that string in parameter 1 has a maximum length of 25 characters.

The Send Bytes feature allows for sending ASCII codes. For example, in order to send the string 'Visual' followed by a line feed parameter 1 should be '56697375616C0A'.

B.12 Variable

Manipulate one of the eight variables.

Feature	Function	Parameter 1	Parameter 2
Set Value	Set	Variable [1,8]	Value [0,255]
Set Value	Toggle	Variable [1,8]	Value [0,255]
Set Value	Control	Variable [1,8]	-
Set Value	Inverted Control	Variable [1,8]	-
Set Value	Decrement	Variable [1,8]	-
Set Value	Increment	Variable [1,8]	-
Set Value	Control Scaled	Variable [1,8]	Percentage [0%,100%]
Set Value	Control Offset	Variable [1,8]	Offset [0,255]
Refresh	Set	Variable [1,8]	-
Single Dimmer	Set	Variable [1,8]	Delta [1,255]

ables are further explained on page 29

Appendix C

Templates

This appendix discusses the templates provided in the Show Control page.

Template	Description
Buttons ->6 Cues	Each button will jump one of the first six cues inside playback 1. The LEDs will indicate which cue is active. Playback 1 should contain at least six cues.
Buttons ->1 Cuelist	All buttons are used to control playback 1. There are buttons for Go+, Go-, Release, Intensity++, Intensity-, etc.
Buttons ->3 Cuelists	Each set of two buttons control one of the first three playbacks. The buttons are assigned to Go- and Go+. Long presses will release the playback.
Buttons ->6 Cuelists	Each button controls one playback. The LEDs indicate which playbacks are active.
Buttons ->6 Cuelists Advanced	Each button controls one playback. The LEDs indicate which playbacks are active.
Buttons ->No tasks	Creates empty actions for each button.
Buttons ->OSC	Each button will send an OSC message.
Buttons ->OSC Toggle	Each button will send an OSC message. These action will also control the LEDs.
Buttons ->OSC with Feedback	Each button will send an OSC message. Additional actions are created to control the LEDs externally via OSC.
Buttons ->UDP	Each button will broadcast a UDP message on down and up movement.
Buttons ->DMX	Each button will control on of the first six DMX channels.
Buttons ->LPU-2 (OSC)	The buttons will the first six playbacks in the LPU-2 device. The LPU-2's feedback is used to control the button's LEDs. Specify the LPU-2's IP address in the OSC table on the Settings page.
Art-Net ->DMX	Converts incoming Art-Net to DMX. Specify the Art-Net subnet and universe on the Settings page.
OSC ->LEDs	Creates actions for controlling the button's LEDs through OSC.

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