Fixture Definition Editor

Fixture Definition Editor is a separate application bundled together with QLC+ for creating and modifying fixture definitions used by QLC+. The definitions tell QLC+ (and users) important details about fixtures, such as which channel is used for pan movement, what value in which channel changes the beam color to green, how the fixture is reset etc...

The main window in the Fixture Editor is just an empty workspace that contains the actual editor windows used to edit fixture definitions.

Important note: for many reasons, you SHOULD NOT save or copy your custom fixtures in the QLC+ system fixtures folder. The most important is that when you uninstall QLC+, the system fixtures folder gets deleted, so your fixtures.
You are recommended to save them in the user fixtures folder. To find it, please refer to the Q & A section of this documentation.

Main toolbar

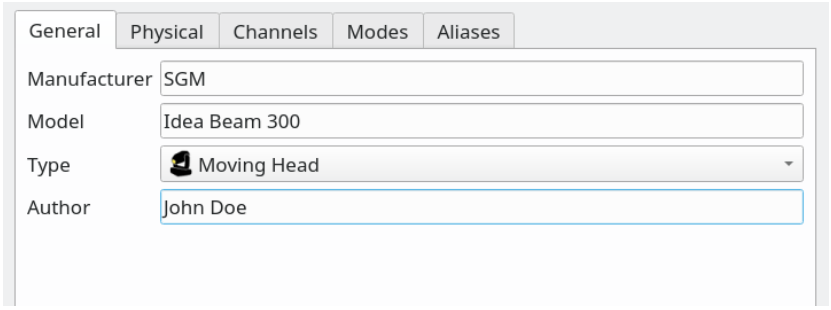
	Create a new fixture definition. Opens an empty Fixture Editor window.
	Open an existing fixture definiton. Opens the fixture definition in a Fixture Editor window.
	Save the fixture definition in the currently active Fixture Editor window.
	Save the fixture definition with a given name in the currently active Fixture Editor window.

Fixture Editor

Fixture Editor windows contain everything needed to edit one Fixture Definition at a time. The windows are separated in five tabs: **General**, **Physical**, **Channels**, **Modes** and **Aliases**.
Tabs are organized in a logical order that should be followed from left to right when creating a new fixture definition.

General Tab

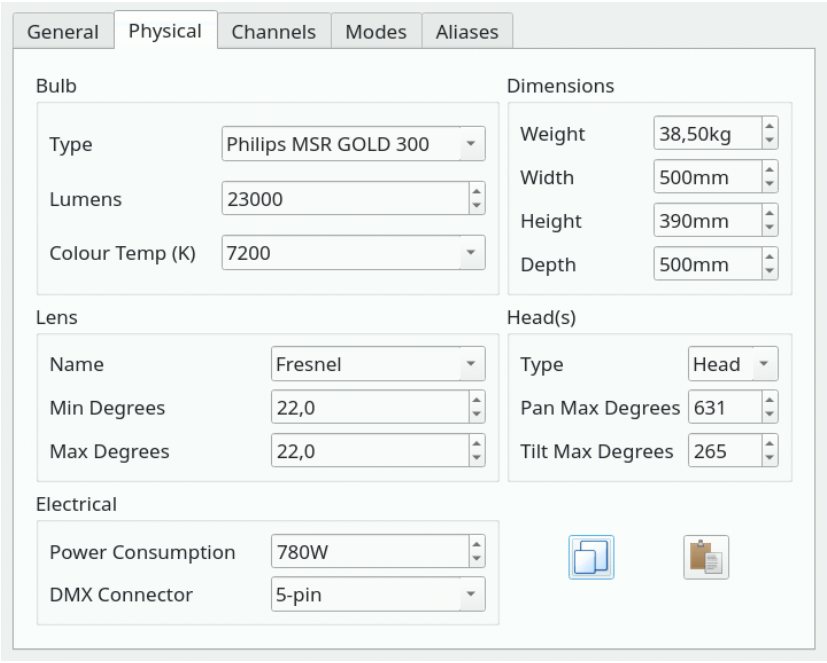
This is the section where the Fixture general information is provided.



Manufacturer	The fixture's manufacturer name. For example "FooCompany". Please note that if you're adding a definition of a manufacturer already present in the QLC+ library, you should adopt the same exact name adopted by the other creators. For example, "IMG Stageline" is not "img stageline" or "IMG-Stageline"
Model	The fixture's model name. For example "FooZapper 2000". Please stick to the product manual to fill in this information. No need to specify the LED configuration like "PAR64 MKII 8x1W LED RGBWAUV USB". It's just "PAR64 MKII"
Type	The fixture's category type. For an accurate preview, it is important to fill in the proper category. For example, while a moving head is most likely a color changer too, the type should be set to "Moving Head"
Author	The fixture definition author name. Please do not submit email addresses or references to some website. They will be removed anyway during review.

Physical Tab

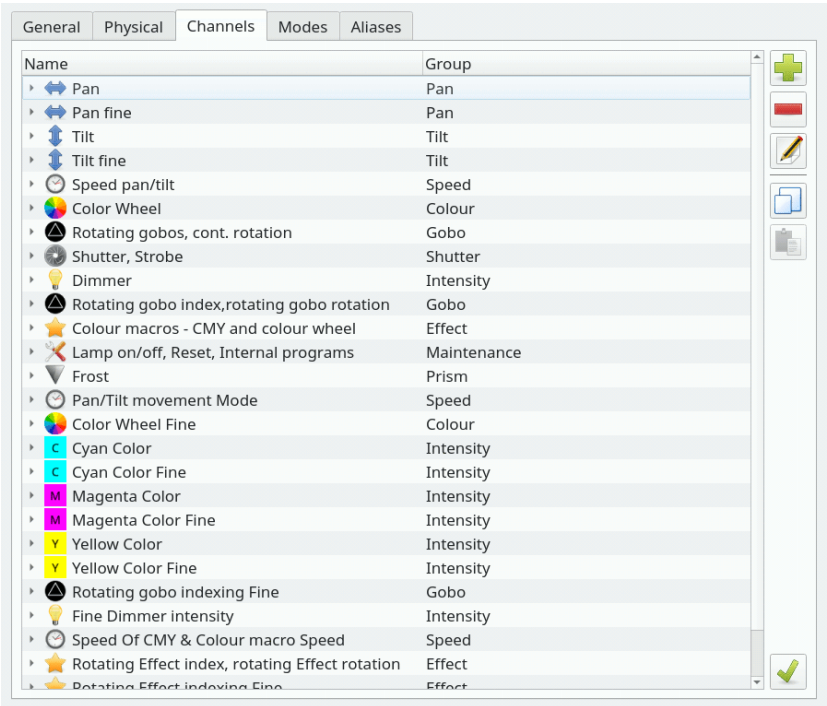
This is the section where the *global* physical information of the fixture is provided.
An identical section is also present in each mode, in case the fixture allows its physical properties (e.g. pan/tilt range) to be altered depending on the mode. In that case, the global physical information can be overridden by *per-mode* physical information.



Bulb	• Type: The type of the actual light source within the fixture. • Lumens: The light source's total luminous output in lumens. • Color Temperature (K): The light source's color temperature in Kelvins
Lens	• Name: The type/name of the lens, if applicable. • Min. degrees: The fixture's minimum beam angle in degrees. • Max. degrees: The fixture's maximum beam angle in degrees.
Electrical	• Power Consumption: The fixture's total power consumption in Watts. • DMX Connector: The type of the fixture's DMX connector.
Dimensions	• Weight: The fixture's total weight in Kilograms. • Width: The fixture's total horizontal width in millimeters. • Height: The fixture's total vertical height in millimeters. • Depth: The fixture's total depth in millimeters.
Head(s)	• Type: The method of focusing the beam on different areas. For stationary fixtures this can be set to Fixed. • Pan Max Degrees: The maximum pan width in degrees. • Tilt Max Degrees: The maximum tilt height in degrees.

Channels Tab

The channels tab contains all possible channels that the fixture understands in all of its modes. The channel order doesn't matter in this tab at all. Instead, channels are arranged in certain order in each mode in the **Mode** tab. On the **Channel** tab, only the channel names, their **capabilities** (i.e. value ranges and their purpose) matters.



	Add a new channel to the fixture using the Channel Editor
	Remove the selected channels from the fixture **and from all modes**
	Edit the currently selected channel using the Channel Editor
	Copy the currently selected channel to the clipboard. Channels in the clipboard can also be pasted to other fixture definition windows
	Paste a channel from clipboard to the fixture definition. Channels in the clipboard can also be pasted to other fixture definition windows
	Expand or collapse all the channel nodes in the channel list

Channel Editor

The Channel Editor is used to edit individual channels and the DMX value ranges of each capability (a green color, a certain gobo, prism rotation, etc.) that a fixture channel provides. Refer to your fixture's manual to get a detailed list of the fixture's channels and DMX values.

Here's a few screenshots showing the possible scenarios that can be encountered while editing a Fixture channel.

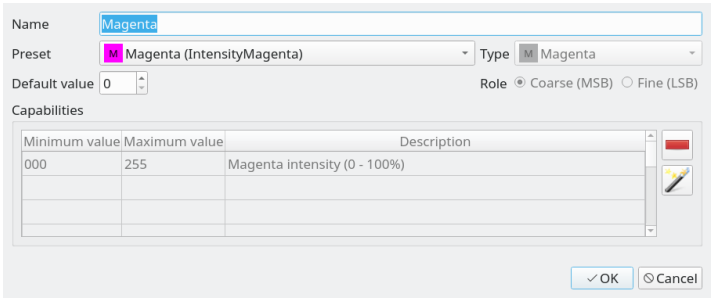


Fig. 1

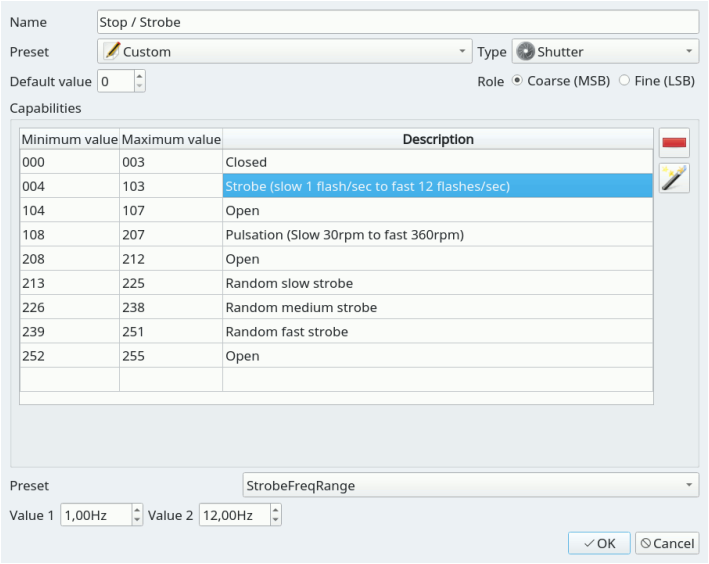


Fig. 2

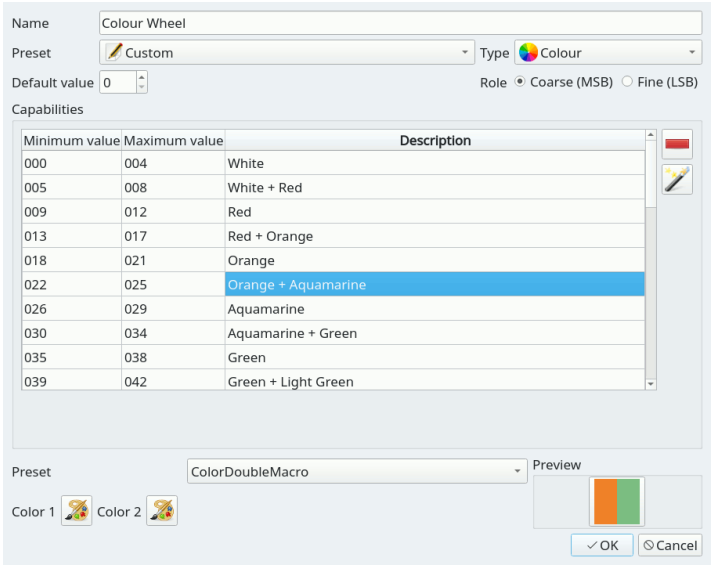


Fig. 3

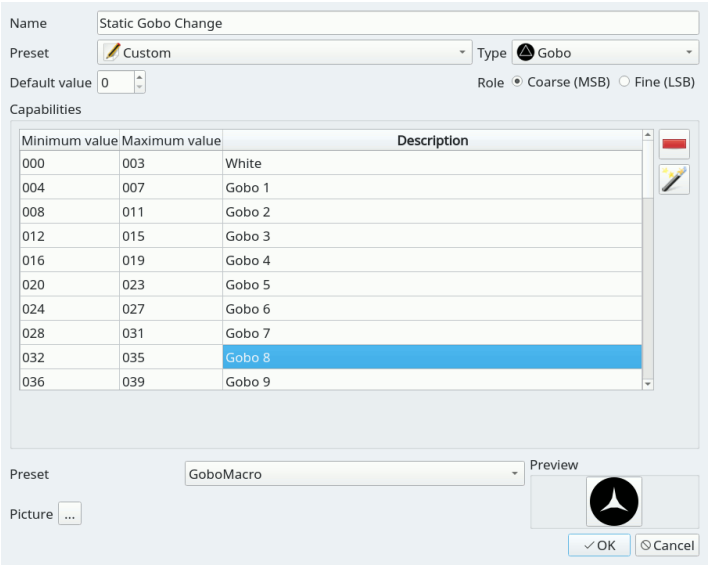


Fig. 4

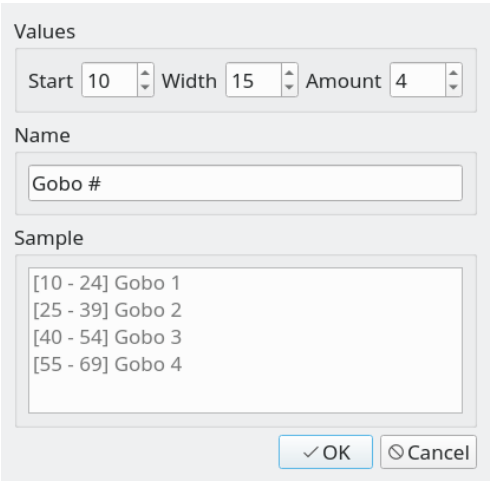
Following, the description of the settings that appear in the Channel Editor. Reference to the above figures will be done to point you to a visual context.

Name	The channel name. When selecting a channel preset (single capability channel), a channel name will be automatically suggested, with the possibility to customize it.
Preset	A preset is a sort of shortcut to speed up the definition creation. It also provides to the QLC+ engine, useful information to recognize and properly treat a DMX channel. It frequently happens that a Fixture has some RGB or CMY channels. A LED bar might have dozens of them. Therefore, selecting a color preset will fill in for you all the necessary information that QLC+ needs, with a single mouse click. (See Fig. 1) It is also frequent to find a channel to control Pan/Tilt speed. Some presets are available for that purpose, indicating also if the speed is from slow to fast or from fast to slow. Just pick the preset that is more suitable for the definition you're creating. When a preset is selected, all the rest of the editor become inactive. If a channel has multiple DMX ranges (capabilities), just leave "Preset" to "Custom" and proceed further with this reading.

Type	This indicated the channel's type (its role in the fixture). Selecting a type, implicitely defines also the channel precedence (LTP or HTP). It is therefore very important to pick the correct type here, to avoid undesired behaviours within QLC+. All the intensity/color channel types obey to the **HTP** rule: **Intensity, Red, Green, Blue, Cyan, Magenta, Yellow, White, Amber, UV, Lime and Indigo**. All the other types obey to the **LTP** rule: **Beam, Color, Effect, Gobo, Maintenance, Nothing, Pan, Tilt, Prism, Shutter and Speed**. • **Intensity** is used for dimmer / master dimmer channels. • **Primary colors** (Red, Cyan, White, etc) are used to control single color channels. Please do not confuse these types with the "Color" type (see below) Note that the Grand Master controls only Intensity and primary color channels by default. Note also that the Color Tool in Scene Editor is available only if a fixture provides **Primary color** channels for RGBAWUV/CMY. • The **Color** type is used to control a fixed color wheel or pre-defined color macros. *Don't* assign individual RGBAW/CMY color channels to the Color type but instead use the **primary color** types as described above • The **Gobo** type is used to control gobo wheel position or indexing. • The **Speed** type is used to control something related to speed (gobo rotation, rainbow speed, tracking speed). • The **Prism** type is used to control a prism. • The **Shutter** type is used to control a shutter, a strobe or an iris. • The **Beam** type is used to control a beam shaper (such as a zoom feature). • The **Effect** type is used to control something that doesn't quite fit into any of the other groups. • The **Maintenance** type is used to control feature such as resetting or a cooling fan or something similar. • The **Nothing** type is used as a channel spacer or a place holder. Some channels of this type might be replaced with the alias feature. • The **Pan** and **Tilt** types are used to control Pan/Tilt (or X/Y) features of moving heads or lasers
Default value	Specify the DMX value (0 to 255) to which a channel is set on power up. For example, some moving heads position their Pan/Tilt motors half way, which means the initial DMX channel value is equal to 127.
Role	Applicable to channel pairs that make 16 bit values, usually **Pan** or **Tilt** group, but some newer fixtures support 16 bit dimmer or even RGB, gobo or focus channels. For 8 bit values (e.g. when the fixture supports only 8bit movement, only one channel for each movement), assign the **Coarse (MSB)** control byte to the channel. If, however, the fixture supports 16bit (two channels for each feature), you should assign the **Coarse (MSB)** byte to the channels that provide coarse value and the **Fine (LSB)** byte to the channels that provide fine value adjustment. If you are not sure, use **Coarse MSB**.
Capabilities	Displays the list of DMX value ranges for the currently edited channel. If a channel provides only one capability (for example pan or dimmer) you should use a channel preset (see above). For more elaborate capabilities, such as colors or gobos, you should create capability ranges for each of the colors (for example 0-15 white, 16-32 blue...). Specific ranges for each channel can be found in the product manual under the name "DMX chart". Entering DMX ranges is pretty straight forward. The entry area is organized as a spreadsheet where range values and descriptions can be entered continuously just by pressing the TAB key.
Preset	Each capability can be enriched with a so called "preset", which tells the QLC+ engine more useful information about a range of DMX values. For example if the capability is "Shutter open", a preset called "ShutterOpen" is available so that QLC+ knows exactly how to treat the range. Depending on the preset type, one or more additional information could be entered: • ColorMacro: allows to pick a single color used tyipically on color wheels • ColorDoubleMacro: allows to pick two colors to represent an intermediate position of a color wheel (Fig. 3) • GoboMacro: allows to select a gobo picture to be used when entering the capability range (Fig. 4) • StrobeFrequency: allows to enter a precise frequency (in Hertz) for a strobe feature • StrobeFreqRange: allows to enter 2 values (minimum and maximum) to represent the range of frequencies (in Hertz) to simulate a strobo effect (Fig. 2) • Alias: This is a special capability preset to indicate that when in this range, an alias should be triggered. An alias is a replacement of a channel. See the Aliases tab to understand how to define aliases
	Remove the selected capabilities from the channel.
	Create new capabilities quickly with the capability wizard.

Capbility wizard

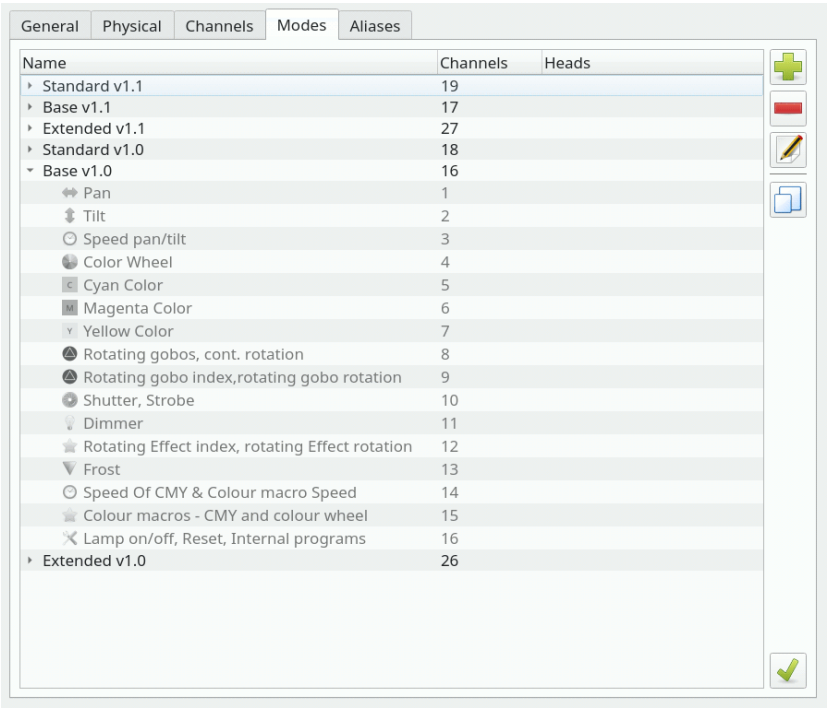
Capability Wizard is a handy tool for creating multiple capability value ranges of the same size. Usually this applies to fixed colors, gobo indices and various macro channels.



Start	The starting value for new capabilities. Sometimes there might be other capabilities at the start of the channel's value range that you can skip by adjusting this value.
Width	The size of each value range.
Amount	Number of capabilities to create.
Name	The common name for each capability. You can use the hash mark # to denote a place for an index number (i.e. "Gobo #" creates Gobo 1, Gobo 2, Gobo 3...)
Sample	Every time you change a parameter in the wizard, this list is updated to show you a sample of what kinds of capabilities will be created once you click OK.

Modes Tab

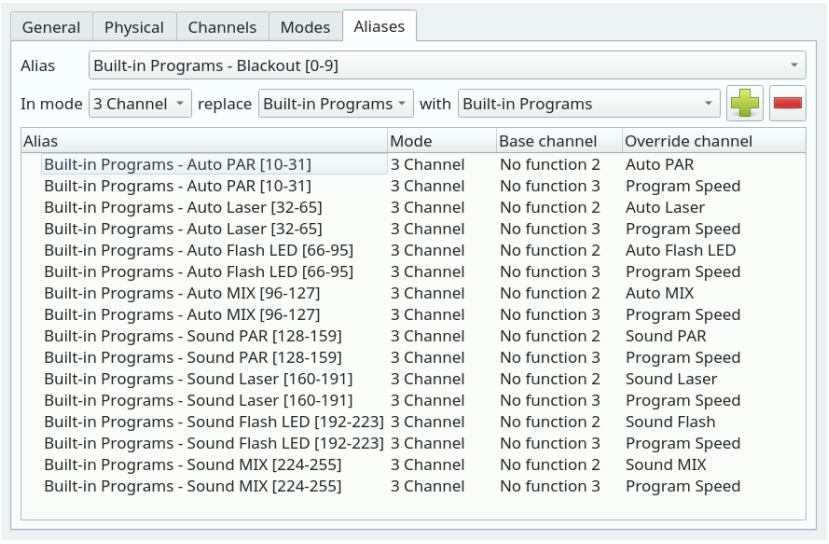
The modes tab contains all modes the fixture can be configured to.



Mode list	Displays all modes for the currently edited fixture. Each mode item can be opened to display the set and order of channels in that mode. • Name: The name of the mode (each name must be unique) • Channels: Number of channels in each mode • Heads: The number of light sources each mode supports
	Create a new mode for the fixture, using theMode Editor.
	Remove the currently selected mode from the fixture. Removing a mode does not destroy any channels or other modes.
	Edit the currently selected mode, using theMode Editor.
	Create a copy of the currently selected mode to the same fixture. Since modes are tightly coupled to a certain fixture's channels, modes cannot be copied across fixtures.
	Open or close all mode items.

Aliases Tab

In this tab it is possible to define the rules of replacement triggered by capabilities set as "Alias" preset.
Let's make an example. A fixture has channel 5 named "Effects" which controls the behavior of channel 6. Channel 5 has 2 capabilities: "Speed on channel 6" and "Sound sensitivity on channel 6". The latter have been set to the "Alias" preset. By default, when DMX value of channel 5 is 0, channel 6 acts as speed control. When DMX value of channel 5 enters the "sound sensitivity" capability, channel 6 becomes a sound sensitivity adjustment.
To cope with this case, you need to define 2 channels: "Speed" and "Sound sensitivity". In the fixture mode add only "Speed", since it will the default behavior when DMX value of channel 5 is equal to 0.
Then you need to define just one alias: the one that will replace the default channel "Speed" with "Sound sensitivity". QLC+ will then know what to do when the DMX value of channel 5 enters or exits the alias.



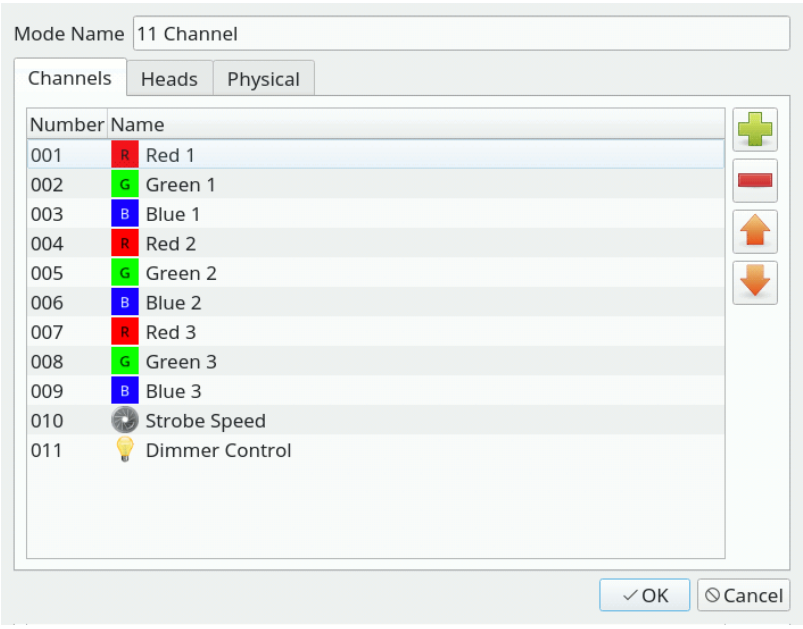
Alias	Shows the list of all capabilities of all channels set as "Alias" preset. The string is in the form [Channel name] - [Capability name] [DMX value range]
In mode	Select the mode where the alias must have effect
replace	Select the mode channel to be replaced when the alias is triggered
with	Select the channel that will substitute the "replace" channel when the alias is triggered
	Add the triplet *In mode* X, *replace* Y *with* Z to the known aliases list
	Remove the selected alias from the aliases list

Mode Editor

The Mode Editor is used to create and edit modes by picking sets of **Channels** in certain order (as defined by the fixture's manufacturer). Each editor window is divided into three tabs: Channels, Heads and Physical.

Channels Tab

In the Channels tab you can place the fixture's channels in an order that forms an actual representation of the DMX channels that the fixture understands when it has been configured in that particular mode.

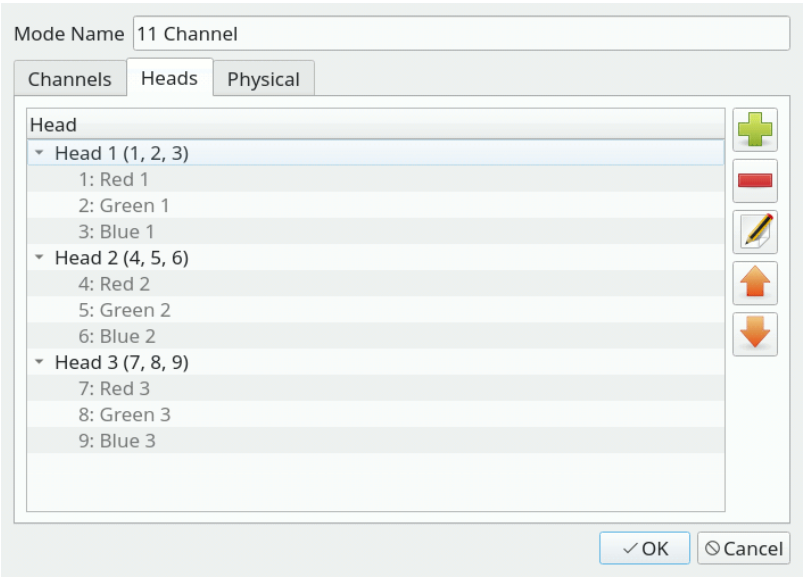


Mode Name	The name of the mode (must be unique for each mode).
Channel list	Displays all channels present in the current mode in their proper order.
	Add channels from the fixture's channel collection to the mode. You can create/edit channels in the Fixture Editor's **Channels** tab. When you click on this button a new window will be displayed, showing two lists: • The list on the left shows the channels that have not yet been added to this mode. If you're creating a new mode, this list will show all the channels you created in the Fixture Editor's channels tab • The list on the right shows the channels that define the mode you're editing. If you're creating a new mode, this list will be empty. Please note that the order of the channels in this list is fundamental to the fixture mode definition. To move items from one list to another either use the central buttons or simply drag and drop them. When done, press OK to update the mode channel list.
	Remove the selected channels from the mode. Other modes' channel selections are left untouched.
	Raise the selected channel up by one position.
	Lower the selected channel down by one position.

Heads Tab

In the Heads tab you can define multiple heads for a single fixture, so that QLC+ knows to treat each of them individually in certain situations (such as Fixture Groups). If a fixture contains only one head when it's configured to use the currently edited mode (i.e. all of the mode's channels control one head at a time) there is no need to define the head. If, however, the fixture has multiple heads that you wish to be able to control, you must define each head here.

Heads don't have names as they can be thought of as simple "sub-fixtures" inside a fixture. Instead, they are automatically given index numbers. The ordering of the Heads should follow the physical fixture's configuration as closely as possible. So, if the heads go 1, 2, 3, 4 in the real world, don't define them as 4, 2, 1, 3 or something equally annoying.

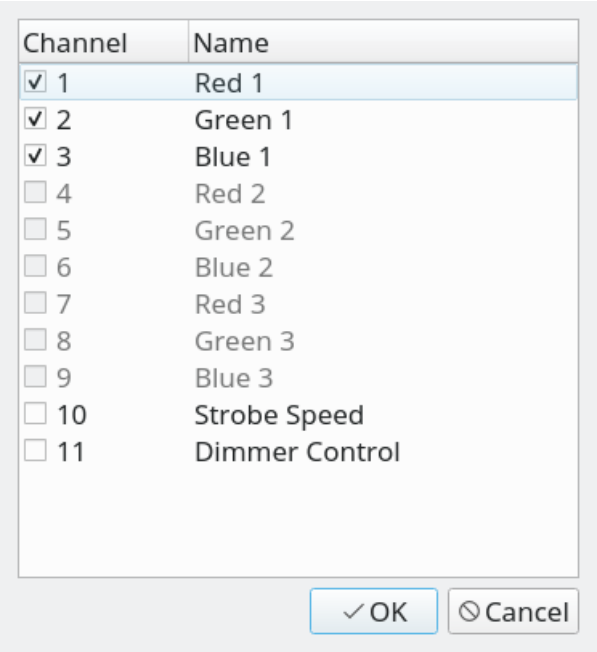


Head list	Displays the list of heads currently defined for the fixture.
	Add a new head to the fixture, using the[Head Editor]().
	Remove the selected head from the fixture.
	Edit the selected head using the [Head Editor]().
	Raise the selected head upwards by one. You can use this to change the order of the heads within the fixture.
	Lower the selected head downwards by one. You can use this to change the order of the heads within the fixture.

Head Editor

The Head Editor is used to create and edit [heads]() by picking sets of **Channels** that are dedicated to a single head (as defined by the fixture's manufacturer).

Editing a head is very simple: place a checkmark on each channel that is used ONLY by the head you are currently editing. Note that you should check the channels specific to a head, and nothing more. For example if there are 3 heads each with a dedicated dimmer control, then you should include the dimmer channel too. If, instead, the fixture has a single dimmer channel to control the intensity of all the heads together, then do not incude it in the head definition.



Channel list	Displays the list of all fixture channels available in the current mode. Channels that have been assigned to another head are disabled and cannot be selected because each channel can only belong to one head at a time.

Physical Tab

This tab is identical to the *global* physical tab found in the main Fixture editor windows.
The only difference is that here you can choose if the mode you're editing has the same physical information or different ones.
In the first case just leave the **"Use global settings"** option checked. If the mode exposes different properties, then check the **"Override global settings"** option and fill in all the information required.