

## Quick-Start Guide

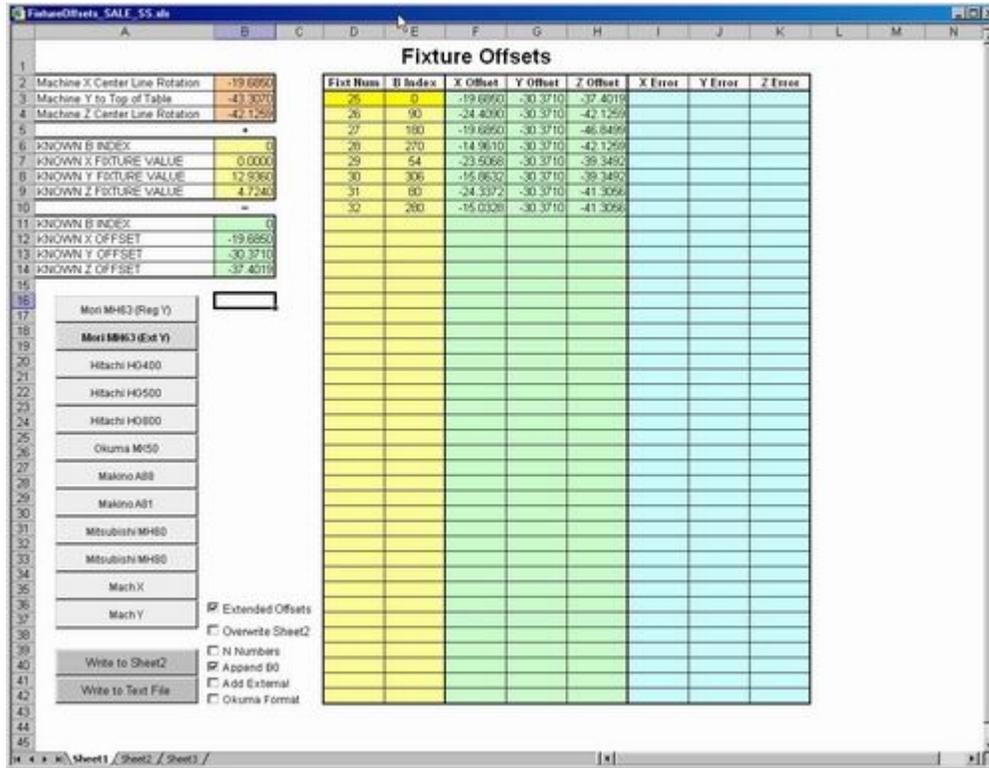
### *To get ready to use Fixture offset Calculator:*

- 1) Set the security of Microsoft Excel to enable macros
  - a. From the *Tools Menu*, select options. Then click the tab for *Security* and click the button for *Macro Security*. We recommend setting Macro Security to *Medium*. In this way, you will be prompted to enable macros each time you open the Fixture Offset Calculator file.
- 2) Enter data for your machine/s.
  - a. On Sheet3, enter the data into the table that is provided. For each machine on Sheet3, a corresponding machine button will appear on Sheet1.

### *For each job (all done on Sheet1):*

- 1) Click the machine button corresponding the machine to be used for the job.
- 2) Enter the Known Fixture values for B, X, Y, and Z (left-most set of four yellow boxes).
  - a. This tells fixture offset calculator how far it is from the center of index and the table top to the fixture's location surfaces in X, Y, and Z.
- 3) Enter each fixture offset number (Fixt Num) that will be used for the job and its corresponding index angle (B Index) in the long columns under Fixture Offsets (yellow columns).
  - a. As you enter each, the fixture offset values will be automatically calculated and placed in the green columns. These are the values of your G10 commands.
- 4) Delete any unneeded fixture offsets (from previous jobs).
- 5) To output a G10 text file, set the option boxes in the desired fashion and then click the button labeled *Write To Text File*.
  - a. You will be prompted where to save the file.
- 6) If you wish to save the fixture offset data on Sheet1 for future use, click the button labeled *Write to Sheet2*. This will place your data on Sheet2.

# Getting started with the Fixture Offset Calculator



When you open the file in Microsoft Excel for the first time, you'll see that some example data has already been entered.

## Sheet1 (the main screen)

In the lower left corner of the display, notice the tabs for Sheet1, Sheet2, and Sheet3. In the illustration above, Sheet1 is currently active. And again, this is the main page. In the upper left corner of the window, you'll see three sets of data. The current machine data is shown in brown, the current fixture data is shown in yellow, and the known angle of index data is shown in green.

**A note about the colors.** Generally speaking, data shown in yellow boxes is data you will be entering.

Below this data are buttons for each machine. None of the initial machines, of course, will be of any value to you. Again, they're simply placed in the original file as sample data. The data for each machine is entered on Sheet 3 (discussed a little later).

Below the machine buttons are two more buttons – *Write to Sheet2* and *Write to Text File*. Once you have entered the data for a given setup, you will press one of these buttons to save the G10 data more permanently.

On the right side of the display is the current list of fixture offset (G10) data. You'll be entering data in two yellow columns – Fixture offset number and B index. You can enter up to forty fixture offsets. The data in the green columns provide the calculated fixture offset values that will be placed in the related G10 commands. The blue columns (Error

X, Error Y, and Error Z) provide you with a way to deal with fixture imperfections. If data is entered in blue columns, individual indexes (G10 values) will be adjusted by these amounts.

## ***Sheet2 – Storing and reloading data***

Sheet2 provides you with a way to save data for a given setup for future use. You may, for example, know that a given job may have to be run in the future on a different machine. You can save data for the setup on Sheet2 (using the *Write to Sheet2* button on sheet one), so when the need arises, it can be brought back to Sheet1.

To write a group of offsets back to Sheet1, simply double-click any non-empty cell on the particular group of offsets (a dialog box will then appear), and then select *Write to Sheet1*. To write one (or more groups) of offsets to a text file, double-click any cell, select *Write to Text File*, then enter start and end row numbers of fixture offsets to be written to text file. (Row numbers are shown ant the extreme left side of the Excel screen.)

## ***Sheet3 – Machine data***

Sheet three provides a table that allows you to enter machine data. Up to twelve machines can be entered. The left-most column allows you to name the machine. For horizontal machining centers, you'll specify the distance in X from the machine's zero return position (center of spindle) to the center of index the X Value column. If the X axis zero return position is at the extreme plus end of the X axis, this will be a negative value. In the Y Value column, you specify the distance from the zero return position (again, center of spindle) to the table top. This will be a negative value. In the Z Value column, you specify the distance from the spindle nose to the center of index in the Z axis. This will be a negative value.

The machine data must, of course, be entered before you can start using the spreadsheet. So entering machine data for your machines will be the first thing you'll need to do.

## ***Using Sheet1***

### ***Choose the machine***

Assuming you have entered machine data (on Sheet3), you'll be ready to start using the Fixture Offset Calculator. The list of machine buttons on Sheet1 will show your actual machines. Clicking on any of them will recall data from Sheet3 and place it in the three brown boxes on Sheet1 (upper left-most set of data boxes on Sheet1).

### ***Enter known fixture data***

Next, you must enter data about your fixture in the four yellow boxes that follow. The *Known B Index* value lets you specify the machine's index angle that will be active when the known X, Y, and Z fixture offset values are entered. If, for example, side zero will be facing the spindle when the other known fixture values are correct, you will enter zero in this box.

The X Value is the distance from the center-of-index in the X axis (table center) to the X axis location surface on the fixture. If the location surface is to the left of the center-of-index (as viewed from the spindle), this value will be negative. If it is to the right of the center of index, this value will be positive.

The Y Value is the distance from the table top to the fixture's Y axis location surface (always positive).

The Z Value is the distance from the center-of-index (again, table center) in Z to the Z axis location surface on the fixture. If the surface is in front of the center-of-index (as viewed from the spindle), this value will be positive. If it is in back of the center of index, this value will be negative.

### ***Enter fixture offset number and index angles***

For each fixture offset you will be using, enter its number and corresponding index angle in the long yellow column in the table. You can enter up to forty sets. As you do, the fixture offset values (that will be placed in G10 commands will be shown).

### ***Choose your output options***

**Extended offsets** - When checked, this will create G10 commands for Fanuc's extended fixture offset option. When not checked, it creates them for machines with only six fixture offsets (the L word value in the G10 command is different based upon which style of fixture offsets a machine has).

**Overwrite sheet 2** - Sheet 2 of the spreadsheet provides you with a place to store fixture offset data for future use. When you check this box, the corresponding data on sheet 2 will be overwritten.

**N numbers** - When checked, G10 commands will be created with sequence numbers.

**Append B0** - When checked, G10 commands will include the word "B0".

**Add external** - When checked, a G10 for fixture offset number zero (G53) will be created. This will ensure that the machine's reference position is the point of origin for fixture offset entries.

**Okuma format** - When checked, G10 commands will be created in Okuma format (if this box is not checked, Fanuc format will be used).

### ***Output your data***

Clicking the *Write to Sheet2* button will save the fixture offset data on Sheet2 for future use.

Clicking the *Write to Text File* button will create a text file including the G10 commands.

