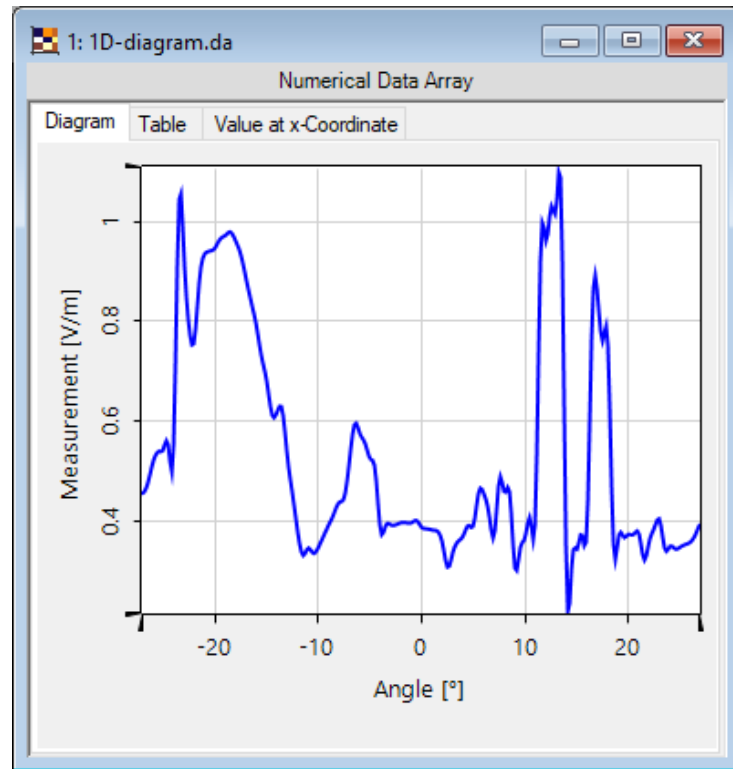


Creating 1D-Diagrams in VirtualLab Fusion

Abstract



This use case demonstrates how to configure 1D diagrams in a way that meets the demands of an appealing presentation. VirtualLab Fusion enables the users to tune various ranging from axis names and units to interpolation and color schemes. In other words, all settings are configured on the GUI level which allows users without programming experience to generate 1D plot with arbitrary settings.

Window Size

Property Browser

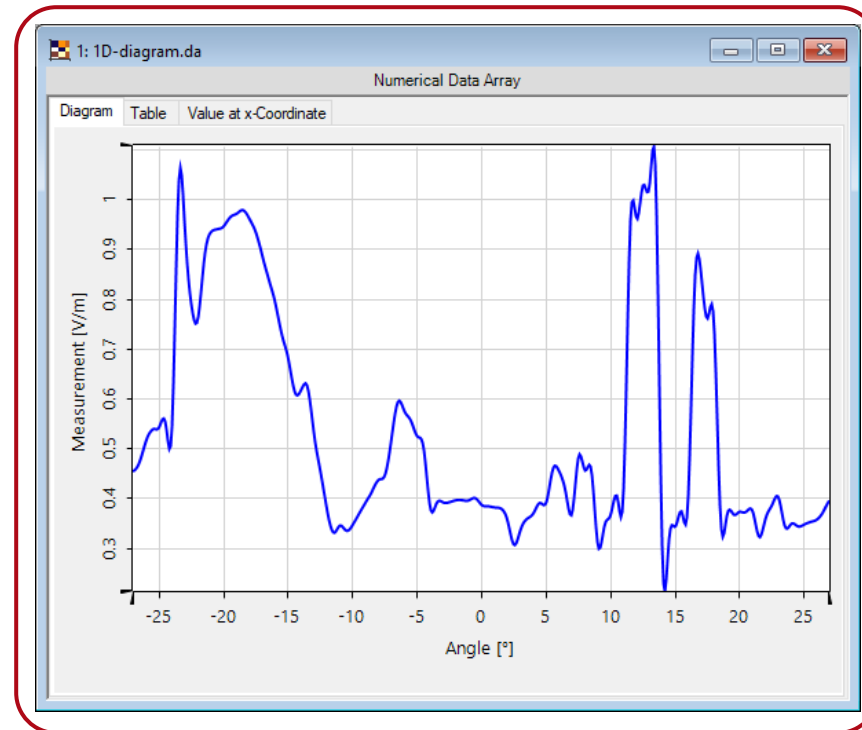
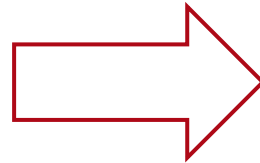
1: 1D-diagram.da

View Object Selections

- General
 - Window Size **600, 500**
 - Transposed View **False**
 - Zoom Factor **9.3704**
 - Zoom Factor Unit **1°**
- Data
 - Auto Scaling of Data **True**
 - Minimum Number of y-Axis Ticks **2**
 - View Interpolation **Method of Object**
- Labels
 - Font Size **10**
- Lines and Symbols
 - Line Color **Blue**
 - Line Thickness **2**
 - Symbol Shape **<No Symbol>**
 - Use Smoothed Graphics **True**
- Selection (General)
 - Selection Mode **Range**
- Selection (Point)
 - Display Point Marker **False**
- Selection (Range)
 - Display Range Marker **False**
- X-Axis
 - Description **Angle**
 - Descending Coordinates **False**
 - Coordinate Range **[-27°: 27°]**
 - Format **Engineering**
 - Logarithmic Scaling **False**
 - Minimum Number of Ticks **2**
- Y-Axis
 - Data Range **[213.54 mV/m; 1.1084 V/m]**
 - Description **Measurement**
 - Is Description User-Defined **False**
 - Format **Engineering**
 - Logarithmic Scaling **False**
 - Read Labels from Inside **True**

Window Size
The size of the document window.

The window size can be defined by just dragging one of the corners as well as by entering the desired size into **Property Browser**.



Font Size

Property Browser

1: 1D-diagram.da

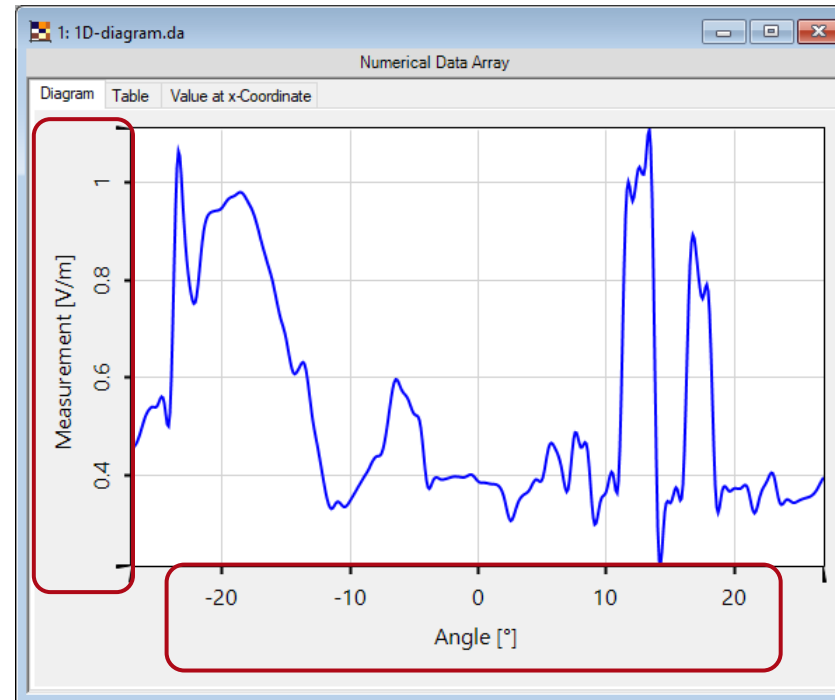
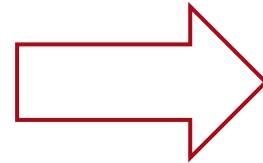
View Object Selections

- General
 - Window Size: 600, 500
 - Transposed View: False
 - Zoom Factor: 9.1481
 - Zoom Factor Unit: 1"
- Data
 - Auto Scaling of Data: True
 - Minimum Number of y-Axis Ticks: 2
 - View Interpolation: Method of Object
- Labels
 - Font Size: 12
- Lines and Symbols
 - Line Color: Blue
 - Line Thickness: 2
 - Symbol Shape: <No Symbol>
 - Use Smoothed Graphics: True
- Selection (General)
 - Selection Mode: Range
- Selection (Point)
 - Display Point Marker: False
- Selection (Range)
 - Display Range Marker: False
- X-Axis
 - Description: Angle
 - Descending Coordinates: False
 - Coordinate Range: [-27; 27]
 - Format: Engineering
 - Logarithmic Scaling: False
 - Minimum Number of Ticks: 2
- Y-Axis
 - Data Range: [213.54 mV/m; 1.1084 V/m]
 - Description: Measurement
 - Is Description User-Defined: False
 - Format: Engineering
 - Logarithmic Scaling: False
 - Read Labels from Inside: True

Font Size

Font size of the labels

Increasing **Font Size** improves the readability of the axes' labels and the axes' tick labels.



Coordinate Range

Property Browser

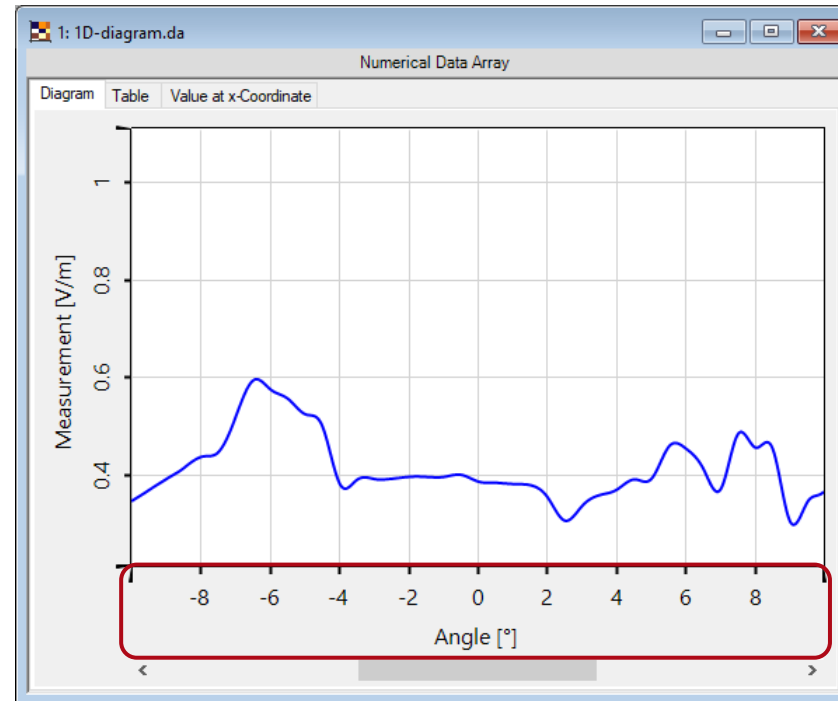
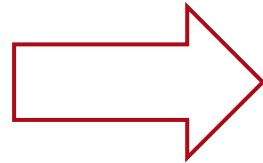
1: 1D-diagram.da

View Object Selections

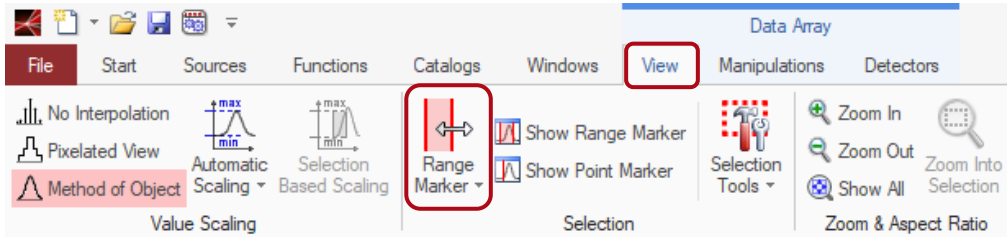
- General
 - Window Size: 600, 500
 - Transposed View: False
 - Zoom Factor: 24.7
 - Zoom Factor Unit: 1"
- Data
 - Auto Scaling of Data: True
 - Minimum Number of y-Axis Ticks: 2
 - View Interpolation: Method of Object
- Labels
 - Font Size: 12
- Lines and Symbols
 - Line Color: Blue
 - Line Thickness: 2
 - Symbol Shape: <No Symbol>
 - Use Smoothed Graphics: True
- Selection (General)
 - Selection Mode: Range
- Selection (Point)
 - Display Point Marker: False
- Selection (Range)
 - Display Range Marker: False
- X-Axis
 - Description: Angle
 - Descending Coordinates: False
 - Coordinate Range: [-10°: 10°]
 - Format: Engineering
 - Logarithmic Scaling: False
 - Minimum Number of Ticks: 2
- Y-Axis
 - Data Range: [213.54 mV/m; 1.1084 V/m]
 - Description: Measurement
 - Is Description User-Defined: False
 - Format: Engineering
 - Logarithmic Scaling: False
 - Read Labels from Inside: True

Coordinate Range
Displayed range on x-axis

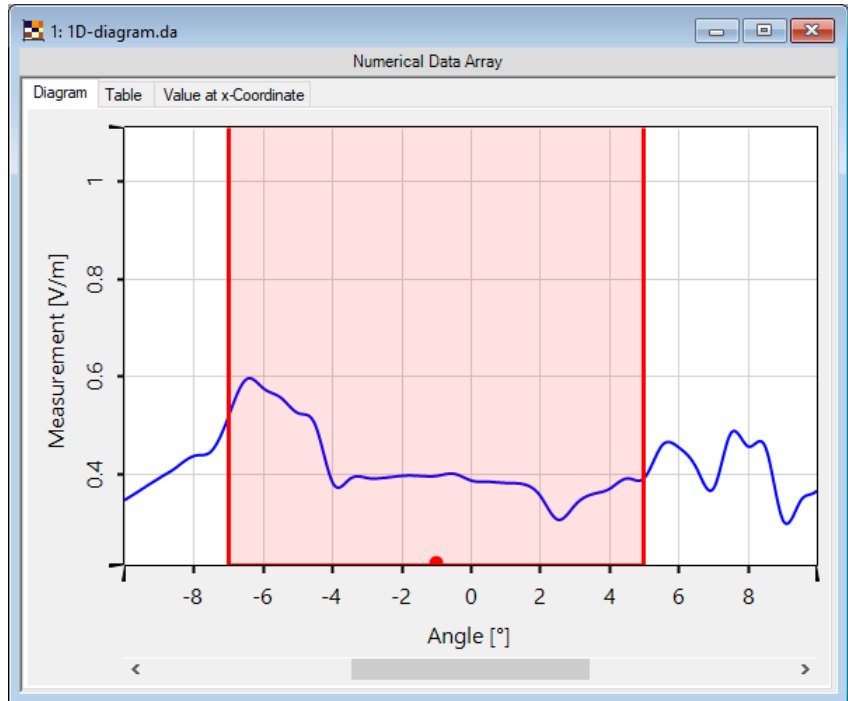
If a certain coordinate range is to be shown, this can be specified via **Property Browser** too.



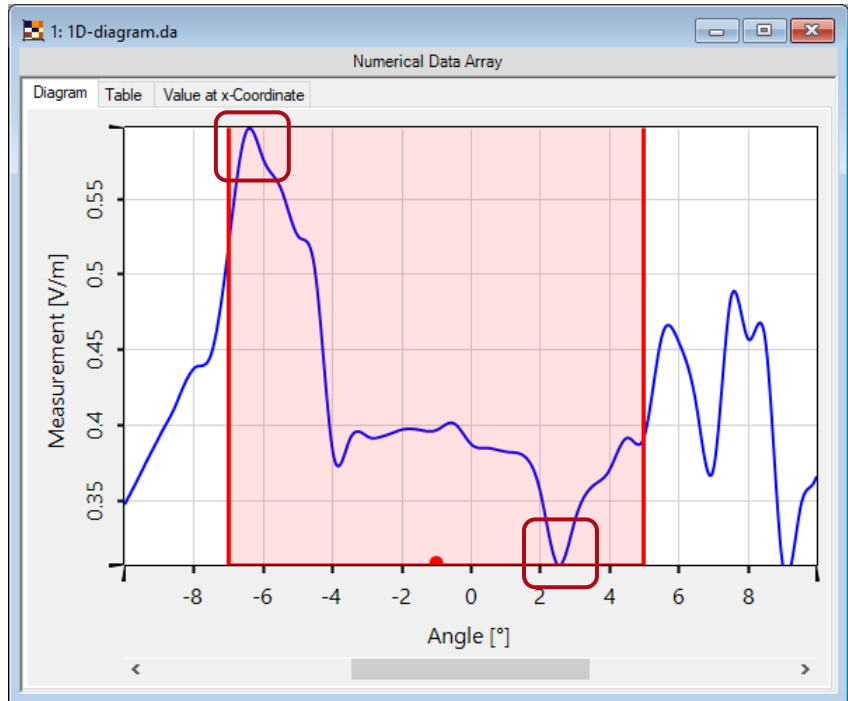
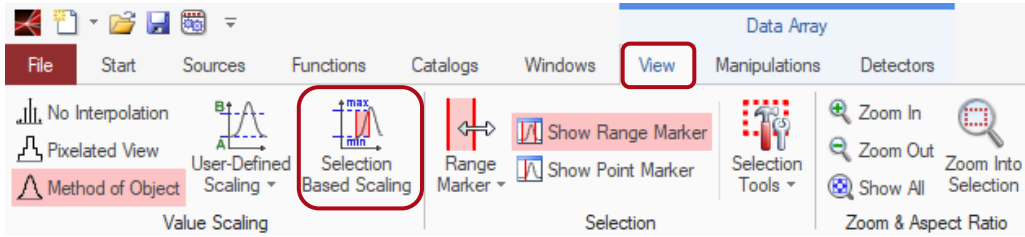
Selection Based Scaling I



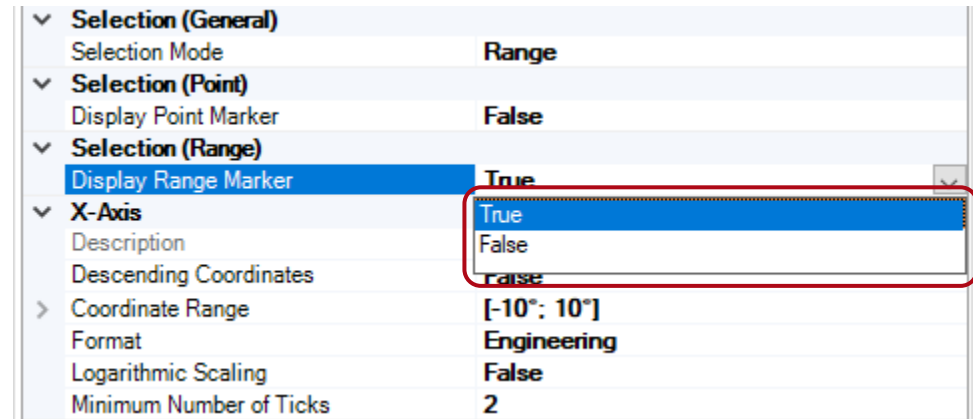
If one were to scale the shown values for better usage of the diagram space, it is recommended to activate **Range Marker** first. Followed by that, the user may mark the intended range for rescaling.



Selection Based Scaling II



- Choosing **Selection Based Scaling** will lead to a rescaled y-axis of the diagram where the available vertical space is used completely by the selected data range.
- The range marker can then be deactivated.



Number of Axis Ticks

Property Browser

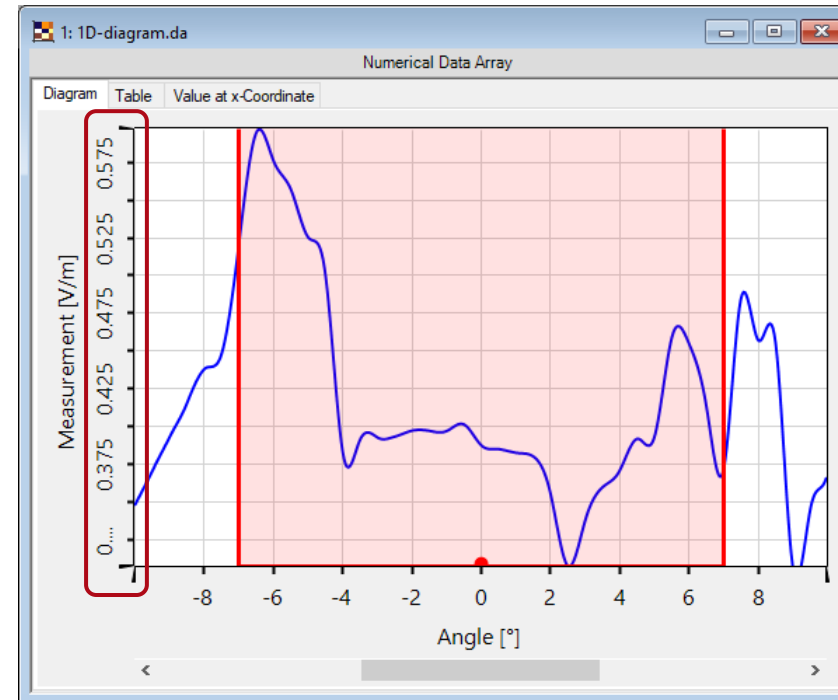
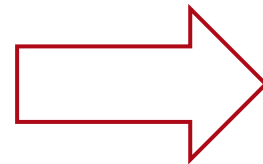
1: 1D-diagram.da

View Object Selections

- General
 - Window Size: 600, 500
 - Transposed View: False
 - Zoom Factor: 24.7
 - Zoom Factor Unit: 1"
- Data
 - Auto Scaling of Data: False
 - Minimum Number of y-Axis Ticks: 6
 - View Interpolation: Method of Object
- Labels
 - Font Size: 12
- Lines and Symbols
 - Line Color: Blue
 - Line Thickness: 2
 - Symbol Shape: <No Symbol>
 - Use Smoothed Graphics: True
- Selection (General)
 - Selection Mode: Range
- Selection (Point)
 - Display Point Marker: False
- Selection (Range)
 - Display Range Marker: True
- X-Axis
 - Description: Angle
 - Descending Coordinates: False
 - Coordinate Range: [-10°; 10°]
 - Format: Engineering
 - Logarithmic Scaling: False
 - Minimum Number of Ticks: 3
- Y-Axis
 - Data Range: [307.29 mV/m; 597 mV/m]
 - Description: Measurement
 - Is Description User-Defined: False
 - Format: Engineering
 - Logarithmic Scaling: False
 - Read Labels from Inside: True

Minimum Number of y-Axis Ticks
Minimum number of value ticks for the Y-Axis

The number of ticks for the y-axis will be increased by setting a higher value for **Minimum Number of Ticks**.



Line Thickness and Color

Property Browser

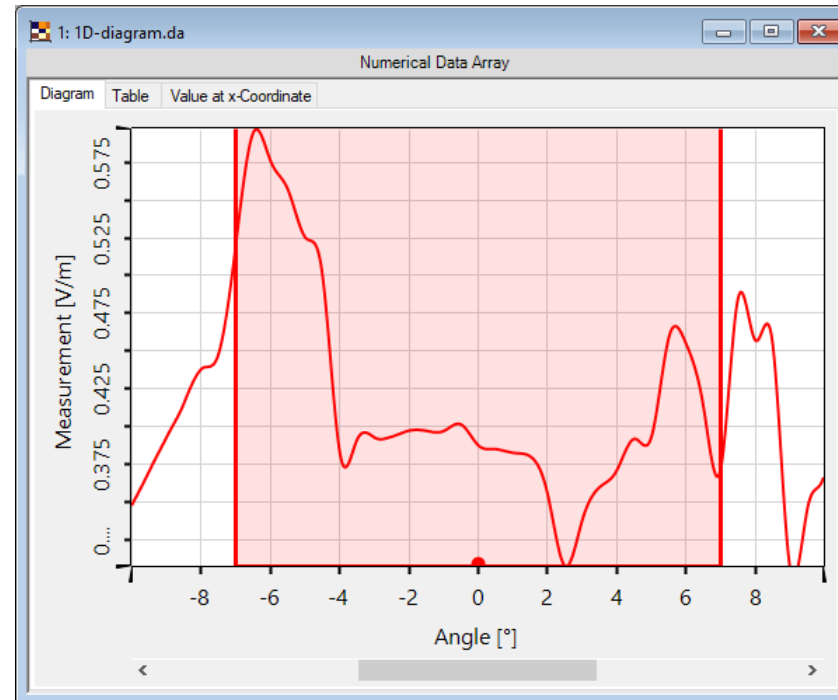
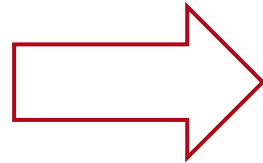
1: 1D-diagram.da

View Object Selections

- General
 - Window Size: 600, 500
 - Transposed View: False
 - Zoom Factor: 24.7
 - Zoom Factor Unit: 1"
- Data
 - Auto Scaling of Data: False
 - Minimum Number of y-Axis Ticks: 6
 - View Interpolation: Method of Object
- Labels
 - Font Size: 12
- Lines and Symbols
 - Line Color: Red
 - Line Thickness
 - Symbol Shape
 - Use Smoothed Graphics
- Selection (General)
 - Selection Mode
- Selection (Point)
 - Display Point Marker
- Selection (Range)
 - Display Range Marker
- X-Axis
 - Description
 - Descending Coordinates
 - Coordinate Range
 - Format
 - Logarithmic Scaling: False
 - Minimum Number of Ticks: 3
- Y-Axis
 - Data Range: [307.29 mV/m; 597 mV/m]
 - Description: Measurement
 - Is Description User-Defined: False
 - Format: Engineering
 - Logarithmic Scaling: False
 - Read Labels from Inside: True

Line Color
Color of the line

If a different line thickness or line color is desired, it can be changed via **Line Color**.



Data Point Symbols

Property Browser

1: 1D-diagram.da

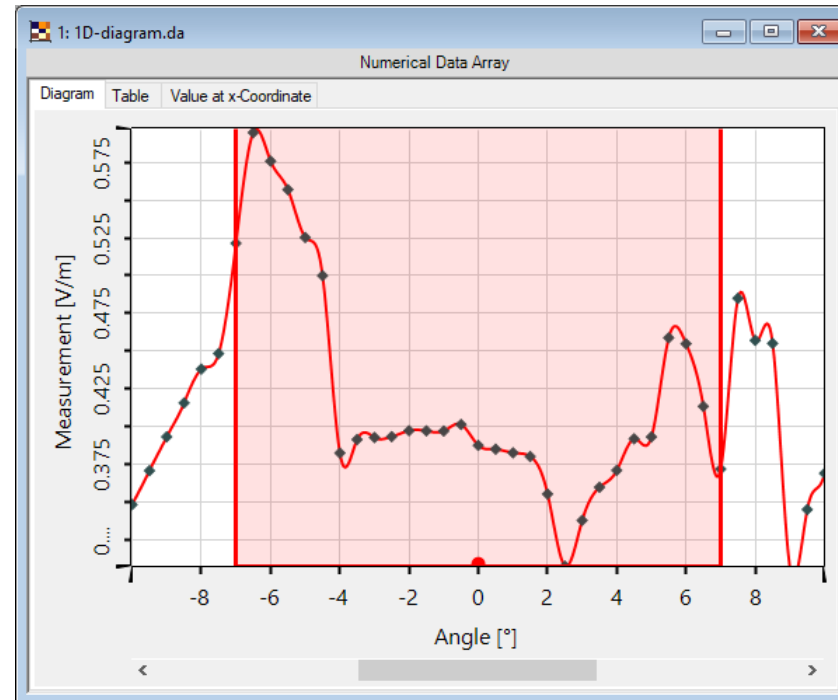
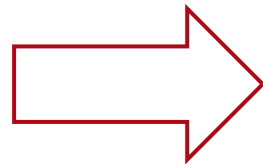
View Object Selections

- General
 - Window Size: 600, 500
 - Transposed View: False
 - Zoom Factor: 24.7
 - Zoom Factor Unit: 1"
- Data
 - Auto Scaling of Data: False
 - Minimum Number of y-Axis Ticks: 6
 - View Interpolation: Method of Object
- Labels
 - Font Size: 12
- Lines and Symbols
 - Line Color: Red
 - Line Thickness: 2
 - Symbol Color: DarkSlateGray
 - Symbol Scaling Factor: 1.5
 - Symbol Shape: Filled Diamond
- Selection (General)
- Selection (Point)
- Selection (Range)
- X-Axis
 - Description
 - Descending Coordinates
 - Coordinate Range
 - Format
 - Logarithmic Scaling
 - Minimum Number of Ticks
- Y-Axis
 - Data Range: [307.29 mV/m; 597 mV/m]
 - Description: Measurement
 - Is Description User-Defined: False
 - Format: Engineering
 - Logarithmic Scaling: False
 - Read Labels from Inside: True

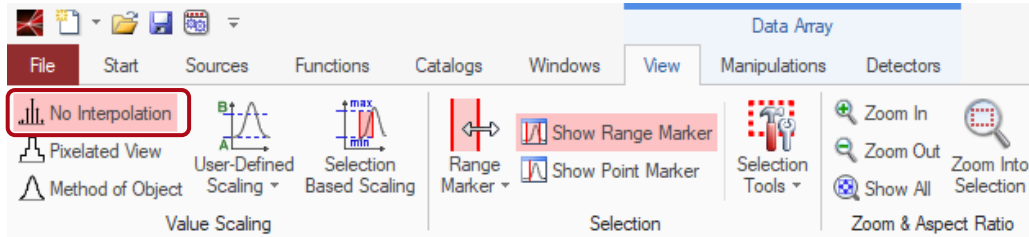
Symbol Shape

What kind of symbols shall indicate the data points?

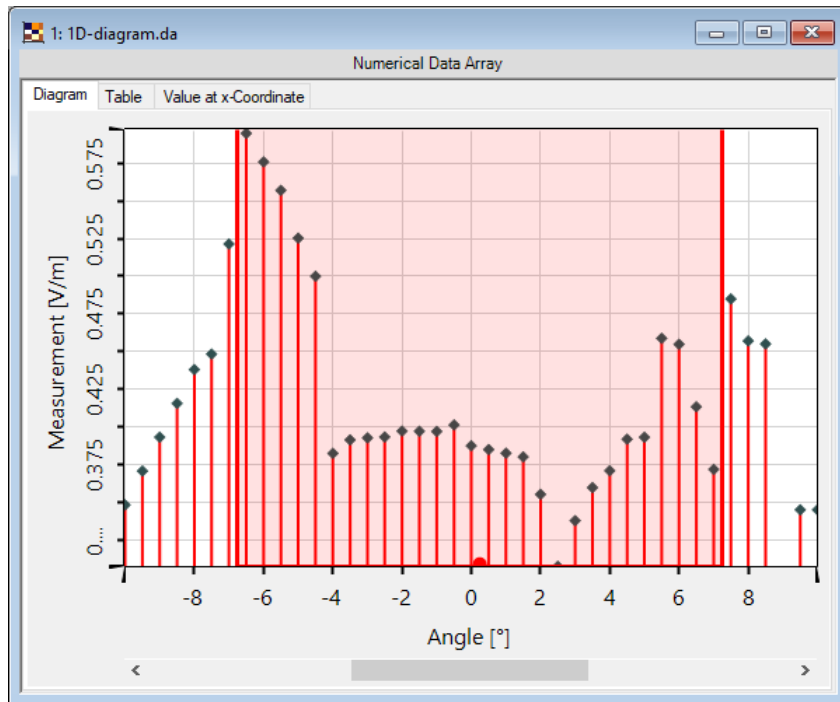
Symbols marking the data points and their corresponding color may be set via **Symbol Shape** and **Symbol Color**, respectively.



Non-interpolated View

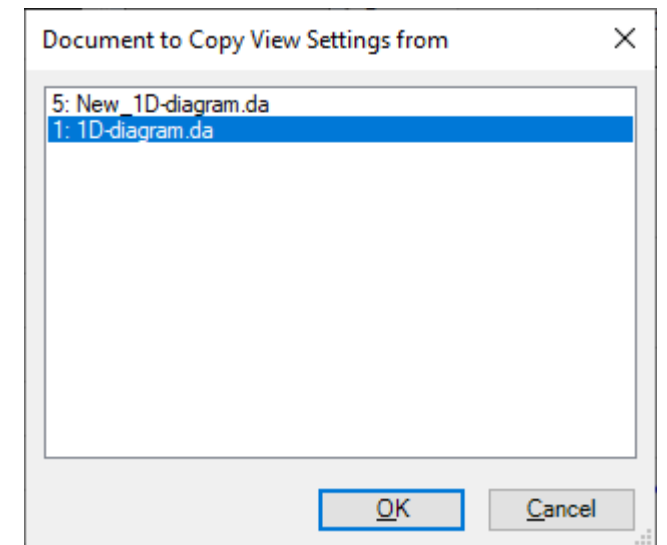
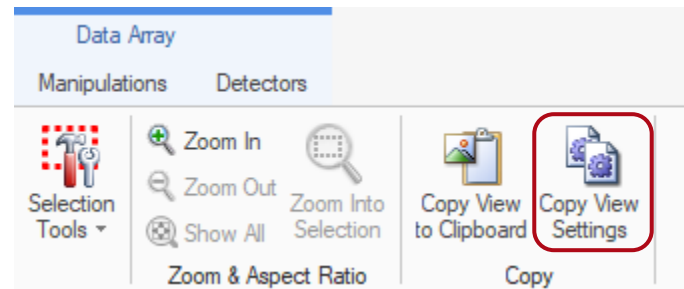
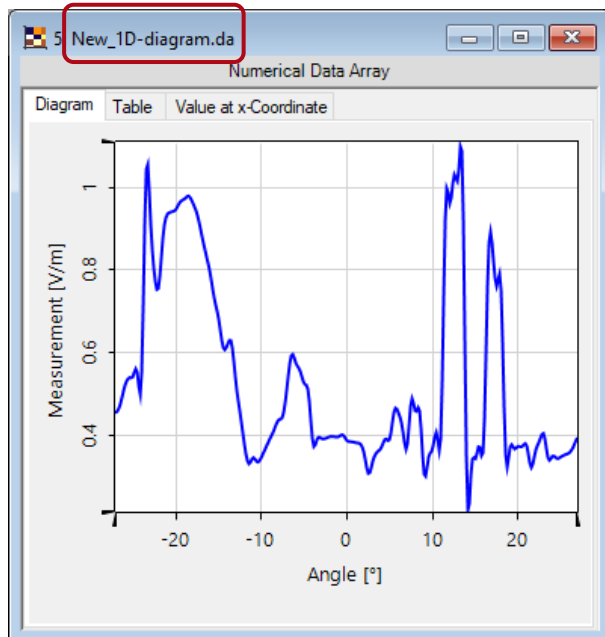


If it is intended that no interpolation be applied between the data points, it can then be easily deactivated.



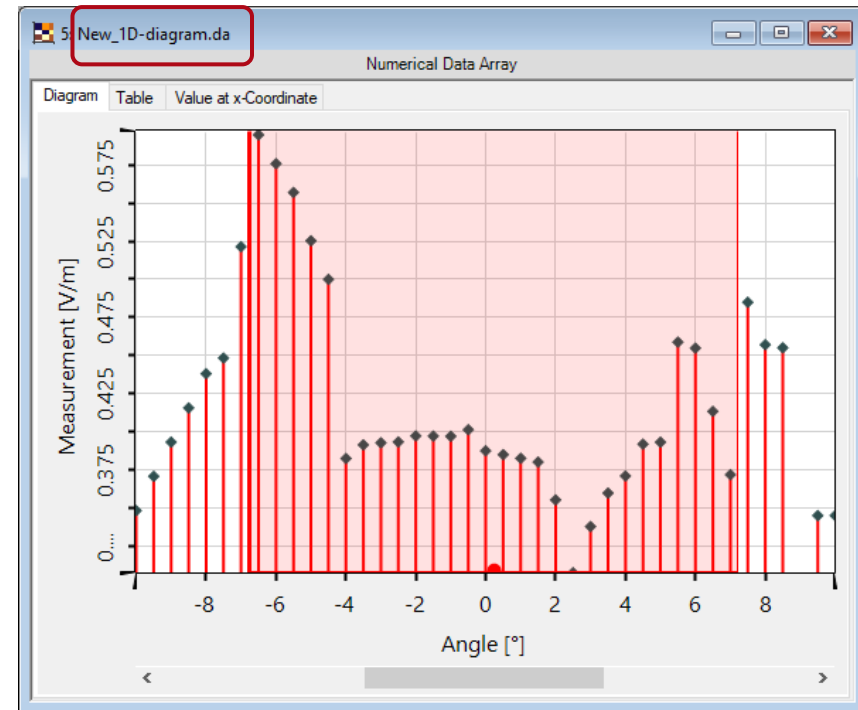
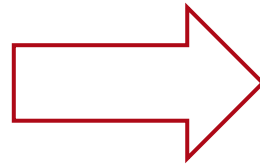
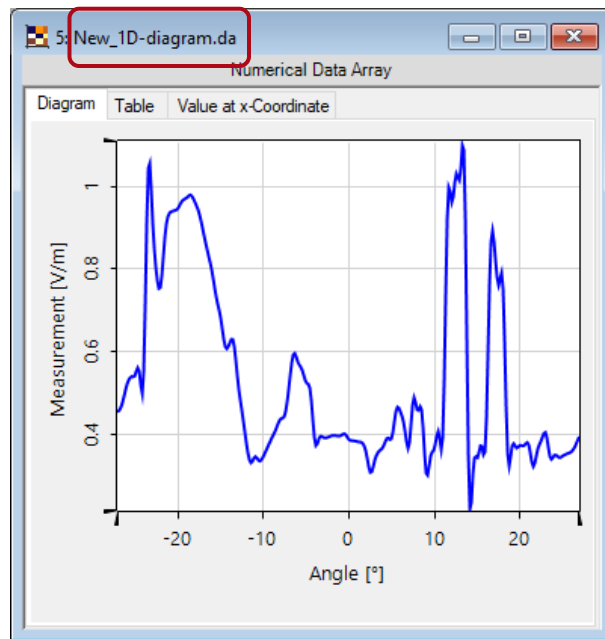
Copy View Settings I

- The view configuration of one diagram can be transferred easily to another one. The new diagram of interest must be selected first.
- In the **View** settings, **Copy View Settings** is selected.
- The diagram with the desired configuration is selected.



Copy View Settings II

After selecting the desired diagram from the list, the view configuration is then transferred automatically.



Document Information

title	Creating 1D-Diagrams in VirtualLab Fusion
document code	MISC.0061
version	1.1
edition	VirtualLab Fusion Basic
software version	2020.2 (Build 2.22)
category	Application Use Case
