EFLD.EXE Instructions

The EFLD.EXE was developed in Visual Basic to allow a simple way to graphically display real-time measurements made by the KIT33794EVM.

The program relies on the simple text communications translation provided by the MC68HC908QY4 MCU on the Evaluation Module (EVM). Commands to select the various electrodes and measurement points are sent in text over the COM port of a PC at the 9600, N, 8, 1 setting required by the EVM. Responses are then received back in text from the EVM. These are converted by EFLD to a text and bar-graph Windows display.

SETUP:

The EVM should be connected as described in the instructions which come with it. This requires a source of 12 volts to power the module and a modem cable connected between a computer and the EVM.

OPERATION:

No other program which accesses the port connected to the EVM can be active when using EFLD. Windows will only allow a single program to use a port at a time. For instance, if Hyper-terminal is connected to send and receive data to/from the EVM, EFLD will fail when it attempts to obtain access to the port. This will cause an error to be displayed and close the program.

EFLD is started by double-clicking on the (EFLD.EXE). The COM port must be set to the one connected from the computer to the EVM before the “Run” pushbutton is selected. This is done by selecting “Port” on the menu bar and then choosing the correct port (Com1 to Com4). The “Run” button will start the program running through the selected measurements. If a Runtime Error indicating the port is already open is received at this time, make sure no other program is currently running which could be accessing the selected port. If a Runtime Error indicating an invalid port number is received, make sure you have selected a port which exists in the computer. If no bars are shown and the levels all stay at 0, the modem cable is not connected or connected to the wrong port.

OUTPUTS:

The display shows the level measured for each of the active measurements both as a decimal number from 0 to 255 and as a bar whose length is a function of the level. The following things can be done to the display through the pull-down menus:

- Magnify and Offset the bar-graph display
- Select which groups of measurements will be displayed
- Change the readout and bar-graph to show decreasing or increasing level for increased loading.

In addition the shield driver can be turned on and off through the menu system.

IMPORTANT NOTES:

If all measurements are turned off using the View menu pull-down, the measurements will stop and both the “Run” and “Stop” push-buttons will be grayed out until something is selected to be displayed. The “Run” will then be available to start the measurements again.

The program makes about 10 readings/second. This is divided among the measurements selected to display. If the number of measurements displayed is decreased, the remaining readings will be updated at a higher rate.

When measurements are being made and displayed, many of the menu items are not available. To change these, it is necessary to stop the measurements using the “Stop” push-button, make the selection and restart it using “Start”.

The sensitivity of the measurements is affected by the size and spacing between the electrodes. The loading is essentially caused by the capacitance between the selected electrode and the PWB/supply ground. The capacitance is directly proportional to the Area and inversely proportional to the spacing.

Leakage of DC current from a voltage source to the electrode or from the electrode to ground will affect the readings. This can be eliminated by putting a capacitor in series with the connections from the PWB to the electrodes. A 10nF capacitor should be large enough for most applications.