

MATLAB Driver for HIOKI 8860 Series MEMORY HiCORDERs

Version 1.01

BASIC OVERVIEW

1. This document describes the specifications of the MATLAB driver for the following instruments in the HIOKI 8860 Series MEMORY HiCORDERs:
 - Model 8860 MEMORY HiCORDER
 - Model 8861 MEMORY HiCORDER
 - Model 8860-50 MEMORY HiCORDER
 - Model 8861-50 MEMORY HiCORDER
2. The MATLAB driver enables the user to load and read measurement files captured by the 8860 series and saved in binary format into MATLAB. Only files captured using the 8860 series' MEMORY function can be loaded (excluding waveform calculations)

PC ENVIRONMENT

Microsoft Windows XP + MATLAB R2006a (please refer to MATLAB operating specifications for further details)

HOW TO INSTALL

1. Extract "Hi8860.zip" onto the computer's hard drive to unpack two files/directories:
 - 8860sMatLabUserManual.pdf (this file)
 - @Hi8860 (Hi8860.m, Hi8860.mexw32)
2. Copy or move the entire "@Hi8860" directory to the [work] folder found in the directory in which MATLAB is installed. Generally, that directory will be: C:/Program Files/MATLAB/R2006a/work

FUNCTION SPECIFICATIONS

Data from the 8860 series is identified in MATLAB as follows:

[cAnalogUsage cLogicUsage dTime dAnalog dLogic] = Hi8860(filename, dAxis, dTop, dWidth)

Each argument is defined as follows:

Input Argument

@filename

Specifies the file name
(e.g., data.mem)

@dAxis (may be omitted; however, required if @dTop or later is specified)

Specifies the time axis value. 1 is used when omitted.
(e.g., 1=1 axis, 2=2 axes)

@dTop (may be omitted; however, required if @dWidth is specified)

Specifies the starting position to retrieve data as a point (0 to...). 0 is used when omitted.
(e.g., Retrieve from the top (1st data) = 0, store from the 101st data = 100)

@dWidth (may be omitted)

Specifies the number to retrieve. When omitted, all data beginning with @dTop are retrieved.
 (e.g., retrieve 100 data = 100)

Output Argument

@cAnalogUsage (char array)

Displays the save status of the analog channels in a 16x8 array.

- The returned values 1 and 0 represents the save status of each channel, where 1 = saved, and 0 = not saved. The array is displayed in order of input unit from top to bottom (where the first row of numbers represent Input Unit 1, the second row of numbers represent Input Unit 2, etc.), and the channel numbers of each unit from left to right.

Example:

```
1100000000000000
0000000000000000
0000000000000000
0000000000000000
0000000000000000
0000000000000000
0000000000000000
0000000000000000
```

CH1_1 and CH1_2 are saved
 No data is saved for CH2_1 and beyond.

@cLogicUsage (char array)

Displays the save status of the logic channels.

- The returned values 1 and 0 represents the save status of each channel, where 1 = saved, and 0 = not saved. The value on the very left represents CHA, with each subsequent value representing the next channel.

Example: 1100

CHA (CHA-1 to CHA-4) are saved
 CHB (CHB-1 to CHB-4) are saved
 Not data is saved for CHC and beyond.

@dTime (double array)

Displays the time axis data.

@dAnalog (double array)

Retrieves the analog channel data as an array

- Data saved as @cAnalogUsage are retrieved in order
- Unsaved data are compressed
- When pulling the top data, specify dAnalog(:, 1) or similar

@dLogic (unit8 array)

Retrieves the analog channel data as an array

- Data saved as @cLogicUsage are retrieved in order
- 1 logic channel is made up of 4 data, as such, the array is 4 times a single value of @cLogicUsage
- When @cLogicUsage is 1100, @dLogic consists of CHA-1 to CHB-4.
- Unsaved data are compressed
- When pulling the top data, specify dLogic(:, 1) or similar

EXAMPLES:

- [cAnalogUsage cLogicUsage dTime dAnalog dLogic] = Hi8860('single.mem')
Waveform data for one axis of the 8860 waveform file "single.mem" are retrieved in the MATLAB array
- [cAnalogUsage cLogicUsage dTime dAnalog dLogic] = Hi8860('dual.mem', 2)
Waveform data for two axes of the 8860 waveform file "dual.mem" are retrieved in the MATLAB array
- [cAnalogUsage cLogicUsage dTime dAnalog dLogic] = Hi8860('part.mem', 1, 10)
Waveform data starting from number 10 for one axis of the 8860 waveform file "part.mem" are retrieved in the MATLAB array
- [cAnalogUsage cLogicUsage dTime dAnalog dLogic] = Hi8860('part.mem', 1, 0, 10)
10 waveform data starting from the top for one axis of the 8860 waveform file "part.mem" are retrieved in the MATLAB array

NOTES:

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