

# MSD 6 Visualizer

## Keyboard Short-cuts

Below is a table with all the available short-cut keys within the MSD 6 Visualizer module.

The short-cut key combination is also visible within the program, either in the tooltip of the toolbar or to the right of the corresponding menu item in the menu.

Key combination	Function
"Ctrl+B"	Hide or show the sidebar.
"C"	Camera inspect. Move the camera around it's focal point.
"Ctrl+D"	Start the duplicate operation. Make copies of the picked item.
"F"	Focus one or more fixtures.
"G"	Group operation. Combine picked and selected objects into one selectable item.
"Ctrl+G"	Assemble operation. Connect selected objects to the picked object, so they move/rotate as one .
"Alt+G"	Group operation. Orientates the group the same as the picked object.
"Ctrl+L"	Open the layer-state menu, so you can select a layer-state from the list.
"M"	Move items horizontal and vertical.
"Ctrl+N"	Start a new scene.
"Ctrl+O"	Open an existing scene.
"P"	Open the patch window.
"Shift+P"	Starts the Fast Patch operation.
"Ctrl+P"	Open the saved camera menu, so you can select a saved camera from the list.
"Q"	Use the axes of the item for operations on that item.
"R"	Rotate items over the axis ( X, Y or Z ) that is closest to the view direction.
"S"	Scale items over the axes ( X, Y or Z ) that are closest to the horizontal and vertical direction on the view.
"Ctrl+S"	Save the scene.
"Alt+S"	Scale items uniform over all three axes ( X, Y and Z ).
"U"	Split Groups and Assemblies into separate items.
"V"	Move the camera left, right, up and down.
"Alt+V"	Pan / Tilt the camera.
"W"	Use the axes of the scene for operations on an item.
"Ctrl+W"	Open the saved workspaces menu, so you can select a saved workspace from the list.
"X"	Move the camera forwards and backwards.
"Ctrl+Y"	Redo. This will undo the last undo.
"Alt+Y"	Camera redo. This will undo the last camera undo.
"Z"	Zoom the camera.
"Ctrl+Z"	Undo the last item change.
"Shift+Ctrl+Z"	Redo. This will undo the last undo.
"Alt+Z"	Camera undo. Undo the last camera change.
"Alt+Shift+Z"	Camera redo. This will undo the last camera undo.
Space	Deselect any active operation.
"Ctrl+0"	Switch the camera to 3D mode.
"Ctrl+1"	Switch to the 2D Front camera.
"Ctrl+2"	Switch to the 2D Back camera.
"Ctrl+3"	Switch to the 2D Left camera.
"Ctrl+4"	Switch to the 2D Right camera.
"Ctrl+5"	Switch to the 2D Top camera.
"Ctrl+6"	Switch to the 2D Bottom camera.

"Ctrl+7"	Full view, Show the whole scene.
"F1"	Open the Help file.
"Ctrl+F9"	Switch to the Modeller with the current Scene.
"Ctrl+F10"	Switch to the ShowDesigner with the current Scene.
"F11"	Full Screen Mode.
"Ctrl+F12"	Switch to the Paper module with the current Scene.
"Alt+BackSpace"	Undo the last item change.
"Delete"	Delete the picked item.
"Escape"	Clear the picked item.
"Shift+Escape"	Clear the picked and selected items.

## Mouse item selection

When there is no operation active, the left mouse button can be used to pick and select items.

Clicking with the left mouse button will pick the item that is currently visible under the mouse cursor. If you hold down the left mouse button and drag you can select all the items that are visible within the rectangle. Normally only the items that are completely inside the selection area will be selected, but if you hold down the shift key you can also select items that are only partially visible in the selection area.

If you hold down the Alt key while you drag you will see that the selection area changes into a selection line. This way you can select all items that are visible below the selection line.

When using one of the drag selection method you can select multiple items. One of these items will become the picked item. The picked item is the one in the red box, the selected items are the ones in the green boxes.

The Ctrl key can be used to add or remove items from the list of selected items. Every time you try to pick an item while holding down the Ctrl key, the previously picked item will be added or removed from the list of selected items.

Holding down the Ctrl key when you do a drag selection will add the newly selected items to the list of selection items. If you do not hold down the Ctrl key in a drag selection, then the selection list will be cleared first.

## Mouse operations

When an operation is active, the left mouse button will start that operation. An operation that requires an item to operate on will pick the item that is visible under the mouse cursor, you can prevent this by holding down the Alt key when you start the operation. The operation will stop when you release the left mouse button.

You can cancel an operation that is active by clicking the right mouse button, or by pressing the ESC key.

## Mouse camera operation

Instead of using the left mouse button and the camera operation from the menu to change the camera, you can also use the middle (wheel) and right mouse button to operate the camera. The operation that is started with each of these button can be changed with the Shift, Ctrl and Alt keys. The operation also depends on what kind of camera is currently selected (2D or 3D). The following table shows what camera operation is started with each mouse button, key combination and camera type.

Key combination	Middle button (3D)	Right button (3D)	Middle button (2D)	Right button (2D)
No keys	Inspect	Rectangle Zoom	Move Left/Right/Up/Down	Rectangle Zoom
Shift	Move Left/Right/Up/Down			
Ctrl	Pan/Tilt		Move Left/Right/Up/Down	
Shift + Ctrl	Move Forwards/Backwards	Inspect an Object	Move Forwards/Backwards	Move Left/Right/Up/Down
Alt	Zoom	Move Forwards/Backwards	Zoom	Move Forwards/Backwards
Shift + Alt	Perspective Distortion	Move Forwards/Backwards	Zoom	Move Forwards/Backwards
Ctrl + Alt	Pan/Tilt		Move Left/Right/Up/Down	

## Mouse scroll-wheel

The mouse wheel can be used for a number of functions. Within the scene window it will either zoom or, when the shift key is pressed, move the camera forwards and backwards.

The mouse wheel can also be used to scroll through lists and through the sidebar.

It will also increase / decrease the values of sliders and spin buttons. A special case with sliders are the sliders that increase/decrease a value depending on how far they are moved from the middle (like the position sliders in the orientation section of the sidebar). Scrolling the mouse wheel will increase or decrease the value of the sliders with a fixed step. Holding down the Ctrl key while scrolling the wheel will use a smaller step and holding down the Shift key will use a bigger step.

## DMX Interface for camera

Below is a table that describes the DMX interface of the camera. Position and Focus point positions are all absolute in mm. This allows the user to position the camera in the range -32.766 to +32.766 meter on all axes. This range can be changed using the 'Coordinate Scale' setting in the Visualizer.

Ch.	Value	Description	Default	Comments
1		MSB X Position	32767	When both these channels are 0, then the current value of the camera will not change when using direct control.
2		LSB X Position		
3		MSB Y Position	35135	When both these channels are 0, then the current value of the camera will not change when using direct control.
4		LSB Y Position		
5		MSB Z Position	46400	When both these channels are 0, then the current value of the camera will not change when using direct control.
6		LSB Z Position		
7		MSB X Focus Point	32767	When both these channels are 0, then the current value of the camera will not change when using direct control.
8		LSB X Focus Point		
9		MSB Y Focus Point	35071	When both these channels are 0, then the current value of the camera will not change when using direct control.
10		LSB Y Focus Point		
11		MSB Z Focus Point	32767	When both these channels are 0, then the current value of the camera will not change when using direct control.
12		LSB Z Focus Point		
13		MSB Zoom Angle	25856	When both these channels are 0, then the current value of the camera will not change when using direct control.
14		LSB Zoom Angle		
15		<b>Camera Animation modes</b>	0	(index and rotation speed/direction on channel 16-17)
	0 - 4	Disabled		
		<b>Index mode</b>		
	5-9	Index Camera Inspect Up/Down		(same layout we use for gobo selection)
	10-14	Index Camera Inspect Left/Right		
	15-19	Index Camera Roll		
		<b>Continuous rotation</b>		
	20-24	Continuous Camera Inspect Up/Down		
	25-29	Continuous Camera Inspect Left/Right		
	30-34	Continuous Camera Roll		
	35-129	Reserved		
130-134	Emulate hand held motion	shake amplitude/frequency on offset 15-16		
135-255	Reserved			
16		<b>MSB Camera Roll/Index/Rotation speed Index</b>	32767	Works on absolute position/focus from DMX channels as well as pre-sets selected on channel 18
	0 - 65535	Index (-197.5 to 197.5 deg)		
		<b>Continuous</b>		
	0-511	No rotation indexed at 0		
	512-32255	CW rotation, fast -> slow		
	32256-32767	No rotation, stops at current position		
	32768-64511	CCW rotation slow -> fast		
	64512-65535	No rotation, indexed at 180		
	<b>Hand Held</b>	Hand Held emulation is not yet implemented !		

	0-31	Position XY Shake Slow -> Fast		
	32-63	Position XYZ Shake Slow -> Fast		
	64-95	Orientation XY Shake Slow -> Fast		
	96-127	Orientation XYZ Shake Slow -> Fast		
	128-159	Position XY & Orientation XY Shake Slow -> Fast		
	160-191	Position XY & Orientation XYZ Shake Slow -> Fast		
	192-223	Position XYZ & Orientation XY Shake Slow -> Fast		
	224-255	Position XYZ & Orientation XYZ Shake Slow -> Fast		
17		LSB Camera Roll/Index/Rotation speed / Hand Held shake amplitude		
18		<b>Pre-sets</b>	0	
	0-1	Direct control		Use channels 1-14 to set the camera.
	2-3	Pre-set 1		
	4-5	Pre-set 2		
	...	...		
	254-255	Pre-set 127		
19		<b>Velocity</b>	0	This is a camera motion speed control when camera moves from pre-set to pre-set
	0 - 5	Normal		
	6 - 10	0.1 - 0.5 sec / No acceleration/deceleration		
	11 - 45	0.5 - 4.0 sec / No acceleration/deceleration		
	46 - 75	4.0 - 10.0 sec / No acceleration/deceleration		
	76 - 120	10.0 - 55.0 sec / No acceleration/deceleration		
	121 - 127	55.0 - 60.0 sec / No acceleration/deceleration		
	128 - 135	60.0 - 55.0 with acceleration/deceleration		
	136 - 180	55.0 - 10.0 with acceleration/deceleration		
	181 - 210	10.0 - 4.0 with acceleration/deceleration		
	211 - 245	4.0 - 0.5 with acceleration/deceleration		
	246 - 249	0.5 - 0.1 with acceleration/deceleration		
	250 - 255	Normal		