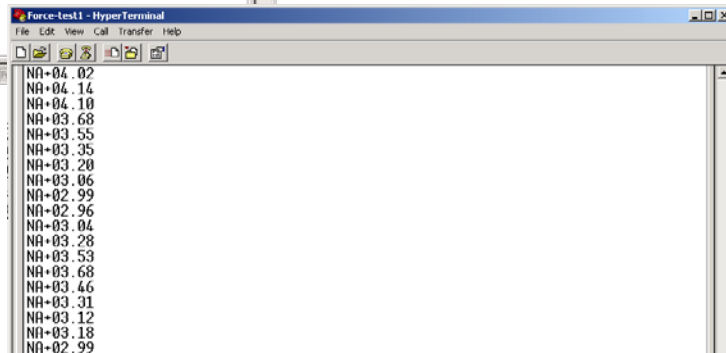
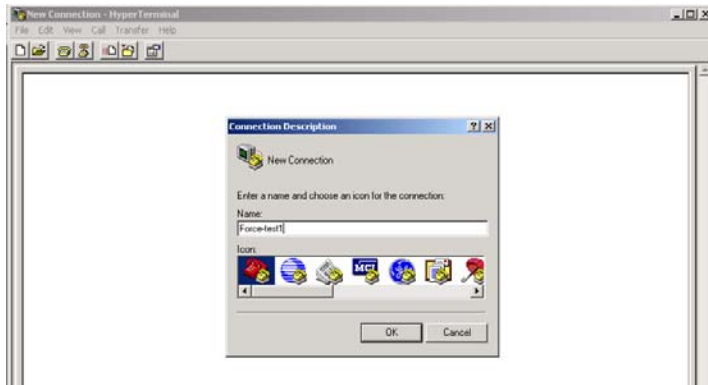


# FGV-X FORCE GAUGE USING HYPERTERMINAL

Created by: Arthur C. Morales  
11/03/2005

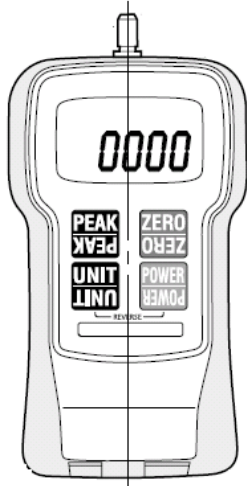


## Using Hyperterminal for the FGV-X force Gauge

Date: 11/03/05

By: Arthur C. Morales

### Overview:



In most situations users are dealt with the dreaded problem of interfacing with different devices without having to spend additional money for investments that already cost a fortune.

Third party software manufacturers are great and available, but in most situations the software manufacturers have certain conditions that need to be met otherwise communication between devices will not work. Often time users have limited solutions that lead to unsatisfactory results.

### Problem:

Be able to utilize the ASCII communication capability of the FGV-X force gauges for Data Acquisition purposes. Limitation includes the use of the existing materials on hand: Computer, RS-232 Cable, and FGV-X force gauge.

### Solution:

Computers come with Hyperterminal Programs that are available free of charge and do not have the compatibility problem with Windows Versions (XP, 95, 98, 2000).

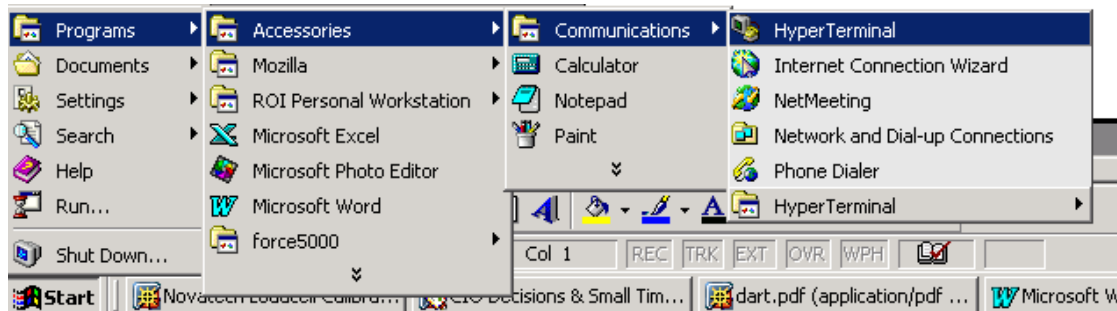


Fig 1. Location of HyperTerminal from your Start Menu

This program can be use to send ASCII commands found from your manual as shown below:

Response Descriptions from the Force gauge are also provided, to determine whether Average or Peak Data are displayed from the screen.

**Commands to FGV-X Gauge**

<b>AAcr</b>	Tare
<b>ABcr</b>	Stop output
<b>ACcr</b>	Change to peak mode
<b>ADcr</b>	Change to average mode
<b>AEcr</b>	Peak reset
<b>AFcr</b>	Change units to Kg (g)
<b>AGcr</b>	Change units to N
<b>AHcr</b>	Change units to lb (oz)
<b>BAcr</b>	Data output request (single reading)
<b>BBcr</b>	Continuous data output request (10 times/sec)
<b>BB1cr</b>	Continuous data output request (20 times/sec)
<b>BB2cr</b>	Continuous data output request (50 times/sec)
<b>BB3cr</b>	Continuous data output request (100 times sec)
<b>BCcr</b>	Model name confirmation request
<b>BDcr</b>	Units confirmation request
<b>BEcr</b>	Peak data output request
<b>BFcr</b>	Minus Peak data output request
<b>cr</b>	(cr: carriage return)

**Response from FGV-X gauge**

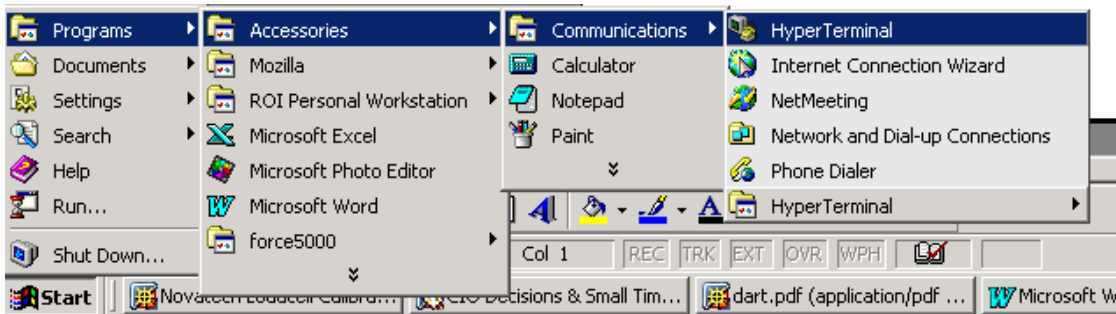
<b>NA□□□□□cr</b>	<b>Average data output</b>
<b>NB□□□□□cr</b>	<b>Peak data output</b>
	4-digit number with decimal point sign (+ or -)
<b>NE□□cr</b>	<b>Model number</b>
	02 = FGV-0.5X 03 = FGV-1X 04 = FGV-2X 05 = FGV-5X 06 = FGV-10X 07 = FGV-20X 08 = FGV-50X 09 = FGV-100X
<b>NH□cr</b>	<b>Unit</b>
	0 = N 1 = Kg (g) 2 = lb (oz)

**Error Symbols**

<b>OBcr</b>	Command error
<b>OEcr</b>	Parity error
<b>OFcr</b>	Format error
<b>OGcr</b>	Summing error
<b>OHcr</b>	Overrun error

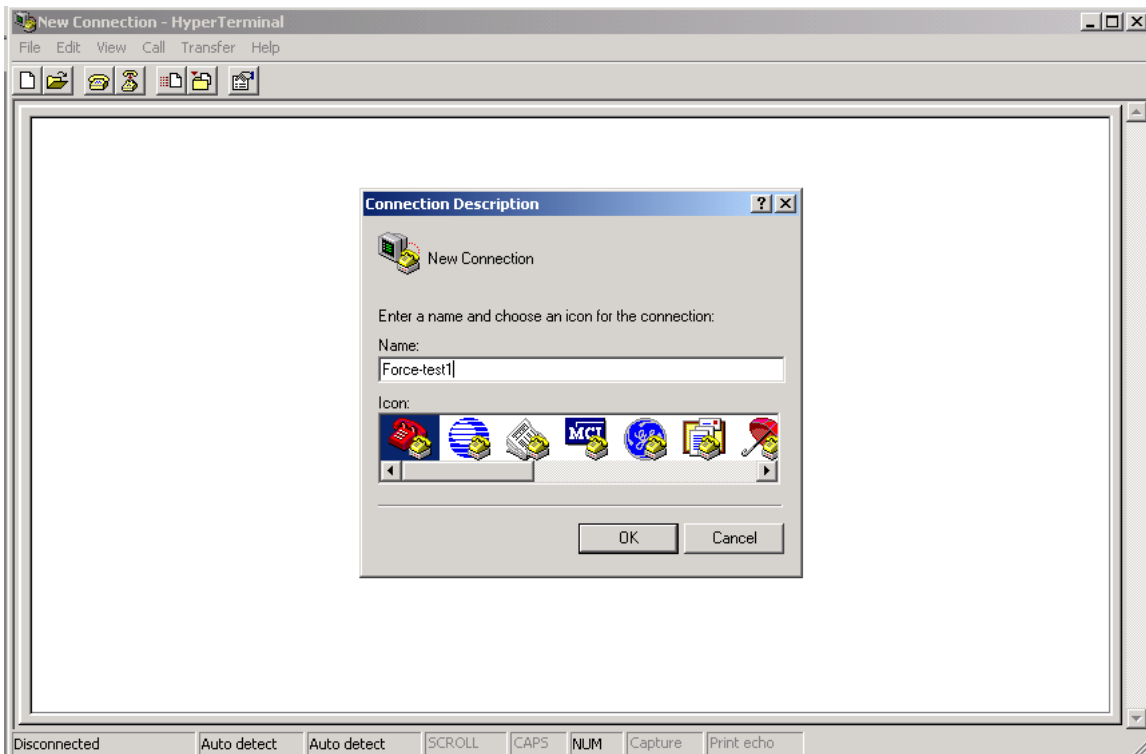
## How to Start?

From the Start Menu Hyperterminal is accessible under accessories then Communication. Shown below is the path on how to access it.

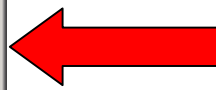


When HyperTerminal is first opened, the program will ask for an Area code, telephone number and location. This is a default requirement for the program when it is first used. Provide area code and location; do not worry about the connection this is just to satisfy and to comply with the requirements

Name the new connection for later access. (Screen example provided below).

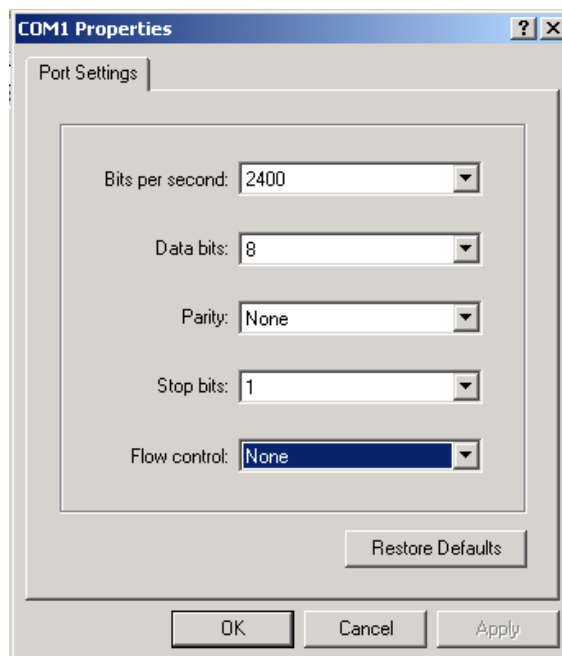


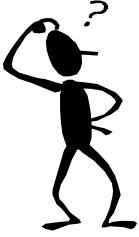
After new connection is named, press OK. This will open a new window where the port to be used can be selected.



Select Communication Port. Then press OK.

Change the properties of the port. It is important that the baud rate of the program is the same as the baud rate from the Force gauge. In this example the baud rate is set to 2400. The pattern of communication for the Force gauge is 8 bits, no parity, 1 stop bit, flow control None. After the following values are entered press OK.

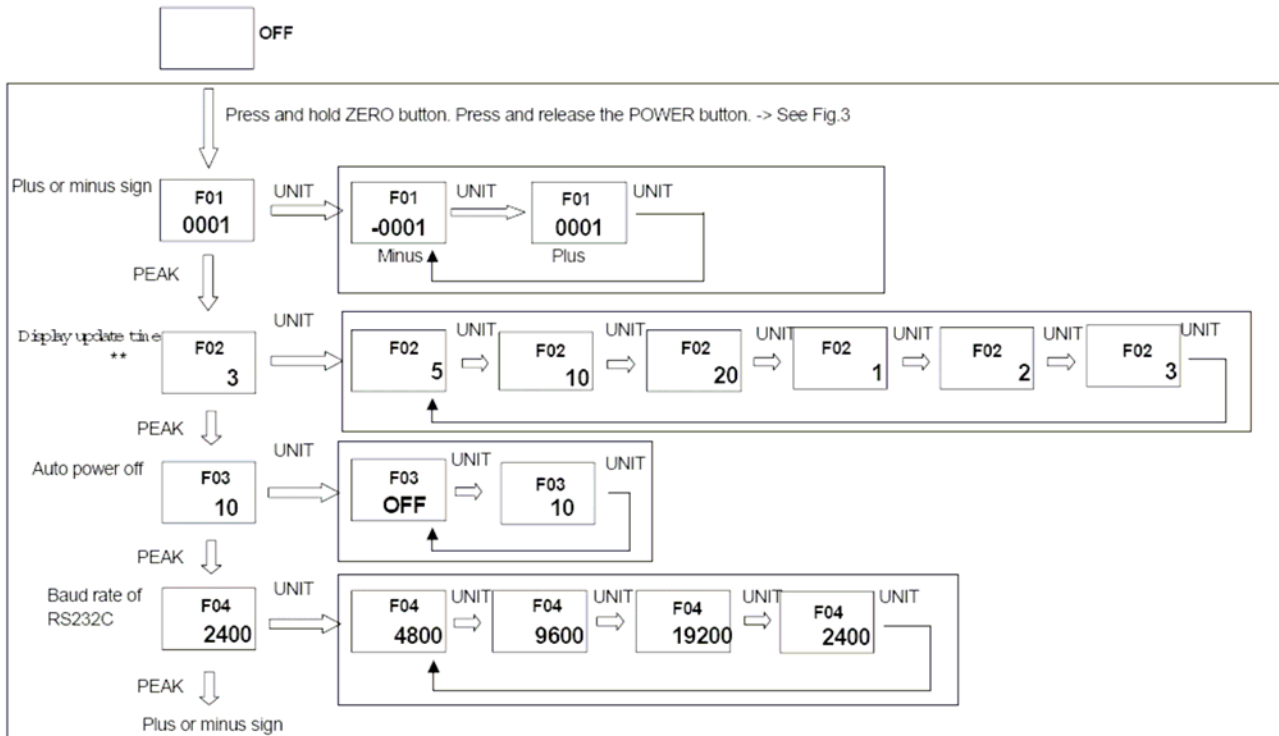




## How to change the baud rate from the FGV-X force gauge?

1. Turn off the force gauge.
2. Press and hold the ZERO button.
3. Press the power button once until display shows f01 on the top display.

The diagram below provides information of the different modes in the set up function for the force gauge.

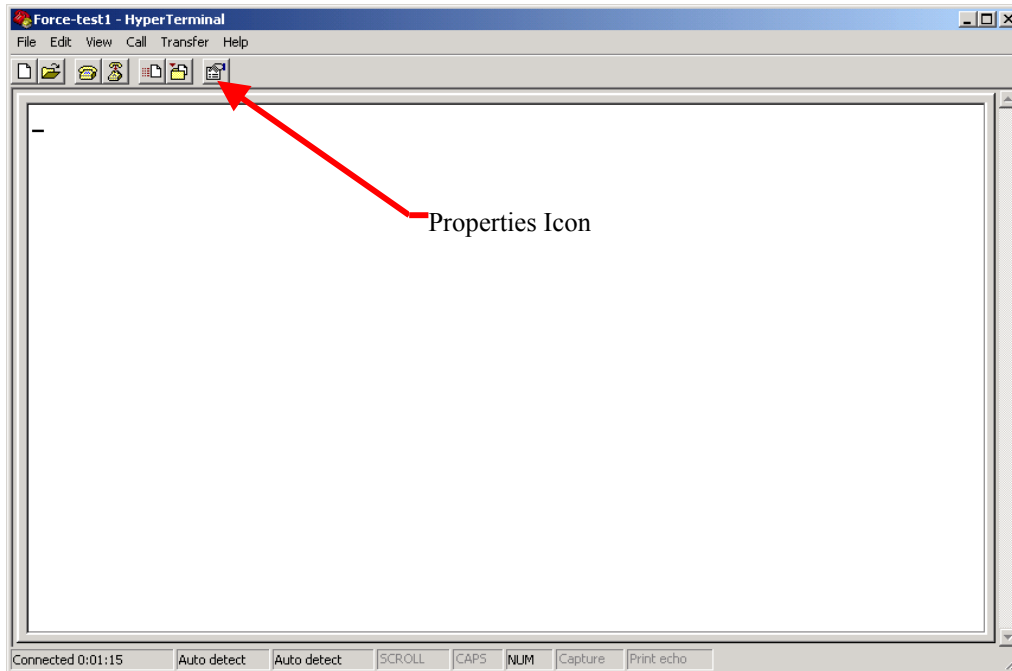


\*\*Note: In function 2, the numbers signify as follows.

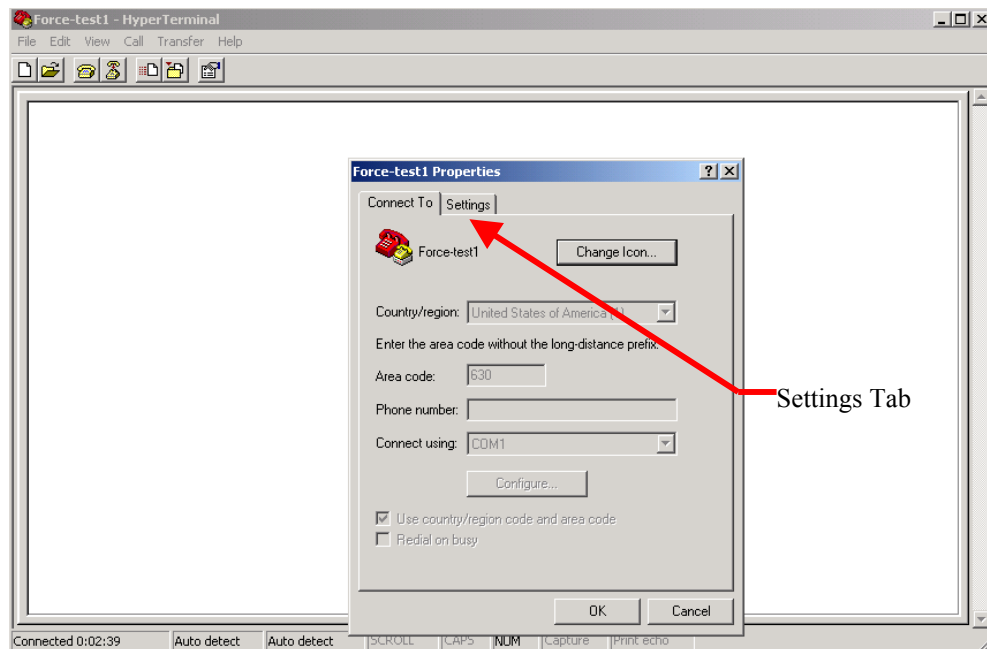
1; 1 time/sec, 2; 2 times/sec, 3; 3 times/sec, 5; 5 times/sec, 10; 10 times/sec, 20; 20 times/sec

4. To scroll through the set up press the PEAK button until the upper display shows f04.
5. Press the UNIT button until required baud rate is selected.
6. Press the ZERO button to memorize and exit set up.

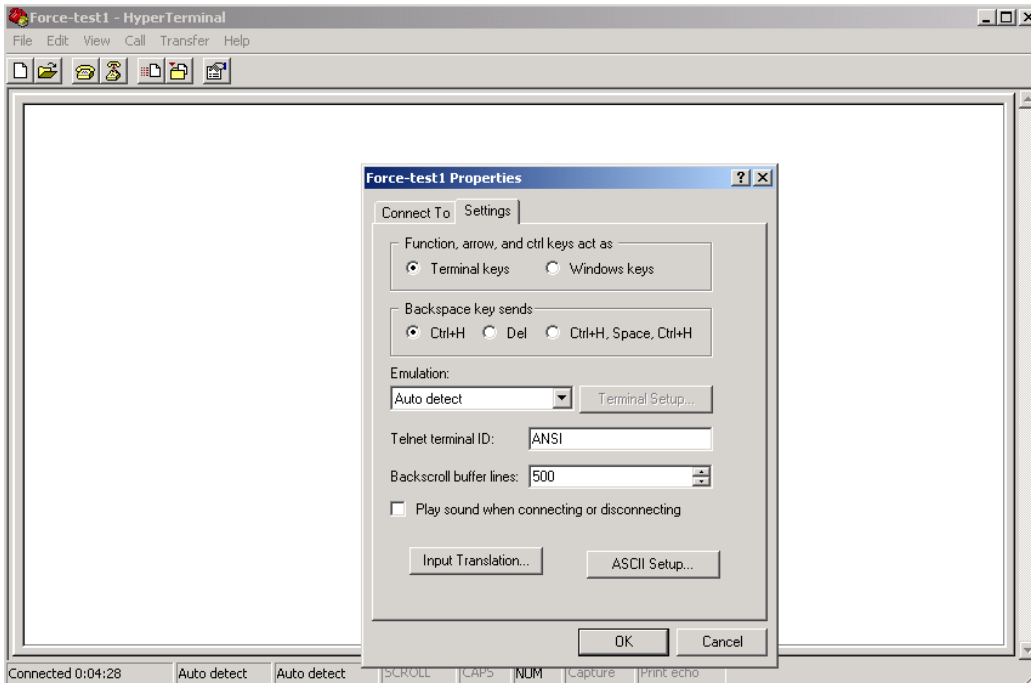
Initial screen of the program will appear as shown below.



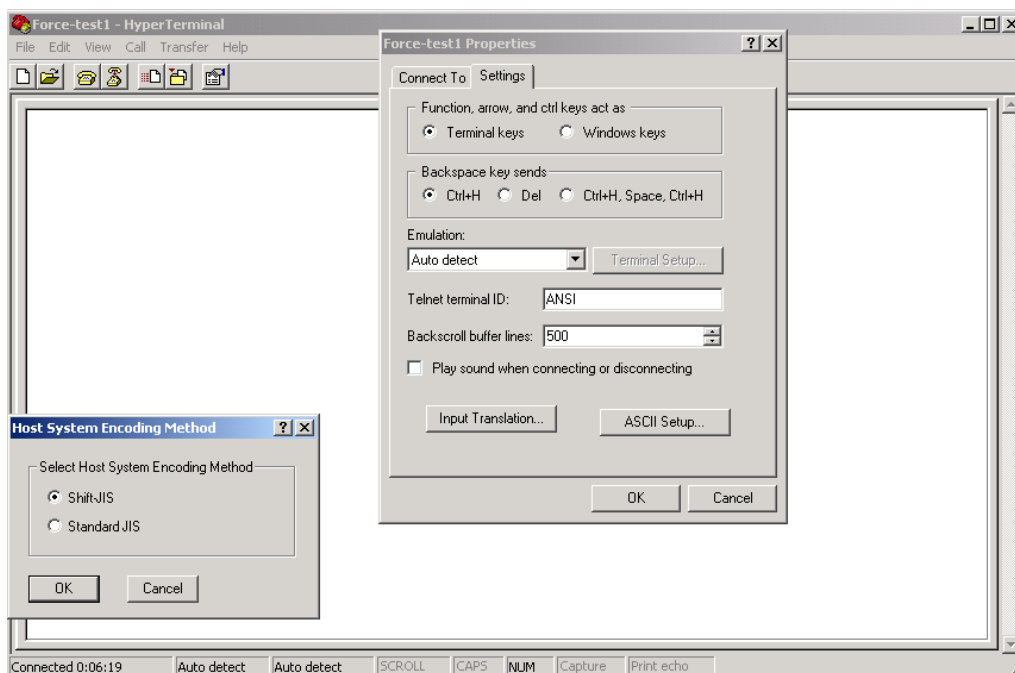
Go to properties, which is the rightmost icon from the program menu bar. Select Settings Tab to access ASCII set up.



The settings Tab will hold the following information. Set the settings as shown below.



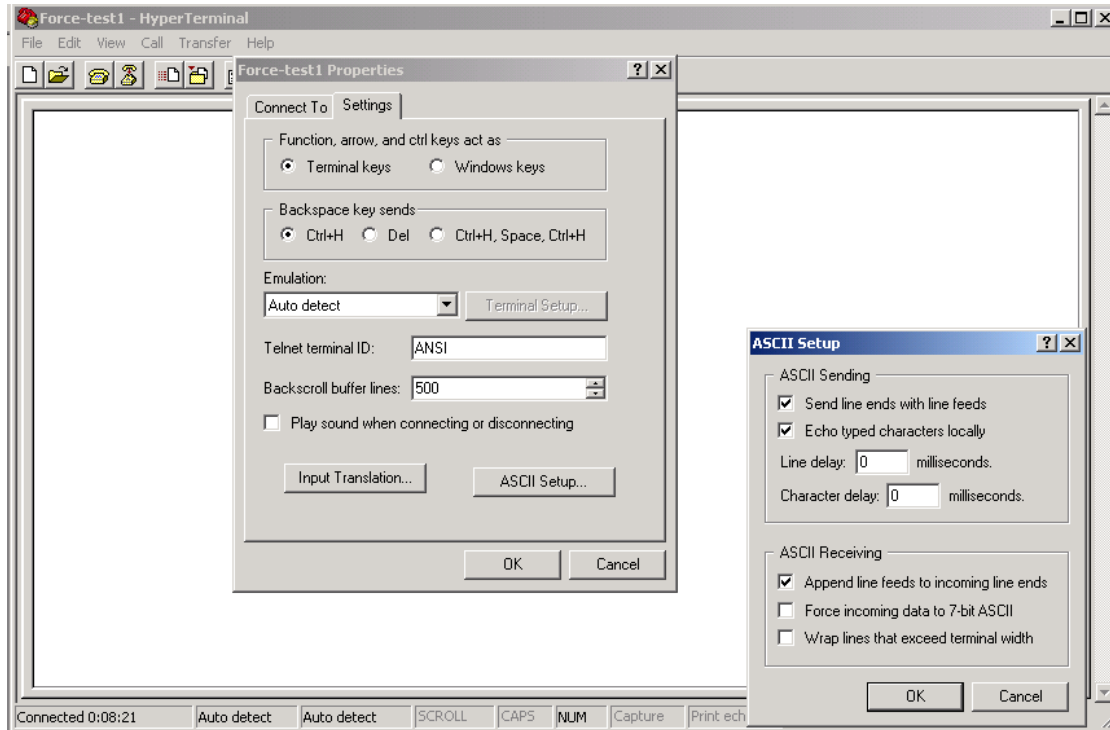
Under input translation located on the bottom of the window you can select host system encoding method. It will provide two options JIS shifted or JIS standard. Select JIS Standard and press OK.





Under ASCII Set up select the following:

- Send line ends with line feeds.
- Echo typed characters locally (Important to see commands as typed on the screen).
- Append line feeds to incoming line ends to set the follow of data downwards and not across the screen.



After the following set up is completed press OK to confirm and Press OK to exit the Settings window.

To confirm communication between the force gauge and Hyper Terminal. Set the unit of the force gauge to "N" for Newtons.

Using the list of commands provided on the manual and as shown on the following table. Type AF then press enter to change the unit from Newtons to Kg. The LCD display from the force gauge should be able to reflect the change as instructed by the software. (Enter commands in Capital letters as shown from the table).

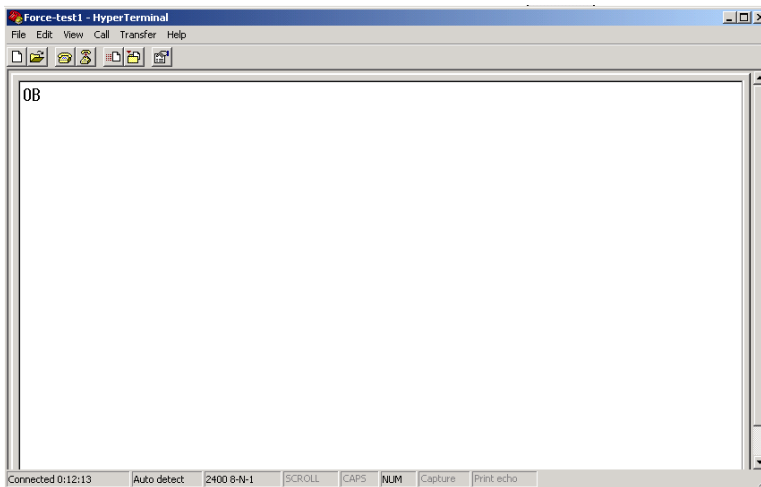
**Commands to FGV-X Gauge**

AAcr	Tare
ABcr	Stop output
ACcr	Change to peak mode
ADcr	Change to average mode
AEcr	Peak reset
AFcr	Change units to Kg (g)
AGcr	Change units to N
AHcr	Change units to lb (oz)
BAcr	Data output request (single reading)
BBcr	Continuous data output request (10 times/sec)
BB1cr	Continuous data output request (20 times/sec)
BB2cr	Continuous data output request (50 times/sec)
BB3cr	Continuous data output request (100 times sec)
BCcr	Model name confirmation request
BDcr	Units confirmation request
BEcr	Peak data output request
BFcr	Minus Peak data output request
cr	(cr: carriage return)

**Response from FGV-X gauge**

NA□□□□□cr	Average data output
NB□□□□□cr	Peak data output
	4-digit number with decimal point
	sign (+ or -)
NE□□cr	Model number
	02 = FGV-0.5X
	03 = FGV-1X
	04 = FGV-2X
	05 = FGV-5X
	06 = FGV-10X
	07 = FGV-20X
	08 = FGV-50X
	09 = FGV-100X
NH□cr	Unit
	0 = N
	1 = Kg (g)
	2 = lb (oz)

If the window shows OB, this means that there is a communication error. Check the cable and the settings to make sure that everything is set properly.

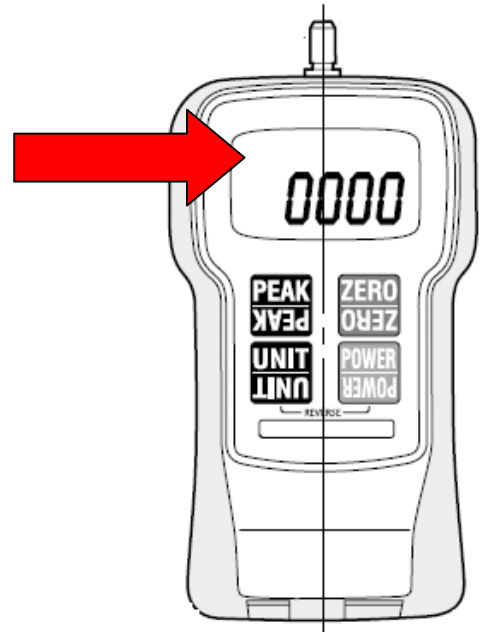
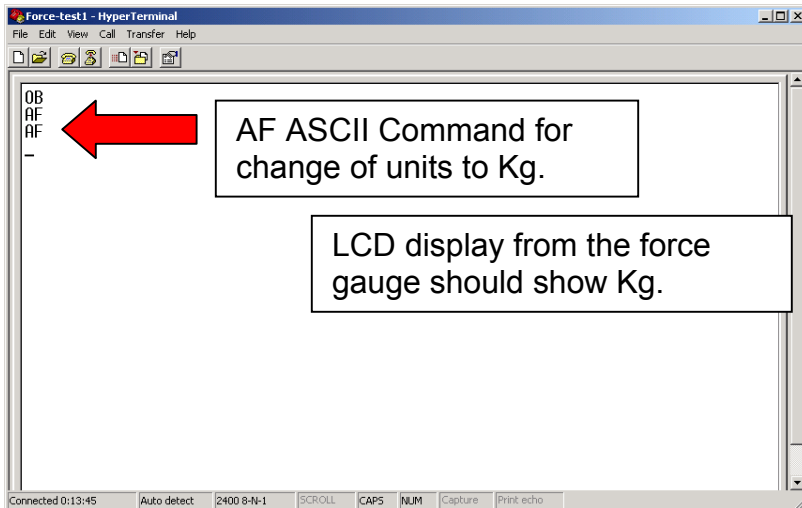


List of error messages:

**Error Symbols**

OBcr	Command error
OEcr	Parity error
OFcr	Format error
OGcr	Summing error
OHcr	Overrun error

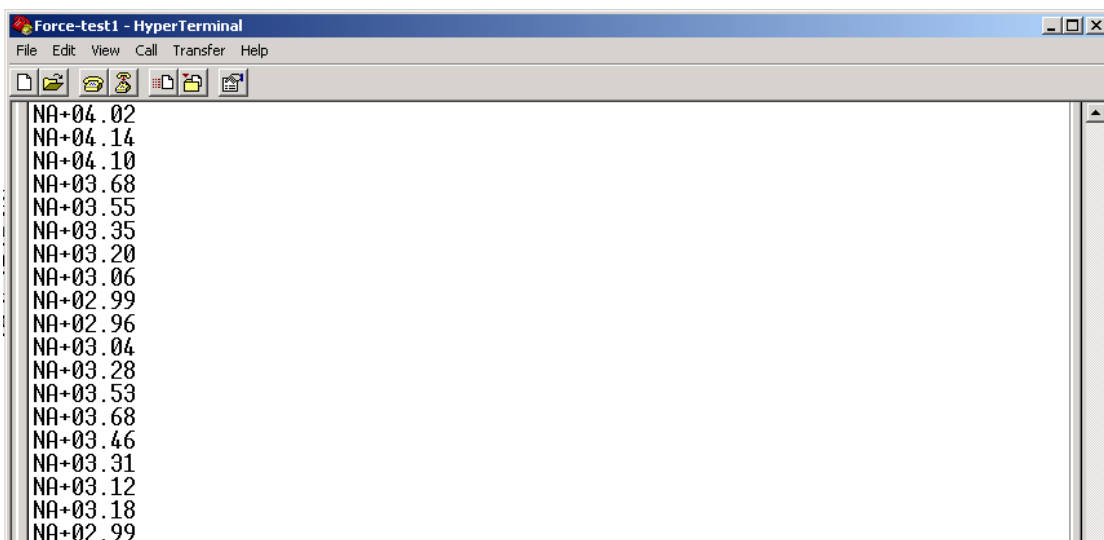
NOTE: "cr" is not part of the ASCII command, it refers to carriage return or pressing the Enter key



After verifying communication HyperTerminal is now ready to acquire data from the FGV-X force gauge.

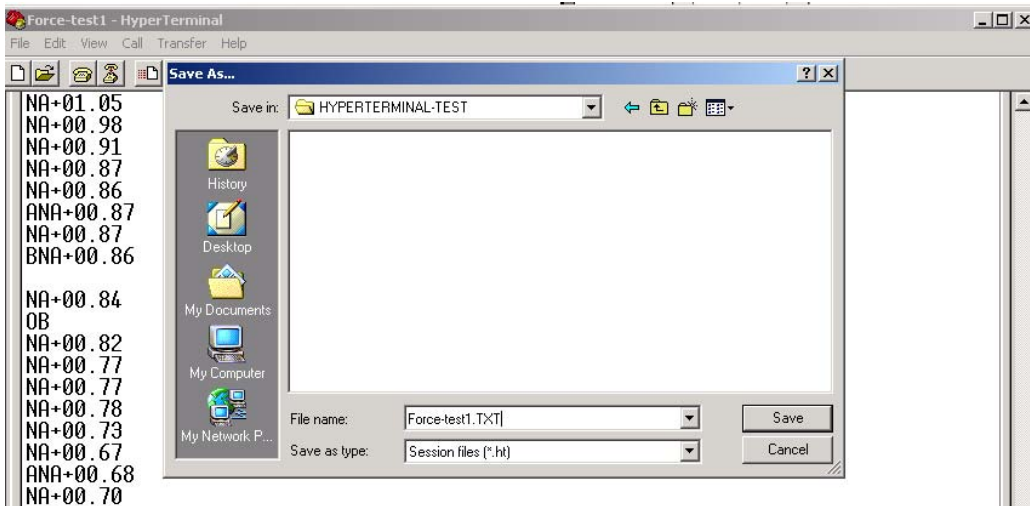
Select the necessary set up required by your test. In the example below a command of "BB3" is requested (continuous data output request 100 times per second).

Data will flow as shown below.

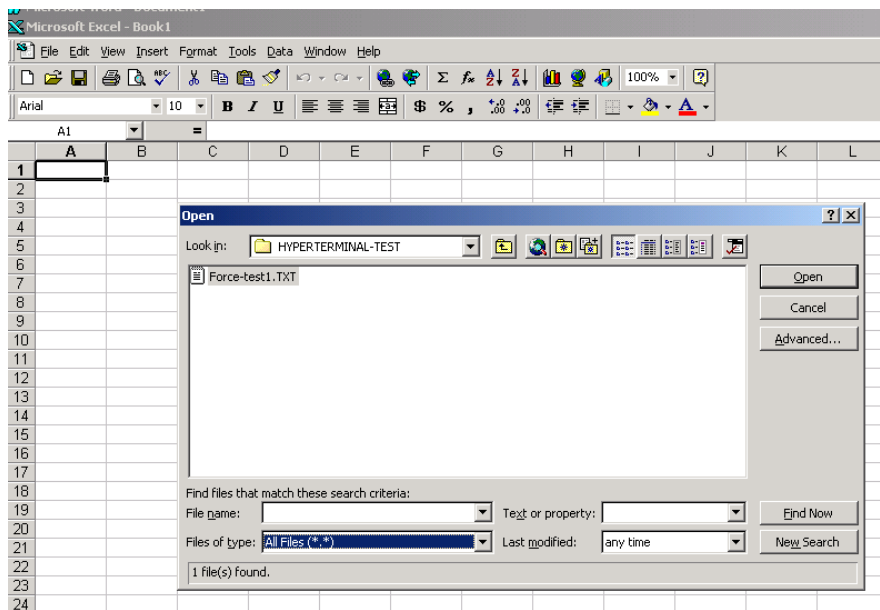


To stop data flow send “AB” (stop output).

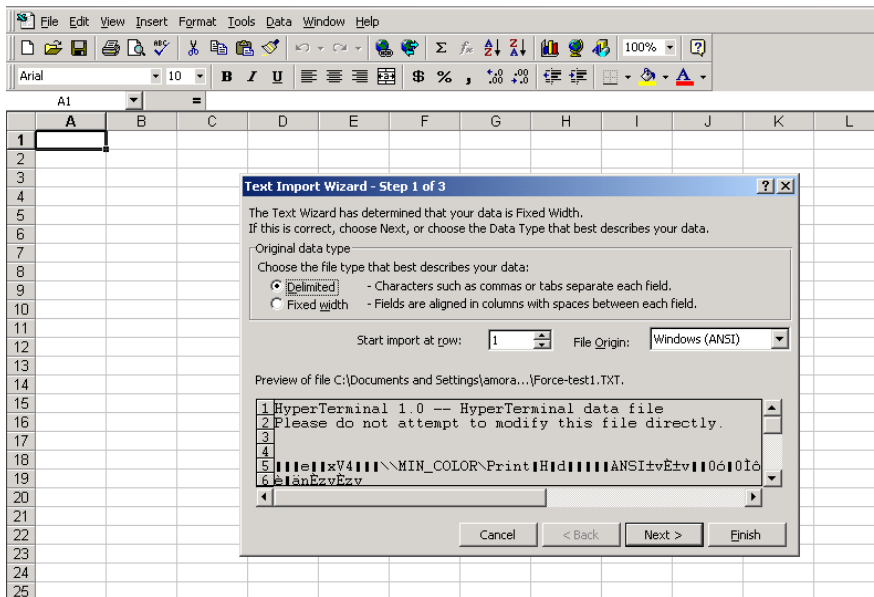
## How to import data collected to spreadsheets such as Microsoft Excel



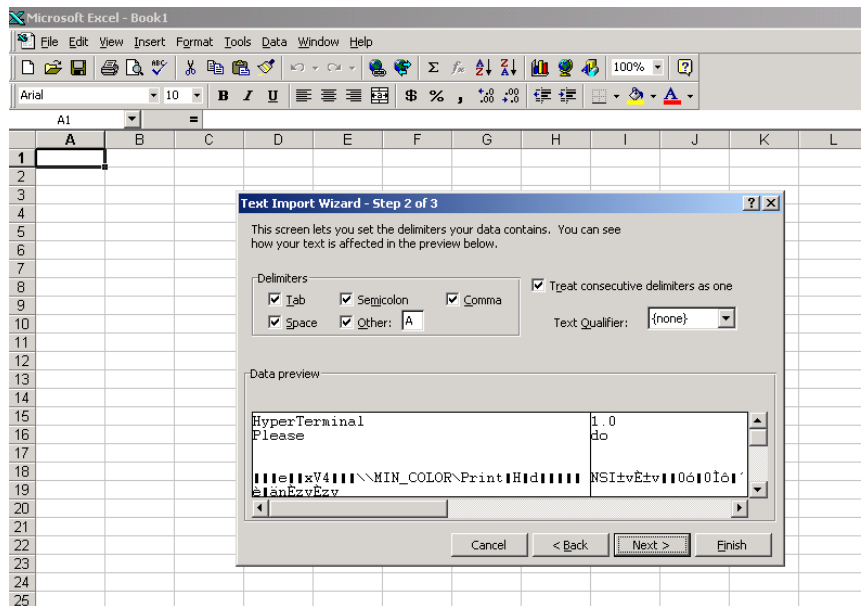
Save data collected from Hyper Terminal in TXT or Text format.  
(Default is .ht; this format cannot be imported to Microsoft Excel.)



Open Microsoft Excel and import the saved TXT file (Example: Force-test1.txt).  
A series of set up window will follow requesting information on the set up of the imported data.

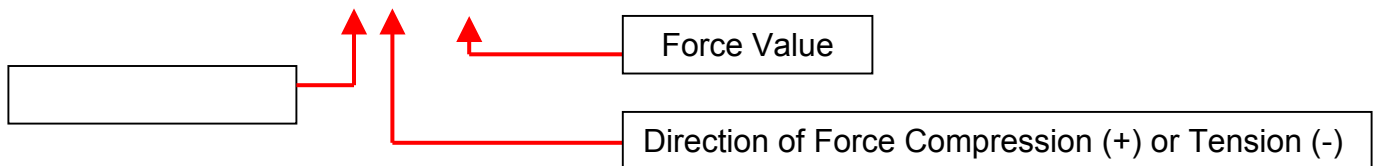


Select Delimited and press “NEXT”.

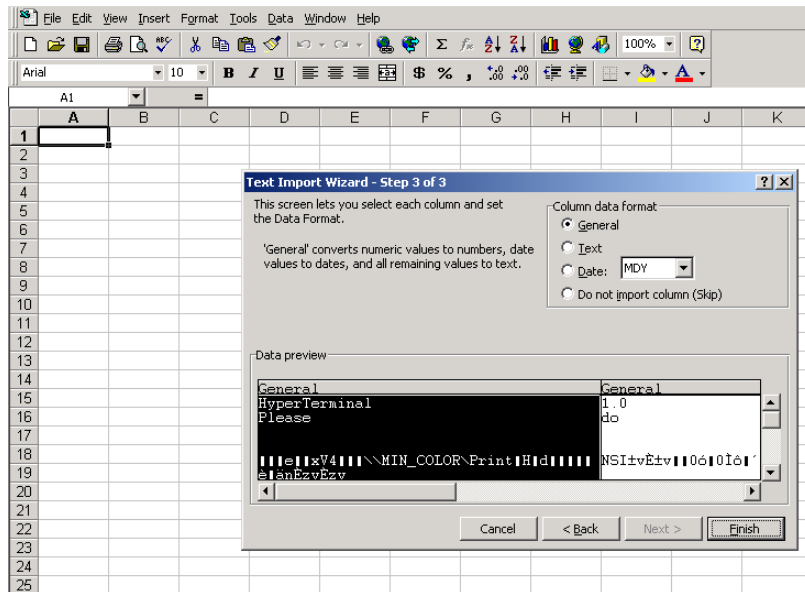


Select all delimiters available and Enter “A” for others. (Why enter A for others? Remember that the format of data collected from HyperTerminal has a prefix of NA followed by the sign (-/+ ) then the data. Entering “A” for others will separate the sign and the data collected from the Text.)

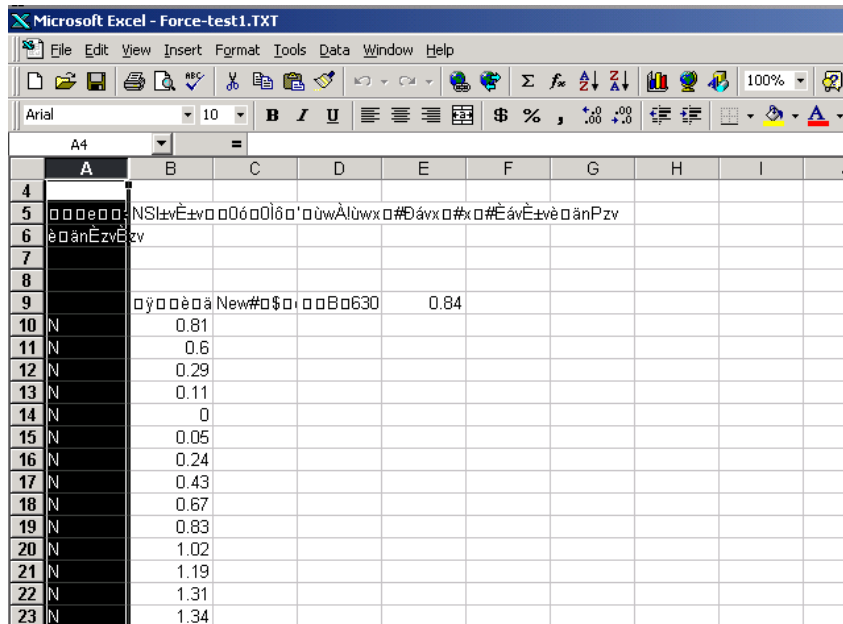
Format of data NA + 01.50



Press “Next”.



A text import wizard window will open. Leave setting to “General” and press “Finish” to exit.



Data will be imported to Microsoft Excel as shown above. Proper headings can be typed and unnecessary text can be deleted.