K2 V1.3.349 Draft 1
Product Manual

Manual Version 1.3.2

K2 V1.3.349 Draft 1

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1 Safety Notice

K2 is a highly sophisticated motion control software package, however, circumstances beyond the control of the software e.g. faulty computer equipment or 3rd party programs running on the same computer always offer the possibility for unexpected behaviour.

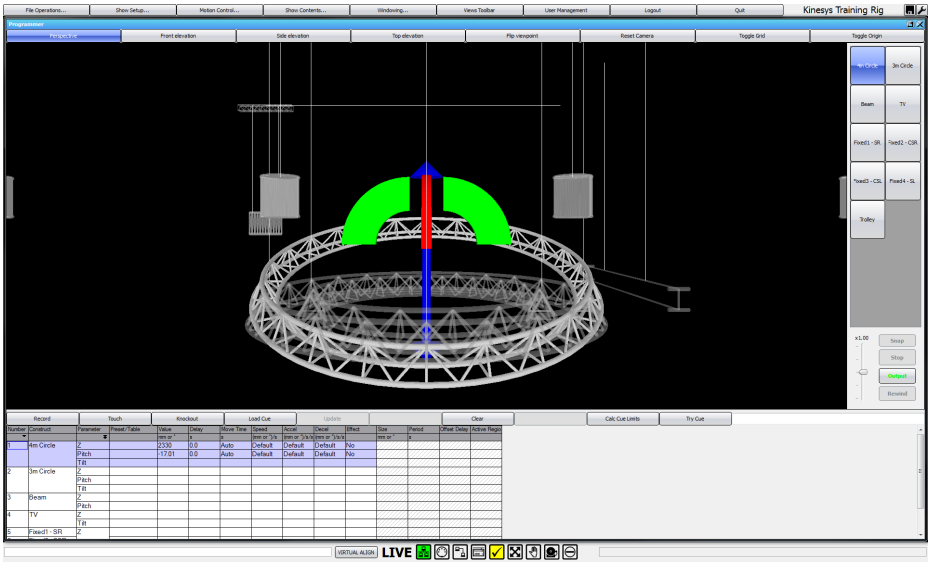
As in all motion control applications the control software should never be relied upon as the sole means of stopping motion. Alternative, software independent, means of bring all movement to a halt must be provided including a hardware emergency stop system that is compliant with all local regulations.

It is the responsibility of the user to perform a risk assessment for the whole system and to take appropriate action as a consequence of that assessment.

Although K2 provides realistic 3D feedback of the movement of objects a line of sight view of the actual moving pieces should always be ensured. Where necessary additional observers should be employed utilising clear lines of communication to be able to advise the operator of any issues that may arise during the movement of objects.

If in doubt about any aspect of moving objects always seek professional advice.
SAFETY MUST ALWAYS BE THE FIRST PRIORITY!

2 Introduction



K2 is a powerful, graphically based, control solution for automation and motion control. All programming and Cue playback can be seen real-time using the built-in 3D viewers. 3D worlds can be created in graphics and CAD packages and exported as 3DS format files to work with K2. Constructs, the actual moving elements, can either be internally generated in K2, or more complex models can be imported as 3DS CAD files also.

The ability to move the Constructs in real world axes, X, Y, Z, pitch P, tilt T and rotate R makes programming intuitive with the K2 shielding the user from the complex multi-dimensional calculations required and instead presenting them with easy to use programming parameters. This concept of True Axis Programming also makes the application of effects to one or several parameters within a Cue very simple. Previously impossible to program effects are now just a few clicks away with the results being instantly available via the visualiser windows.

This manual has been written to guide you intuitively through the K2 software package. It has been laid out in such a way to make understanding K2 as simple as possible. The fundamental principles are explained at the start of each section with the more in depth and advanced features being towards the rear of each section. If you are uncertain of the function of a particular control within the program refer to the Windows section, which lists each window that is displayed within the software and includes an explanation of the controls on the window, what they do and how to navigate them.

2.1 Version and Legal Information

For information on which version of K2 software you are running, click on Show Setup and then About. All copyright and legal information is also contained in this window.

2.2 K2 Licensing

The application mode that K2 runs in is determined by the licence code that is supplied by Kinesys. There are three modes in total, each offering different functions to the user.

Full

Full mode is the top level mode for K2. In this mode all features are available to the user, there are no restrictions on moving devices.

Demonstration

In Demonstration mode K2 is not capable of issuing motion commands to control Devices. Full editing, programming and visualisation is possible and show files created in Demonstration mode are fully compatible with a Full version of K2 and vice versa. No login or password is required when in Demonstration mode and Device Alignment is not required at any stage as there are no external Devices to align with. Direct Device Control is disabled for the same reason.

Active Backup

Active Backup mode provides a tracking backup facility to K2. This mode is designed for systems that require a backup system to supplement the master K2 system. The Active Backup system is designed to share an Ethernet network with the K2 master running in Full licence mode. In this mode K2 will track the positions of all the Constructs and Devices being controlled by the master K2 system. Current show and Cue and Cuelist information is also passed to the Active Backup system to allow it track the master successfully.

The Active Backup system is not capable of issuing motion commands while in communication with the master K2 system. If communications are lost with the master system the Active Backup system will automatically ‘go live’ and will take over communications with the control Devices and will become capable of issuing live motion commands. The automatic 'upgrade' from Tracking Backup licence to Live licence lasts 2

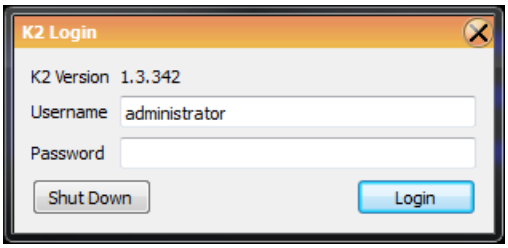
days. After that the Tracking Backup will either need to be upgraded to a Full licence (time-limited or unlimited) or it will need reconnected to a fully licensed K2 program in order to reset its full licence timer.

For completeness this manual is written for use with a Full version of K2, sections that are not relevant when running in other modes should simply be ignored.

2.3 Logging In and Out of K2

All users of fully licensed versions of K2 must enter a username and password before the application will start. The default username is "administrator" and the default password is also "administrator" This password can be changed and new users can be created. If a user has administrator rights then that user can administer the accounts of other users.

You can log out of K2 without exiting the application. This leaves the application in a safe state where a username and password must be entered before access to K2 is available again. To log out click on File on the main toolbar and then Logout. You will be asked if you wish to save changes. When the application is next logged into you will asked to select a file to load so any unsaved changes will be lost if they are not saved when logging off.



The Login window is shown when K2 is started, after a user has logged out, if the program has been inactive for a certain period of time or on exiting safe mode. The last two options can be user configured from the Show Properties window.

To login simply type your username and password into the appropriate fields and hit Enter or click on Login. To exit the window without logging in click on Cancel. The window is case-sensitive so if a login attempt is unsuccessful check that the Caps Lock mode has not been set on the keyboard.

2.3.1 Exiting the Application

To exit K2 click on File on the main toolbar and then Quit. You will be prompted to save changes, click on the appropriate button and you will exit the application.

2.4 Live and Offline Modes

K2 can operate in two main modes, Live and Offline. In Live mode all motion commands are output onto the network for action by the external control Devices and their respective machines. Unaligned Constructs and inhibited Devices are the only reasons that motion commands will be not be output. Live mode is the default mode on program start up and is the mode that must be used whenever movement is to be initiated.

The system is switched in and out of Offline mode in the following two ways.

By clicking on Motion Control on the main toolbar and then Offline Mode, or by clicking on the text "LIVE" in the status bar. In Offline mode all motion commands are blocked from being output on to the network and therefore onto the control Devices and their machines. Full programming is possible in Offline mode and all Cues can be run and viewed within the Programmer and Visualiser window.

When in offline mode the background screen will show the following message

K2 can also be placed into SAFE mode in this mode movement commands in K2 are inhibited, but all other functionality is left enabled. Safe mode can be activated by pressing the SAFE button on the wing or the safe button in the Playback window. See the section in the manual on keyboard commands for more details.

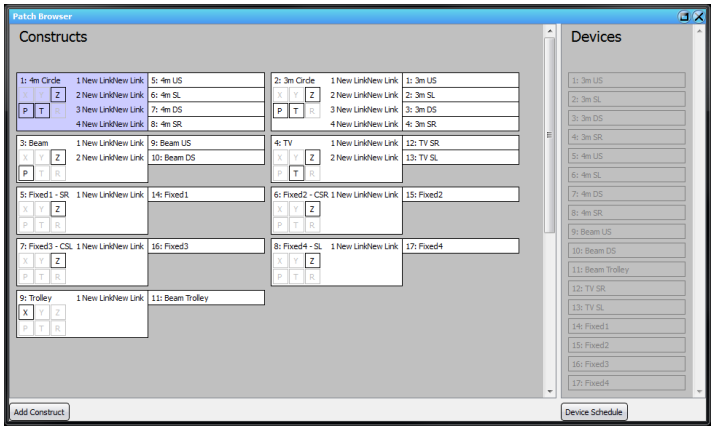
2.5 Scaling conventions

All World and Construct models should be scaled in millimeters. All movement within K2 is recorded and displayed in whole millimeters. Meters and the decimal point are not used so ten meters would be entered and displayed as 10000.

2.6 Device Alignment

Device alignment is the process of connecting the virtual Devices to the physical Devices. K2 knows where the Construct is in its 3D world and it knows where it thinks that the Devices should be in order to achieve that position. The process of alignment confirms that the two match and can therefore be controlled. Devices are considered to be aligned when the physical position of the moving item on the stage matches the position displayed within K2. If there is a difference between the two positions then either the 3D representation must be moved to match the real world or the physical object must be moved to match the position that K2 is displaying. Once the two worlds are aligned the relevant Devices can be enabled and K2 can take control of the moving object.

2.7 The Patch Browser



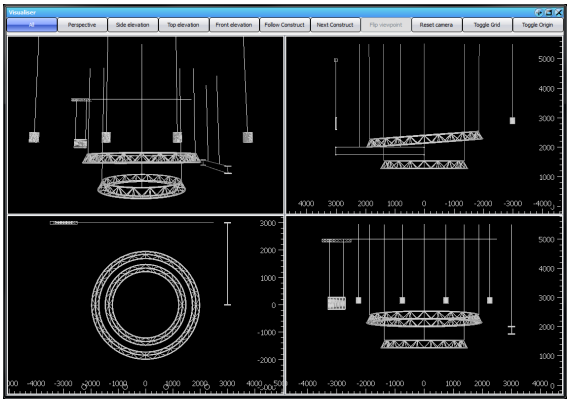
The Patch Browser contains a summary of all the Constructs, Devices, Links and patching in your show. The Patch Browser window is divided into two areas. The left hand pane contains all the Constructs in the show. Within each Construct are six icons representing the six possible parameters of motion; X, Y, Z, P(pitch), T(tilt) and R(rotate). If a Construct has a parameter enabled then the letter is in black, if it does not have access to a parameter then the letter is in grey. To view the properties of an individual parameter either double-click the letter or right-click and select Properties. To view properties for the whole Construct double-click in the main Construct box or right-click and select Properties.

Links for each Construct are shown on the right hand side of the Construct box. Patched Devices are displayed as white boxes containing the Device name. Un-patched links are shown as grey boxes with a dashed outline.

In the right hand pane are a list of all the Devices in the show. Patched Devices are shown as grey boxes while un-patched Devices are shown in white. The properties of an individual Device patched or un-patched can be viewed by double-clicking an a Device's box or by right-clicking and selecting Properties. To view the properties of several Devices left-click on the relevant Devices while holding down the Ctrl key on the keyboard then right-click one of the Devices and select Properties.

To patch a Device to a Link on a Construct drag and drop the Device onto the dashed box beside the Construct box. To replace an existing Device drop the new Device on top of the existing one. A confirmation box will appear, click Yes to finish the patch or No to cancel the operation.

2.8 The Visualiser



On the Main Toolbar, press Visualiser to open the Visualiser. This allows you to see the position of the Constructs in 3D space.

To move the camera in perspective view, click and drag the mouse left and right to rotate about the origin of the stage, and drag up and down to vary the height above the stage that you are viewing from. In the orthographic views, Front, Side and Top, the mouse moves the viewpoint around the plane of projection. In all views the mouse wheel will zoom the camera in and out.

Use the toolbar buttons to toggle between the perspective view and orthographic elevations, or to display them all. The projections are XY (front elevation), YZ (side elevation) and XZ (top elevation). In all but the Perspective view, rulers are displayed at the side of the viewer to help with approximating position. To show the world origin click on Toggle Datum in the Visualiser toolbar. The Front, Side and Top views allow a grid to be superimposed onto the Visualiser window. This makes using the rulers to approximate position much simpler, to turn the grid on and off use the Toggle Grid button on the Visualiser toolbar.

2.9 Console

K2 is available as self contained console, which contains the computer hardware that runs K2 as well as providing a control surface, keyboard and mouse. The console offers a whole range of selection and programming possibilities that are not available through the keyboard and mouse alone. Although this manual primarily concerns itself with the K2 software, where appropriate the wing commands and shortcuts will also be listed.

To adjust settings relating to a connected K2 console click on Show Properties from the Setup toolbar and then click on the Wing tab. From here the brightness of the desklight, bargraph indicators and illuminated keys can be set. The serial number and firmware revision of the console can also be read from here. Finally firmware can be reloaded to the wing from this tab. Click on the Reload Firmware button to have K2 reload the latest version of the firmware to the console.

2.10 Setting up a Show

The following areas outline the steps to take when setting up, saving and backing up a show. For further information on the properties of a show see the Show Properties section.

Creating a New Show

On the main toolbar click on File then New Show. You will be prompted to select a filename for the show and a folder to store the show in. Once both of these have been entered click on OK.

Loading an Existing Show

On the main toolbar press File then Load Show. Select a show from the dialog and then click on OK.

Once the show has been loaded you will be asked to align the Devices. This process locks the position of the physical machines (motors, winches, rams etc.) to the virtual Devices within K2. See Device Alignment for more details.

Saving a Show

On the main toolbar click on File then Save Show. This will save all changes to disk.

Backing up a Show

Use Backup to save a copy of the existing show for archiving purposes. On the main toolbar click on File then Backup. You will prompted to enter a new filename and/or new folder for the backup file. Click on OK to save the backup copy. Subsequent saves will use the current filename and location. Backup purely saves a snapshot copy of the file.

Automatic Backup

This turns on the automatic show backup feature. Refer to the Auto Backup section of the Working with Files chapter above for more details.

Advanced Properties

The advanced tab contains variables relating to the low-level running of the motion and communications software engines. These should not be adjusted unless you are specifically requested to do so by a member of the Kinesys support team or one of their approved K2 partners.

2.11 Working with Spreadsheets

The spreadsheet view is a common one in K2. It is used in many of the windows to display data and provide status feedback as well as to allow the editing and entry of data.

Each cell in a spreadsheet can behave in a number of ways depending on the type of information it is designed to display. Selecting different cells can also cause them to react in differing ways.

Cell Colours

The border and background of a cell will display different colours depending on its state and the type of cell that is being selected.

Cell Colour	Description
Grey Border	Cell is read-only or disabled
Blue Border	Cell is selected but the window containing the spreadsheet is not selected. Cell commands or keyboard navigation will not work
Red Border	Cell is selected and the window containing the spreadsheet is active. Cell commands and keyboard navigation will work
Grey Hatched Background	Cell is disabled and will not display data or allow data to be input

Navigation

Cells in a spreadsheet can be highlighted by either clicking directly on the cell or by using the cursor keys on the keyboard to move up, down, left and right until the desired cell is reached.

Entering Data

To put a cell into edit mode to allow it to receive data you must first select the cell using the navigation rules and ensure that the cell is displaying a red border to show that it is current. To activate the cell either press the Insert key on the keyboard or double-click the cell with the left mouse button. Depending on the cell type the possible data will be displayed in different ways.

Cell Types

Several different types of cells, they are listed below.

Numeric

Numeric cells are the most common type of cell in K2. They permit the entry of numeric characters. This means that only the characters 0-9, +, - and . can be entered into the cell, all other characters will be ignored by the cell.

Alphanumeric

Another common type are alphanumeric cells. These cells will accept alphabetical characters, a-z and A-Z, the numeric characters 0-9 as well as punctuation and other common characters such as /, \, &, " etc. Alphanumeric cells are used to store descriptive names and comments

Boolean

A Boolean cell will either display the word Yes or No. Editing the cell simply toggles between the two values, no other entry can be made. The 'Effect' cell in the Programmer spreadsheet is an example of a Boolean cell.

List

A list cell will display a list box when edited which can be opened to allow a selection from an existing list. The list data is created by K2 from list created in a separate window within K2. For example the 'Preset' cell in the Programmer spreadsheet offers a list of all the existing Presets. To add another entry to the list you must add a new Preset via the Preset Directory.

Pop-up

The final cell type is pop-up. Editing this cell type causes a menu to pop-up next to the cell with a number of buttons options. The current cell data will be shown by one of the buttons being depressed. Selecting any of the buttons will make the choice and will close the menu leaving the new choice displayed in the cell. The Trigger cell in the Cuelist window uses this type to offer the possible Trigger options to the user.

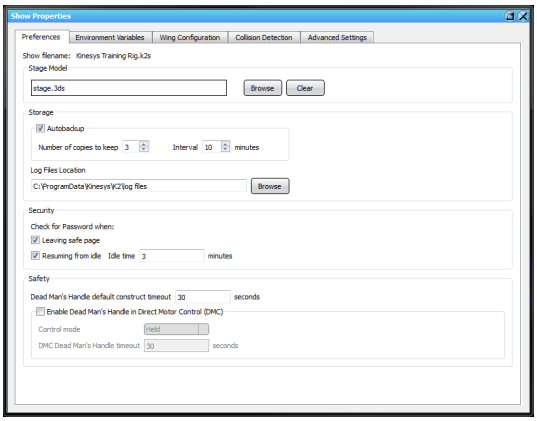
3 Show Properties

The show properties are global settings that apply to the whole show and are applied to all data. This window allows you to choose the world model, define the security settings for the show and adjust properties relating to the wing. For full details of the contents of this window refer to Show Properties in the Window chapter of this manual.

To access the Show Properties window click on Show Setup and then Show Properties.

To Exit the window click on the Close cross in the top right hand corner of the window.

3.1 Preferences



Stage Model

To set the optional stage model for the visualiser and programmer select the required .3ds file and click on OK.

Password Checking

K2 can be set to request password confirmation when exiting Safe mode and also after a period of inactivity. These can be turned on and off individually. Click on Show Properties from the Setup toolbar and then set the check boxes appropriately to set the password protection appropriately.

Dead Man's Handle

The default Construct timeout specifies the time that will be applied to all Constructs when they are created. The dead man's handle must be activated on a Construct by Construct basis from its default disabled state if you wish to use it. The timeout can also be varied for each Construct if you so desire. Details of these settings can be found under Edit Construct in the Window Detail section of this manual.

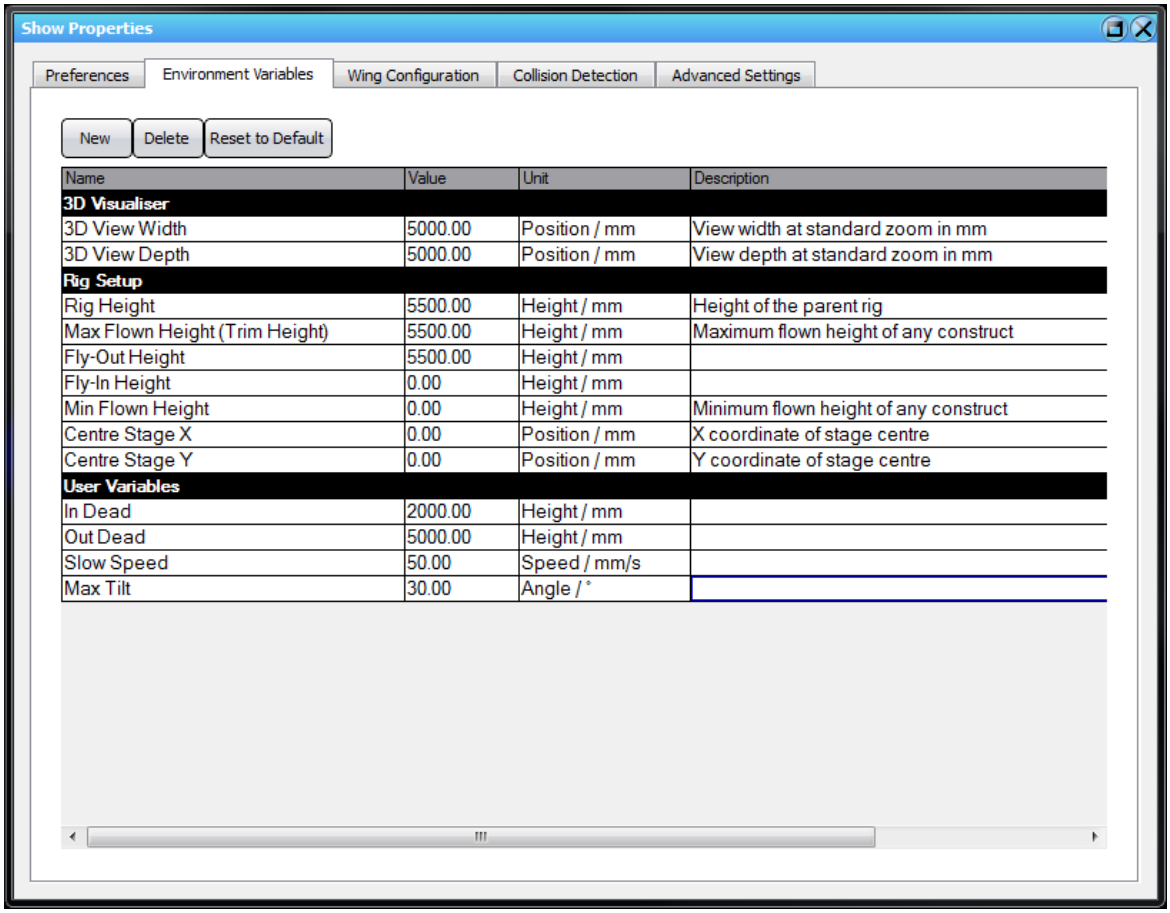
Auto Backup

Automatic backup performs background saves of the show so that should the application stop running for any reason a minimal amount of programming will be lost. The Auto Backup feature is turned on and off in the Show Properties window which is accessed by clicking on Show Setup in the toolbar and then Show Properties. Select the check box to turn Auto Backup on and then choose how many generations of backup file you wish to maintain as well as the frequency of the automatic saves.

Log Files

K2 will automatically set the log files to save to the following directory "ProgramData \Kinesys\K2\log files". You also have the option of specifying this path yourself, so the log files could be set to save to an external hard drive or a server (so they were accessible remotely).

3.2 Environment Variables



K2 has a number of global show variables that can be referenced throughout the application but can only be changed in one place. Anything that references a show variable will therefore be affected whenever the show variable is altered. The system comes with a number of preset variables but new ones can be added if you wish. Variables are categorised by type e.g. height, angle, speed. The value of the default variables can be altered but not the name of the variable type.

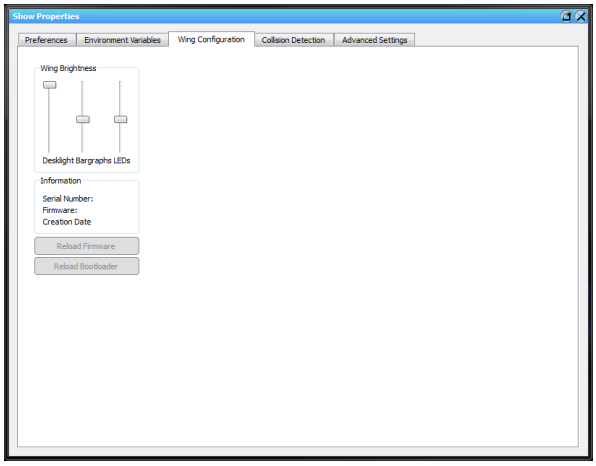
Creating a New Variable

Click on Show Properties from the Setup toolbar. Click on the Environment Variables tab and then on New. A new variable will be added to the end of the variable list. Scroll to the end of list and double click on the appropriate field to edit the name, value or type. Once declared this new variable can be accessed from any relevant field within the application.

Referencing Variables

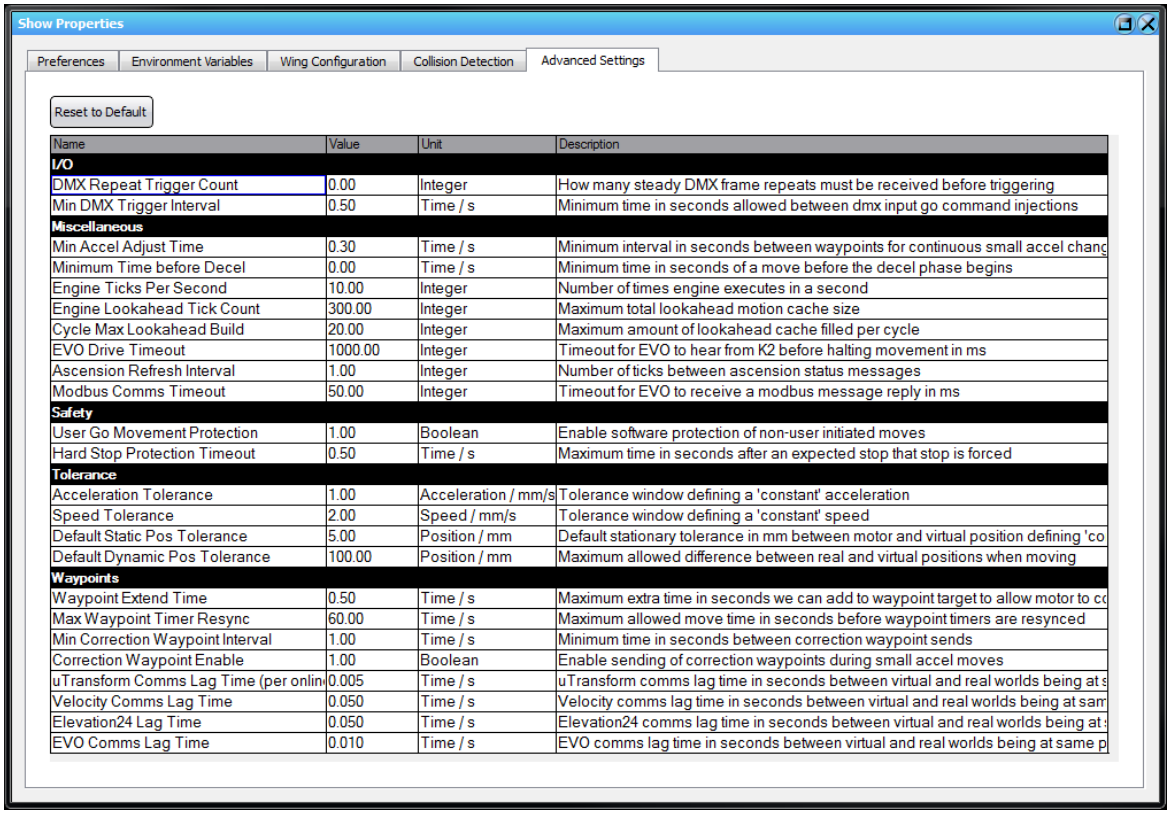
Throughout the application the show variables can be accessed whenever you see the ... symbol at the end of a number field. Click on the symbol and a list of show variables of the correct type will be shown. For example you will not see Speed variables for fields relating to Position.

3.3 Wing Configuration



The Wing Configuration tab contains options for altering the brightness of the LEDs in the wing, retrieve information from it including serial number and firmware and reload or update the firmware on the wing.

3.4 Advanced Settings



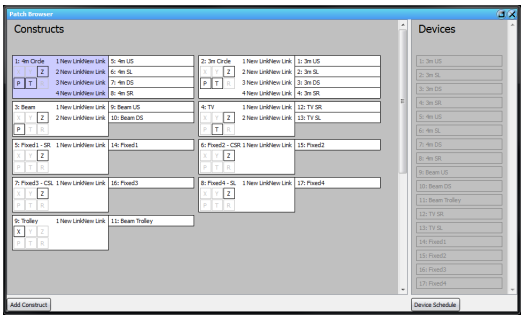
Name	Value	Unit	Description
I/O			
DMX Repeat Trigger Count	0.00	Integer	How many steady DMX frame repeats must be received before triggering
Min DMX Trigger Interval	0.50	Time / s	Minimum time in seconds allowed between dmx input go command injections
Miscellaneous			
Min Accel Adjust Time	0.30	Time / s	Minimum interval in seconds between waypoints for continuous small accel chang
Minimum Time before Decel	0.00	Time / s	Minimum time in seconds of a move before the decel phase begins
Engine Ticks Per Second	10.00	Integer	Number of times engine executes in a second
Engine Lookahead Tick Count	300.00	Integer	Maximum total lookahead motion cache size
Cycle Max Lookahead Build	20.00	Integer	Maximum amount of lookahead cache filled per cycle
EVO Drive Timeout	1000.00	Integer	Timeout for EVO to hear from K2 before halting movement in ms
Ascension Refresh Interval	1.00	Integer	Number of ticks between ascension status messages
Modbus Comms Timeout	50.00	Integer	Timeout for EVO to receive a modbus message reply in ms
Safety			
User Go Movement Protection	1.00	Boolean	Enable software protection of non-user initiated moves
Hard Stop Protection Timeout	0.50	Time / s	Maximum time in seconds after an expected stop that stop is forced
Tolerance			
Acceleration Tolerance	1.00	Acceleration / mm/s	Tolerance window defining a 'constant' acceleration
Speed Tolerance	2.00	Speed / mm/s	Tolerance window defining a 'constant' speed
Default Static Pos Tolerance	5.00	Position / mm	Default stationary tolerance in mm between motor and virtual position defining 'co
Default Dynamic Pos Tolerance	100.00	Position / mm	Maximum allowed difference between real and virtual positions when moving
Waypoints			
Waypoint Extend Time	0.50	Time / s	Maximum extra time in seconds we can add to waypoint target to allow motor to cc
Max Waypoint Timer Resync	60.00	Time / s	Maximum allowed move time in seconds before waypoint timers are resynced
Min Correction Waypoint Interval	1.00	Time / s	Minimum time in seconds between correction waypoint sends
Correction Waypoint Enable	1.00	Boolean	Enable sending of correction waypoints during small accel moves
uTransform Comms Lag Time (per onlin	0.005	Time / s	uTransform comms lag time in seconds between virtual and real worlds being at s
Velocity Comms Lag Time	0.050	Time / s	Velocity comms lag time in seconds between virtual and real worlds being at sam
Elevation24 Lag Time	0.050	Time / s	Elevation24 comms lag time in seconds between virtual and real worlds being at :
EVO Comms Lag Time	0.010	Time / s	EVO comms lag time in seconds between virtual and real worlds being at same p

The Advanced Settings tab allows fine tuning of advanced settings within K2. It is strongly advised that these settings are not altered without prior consultation with Kinesys or associated partners, see the Contact Us section of this manual for contact details.

4 Construct Building and Editing

A Construct represents a moving item within K2. You will need to add one Construct for every item you wish to control. It is important to remember when creating constructs (or entering any information into K2) that the results that K2 produces are only as good the information that is entered. If incorrect information is given to K2, then the results that K2 outputs will also be incorrect.

4.1 Adding Constructs



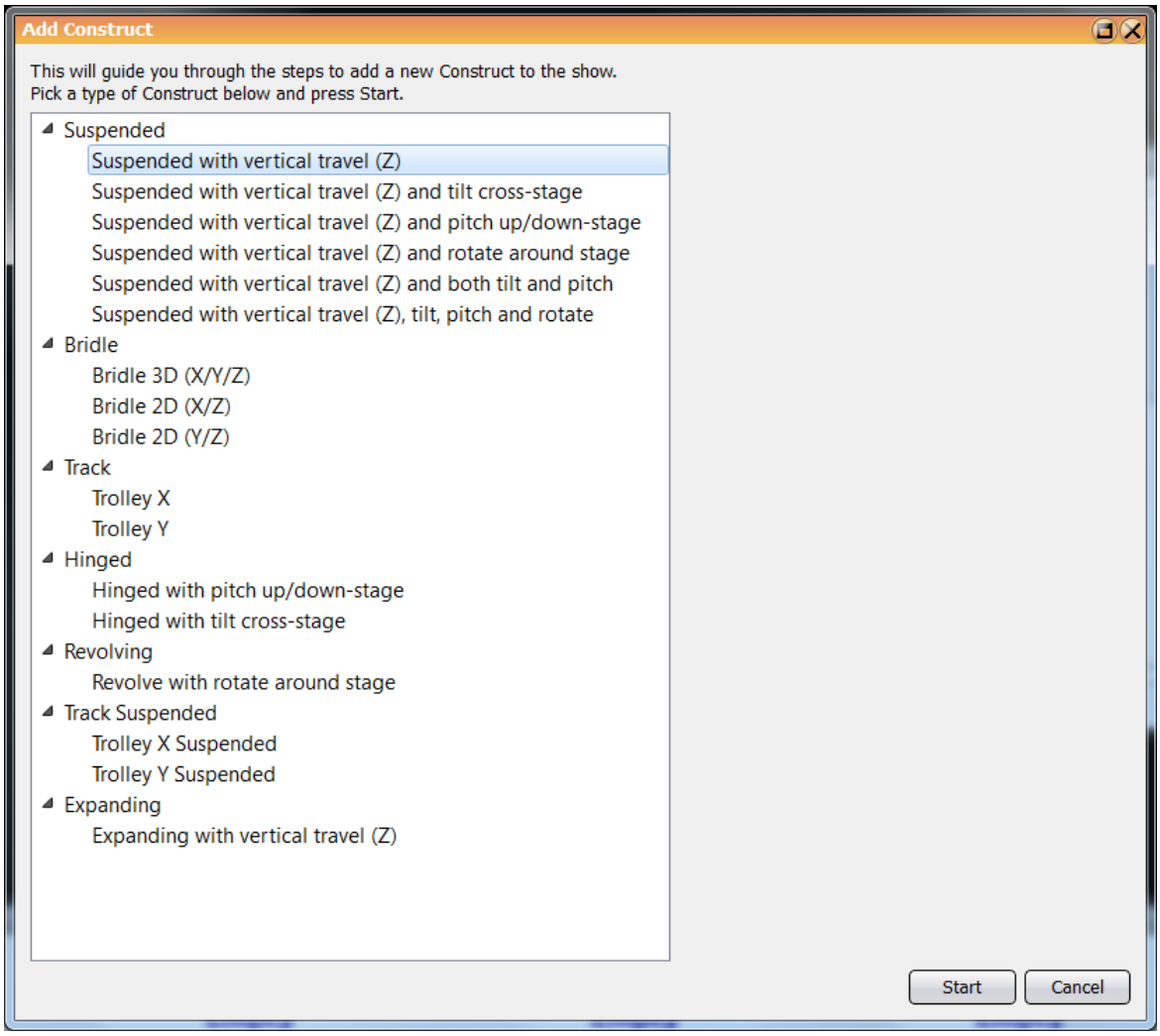
To add a Construct to your show click on Setup on the main toolbar and then click on Patch Browser, within the Patch Browser window click on Add Construct .

Alternatively if you have already created a Construct of the required type and you simply wish to duplicate the type and basic settings then open the Browser by clicking on Setup on the main toolbar and then Patch Browser. Find the Construct to be copied and right click on it. From the drop down menu select Clone. A duplicate Construct will be created of the same type and with the same settings. The Edit Construct window will open with the new Construct loaded. Change any settings as necessary and then click on OK to load the new Construct into the show.

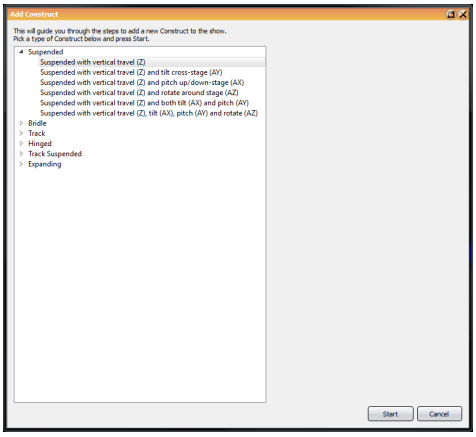
For more information on the functions of this window see the Patch Browser section of the Window chapter.

4.2 Construct types

K2 supports the following types of construct.



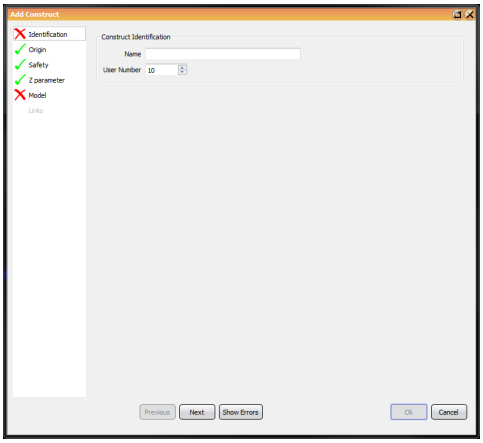
4.3 Selecting a Construct Type



An initial window will ask you to select the base Construct Type. A number of options are available. Base Constructs are grouped by type using headings in the Construct explorer part of the window. Under each heading are variations on the base type, if you cannot see any variations under the heading expand it by clicking on the plus symbol next to the heading. Select the type that is correct for the mechanical limitations of the item you are modeling and then click on Start. This will open a multi-step dialog that will ensure that you enter all the required information to define the Construct. On the left hand side of the multi-step dialog are listed a number of steps. Next to each step is either a cross or a tick. Once all the steps have been completed with the required information the OK button will enable and the dialog can be closed and the Construct created.

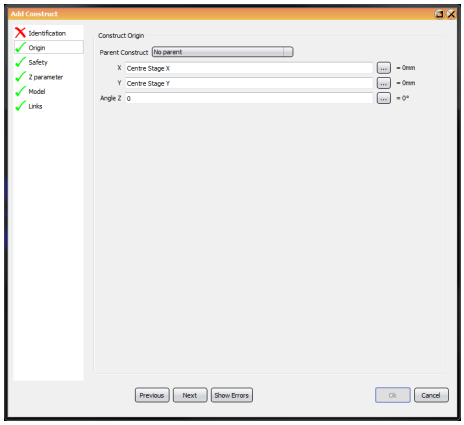
To move from step to step you can click on the step name, use the Previous and Next buttons in the bottom left of the window or by tabbing through the fields in each tab.Once all fields have information correctly entered you will automatically move onto the next step.

4.3.1 Identification



Enter a name for the Construct and pick a Construct number, the number must be unique, the software will not allow selection of numbers that are already allocated to previously created Constructs within the same show.

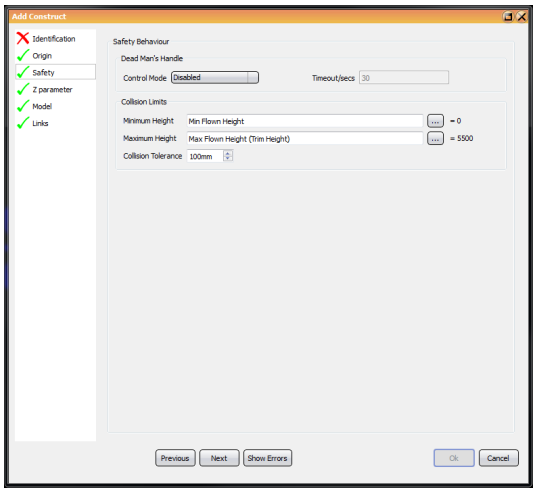
4.3.2 Origin



Specify the location of the origin of the Construct within the 3D world. You must specify an X and Y co-ordinate. If the Construct does not lie directly along a co-ordinate axis then its angle to that axis should be specified in the Angle Z (angle to the Z axis) field. An example of this would be a flown straight truss. Its model will show it as a straight truss lying along the x axis, that is to say from stage right to stage left. If in reality that truss is actually hung diagonally across the stage for the upstage right corner to the downstage left corner then a value must be entered into the Angle Z field so that the application knows to display this truss at an angle.

You can also specify if the Construct is a child of another Construct, this would be used to accurately represent one truss suspended underneath another one in the 3D world.

4.3.3 Safety

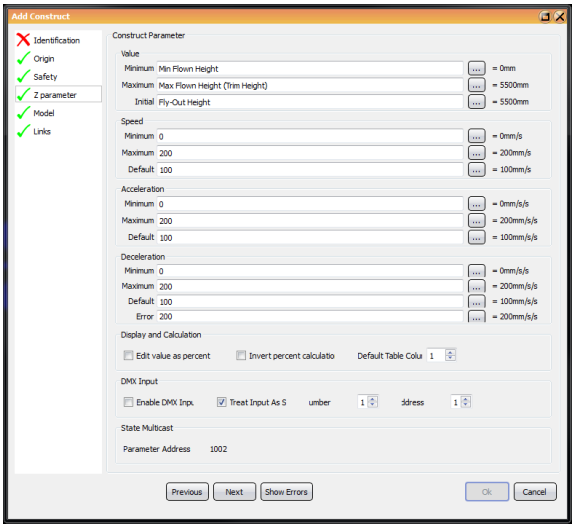


In this step you set whether the Construct needs the Dead Man's Handle (DMH) pressed to allow movement. The default state is disabled, you can select Held for the DMH to be pressed at all times when the Construct is moving or Periodic if the DMH must only be pressed occasionally to maintain movement. If Periodic is selected you can set the interval upon which the DMH must be pressed. By default it is set to the value specified in the

Show Properties but you can set it any value in units of one second.

A minimum and maximum collision limit must be specified to define the range of travel of the Construct. These collision limits take into account the size and shape of the Construct model and therefore protect against the Constructs colliding with other items even though the individual Devices that control it may be within limits. By default the collision limits reference two Environment Variables. The Environment Variables that they use can be changed by clicking on the small button at the end of the text field and selecting from the list presented. Alternatively an actual value can be entered directly into the text field.

4.3.4 Parameters



Depending on the base Construct type selected, between one and six parameter steps are required to be completed. Each parameter requires minimum and maximum values to be entered for position, speed, acceleration and deceleration. In addition an initial value is required for the position and a default value for the speed, acceleration and deceleration. All these values can reference environment variables if desired.

Value
Enter the minimum and maximum amount of travel you want in the direction that you are editing, also enter the initial position that the Construct model should be displayed at when it is first created. The units are in millimeters for all linear motion parameters, X, Y and Z and in degrees for all angular motion parameters, Pitch, Tilt and Rotate.

Speed
Enter the minimum, maximum and default speeds that you wish the Construct to travel at for the current parameter. The units are in mm/s for the linear motion parameters, X, Y and Z and in degrees/second for the angular motion parameters, Pitch, Tilt and Rotate. When selecting these values it is important to take into account the maximum and minimum speeds of the machines attached to the Construct, otherwise what is programmed in the 3D world will not be achievable in the real world.

Acceleration
Enter the minimum, maximum and default ramps that you wish the Construct to accelerate

at for the current parameter. The units are in mm/s2 for the linear motion parameters, X, Y and Z and in degrees/second/second for the angular motion parameters, Pitch, Tilt and Rotate. When selecting these values it is important to take into account the maximum ramp speed of the machines attached to the Construct, otherwise what is programmed in the 3D world will not be achievable in the real world.

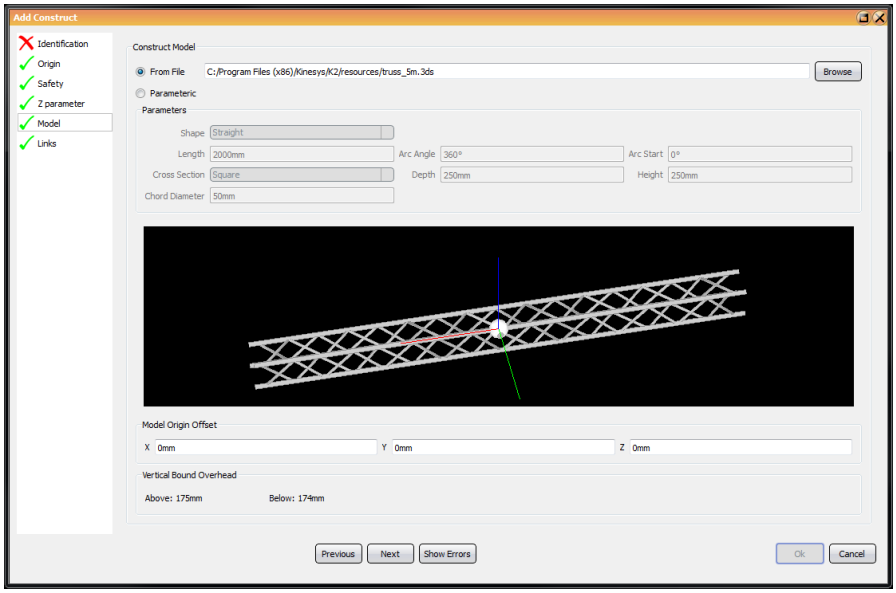
Deceleration
Enter the minimum, maximum and default ramps that you wish the Construct to decelerate at for the current parameter. The units are in mm/s2 for the linear motion parameters, X, Y and Z and in degrees/second/second for the angular motion parameters, Pitch, Tilt and Rotate. When selecting these values it is important to take into account the maximum ramp down speed of the machines attached to the Construct, otherwise what is programmed in the 3D world will not be achievable in the real world.

Percentages
When creating a construct you now have the ability to edit the parameters of the construct as a percentage rather than a figure in mm. You also have to option to invert these percentages so the minimum figure is 100% and maximum is 0%.

DMX
DMX input can now be entered on a construct by construct basis, allowing only certain constructs to be controlled remotely via DMX. To use this feature the DMX Universe and start address needs to be specified.

State Multicast
K2 has the ability to multicast its positional information out over the network, enabling other services such as media servers to know the exact position of objects on stage. As part of this broadcast it is also possible to "listen in" on just one construct and one parameter of that constructs movement, in the example shown above just the Z parameter. For that you need the parameter address which is specified at the bottom of this window.

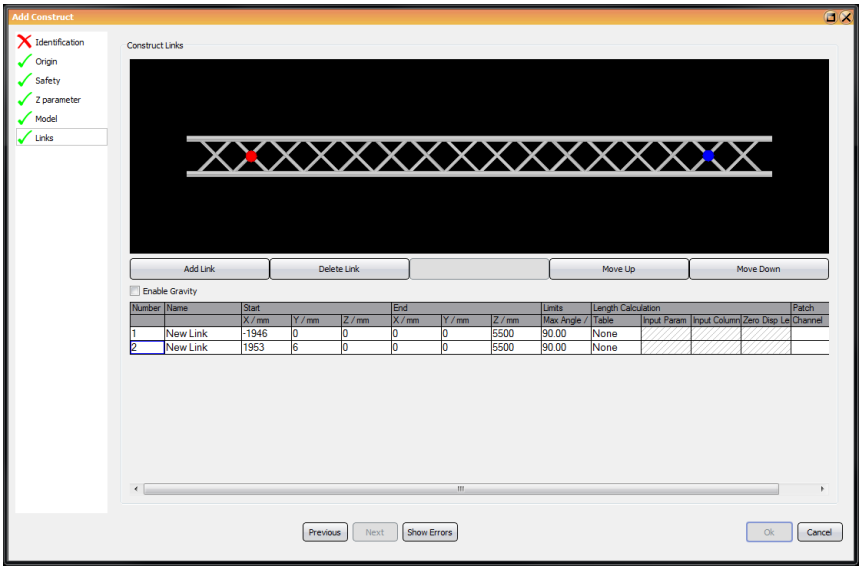
4.3.5 Model



On the Model page you select the graphical object to represent your Construct. This can either be a pre-built graphical object or can be built using the built in model builder. If a pre-built graphic is used the file must be in a 3D Studio format with a file extension of .3ds and scaled in millimeters. To select the file ensure that From File is selected and then click on the Browse button. Locate the file using the File Explorer window and the file name and path will be displayed in the text field. The K2 software comes with some example .3ds files that can be used.

The K2 software allows you to build a basic straight or circular object if you don't have a pre-built file. Select Parametric and then from the drop down box select either Straight or Circle. You must then fill in the text fields to describe the size of the object you wish to see.

4.3.6 Links



Once a model has been chosen, a top down view will be displayed in the Links step.Links are the attachment points for the machines that will move the model. It is very important that the Links are connected at the correct coordinates so that K2 can correctly calculate the movement required by each Device.

The mouse wheel will zoom in and out and if you click and drag on the black background, you can view different parts of the model. The coordinates of the mouse and an angle from the positive x axis is displayed next to the mouse pointer.

To add a Link, either click the mouse on the model or click the Add Link button. A red dot will show where the Link is. Clicking on a Link or clicking on Delete Link will remove it again. The Link's coordinates will be added to the table below the visualiser. Clicking on a Link in the table will highlight it in blue in the visualiser area. You can edit the position of the Link by double clicking on the coordinate in the table. The start of the Link is attached to the Construct. Links are initially created vertically, so the start coordinates are the same as the end. If you change the start coordinates of a vertical Link, the end coordinates will change to keep the Link vertical. To make a non-vertical Link, change the end coordinates. You can remove a Link by clicking on the Link dot in the visualiser or by clicking into the

correct line in the table and clicking on Remove Link.

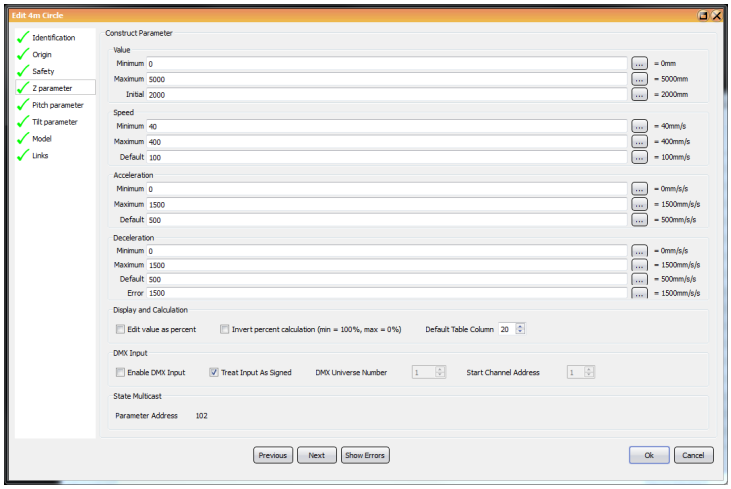
Within the Link table a maximum angle can be specified. This can be used in the case of flown bridle system to prevent damage occurring due to bridles becoming too shallow. The angle specified is that from vertical, therefore the larger the angle the higher, or more shallow, a bridle can become. The default of 90° allows for a full range of motion from vertical to horizontal.

The final column is the Device field which shows which Device is patched to that Link. It is not necessary to patch a Device to the Link at this stage if you do not wish to or if you have not defined the Devices at this stage.

4.3.7 Finish

Once all the steps have been correctly completed there should be a row of ticks down the left hand side of the window. If there are not or the OK has not enabled then click on Show Errors. This brings up a list of outstanding errors that need resolved before the Construct can be created. If there are no errors then click on OK to add the Construct to the show.

4.4 Editing Constructs



To edit an existing Construct open the Patch Browser and either double click the relevant Construct or right click and select Properties. This will open the Edit Construct window which is identical to the Add Construct window with the exception that all the fields will be filled in using the current settings. If you only wish to edit the values of a single parameter within the Construct then double click the correct parameter letter within browser icon or right click and select Properties. This will open a window with just the selected parameter's settings.

4.5 Drawing Construct and Stage Models in CAD

K2 makes extensive use of graphical models for both the Stage Model as well as all the Constructs used within the show. These are all stored in a 3D Studio format (file extension .3ds)

If the graphical file is not being created in the native 3D Studio application then care must taken to ensure that all the axes used in the original drawings correspond correctly with the way that K2 interprets them.

Technical drawing and design packages will often export to an 3D Studio format from their native format. One example of such a program is AutoCAD by Autodesk.

When creating three dimensional models in AutoCAD the correct axes must be used.

X (Width)
If the model is being viewed in plan (top down) with the front or downstage side of the model to the bottom of the screen then X should increase in value as it moves towards the right side of the screen.

Y (Depth)
If the model is being viewed in plan (top down) with the front or downstage side of the model to the bottom of the screen then Y should increase in value as it moves towards the top of the screen.

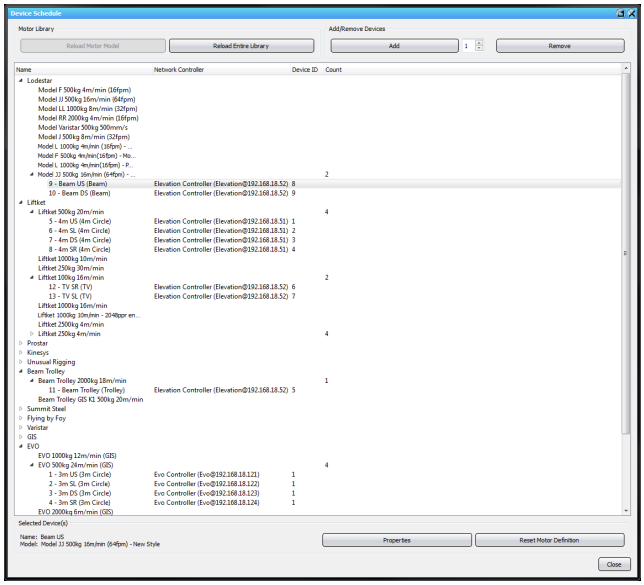
Z (Height)
If the model is being viewed in plan (top down) with the front or downstage side of the model to the bottom of the screen then Z should notionally increase in value as the model comes out of the screen. Alternatively if the model is being viewed from the front with the lower edge of the model being towards the bottom of the screen, then Z should increase as it moves towards the top of the screen.

Units
All drawings should be created with no scaling and all measurements should be in mm.

5 Device Creation and Editing

Devices are used by K2 to move constructs in the real world. An example of a device could be be a chain hoist or winch, this would be controlled by one of a number of different types of Kinesys controllers. Examples of Kinesys controllers would be Elevation1+, EVO, Velocity or Digihoist. Different types of controller require different configuration settings in K2. Depending on its complexity and size one or more devices may be needed to control a single construct in K2.

5.1 Adding Devices



Devices are added from the Device Schedule window. Open the Device Schedule by clicking on Setup on the main toolbar and then on Device Schedule.

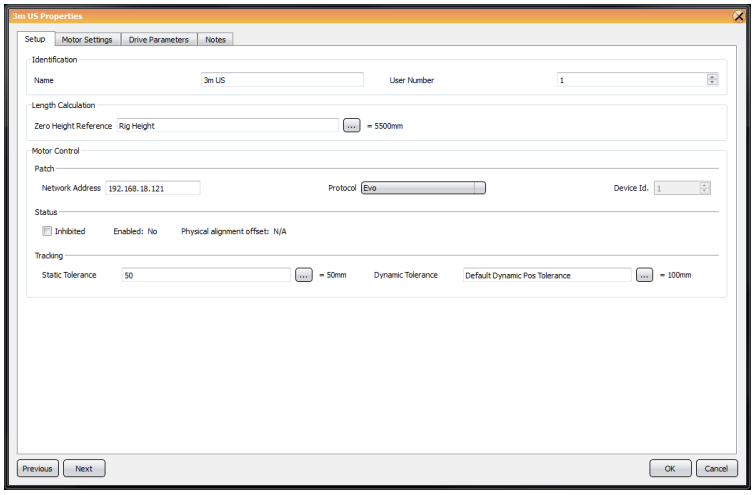
The Device Schedule displays all the currently created Devices and what type of machine they are controlling. Machine types are stored in personality files that can be added to a system at any time. K2 is shipped with a number of popular machine types included. These include chain hoists from a number of different manufacturers as well as several custom machines.

To add a Device select the correct machine type. First select the machine manufacturer, double click on the name or click on the cross next to the name. This will open up a list of machines produced by that manufacturer. Click on the correct one and the name will highlight.

In the bottom left hand corner of the window select the number of Devices you wish to create using this machine and then click on Add. Entries will be added under that machine name. You can set the properties of these new Devices individually or as a group if they share common values. To select multiple Devices press down the Ctrl key on the keyboard and click on all the Devices you wish to select. Alternatively if all the Devices

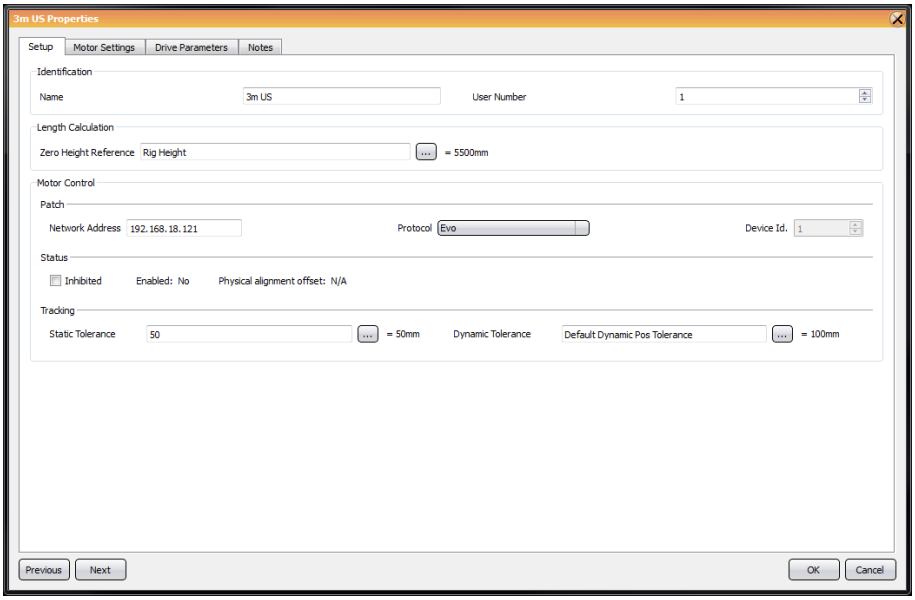
are consecutive you can click on the first Device then press the Shift key down and click on the last Device. All the Devices in between will highlight. Once you have selected your Device or Devices click on the Properties button to edit the values of the Device(s).

5.2 Device Properties



The Device Properties window has three tabs; Setup, Motor Settings, and Drive Parameters. Each contains fields that affect how the Device works within K2.

5.2.1 Setup



Identification

The Setup tab allows you to set or edit the name of the Device and its User Number. The user number is a number which is unique to that show, starting from 1 and incrementing

by 1 every time a new Device is added.

Length Calculation

This defines the Zero Height Reference that K2 uses to work at what height the Device originates, in order to work out how much chain or cable or payed out from that point. This can be a number (in mm) or an Environmental Variable.

Motor Control

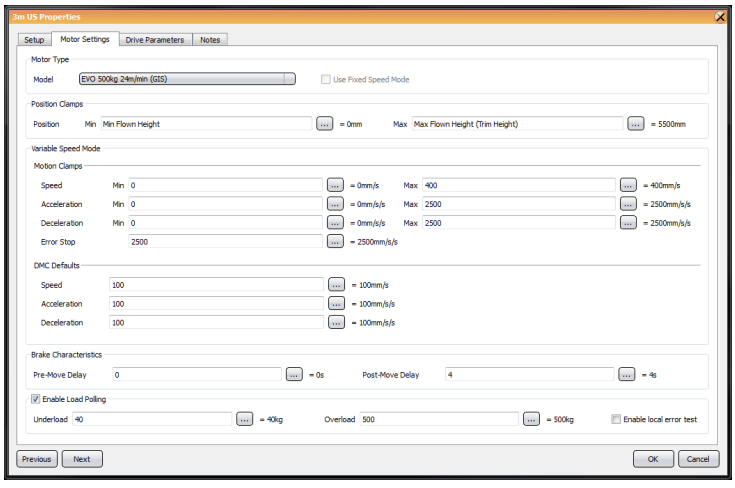
This section is used to define how K2 communicates with different devices. The key components are the IP address, the Protocol and the Device ID. Currently K2 supports two protocols EVO and Elevation. The following protocols are used by the following Devices.

Controller	Protocol	Device ID
Elevation1+	Elevation	Set to the address of the Elevation
DigiHoist	Elevation	Set to the channel of the DigiHoist (1 to 8)
Velocity1	Elevation	Set this to the same number as the last digit of the IP address
EVO	EVO	Not set as only one device allowed per IP address
Velocity2	EVO	Not set as only one device allowed per IP address

Devices can be inhibited from this tab. Setting this check box leaves the details of the Device intact but prevents any motion commands being sent out to the controller.

The Tracking section defines how much tolerance K2 gives to positions errors while either static or moving. This can either be a figure (in mm) or an Environmental Variable.

5.2.2 Motor Settings



The values stored in the Motor Settings tab relate to the low level settings required by the controller associated with the specified machine. It is not recommended that these

adjusted unless you are sure you know what you are doing. The only values that are recommended to be set by the user are the position clamps. These values are downloaded to the controllers and provide a secondary line of safety to ensure that the machine does not move further than instructed.

The machine type is specified in this type. If the machine is changed from what that was initially specified then the Device can be altered here without needing to remove the Device and add a new one. Be aware of any limitations that may be imposed on pre-existing Cues if the new machine is less capable than the one that it is replacing.

Load Polling

If the Device controller has a loadcell capability then loadcell polling can be activated. Overload and underload values can then be entered which will cause the Construct associated with that Device to halt if the reported value goes out of range.

If Kinesys LibraCELL's are being used with Elevation1+ controllers it is recommended that a LibraPRO is used in pass through mode to allow advantage to be taken of the digital loadcell values, please refer to the LibraPRO manual for more information.

5.2.3 Drive Parameters

The Drive Parameters tab contains two sections the top section, Scaling contains, two fields. Encoder scaling and Loadcell scaling. These two parameters effect how K2 interprets the information it receives from encoders and loadcells and by default are setup automatically when a Device is added. These settings should not be altered unless you are confident in the changes you are making or have been instructed to do so by Kinesys or one of their partners.

Need to complete this section and add screenshot
Need to explain parameter read write and how it works in V342

5.2.4 Notes

The notes section of the device properties contains information that may be useful when configuring this particular device, the notes are are unique to each different personality

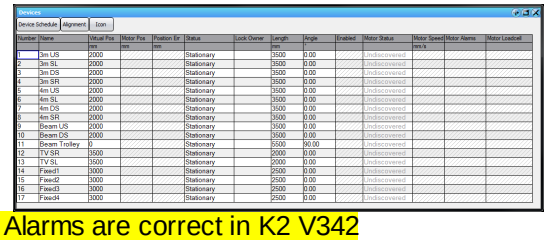
5.3 Patching

To patch a Device to a Construct Link, open the Patch Browser. On the right hand side of the Patch Browser is a list of all unlinked Devices. Linked Devices are shown as grayed out entries. To patch the Device simply drag it from the Device list to a Link position in the left hand pane. Un-patched Construct Links are shown with a dashed line. If you drop a Device onto a Link that is already patched, you will be asked to confirm that you want to un-patch the existing Device from the Link.

To un-patch a Device from a Link, drag it away from the Construct and drop it back on the device list. You can also drop it onto a different Link to re-patch it elsewhere.

5.4 Device Details

To see the actual positions and speeds of Devices when playing back Cues, on the Main Toolbar, press Devices to open the Device Window.



Need to check Status and Alarms are correct in K2 V342

5.4.1 Status Descriptions

The Devices window provides information and the status of each of the Devices. A description of the possible status conditions is show below:

Displayed Name	Description
OK	Controller is stopped
HIGH_LIMIT	Controller is at its upper soft limit
LOW_LIMIT	Controller is at its lower soft limit
Limits Bypassed	Limits are Bypassed
SIMULATION	Controller is in Simulation mode
MOVING_UP	The controller is moving the motor in an upwards direction
MOVING_DN	The controller is moving the motor in an downwards direction
ACCELERATING	The controller is accelerating the motor
CRUISING	The controller is running the motor at a steady speed
DECELERATING	The controller is decelerating the motor
BRAKING	The motor is stopped and the brakes are being applied
DISABLED	The controller has been disabled externally
NO_CONTROLLER	
UNDISCOVERED	No controller can be found on the specified comms address

5.4.2 Alarm Descriptions

The Devices window provides information an alarms triggered on any of the Devices. A description of the possible alarms is show below:

Displayed Name	Description
ABORT	
OVER_LOAD	The controller is reporting an overload condition in the machine

UNDER_LOAD	The controller is reporting an underload condition in the machine
UP_HARD_LIMIT	The machine being controlled has hit its upper hard limit
DN_HARD_LIMIT	The machine being controlled has hit its lower hard limit
UP_ULT_LIMIT	The machine being controlled has hit its upper ultimate limit
DN_ULT_LIMIT	The machine being controlled has hit its lower ultimate limit
ESTOP_ACTIVE	The emergency stop input to the controller is active
FAST_STOP	
DISABLED	
LOCAL_CONTROL	The controller is being operated from local controls
REMOTE_CONTROL	The controller is being operated from a remote pendant
COMMS_FAULT	
DRIVE_TRIP	The internal drive within the controller has a fault
RESET	
DRIVE_TRIPPED	
OVER_SPEED	The machine is running faster than its requested speed
UNDER_SPEED	The machine is running slower than its requested speed
POWER_OFF	Main electrical power to the controller has been removed
ENC_FAULT	The controller has detected a fault with the machine encoder
EXT_TRIP	
LOCK_ERR	

6 Working with Cues

The following section describes the functions of K2 that relate to working with the Programmer window and creating and triggering cues.

6.1 Action

An Action is the entire contents of a Cue. It can contain move data for single or multiple Constructs and all or some of the Parameters within those Constructs.

Action Elements

An Action Element is a single programmed move for an individual Parameter of a Construct within a Cue. The Action Element can either be to a single point or can be an effect.

Device
Every Device relates to a single specific moving Machine. The Machine can be instructed to run to a certain position and/or at a certain speed. Devices are connected or linked to Constructs and it is this patch that determines which Machine causes which aspect of a Construct's motion. A Device can only have a single degree of freedom and there must therefore be at least as many Devices created in a show as there are Construct Parameters.

Construct
A Construct represents the physical object that is being moved from within the control system. It models the movement of the physical object and uses its patched Devices to create that movement in the real world. In the 3D virtual world it is displayed using a solid that represents the graphical look of the physical object. A Construct can have as few as one Parameter and as many as six. The available Parameters are X, Y, Z, Pitch, Tilt and Rotate. A Construct can have any combination of these Parameters depending on how it is physically built and driven.

Downstage
Downstage is a term used to describe a position on stage. Stage positions are based on the point of view of a performer looking out towards an audience. Downstage is deemed to be in front of the performer, the edge of the stage closest to the audience.

Effect
An Effect can be applied to one or multiple Parameters within a Construct. An Effect applies a sinusoidal factor to the target position of the Parameter. Therefore the target position will vary over time.

Link
A Link connects a Device to a Construct. It defines the position of physical connection to the moving object and also where that moving machine enters the virtual world. In effect there are two ends to a Link, the point where it attaches to the Construct and the point where it attaches to the Stage Model. Both of these sets of coordinates must be defined correctly and accurately to ensure precise control of the physical object.

Machine

The name Machine is a generic term used to describe any physical device that is used to create motion. This can mean a wire rope winch, chain hoist, hydraulic ram, linear actuator or any other motive engine. Each Machine will have a controller associated with it that will provide the interface to the K2 software.

Page
A Page is a pre-selected arrangement of Cuelists loaded onto Masters. This means all the Cues for a particular section of a show can be made available quickly without needing to load each Cuelist individually.

Parameter
Every Construct has up to six Parameters available to it. Each Parameter represents one degree of freedom. These are either linear movement along an axis X, Y or Z or rotation around an axis Tilt, Pitch and Rotate. The combination of Parameters available to each Construct is based on the initial Construct type selected.

Pitch
Pitch is rotation around the X axis. For example if a straight bar is flown from upstage to downstage then the x axis is perpendicular to the bar and parallel to the stage. If the bar is placed at an angle so that one end is higher than the other then it has rotated around the x axis line perpendicular to it. It is this angle of change that is described as Pitch.

Preset
A Preset can hold target values for every Construct Parameter available in the system. Cues can refer to Presets instead of having their own target values. Changing the values of a single Preset will then result in the target values of all Cues referring to it being updated.

Rotate
Rotation is the angle of change around the z-axis. A stage revolve is an excellent example of a machine that only has a rotation Parameter.

Stage Left
Stage Left is a term used to describe a position on stage. Stage positions are based on the point of view of a performer looking out towards an audience. Stage Left is therefore to the left of a performer standing in the middle of the stage. The Stage Left side of stage would appear as the right hand side to the audience.

Stage Right
Stage Right is a term used to describe a position on stage. Stage positions are based on the point of view of a performer looking out towards an audience. Stage Right is therefore to the right of a performer standing in the middle of the stage. The Stage Right side of stage would appear as the left hand side to the audience.

Template
A Template is a special type of Page and is the default Page when a show is created. Any Cuelist loaded onto a Master on the Template Page will be available on the same Master on all other Pages unless the selected Page has a specific Cuelist already loaded onto that Master.

Tilt

Tilt is rotation around the Y axis. For example if a straight bar is flown from stage left to stage right then the Y axis is perpendicular to the bar and parallel to the stage. If the bar is placed at an angle so that one end is higher than the other then it has rotated around the Y axis line perpendicular to it. It is this angle of change that is described as Tilt.

Upstage
Upstage is a term used to describe a position on stage. Stage positions are based on the point of view of a performer looking out towards an audience. Upstage is deemed to be behind the performer, the edge of the stage furthest away from the audience.

View
A View is a saved layout of windows on the K2 desktop. Views allow these pre-arranged layouts of windows to be quickly recalled to permit between programming, editing and playback looks.

World
All K2 programming and visualisation is done within a 3D World. This World can be imported into K2 in the form of a 3D Studio file (.3ds). All co-ordinates for the position and movement of Constructs are based on the origin and scale of the imported World. The correct scale and axis conventions must be adhered to in order that both Worlds, Constructs and their relationship to each other is correctly maintained.

X
X is defined to be across stage with positive to the right as you face the front of the stage.

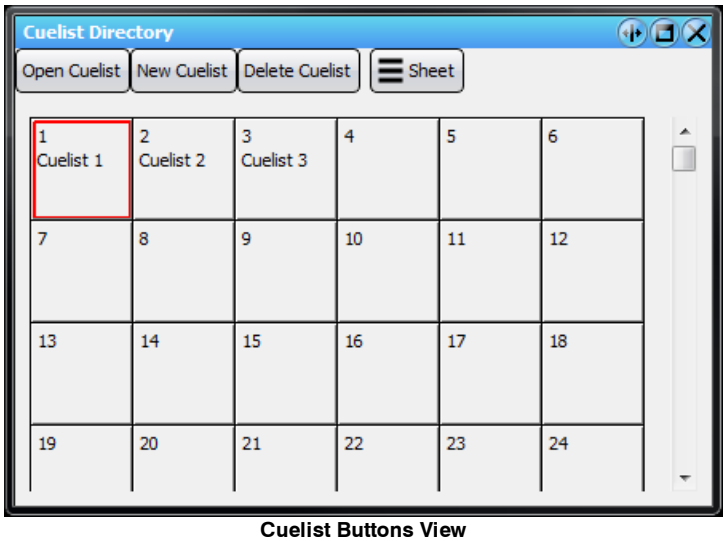
Y
Y is defined to be downstage to upstage with positive being towards upstage

Z
Z is defined to be perpendicular to the stage floor with up being positive

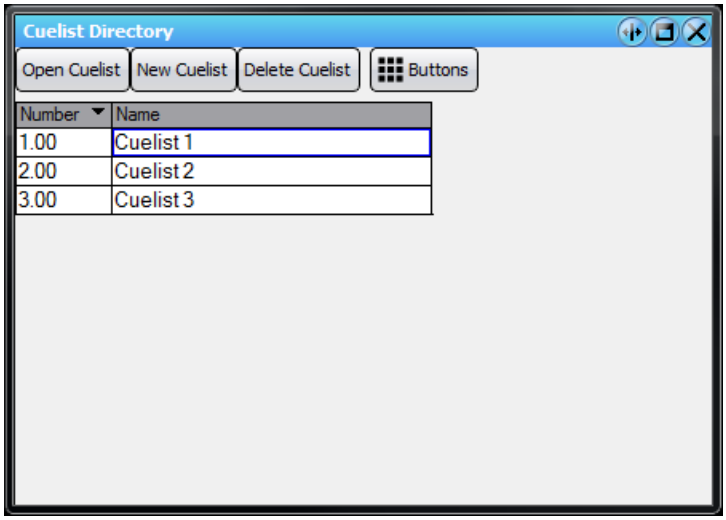
6.2 Cue Selection and Display

K2 is based on the concept of Cues and Cuelists. A Cue is a collection of actions that can be as small as a single Construct parameter and as large as an action for every parameter on every Construct. A Cuelist is an ordered list of Cues.

Cuelist Directory



Cuelist Buttons View



Cuelist Sheet View

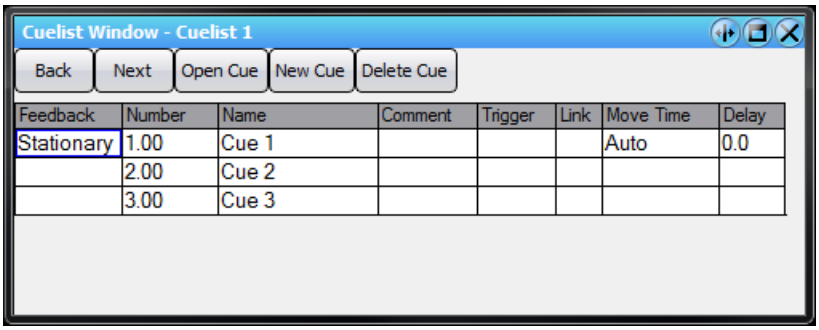
Cues cannot exist in isolation, they must belong to a Cuelist. A Cuelist can be a single Cue in length if you wish. To create a new Cuelist or to open an existing Cuelist open the Cuelist directory. This is done by clicking on Cuelists on the main toolbar.

The Cuelist Directory has two views, Button view and Sheet view. Button view shows all the Cuelists as individual buttons, Cuelists are selected by clicking on these buttons and then on the required command Open, Delete etc or by clicking on them as part of a command line entry. Sheet view shows the Cuelists in spreadsheet form. In this view Cuelists can be selected as well as have their names and numbers edited. Editing a Cuelist number will re-order it within the Cuelist directory. To access the Button view from the Sheet view click on Buttons, to access the Sheet view from the Button view click on

Sheet. In Button view every integer number is allocated a button, even if there is not a Cuelist at that position. This means that if a Cuelist is given a large number it may be out of view when you switch to Button view as there may be a lot of empty Cuelists before it.

To create a new Cuelist click on New Cuelist, the Cuelist will put at the end of the list and will be allocated the next integer number after the highest currently used number. For example if Cuelists exist for number 1, 2 and 10 then a new Cuelist will automatically be given the number 11. To open and view an existing Cuelist click on Open, this will open the Cuelist window. To delete an existing Cuelist click on Delete, you will be asked to confirm this action before a deletion takes place.

Cuelist Window



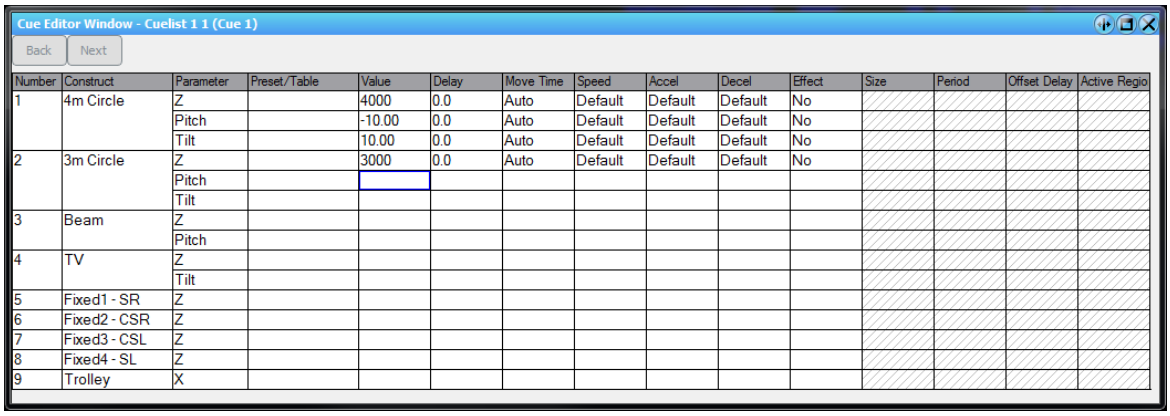
The Cuelist window shows the contents of a single Cuelist. It is possible to have several Cuelist windows open at the same time displaying the contents of several different Cuelists. The Cuelist window had a spreadsheet view displaying the Cue number, Cue name and Cue comment. All the cells can be altered to re-order the Cuelist and also to allow descriptive Cue names to be entered.

The Cuelist window also shows a summary of the timing for the Cue as well as any delay that has been applied to the Cue. Changing these values in the Cuelist window will apply those settings to all the parameters contained within the Cue, overwriting their original settings.

When a Cue is being executed a percentage figure will appear in the feedback column. This informs you how far the Cue is through its execution.

To create a new Cue within the current Cuelist click on New Cue. The Cue will be added to the end of the list and will be automatically allocated the next available integer number. To delete a Cue, click on the desired Cue within the spreadsheet and then click Delete Cue, a confirmation window will appear that you must accept to allow the Cue to be deleted. To open and view a Cue select the Cue in the list and click on Open Cue. This will open the Cue Editor window which will display the details of the Cue. If another Cue from the same Cuelist is already open and being viewed then that Cue Editor window will be brought to the front and the new Cue will replace the one that was being viewed previously.

Cue Editor Window



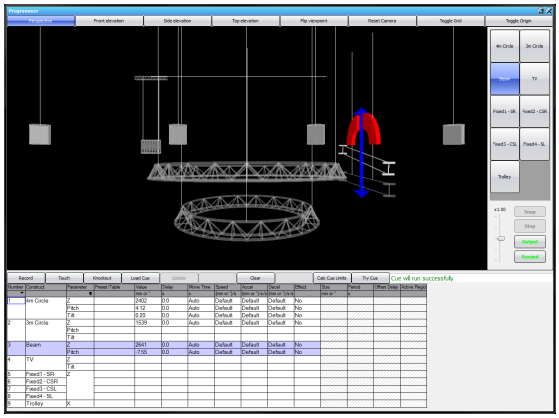
Number	Construct	Parameter	Preset/Table	Value	Delay	Move Time	Speed	Accel	Decel	Effect	Size	Period	Offset Delay	Active Regio
1	4m Circle	Z		4000	0.0	Auto	Default	Default	Default	No				
		Pitch		-10.00	0.0	Auto	Default	Default	Default	No				
		Tilt		10.00	0.0	Auto	Default	Default	Default	No				
2	3m Circle	Z		3000	0.0	Auto	Default	Default	Default	No				
		Pitch												
		Tilt												
3	Beam	Z												
		Pitch												
4	TV	Z												
		Tilt												
5	Fixed1 - SR	Z												
6	Fixed2 - CSR	Z												
7	Fixed3 - CSL	Z												
8	Fixed4 - SL	Z												
9	Trolley	X												

The Cue Editor window shows a list of all the available Construct parameters as well as the details of any actions that have been programmed for those parameters. These are displayed in a spreadsheet form and can be edited in the same way that Cues are edited in the Programmer.

You can view other Cues within the same Cuelist directly from the Cue Editor window. Just click on Next or Prev to move forwards or backwards through the Cuelist.

If you want to view all the parameters of a particular type grouped together, click the Parameter column header and the parameters will be sorted by parameter type.

6.3 Programming Cues

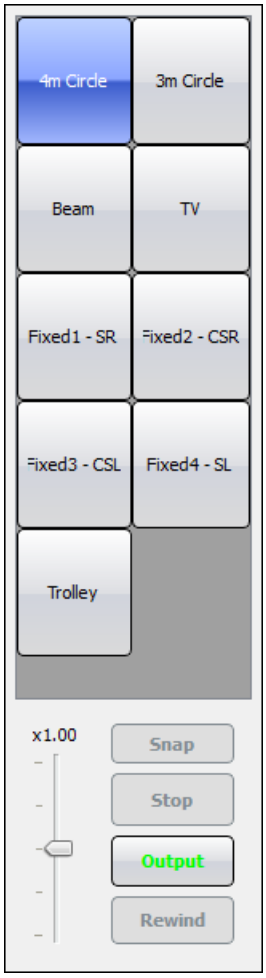


Cue programming is done in the Programmer. This is a special window that allows the show Constructs to be moved graphically and have those movements stored as actions in a Cue. To open the Programmer go to the main toolbar and click on Programmer.

The Programmer window has three sections to it, a Construct Selection Panel, a 3D graphical Visualiser and a Spreadsheet.

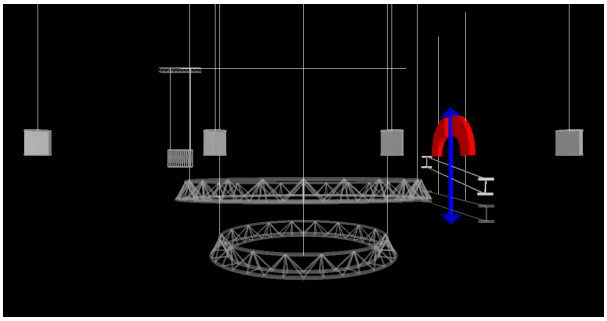
For more information on the functions of this window see the Programmer section of the Window chapter.

6.3.1 Construct Selection



All the Constructs in the show are available on the right hand side of the programmer window, each Construct has a button allocated to it. This button shows the unique Construct number as well as the name of the Construct. To select a Construct click on the button, the button will indent and will display a dark grey background to indicate that it is selected.

6.3.1.1 3D Visualiser



The 3D Visualiser shows a view of the world and all the Constructs. Perspective, Front, Side and Top views are available. In all but the Perspective view, rulers are displayed at the side of the viewer to help with approximating position. To show the world origin click on Toggle Datum in the 3D Visualiser toolbar. The Front, Side and Top views allow a grid to be superimposed onto the 3D Visualiser window. This makes using the rulers to approximate position much simpler, to turn the grid on and off use the Toggle Grid button on the 3D Visualiser toolbar.

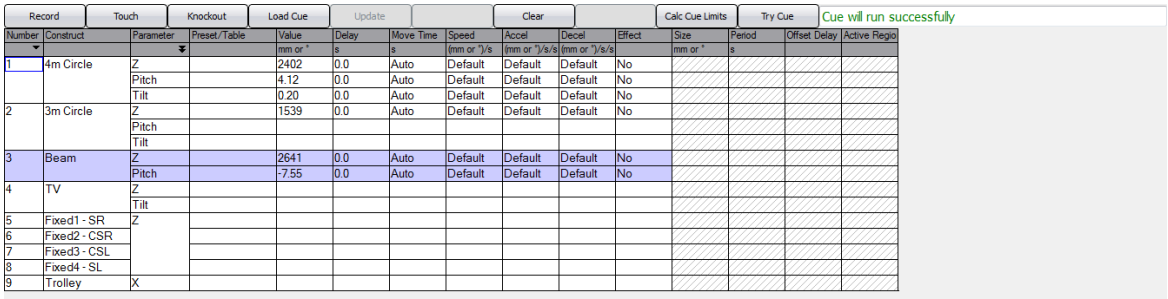
To move around the world click on the world itself, not the displayed Constructs, and use the mouse. To zoom in and out from your current camera position use the wheel on the mouse, to tilt the camera from your current position press and hold the left mouse button, move the mouse up to look up, down to look down, left to look left and right to look right. To move the camera position either click and hold the right mouse button or press and hold the CTRL key and use the left mouse button. The camera will move in the direction that the mouse is moved.

The 3D Visualiser allows Constructs to be moved to new positions very quickly and then have those positions saved as actions in a new Cue for future playback. To move a Construct click on its button in the Construct Selection Panel on the right. Arrows will appear in the center of the Construct to indicate which of the X, Y and Z parameters are available for that particular Construct. 'Paddles' will appear to indicate which rotational parameters are available, Tilt, Pitch and Rotate. To move a Construct click on the appropriate arrow or paddle and drag it to the new position. The movement of the parameter will be limited by the maximum and minimum values specified in the parameter's properties. Each parameter can be altered individually until the final look is created. If several Constructs are selected then only the parameters that are common to them all will be displayed. Moving any arrow or paddle will cause all the selected Constructs to move together within their own individual limits. Whenever a Construct is moved within the 3D Visualiser a transparent 'shadow' or 'ghost' is left behind to indicate where the Construct is currently.

The positions and values created by the movement of the Constructs via the arrows and paddles are displayed in the Programmer Spreadsheet.

For further information on the Visualiser window see the Visualiser section of the Window chapter.

6.3.1.2 Programmer Spreadsheet



Number	Construct	Parameter	Preset/Table	Value	Delay	Move Time	Speed	Accel	Decel	Effect	Size	Period	Offset Delay	Active Regio
				mm or °	s	s	(mm or °)/s	(mm or °)/s/s	(mm or °)/s/s		mm or °	s		
1	4m Circle	Z		2402	0.0	Auto	Default	Default	Default	No				
		Pitch		4.12	0.0	Auto	Default	Default	Default	No				
		Tilt		0.20	0.0	Auto	Default	Default	Default	No				
2	3m Circle	Z		1539	0.0	Auto	Default	Default	Default	No				
		Pitch												
		Tilt												
3	Beam	Z		2641	0.0	Auto	Default	Default	Default	No				
		Pitch		-7.55	0.0	Auto	Default	Default	Default	No				
4	TV	Z												
		Tilt												
5	Fixed1 - SR	Z												
6	Fixed2 - CSR													
7	Fixed3 - CSL													
8	Fixed4 - SL													
9	Trolley	X												

Each row of the spreadsheet represents a parameter of a Construct, identified by the first

two columns. The values in the other columns define how the parameter is to move when that parameter's Action is played back. Values for parameters can be entered directly into the spreadsheet if they are know. The 3D model of the Construct will move to the new position within the 3D Visualiser as soon as the new value is entered.

The rows within the spreadsheet can be sorted by either Construct ID or parameter type. This feature can be used for example if you wish to add a Preset to all the Z parameters of your Constructs without including any other parameters. Simply sort by parameter type, select all the Z parameters rows in the Preset column and press Insert to select a Preset from the list. To sort the Programmer spreadsheet right click on the column heading and select Primary Sort.

Allocation of values to specific parameter types from the Wing is straightforward. Select all the Constructs that you wish to modify, press the appropriate parameter type followed by the @ key. Finally either press the Preset key and then enter the Preset number or click on the appropriate Preset button in Preset Directory and finally hit Enter. An example of the final command line entry would be:

Z @ Preset preset-number Enter

The same command line can be used when entering values instead of Presets into parameters, for example:

Z @ 2000 Enter

Will load 2000 into the Z parameters of all the selected Constructs.

For full details of the console shortcuts see the Command Line Summary section of this manual.

For information on the buttons at the top of the programmer spreadsheet see the Programmer section of the Window chapter.

6.3.1.3 Programmer Spreadsheet Headings

Preset

You can choose to reference a Preset for a particular Parameter. When this Action is played back, the Parameter will go to the value recorded in the selected Preset for that Parameter. If no value is recorded in the selected Preset for that Parameter, the Parameter is unaffected when the Action is played back. If you have already specified a Value or Effect Table for this parameter in the Action, it is removed.

Value

This is the absolute value that the parameter will go to when this Action is played back. The value will be either a position or an angle. If you have already specified a Preset for this Parameter, the Preset reference is removed.

Delay

The time, in seconds, that the Parameter will wait before starting its movement.

Move Time
The time that the Parameter will take to move from its current value to its new value. If a value for Move Time is entered then any value entered for Speed will be ignored and replaced with the term 'Auto' to indicate the application will automatically calculate the speed required to complete the action in the time specified.

Speed
The speed that the parameter will travel at. If a value for Speed is entered then any previously entered value for Move Time will be replaced by the term 'Auto' to indicate that the time taken to complete the action will be dictated by the specified speed. Speed is in mm/s for linear parameters and degrees/s for angular parameters. This will be limited by the maximum and minimum values specified in the parameter's properties. It is worth noting that parameter speed can become accumulative if several Construct parameters are moving at the same time. This can lead to the speed exceeding that of the Construct's Linked Devices in some cases. If this occurs then reduce the speed on one or several of the Construct's parameters.

Acceleration
The acceleration rate that the parameter will use to move to its travel speed. Acceleration is in mm/s^2 for linear parameters and $degrees/s^2$ for angular parameters. This will be limited by the maximum and minimum values specified in the parameter's properties. It is worth noting that parameter acceleration can become accumulative if several of a Construct's parameters are moving at the same time. This can lead to the acceleration exceeding that of the Construct's Linked Devices in some cases. If this occurs then reduce the acceleration on one or several of the Construct's parameters.

Deceleration
The deceleration rate that the parameter will use to move to its travel speed. Deceleration is in mm/s^2 for linear parameters and $degrees/s^2$ for angular parameters. This will be limited by the maximum and minimum values specified in the parameter's properties. It is worth noting that parameter deceleration can become accumulative if several of a Construct's parameters are moving at the same time. This can lead to the deceleration exceeding that of the Construct's Linked Devices in some cases. If this occurs then reduce the deceleration on one or several of the Construct's parameters.

Effect
This is an optional effect that will be applied to the Value. If you have already specified a Preset for this Parameter, the Preset reference is removed.

(Effect) Size
The size of the effect. This is the distance the Construct will move, the units used are dictated by the parameter type, either millimetres or degrees. The end point of the effect's movement is the sum of the 'Value' and 'Size' fields so a value of 10,000 and a size of 5,000 will result in maximum position being reached by the Construct of 15,000.

(Effect) Period
The period of the effect, in seconds. This is the time taken for the effect to complete one oscillation and return to its start position. The period is the priority setting within an effect move. Therefore if the speed set in the parameter move is too slow to cover the distance

specified by the 'Size' setting in the 'Period' specified then the move will stop before it has travelled the full distance in order to ensure that it returns back to its 'Value' position within the specified period. If this occurs you must either increase the speed, increase the period or reduce the size of the effect.

(Effect) Offset

If you wish to delay the start of the move, that is expressed as a percentage of the period. For example if period is 120 seconds, setting the offset to 50% delays the start of the move by 60 seconds.

(Effect) Active

The Active cell is defines the active period of the effect as a percentage of the overall effect period. An Active setting of 100% will result in the effect using the entire specified period to complete one cycle. An Active setting of 50% will result in the effect completing in half the time i.e. at twice the speed, and then remaining stationary for the remaining 50% of the period.

To remove programming for a parameter (or parameters), select a cell (or cells) in the rows that you wish to clear and hit Delete.

To clear everything from the spreadsheet, click on Clear. This will cause all Constructs in the 3D Visualiser to return to their last static position.

6.3.1.4 Outputting the Programmer

To physically move the Constructs to their newly programmed position click on Output. This will start motion on all enabled and un-inhibited Devices.

To stop the movement at any time click on the Stop button located next to the Output button.

6.3.1.5 Rewinding the Programmer

Once all movement has stopped either from pressing the Stop button or through natural completion of all the programmer's actions, the Programmer can be 're-wound' to allow the move to be edited if desired and then run again. When the Output button in the Programmer is hit a Rewind point is stored. If you want to rewind the movement that has happened as a consequence of the last Output you can by clicking on the Rewind button.

Be warned this will send out immediate motion commands to return the Constructs to the position they were at when the Output button was last pressed. Be sure it is safe to move the Constructs before issuing the command. To stop a rewind once it has started click on the Stop button in the Programmer which will become active as soon as the rewind movement starts.

If the Output button has been pressed several times while Constructs are in motion, perhaps to add additional Constructs in to the movement, then only the positions of the Constructs at the most recent press of the button will be recalled. No Rewind history is kept.

6.3.1.6 Recording the Programmer

To save the contents of the programmer, use the following syntax:

- Record *cuelist-directory-button cue-number* Enter - to record a Cue at the specified Cue number in the specified Cuelist. If the Cue number is omitted, the next free whole number is used at the end of the Cuelist. If the Cuelist doesn't exist, it is created.
- Record *cue-number* Select Master - to record a Cue at the specified Cue number in the Cuelist on the specified Master. If the Cue number is omitted, the next free whole number is used at the end of the Cuelist. If the Master is empty, a new Cuelist is created and attached to the Master.
- Record *cue-number* Enter - to record a Cue at the specified Cue number in the Cuelist on the currently selected Master. If the Cue number is omitted, the next free whole number is used at the end of the Cuelist. If the Master is empty, a new Cuelist is created and attached to the Master.
- Record Enter – to record a Cue to the end of the current Cuelist. The Cue will be allocated the next available whole number
- Record *preset-directory-button* - to record a Preset at the specified Preset number.

6.3.1.7 Updating Cues

Existing Cues can be re-loaded into the Programmer for editing. This allows the details of an existing Cue to be adjusted, added to or deleted via the Programmer interface before saving the changes back to the original Cue. The altered settings can also be recorded to a different Cue number if desired which allows the copying and pasting of Cues to be achieved.

There are two ways to load a Cue into the Programmer. If the Cue you wish to load is contained in the currently selected Cuelist then click on Load Cue in the Programmer's tool bar and then enter the Cue number of the Cue you wish to edit and finally press Enter.

To load a Cue into the Programmer from a Cuelist that is not currently selected click on Load Cue in the Programmer's tool bar. Then enter the number of the Cue you wish to edit, click on the Cuelist you wish to pick the Cue from using the Cuelist Directory in Button view and finally hit Enter. The details of the Cue will be loaded into the Programmer ready for editing.

If the Cue does not contain entries for every parameter available in the Programmer then any parameters that already have values in will share the Programmer with the loaded Cue.To ensure that you do not accidentally add parameters to the loaded Cue be sure to flush the Programmer using the Clear button before loading the Cue.

Once the Cue has been adjusted it can be saved back to its original Cuelist and Cue number by clicking on the Update button within the Programmer tool bar.

If you wish to copy the adjusted Cue to a different Cue number simply record the Programmer contents in the same way as you would normally. See the Recording the Programmer for further information.

6.3.2 Cue Triggers

K2 has two Trigger types, Manual and Follow. To apply or change a Cue's Trigger open the relevant Cuelist window by either selecting the correct Cuelist in the Cuelist Directory and clicking open or, if the Cuelist is currently loaded onto a Master, by double-clicking the Select button on that Master.

In the Cuelist window either double-click on the Trigger field for the Cue you wish to adjust or select the cell in the spreadsheet and hit Insert. A pop-up menu will appear which offers you the Trigger options. Click on either Manual or Follow and the menu will close automatically. The menu shows which choice is currently made by showing that options button as depressed. If Manual is selected then the Trigger field will not display a message, if Follow is selected then the word "Follow" is shown in the Trigger field.

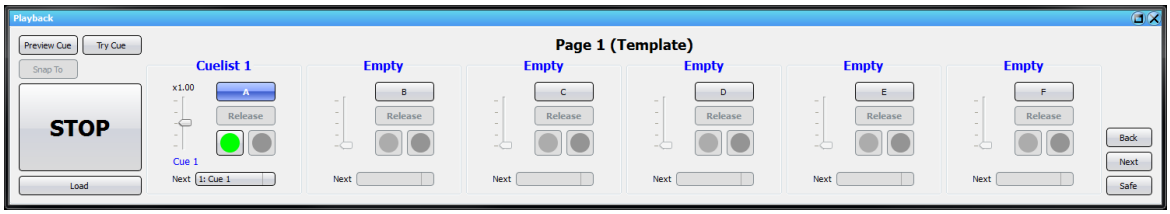
Manual

A Manual trigger is the default type for all Cues. This requires the user to explicitly press a GO button for every Cue that they wish to run. The Master will automatically increment to the next Cue in the Cuelist once the current Cue has finished running but it will still require the GO button to be pressed before it will start execution.

Follow

A Follow trigger allows sequential Cues in a Cuelist to trigger one after another with no intervention from the user. A Follow trigger is activated when the previous Cue completes. This causes the Follow Cue to then run immediately as if the GO button had been pressed the instant that the previous Cue completed.

6.3.3 Playback Controls



On the Main Toolbar, press Motion Control followed by Playback Controls to open the Playback window. This window contains six Playbacks, each of which can have a Cuelist loaded onto it. There is always one currently selected master which is shown with a blue Select button. To select a different Playback, click on its Select button. Double-clicking a Select button will open the Cuelist window for the Cuelist loaded on that Master.

Cues can only be played back when their Cuelist is loaded onto a Master. There are several different methods to load and unload Cuelists to and from Masters.

Loading Cues

To load a Cuelist on to a Master, the syntax is:

- Load *cuelist-directory-button* Select - to load the specified Cuelist on to the specified Master
- Load *number* Select - to load the specified Cuelist on to the specified Master

- Load *number* Enter - to load the specified Cuelist on to the currently selected Master

To unload a Cuelist from a Master, the syntax is:

- Load Select - to unload the Cuelist from the specified Master
- Load Enter - to unload the Cuelist from the currently selected Master

The Load button is located in the top left corner of the Playback Controls and is duplicated on the command panel on the Wing.

Once a Cuelist is loaded onto a Master the Cues within it are displayed in a drop-down box at the bottom of the appropriate Master. The box is labeled and shows the Cue that will be executed when the GO button is clicked. To select an alternative Cue click on the box to open it and select the required Cue from the list.

If a Cue completes successfully the Cuelist will automatically step onto the next Cue in the Cuelist and display this in the Next box. If a Cue is paused, halted or stopped for any reason the Cuelist will not step onto the next Cue in the list. It will keep the current Cue so that it can be re-run by clicking on the GO button again.

Rate Override

The Rate Override feature allows running Cues to have their speed changed while moving. The speed of a Cue can be increased or decreased using the fader to the left of the GO button. The is a Rate Override fader for each Playback. The rate can be pre-set before the start of a Cue or can be changed once the Cue has started.

Running, Pausing and Halting Cues

To run a selected Cue, click on the Green GO button on its Playback. This will start the Cue executing, the Cue name will be displayed in the Playback box and a percentage indicator will display the progress of the Cue to completion. A Cue can be run on top of a currently executing Cue. Select the new Cue from the Next box and click on the green GO button. If the GO button is not green then the next Cue cannot be run. This will happen in there is only Cue in the loaded Cuelist.

To pause a Playback click once on the red STOP button. All Constructs controlled by that Playback will decelerate to a halt. To re-start the Cue, click on the green GO button. To halt the Cue click on the red STOP button again. Double clicking on the STOP button will stop the Construct at its Error decel rate, i.e. it will stop the construct as fast as possible.

For more information on the functions of this window see the Playback Controls section of the Window chapter.

6.3.4 Locking and Releasing Constructs

Running a Cue will cause its Master to lock all the moving Constructs within the Cue. This prevents another Master from running a Cue that contains commands for those Constructs. The Constructs are released by the Master once the Cue that is running has completed. To release the Constructs while a Master has them locked you must click on the Release button for the locking Master. The Constructs can then be commanded by another Master even if they are still running on the original Master.

A paused Cue will not release control of its Constructs so another Master cannot use those

Constructs unless they are explicitly released. Once a Cue has been halted the Master releases its lock on the Constructs allowing another Master to use them without needing to explicitly release.

A Master will not run a Cue until it is able to lock all the Constructs that will move within that Cue. If you try and run the Cue the Status Bar will display a message explaining that the Master could not lock the Constructs. To find out which Master has locked the Constructs click and hold the Select button on the new Master. The Master that 'owns' the Constructs will flash its Select button to show which one it is. They can then be released from that Master if required.

Whenever a Cue completes on a Master and the locks are automatically released the Rate Override setting for that Master will be reset to the default of 100%

6.3.5 Playback Lookahead

One of the advanced features of K2 is the look-ahead engine. This feature enables the system to calculate movement of Constructs into the future and anticipate potential problems and collisions before they happen which in turn allows the user to take corrective action without having to stop and restart all movement.

The maximum look-ahead is governed by a number of factors but can vary from 2 seconds to 30 seconds. At the start of a move the maximum look-ahead is possible however adjusting Cues 'on-the-fly' using the Rate Override will cause the look-ahead to re-assess which results in a smaller anticipation window initially.

If an error condition is anticipated then the system will display a countdown in the right hand side of the status bar at the bottom of the screen. The length of the bar is directly related to the amount of time until the error condition occurs. A counter to the left of the bar will show the time in seconds until the error will occur. The bar and timer will count down as the error condition gets closer warning the user of the time they have to take corrective action. The status bar will also state the nature of the anticipated error condition to help the user take the correct action to avoid the error.

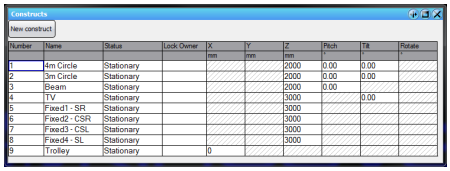
Errors commonly take one of three forms.

1. The move programmed will require the Construct to move outside of its limiting motion envelope e.g. it will have to move faster than its maximum speed, slower than its minimum speed or change speed more rapidly than its maximum ramp rate.
2. The move programmed will require the Devices facilitating the motion of the Construct to move outside of their limiting motion envelope. The specified Construct motion may be within bounds but the accumulation of several parameters changing at the same time will result in a Device having to move faster than it is capable of.
3. The Construct or Device will move outside its defined position envelope. This may mean that either the Construct or Device is being asked to move further than its limits or that a collision may be about to occur with one of the Construct's collision limits.

If no action is taken by the user to avert the error condition then K2 will force a stop on the Construct when there is 0.5 seconds remaining until the error condition occurs. This will result in a fast stop being sent to all the relevant Constructs.

6.3.6 Construct Details

To see the actual positions of Constructs when playing back Cues, on the Main Toolbar, press Constructs to open the Construct Window.



If a Construct is heading for an invalid state, the Warning column will show a countdown to the point that it will have to stop. If no action is taken to prevent the invalid state before the countdown expires, the Warning column will display STOPPED. An invalid state might be that a Device is trying to move past its defined maximum position.

6.4 Programming Effects

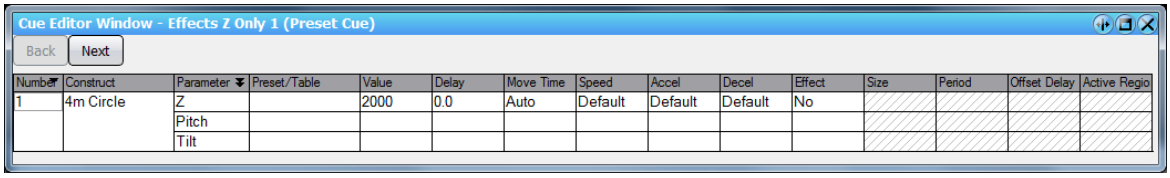
The built-in effects engine allows complex movements to be programmed with relative simplicity. For effects to execute as desired all the fields within the effected parameter must be programmed correctly.

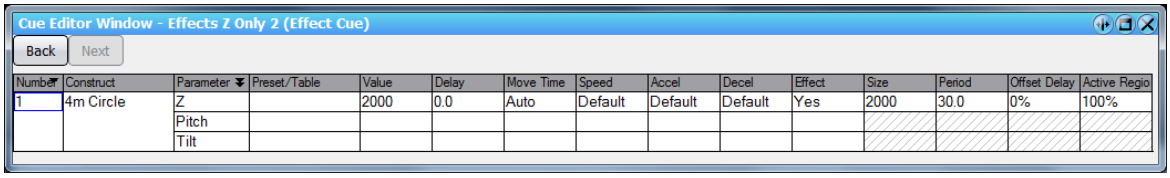
6.4.1 Presetting Constructs

A simple effect on the Z Axis

For an effect to execute correctly the Construct upon which the effect is to be applied must be correctly positioned before the effect is started. This means that the Cue preceding the effect Cue must position the parameters that include effects in the correct start position. These positions should match the value entered into the effect Cue's 'Value' field.

For example if an effect is applied to the Z axis of a Construct so that the Construct will continue to cycle up and down then the Z parameter in that Construct must be positioned at the correct extreme of the travel before the effect Cue is run.





The above screen shots show a preset Cue (4) followed by the effect Cue (5). In this example you can see that the 'Value' fields match and so when the preset Cue is executed the Construct will be run to 2000 and will then stop.

Then when the effect cue is run the Construct will be in the correct start Z position. The effect cue has a "size" of 2000 and a period of 30s. This means the effect cue will add and then remove 2000 on to the Z access of the construct over a period of 30s. Thus it will take 15s to change the Z position of the construct to 4000 then another 15s to bring it back to 2000.

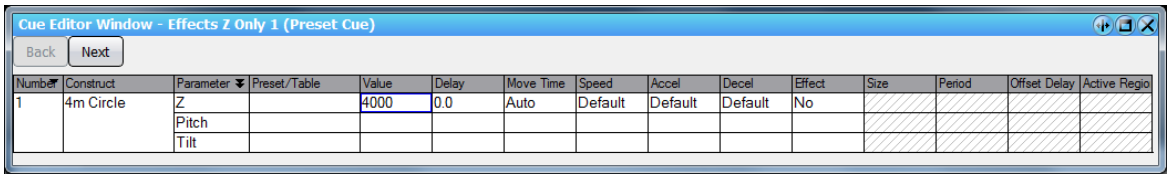
The active region specifies the region of the period over which the effect runs, by default this is 100%. In the example shown, if the active region is set to 50% then the effect will occur over the first 15s of the period (Running twice as fast). Then for the next 15s the construct will be static.

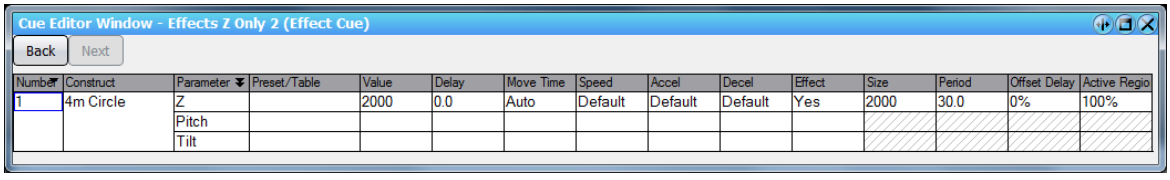
Some characteristics of effects cues

- Effect cues change the values in a sinusoidal way to produce a smooth movement.
- Effect cues will also run continuously until stopped, or a new cue is triggered.
- Normally the next cue in the cue list is not loaded into the playback until the current cue has completed. This is not the case with effect cues, as soon as an effect cue is run the next cue in the cue list is loaded into the playback. This means the effect can be exited at any time by triggering the next cue in the cuelist.
- Whilst an effect cue is running the text "FX ON" will be displayed in the playback window, next to the Playback that is running the effects cue.
- The Active region specifies the

Note that neither the Pitch nor Tilt parameters contain any move information in this example. This is because as they do not have effects applied to them their movement does not impact on the execution of the effect on the Z parameter.

The following screen shots show an incorrect preset and effect Cue combination.

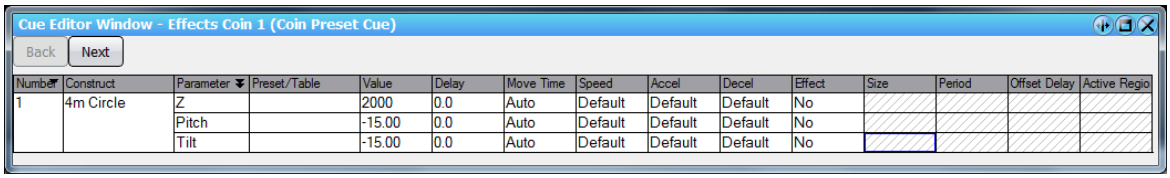




In this example you can see how the Z parameter is incorrectly positioned at the wrong extreme of the travel. Although the Z parameter will reach 4000 during its travel as the effect 'Value' and 'Size' fields add up to 4000 the start of the effect will appear strange as the 'Value' entries do not match in both Cues. The reality is that the target position generated by the effect will start at 2000 and will increase until it reaches 4000 before returning again to 2000. The movement of the Construct will be that it will start to travel downwards towards 2000 until such time as the target position generated by the effect exceeds the current position of the Constructs. At this point the Construct will reverse direction and will head back to 4000. The visible result is that the Construct would move downwards for about half the travel, and then reverse direction to return to the 4000 position, it will then reverse again so as to be tracking the effects target correctly at which point it will behave as programmed.

Using effects on the P and T axis to simulate a spinning coin

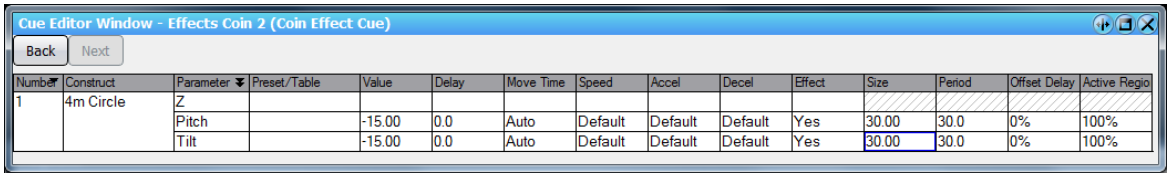
Building on the example above the effects engine can be used to create a spinning coin effect by altering the Pitch and Tilt axis of a construct as shown below. This cue will preset a construct to a start position. In this case we have tilted and pitched a truss circle by 15 degrees. We have also moved its Z axis to 2000mm.


Cue Editor Window - Effects Coin 1 (Coin Preset Cue)

Back | Next

Number	Construct	Parameter	Preset/Table	Value	Delay	Move Time	Speed	Accel	Decel	Effect	Size	Period	Offset Delay	Active Regio
1	4m Circle	Z		2000	0.0	Auto	Default	Default	Default	No				
		Pitch		-15.00	0.0	Auto	Default	Default	Default	No				
		Tilt		-15.00	0.0	Auto	Default	Default	Default	No				

Next we need to apply an effect to the Pitch and Tilt axis to allow these to move. See the effect cue below

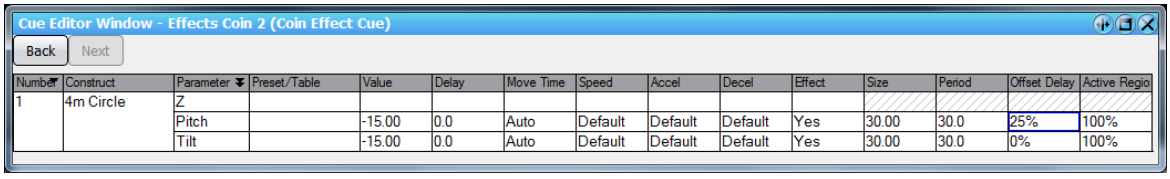

Cue Editor Window - Effects Coin 2 (Coin Effect Cue)

Back | Next

Number	Construct	Parameter	Preset/Table	Value	Delay	Move Time	Speed	Accel	Decel	Effect	Size	Period	Offset Delay	Active Regio
1	4m Circle	Z												
		Pitch		-15.00	0.0	Auto	Default	Default	Default	Yes	30.00	30.0	0%	100%
		Tilt		-15.00	0.0	Auto	Default	Default	Default	Yes	30.00	30.0	0%	100%

This may look like what we want, as we are altering the Pitch and Tilt axis by 30 degrees, so the will move from -15 degrees to +15 degrees continuously. If we ran this cue we would see the truss circle just rocking diagonally from side to side.

We need to make one more change, if we delay the Pitch by a ¼ of a cycle (25%) this will give us the desired spinning coin effect we are after. See the final cue below.


Cue Editor Window - Effects Coin 2 (Coin Effect Cue)

Back | Next

Number	Construct	Parameter	Preset/Table	Value	Delay	Move Time	Speed	Accel	Decel	Effect	Size	Period	Offset Delay	Active Regio
1	4m Circle	Z												
		Pitch		-15.00	0.0	Auto	Default	Default	Default	Yes	30.00	30.0	25%	100%
		Tilt		-15.00	0.0	Auto	Default	Default	Default	Yes	30.00	30.0	0%	100%

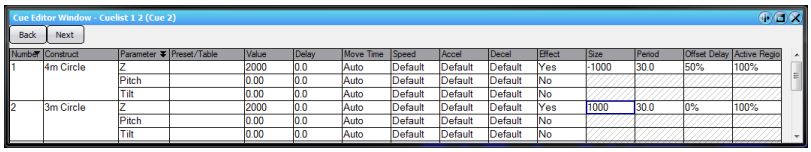
The last thing we will need to do is provide a clean way to exit the effect, often this is just a duplicate

of the effect preset cue. When this cue is run the effect will be cleanly canceled.

6.4.2 Delaying Effects

Effects in K2 are sinusoidal in nature. The length of the sine wave effect is specified by the 'Period' field in the move information and the position of the parameter is determined by applying a factor between 0 and 1 to the 'Size' field and adding that to the 'Value' field.

Due to the calculation of an effect as described above, delaying a parameter that has an effect applied must be done by altering its 'offset' value. A sinusoidal effect travels through 360° during one period.



Number	Construct	Parameter	Preset/Table	Value	Delay	Move Time	Speed	Accel	Decel	Effect	Size	Period	Offset Delay	Active Regio
1	4m Circle	Z		2000	0.0	Auto	Default	Default	Default	Yes	-1000	30.0	50%	100%
		Pitch		0.00	0.0	Auto	Default	Default	Default	No				
		Tilt		0.00	0.0	Auto	Default	Default	Default	No				
2	3m Circle	Z		2000	0.0	Auto	Default	Default	Default	Yes	1000	30.0	0%	100%
		Pitch		0.00	0.0	Auto	Default	Default	Default	No				
		Tilt		0.00	0.0	Auto	Default	Default	Default	No				

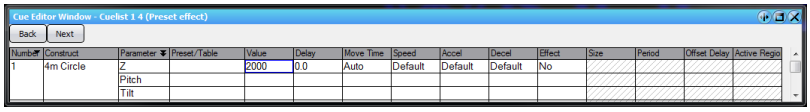
The screen shot above shows two circle Constructs, each with an effect on their Z parameter. The first Construct is positioned at a high position with an effect set to move it downwards by 2000. The second Construct is positioned at a lower position with an effect which will move it upwards by 2000.

If the 'Offset' was set to zero on both then when the Cue was run both Constructs would start moving towards each other. In this example however an offset of 180° degrees has been added to the top Construct. As 180° is exactly half of 360° the result will be that the top Construct will delay for half the specified period, in this case 10 seconds, before starting to move.

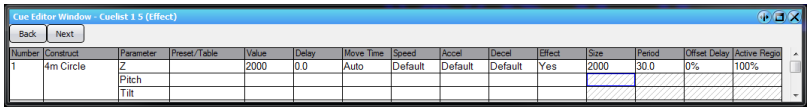
The 'Delay' property does have a useful purpose in delaying the application of an effect by multiples of the effects time period. If an effect has a 'Period' of 20 seconds then applying a 'Delay' of 20 seconds will cause the parameter to delay for exactly one effect period. A good example of this might be a stagger start where you wish several Constructs to all move in sync with each other but you wish to start them off one after the other. Applying a delay of zero to the first one, one effect period to the second, two effect periods to the third etc. will cause the Constructs to run one after another but will ensure that once moving they will all move together.

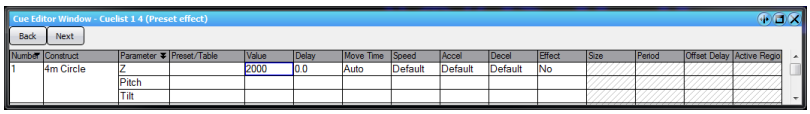
6.4.3 Stopping Effects

Once an effect Cue has started the effect will continue to run indefinitely until an alternative is applied to the affected parameter. A stop Cue must be created that returns the parameter to its original start position. This stop Cue is usually a repeat of the preset Cue used to correctly position the parameter prior to the effect being applied. The following three screen shots show Cues that preset a parameter, run an effect on that parameter and finally stop the effect.



Number	Construct	Parameter	Preset/Table	Value	Delay	Move Time	Speed	Accel	Decel	Effect	Size	Period	Offset Delay	Active Regio
1	4m Circle	Z		2000	0.0	Auto	Default	Default	Default	No				
		Pitch												
		Tilt												





As can be seen, the first and third Cue are identical. When the third “end effect” Cue is run the Construct will not stop moving immediately, rather it will complete its current effect cycle and will come to rest at the end of it.

Note that for effects with a long ‘Period’ value this can mean a significant period of time passing between the stop Cue being run and the Construct actually ceasing movement. The STOP button at the left hand end of the Playback Controls or the STOP buttons in the Programmer or on the Master will send an instant stop to all Constructs but will obviously result in the Construct stopping in an unplanned position.

6.5 Pages

If you need more than 6 Masters, you can create a new Page, each of which can have different Cuelists loaded onto each Master.

When you create a new show, a special Page is created, the Template Page. Anything loaded onto a Master on the Template Page will automatically be included in every new Page you create. For each new Page however, you can choose to load a different Cuelist onto a Master that already has a Template Cuelist loaded on to it. This will simply override the Template Cue for that particular Page.

Page Directory

Open the Page Directory by clicking Pages on the Main Toolbar. To create a new Page, press New Page. To delete a Page, put the cursor on a Page and press Delete Page. You can rename and renumber Pages when the window is in Sheet view although you cannot rename, renumber or delete the Template Page. All Page numbers must be unique although decimal places can be used if desired.

Pressing Buttons will toggle to the Button view of the Page Directory. In the Button view, you can still use the New Page and Delete Page buttons, but you cannot rename or renumber Pages.Press Sheet to toggle back to the spreadsheet view of the Page Directory.

Changing Page

To change the active Page, you can press Next and Back on the Playback Controls. The name of the current page is shown next to these buttons. Alternatively, click on a Page in the Button view of the Page Directory. If you have created a Page other than the Template Page, you will not be able you get back to the Template Page using the Next and Back buttons, you must use the appropriate Page Directory button.

Templates

Template Pages allow you to select a Page that will always be available to the user as long as it is not overwritten by the current Page. A page marked as a Template will always be available on the same playback no matter which page you are on, unless you have specifically assigned a cue to that playback, in which case the user created one takes precedence.

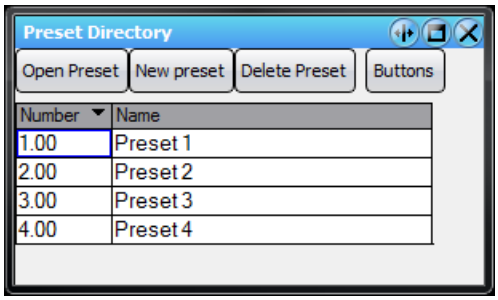
Another example is, if you think of the Template Page as being written on paper and all the other pages being written on a transparency then when you select a Page you are laying that transparency over the Template. If there is nothing assigned to a particular Playback in a Page then you can see through to the Template below and the Template's Cuelist will be available on that Playback instead. Any Playbacks with Cuelists assigned in the current page will obscure the view of the Template below for that Playback therefore overriding the Template's Cuelist with the current page's Cuelist instead.

For further information on the Pages window see the Page Directory section of the Window chapter.

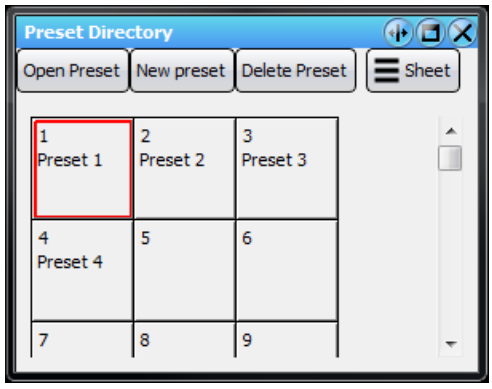
6.6 Working with Presets

Presets store positions for Constructs that can be referenced from Cues. Changes to positions in a Preset will automatically be reflected in Cues that reference that Preset. Presets are like Cues, but do not store any timing or speed information.Presets can only contain numeric values and cannot reference other Presets.

Preset Directory



Preset Directory in Sheet View



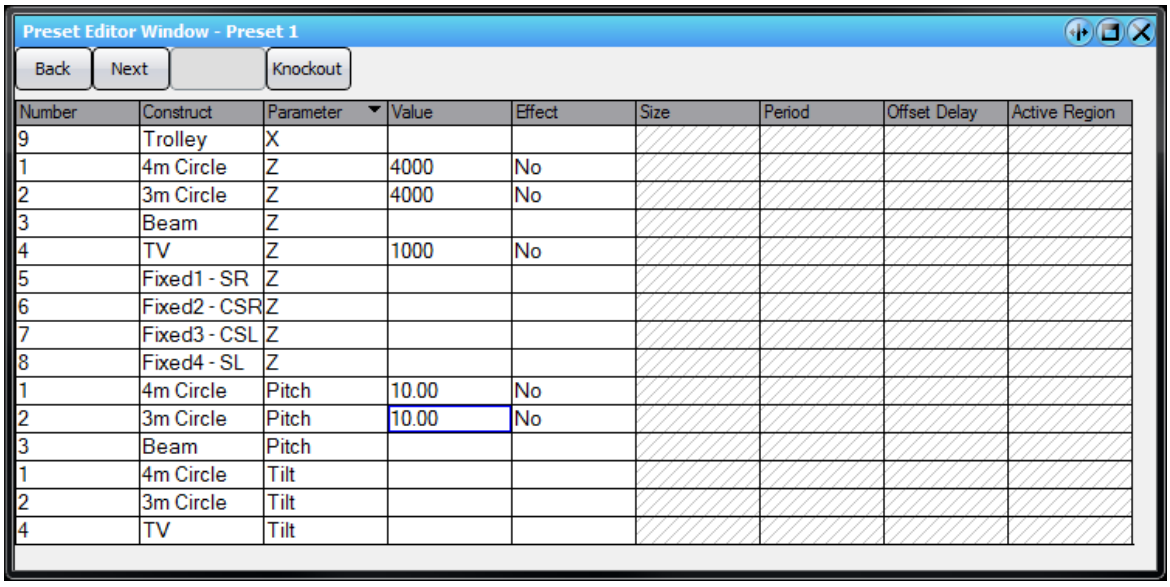
Preset Directory in Buttons View

The Preset Directory works in exactly the same fashion as the Cuelist Directory. To open the Preset Directory on click on Show Contents followed by Presets on the main toolbar.

The Preset Directory has two views, Button view and Sheet view. Button view shows all the presets as individual buttons, presets are selected by clicking on these buttons and then on the required command Open, Delete etc or by clicking on them as part of a command line entry. Sheet view shows the presets in spreadsheet form. In this view presets can be selected as well as have their names and numbers edited. Editing a preset number will re-order it within the Preset Directory. To access the Button view from the Sheet view click on Buttons, to access the Sheet view from the Button view click on Sheet. In Button view every integer number is allocated a button, even if there is no Preset at that position. This means that if a Preset is given a large number it may be out of view when you switch to Button view as there may be a lot of empty Presets before it.

To create a new Preset click on New Preset, the Preset will put at the end of the list and will be allocated the next integer number after the highest currently used number. For example if presets exist for number 1, 2 and 10 then a new Preset will automatically be given the number 11. To open and view an existing Preset click on Open, this will open the Preset Editor window. To delete an existing Preset click on Delete, you will be asked to confirm this action before a deletion takes place.

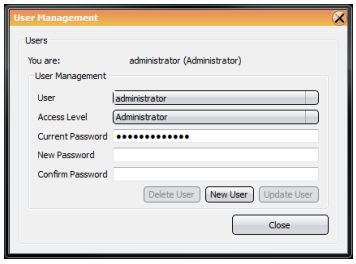
Preset Editor Window



Number	Construct	Parameter	Value	Effect	Size	Period	Offset Delay	Active Region
9	Trolley	X						
1	4m Circle	Z	4000	No				
2	3m Circle	Z	4000	No				
3	Beam	Z						
4	TV	Z	1000	No				
5	Fixed1 - SR	Z						
6	Fixed2 - CSR	Z						
7	Fixed3 - CSL	Z						
8	Fixed4 - SL	Z						
1	4m Circle	Pitch	10.00	No				
2	3m Circle	Pitch	10.00	No				
3	Beam	Pitch						
1	4m Circle	Tilt						
2	3m Circle	Tilt						
4	TV	Tilt						

The Preset Editor window shows a list of all the available Construct parameters as well as the numeric values for any positions that have been programmed for those parameters. These are displayed in a spreadsheet form and can be edited in the same way that values are edited in the Programmer.

7 User Management



To change your password click on File on the main toolbar and then on User Management. If you do not have top level access then you will simply be asked to enter your current password and then your new password twice. Once you have done this click on Change Password to make the change permanent. Click on Close to exit this window.

If you have top level access then you can create new users and delete existing ones from the User Management window.

Creating a New User

Click on the New User button. A new user will be displayed in the Users list. Highlight and change the name if required. Enter a new password in the New Password and Confirm Password fields and then click on Update User.

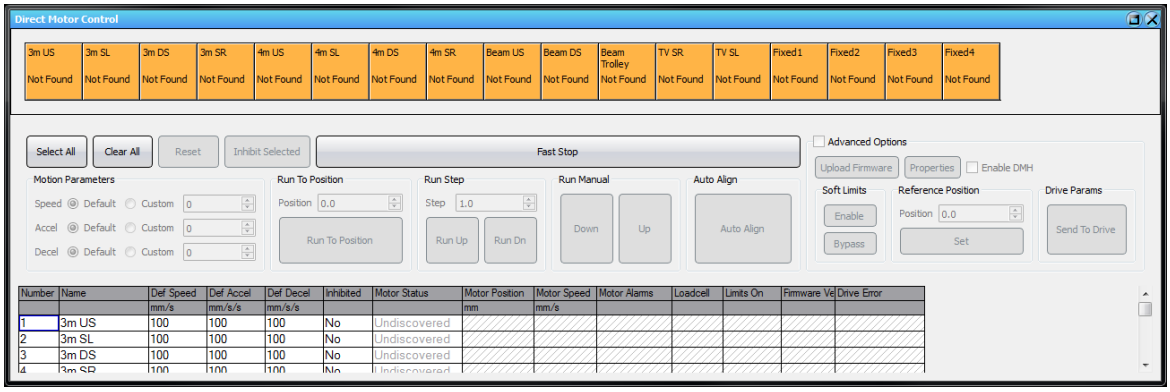
Changing a Password

Select the user whose password you wish to change from the Users list. The existing password will be automatically entered into the Old Password field. Enter the new password in the New Password and Confirm Password fields and then click on Update User.

Deleting Users

To delete a user select the login name from the users list and then click on Delete User. You will be asked to confirm the deletion. Click on OK to complete the process.

8 Direct Motor Control



Direct Motor Control allows you to control individual Devices directly for setup and test without moving their connected Construct. To open the Direct Motor Control window go to the main toolbar and click on Motion Control and then on Direct Motor Control. Each Device is represented by a button at the top of the window. If there are a large number of Devices you can either drag the window to make it larger or use the scroll bars to view all the Devices. To control a Device it must have an individual device ID to establish communications with its controller. If this is not the case then go to the properties of that Device and enable the communications. Devices with no communications show 'Not Found' to indicate that they are not available. To control a Device click on its button, multiple Devices can be controlled simultaneously by clicking on several buttons. Any commands issued from the Direct Motor Control window will be applied to all selected Devices.

All movement is done initially using the default speeds set in the Device Properties. If you wish to use a different speed, acceleration or deceleration then click on Custom and type in the new value. To run down or up click and hold on the In or Out buttons respectively. Movement will continue as long as the left mouse button is held down. All Devices will run to their position limits where they will stop unless the mouse button is released sooner. To run to a specific position type the value in to the Position field in the Run Automatic section. Click and release the Run button to start the motion and click on Stop if you want the motion to finish early.

To force the position of the Device to a specific value type the new position into the Reference Position field and click on the Set button below. All selected Devices will be set to this new position.

Feedback from all connected Devices is displayed in the table at the bottom of the window.

The Device buttons use colours to communicate the current state of the Device, the colours and their meanings are listed below.

For more information on the functions of this window see the Direct Motor Control section of the Window chapter.

8.1 Device Buttons

Colour	Description
Grey/Yellow	Offline or no communications setup with the controller
White	De-selected and standing by
Blue	Selected and stationary
Green	Selected and moving
Red	Device reporting a fault

A Device controller is capable of reporting a number of different status and fault messages to the application. A list of the these and an associated description is shown below.

9 Working with the Command Line and the K2 WING

The K2 command line is the method employed to allow commands to be entered into K2 from numerous sources. The command line can be filled from the keyboard or from the K2 Wing.

The command line is on displayed at all times at the left hand end of the status bar that is situated at the bottom of the screen. Commands are entered into the command line one at a time until a complete and valid command line is created, once this happens the Enter key is pressed which causes K2 to evaluate the contents of the command line and either execute the command if the data is correct or inform the user that the command line cannot be decoded correctly.

Commands can be entered into the command line by a number of devices and several devices can be used to create a single complete command line if desired.

Clearing the Command Line

The command line can be cleared from the keyboard at any time by hitting the Esc key. To clear the command line from the Wing hit the Clear button in the command panel above the keypad.

9.1 Keyboard Shortcuts

Cues can be played back and stopped using the keyboard as well as clicking on buttons on the screen when a K2 Wing is not available. The keyboard shortcuts used are listed below

Programming (alphabetical order)	**Keys**
Accel	S, S
Backspace	Backspace
Calc Cue Limits	Home
Clear Command Line	Esc
Copy	C
Cue	Q
Cuelist	I
Decel	S, S, S
Delay	T, T

Goto	G
Knockout	K
Load	L
Open	O
Open Patch Browser	B
Preset	P
Programmer Output	Ctrl + Page Down
Programmer Stop	Page Up
Record	R
Speed	S
Time	T
Touch	U
Try Cue	End
Update Cue	L, L
Parameters	**Keys**
X	Ctrl + X
Y	Ctrl + Y
Z	Ctrl + Z
Pitch	Ctrl + P
Tilt	Ctrl + T
Rotate	Ctrl + R

Playback	**Keys**
Playback A GO	Ctrl + F1
Playback A SNAP	Ctrl + Shift + F1

Playback A PAUSE/STOP	F2
Playback B GO	Ctrl + F3
Playback B SNAP	Ctrl + Shift + F3
Playback B PAUSE/STOP	F4
Playback C GO	Ctrl + F5
Playback C SNAP	Ctrl + Shift + F5
Playback C PAUSE/STOP	F6
Playback D GO	Ctrl + F7
Playback D SNAP	Ctrl + Shift + F7
Playback D PAUSE/STOP	F8
Playback E GO	Ctrl + F9
Playback E SNAP	Ctrl + Shift + F9
Playback E PAUSE/STOP	F10
Playback F GO	Ctrl + F11
Playback F SNAP	Ctrl + Shift + F11
Playback F PAUSE/STOP	F12
Programmer OUTPUT	Ctrl + Page Down
Programmer STOP	Page Up
Global Stop	Space Bar
Next Playback Page	>
Previous Playback page	<

9.2 Command Line Summary

In the following table:

<nn> refers to a number entered numerically ether on the keyboard or the K2 wing
<Qnn> refers to a Cue number entered numerically ether on the keyboard or the K2 wing
<Lnn> refers to a Cuelist number entered numerically ether on the keyboard or the K2 wing
<Pnn> refers to a Preset number entered numerically ether on the keyboard or the K2 wing
<Cnn> refers to a Preset number entered numerically ether on the keyboard or the K2 wing

Buttons on the Wing are shown in CAPITALS enclosed in square brackets [ ]
The ^ symbol is used to indicate that the CTRL key is pressed on the keyboard, i.e. ^Z means hold the CTRL key and press the Z key.
When showing the keyboard shorts that re

Desired Action	Screen	Wing	Keyboard
Open Cuelist window on screen	Open List <Lnn> Enter	[OPEN] [LIST] <Lnn> [ENTER]	O I <Lnn> Enter
	Open [cuelist-number-button] Enter		
Open Cue window on screen	Open List <Lnn> Cue <Qnn> Enter	[OPEN] [LIST] <Lnn> [CUE] <Qnn> [ENTER]	O I <Lnn> Q <Qnn> Enter
	Open [cuelist-number-button] Cue <Lnn> Enter		
	Open Cue <Qnn> Enter		O Q <Qnn> Enter
	Open <Qnn> Enter		O <Qnn> Enter
Open Preset window on screen	Open List <Pnn> Enter	[OPEN] [VIEW] <Pnn> [ENTER]	O P <Pnn> Enter
	Open [preset-number-button] Enter		
Clear Programmer	Clear	Kinesys + Clear (Keys pressed together)	
Unload Cue in Programmer		[LOAD] [LOAD]	
Programmer - Record Preset	Record Preset <Pnn> Enter	[RECORD] [VIEW] <Pnn> [ENTER]	R P <Pnn> Enter
Programmer - Record Preset	Record [preset-number-button] Enter		
Programmer - Record Cue			
Add to end of current Cuelist	Record Enter		R Enter

Add to Cuelist on selected Master, added to the end of the Cuelist on selected master	Record Select	[RECORD] [SELECT]	
Record specific Cue number in current Cuelist	Record Cue <Qnn> Enter	[RECORD] [CUE] <Qnn> [ENTER]	R Q <Qnn> Enter
Update currently loaded cue in the programmer, i.e write it back to the Cuelist overwriting it	Update		L L
Set Parameter value (timing/speed/position/ preset)		parameter-button @ <nn> Enter	
		parameter-button @ Preset preset-number Enter	^Z @ P <Pnn> Enter
Absolute move		@ [parameter-button] <nn> Enter	^Z + <nn> Enter
(positive relative move)		[parameter-button] + <nn> Enter	^Z + <nn> Enter
(negative relative move)		[parameter-button] – <nn> Enter	^Z + <nn> Enter
(set move time)		[parameter-button] [Time] <nn> Enter	^Z T <nn> Enter
(set move speed)		parameter-button Speed <nn> Enter	^Z S <nn> Enter
(set delay time)		parameter-button Time Time <nn> Enter	^Z T T <nn> Enter
(set move acceleration)		parameter-button Speed Speed <nn> Enter	^Z S S <nn> Enter
(set move deceleration)		parameter-button Speed Speed Speed <nn> Enter	^Z S S S <nn> Enter
Load Preset <Pnn> into Programmer		@ [VIEW] <Pnn> Enter	@ P <Pnn> Enter
Load Preset into Programmer		@ [preset-number-button] Enter	
Select/Deselect Constructs (while in the Programmer)		[wing-construct-button]	<Cnn> Enter
Select from Construct number onwards		<Cnn> [THRU] [ENTER]	
Select a group of Constructs		<Cnn> [THRU] <Cnn> [ENTER]	
Select a group of Constructs		Press two wing Construct buttons together and you will select all constructs between these buttons	

Load/Update Cue
Load Cue <Qnn> Enter
Load List <Lnn> Cue <Qnn> Enter
Load [cuelist-number-button] Cue <Qnn> Enter
Load List <Lnn> / <Qnn> Enter
Load cuelist-number-button / <Qnn> Enter

Load Preset into the programmer
[Z] [@] [VIEW] <Pnn>
^Z @ P <Pnn>
If you double click on the value field you will change that constructs parameter value to a numeric value rather than a preset value

Playback

Load Cuelist onto the current Playback
Load List <Lnn> Enter
Load [cuelist-number-button] Enter

Load Cuelist onto a specific Playback
Load List <Lnn> Select
Load [cuelist-number-button] Select

Unload Cuelist from a specific Playback
Load Select

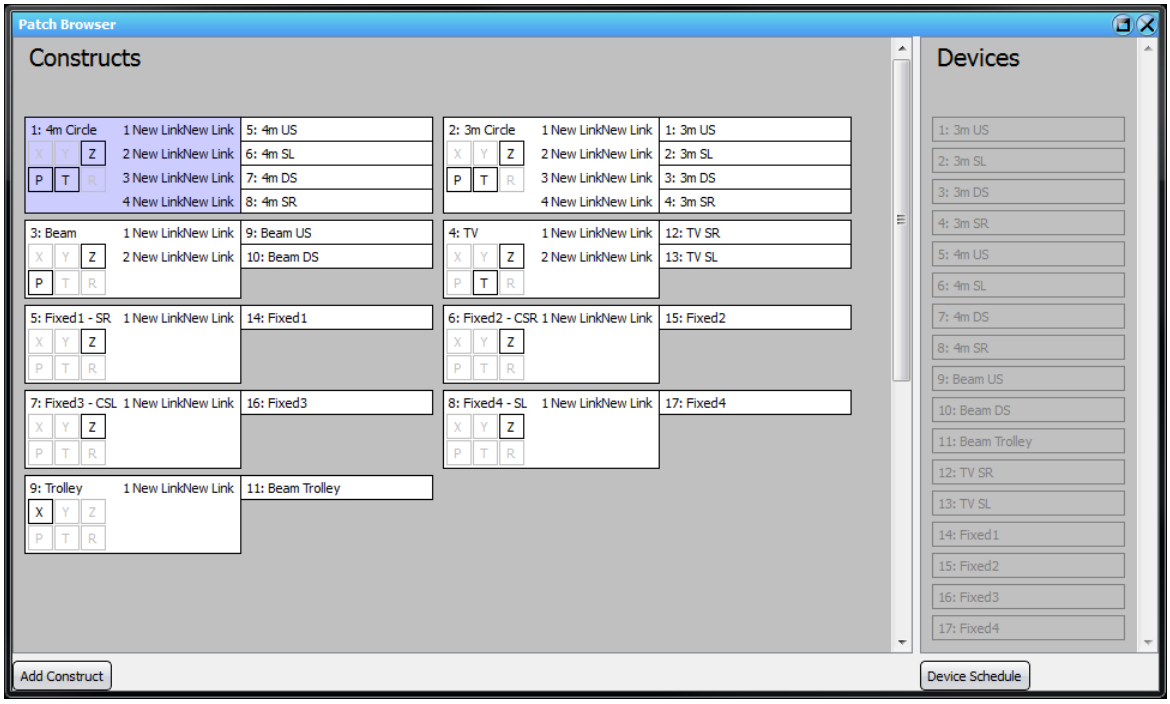
Select next Cue
Cue <Qnn> Enter

Stacked Parameter setting example
parameter-button @ <nn> Speed <nn> Time Time <nn> parameter-button + <nn> Enter

10 Window

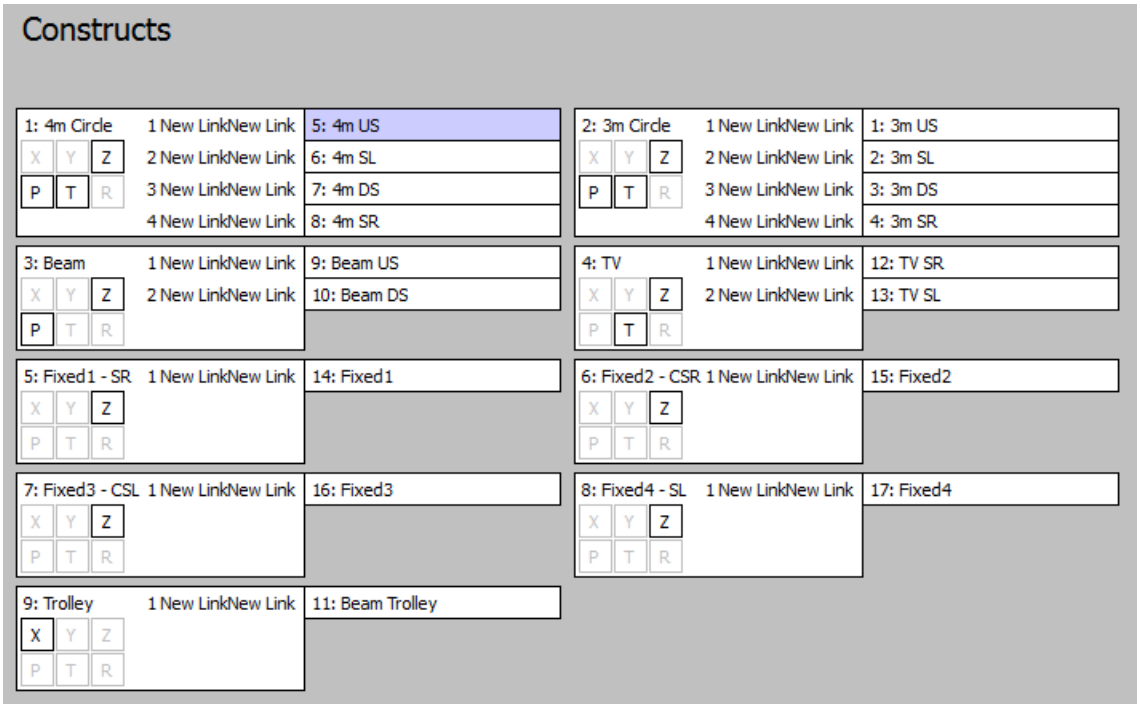
The following chapter contains information on all windows within K2. This is a useful reference section if you are not familiar with a particular window or function within that window in K2.

10.1 Browser



The Patch Browser window displays all the created Constructs and Devices as well as showing what the connections between them are and what parameters are permitted within each Construct. You can also use this window to Add Constructs and get to the Device Schedule window.

10.1.1 Constructs



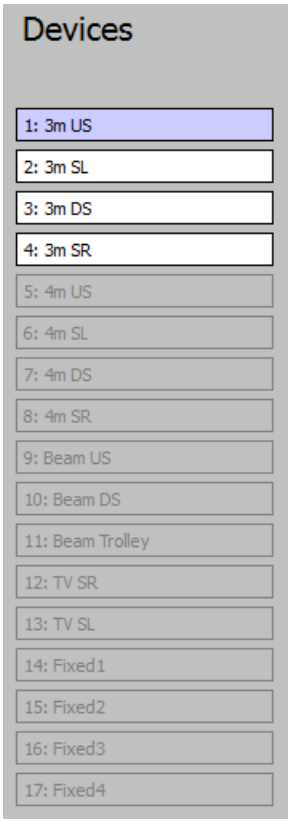
The left hand pane holds all the Constructs, each large white box represents a single Construct with its active axis parameters highlighted. To the right of the Construct box are connection points for each Link, one Device can be attached to each Link.

To access a Construct's properties double-click the white box or right click and select Properties from the pop-up menu.

To remove a Construct from the show right click on the Construct box and select Remove from the pop-up menu. A confirmation box will appear before the deletion is completed.

To clone a Construct right click on the Construct box and select Clone from the pop-up menu. The Edit Construct window will appear to allow you to personalise the new Construct in order to set it apart from the original Construct. If you do not wish to carry on cloning the Construct click on Cancel and the operation will finish. To complete the process adjust any parameters you wish and then click on OK.

10.1.2 Devices

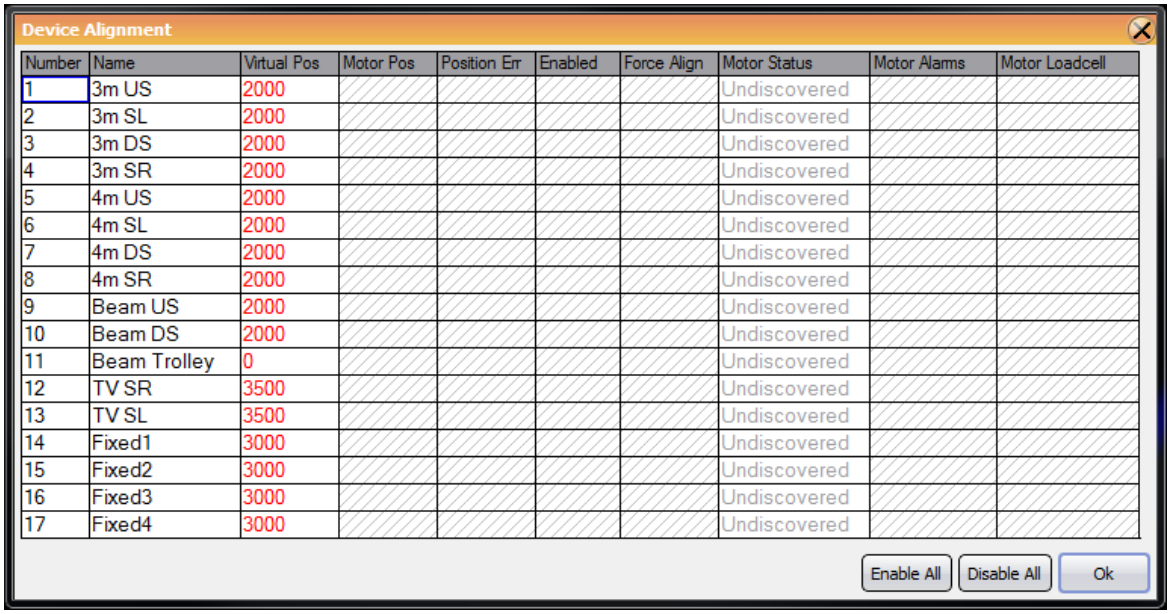


The right hand pane contains a list of all the Devices that have been created within the show. A box is assigned for every Device and it is coloured grey or white depending on whether the Device is patched or not. An un-patched Device will appear with a white background and a patched Device will have a grey background as well as being shown attached to a Construct box in the left hand Construct pane.

To access the properties for a Device double-click on the Device box or right click and select Properties from the pop-up menu. To edit the properties of a number of Devices at the same time click on each Device you wish to edit while holding down the CTRL key. Right click on one of the selected Devices and select Properties.

To patch a Device to a Construct Link click on a Device and drag it to the Link. If a Link is un-patched it will have a dashed rectangle showing. Drop the Device onto this box once the dashed line turns red to complete the patch. To re-patch drop the Device onto an existing Linked Device. A window will come up to ask if you wish to complete the re-patch. Confirming the re-patch will place the new Device at that Linked position and will place the previously Linked Device back in the Device pane on the right hand side of the window.

10.2 Device Alignment



Device alignment is required whenever the possibility that the external control Devices may differ from the virtual control Devices exists. This is when the software first starts up and after accessing the Direct Motor Control window which allows direct control of the external Devices without manipulating the internal Constructs.

The key elements in the Device Alignment window are the 'Position' and 'Actual' columns. The 'Position' column shows the positions that K2 thinks all the Devices should be at. The 'Actual' column displays the positions as reported back by the controllers. If there is a mismatch in the positions or if the patched controllers cannot be found on the network, the values will be shown in red.

If the controllers have been discovered and you are happy that the external Device is physically in the correct position compared to where K2 is expecting it to be then you can enable the Device. You do this by double-clicking the 'Enabled' cell or by selecting it and then pressing Insert. The 'Position' cell will change to show the same value as the 'Actual' cell for that Device. If you are happy that all Devices are in the correct place you can click on Enable All to enable all Devices and close the window. If you wish to carry on working with the Devices disabled click on the Disable All button. If you wish to have a mix of enabled and disabled Devices then set the status of each Device accordingly and then click on OK to close the window.

How to Align devices

Device alignment is the process of connecting the virtual Devices to the physical Devices. K2 knows where the Construct is in its 3D world and it knows where it thinks that the Devices should be in order to achieve that position. The process of alignment confirms that the two match and can therefore be controlled. Devices are considered to be aligned when the physical position of the moving item on the stage matches the position displayed within K2. If there is a difference between the two positions then either the 3D representation must be moved to match the real world or the physical object must be

moved to match the position that K2 is displaying.

Once the two worlds are aligned the relevant Devices can be enabled and K2 can take control of the moving object.

Device Alignment is always required when a show is loaded into K2, it is also required whenever movement has been initiated through the Direct MotorControl window.

To access the Device Alignment window, click the Devices button on the main toolbar. From the Devices window click on the Device Alignment button. This window will only appear if you have linked Devices in your show and if those Device controllers are connected to the system. To enable a Device either double click on 'No' in the Enabled column or click on the cell and press Insert. If you wish to enable all Devices then click on the Enable All button at the bottom of the window.

There may be occasions where you wish to disable the Device Alignment so that you can move objects in the real world without affecting the virtual world or vice versa.

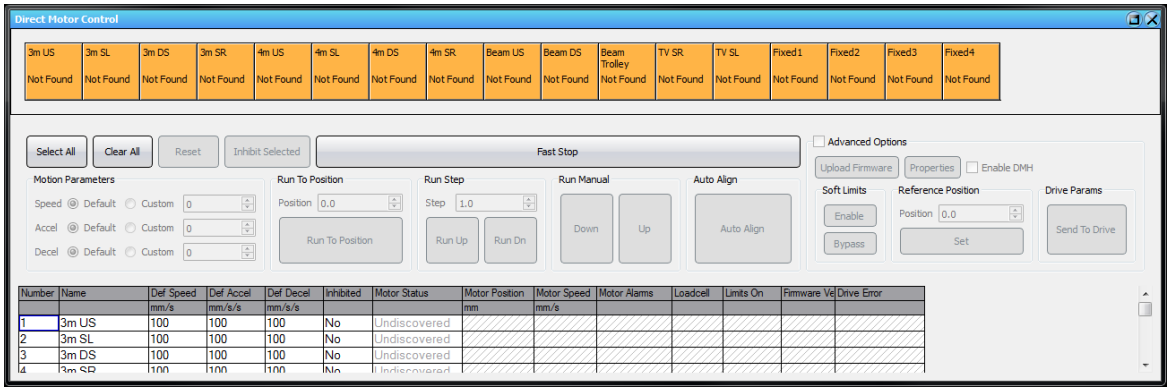
Virtual Align

Virtual Align aligns devices without moving them in the real world

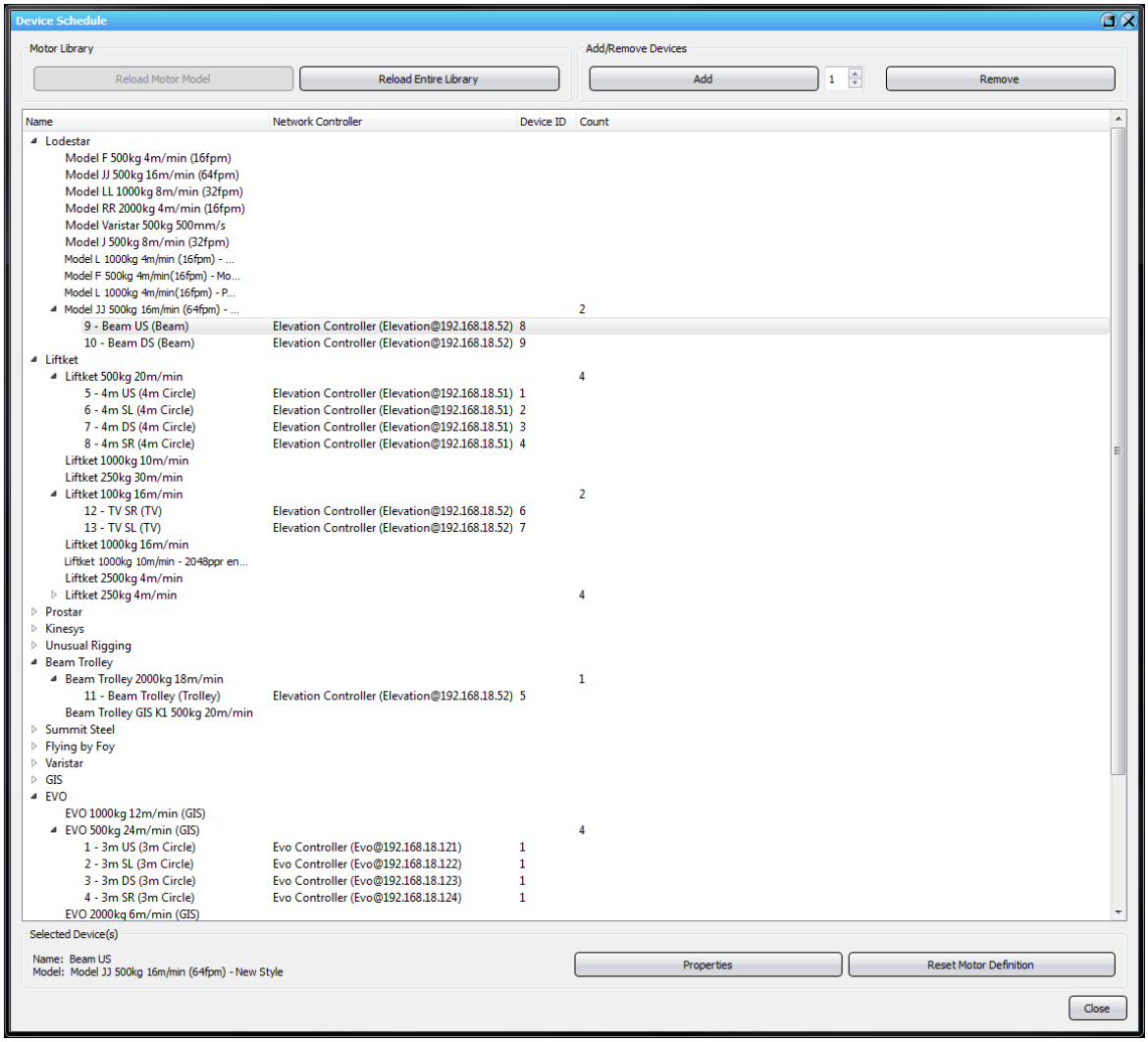
There is a Virtual Align button on the status bar of K2. This button aligns the virtual objects in K2 to the real world positions of the objects, allowing K2 to realign itself without any movement in the real world. K2 can only virtually align a device if its associated Construct has only one axis of movement, either X, Y or Z. Constructs that have more than one axis makes the Auto Alignment harder to achieve, as there are obviously far more variables The Virtual Align feature uses the information that K2 has about the real world positions of Constructs and Devices to match the virtual positions to them. Once this alignment has been achieved, K2 will allow movement to continue

Auto Align

Devices can be moved in the real world so they match the virtual world. This is achieved my entering Direct Motor Control and selecting the devices that need aligning then pressing the Auto Align Button. This will cause all selected devices to move to their virtual positions and either the default speed or a user selected speed. As this action will cause actual movement care should be taken to ensure all movement will be safe.



10.3 Device Schedule



The Device Schedule lists all the available Device types as well as showing which have been included in the show.

Device selection is done by clicking on a Device with the mouse. To select multiple consecutive Devices click on the first Device, hold down the Shift key and click on the last Device. To select multiple but non-consecutive Devices select each Device in turn while holding down the CTRL key.

To add a Device select the Device type that you want and select the number of Devices of that type you wish to add in the box at the bottom left of the window. Finally click Add to include them in the show.

To remove Devices, select the Devices as outlined above and then click on the Delete button. You will need to confirm the deletion before it takes place.

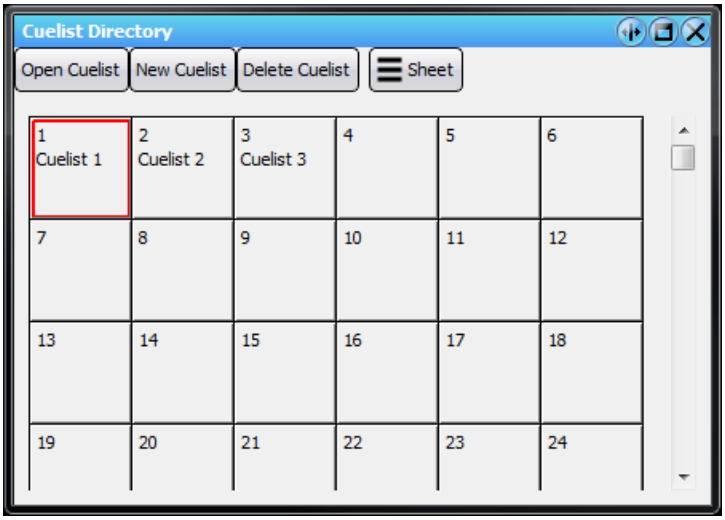
To view the properties of selected Devices click on the Properties button.

If a personality file for a Device type has been updated since the show was first created clicking on Reload Motor or Reload All Motors will force K2 to overwrite its internal copy of the motor details with the new one taken from the personality file. This will not update existing Devices that have already been created. To update these you either need to manually alter the properties of each Device or delete the Devices, reload the motor files and then add the Devices back into the show including re-patching and re-setting the network details.

To upload a new version of firmware to selected Devices click on Upload Firmware. You will be asked to locate the firmware file you wish to upload. Once this has been done K2 will upload firmware to each unit in turn.

To close the window click on the Close button in the bottom right hand corner of the window or on the Close cross button at the right hand end of the window title bar.

10.4 Cuelist/Preset Directory



The Cuelist Directory and Preset Directory windows share identical layout and functionality.

Number
The Number column shows the number of each Cuelist/Preset, the numbers can be edited by double-clicking on the cell or selecting it and hitting Insert. Numbers can be entered up to two decimal places. The spreadsheet will always sort in ascending number order.

Name
When a Cuelist/Preset is first created it will be assigned a default name. Edit this column to give the Cuelist/Preset a more descriptive name.

Open Cuelist/Preset

Click this button to open the currently selected Cuelist/Preset in a separate window.

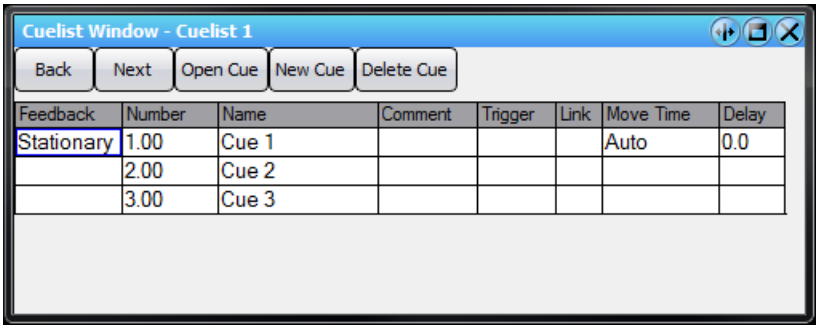
New Cuelist/Preset
Click this button to create a new Cuelist/Preset. It will be assigned to the end of the list and given a default name.

Delete Cuelist/Preset
To delete a Cuelist/Preset select the correct row or button and click Delete Cuelist/Preset. A confirmation is required before the deletion occurs.

Buttons/Sheet
Click on Buttons to display the Cuelist/Preset as a series of buttons. This is the most common view when the directories are being used for selection purposes. To show the spreadsheet again click on the same button which will now be named Sheet.

10.5 Cuelists

Cuelists



Feedback
Displays the current state of the Cue, if the Cue is not current within a Master then no feedback is shown.

Number
The Number column shows the number of each Cue, the numbers can be edited by double-clicking on the cell or selecting it and hitting Insert. Numbers can be entered up to two decimal places. The spreadsheet will always sort in ascending number order.

Name
When a Cue is first created it will be assigned a default name. Edit this column to give the Cue a more descriptive name.

Comment
If more description of the Cue's function is required the Comment cell will allow this information to be entered.

Trigger
Displays the Trigger associated with each Cue. If no text is shown then the Trigger is the default Manual type. If the word Follow is shown then an automatic Follow Trigger has been defined. Selected the cell and then edit it to show the trigger options.

Move Time
The Move Time cell displays the move time for each Cue. If all the parameters programmed in the Cue have speed priority then Auto is displayed. If all the parameters share the same time then a single figure will be shown. If different parameters within the Cue have different move times then they are all displayed, separated by commas.

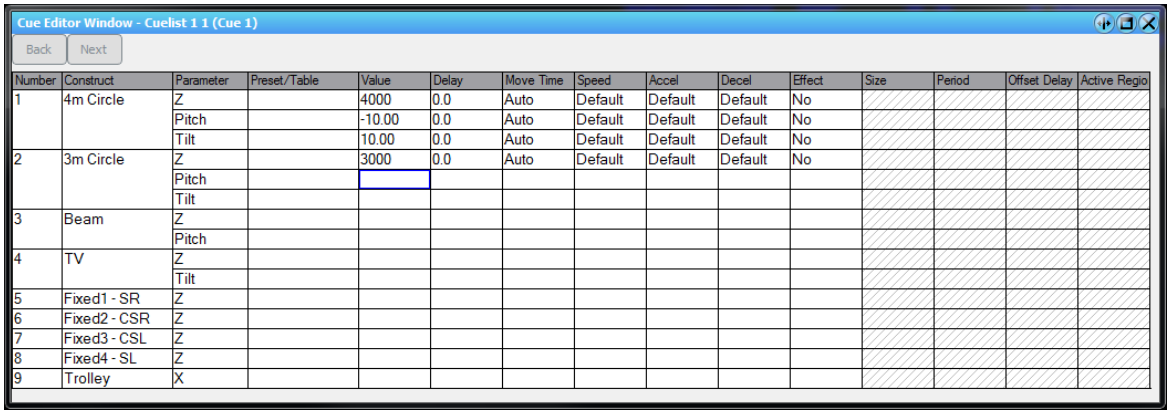
Delay
The Delay cell displays the delay for each Cue. If all the parameters share the same time then a single figure will be shown. If different parameters within the Cue have different delays then they are all displayed, separated by commas.

Open Cue
To open an existing Cue select the correct row or button and click on Open Cue. The Cue will be opened in a new window.

New Cue
To create a new Cue click on New Cue. A Cue will be added to the end of the list and will be assigned a default name.

Delete Cue
To delete a Cue select the correct row or button and click Delete Cue. A confirmation is required before the deletion occurs.

10.6 Cue/Preset Editor



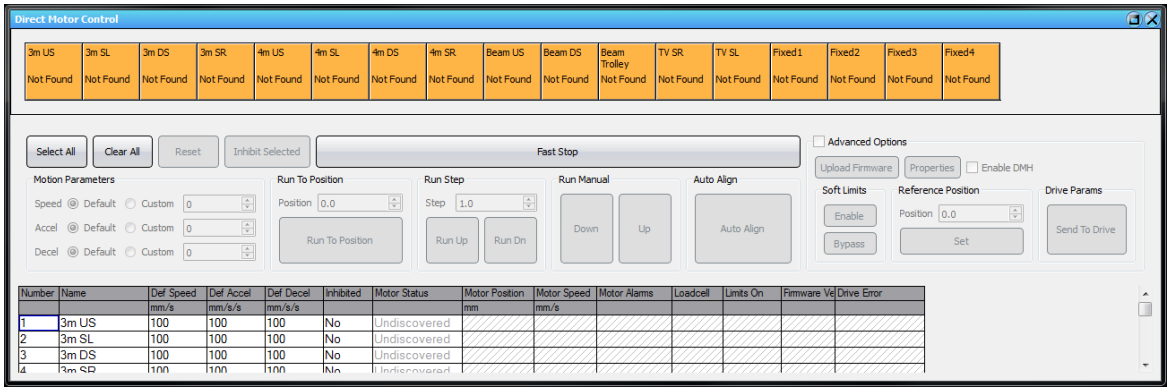
Number	Construct	Parameter	Preset/Table	Value	Delay	Move Time	Speed	Accel	Decel	Effect	Size	Period	Offset Delay	Active Regio
1	4m Circle	Z		4000	0.0	Auto	Default	Default	Default	No				
		Pitch		-10.00	0.0	Auto	Default	Default	Default	No				
		Tilt		10.00	0.0	Auto	Default	Default	Default	No				
2	3m Circle	Z		3000	0.0	Auto	Default	Default	Default	No				
		Pitch												
		Tilt												
3	Beam	Z												
		Pitch												
4	TV	Z												
		Tilt												
5	Fixed1 - SR	Z												
6	Fixed2 - CSR	Z												
7	Fixed3 - CSL	Z												
8	Fixed4 - SL	Z												
9	Trolley	X												

The Cue/Preset Editor window displays Cues and Presets in a spreadsheet form. All the action data is displayed and can be edited using all the standard spreadsheet rules. The Preset Editor has fewer columns as Presets do not contain time or movement information.

The spreadsheet can be sorted by User Number or by Parameter Type. Right-click on the column heading to specify the sort order.

The Next and Back buttons are only displayed in the Cue Editor window and allow you to move backwards and forwards through the Cues in the current Cuelist to review how each Cue will impact on the next.

10.7 Direct Motor Control



Direct Motor Control allows manipulation of specific Devices without accessing them through the Constructs. Each Device is allocated a button at the top of the window and can be set ON or OFF. Once a Device is set to ON then all commands and actions will be applied to them.

Motion Parameters
This section determines what movement profile will be applied to the Devices when either the Run Manual, Run to Position, Run Step or Auto Align commands are issued. If a custom value is required then click on the appropriate custom button and enter the new value.

Run Manual
Press and hold the In button to run the Device downwards. This causes the displayed position to reduce. The physical direction of the movement will be affected by a number of things including the rigging of the machine and its connection to the moving object. Press and hold Out to run the Device upwards. In both cases release the button to stop the movement.

Run To Position
Type the target position into the Position field and click on Run, the Devices will start moving towards the target value. To stop the movement early click on the Stop button.

Run Step
Type the required relative distance to move in the Step Field. Then pressing either Run Up or Run Dn will move the selected devices this relative distance. To stop the movement early click on the Stop button.

Auto Align
Pressing the Auto Align button will cause the selected devices to move to the their current virtual positions within K2. Care should be taken when using this feature as all selected devices will move directly to their current virtual positions. This may cause a physical construct to become imbalanced.

Advanced Options

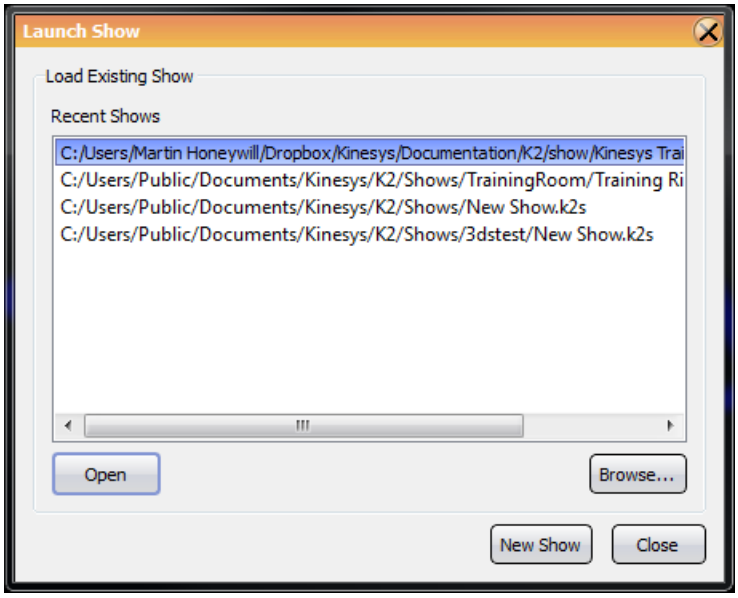
To allow access to advanced options the advanced options check box needs to be selected.

Reference Position
To set a Devices current position to a specific value type in the value and click on Set.

Soft Limits
To temporarily bypass the position limits for a Device click on the Bypass button. To re-enable them again click on the Enable button. The limits will be automatically enabled when you enter the Direct Motor Control window.

Direct Motor Control Table
The table allows you to view the properties of a Device.

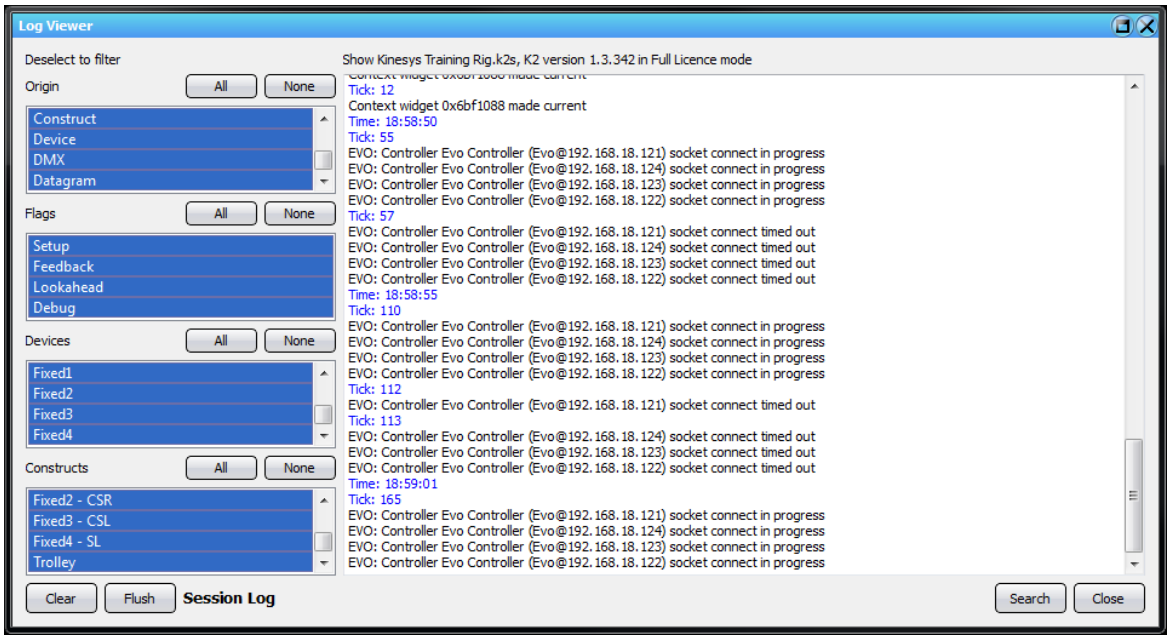
10.8 Launch Show



Launch Show is the first window a user is presented with after logging in. It displays a list of recently used show files in order with the most recent at the top. To select a file either click on the file in the list or use the cursor keys to move up and down the list.

To open a selected show hit Enter or click on Open. To browse for another show file not shown in the list click on the Browse button. To create a new show from scratch click on the New Show button or to close the window and exit K2 click on Close.

10.9 Log

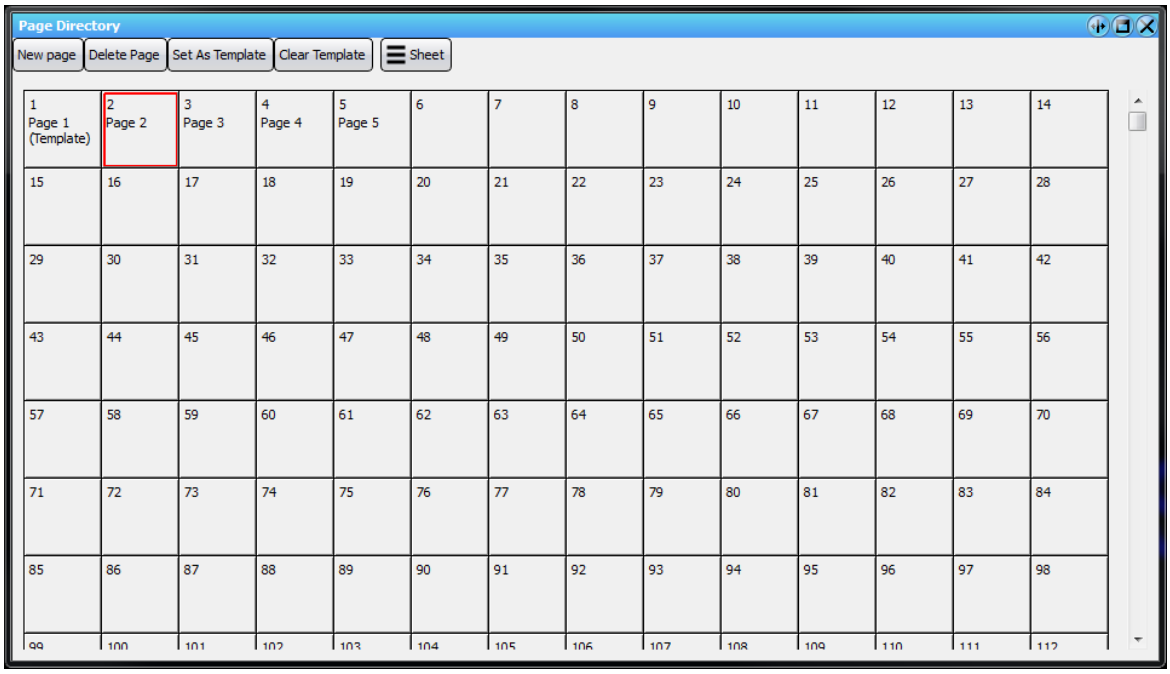


The Log window provides access to the logging data generated by K2. All log entries are saved to folders which are assigned the same name as the show file but then have the time and date of their creation appended to the name. This ensures that a unique folder is created each time and that no log file data can be overwritten. All data is encrypted before being saved to disk.

The filter list on the left of the window allows the user to restrict which type of messages are displayed on the screen. All filter changes apply from the point they are made and do not filter any messages already displayed in the main log window. Messages can be further filtered by using the Include Messages selection boxes located underneath the filter list. To clear the log message viewer click on the Clear button in the bottom left of the window or the Session Log button. To open and view historical log data either from the current show or from a previous one click on Open Log File, browse to the log file folder you need and then select the appropriate log file. The data will be loaded from the file into the log message viewer.

To close the Log window click on Close.

10.10 Page Directory



The Page Directory offers a means of switching between pages within K2. Its operation is very similar to the other directory windows with a Button and Sheet view.

Number (Sheet View)
The Number column shows the number of each Page, the numbers can be edited by double-clicking on the cell or selecting it and hitting Insert. Numbers can be entered up to two decimal places. The spreadsheet will always sort in ascending number order.

Name (Sheet View)
When a Page is first created it will be assigned a default name. Edit this column to give the Page a more descriptive name.

New Page
Click this button to create a new Page. It will be assigned to the end of the list and given a default name.

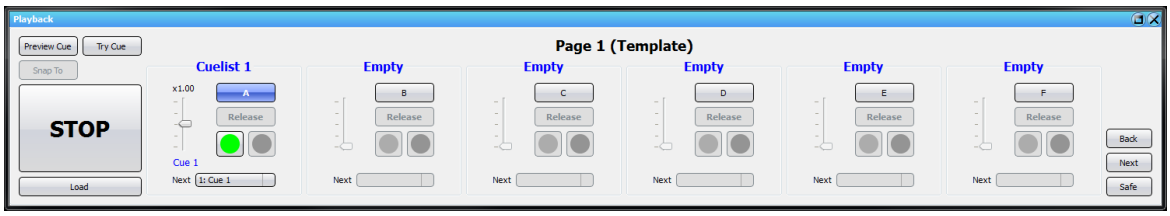
Delete Page
To delete a Page select the correct row or button and click Delete Page. A confirmation is required before the deletion occurs.

Buttons/Sheet
Click on Buttons to display the Pages as a series of buttons. This is the most common view when the directories are being used for selection purposes. To show the spreadsheet again click on the same button which will now be named Sheet.

Templates

Templates allow the operator to keep a playback with the same Page on, no matter what Page they are in. This is unless another Page is specifically assigned to that playback, at which point the user created content gets precedence and takes the place of the Template.

10.11 Playback Controls



The Playback Controls are central to Cue execution. The window consists of 6 identical Masters and some additional command buttons.

STOP
Press STOP to stop all movement for all Constructs

DMH
If the Dead's Man Handle is active on any Construct, either in Held or Periodic mode then the Dead's Man Handle can be released by pressing the DMH button on the K2 wing. In Held mode this button must be pressed in at all times while movement of the relevant Construct is taking place. In Periodic mode it must be clicked within the timeout period specified for the moving Construct. If a Wing is not being used pressing and the CTRL key on the keyboard will mimic the DMH.

Load
Load allows the assignment of Cuelists to Masters, it is duplicated on the K2 Wing and the syntax for its use is described in the Working with the Command Line section of this manual.

Preview Cue
To see the final positions of the Constructs in the currently selected Cue on the current Master click and hold the Preview Cue button. The Visualiser window will jump all the relevant Constructs to their final positions instantly within the screen display. To return them to their current positions release the Preview Cue button.

Safe
The Safe button turns off all the Playback Controls as well as disabling the Output button in the Programmer. It is not possible to initiate movement in Safe mode. If a K2 Wing is connected then this also has all its buttons disabled. To return the system to an active state press the Safe button again. Depending on the selection made within the Show Properties a password may be required when re-entering active mode.

Back (Page)
Back displays the previous Page of Master assignments. If the first Page in the directory is already being displayed then the system will wrap to the last Page in the directory. The

Template page cannot be accessed via the Back and Next buttons, the Page Directory must be used for selecting this Page.

Next (Page)
Next displays the next Page of Master assignments. If the last Page in the directory is already being displayed then the system will wrap to the first Page in the directory. The Template page cannot be accessed via the Back and Next buttons, the Page Directory must be used for selecting this Page.

Select
Each of the six Masters has its own Select button. Press this button to make the Master the currently selected Master. Double-clicking the Master will also open the Cuelist window for the Cuelist currently loaded onto the Master.

Release
When a Master has Constructs moving under its control it places a lock on those Constructs. This prevents other Masters or the Programmer from running these Constructs until they have completed the current Cue movement or been halted by the user. To specifically release the locks in order to allow other Masters or the Programmer to take control of the Constructs the Release button must first be pressed. Where several Masters are active the identity of the Master that is locking the Constructs that are needed can be found by pressing and holding the Select button on the Master that is trying to take control. The Select button on the locking Master will then flash to identify it.

GO
If no Cues are active on the Master then to run the Cue specified in the Next box click on the GO button. This is displayed as a green circular button. If a Cue is paused then clicking the GO button will run the Cue currently displayed in the Master, not the Cue displayed in the Next box.

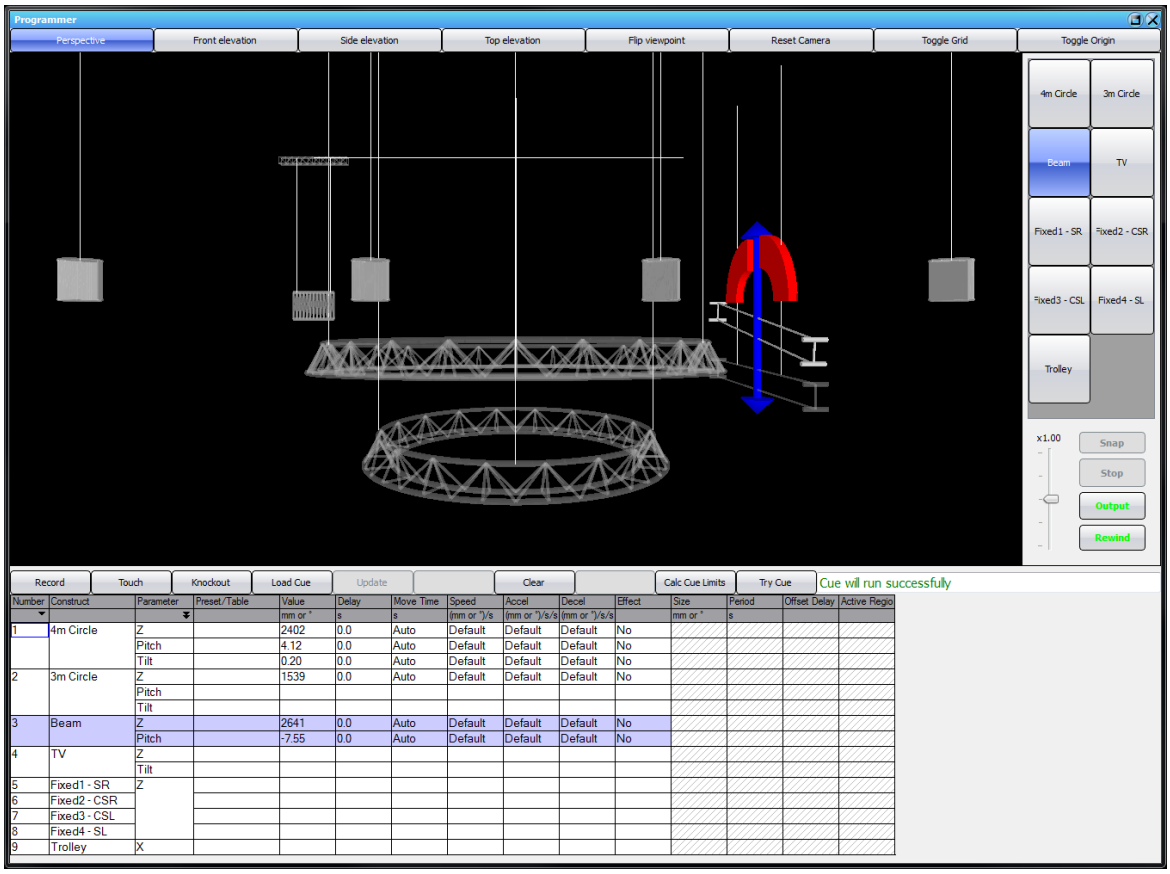
PAUSE/STOP
To pause a running Cue click on the PAUSE/STOP button. To restart it click on the GO button. To stop the Cue completely click on the PAUSE/STOP button a second time.

Next (Master)
The Next box displays the name of the next Cue to be run. It will automatically increment to the next Cue in the Cuelist once the currently running Cue completes successfully. To jump to a different next Cue drop down the Next box by clicking on it and select the correct Cue.

Rate Override
The Rate Override slider allows a Cue to be run faster or slower than its programmed speed. This can be set either before the Cue is run or during Cue execution. The Rate Override can range from 200% to 20% of programmed speed. The limitations of the external controllers and their related machines may mean that it is not always possible to reach these extremes however.

The Rate Override will be reset to 100% whenever a Master releases the locks on the Constructs that it is running, either through the natural completion of the Cue or by the user stopping the Cue early.

10.12 Programmer



Perspective
Click on Perspective to get a view of the 3D world and the Constructs that can be manipulated to be viewed from any angle.

Front Elevation
Front Elevation provides a front-on 2D view of the world and the Constructs. The view can be panned and zoomed but no perspective angles are possible.

Side Elevation
Side Elevation provides a side-on 2D view of the world and the Constructs. The view can be panned and zoomed but no perspective angles are possible.

Top Elevation
Front Elevation provides a top-down 2D view of the world and the Constructs. The view can be panned and zoomed but no perspective angles are possible.

Flip Viewpoint
In Side Elevation mode clicking on Flip Viewpoint allows the world to be viewed from the opposite side. This is most often used if a large obstruction, either another element within the 3D world or a Construct in a certain position obscures a particular view.

Reset Camera
To reset the current view to a known position click on Reset Camera. This can be helpful when manipulating the view within Perspective mode has resulted in an obscure viewing angle.

Toggle Grid
In the Front, Side and Top Elevation views a grid can be superimposed that allows the positions of Constructs to be estimated. The grid resolution changes as the zoom is altered

Toggle Datum
In all viewing modes a Datum marker can be turned on and off. The Datum marker shows where the 0,0,0 position for the X, Y and Z axes is.

Rewind
Every time the Output button is clicked within the Programmer a snapshot of all the parameters positions for all the Constructs is stored. If you wish to restore this state then click on the Rewind button.

Note, assuming that all the relevant Constructs are available to be moved, that movement will occur as soon as the Rewind button is pressed.

Record
To record all the active parameters within the Programmer Spreadsheet click on Record and then enter a Cue number for the data to be stored at. See the Programming Cues and Working with the Command Line sections of this manual for full details of how to record Cues.

Touch
To display the current positions of all the parameters for all the currently selected Constructs click on Touch. The current positions will all be loaded into the spreadsheet.

Knockout
Clear any information in the programmer from the currently selected construct.

Load Cue
To copy the contents of a currently recorded Cue into the Programmer click on Load Cue. This will load the command line with the command “Load Cue”. The correct Cue number, and if not in the current Cuelist the correct Cuelist number, must then be entered to load the Cue into the Programmer. Any parameters that already have data programmed into the Spreadsheet that are also contained within the Cue will be overwritten.

Update
Once a Cue has been loaded into the Programmer and successfully edited in can be loaded back into its originating Cue by clicking on Update

Clear
To clear the Programmer and reset all the Constructs back to their current positions click on the Clear button

Calc Cue Limits

K2 will work out the shortest and longest cue times for the specified movement.

Try Cue
To test the movement of all the programmed actions without moving the physical Constructs click on Try Cue. This forces K2 to run an instant simulation of the movement of all the programmed actions and to feedback whether any errors will occur during the movement. E.g. whether the programmed movement will cause any of the Devices to exceed their programmed speeds or position limits. The results of the Try Cue simulation are reported in the message bar to the right of the button. Any change of the programmed data will clear the message bar.

Construct Selection Button
To select a Construct ready for programming click on its button in the Construct Selection Panel. Once selected the Construct will display its drag arrows and paddles ready to be moved into its new position. Once a Construct has been moved it is flagged as 'used'. This means that when another Construct is selected the 'used' Construct will automatically deselected. This mechanism reduces the number of mouse clicks required when moving from one Construct to another.

Stop
To stop motion that has been initiated by the Output button click on the Stop button. The button becomes active whenever the contents of the Programmer are being Output, whenever the Programmer is rewinding a previous Output or whenever an effect is running within the Programmer.

Output
To output the contents of the Programmer to the Devices click on Output. When the system is Live this will cause the Constructs to move to their newly programmed positions.

Programmer Spreadsheet
All selected Constructs within the Programmer as shown with their rows highlighted with a blue background. For details of how to manipulate the data in the Programmer Spreadsheet refer to the Working with Spreadsheets section of this manual.

10.13 Status Bar

The Status Bar is located along the bottom of the screen and cannot be closed or moved by the user.

The section shown above is the centre section of the Status Bar. To the left of this section is the Command Line and to the right is the Alarm Bar which communicates alarms to the user as well as providing countdown information on potential future error conditions as highlighted by the look ahead facility.

Live/Offline
To the left of the System OK (Tick) icon is the Live/Offline field. This informs the user which

mode they are currently operating in and therefore whether motion commands will be transmitted or not. Double clicking on this message on the Status bar will toggle between LIVE and OFFLINE modes.

System OK
The Tick icon illuminates whenever the system is online and communicating successful with control Devices.

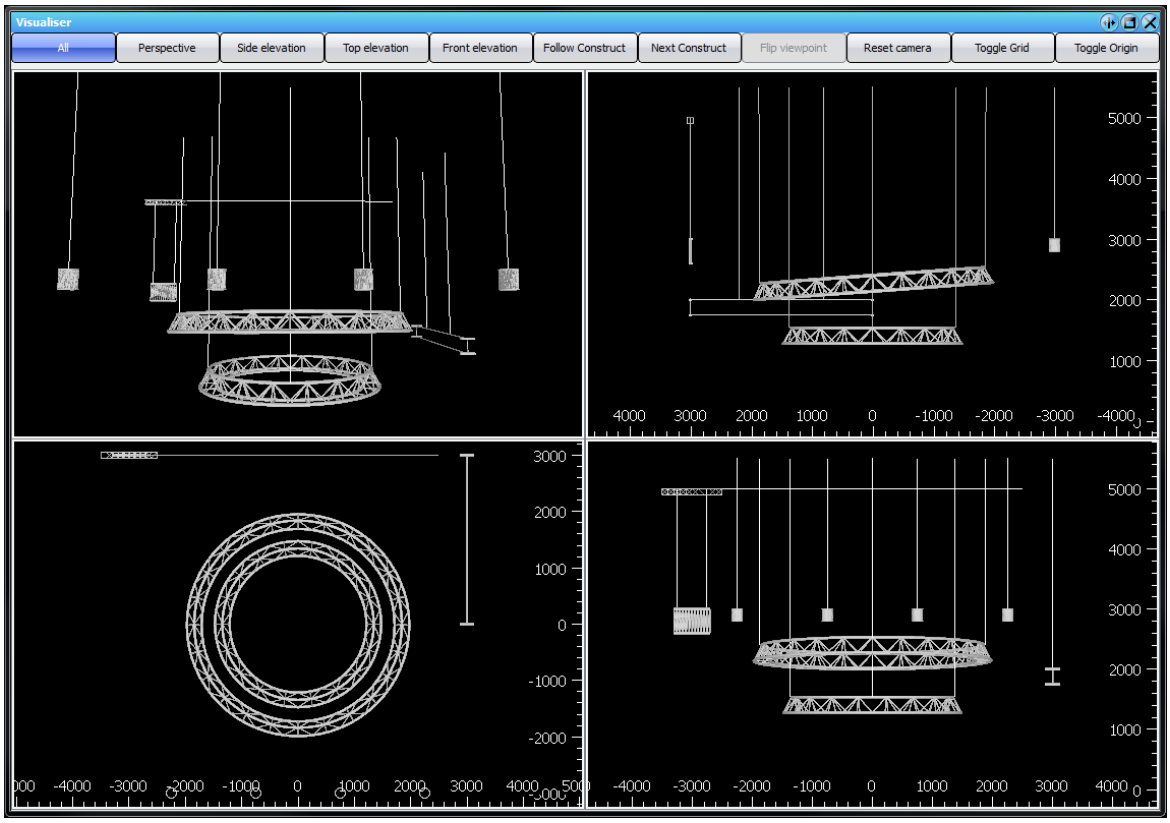
Moving
Whenever Constructs are physically moving the Moving icon will illuminate.

Dead Man's Handle (DMH)
If the dead man's handle needs to be pressed to initiate or maintain motion the DMH icon will illuminate. When the DMH is being used in periodic mode then the DMH icon will flash with increasing urgency as the timeout gets closer to running out. Once the DMH icon is illuminated constantly the dead man's handle must be pressed to continue motion.

Alarms
If K2 detects any alarm, either internally generated or reported back from the external controllers then the Alarm icon will illuminate.

Emergency Stop
If the emergency stop has been pressed and the controllers are reporting back this state then the Emergency Stop icon will illuminate.

10.14 Visualiser



All
The Visualiser is capable of showing individual views, however it can also display all four views simultaneously if desired. Click on All to put the Visualiser into this mode.

Perspective
Click on Perspective to get a view of the 3D world and the Constructs that can be manipulated to be viewed from any angle.

Front Elevation
Front Elevation provides a front-on 2D view of the world and the Constructs. The view can be panned and zoomed but no perspective angles are possible.

Side Elevation
Side Elevation provides a side-on 2D view of the world and the Constructs. The view can be panned and zoomed but no perspective angles are possible.

Top Elevation
Front Elevation provides a top-down 2D view of the world and the Constructs. The view can be panned and zoomed but no perspective angles are possible.

Follow Construct
When the Visualiser is displaying a Perspective view of the world either exclusively or view

the All view then Follow Construct is enabled. Clicking on Follow Construct places the Perspective camera viewpoint at the origin of the Construct with the lowest user number. The camera viewpoint will move as the Construct moves providing a 'Point of View' mode for the camera.

Next Construct
When the Visualiser is in Follow Construct mode switching between the different Constructs is achieved by clicking on the Next Construct button. The system will loop back to the first Construct when the end of the list is reached.

Flip Viewpoint
In Side Elevation mode clicking on Flip Viewpoint allows the world to be viewed from the opposite side. This is most often used if a large obstruction, either another element within the 3D world or a Construct in a certain position obscures a particular view.

Reset Camera
To reset the current view to a known position click on Reset Camera. This can be helpful when manipulating the view within Perspective mode has resulted in an obscure viewing angle.

Toggle Grid
In the Front, Side and Top Elevation views a grid can be superimposed that allows the positions of Constructs to be estimated. The grid resolution changes as the zoom is altered

Toggle Datum
In all viewing modes a Datum marker can be turned on and off. The Datum marker shows where the 0,0,0 position for the X, Y and Z axes is.

11 Toolbar

The following section takes you through all of the windows and menus available from the toolbar at the top of the K2 application window.

The top level menu consists of the follow menu options

File Operations

Show Setup

Motion Control

Show Contents

Windowing

Views Toolbar

User Management

Logout

Quit

Each of these are discussed in more detail in following sections of this chapter.

If the Toolbar shows a BACK button pressing this will revert the toolbar to the previously displayed buttons

11.1 File Operations

The File Operations menu contains the elements for creating, saving, loading and exporting a show.

New Show

Opens a File Explorer window allowing you to create and name a new show. By default it stores this file in "Documents and Settings/All Users/Shared Documents/Kinesys/K2/Shows".

Load Show

Opens a File Explorer window allowing you to open previously saved K2 shows. By default it opens the "Documents and Settings/All Users/Shared Documents/Kinesys/K2/Shows folder".

Save Show

Allows you to manually save a show. All K2 show files are saved in a .k2s (K2 Show) file format.

Save Copy

This feature opens a File Explorer window with a file name for the show set as Copy_of_ShowName.k2s allowing you to save off a copy of the show (useful for taking incremental backups). When you have completed the save operation you will still be working on the original file name. This differs from the was "Save As" works in Microsoft Word for example.

Create Show Bundle

Using the Save Show or Save Copy function saves the show itself, but does not save any .3ds files that you are using as part of that file. The Export Show Bundle option saves a .k2z file which includes all of the 3D Studio files that are used in the show. If you are sending someone a K2 show file or loading that show on to another machine and use the .k2s file then K2 will not be able to find any of the 3D objects you may be using. Any K2 show files sent to Kinesys for advice or further consultation need to be sent as a .k2z bundle file.

Archive Log Viewer

This option opens the Log viewer allowing you to open log files from previous shows, useful for going over any errors or issues that came up during the running of a show. Clicking the Open button opens a File Explorer window in Documents and Settings/All Users/Shared Documents/Kinesys/K2/log files folder.
The log files record every event in K2, as a result they can be very long, the panes on the left of the log viewer window allow the log files to be filtered making it easy to find the information or event you are looking for. Simply deselect the headings to hide that area or section of log events and press the Filter button.

11.2 Show Setup

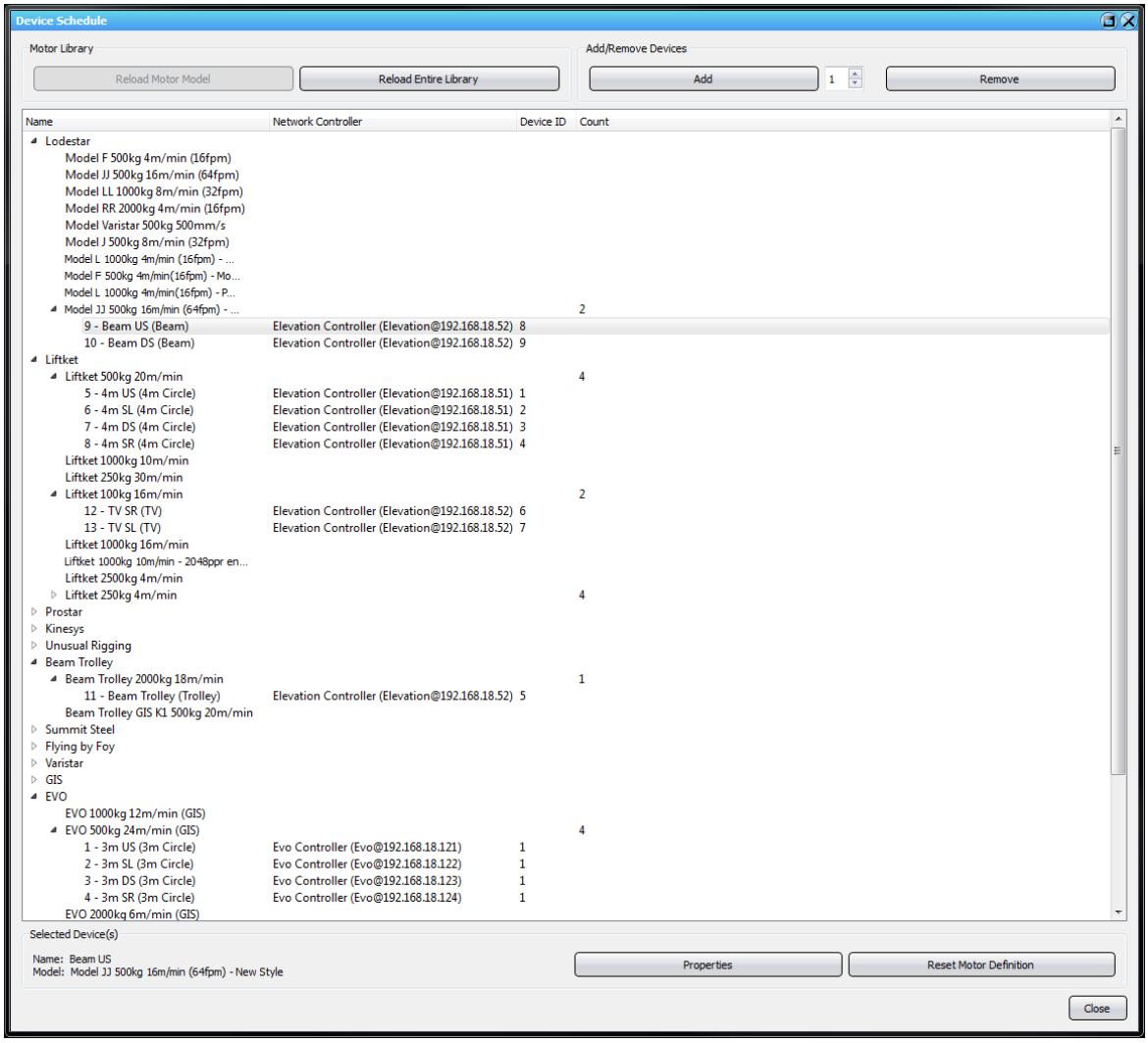
The Show Setup menu offers all of the options needed when initially setting up a show, or changing the show setup and settings.

Patch Browser

The Patch Browser window displays all the created Constructs and Devices as well as showing what the connections between them are and what parameters are permitted within each Construct. You can also use this window to Add Constructs and get to the Device Schedule window.

For further information on using this window see the Patch Browser section of this manual.

Device Schedule



The Device Schedule window lists all the available Device types as well as showing which have been included in the show.

Device selection is done by clicking on a Device with the mouse. To select multiple consecutive Devices click on the first Device, hold down the Shift key and click on the last Device. To select multiple but non-consecutive Devices select each Device in turn while holding down the CTRL key.

To add a Device select the Device type that you want and select the number of Devices of that type you wish to add in the box at the bottom left of the window. Finally click Add to include them in the show.

To remove Devices, select the Devices as outlined above and then click on the Delete button. You will need to confirm the deletion before it takes place.

To view the properties of selected Devices click on the Properties button.

If a personality file for a Device type has been updated since the show was first created clicking on Reload Motor or Reload All Motors will force K2 to overwrite its internal copy of

the motor details with the new one taken from the personality file. This will not update existing Devices that have already been created. To update these you either need to manually alter the properties of each Device or delete the Devices, reload the motor files and then add the Devices back into the show including re-patching and re-setting the network details.

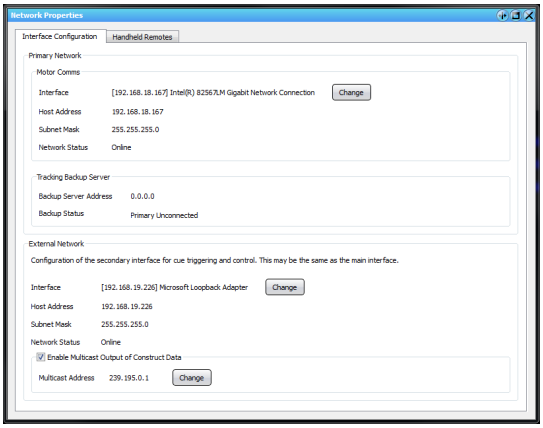
To upload a new version of firmware to selected Devices click on Upload Firmware. You will be asked to locate the firmware file you wish to upload. Once this has been done K2 will upload firmware to each unit in turn.

To close the window click on the Close button in the bottom right hand corner of the window or on the Close cross button at the right hand end of the window title bar.

Show Properties

The Show Properties window contains the global option for fine tuning the settings of the show. These are split into four tabs, Properties, Environment Variables, Wing Configuration and Advanced Settings. For further information see the Show Properties section of this manual.

Network Setup



The Network Setup window contains all of the network setup and settings information relating to K2 globally. This includes:

Primary Network Connection

This is the primary network connection that K2 uses to transmit and recieve information to and from interfaces and machines to control movement. If you have multiple network interfaces on the computer running K2 use the Change button to select which interface to use. K2 will then display the IP address details relating to that interface. If you need to change the IP address you need to do that via the Windows Network Settings area.

Tracking Backup Server

K2 has the option for a tracking backup server to run alongside the primary system, providing redundancy and backup capability. The tracking backup system is in constant communication with the primary system meaning that if the need arises to switch to the backup, the backup can pick up where the primary system left off.

External Network
A secondary network connection can be used to provide cue triggering and control. This can be on the same interface as the primary connection.

Multicast
K2 outputs positional information via a multicast network protocol, allowing media servers (or any other appliance that reads multicast positioning information) to be aware of the positions of objects as they are moved.

Help
Opens the help file for K2.

About

The About window gives details of the version of the software that you are running as well as the mode it is running in, Full, Backup or Demo. The licence key for the software is displayed here as well as a button to permit upgrading the licence of the software to permit more functionality or features.

This window also contains the legal copyright notifications.

11.3 Motion Control

Visualiser
The Visualiser allows you to see the position of your constructs in 3D. This window is covered in detail in The Visualiser section of this manual.

Programmer
The Programmer is the primary way that cues are programmed. This section is covered in the Programming Cues section.

Playback Controls
The PlayBack Controls window contains 6 masters to trigger cues from. The details of this window and its functions are covered in the Playback Controls section of this manual

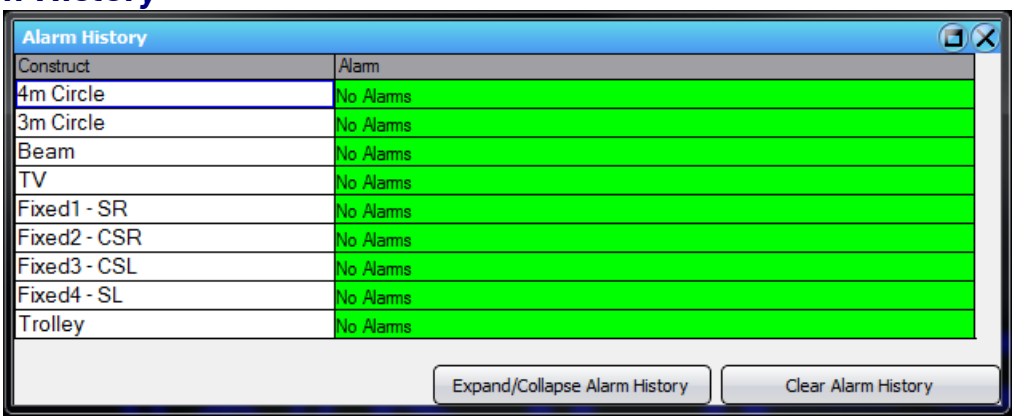
Direct Motor Control
Direct Motor Control allows you to control individual Devices directly for setup, test and

calibration without moving their connected Construct. This area of the application is covered in the Direct Motor Control chapter.

Offline Mode

Putting the K2 system into Offline Mode blocks all motion commands being sent out on to the network and as a result to the machines. When in Offline Mode K2 prominently displays OFFLINE underneath the Kinesys logo and also in the status bar at the bottom of the screen. Before coming out of Offline mode a warning dialogue warns you that all subsequent movement commands will be transmitted over the network.

Alarm History



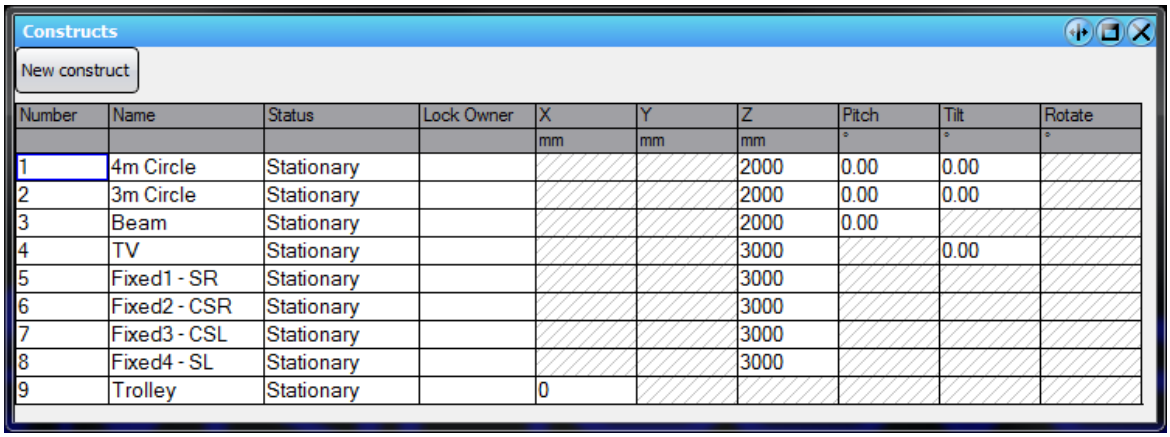
The Alarms History window shows any current alarms on the system as well as providing the opportunity to view previous alarms.

Log Viewer

The Log Viewer window, shares a layout with the Archive Log Viewer, but allows you to see the logs being generated in real time. The window give the facility for this information to be filtered, by using the left hand panels to select/deselect which parts of the log information you wish to view.

11.4 Show Contents

Constructs



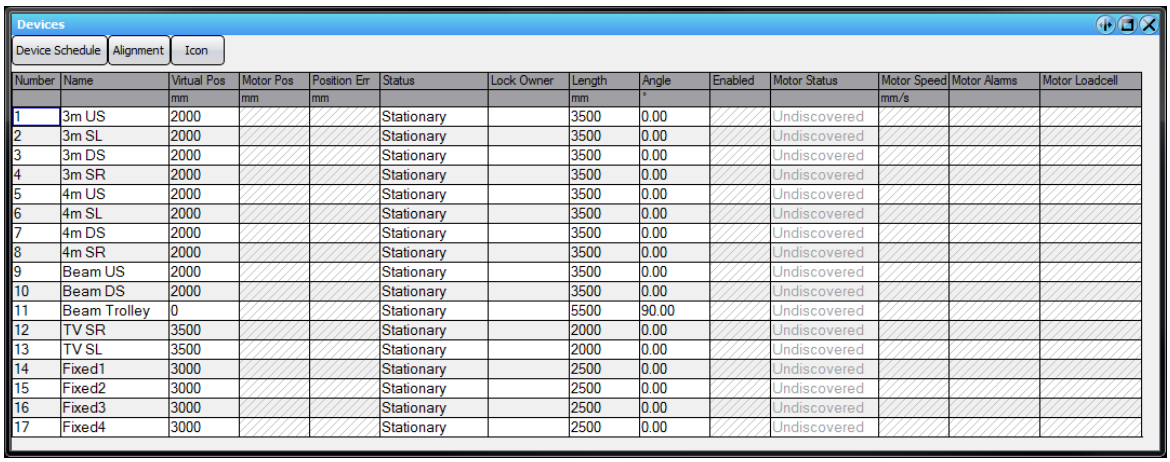
Number	Name	Status	Lock Owner	X	Y	Z	Pitch	Tilt	Rotate
				mm	mm	mm	°	°	°
1	4m Circle	Stationary				2000	0.00	0.00	
2	3m Circle	Stationary				2000	0.00	0.00	
3	Beam	Stationary				2000	0.00		
4	TV	Stationary				3000		0.00	
5	Fixed1 - SR	Stationary				3000			
6	Fixed2 - CSR	Stationary				3000			
7	Fixed3 - CSL	Stationary				3000			
8	Fixed4 - SL	Stationary				3000			
9	Trolley	Stationary		0					

The Construct window displays all the active parameters for all the Constructs within the show. The values shown are 'live' values and will change as the Constructs move. Each parameter type has a column associated with it, if a Construct does not have that parameter available then the cell is shown with a hatched background.

The 'Warning' column is used to displayed any internal warnings related to the movement or programming of the Constructs.

For further information on Constructs including, adding editing and working with them see the Construct section of this manual.

Devices



Number	Name	Virtual Pos	Motor Pos	Position Err	Status	Lock Owner	Length	Angle	Enabled	Motor Status	Motor Speed	Motor Alarms	Motor Loadcell
		mm	mm	mm			mm	°			mm/s		
1	3m US	2000			Stationary		3500	0.00		Undiscovered			
2	3m SL	2000			Stationary		3500	0.00		Undiscovered			
3	3m DS	2000			Stationary		3500	0.00		Undiscovered			
4	3m SR	2000			Stationary		3500	0.00		Undiscovered			
5	4m US	2000			Stationary		3500	0.00		Undiscovered			
6	4m SL	2000			Stationary		3500	0.00		Undiscovered			
7	4m DS	2000			Stationary		3500	0.00		Undiscovered			
8	4m SR	2000			Stationary		3500	0.00		Undiscovered			
9	Beam US	2000			Stationary		3500	0.00		Undiscovered			
10	Beam DS	2000			Stationary		3500	0.00		Undiscovered			
11	Beam Trolley	0			Stationary		5500	90.00		Undiscovered			
12	TV SR	3500			Stationary		2000	0.00		Undiscovered			
13	TV SL	3500			Stationary		2000	0.00		Undiscovered			
14	Fixed1	3000			Stationary		2500	0.00		Undiscovered			
15	Fixed2	3000			Stationary		2500	0.00		Undiscovered			
16	Fixed3	3000			Stationary		2500	0.00		Undiscovered			
17	Fixed4	3000			Stationary		2500	0.00		Undiscovered			

The Devices window displays all the data available relating to each of the Devices. The 'Position' column displays the internal K2 position for each Device. 'Actual' displays the position being fed back from the external controllers and these two values should match if all is well. 'Speed' is the actual speed of the external machine and the 'Angle' is the

calculated fleet angle of the wire or chain suspending the load.

The window also displays the status and alarm feedback from the Device controller as well as internal K2 flags relating to each Device.

The Device Schedule and Device Alignment windows can be accessed by clicking on the relevant buttons at the top of the window. The window can also be placed into Icon view if desired by clicking on the Icon button. This shows each Device as its own button icon with position and speed information displayed. Arrow indicators are also shown when a Device moves to indicate the direction of current travel.

For further information on Devices see the Device Creation and Editing chapter.

Presets

Presets store positions for Constructs that can be referenced from Cues. Changes to positions in a Preset will automatically be reflected in Cues that reference that Preset. Presets are like Cues, but do not store any timing or speed information. Presets can only contain numeric values and cannot reference other Presets.

For further information see the Working with Presets section.

Pages

When working with Cues you will often run into the situation where you need more than 6 Masters. Pages allows different Cuelists to be loaded onto each Master. This is where the Pages functionality comes in.

Further information is in the Pages section of this manual.

Cuelist

Clicking on the Cuelist button opens the Cuelist Directory. This is directory contains (in either a spreadsheet or buttons layout) all of the Cuelists created for the show. A Cuelist is an ordered list of Cues.

For further information on Cuelists, the Cuelist Directory and the Cuelist Window see the Cue Selection and Display chapter.

Lookup Tables

K2 uses Lookup Tables when there is a particular path that you wish a Device to follow and it is too complex, unique or precise to be able to program it via the position of the construct. K2 needs Lookup Tables to be stored in a comma delimited file format (csv) in order to read them in. Once loaded the data is stored internally in the show file and access to the original file is no longer required.

Click on New and then select the Lookup Table file you have previously created. Click on Open and if the file has been correctly formatted a box will pop up to tell you the table has been successfully imported. In the row that appears you can give the Lookup Table a name to easily identify that table.

To add the path data to a Device go to the properties of the construct that owns that

Device and then go to the Links section of the properties. In the Length Calculation section click on the Table cell and select the Lookup Table you want to work with. The only other column to be concerned with is the Input Column which tells K2 which of the data columns in the table to use for this particular Device/link.

11.5 Windowing

Move Window

Clicking the Move Window button will switch the window that has focus into a number of different positions. Clicking the button repeatedly will cycle through those different positions.

Cycle Focus

Cycles the focus of K2 between the windows that are open

Close All

Closes all open widows

Minimize Application

Minimize's K2 into the Windows task bar.

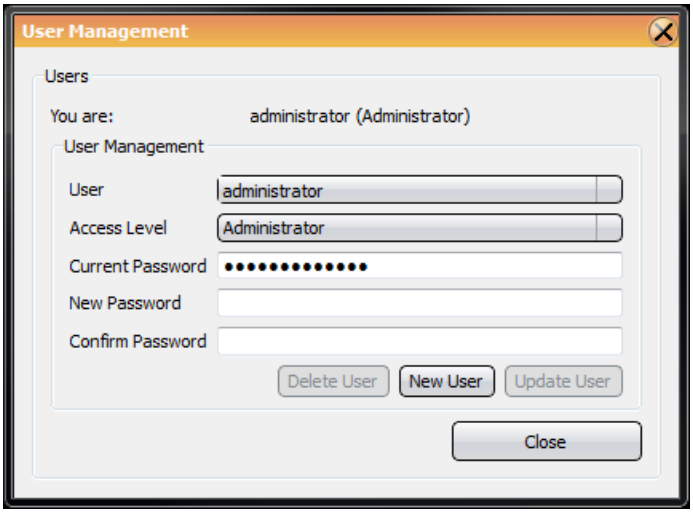
11.6 Views Toolbar

As the screenshot above illustrates the View Toolbar adds another toolbar below the standard one, which remains there until the View Toolbar is clicked again.

Views are snapshots of window arrangements, positions and sizes. They also save camera viewpoints, zoom levels and pan positions. They provide a quick means of switching between different window layouts to make the most efficient use of the available screen space.

First of all setup the view that you want to save, with windows and view points as you need them. Then click on the Save button and select which Empty View button you want to save the view in. A dialogue box will appear asking you to name the view, when you click OK the view will be saved.

11.7 User Management



Clicking on the User Management button opens the User Management window. Within this window new users can be created, existing users passwords can be changed and users can be deleted completely. Passwords are case sensitive.

11.8 Logout

Clicking the Logout button will log the current user out of K2. A dialogue box will appear asking to confirm this action. Logging out of K2 will close the show that is currently open, and leave a login window on the screen, logging back in brings up the Launch Show dialogue.

11.9 Quit

The Quit button will close the application. A warning dialogue will appear if there are changes that need to be saved.

12 Contact Information

If you would like to get in touch with Kinesys then please use any of the following methods.

Email: info@kinesys.co.uk
Website: www.kinesys.co.uk

Tel: +44 (0) 20 8481 9850
Fax: +44 (0) 20 8487 0396

Mail: Unit 2 Kempton Gate Business Centre
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HAMPTON
Middlesex
TW12 2AF
United Kingdom

Google Map Link: http://www.google.co.uk/maps?q=tw122ht

12.1 Feedback

We are always keen to hear feedback from the users of Kinesys products. If you have a feature request for the software, any comments about the documentation or just want to say hello, please get in touch.

In the unlikely event that this product has not performed to the high standards that we work to and our users expect then please let us know as soon as possible.

To leave feedback please email feedback@kinesys.co.uk or call us on +44 (0)20 8481 9850.

If you require technical support please contact us either at +44 (0)20 8481 9850 or support@kinesys.co.uk