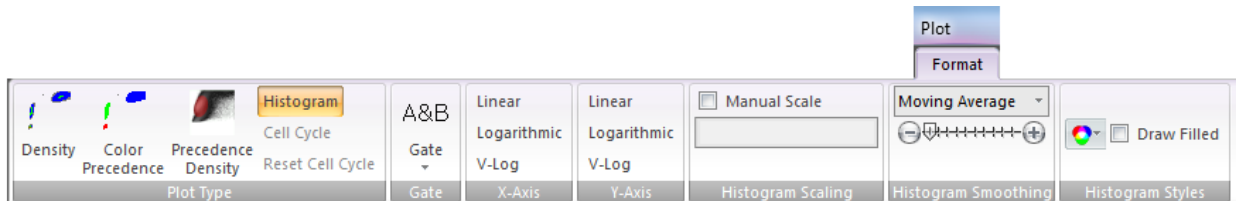


## Modify Format of Plots (Plot Format Tab)

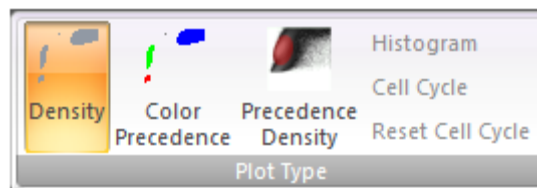
You can use the controls on the **Plot Format** tab to adjust the settings of selected plots in the **Plots** area.

The **Plot Format** tab is only available when at least one plot is selected in the **Plots** area.



## Plot Type

The dual parameter plots in the **Plots** area may be formatted as **Density**, **Color Precedence** or **Precedence Density** plots by using the relevant button in the **Plot Type** group; refer to section **Error! Reference source not found.** for details on these plot types. The **Plot Type** group also contains controls for formatting single parameter plots as **Histogram** or **Cell Cycle**.



## Dual Parameter Plot Types

By the default the dual parameter plots in the **Plots** area are Density plots. To change the plot type select one or more dual parameter plots and then click the required option: **Density**, **Color Precedence** or **Precedence Density**.

If different plot types are selected the plot types will not be highlighted but selecting one of the **Plot Type** buttons changes all selected plots to that plot type.

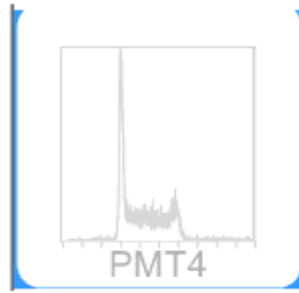
## Single Parameter Plot Types

By default the single parameter plots are standard Histogram plots. Single parameter linear data plots can also be displayed as DNA Cell cycle plots by selecting the required plots and clicking the **Cell Cycle** option.

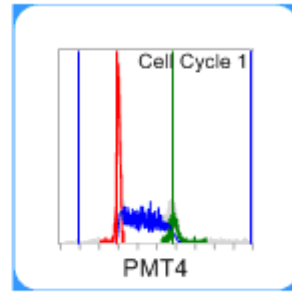
Each Cell Cycle is identified numerically with the title **Cell Cycle #**. See section **Error! Reference source not found.** for details on DNA Cell Cycle plots.

If multiple single parameter linear plots are selected clicking the **Cell Cycle** button activates the cell cycle analysis for all of them.

Below is an example of cell cycle analysis for a single plot:



Plot as a standard histogram



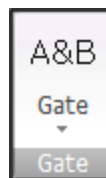
Plot after cell cycle is activated

The **Reset Cell Cycle** button is only enabled when a Cell Cycle plot is selected.

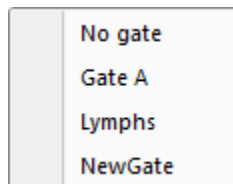
If the G1 and/or G2 markers have been manually adjusted clicking the **Reset Cell Cycle** button returns the markers to their automatically calculated positions. See section **Error! Reference source not found.** for details on DNA cell cycle plots.

To change cell cycle plots back to standard histograms select them and click the **Histogram** option.

## Gate Group

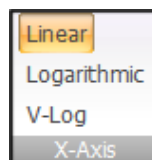


Click the drop-down arrow positioned on the **Gate** group to display a list of all the available gates as illustrated below:



Click the desired gate from this list to apply the gate to selected plots.

## X-Axis Group



Clicking the **Linear**, **Logarithmic** or **V-Log** buttons, positioned on the **X-Axis** group, allows you to change the X axis of the selected plots to the selected scale type.

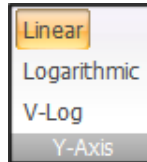
The buttons in this group are disabled for low resolution files and if cell-cycle plots have been selected.

If a low resolution file is open, the X-Axis parameter is set by the information within the LMD file header and cannot be changed.

The **X-Axis** selection is applied to all the plots that are selected in the **Plots** area. Multiple **X-Axis** buttons will be highlighted if the selected plots have different x-axis types.

See section **Error! Reference source not found.** for details of the available plot scaling types.

## Y-Axis Group



Clicking either the **Linear**, **Logarithmic** or **V-Log** buttons, positioned on the **Y-Axis** group, changes the Y axis of the selected plots to the selected type.

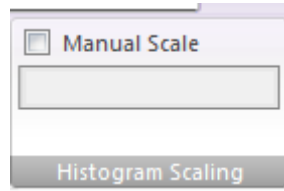
The buttons in this group are disabled for low resolution files and if single parameter histogram plots have been selected.

If a low resolution file is open, the Y-Axis parameter is set by the information within the LMD file header and cannot be changed.

The **Y-axis** selection is applied to all the plots that are selected in the **Plots** area. Multiple **Y-Axis** buttons will be highlighted if the selected plots display different y-axis type.

## Histogram Scaling Group

The **Histogram Scaling** group allows the scaling of the selected histograms to be modified for optimal plot visualization.



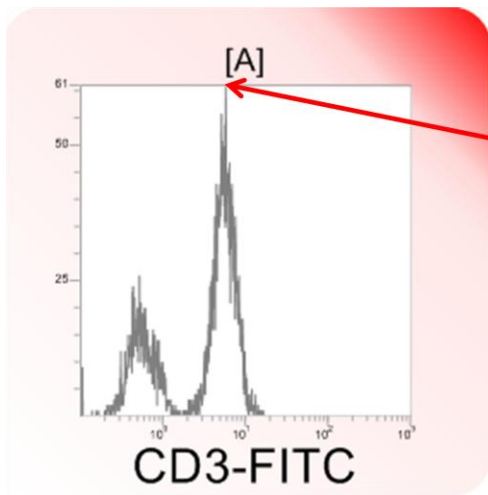
## Automatic and Manual Scaling

VenturiOne automatically scales histogram plots to the maximum value on the plot. You can turn off the automatic scaling by selecting the **Manual Scale** check box.

The **Manual Scale** check box is enabled if at least one histogram plot is selected.

VenturiOne automatic scaling ignores events in the first and last sixteen channels, unless there are no events in the remaining channels.

In the example below the histogram is auto-scaled:



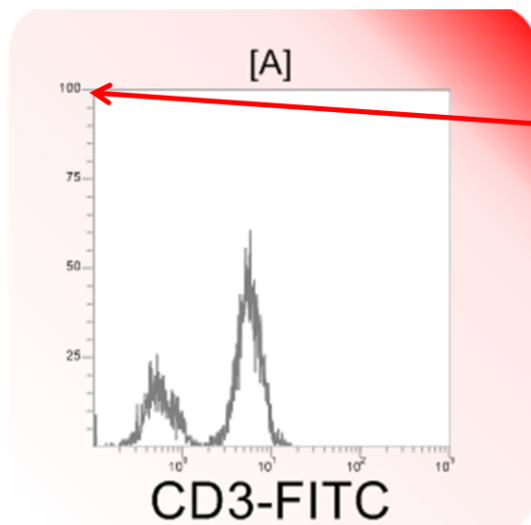
With Automatic scaling enabled histogram is scaled to the highest point on histogram

When you turn off auto scaling by selecting the **Manual Scale** checkbox, the edit field under it becomes enabled and allows you to specify the scaling value.

The default manual scale value is 100. You can change this value as desired. You have to press Enter for the new value to be accepted.

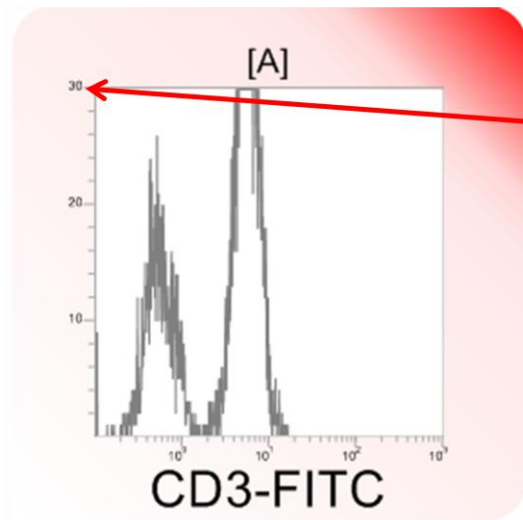
If you enter a value that is not valid an error message will be displayed.

In the example illustrated below, the **Manual Scale** box is selected and the scale factor set to 100:



Manual scale set to 100

In the example illustrated below, the **Manual Scale** box is selected and the scale factor set to 30:



Manual scale set to 30

### Histogram Smoothing

The purpose of smoothing is to improve the visual display of histograms for presentation purposes. The underlying data and statistics are not altered. In VenturiOne smoothing can only be applied to single parameter histograms.

In VenturiOne two methods of smoothing are available: **Bin Reduction** and **Moving Average**.

In the **Bin Reduction** method of smoothing the values of consecutive bins are averaged to produce a histogram with a reduced number of bins.

VenturiOne implements 4 levels of bin reduction. Each level halves the number of bins displayed on the plot:

Level	Bin Count
1	1024
2	512
3	256
4	128

A value of 1024 is the same as no smoothing.

In the **Moving Average** method of histogram smoothing the average value of a number of consecutive bins (*Window Size*) of the raw histogram is used in the first bin in the window. This is repeated for the next bin until the whole histogram has been covered. The process can be repeated a number of times to produce an increasingly smoothed graph.

There are ten levels of smoothing available by this method the table below details the transformation values:

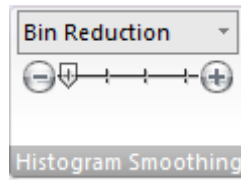
Level	Window Size	Iterations
1	-	-
2	3	1
3	3	3
4	3	4
5	3	6
6	5	2
7	5	3

8	7	2
9	7	5
10	9	10

The level 1 setting is the same as no smoothing.

## Histogram Smoothing Group

The **Histogram Smoothing** group contains controls for histogram smoothing:



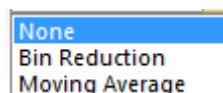
Smoothing is a plot property and is performed on a per plot basis. Only histogram plots in the plots area can have smoothing applied. Plot smoothing is displayed on the reports, print preview and printout.

The smoothing settings are saved as part of the workspace whenever the workspace or the playlist are saved.

## Histogram Smoothing Method Combo Box

The **Histogram Smoothing Method** combo box is only enabled when at least one histogram or cell cycle plot is selected and no dual parameter plots are selected.

This combo box allows you to select the smoothing method to be used. The following options are available in the drop down list:



The smoothing method selected is applied to all currently selected single parameter histograms and cell cycle plots. Applying smoothing to plots does not affect statistical results.

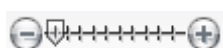
## Histogram Smoothing Level Selection Slider

The **Histogram Smoothing Level** selection slider is invisible when the **Histogram Smoothing Method** combo box is disabled or when None is selected.

When Bin Reduction is selected, the slider has 4 tick marks representing levels 1 – 4. Level 1 (1024 bins) is no smoothing:



When Moving Average is selected, the slider has 10 tick marks, representing levels 1 – 10. Level 1 is No smoothing, level10 is the greatest level of smoothing:



The currently selected level in the slider is marked by an arrow .

Clicking the  button or to the left of the arrow on the slider decreases the level by one.

Clicking the  button or to the right of the arrow on the slider increases the level by one.

The level can also be changed by dragging and dropping the arrow with the mouse.

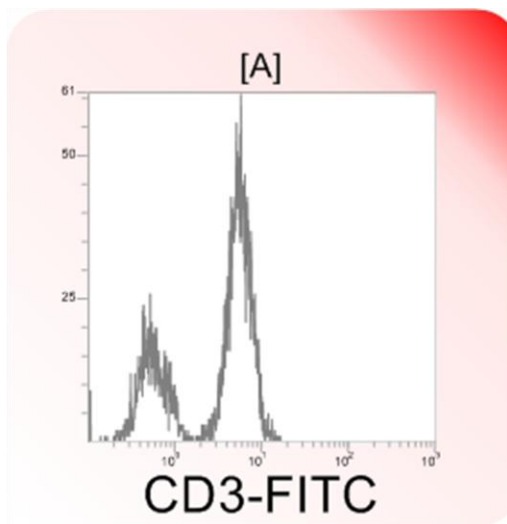
The smoothing level selected is applied to all currently selected single parameter histograms and cell cycle plots.

The default setting is level 1 (No smoothing).

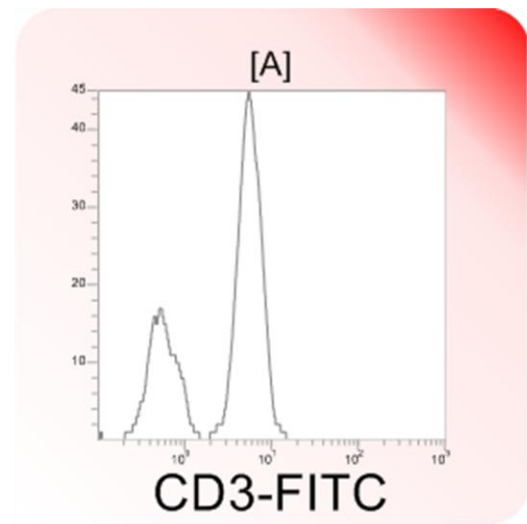
The level setting for each method is persisted for each plot and saved in the workspace.

### Example of Smoothing

Below is an example of the same histogram before and after smoothing:



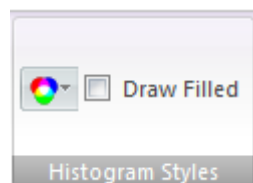
Unsmoothed Histogram



Smoothed Histogram

### Histogram Styles Group

The **Histogram Styles** group provides options to modify the appearance of the selected histograms:



## Histogram Line/Fill Color



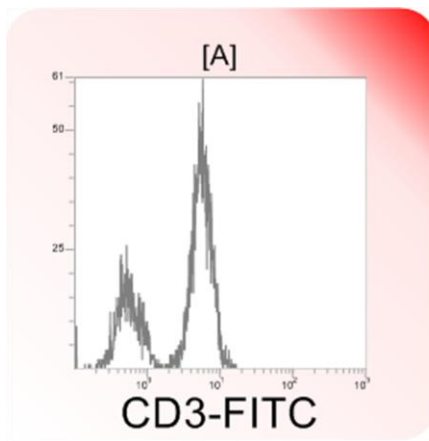
By default histograms are displayed using the color specified in the **Default Histogram Color** control in the **VenturiOne Options** dialog.

Click the **Histogram Line/Fill Color** button to display a standard Windows color selection control to modify the line and fill color of the selected histogram(s) in the Plots area.

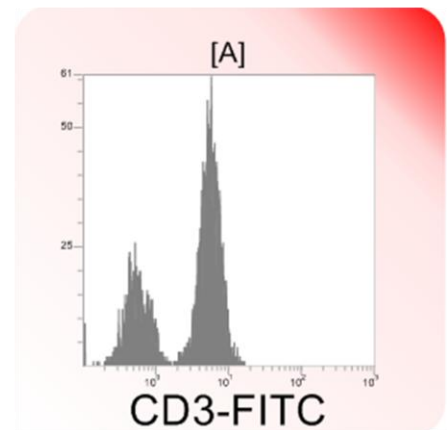
The color settings are saved in the Workspace.

## Draw Filled

Check in the **Draw Filled** check box to fill the selected histograms of the current file as illustrated below:



Place a check in the **Draw Filled** check box



The color set in the **Histogram Line/Fill Color** is used as the fill color.

The **Draw Filled** selection is saved in the workspace.