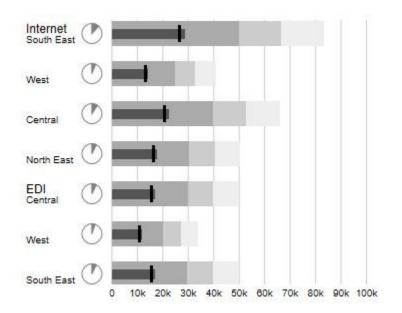
User Manual for graphomate bullet graphs for SAP Lumira Designer



PDF Download

Version 2021.4 - as of December 2021 https://www.graphomate.com

graphomate.

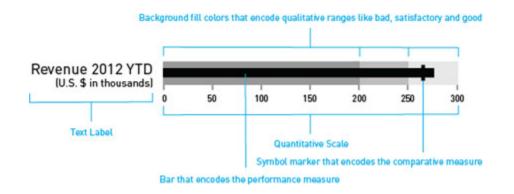
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Introduction

A bullet graph is a variation of a bar graph developed by Stephen Few middle of the last decade. Seemingly inspired by the traditional thermometer charts and progress bars found in many dashboards, the bullet graph serves as a replacement for dashboard gauges and meters. Bullet graphs were developed to overcome the fundamental issues of gauges and meters: they typically display too little information, require too much space, and are cluttered with useless and distracting decoration.

The bullet graph features a single Performance Measure (e.g. current year-to-date revenue), compares that measure to one or more other measures to enrich its meaning (for example, compared to a target), and displays it in the context of Qualitative Ranges of performance, such as poor, satisfactory, and good. The Qualitative Ranges are displayed as varying intensities of a single hue. A quantitative scale and a text label complete the bullet graph.



graphomate bullet graphs can be used horizontally and vertically aligned as well as scaled identically. According to the number of dimension members in the query multiple bullet graphs are drawn. A Reverse Quantitative Scale - for example, for costs representations - can be easily realized.

If the Qualitative Ranges are missing in the database, these values can be determined on percentage values based on any measure in the query.

graphomate bullet graphs support the International Business Communication Standards (IBCS):

- Availability of data types for a dashboard-wide uniform notation
- Visualization of the deviation of Performance Measures from Comparative Measures
- Normalization to target values possible
- Cross-scaling of graphomate components via Comparison Group
- In the sense of a uniform language regulation we speak in the further manual of Lumira Designer or briefly Designer.

For our *graphomate bullet graphs* extension Lumira Designer >= 2.0 SP03 and IE 11+ are required. For further information, for example about the deployment on the Business Intelligence Platform (BIP) or SAP Netweaver, please consult the Product Availability Matrix (PAM).

Please note that we will no longer support Internet Explorer 9 and 10 from 2017.

Installation

- Before opening your old dashboards/BI apps with Designer 2.0, you need to migrate them to m mode with Design Studio 1.6.
 - Our extensions for Design Studio 1.6 will also run in Designer 2.0. When starting Lumira 2.0 Designer, please do not import our graphomate extension from SAP Design Studio 1.6. Instead we suggest using the versions specifically built for Designer 2.0.

Local installation of the extension to Designer

You have installed Designer 2.0 SP03+ on your computer.

- 1. Save the zipfile graphomate_bulletgraphs_2020.4.x_LumiraDesigner.zip to a folder of your choice.
- 2. In Designer, choose *Tools Install Extension to Lumira Designer*, click on *Archive* and select the zipfile which has been saved before.
- 3. Choose *Finish* to start the installation.
- 4. Choose Next and again Next to confirm the installation.
- 5. Accept the terms of the license agreement and choose Finish.
- 6. Choose Yes to allow a restart of Designer.
- 7. After the restart, the graphomate extension appears in the Component View of Designer.

Removing the extension from Designer

In Designer choose Help > About....

- 1. Click the Installation Details button.
- 2. Select the component graphomate bulletgraphs 2020.4.x
- 3. Choose Uninstall....
- 4. In the UninstallWizard choose Finish.
- 5. Choose Yes to allow Designer to restart.

Server installation of the extension

Users need to deploy the locally installed extension to the BI platform before launching the *graphomate bulletgraphs* from the BI platform.

- 1. Choose in the BI Platform Mode Tools > Platform Extensions.
- 2. Select the extension graphomate bulletgraphs that is installed on your local computer.
- 3. Choose Install on Platform.
- 4. Manually restart the BI Platform Adaptive Processing Servers that host the Analysis Application Service and accept the warnings in Designer.
- 5. The graphomate extension appears under Extensions Installed on Platform.
- 6. Choose Close.
- 7. Again restart the BI Platform Adaptive Processing Servers that host the Analysis Application manually.

Uninstalling the extension from the Server

- 1. Choose in the BI Platform Mode Tools > Platform Extensions.
- 2. Choose the graphomate bulletgraphs.
- 3. Choose Uninstall from Platform.
- 4. Confirm the uninstalling by choosing Yes.
- 5. In order to complete the uninstalling process, manually restart the BI Platform Adaptive Processing Servers that host the Analysis Application Service and accept the warnings in Designer.
- 6. The graphomate bulletgraphs is then removed from the Extensions Installed on Platform.
- 7. Choose Close.
- 8. Manually restart the BI Platform Adaptive Processing Servers that host the Analysis Application Service.

Quick Start

You have defined a Data Source on basis of a SAP BW Query and now want to depict data series from this query with a graphomate bullet graph.

- 1. Drag the component graphomate bullet graphs to the canvas and bind the Data Source to this component via Drag&Drop.
- 2. On the Data tab you are able to assign the data series from the query in the Initial view in rows or columns by clicking the corresponding series button. Just click on a row or column header or select a range with the "Ctrl" key pressed. The selected data series is highlighted in blue. Now activate the selection via click. The data series will now be shown in the bullet graph. "x" deletes the assignment of the data series.

€ / ≡ \$	0 🗐 Q
Data	
Data Selection	
Performance Measures 1	•••• ×
Performance Measures 2	×
Comparative Measures 1	×
Comparative Measures 2	×
Qualitative Range 1	×
Qualitative Range 2	×
Qualitative Range 3	×

3. Further options can be used to alter the appearance of the bullet graphs in the *Additional Properties Sheet*. Checkboxes in front of the give you the possibility to control the visibility of elements in the bullet graph.

Properties

Basically, there are two possibilities to maintain the features of *graphomate bullet graphs*: with the *Standard Properties Sheet*, which lists all parameters in a structured list or with the *Additional Properties Sheet*. The latter provides a user-friendly interface. There are some special features which can only be maintained on the *Standard Properties Sheet*.

The Checkboxes next to the features in the Additional Properties Sheet are used to control the visibility of elements.

The chosen Data Source can only be attributed to the component via drag&drop or via the *Standard Properties Sheet* under *Data Binding*.

Clicking the F5 (Reload Application) key reinitializes the canvas as well as the Additional Properties Sheet. This is sometimes necessary when changes in the Properties are not directly accepted in the canvas.

Data Tab

Data Selection

Here you can link the seven data series from the data source that you want to display by clicking the corresponding series button and choosing a column or row title in the following window – the initial view. The selected data series is highlighted in blue. Click "Ok" to confirm the selection.

"x" deletes the assignment of the data series.

Performance Measures 1 and 2

The Performance Measures are shown as small colored bars in the middle of the bullet graph. With increasing ordinal number, the bars get longer; the value for Performance Measure 2 should therefore be greater than that of Performance Measure 1, otherwise the bar will be obscured by Performance Measure 1.

Comparative Measures 1 and 2

The Comparative Measures are shown as vertical dashes to the axis – or in the shape of the assigned data type.

Qualitative Ranges 1 to 3

There are three Qualitative Ranges available. These can be either assigned from a Data Source or calculated from a single Data Series (therefore the Checkbox Calculate Qualitative Ranges in the Behavior Tab has to be activated).

For a flawless display, the first range should be assigned the smallest value, and the third range the greatest value.

If the ranges are calculated, only the second range must be specified; first and third range will be automatically determined according to the percentages specified in Percentage for Qualitative Range 1 and 3 (see also Behavior Tab).

Set a la	0 🗐 Q
Data Selection	
Performance Measures 1	×
Performance Measures 2	×
Comparative Measures 1	×
Comparative Measures 2	×
Qualitative Range 1	×
Qualitative Range 2	×
Qualitative Range 3	×

Data Types

A data type can be specified for each data point of a Data Series. By default, only the input options for Performance Measure 1 are visible. The input options for all other Data Series can be made visible by clicking on "more".

The entered data types must be defined on the Data Types tab. The definition of the data types can also be made in the graphomate charts or graphomate tables.

Data types are defined globally; they are valid for all graphomate components.

Chart Title

Enter a title for your bullet graph at this point. If the Checkbox is activated, the Chart Title will be shown. Line breaks are adopted.

Chart Subtitle

Enter a subtitle for your bullet graph at this point. If the Checkbox is activated, the subtitle will be shown. Line breaks are adopted.

Chart Footer

Enter a footer text for your bullet graph at this point. If the Checkbox is activated, the footer will be shown.

	Performance Measures 1
Tit	les
	Chart Title
	Chart Subtitle
	Chart Footer

Appearance Tab

Font Sizes

Set here the font size of the axis labelling (Axis), the Category Label, the Chart Title, Chart Subtitle and Chart Footer. In addition a Font Family can be chosen (out of four available fonts currently).

Height of Chart Elements

The first value determines the height/width of the Performance Bars. The second value determines the height/width of the Qualitative Bars. The height /width of the bullet graphs component is coupled with this option.

The third value determines the width of the Comparative Markers. A minimum value of 3 should be selected here when using Data Types with hatching, otherwise the fill pattern cannot be displayed correctly.

The fourth value determines the height/width of the drawing area for a single bullet graph.

In order to realize a distance between the axis label and the bullet grap, the height of the drawing area has to be larger than the height of the qualitative ranges. Furthermore, the height of the drawing area serves as a basis for calculation when data types with a percentage width are assigned.

Value Format

Select the format of the Category Labels:

Basic

Select the format of the absolute and percentage values according to guidelines of numeral.js – see Appendix page 19.

Locale sets the label country format in the Basic mode. DE, FR, EN and AUTO are available options. Choosing AUTO the Locale is retrieved from the Data Source.

Font Sizes			
Font Sizes Axis	10		
	12	px	
Category Labels Chart Title	14	px px	
Chart Subtitle	12	px px	
Chart Footer	12	px px	
Other Elements	10	px	
Font Family	Arial		~
Performance Bars Qualitative Ranges	10 25	px px	
Height of Chart Elements	40	1	
Qualitative Ranges	25	рх	
Comparative Markers	3	рх	
Drawing Area	25	рх	
Value Format			
Basic Extended			
Percentage Format	0.0%		
Absolute Format	0a		
Locale	en		*
Basic Format according to numeral.js			

• Extended

If a fixed format is preferred, put the format for absolute and percentage values here.

Choosing a "(" in the box Negative Sign will show negative values in brackets: (1234).

The parameter in the box Scaling is used as a divisor for scaling the data label.

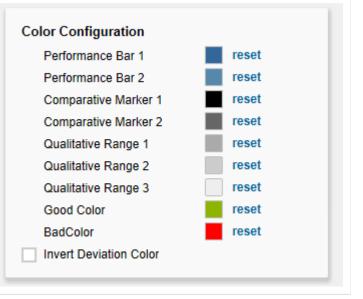
The resulting format string can also be set via scripting language (for further details see Input options for the Extended value format string).

Color Configuration

In this paragraph, the different colors of the bullet graph can be set; first of all the colors for Performance Bars (1 and 2), in the next section the colors for the Comparative Markers (1 and 2) and finally the colors for the 3 Qualitative Ranges.

Good Color and Bad Color are used for the connectible deviations; the option Invert Deviation Color can be used to invert both colors (e. g. if a positive deviations needs to be displayed in red).

Basic Extended				
	abs		%	
Decimal Separator	,	¥	,	~
Thousands Separator		¥		~
Negative Sign	-	¥	-	~
Scaling	1	¥	1	~
Decimal Places	1	~	1	~
Prefix			İ	
Suffix			%	



Data Types Tab

Data Types Editor

This editor is used to define data types. The abbreviations can be used on the Data tab and it is possible to format each element individually. The abbreviations are defined in the column name.

Color and Fill define the appearance of the elements. Shape determines the appearance of the Comparative Marker. Navigate via mouse click through the alternative representations and view the changes in the bullet graph, after you assigned the corresponding data type.

The column width determines the width of the elements. The values can be given in percentage (calculated on basis of the height of the Drawing Area) as well as in absolute values in [px] – just toggle %/abs.

The column Bold is not supported in the current release, but refers to the visualizations in the graphomate charts and graphomate tables.

With the red "-"-button next to Data Type you delete Data Types and with the green "+"-button, new data types can be added.

Data types are used globally within the BIApp. Data types for the graphomate bullet graphs will automatically be adopted by all other graphomate add-ons that utilize data types.

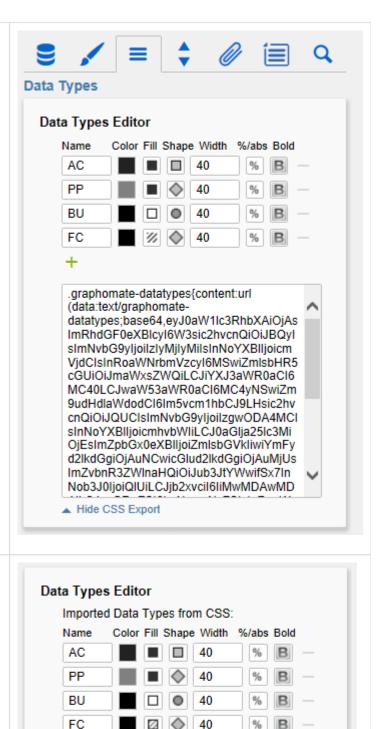
Data types override all other formatting!

Data Types CSS Export

If you want to store the defined data types in a central location, you can extend your central CSS stylesheet on the BI Platform accordingly.

Just copy the code in the box to the end of your CSS file.

Now it is no longer possible to modify data types because the central settings are displayed as shown in the example on the right.





Behavior Tab

Comparison Group

Several bullet graph components can be scaled identically by using the same *Comparison Group*, which is activated by the checkbox. The comparison group will then be shown during design time on the top right corner of the component. That way the minimum and maximum of the data basis in this group is used.

Comparison groups are used globally within the BIApp, ie also graphomate charts, graphomate tiles as well as deviation charts in the graphomate tables are scaled identically by using the same comparison group abbreviation.

Value Axis

This option controls the display of the value axis. *Al* ways draws one value axis for each bullet graph; *On ce* draws a single value axis, which applies to all bullet graphs. This appears at the bottom of the component above the footer. *Never* suppresses the display of the value axis completely.

Tick Interval

This value governs the ticks along the value axis. If e. g. a 5000 is entered, a tick is displayed at 5000, 10000, 15000 etc. The default 0 generates an appropriate number of ticks for the available space. Currently, normalized data (see next option) is not supported. Please note that rendering is slowed down considerably if the data is very large, and a small tick interval is entered.

Normalize to Target

If the option *Normalize to Target Value* is activated, all values will be normalized to a single value which can be selected from the dropdown box *Target Series.* The selected value will be interpreted as 100%; all other values are calculated into percentages accordingly. If the property *Value Axis* is set to *Always*, the underlying values will be displayed, if set to *Once*, the value axis will display the calculated percentages. This option is deactivated if the component is registered in a comparison group.

Use Individual Scales

Behavior ≡ 🗧 🗘 🖉 🗐 🔍
None A B C D E F G H
Value Axis Always Once Never
Tick Interval 0 Normalization Target Series None Use Individual Scales Reverse Quantitative Ranges
Category Labels Category Labels Center Category Labels Trailing Category Labels Suppress Repeating Category Labels

Chart Alignment

Vertical Horizontal

If this checkbox is activated, each bullet graph's axis is calculated individually. Otherwise, all bullet graphs are scaled identically. When choosing *Value Axis* option *Once*, *Use Individual Scales* is disabled, as is the case if the component is registered in a comparison group.

Reverse Quantitative Ranges

This checkbox controls the representation of the axis. If this option is activated, the axis is drawn from n to 0, otherwise the scaling is inverted – from 0 to n.

Category Labels

This section controls the labels of the bullet graphs. If the first checkbox is activated, the category labels are displayed for each bullet graph.

Center Category Labels

If this option is active, category labels are centered in front of/above the bullet graph bars.

Trailing Category Labels

If activated, the category labels will be shown behind /below the bars. Otherwise, the labels will be placed in front of/above the bars.

If the last checkbox is activated, repeating category labels will be suppressed.

Chart Alignment

This checkbox describes the orientation of the bullet graphs. If it is activated, they are displayed vertically, otherwise they are displayed horizontally.

Helper Tab

Display Elements

Tooltips

If this checkbox is activated, tooltips with detailed information will be displayed while hovering over the bullet graph elements during runtime.

Performance Values

If this options is activated, the values of the Performance Measure 1 are displayed at the end of the corresponding bar. All other values can be seen by using the Tooltips.

Deviations

With this option, bars that visualize the deviation between Performance Measure 1 and Comparative Measure 1 can be toggled on and off.

Micro Pies

Activating this Checkbox will display a pie chart in front of each bullet graph. This small pie displays the percentage of the primary measure as part-to-whole – the sum of the primary measure.

If a total exists in the data source, it is used as a basis for the calculation. If only partial or no sums are available, the total amount will be calculated from the data.

The diameter of the Micro Pies can be changed with the option Diameter of Micro Pies. The color of the Micro Pies can be selected with the option Micro Pie Color.

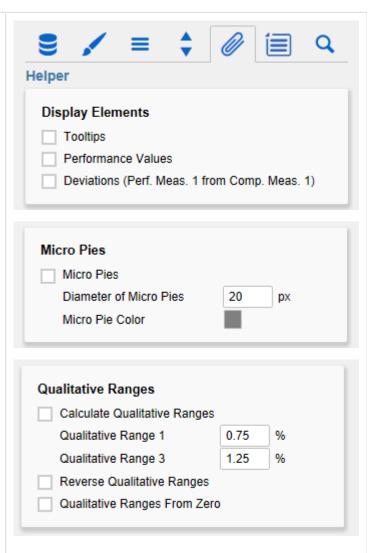
Qualitative Ranges

Calculate Qualitative Ranges

If this Checkbox is activated, Qualitative Ranges 1 and 3 will be calculated.

The values of **Percentage for Qualitative Range 1** and **3** are used to calculate Qualitative Ranges 1 and 3 based on Qualitative Range 2.

The two missing ranges are calculated by multiplying range 2 by the values entered here. Therefore the first value should be < 1, as otherwise the bar for Qualitative Range 2 will be obscured by the bar for Qualitative Range 1.



Yet the second value should be > 1, as otherwise the bar for Qualitative Range 3 will be obscured by the bar for Qualitative Range 2.

Reverse Qualitative Ranges

This checkbox controls the display of the Qualitative Ranges. If this option is deselected, they are drawn from the left side (usually the value range minimum) to the input value (or calculated value). If the option is activated, the Qualitative Ranges are displayed in reverse so that the range is drawn from the input value to the value range maximum.

Qualitative Ranges from Zero

Ist diese Option aktiv, werden die Qualitative Ranges nicht mehr vom linken Rand des Zeichenbereichs, sondern von der 0-Achse aus gezeichnet.

Context Menu Tab

In this tab, you will be able to choose which options are available in the context menu. An activated checkbox means this options will be shown. The first checkbox enables or disables the context menu altogether.

Once activated the context menu will be accessible during runtime by right clicking on the component. The active operations will be usable as follows.

Sorting

With Sorting data from the available dimensions can be sorted in ascending or descending order.

Filters

Allows you to filter the data by member for all available dimensions.

Context Sensitive Filters

Shows filters corresponding to the currently clicked dimension.

Filter and Hide

In addition to the normal filtering this operation also removes the corresponding dimension from our initial view.

Clear Filters

Resets previously set filters.

Drilldown

Adds another dimension to the component.

Drillup

Removes a dimension from the chart (this can cause an error which makes a reload neccessary).

Zero Display

Sets the way zero values are displayed.

Member Display

Lets you choose the way member names are displayed (text or key).

Position for Totals

 Context Menu Features ✓ Sorting ✓ Filters ✓ Context Sensitive Filters ✓ Filter and Hide ✓ Clear Filters ✓ Drilldown ✓ Drillup ✓ Zero Display ✓ Member Display ✓ Position for Totals ✓ Total Display Custom Event Names ✓ customEvent1 Custom Entry 1 ✓ customEvent2	Settings	
 Sorting Filters Context Sensitive Filters Filter and Hide Clear Filters Drilldown Drillup Zero Display Member Display Member Display Position for Totals Total Display Custom Event Names customEvent1 Custom Entry 1 	Context Menu	
 Sorting Filters Context Sensitive Filters Filter and Hide Clear Filters Drilldown Drillup Zero Display Member Display Member Display Position for Totals Total Display Custom Event Names customEvent1 Custom Entry 1 		
 Filters Context Sensitive Filters Filter and Hide Clear Filters Drilldown Drillup Zero Display Member Display Member Display Position for Totals Total Display 	Features	
 Context Sensitive Filters Filter and Hide Clear Filters Drilldown Drillup Zero Display Member Display Member Display Position for Totals Total Display 	✓ Sorting	
 Filter and Hide Clear Filters Drilldown Drillup Zero Display Member Display Position for Totals Total Display 		
 Clear Filters Drilldown Drillup Zero Display Member Display Position for Totals Total Display Custom Event Names CustomEvent1 Custom Entry 1		
 Drilldown Drillup Zero Display Member Display Position for Totals Total Display Custom Event Names CustomEvent1 Custom Entry 1		
 Drillup Zero Display Member Display Position for Totals Total Display Custom Event Names customEvent1 		
 Zero Display Member Display Position for Totals Total Display Custom Event Names customEvent1 		
 Member Display Position for Totals Total Display Custom Event Names customEvent1 		
 Position for Totals Total Display Custom Event Names customEvent1 Custom Entry 1 		
 ✓ Total Display Custom Event Names ✓ customEvent1 Custom Entry 1 	Index 1	
✓ customEvent1 Custom Entry 1	Index 1	
✓ customEvent1 Custom Entry 1	Custom Event Names	
		Custom Entry 1

Sets the positions for each total value per dimension to be displayed before or after other values.

Total Display

Enable or disable totals for each dimension.

Custom Events

There are 10 possible events which can be linked to your own scripts. These can be defined in the property sheet and triggered using the corresponding button in the context menu.

In the *Additional Properties Sheet* the names for these buttons is customizable.

All operations are executed directly on the data source, but without changing it. A reload resets all changes made with the context menu.

Search Tab

Search

At this point you can search for the name, function or group of a property which are displayed at the *Ad ditional Properties Sheet*. The appropriate settings are then displayed directly and can be changed here.

for Property				
	for Property	for Property	for Property	for Property

Info Popup

Here you can find the version number of our *grapho mate bullet graphs* as well as a link where you may report bugs or propose wishes for new features.

A list of all open-source libraries that we used can be found under Credits.



Standard Properties

Some (expert) features can only be controlled in the Standard Properties Sheet.

Title and Label Formatting

Axis Color	Color of the axis labels.
Category Label Color	Color of the Category Labels.
Category Label Padding	Distance between Category Labels and bullet graph

Appearance

Known Issues

At the moment there are no Known Issues.

Number Formatting

Possible Input for The numeral.js Format String

Floating point		
Number	Format String	Output
10000	'0,0.0000'	10.000,0000
10000.23	'0,0'	10
-10000	'0,0.0'	-10.000,0
-0.23	'.00'	-,23
-0.23	'(.00)'	(,23)
0.23	'0.00000'	0,23000
0.23	'0.0[0000]'	0,23
1230974	'0.0a'	1,2m
1460	'0 a'	1 k
1	'00'	1 st
Currency		
Number	Format String	Output
1.000.234	'\$0,0.00'	\$1.000,23
1000.2	0,0[.]00 \$'	1.000,20 \$
1001	'\$ 0,0[.]00'	\$ 1.001
Percentage		
Number	Format String	Output
1	'0%'	100%
-0.43	'0 %'	-43%

Source

Possible Input for The Extended Number Format String

Percentages and absolute numbers are formatted separately. For this two format strings are used, which follow the same rules and structure. In general the strings of characters in the format string are simply replaced in the input number. Exceptions to this rule would be scaling factors and the number of decimal places.

The elements of the format string are separated by the "|" character. Format strings with less than 7 elements (or 6 "|" characters) are considered invalid and therefore ignored. In this case the standard format without scaling and with one position after the decimal point is used.

The format string consists of the following elements, the ordering is obligatory and cannot be changed: *Negative*|*Prefix*|*Thousands*|*Decimal*|*Scaling*|*PointsAfterDecimal*|*Suffix*

N e g at ive	The prefix for negative numbers. The string "()" will result in the number placed inside parentheses, including eventual prefixes and suffixes. If <i>None</i> is used, the absolute number will be shown.
P re fix	A prefixed string of characters, for example a currency symbol or an identifier for the scaling factor.
T h u s a n ds	A separator for thousands.
D e ci m al	A separator for the decimal places.
S c al ing	The scaling factor for the value. This can be given as a whole number or a power, formatted as n^m . A whole number will be calculated as a power to the basis 10 internally. In case of a given power the value will be divided by it directly. Even negative numbers are possible, for example "-3" or "10^-3"; in this case the value will get adequately higher. Non numeric inputs are ignored. <i>Please note:</i> given a "0" or a "1" will result in a scaling factor of 1. The only way to achieve a scaling by 10 is to set the input to "10^1".

P oi nt s Af te r D e ci m al	The number of places after the decimal.
S uf fix	A suffix for the value, analogous to the prefix.