Mystic Description

Mystic comes with complete online, context-sensitive Help. This description gives an overview of its features.

Mystic is available for the MAGICard, the R*x*T*x* and the M*x* family of boards. The accompanying screen shots are of the M*x* version but are applicable to the other versions as well. The MAGICard version has some additional capabilities.

The M*x* family includes the 429PCMCIA, PC/M*x*, PCI/M*x*, CPCI/M*x* and PMC/M*x*. These are all based on 6 channel modules, of which channels 0,1,3, and 4 are Receive Channels and 2 and 5 are Transmit Channels. The main screen has speed buttons to select the channels to set up. If the user clicks the 0 button the following screen will be displayed, representing the first setup screen for Receive channel 0.

Receive Channel Setup
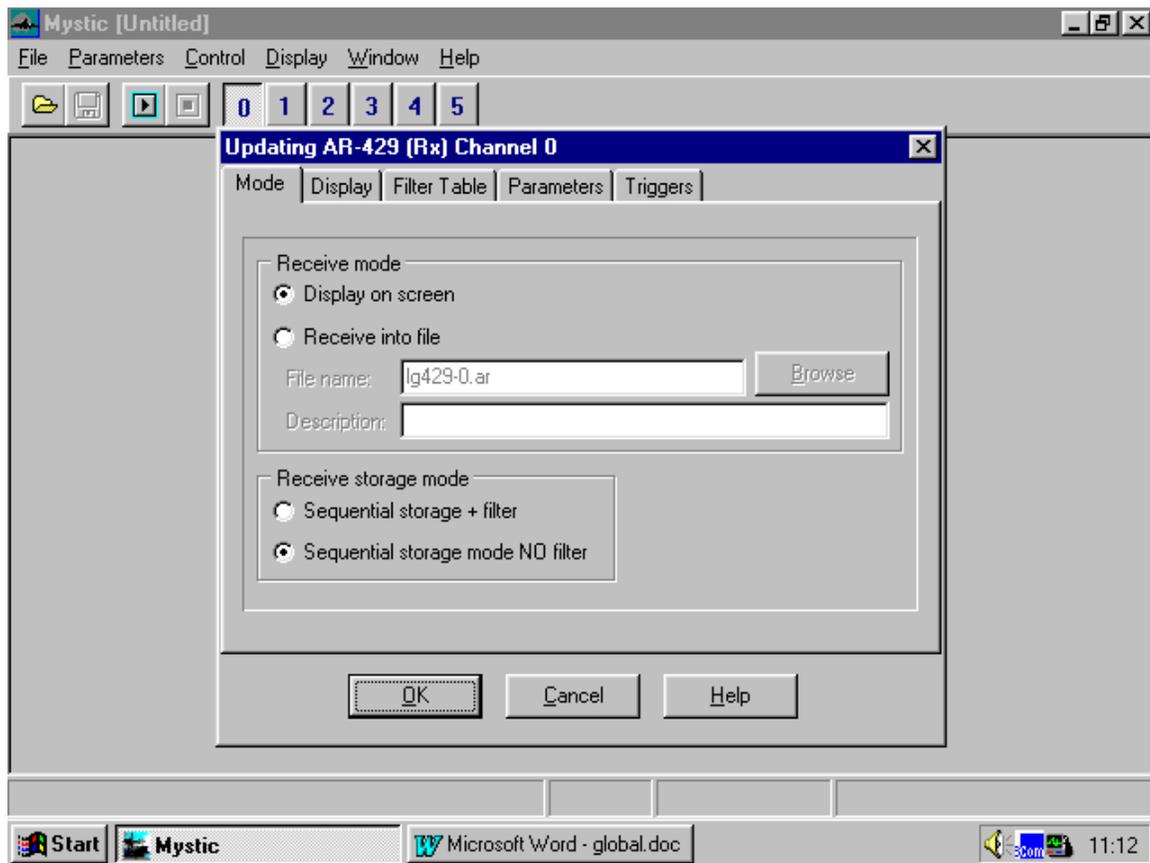
Updating AR-429 Receive Channel – Mode Tab

Use the Mode tab screen to decide whether to display data on the screen or save it to a file. The lower part of the screen is used to select whether to display/record all the data, or only selected labels. (The selection is done using the Filter Table tab described in a later section.)
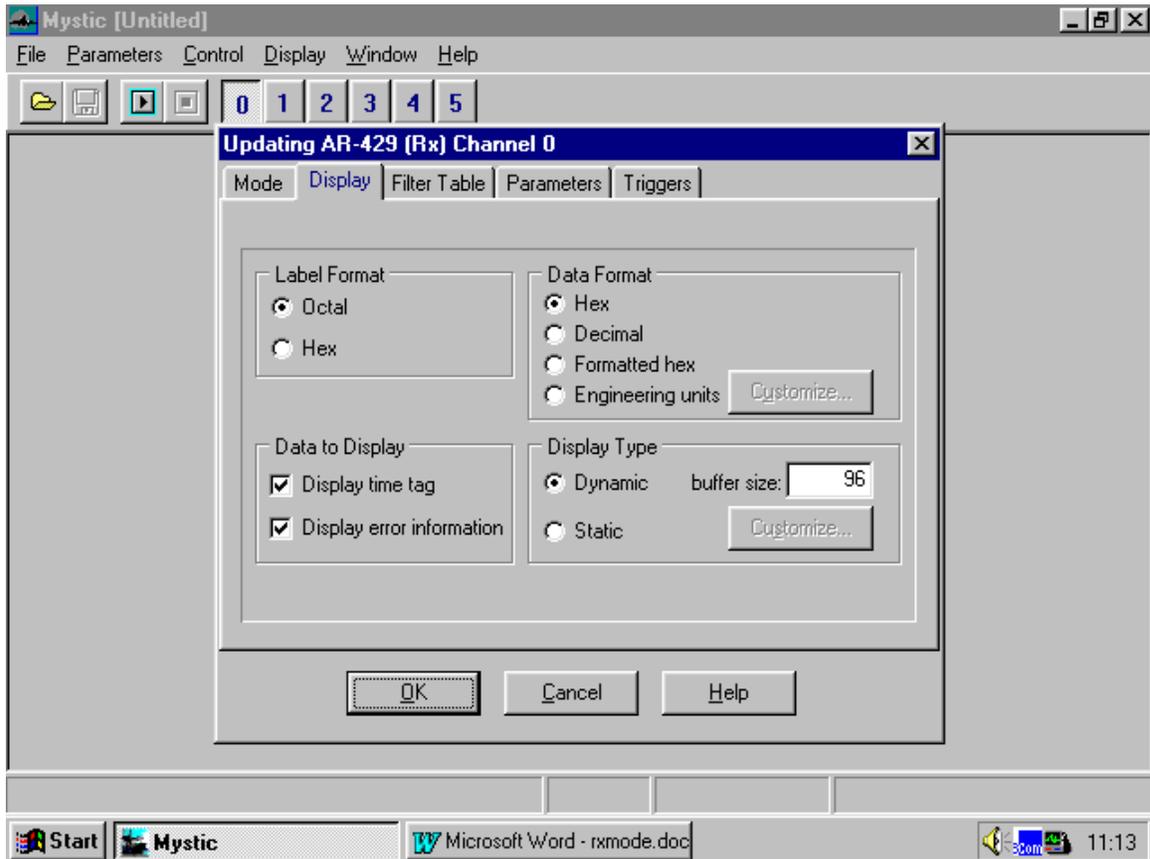
Updating AR-429 Receive Channel – Display Tab

The Display tab is used to select the format of the display for incoming data. The label and data fields are formatted separately. Data may be displayed as a 24 bit hex number, as a decimal number, as a hex number with Parity, SDI, SSM and data bits separated and in Engineering Units. If engineering units are used a supplied, user modifiable, Excel file is used to contain the engineering units definitions.

The display may be:

Dynamic - each ARINC word is given a new line as it comes in and old data is scrolled off the screen

or

Static - each label is assigned a location on the screen by the user and updated when the appropriate label comes in.
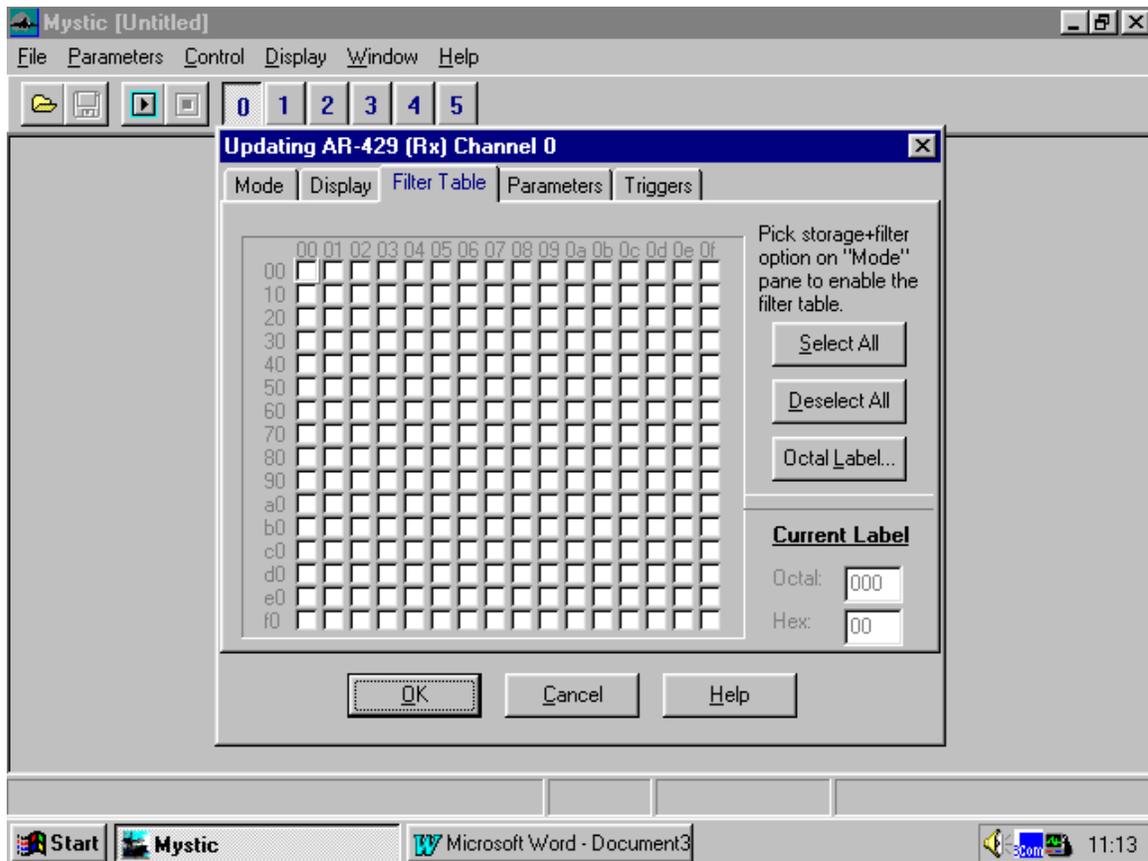
Updating AR-429 Receive Channel – Filter Tab

The Filter Table tab is used to select which labels are to be received and which are to be ignored by the board. It is used to reduce clutter on the screen and post-processing time on save to file by eliminating uninteresting labels.
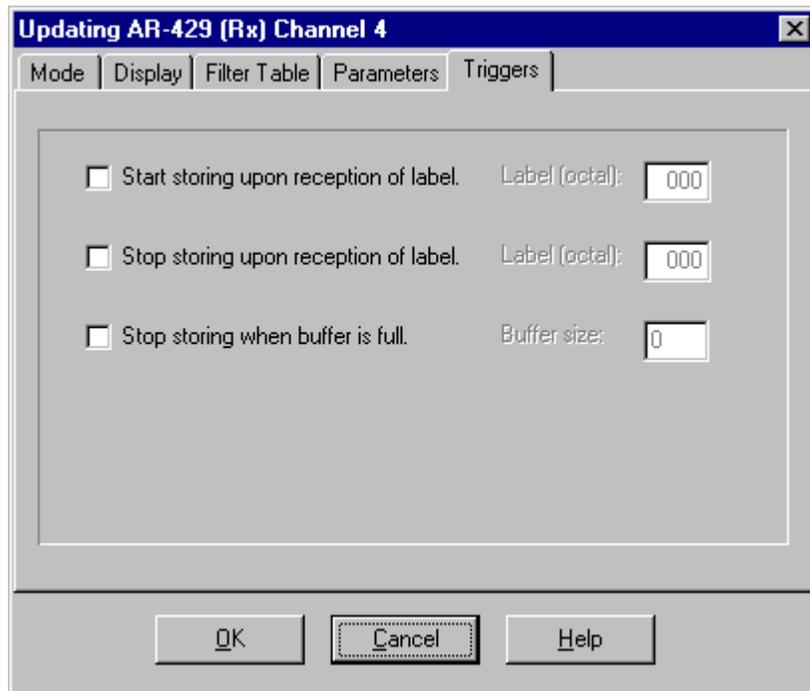
Updating AR-429 Receive Channel – Trigger Tab

The Parameter tab (not shown – it's pretty boring) is used to set the speed of the channel – either 12.5 KHz or 100 KHz.

The Triggers tab is used to select conditions, i.e., particular labels, which will cause recording to either start or stop. This is helpful for isolating the environment before or after a particular label. The user may also choose to record a specified number of labels and then turn off the channel.

Transmit Channel Setup

If the user clicks on the 2 button the following screen will be displayed representing the first setup screen for transmit channel 2.

Updating AR-429 Transmit Channel – Parameters Tab

The user uses this screen to select the data rate and rise fall time associated with the data. The loop counter determines how many times the data (defined in the following screens) is to be transmitted.
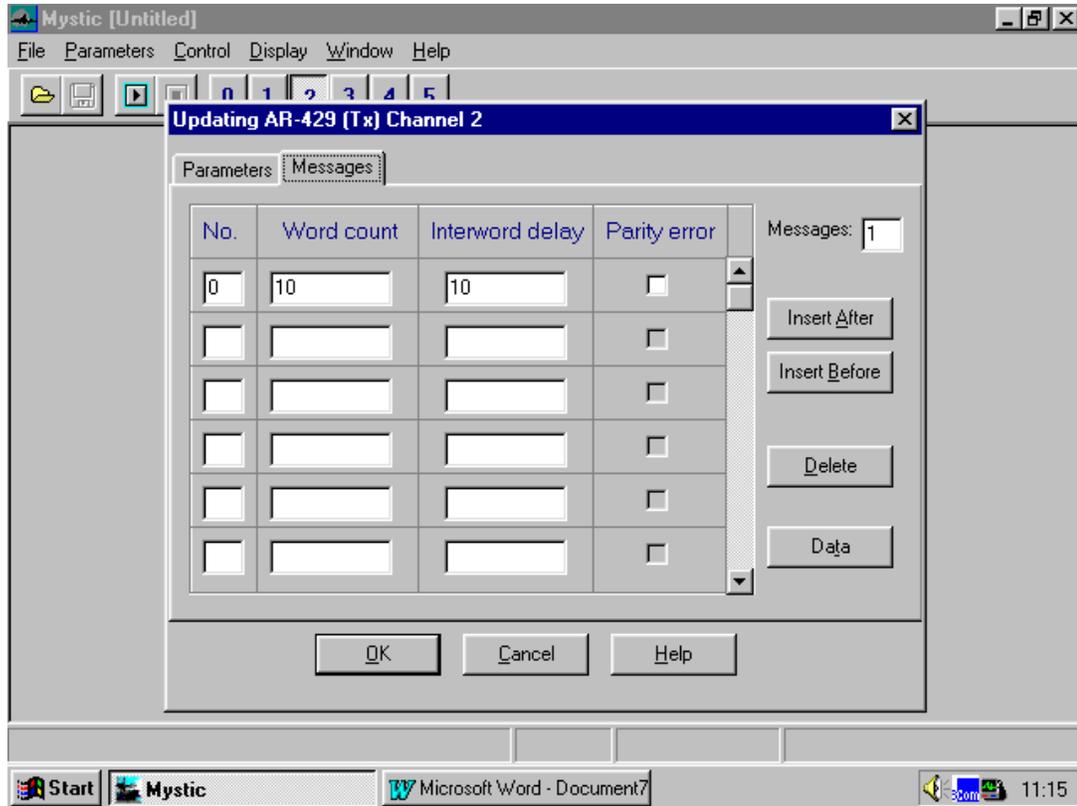
Updating AR-429 Transmit Channel – Messages Tab

The Messages screen is used to define blocks of data to be transmitted over the ARINC 429 bus. A block is a group of ARINC 429 word sent out with the same time gap between words. Parity errors may also be introduced per block of data. In the above example, a block of 10 words will be sent out with 10 bit times between each word. All will be sent with odd parity. Checking the parity error box would cause all 10 words to be sent with even parity.

Clicking the Data button brings up the following screen.
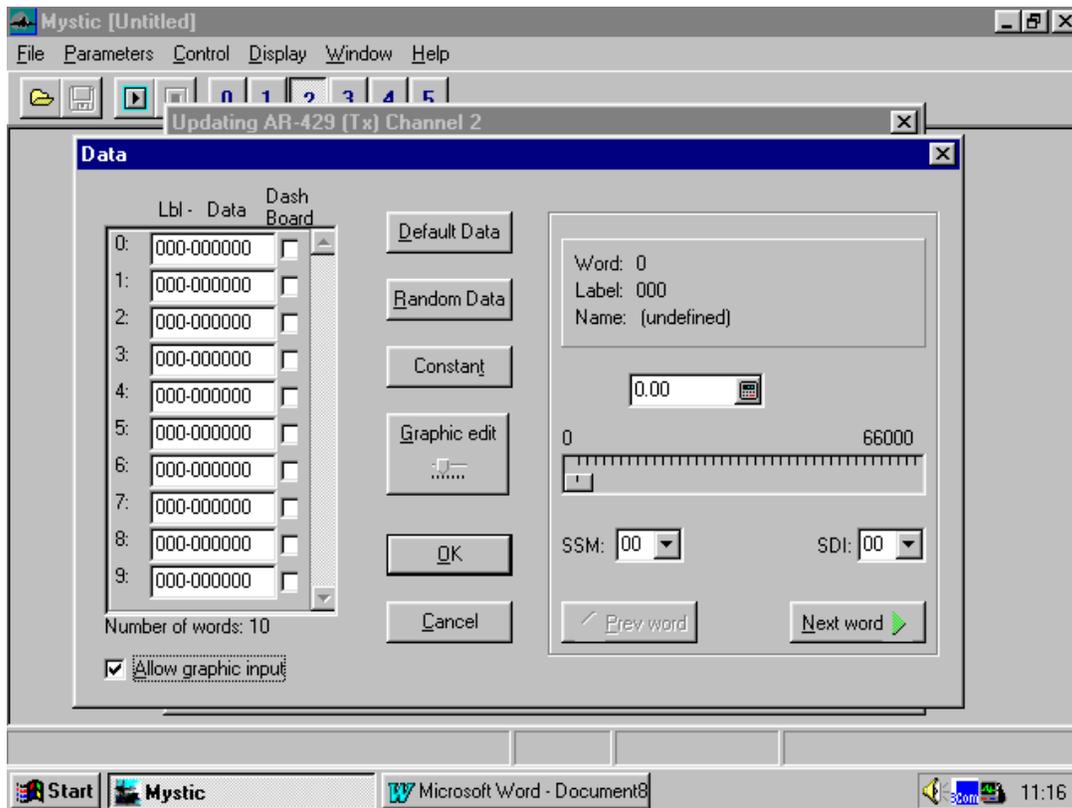
Updating AR-429 Transmit Channel – Messages / Data Screen

The left side of the screen is used to select the labels for the 10 words in this block. The user may also fill in data in hex format. Alternatively, the right side of the screen allows data to be inserted in engineering units. The units will be adjusted according to the type of label selected on the left side of the screen.

Once the board is set up, use the control menu item to start the desired channels running. If we were to set channel 0 running in dynamic display mode with channel 2 transmitting we would see the following run screen.
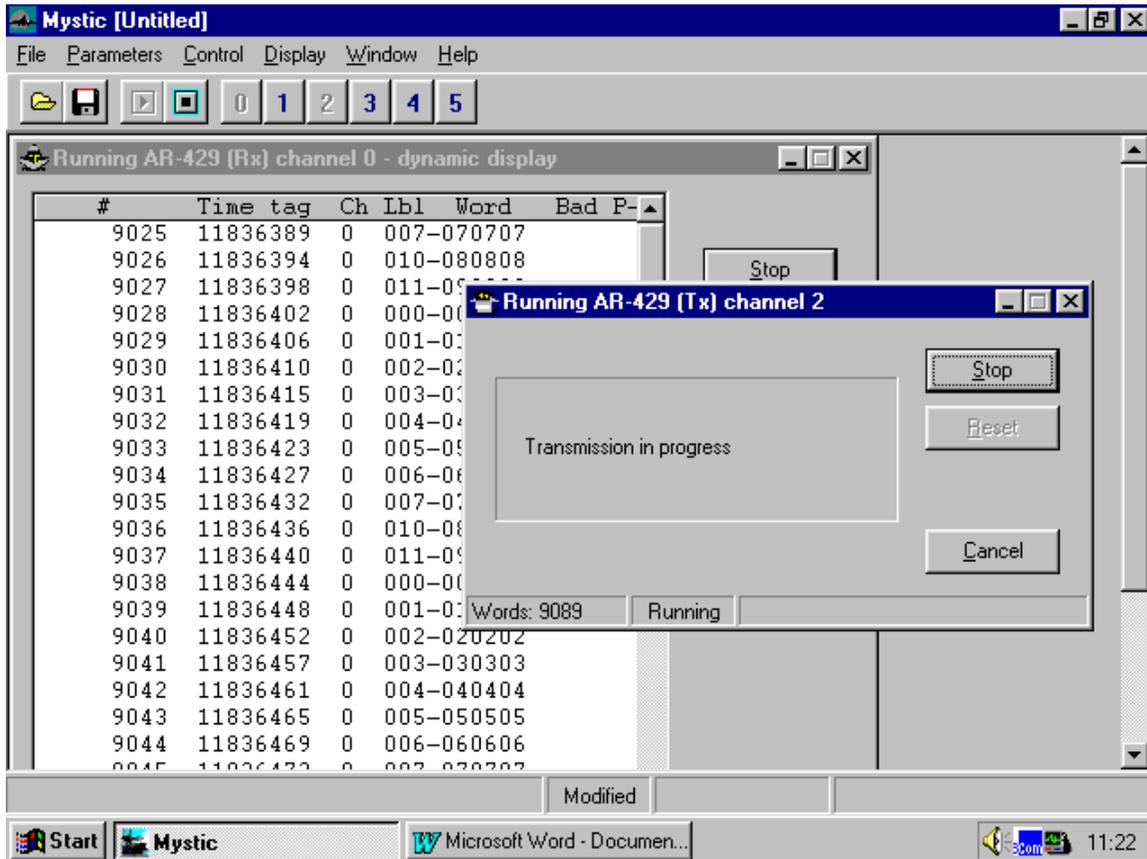
Run Screen – Dynamic Display

The channel 0 display shows labels scrolling down the screen. A Running counter, a Time Tag, the channel being monitored and the label and data are displayed for each label.

The Transmit window shows a running count of the number of words transmitted. Both boxes have Stop buttons to turn off their respective channels.

To read back data from a file, if we previously had saved one using the option in the Updating AR-429 (Rx) Mode Tab setup, select Display from the menu bar, a file submenu is displayed. Mystic saves files in binary format. When displaying the file, the user may choose to save the results in an ASCII file.

```
Mystic - jmb.mys                                                _ 8 X
File  Parameters   Displaying results from file: jmb                  X

      #      Time tag  Ch Lbl   Word     Bad P-Err
      0     4004498   0  000-010000
      1     4004503   0  004-040404
      2     4004507   0  005-050505
      3     4004511   0  006-060606
      4     4004515   0  007-070707
      5     4004519   0  010-080808
      6     4004524   0  011-090909
      7     4004528   0  000-040000
      8     4004532   0  000-040000
      9     4004536   0  000-010000
     10     4004540   0  000-010000
     11     4004545   0  004-040404
     12     4004549   0  005-050505
     13     4004553   0  006-060606
     14     4004557   0  007-070707
     15     4004561   0  010-080808
     16     4004566   0  011-090909
     17     4004570   0  000-040000
     18     4004574   0  000-040000
     19     4004578   0  000-010000
     20     4004582   0  000-010000
     21     4004586   0  004-040404

          OK            Save to file        Information...
     Microsoft Word - Document13

Start    Microsoft Word - Docume...    Mystic                      3Com    11:35
```

Displaying Results from File

When working in dashboard mode, individual labels are displayed in their own windows. Transmit labels are displayed with their current values and a slide bar which allows the user to change the value being transmitted. The user may also change the value using the edit box.

Receive labels are displayed using a two or three-dimensional graph whose size and parameters may be changed in real time.
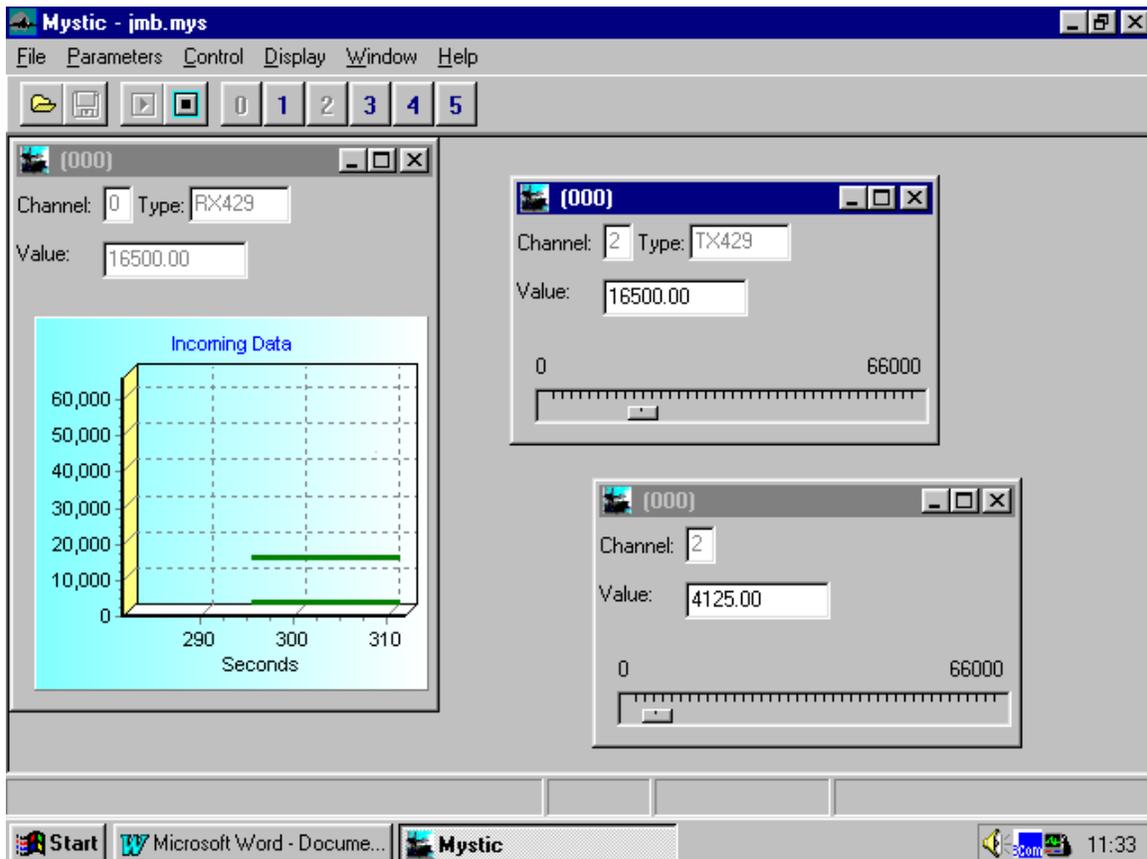
Run Screen – Dashboard Display

This review of Mystic points out the major features of the program. In the interest of brevity, it does not explain each and every menu and submenu selection. Mystic is designed to work in simulation mode on a computer that does not contain hardware or drivers. In this mode the user may examine all the menu selections as well as the on-line help.

The latest version of Mystic may be downloaded from our website at www.mil-1553.com.