Data Logging

Most data logging operations are used during a field calibration process or troubleshooting a process flow or the meter readings. In addition to any historical data recorded via the 4-20 mA interface, the MFT B-Series supports four types of digital data logging:

1. USB port, CSV format text (spreadsheets) using an internal timer or the **L** key
2. USB port, ASCII escape commands
3. Modbus command query(s)
4. Internal volatile RAM logging which can be extracted using <u>KzComm</u>.

1. USB port formatted text

The data logging output is a comma separated text string to the USB port (Windows driver must be installed to use this as a COM port) with all meter summary information on one line. If captured using a remote terminal program like HyperTerminal and saved to a text file, this will import into a spreadsheet like Excel for further data manipulation or plotting.

This function is normally off but can be turned on in *Program Mode* at the menu:

```
PRESS E TO SET
USB COMM
```

After entering *Program Mode*, you press **P** until reaching the above screen then press **E** to make changes.

```
DATA LOG IS ON
^=ON V=OFF
```

Pressing the **^** key followed by **E** turns the logging on.

```
LOG INTERVAL
(SEC)        10
```

Here we enter the log interval in seconds, no decimal point and the **E** key. The minimum log interval is 1 second; the maximum is 32,768 seconds or the equivalent of 9.1 hours. The above example will log every 10 seconds to the USB port.

The logging can be initiated by command using the **L** key on the local keypad or via remote keypad via the same USB port using a "l" key or lower case L in
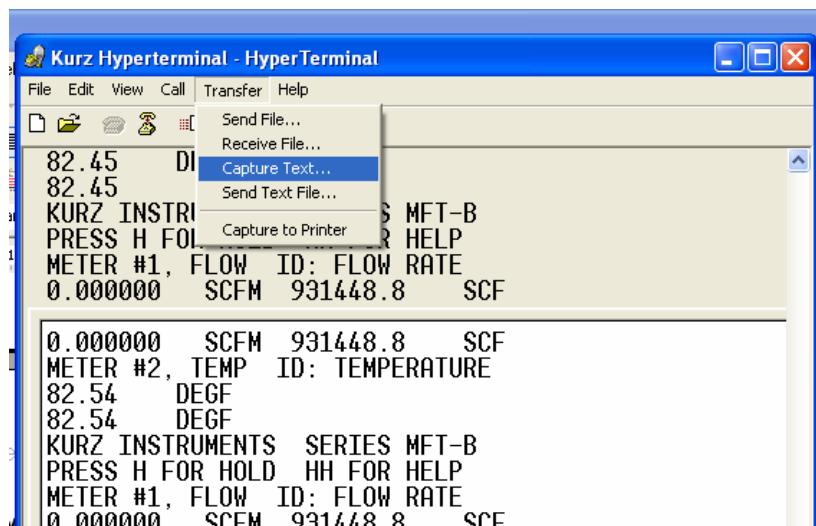
HyperTerminal. Alternately, you can set an internal timer from 1 second to 9.1 hour intervals. The LCD screen echo should be turned off using the "+" key on your remote terminal program when capturing data with the logging feature. This ensures normal program and display screen text are not also captured on the USB port when data logging.

Example data from the .csv format logging function:

The above data were captured with HyperTerminal and saved as a .csv file. This was then opened directly by Excel then column labels were added by hand for this illustration.

Using HyperTerminal, once you have the basic remote terminal operation working you select the top menu "Transfer" then the pull down menu item "Capture Text" as shown here:

It will ask you for a file name which you type and chose a .csv extension so it will

load directly into a spreadsheet without doing an import conversion. You press the "start" button and you are now logging to your file. To stop this process you select the same menus but select stop, which closes the file capture.

2. USB Port ASCII commands

By using "esc" commands you can obtain basic information about flow and temperature of the meter. This was designed for use with automated calibration equipment where a computer program is requesting data.

3. Modbus command query.

Data logging from the MFT B-Series flow meter using Modbus is very flexible as you have access to just about all possible data at whatever data rate you want A full explanation of how to use the Modbus interface and its commands are available in the network communications section of the manual.

4. Internal volatile RAM data logging

In support of field service and troubleshooting, there is a continuous logging of the meter's flow, temperature and run time every 10 seconds. There are 20,416 samples for 56+ hours of data. If the power is cycled, this data is lost. The data are extracted using KzComm then saved in a coma, separated variable file, (.csv) which can then be graphed and analyzed in any spreadsheet program.