DataNet Quality Systems Knowledgebase

How can I change the X-axis scaling on a histogram chart?

- Starting in WinSPC 8.3.4, users are now able to customize the X-axis scaling for histograms in the Variable Analyzer or Report Templates. These chart properties are also a part of the chart's Color Schemes and can be configured in the Color Scheme Setup (accessed from within the WinSPC Administrator window by selecting "Tools" > "Chart Color Schemes"). The Chart Color Schemes (introduced in WinSPC 8.0.0) allow you to configure some pre-defined settings for the various visual chart settings.

  To configure the X-axis scaling in the Variable Analyzer, right click on the histogram chart, select "Properties", and then select the "Histogram" tab (you may need to use the left/right arrows in the top right corner of the screen to make the tab visible). To configure the X-axis scaling in a Report Template, select the WinSPCChart component in the report designer, select the "Properties" item in the component properties window on the left side, click on the ellipses button ("..."), and then select the "Histogram" tab.

  In both cases, you will see the following properties window:

  There are now six different ways the X-axis on the histogram can be scaled:

  "Reasonable Limits" - Scales the histogram x-axis according to the reasonable limits configured for the variable. The minimum of the X-axis (left side) will be the Lower Reasonable Limit (LRL) and the maximum of the X-axis (right side) will be the Upper Reasonable Limit (URL). This is the default scaling method. "Specification Limits" - Scales the histogram x-axis according to the specification limits configured for the variable. The minimum of the X-axis (left side) will be the Lower Specification Limit (LSL) and the maximum of the X-axis (right side) will be the Upper Specification Limit (USL). "Control Limits" - Scales the histogram x-axis according to the calculated control limits for the last subgroup of data displayed on the chart. The minimum of the X-axis (left side) will be the Lower Control Limit (LCL) and the maximum of the X-axis (right side) will be the Upper Control Limit (UCL). "Data" - Scales the histogram x-axis according to the data displayed on the chart. The minimum of the X-axis (left side) will be the minimum reading value (in the case of a Histogram of Individuals) or the minimum subgroup value (in the case of a Histogram of X-bar values) and the maximum of the X-axis (right side) will be the maximum reading value (in the case of a Histogram of Individuals) or the maximum subgroup value (in the case of a Histogram of X-bar values). "Default scaling (Variable Setup)" - Scales the histogram x-axis according to the primary chart scale (the top chart, usually the X-bar or X chart), configured in the "Settings" tab of variable setup. The minimum of the X-axis (left side) will be the "Y Min" value set in the "Settings" tab and the maximum of the X-axis (right side) will be the "Y Max" value set in the "Settings" tab (these settings in the variable setup control the Y-axis scaling of a control chart, which are the plotted values - on a histogram, the plotted values become the X-axis). "Manual" - Scales the histogram x-axis according to the specified "Max" and "Min" values entered. The minimum of the X-axis (left side) will be the "Min" value entered and the maximum of the X-axis (right side) will be the "Max" value entered.

Histogram scaled to Specification Limits with 0% Oversize	Histogram scaled to Specification Limits with 10% Oversize

- There are also two other settings available:

  "Oversize Axis By" - This will expand the X-axis by a small amount so that the min and max values (defined above) are not directly on the border of the chart area. This is useful in situations where you want to scale your histogram to a set of limits (such as specification or control limits) and also see those limits on the chart (you don't want them to be directly on the left or right chart border). The percent entered is distributed evenly

on the left and right side. For example if you have the Oversize Axis set to 15%, the axis minimum will be reduced by 7.5% of the defined axis scale and the axis maximum will be increased by 7.5% of the defined axis scale. The default value is 10%.

 "Bin Count" - Controls the number of bins (or possible bars) for the histogram. The X-axis is divided evenly into the specified number of bins. The default value is 25.

When choosing an X-axis scaling method, keep in mind that some of the visual elements of the histogram chart (limit lines, data, distribution curve) may fall outside of the visible area. For example, if you choose the "Control Limits" option, the bars that represent the data that is outside the control limits may not visible on the chart (depending on your "Oversize Axis" setting).

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