

Easy Chart - Calculated Pens

Calculated Pens

i This section assumes that Tags and Tag History have been configured

To learn more, go to the [Tag](#) and [Set up Tags to Log](#) pages. The examples below use [OPC Tags](#), but [Memory](#), [Expression](#), and [Query Tags](#) could be used instead.

Calculated pens display a value that is dynamically calculated based on another pen. This can be used to calculate certain values for a pen and graph them alongside the original pen values, allowing you to gain valuable insight into your data. There are many unique calculations that can be used, with some of them containing unique customization. Almost all of the Calculated pens require a driving pen, which is a tag or database pen that you have already setup.

i Note

You cannot bind the Calculated Pen values inside the Easy Chart Customizer. To bind the function values, use the [Cell Update Binding](#).



Easy Chart - Calculated Pens

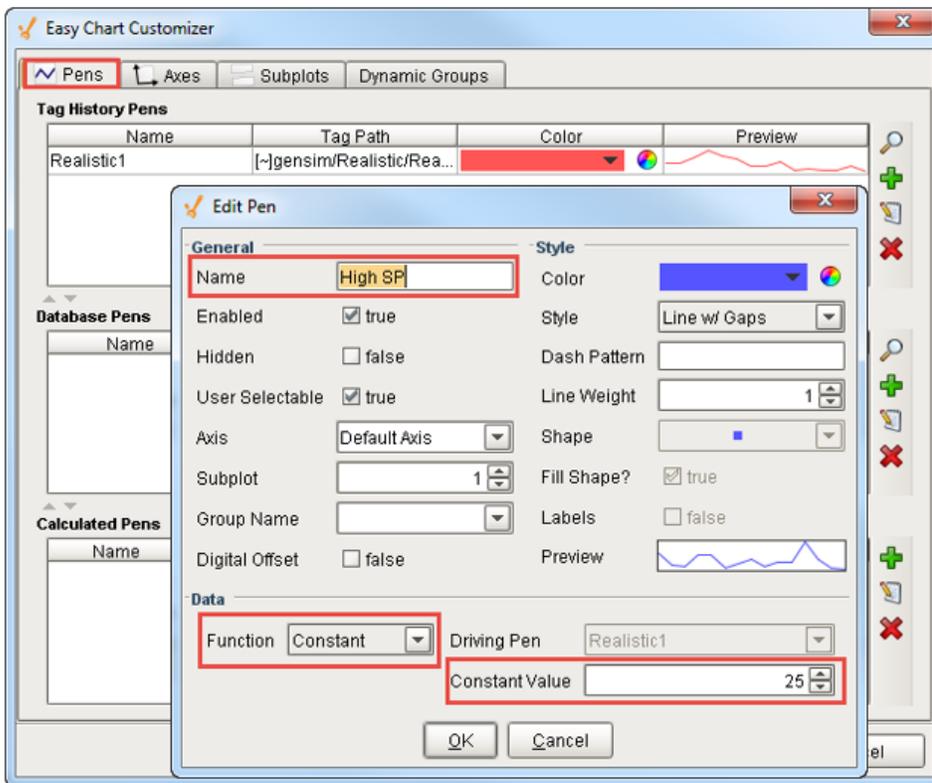
[Watch the Video](#)

Function	Display Name	Description	Extra Properties
Constant	Constant	A constant value on the chart.	Constant Value - The constant value of the pen
Upper Control Limit	UCL	The upper control limit of the driving pen, which is three standard deviations above the mean of the Driving Pen	
Upper Warning Limit	UWL	The upper warning limit of the driving pen, which is two standard deviations above the mean of the Driving Pen	
Average	Avg	The average of the driving pen.	
Lower Warning Limit	LWL	The lower warning limit of the driving pen, which is two standard deviations below the mean of the Driving Pen	
Lower Control Limit	LCL	The lower control limit of the driving pen, which is three standard deviations below the mean of the Driving Pen	
Moving Average	Moving Avg	A series of averages based on subsets of the driving pen. The subsets are determined by the window size.	Window Size - The size of the moving average window, specified as a multiplier of the chart's date range.
Multiply Pen	Multiply	Multiply each data point of the driving pen by a factor.	Factor - The factor that each data point of the driving pen is multiplied by.
Minimum Value	Min	The minimum value of the driving pen.	
Maximum Value	Max	The maximum value of the driving pen.	
Running Sum	Running Sum	A running sum or running total of the driving pen.	
Sum	Sum	The sum of two different driving pens.	Secondary Pen - The second driving pen.
Difference	Difference	The difference of two separate driving pens.	Secondary Pen - The second driving pen.

This feature is new in Ignition version **7.9.4**
[Click here](#) to check out the other new features

Linear Regression	Linear Regression	Will create a linear regression line for the driving pen.
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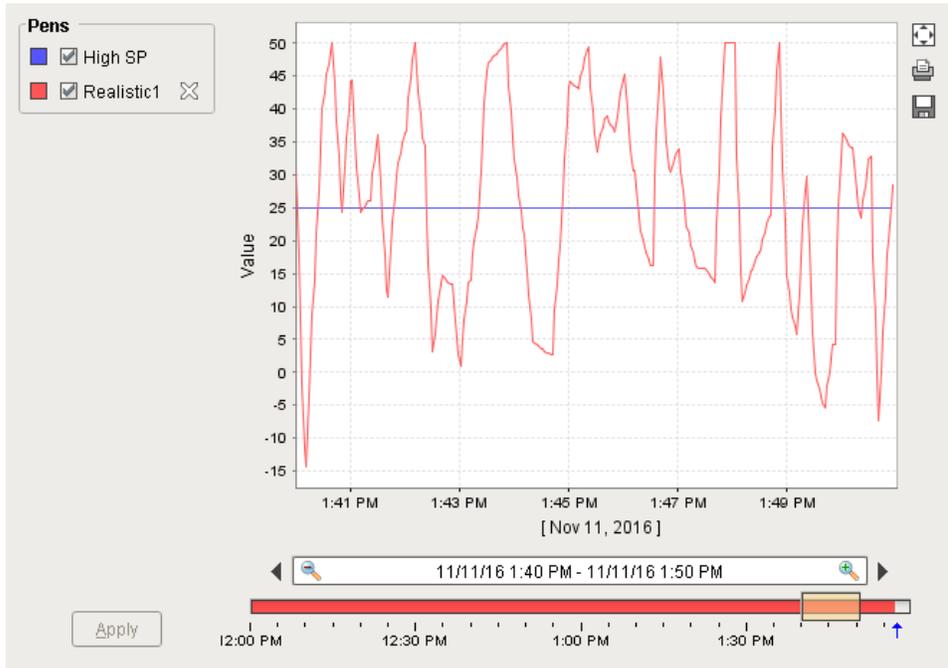
1. Right click on the Easy Chart component, and scroll down to **Customizers > Easy Chart Customizer**.
2. The Pens tab will open and you'll notice a **Calculated Pens Table** at the bottom of the screen. You can add one or more calculated pens by clicking the **green plus icon**. Add a calculated pen name called **'High SP.'** In the Function field, select **'Constant'** from the dropdown list, and set the 'Constant Value' at **'25.'** Click **OK**.



i Pens

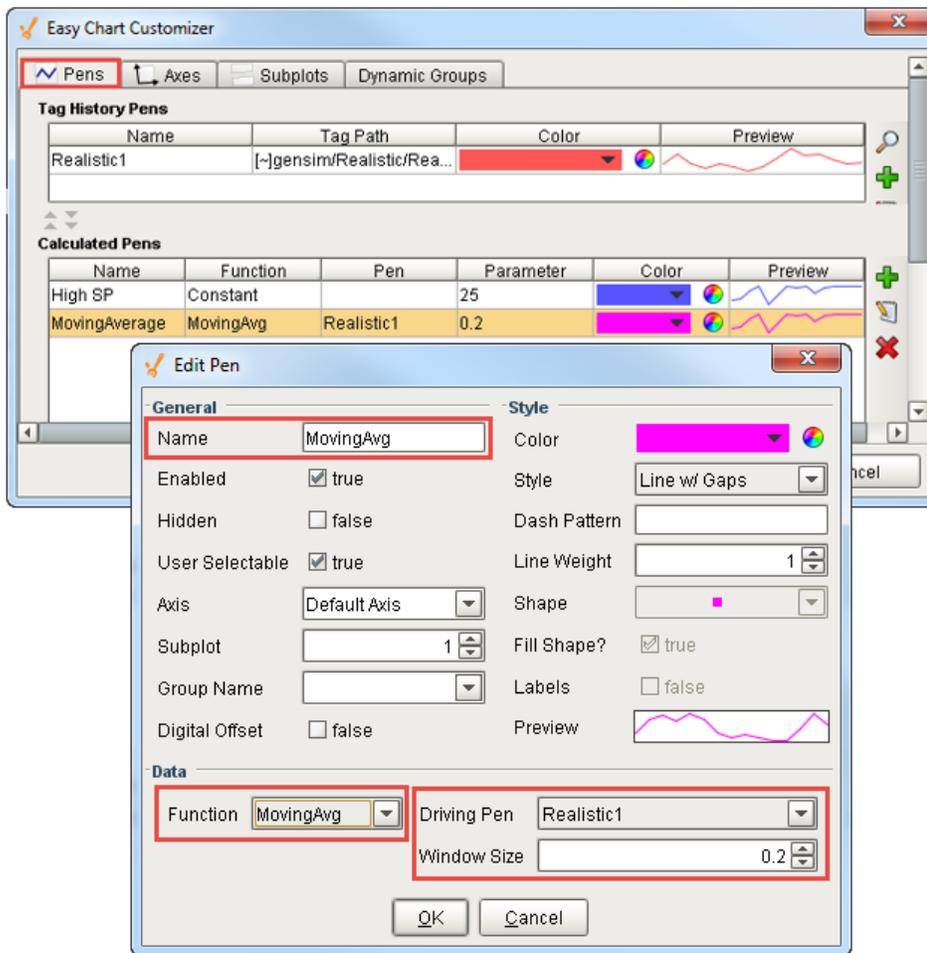
Calculated pens are just like other pens, so you can specify the style, color, axis and subplot in the Edit Pen window.

3. Press **OK** again to view your High SP pen on your Easy Chart. The High SP value of 25 is represented on your Easy Chart by a blue horizontal line.

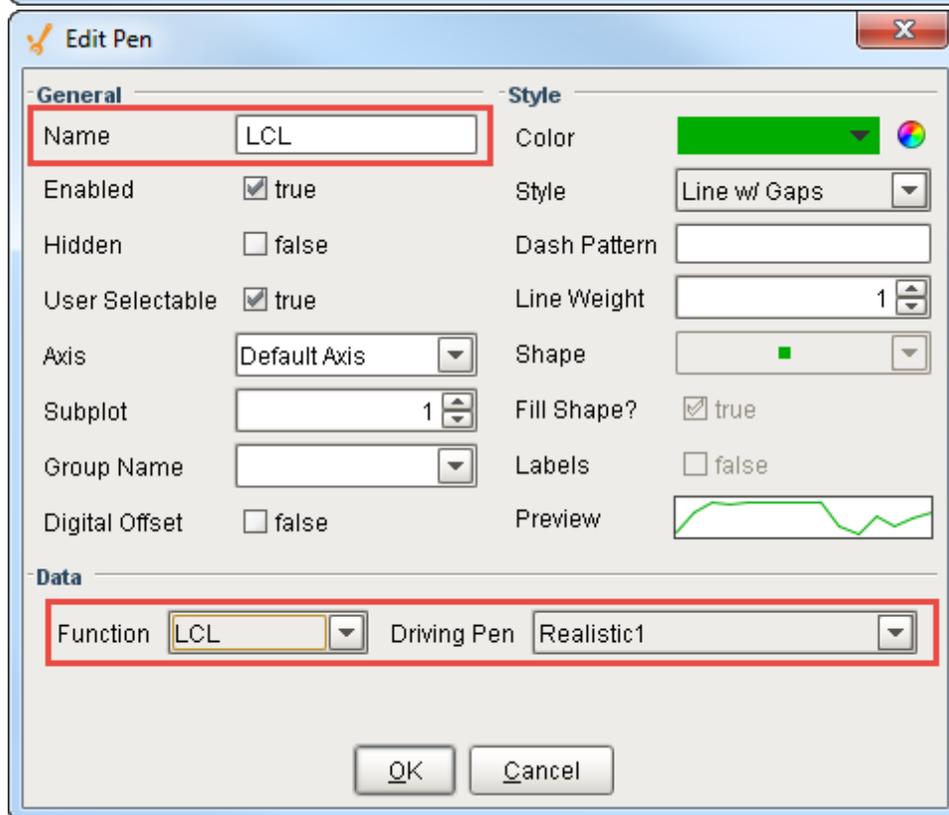
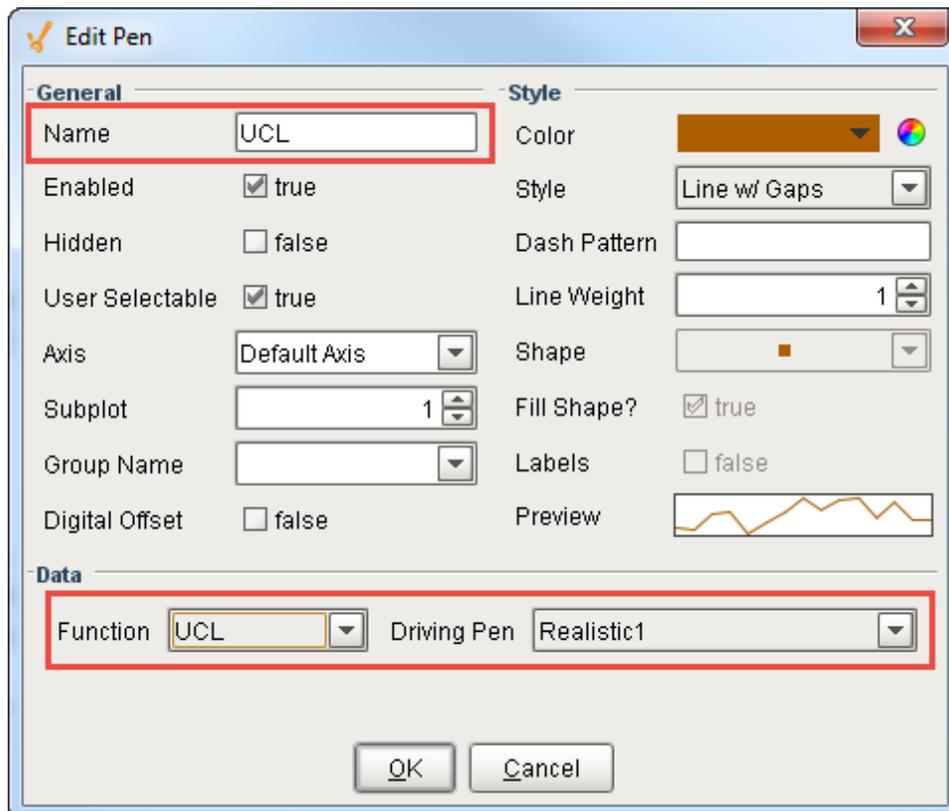


4. Lets add a second calculated pen. On the **Pens** tab, click the **green plus icon** on the Calculated Pens Table.

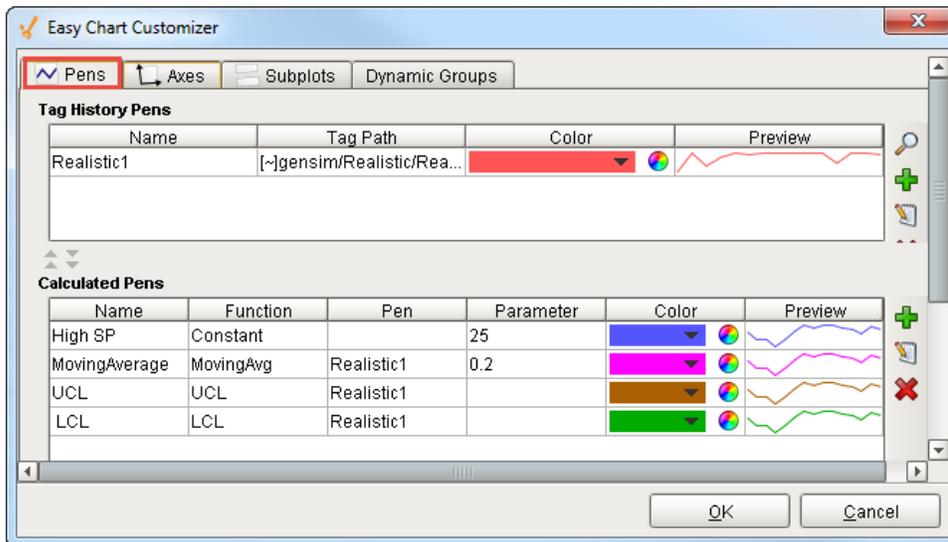
On the **Edit Pen** window, enter the calculated pen name called **'Moving Average.'** In the Function field, select **'MovingAvg'** from the dropdown list. Set the Driving Pen to **'Realistic1,'** also from the dropdown list. (If you have more Tags that you dragged on to your Easy Chart from the Tag Browser, you'll have more pens to choose from in the Driving Pen dropdown list). Specify the **Window Size** which is the percentage of the total time period that you are going to do a Moving Average on, for example **20%**. Press **OK**.



5. Lets add two more calculated pens: one for Upper Control Limit (UCL) and another for Lower Control Limit (LCL), and set the Driving Property to 'Realistic1.'



6. Once you added all your calculated pens, you'll see all your pens in the Calculated Pens Table at bottom of the window. Press **O** **K**.



7. Now, all your calculations are displayed on your Easy Chart. The blue pen is the Constant, the pink pen is the Moving Average, and UCL and LCL are brown and green respectively.



Hide Driving Pens

Once you have your Calculated Pens created, you'll notice that they disappear if you disable the pen driving them. If you want to remove the Driving Pen but leave the Calculated Pens, set the **Hidden** property of the Driving Pen.

Related Topics ...

- [Easy Chart Customizer](#)
- [Ad Hoc Charting](#)

