

## Chapter III-8 — Curve Fitting

Variable	I/O	Meaning
V_FitMaxIters	Input	Controls the maximum number of passes without convergence before stopping the fit. By default this is 40. You can set V_FitMaxIters to any value greater than 0. If V_FitMaxIters is less than 1 the default value of 40 is used.
V_FitNumIters	Output	Number of iterations. You must create this variable; it is not automatically created.
S_Info	Output	Keyword-value pairs giving certain kinds of information about the fit. You must create this variable; it is not automatically created.

### V\_FitOptions

There are a number of options that you can invoke for the fitting process by creating a variable named V\_FitOptions and setting various bits in it. Set V\_FitOptions to 1 to set Bit 0, to 2 to set Bit 1, etc.

#### Bit 0: Controls X Scaling of Auto-Trace Wave

If V\_FitOptions exists and has bit 0 set (Variable V\_fitOptions=1) and if the Y data wave is on the top graph then the X scaling of the auto-trace destination wave is set to match the appropriate x axis on the graph. This is useful when you want to extrapolate the curve outside the range of x data being fit.

A better way to do this is with the /X flag (not parameter- this flag goes immediately after the CurveFit or FuncFit operation and before the fit function name). See **CurveFit** for details.

#### Bit 1: Robust Fitting

You can get a form of robust fitting where the sum of the absolute deviations is minimized rather than the squares of the deviations, which tends to deemphasize outlier values. To do this, create V\_FitOptions and set bit 1 (Variable V\_fitOptions=2).

**Warning 1:** No attempt to adjust the results returned for the estimated errors or for the correlation matrix has been made. You are on your own.

**Warning 2:** Don't set this bit and then forget about it.

**Warning 3:** Setting Bit 1 has no effect on line, poly or poly2D fits.

#### Bit 2: Suppresses Curve Fit Window

Normally, an iterative fit puts up an informative window while the fit is in progress. If you don't want this window to appear, create V\_FitOptions and set bit 2 (Variable V\_fitOptions=4). This may speed things up a bit if you are performing batch fitting on a large number of data sets.

A better way to do this is via the /W=2 flag. See **CurveFit** for details.

#### Bit 3: Save Iterates

It is sometimes useful to know the path taken by a curve fit getting to a solution (or failing to). To save this information, create V\_FitOptions and set bit 3 (Variable V\_FitOptions=8). This creates a matrix wave called M\_iterates, which contains the values of the fit coefficients at each iteration. The matrix has a row for each iteration and a column for each fit coefficient. The last column contains the value of chi square for each iteration.

#### Bit 4: Suppress Screen Updates

Works just like setting the /N=1 flag. See **CurveFit** for details.

Added in Igor Pro 7.00.