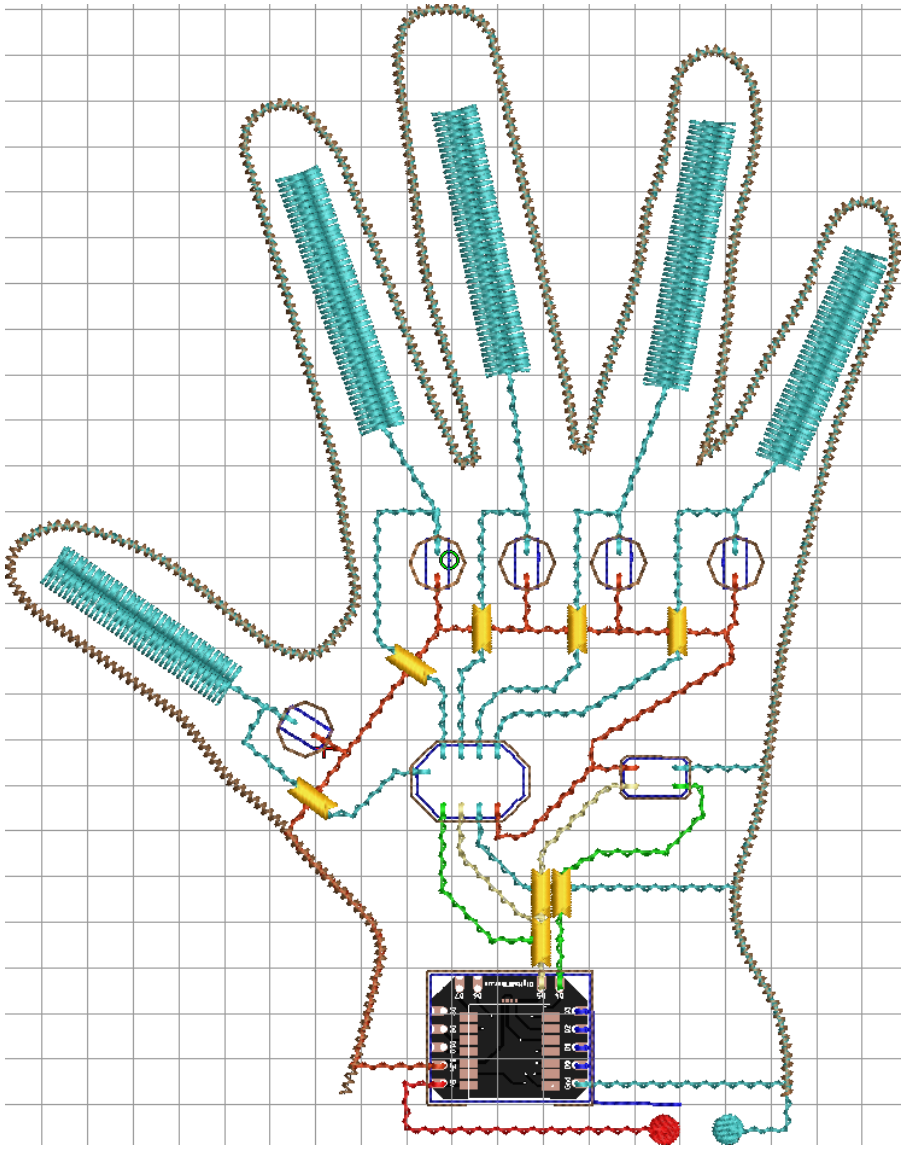
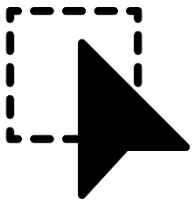
Digital Fiber Studio User Manual

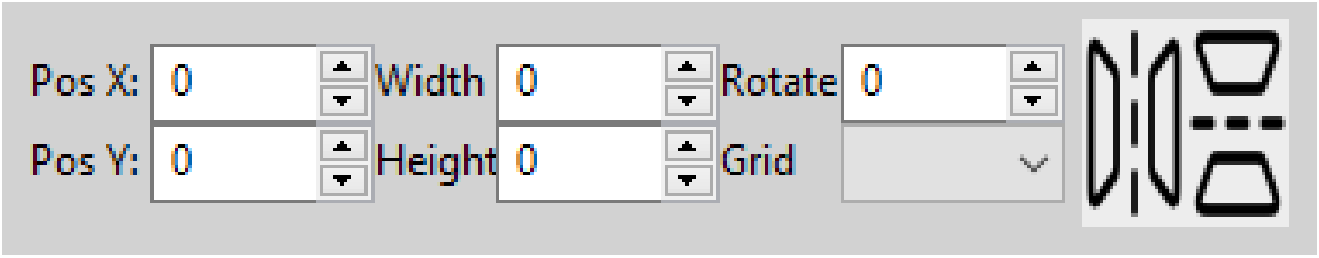
Rev 1.0.0 OCT 2024 – Rodney Trusty





The Select tool allows you to edit existing objects. Click on an object to select it.

You may edit an object's properties using the edit fields in the toolbar.



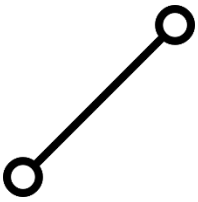
Select Tool Short Keys:

Ctrl + Left Click: Select Multiple Objects

R: Rotate selected object(s)

Ctrl + G: Group selected object(s)

Ctrl + U: Ungroup selected object(s)



The Line Tool is used to draw electrical traces on the canvas. It is the primary tool used for connecting components

A line has a few editable properties. They are:

Stitch Length – The distance the embroidery needle shall incrementally jump along the line object

Needle Number – The needle assigned to the line object, which corresponds to a color

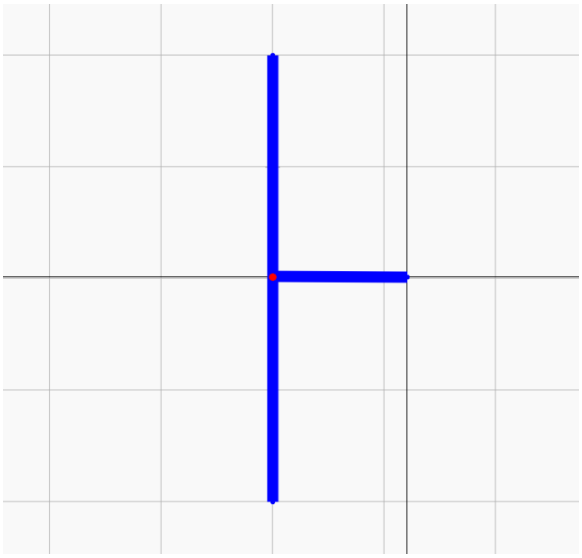
Passes – The number of times the needle shall trace along the line object.

Line Tool Short Keys

Left Click: Start line

Right Click: End line

SHIFT(Hold) to branch a line off of another line



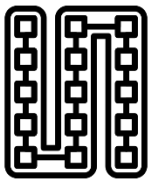
CTRL+SHIFT(Hold): Force 45 and 90 deg angles

V: Add a via to a line object

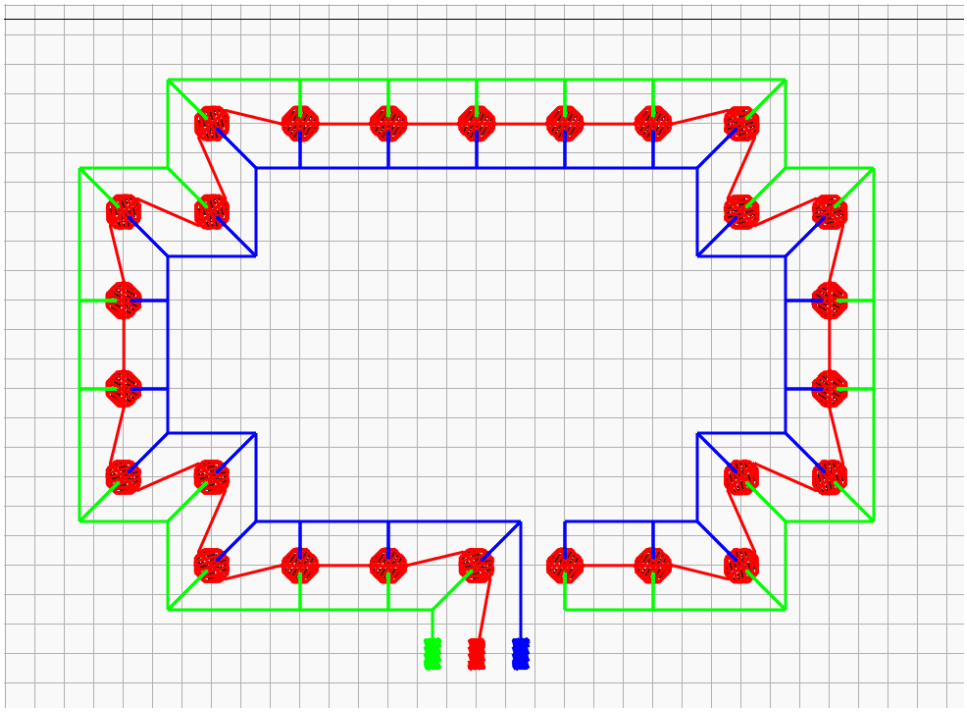
I: Insulate a line object

Note:

If object **A** ends on the start object **B**, then object **B** becomes the “child” of **A** and will take on the needle number of the parent object.



The LED Strip tool is used to create a line of addressable LEDs in any shape with just a few clicks



Configurable Properties:

Spacing – The distance between individual LEDs

Width – The distance between power and ground traces in the LED strip circuit

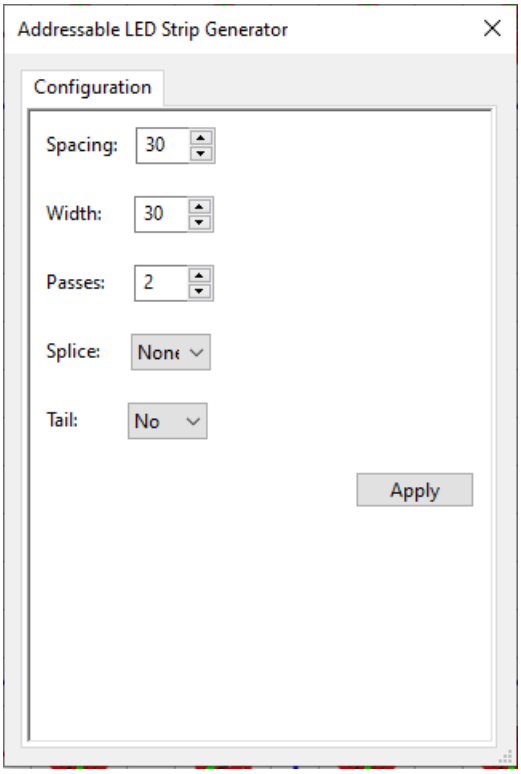
Passes – Number of thread passes

Splices – Additional contact pads added to the beginning or end of the strip

After clicking “Apply” you will be able to draw a line path on the canvas that will then be traced

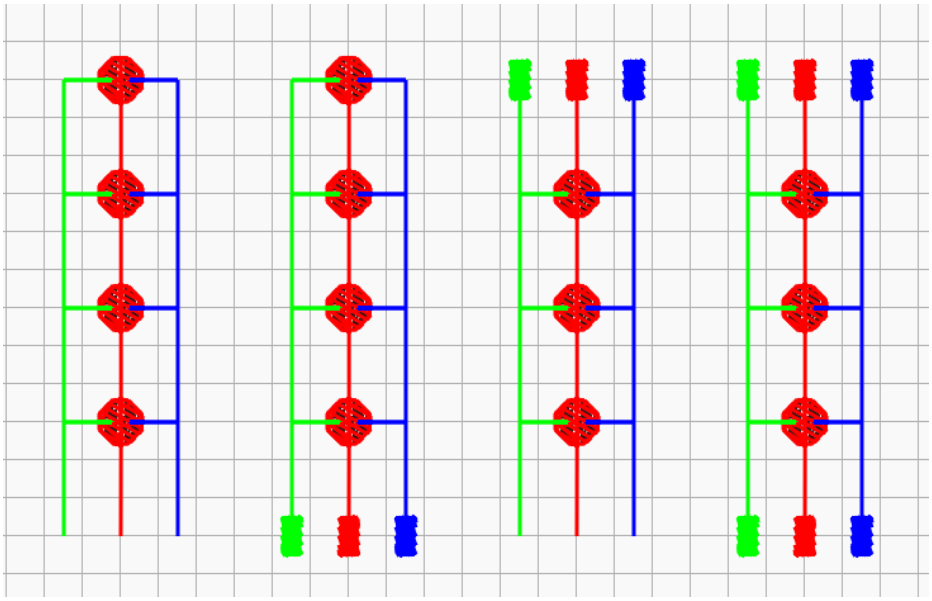
Left Click: Start Drawing

Right Click: End Drawing

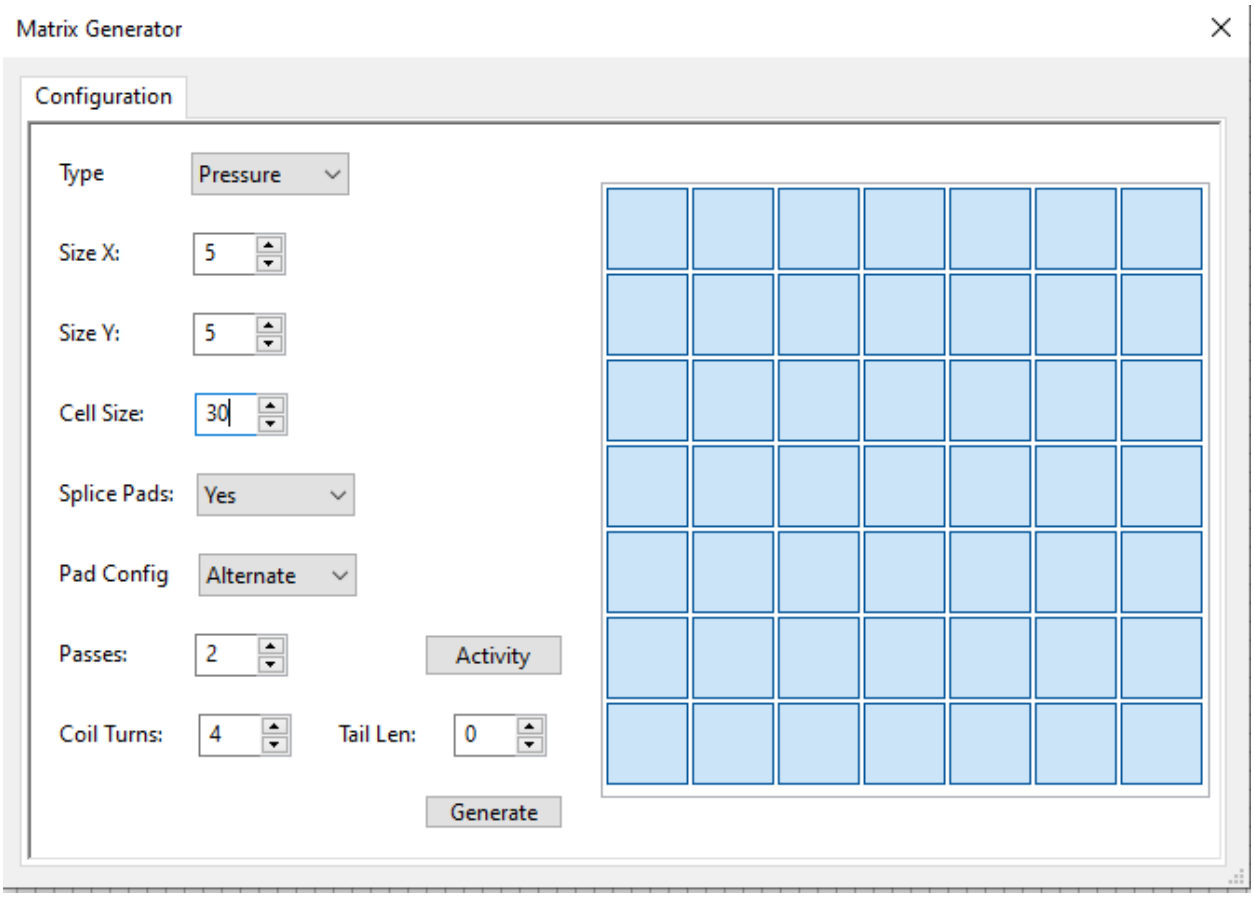


Splice options for continuation of LED strips.

From Left to right: No Splice, Start, End, Start/End



The generator tool generates complex configurable matrixes



Configurable options:

Type: The sort of component being generated. Pressure sensor, led etc.

Size X: The grid size of the matrix in the x direction

Size Y: The grid size of the matrix in the y direction

Cell Size: The size in mm of a matrix cell

Splice Pads: To include splice pads at the end of traces (Yes/No)

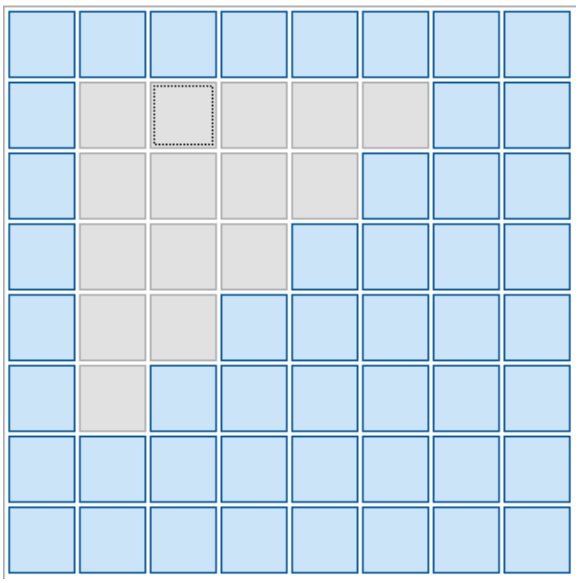
Pad Config: Ignore, soon to be deprecated

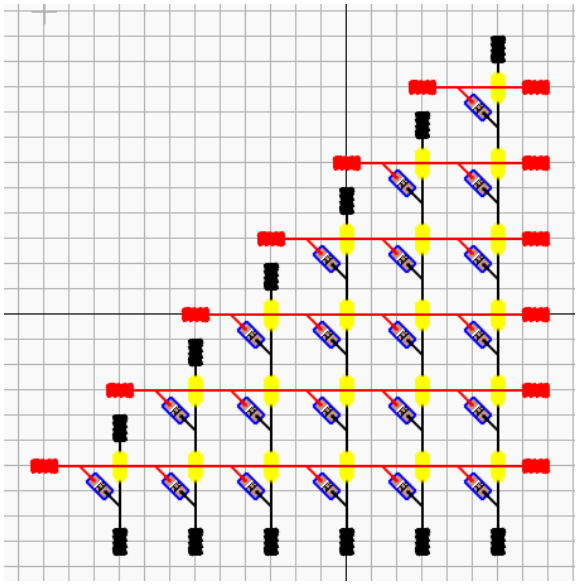
Passes: Number of times needle will pass over traces

Coil Turns: For pressure sensors, number of windings for coil sensor

Tail Length: Length of configurable tail for matrix connection

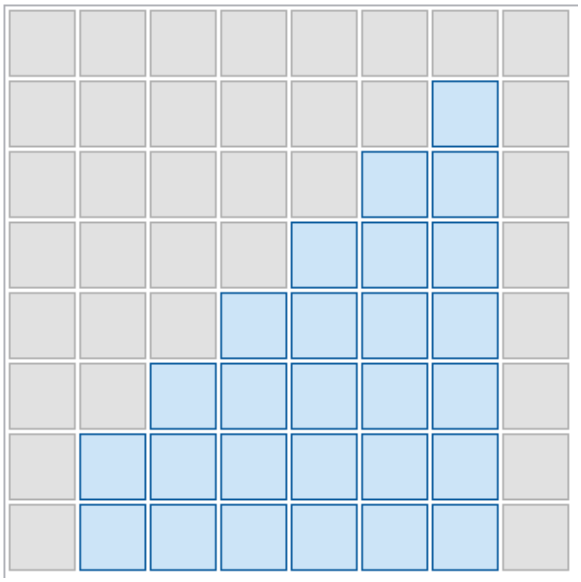
The activity grid can be used to skip over individual cells in the matrix. Click on a cell in the activity grid to toggle its activity. Inactive cells will be ignored in the generation process.

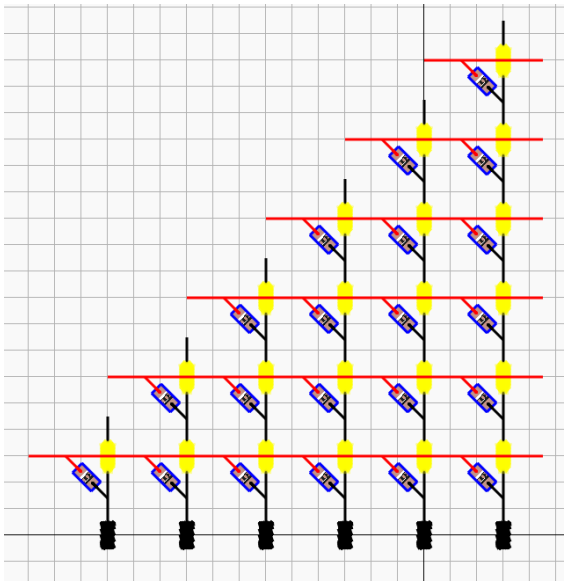




Activity Grid → LED Matrix Output

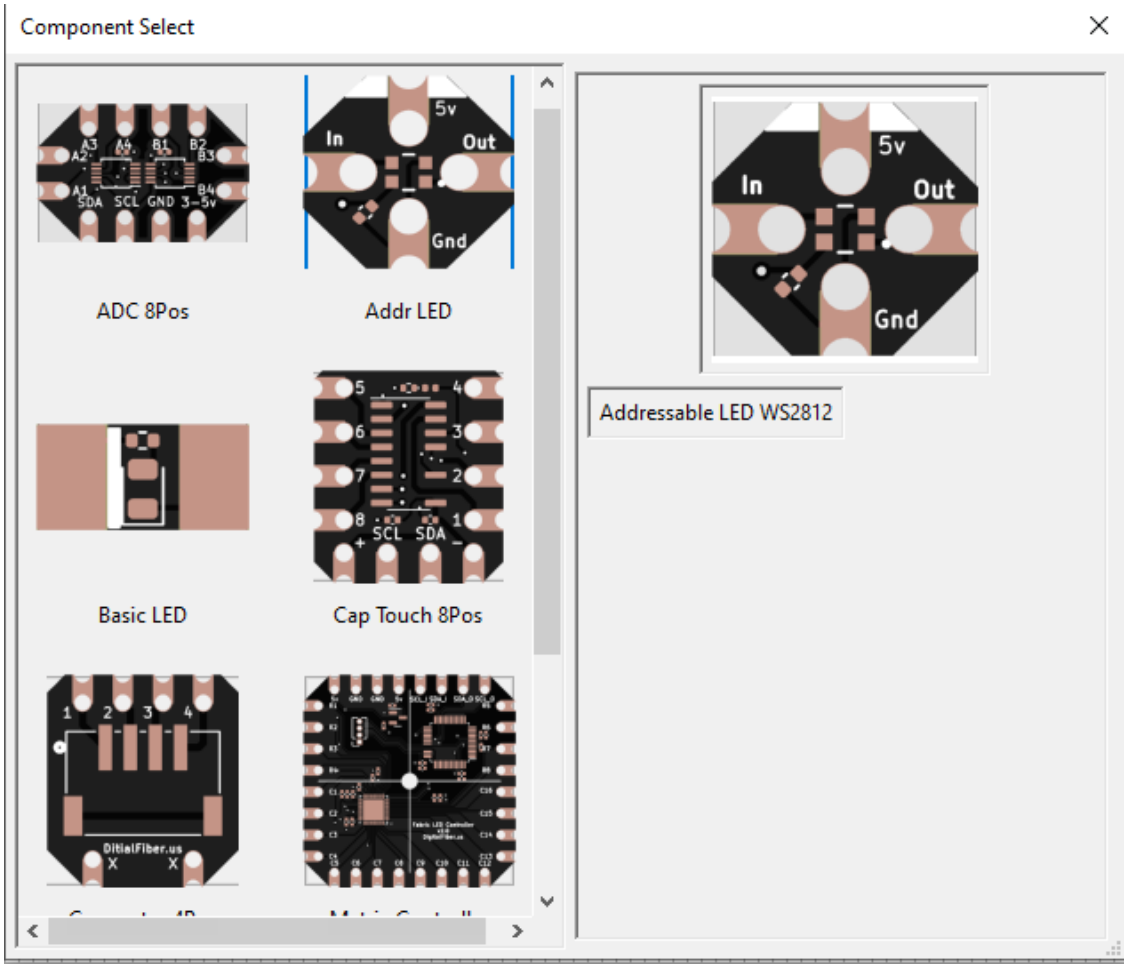
The cells around the perimeter represent splice pads. Splice pads can be used to tie two designs together. For example, if a design will join another design at the bottom, the splice pads on the other 3 sides may be removed.





Grid and pattern with bottom splices only

The component tool enables drag and drop of sewable circuit boards



Click a component in the component window to select it. Once selected close the window. Press the “**H**” key and your selected component will hover above your mouse. Press “**R**” to rotate the hovering component and left click to drop it.

The Object List Tool is used to reorder and edit objects in the object list

Click an object in the object list to select it. The preview window will display the currently selected object in red, its lineage in blue, and its properties. Editing the properties in this window immediately updates the selected object.

The navigate buttons advance and regress the preview window through the object list

Object Sequencing buttons allow reordering of stitch objects.

Sequence – Reorder multiselected objects to the order they were multiselected.

Ex. If you selected 1, 5, 3 out of 123456 it would become 153246

Up/Down One – Moves the selected object(s) up/down in the object list AND sequences the selected objects

Up/Down One – Moves the selected object(s) up/down by one color in the object list AND sequences the selected objects

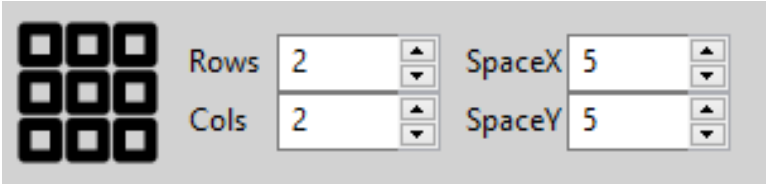
Object List Tool Short Keys

SHIFT+LEFT CLICK: Sweep Select

CTRL+LEFT CLICK: Multiple Select

Note: Passes will be forced to a multiple of 2. Changing an object's needle immediately reflects on the drawing canvas

The flip tool can be used to horizontally or vertically flip an object



The array tool is used to duplicate an object and is useful for large arrays. The edit fields configure number of rows and columns and the spacing between them. Clicking the array button will duplicate all selected objects to the values in the edit fields.

Auxiliary tools:

Tie In/Out Tool

Press **“T”** to select the Tie in Tool. A marker will appear at the cursor to indicate the Tie in Tool is active. Click on an object or on the canvas to place a tie in/out. An object cannot have a tie out unless it also has a tie in. A lock stitch will be placed at each selected tie in/out point.

Auto Resize Tool

The auto-resize tool can be used to scale imported images to life size.

To activate, select an image and press **“D”.** The highlight around the image will change color. From there, you may draw a square using left

clicks. The image will be scaled by the ratio of the square you draw to a 1”x1” square,