



AN-107

APPLICATION NOTE

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THE FM300FP STRIP CHART RECORDER PROGRAM

INTRODUCTION

Included with each FM300 is a computer program called the FM300 Front Panel. This program, which operates under Microsoft Windows 95®, 98® or NT 4.0®, can be used to communicate with the FM300 through a standard COM (serial) port of a PC.

The FM300 Front Panel program can be used to

- Set the measurement parameters.
- Acquire and display single samples.
- Activate one of the FM300 recording modes.
- Download and display data stored in the FM300 internal data buffer.
- Record data on the strip chart display at a user defined sample interval.
- Save displayed data to a data file in a spreadsheet compatible format.
- Retrieve and display previously saved data.

The remainder of this application note will describe how to install and use the FM300 Front Panel.

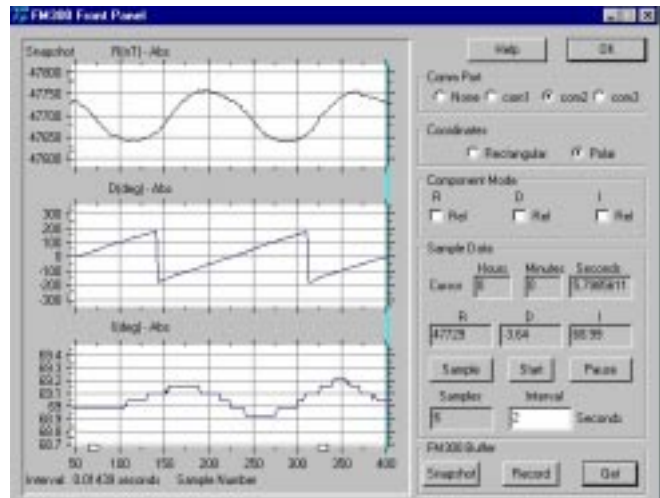
INSTALLATION

The FM300 Front Panel program requires the following minimum system configuration:

- 486 or higher processor
- Windows 95,98 or NT 4.0
- An unused COM port

To install the FM300 Front Panel program:

- Click on the Start button.
- Type A:/Setup in the edit box.
- Click on the Open button.



At this point the FM300 Front Panel installation will begin.

After installation, you can start the program by double clicking on the FM300FP application program in the C:/Program Files/Meda directory (assuming you loaded the program into the default directory).

CONNECTING THE FM300

The FM300 is connected to the computer through an unused COM port using the RS232 cable included with the FM300. The miniature phone plug connects to the FM300 and the 25-pin D connector connects to the PC COM port.

Often the mouse is plugged into COM1. If COM1 is not available, you can use COM2 or COM3.

Portable computers often have a 9-pin serial connector. In this case you will need a 25-pin to 9-pin adapter cable.

Once the cable is connected to the FM300 and the FM300 Front Panel program has been started, press the Remote key on the FM300 (an * will be appear on the display), then click in the radio button at the top of the FM300 Front Panel

screen that corresponds to the COM port. After a second or two, all of the controls will be enabled, and a reading from the FM300 will be displayed in the *X*, *Y*, *Z* edit boxes in the *Sample Data* group. You are now communicating with the FM300.

FRONT PANEL FUNCTIONS

The front panel functions are organized into five groups:

- ❑ Comm Port Group: used to select the COM port
- ❑ Coordinates Group: used to select the measurement coordinate system to use (rectangular or polar)
- ❑ Component Mode Group: used to set each component into relative or absolute measurement mode
- ❑ Sample Data Group: used to display measurement data and control strip chart operations
- ❑ FM300 Buffer Group: used to activate an FM300 recording mode and retrieve data from the internal FM300 data buffer

Selecting a Measurement Mode

To select a coordinate system, just click in the associated radio button. To change the component measurement mode, click in the *Rel* box associated with the component. This box will have a check mark if the component is in relative mode, otherwise it will be blank.

Acquiring a Single Sample

To take a single sample, click on the *Sample* button and, in about two seconds, the sample values will appear in the edit boxes, and the *Samples* edit box will be incremented. The *Samples* edit box indicates the number of samples stored in the FM300 Front Panel sample buffer. These samples can be displayed using the commands available in a pop-up menu activated by the right mouse button (to be described later).

Starting a Strip Chart Recording

Clicking on the *Start* button begins a strip chart recording. Measurements are taken and displayed at the interval specified in the *Interval* edit box. The default interval is 2 seconds. This is too fast for some older computers, and a

longer sample interval may have to be selected (see the Help topic for a more complete discussion).

Use the *Pause* button to temporarily stop the strip chart. The Pause button caption will change to *Resume*, and data collection will continue in the background while you inspect the displayed strip chart data. Clicking on the *Resume* button starts the strip chart again. The strip chart is updated with the data that was collected in the background while the strip chart was paused.

Inspecting Strip Chart Data

While the strip chart is paused or after it is stopped, you can alter the way the data is displayed and inspect individual sample points.

Clicking the left mouse button while the cursor is on the strip chart sets the strip chart vertical cursor to the sample point nearest the mouse cursor and displays the data in the Sample Data Group edit boxes. The cursor position is displayed as well as the sample values.

If you hold the left mouse button down while you move the mouse, the vertical cursor will track the mouse motion until you release the mouse button.

Adjusting the Strip Chart Display

While the strip chart is running, the range of the displayed data is automatically adjusted to show all the data within the visible portion of the strip chart. This means that small variations in a large static value are easily detectable.

On the other hand, if a large transient event occurs, the display range will be widened to accommodate this large change. In this case the range may now be too wide to see small variations. The change in the range will remain in force until the transient signal moves off the visible section of the strip chart.

Once the strip chart is paused or stopped, you can alter the range of the displayed data by clicking on the vertical arrows to the left of the strip chart and holding the left mouse button down while moving the mouse up or down. The down arrow adjusts the upper range value, and the up arrow adjusts the lower range value.

The visible portion of the strip chart displays only the last 512 samples, but the FM300 stores up to 3600 samples. You can use the horizontal

arrows at the bottom of the strip chart to display any or all of the data in the buffer. Click on the arrow with the left mouse button, and hold the button down while you move the mouse left or right. The left horizontal arrow controls the left sample limit, and the right arrow controls the right sample limit.

Retrieving Data From the FM300

Click on the *Get* button to retrieve data that was stored in the FM300 internal data buffer using one of the FM300 recording modes. After several seconds, the data will be displayed on the strip chart. You can use the same techniques described above to inspect the data.

Initiating an FM300 Recording

Click on the *Record* button to initiate an FM300 30 second recording. Click on the *Snapshot* button to initiate a 7.5 second recording. While the FM300 is busy recording data, the FM300 Front Panel controls are disabled, and a progress bar is displayed at the bottom of the screen.

Pop-Up Menu Commands

A pop-up menu will be displayed when you press the right mouse button. This menu includes commands for

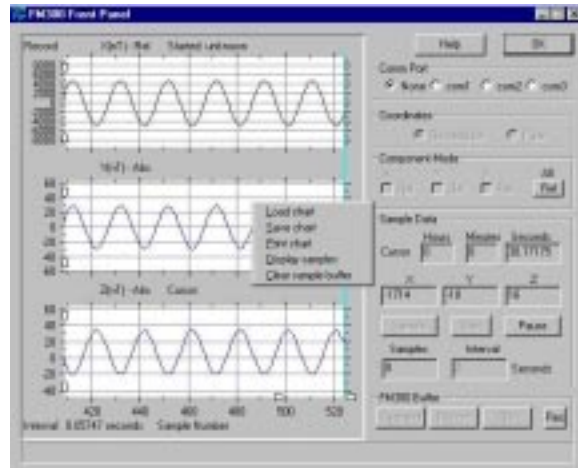
- Storing the strip chart data to a file
- Printing the strip chart
- Loading a previously stored strip chart
- Displaying the sample buffer
- Clearing the sample buffer

The pop-up menu is shown in the figure to the right. Use the Help menu to learn more about these commands.

Data File Format

The format of the data stored on a disk file is compatible with spreadsheets that can import text files. Below is a sample data file.

```
File Name: D:\FM300fp\fm0420.prn
Type: Strip Chart
Started: Apr 20, 1998 14:38:49
Stopped: Apr 20, 1998 14:39:49
Comp 1: Abs
Comp 2: Abs
Comp 3: Abs
Interval: 2.00000 seconds
```



```
Points: 205
Components: Rectangular
Sample,X,Y,Z
0, 4050,-43848, 39747
1, 4050,-43848, 39747
2, 4045,-43851, 39750
3, 4044,-43851, 39749
```

There is an FM300 Help topic that describes how to import FM300 data files into Microsoft Excel.

GETTING FURTHER HELP

You can find more information about the FM300 commands and functions by pressing the Help button at the top of the screen. The help topics go into more detail than is possible in this short application note.