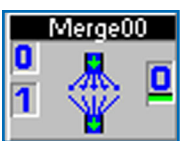# TECHTIP 40501

DASYLab®: Using the MERGE module to store all of your data channels into one sequential ASCII file on the PC hard drive

INTRODUCTION

At first glance, it may appear as if the "Write to Disk" module in DASYLab® only allows up to 16 channels of data to be written into one data storage file on the computer hard drive. Additional "Write to Disk" modules can always be added to the worksheet, however, this causes the data to be stored as separate groups of 16 channels within individual data files.

The "MERGE" module provides a convenient way to store many channels of data into one sequential data storage file on the PC hard drive. Lets take a look at how this is done.
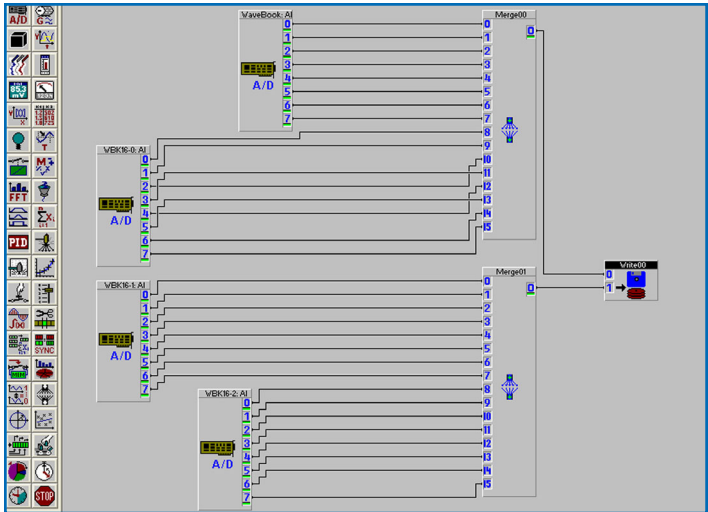
DISCUSSION

The following screen shot shows a typical IOtech WaveBook™ data acquisition system configuration using DASYLab software. The system has 8 channels of ±10 volt inputs and 24 channels of strain gage inputs using the IOtech WBK16™ strain gage measurement module.
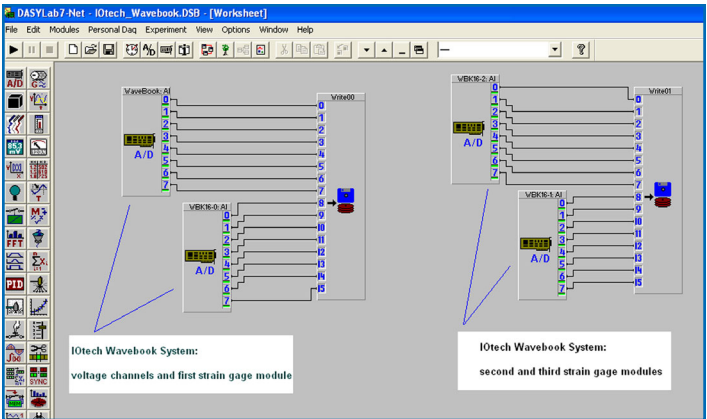
This particular DASYLab worksheet would save two separate ASCII data files to the computer hard drive. The first file would contain the data from the WaveBook base channels and the first WBK16 strain gage module. The second ASCII data file would contain the data from the next two WBK16 strain gage modules. This can make it difficult to view and analyze the acquired data.

The screen shot below shows the same hardware configuration using the MERGE module in DASYLab to store all of the data from all hardware device channels into the same ASCII data file on the computer hard drive. You can see that only one WRITE to disk module is used in this worksheet.

```
DASYLab - V 7.00.05
WORKSHEET        : IOtech_Wavebook
Recording Date   : 4/30/2004, 2:17:17 PM
Block Length     : 1
Delta            : 1 sec.
Number of Channels : 32
Date       Time      Write 0/0  Write 0/1  Write 0/2  Write 0/3  Write 0/4  Write 0/5  Write 0/6  Write 0/7  Write 0/8  Write 0/9  Write 0/10  Write 0
4/30/2004  14:17:16    3.1        3.4        3.7        4.1        4.2        4.3        4.4        4.5        4.6        4.65        4.7        4
4/30/2004  14:17:17    3.1        3.4        3.7        4.1        4.2        4.3        4.4        4.5        4.6        4.65        4.7        4
4/30/2004  14:17:18    3.1        3.4        3.7        4.1        4.2        4.3        4.4        4.5        4.6        4.65        4.7        4
4/30/2004  14:17:19    3.1        3.4        3.7        4.1        4.2        4.3        4.4        4.5        4.6        4.65        4.7        4
4/30/2004  14:17:20    3.1        3.4        3.7        4.1        4.2        4.3        4.4        4.5        4.6        4.65        4.7        4
4/30/2004  14:17:21    3.1        3.4        3.7        4.1        4.2        4.3        4.4        4.5        4.6        4.65        4.7        4
4/30/2004  14:17:22    3.1        3.4        3.7        4.1        4.2        4.3        4.4        4.5        4.6        4.65        4.7        4
4/30/2004  14:17:23    3.1        3.4        3.7        4.1        4.2        4.3        4.4        4.5        4.6        4.65        4.7        4
4/30/2004  14:17:24    3.1        3.4        3.7        4.1        4.2        4.3        4.4        4.5        4.6        4.65        4.7        4
4/30/2004  14:17:25    3.1        3.4        3.7        4.1        4.2        4.3        4.4        4.5        4.6        4.65        4.7        4
4/30/2004  14:17:26    3.1        3.4        3.7        4.1        4.2        4.3        4.4        4.5        4.6        4.65        4.7        4
4/30/2004  14:17:27    3.1        3.4        3.7        4.1        4.2        4.3        4.4        4.5        4.6        4.65        4.7        4
4/30/2004  14:17:28    3.1        3.4        3.7        4.1        4.2        4.3        4.4        4.5        4.6        4.65        4.7        4
4/30/2004  14:17:29    3.1        3.4        3.7        4.1        4.2        4.3        4.4        4.5        4.6        4.65        4.7        4
4/30/2004  14:17:30    3.1        3.4        3.7        4.1        4.2        4.3        4.4        4.5        4.6        4.65        4.7        4
4/30/2004  14:17:31    3.1        3.4        3.7        4.1        4.2        4.3        4.4        4.5        4.6        4.65        4.7        4
4/30/2004  14:17:32    3.1        3.4        3.7        4.1        4.2        4.3        4.4        4.5        4.6        4.65        4.7        4
4/30/2004  14:17:33    3.1        3.4        3.7        4.1        4.2        4.3        4.4        4.5        4.6        4.65        4.7        4
4/30/2004  14:17:34    3.1        3.4        3.7        4.1        4.2        4.3        4.4        4.5        4.6        4.65        4.7        4
4/30/2004  14:17:35    3.1        3.4        3.7        4.1        4.2        4.3        4.4        4.5        4.6        4.65        4.7        4
```

Date and Time Stamp   Data from 32 channels saved into one file

The figure above shows the raw ASCII data from the sequential storage file using the MERGE module to store many channels in a single file. You can see that the additional channels are added seamlessly into the file. This is a single ASCII data file with 32 channels of time stamped WaveBook data in it. The data is being viewed with Microsoft Excel®.

PROCEDURE

Here are the steps involved in creating a simple worksheet that uses the MERGE module to save more than 16 channels of data in the same ASCII file.

1. Place the appropriate icons on the worksheet screen to bring data into the worksheet for storage. This can be the A/D module if you have actual IOtech hardware connected or the DASYLab Signal Generator or Slider module if you want to simulate data from a hardware device.

2. From the "Modules" menu in DASYLab, select "Data Reduction", "Merge/Expand" and then select "Merge Data Channels" when prompted for the type of function you want to perform.

3. Double Click on the MERGE module and enable enough channels to match the number of signal input channels that you have configured.

4. Connect each of your signal input channels to the corresponding Merge input channel in the order that you would like the data channel column to show up in the ASCII file. Typically you would connect each signal input channel number to the corresponding MERGE module channel number.

   (i.e. Connect signal input channel 2 to merge module channel 2)

5. Bring a "Write Data" module out onto the worksheet. Double click on the module and enable enough channels to support the number of Merge modules that you are using in your worksheet. Each MERGE module that you have in the worksheet requires that one channel of the WRITE data module be enabled. This means that with 16 channels available on each MERGE module and 16 channels available on a WRITE module, you have the ability to store up to 256 data channels in one storage file on the PC hard drive.

6. While still in the Write module configuration screen, select "ASCII" from the file type pull down menu. Then press the OPTIONS button and make the following selections:

   • Select the "mixed samples" radio button near the bottom of the configuration screen.

   • This will open a new settings box to the right labeled "number of channels".

   • For each channel number shown next to "input", you need to specify how many MERGE channels there will be coming in on that input using the "channel" setting below it. See the following screen shot for more detail.

   • Once you have this configured, the "Total Channels" number should reflect the number of signal input channels that you want to store in the ASCII file .
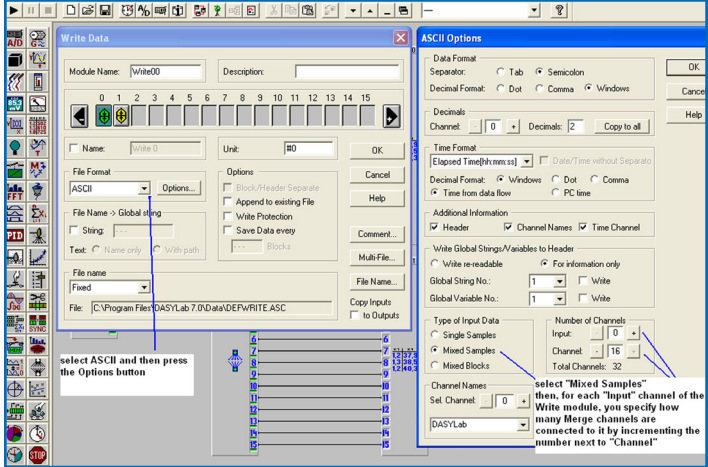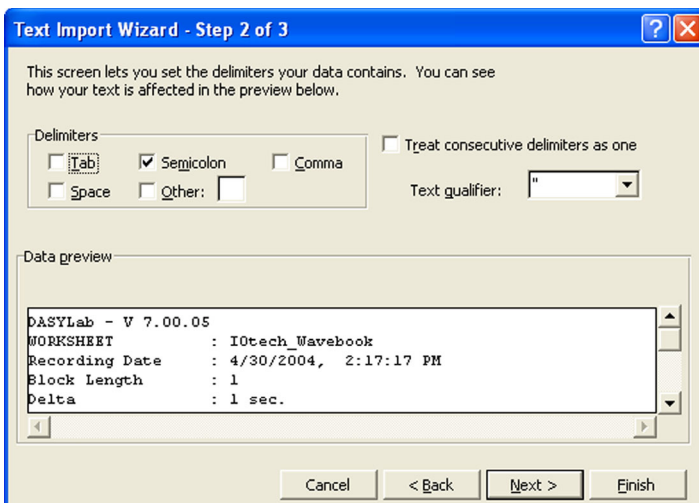

7. This completes all of the required setup under the OPTIONS screen. You can now close this screen and return to the Write module main setup screen.

8. Press the "File Name" button and specify a location and file name for your sequential ASCII data file on your PC hard drive or network drive location.

9. Close the Write module configuration screen. The required setup for this worksheet is now complete. You can now specify a DASYLab sample rate and execute the worksheet as you normally do. Once you save some data to disk, you can then view the saved data using Microsoft Excel or any other ASCII data viewer. Use the following procedure to open the data file in Microsoft Excel for viewing.

- Open Microsoft Excel.
- Select "File", "Open", and select the file name that contains the stored DASYLab ASCII data.

    (you will have to change Excel to view "ALL" file types in the directory)

- Once you select the file, you will be prompted by the Excel Text Import Wizard.
- Select the defaults presented by the format wizard until you get to the screen that asks for the type of delimiter used. Select "semicolon", and de-select "tab" for the delimiter type selection.
- Continue to select the defaults until the wizard completes its operation.
- Data should now be viewable in the Excel spreadsheet.

The Microsoft Excel Text Import Wizard: select "Semicolon", and de-select "Tab"

CONCLUSION

DASYLab is a powerful yet easy to use software environment that gives the users of IOtech data acquisition hardware the ability to create their own custom programs and interface screens for their test systems. DASYLab is a graphical based programming environment that does not require any experience with traditional programming languages.