

# Interpolation Editor Users Guide

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# Interpolation Editor Users Guide

## Introduction

The Interpolation Editor utility was written to allow users to edit sets of data that have unusual ranges or increments. This is commonly needed when dealing with compensation error map data that has increment, offsets, or directions which make working with the data difficult without the use of this kind of editor.

Often compensation error maps are generated at increments that are suitable to the automated collection tools used. In many cases simple corrections such as gradients are not possible due to a non-linear error. This editor allows any kind of input to be adjusted using reasonable measurement targets with little effort.

This utility is cross platform compatible and can be run on GNU/Linux, OSX, and Windows.

## Overview

The Interpolation editor has three sections; one for the input data, one for the changes, and a third section for the output which is the product of the input and the changes.

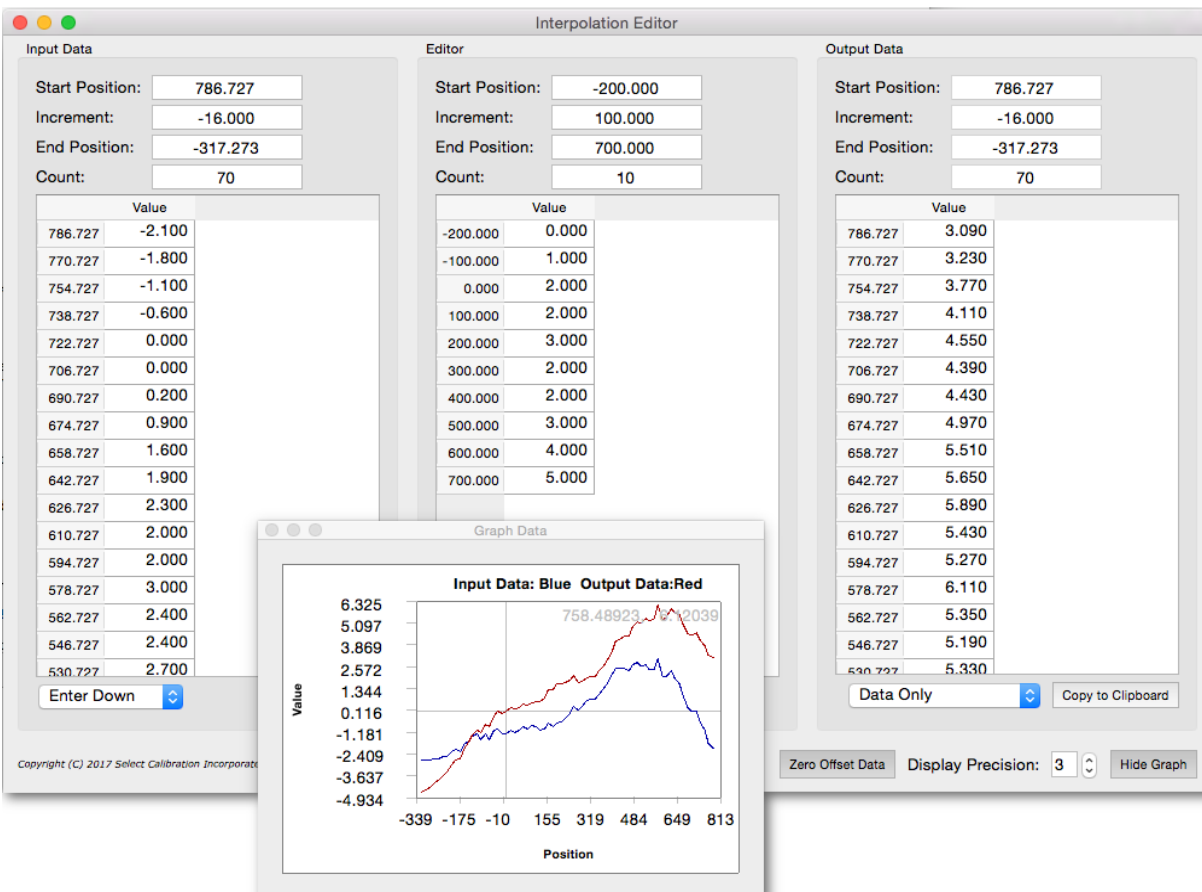


Illustration 1: The interpolation editor showing adjustments of data at preferable target positions along with a graph showing the input and output data.


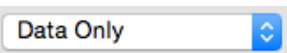

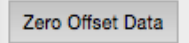

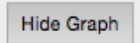
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The input and output sections are identical in dimension, range, and increment. The output sections parameters are set parallel with the input sections parameters.

The edit sections can be configured to for any starting position and increment. These values do not need to match that of the input data. As shown in illustration 1 the starting position and increment are different from that of the desired edit target points.

### Options

| <i>Item</i>  | <i>Description</i>   |
|--|--|
| Start Position   | Starting point of the data<br><a href="#">See section Adjusting Position Parameters for more details.</a>  |
| Increment  | Increment of the data.<br><a href="#">See section Adjusting Position Parameters for more details.</a>  |
| End Position   | Ending point of the data.<br><a href="#">See section Adjusting Position Parameters for more details.</a>   |
| Count  | Number of data points.<br><a href="#">See section Adjusting Position Parameters for more details.</a>  |
|                     | When manually entering options the next input cell is automatically selected for convenience. The next cell selected is either above or below the current cell. The options are <i>Enter Up</i> or <i>Enter Down</i> . |
|                     | Option to define what data is copied to the clipboard.   |
|                     | Copy the output data to the clipboard. The format of the data can be either <i>Positions and Data</i> or <i>Data Only</i> .  |
|                     | Toggle option for zero offsetting the output data. When toggled, any offset in the output data at position zero is removed.  |
| Display Precision:  | Number of decimal places to display for the data. This includes the position and increment values.   |
|                     | Toggle option to show or hide the graphical view of the data.  |

### Adjusting Position Parameters

The position parameters include the start, increment, and end values. As a convenience the number of steps are also calculated and shown in the *Count* field. Some of the parameters are inter-related where changes to values will automatically affect another.

Changes to the input parameters for *Increment* or *Count* will affect the value of the *End Position*.

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Changes to the input parameter of *End Position* will change the value of *Count*. The *Increment* is not changed. The dimensions of the table are updated automatically with the parameters.

The parameters for the output section are not adjustable. These parameters are set identical to the parameters for the input section.

### Example Usage

This example describes the steps necessary to edit a set of data that is defined with the following parameters:

```
Starting Position:    786.727 mm
Ending Position:     -317.273 mm
Increment:           -16 mm
Number of Steps:     70
```

The following is the desired parameters for editing:

```
Starting Position:   -150 mm
Ending Position:     750 mm
Increment:           50 mm
```

- 1) Enter 786.727 for the *Start Position* of the input section.
- 2) Enter -16 for the *Increment* of the input section.
- 3) Enter 70 for the *Count* of the input section. The *End Position* should now show a value of -317.273.
- 4) Enter data into the input section table. If the data is on the clipboard use *Paste* from the context menu or the shortcut CTRL+V..
- 5) Enter -150 for the *Start Position* of the editor section.
- 6) Enter 50 for the *Increment* of the editor section.
- 7) Enter 750 for the *End Position* of the editor section. The *Count* will be automatically updated to show 19 values.
- 8) Enter enter data into the editor section table.
- 9) Select the option *Copy to Clipboard* from the output section. This data is identical in dimension and spacing to that of the input data except it has been adjusted with changes from the editor section.

### Program Features

It is expected that using the operating systems clipboard is the primary method to get data to and from the interpolation editor. If necessary data can be manually entered. The data placed on the clipboard is compatible with most spreadsheet programs.

The data does not have any identification of measurement units. The input data can be anything suitable. It is not necessary to match the position and data units either in most cases.

Changing the display precision does not round or otherwise alter any of the data.

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### Revision History

| <i>Date</i>   | <i>Version</i> | <i>Changes</i> |
|---------------|----------------|----------------|
| June 17, 2017 | 1.0            | New Program    |