Product	**XYZ Mesh**
Company	Gray Technical, LLC
	http://www.graytechnical.com/
Copyright	XYZ Mesh Copyright
	Copyright © 2015-2017 Gray Technical
	All Rights Reserved
License	SOFTWARE LICENSE

Disclaimer	SOFTWARE DISCLAIMER

Trademarks

Product Trademarks

XYZ Mesh is a trademark of Gray Technical.
MS-Windows is a registered trademark of Microsoft Corporation.
Microsoft Excel is a registered trademark of Microsoft Corporation

Support

Product Support

The primary method of support for this product is provided by email.
Email your technical questions to support@graytechnical.com.

MANUAL

Intro

XYZ Mesh is used to convert X Y Z data points into a MESH configuration, MESH into X Y Z and X Y Z into 3D line graphs for the use of 3-D Surface Plots, Wireframe 3-D Surface Charts, Contour Graphs Wireframe Contours, 3D Columns and 3D Bars, Scatter Charts, Line Graphs, Spline Charts and Fast Lines. XYZ Mesh will allow the user to select between exporting the data into a CSV, XLS, XLSX, DXF or copy it to the clipboard with custom options available.

Converting XYZ to MESH

Paste	With X Y Z data copied to your clipboard begin by selecting the first cell in the data table under the 'XYZ Input' tab. Once selected Right-Click and select 'Paste' (or press Ctrl+V) to insert your values into XYZ Mesh. When pasting values do not include header text (ie: "X", "Y", "Z") as it is already included for you.

Data Rows

The first option you will see is your 'Row Count'. This is only useful when pasting data. If you need more rows increase this number and click 'Update Count/Clear'.

Row Count	2500	Update Count/Clear	Convert to 3D Line

Decimals	5 ▼		Convert to MESH

- ⊙ Auto Sort
- ○ Do not sort
- ○ Sort by X
- ○ Sory by Y

- ⊙ Complete Curve
- ○ Fast Curve
- ○ Single Points
- ☐ Theoretical Points

- ⊙ Remove Duplicates
- ○ Keep All Data

Decimals

Under the 'Row Count' option is the 'Decimals' option. This is a variable that you can change to increase or decrease the sensitivity of your conversion process. The more decimals used means the measurements will be more accurate, however the files will become much larger and consume more time during converting.

Sorting: Auto Sort

The next set of options is sorting. "Auto Sort" is selected by default, and for most users should stay selected. This will automatically sort all your data points to be laid out in an ascending order (from 0, 0, 0, to your maximum value). This is the default orientation for all graphing software.

Sorting: Do not sort

"Do not sort" will keep values in the same order they appear. This is useful for 3D lines but is not recommended for MESH conversions.

Sorting: Sort by X

"Sort by X" will sort all values in the X axis and ignore all other axis. This is useful for 3D lines but is not recommended for MESH conversions.

Sorting: Sorty by Y	"Sort by Y" will sort all values in the Y axis and ignore all other axis. This is useful for 3D lines but is not recommended for MESH conversions.
Curving: Complete	Next is the 'Curving' options. These options only apply to MESH conversions. "Complete Curve" will automatically curve all empty data points to make a fully curved MESH format.
Curving: Fast Curve	"Fast Curve" will curve empty data points within five passes. This is much faster than "Complete Curve" but will not curve all empty data points.
Curving: Single Points	"Single Points" will not create or curve data points. This option will only use the provided XYZ data to generate a MESH format. This will leave empty cells if there are no XYZ values for that cell.
Theoretical Points	"Theoretical Points" will create X or Y values for gaps in data conversions. This is useful when exporting into Microsoft Excel because Excel does not contain the capabilities of graphing empty gaps in MESH data.
Duplication: Remove	The last set of options in MESH conversions is 'Duplication' options. "Remove Duplicates" is selected by default and should be left selected for most users. This will automatically remove any duplicate data that may corrupt your converted formats.

Row Count 2500   Update Count/Clear   Convert to 3D Line

Decimals 5   Convert to MESH

- ⦿ Auto Sort
- ○ Do not sort
- ○ Sort by X
- ○ Sory by Y

- ⦿ Complete Curve
- ○ Fast Curve
- ○ Single Points
- ☐ Theoretical Points

- ⦿ Remove Duplicates
- ○ Keep All Data

Duplication: Keep	"Keep All Data" will not remove any duplications for the imported data. Duplications can be beneficial in some cases, but in most duplicate information can lead to corrupt conversions.
XYZ to MESH	When ready click the "Convert to MESH" button. This will begin the process of converting your XYZ data into MESH with your set specifications.

Row Count 2500   Update Count/Clear   Convert to 3D Line
Decimals 5 ▼   Convert to MESH

◉ Auto Sort   ◉ Complete Curve   ◉ Remove Duplicates
○ Do not sort   ○ Fast Curve   ○ Keep All Data
○ Sort by X   ○ Single Points
○ Sory by Y   ☐ Theoretical Points

Convert XYZ to 3D Line Graph

Paste	With X Y Z data copied to your clipboard begin by selecting the first cell in the data table under the 'XYZ Input' tab. Once selected Right-Click and select 'Paste' (or press Ctrl+V) to insert your values into XYZ Mesh. When pasting values do not include header text (ie: "X", "Y", "Z") as it is already included for you.
Row Count	The first option you will see is your 'Row Count'. This is only useful when pasting data. If you need more rows increase this number and click 'Update Count/Clear'.
Sorting: Auto Sort **Sorting: Do not Sort**	The next set of options is sorting. "Auto Sort" is selected by default, and for most users should stay selected. This will automatically sort all your data points to be laid out in an ascending order (from 0, 0, 0, to your maximum value). This is the default orientation for all graphing software. "Do not sort" will keep values in the same order they appear. This is useful for 3D lines but is not recommended for MESH conversions.

Row Count 2500   Update Count/Clear   Convert to 3D Line
Decimals 5 ▼   Convert to MESH

◉ Auto Sort   ◉ Complete Curve   ◉ Remove Duplicates
○ Do not sort   ○ Fast Curve   ○ Keep All Data
○ Sort by X   ○ Single Points
○ Sory by Y   ☐ Theoretical Points

|	
Sorting: Sort by X	"Sort by X" will sort all values in the X axis and ignore all other axis. This is useful for 3D lines but is not recommended for MESH conversions.
Sorting: Sort by Y	"Sort by Y" will sort all values in the Y axis and ignore all other axis. This is useful for 3D lines but is not recommended for MESH conversions.
Converting Data	When your settings are selected press the "Convert to 3D Line" button. This will begin the conversion and you will see your 3D Line populate.

Convert MESH to XYZ

Color Schemes	With MESH data copied to your clipboard begin by selecting the first cell in the data table under the 'MESH Input' tab. Once selected Right-Click and select 'Paste' (or press Ctrl+V) to insert your values into XYZ Mesh.
Rows/Columns	The first option is 'Rows/Columns'. This is only useful when pasting data. If more rows are needed increase this number and click 'Update Count/Clear'. Please note that Microsoft Excel has a row/column limit of 255. MESH formats that exceed 255 rows or columns will not graph properly inside of Excel.
Convert MESH to XYZ	Once the MESH data is pasted the table should automatically resize and graph the new MESH data. At this point the data can either be "Exported to CSV" (which will export the data to a CSV data table), converted to XYZ using the "Convert MESH to XYZ" button or curved with the 'Full Auto-Curve' option by using the "Calculate Curve" button.

Rows/Columns 250   Update Count/Clear   Export to CSV

Copy All MESH   Convert MESH to XYZ   Calculate Curve
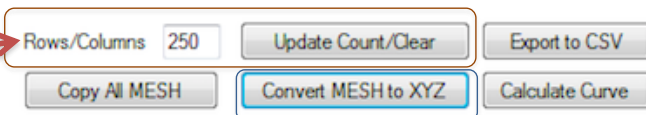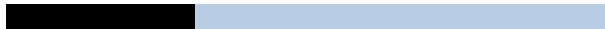
Graph Options

Background

XYZ Mesh has three different background schemes for graphing. "Dark" is black, "Gradient" is a fade from black to gray and "Light" is a blue hue.

Axis

With the toggle switches the "X Axis", "Y Axis", "Z Axis" and "Ground Level" can all be activated or deactivate. Also, by Right-Clicking on the chart itself the X and Y axis grids can also be disabled or enabled.

Rotations

Both the X Axis and Y Axis have scroll bars used for rotations. Moving the bar under the X Axis will allow for the chart to rotate in the X Axis while the Y Axis scroll bar will control the rotation of the Y Axis.

Color Variant

"Color Variant" when selected will display a variety or colors on converted data depending on rotation, depth, height and width. This will overwrite the "Line Color" option.
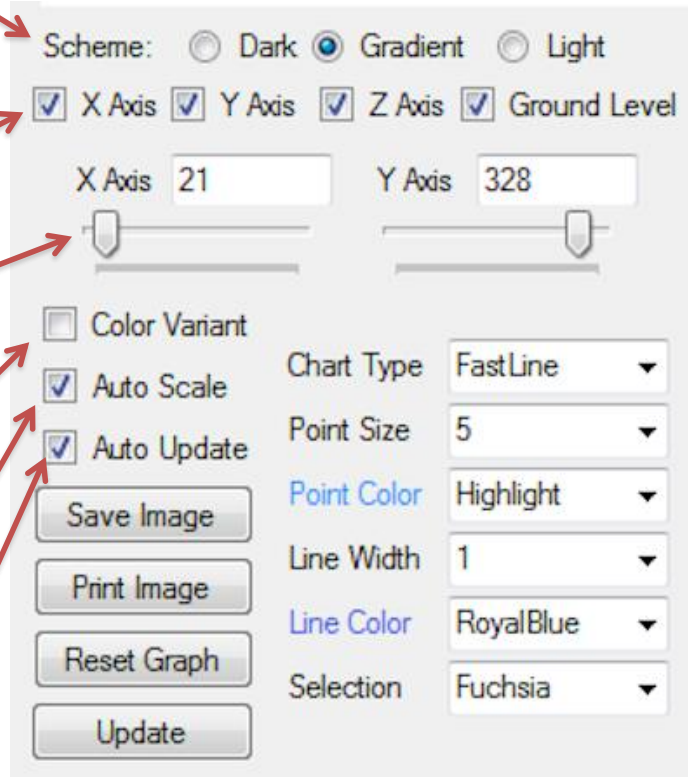
Auto Scale

"Auto Scale" when activate will automatically scale converted data to the correct alignment. Without this selected the graph's origin will be set to 0, 0, 0.

Auto Update

"Auto Update" when activated will automatically update the graph with every change made to the rotation, data, chart type, line color, etc.

Chart Type

"Chart Type" is the type of graph that is generated for converted data. 'Fast Line' will display lines with no markers for data points. 'Line' will display lines with markers for data points. 'Bubble' will display only markers, no lines. 'Spline' will display curved lines with

---

Scheme: ○ Dark ◉ Gradient ○ Light

☑ X Axis ☑ Y Axis ☑ Z Axis ☑ Ground Level

X Axis [21]   Y Axis [328]

☐ Color Variant

☑ Auto Scale   Chart Type   [FastLine ▼]

☑ Auto Update   Point Size   [5 ▼]

[Save Image]   Point Color [Highlight ▼]

[Print Image]   Line Width   [1 ▼]

[Reset Graph]   Line Color   [RoyalBlue ▼]

[Update]   Selection   [Fuchsia ▼]

Point Color

"Point Color" is the selected color for the displayed data points.

Line Width

"Line Width" is the width of the line of the converted data in the graphed image.

Line Color

"Line Color" is the selected color for the displayed lines in the graphed image. If 'Color Variant' is selected this option is automatically disabled.

Selection

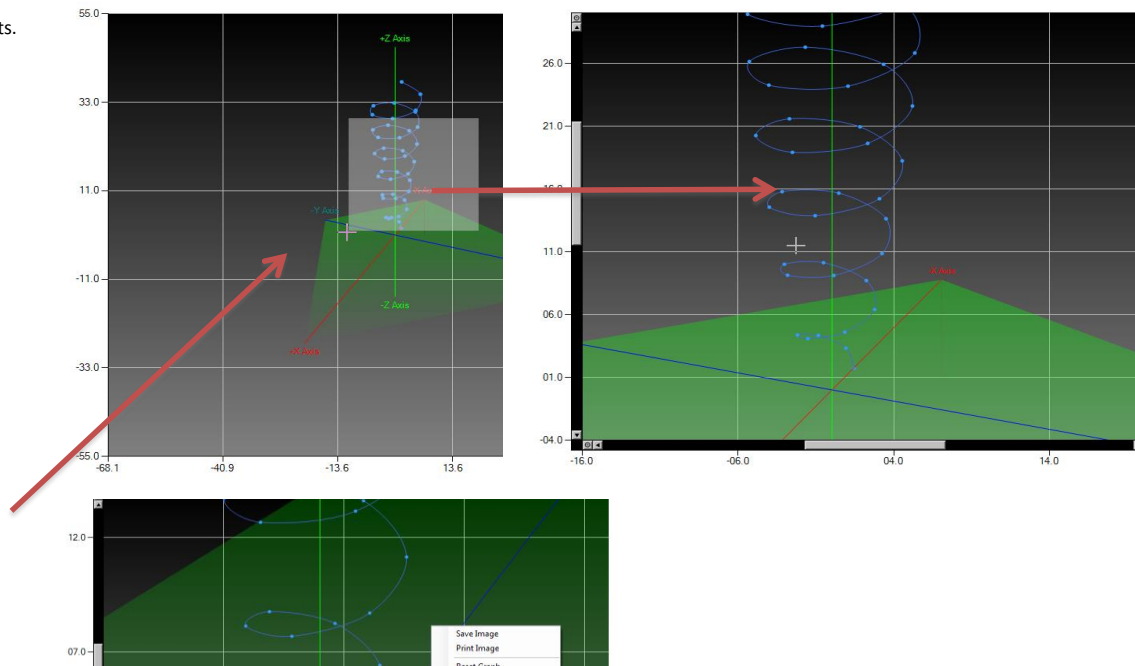"Selection" is the color of selected data points.

Reset Graph

"Reset Graph" will reset the graph to its original orientation, rotation and origin.

Rotations

"Update" will update the graph with current changes.

Zooming

Zooming can be accomplished by holding down the Left-Click on the chart, drag and select an area to zoom into. When releasing the Left-Click the chart will zoom into the selection.

Selecting Data Points

Data points can be selected by Left-Clicking a data point. Selected data points will change color to the set 'Selection' color. When selected the data the point will display the X, Y and Z values associated with that data point.
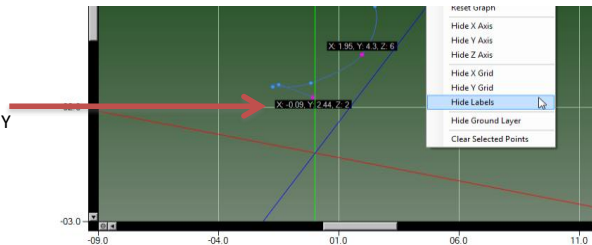
Exporting Data

Exporting

Converted data can be exported in four ways, copied to clipboard, CSV, directly into Microsoft Excel (version 2007 or higher) or directly into a CAD dxf drawing file.

Clipboard

To copy data to clipboard selected the "Copy All" button located at the bottom of the conversion window.

CSV

To export data directly into a CSV data file go to File>Export to CSV. Both input and converted data can be exported to CSV using this method.

Excel

To export data directly into Microsoft Excel go to File>Export to Excel. The "Export to Excel" window will appear. This window will allow the user to customize exported Excel data with extra information and Excel graphing options.

CAD DXF

To export data directly into a CAD formatted DXF drawing go to File>Export to DXF.