



TANDM SOLUTIONS LTD

TANDMLog data logging and viewing software

User Guide

TANDEMLOG

User Guide (rev 1.0)

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TANDMlog software

Overview

The TANDMLog software is a 4 channel transient recorder, data logger and data viewer software tool. It can sample 4 simultaneous channels at up to 20KHz sample rate, save this data and allow the user to view this data post acquisition.

The data can be saved as a.csv file for further analysis in packages such as Microsoft Excel.

The software has been designed to be used with National Instruments data acquisition hardware. TANDM Solutions recommend the NI- 9215 BNC cDAQ module and NI-9171 cDAQ USB carrier module although other NI cards would be suitable.

System requirements

System Requirements

TANDMlog recommended system requirements are:

- Administrator account privileges
- Windows XP Service Pack 3, Windows Vista, Windows 7, Windows 8 or Windows 10
- Minimum 512MB RAM
- 1024x768 screen resolution or higher
- LabVIEW™ 2015 runtime engine* or LabVIEW™ 2015 development suite
- NI-DAQmx 15.0*

* All necessary drivers and runtime engines will be installed automatically during the installation of TANDMlog.

Installation

Installation

Please note administrator account privileges are essential for correct installation of TANDMlog.

Launch *setup.exe* from the installation media.

Click *yes* to accept the Windows User Account Control dialogue if necessary.

The installer will copy TANDMlog files to *C:\Program Files (x86)\TANDMlog* by default.

If necessary the installer will install the National Instruments LabVIEW™ runtime engine and the NI-DAQmx runtime engine to *C:\Program Files (x86)\National Instruments* by default.


Upgrading

It is not necessary to remove previous versions of TANDMlog since they will be removed automatically during installation.

Uninstalling


TANDMlog can be removed by using the Windows control panel. This can be quickly shown by typing *uninstall* in the Windows start menu search box and clicking on the search result *Uninstall a program*. Then navigate to TANDMlog, right click and select *uninstall*

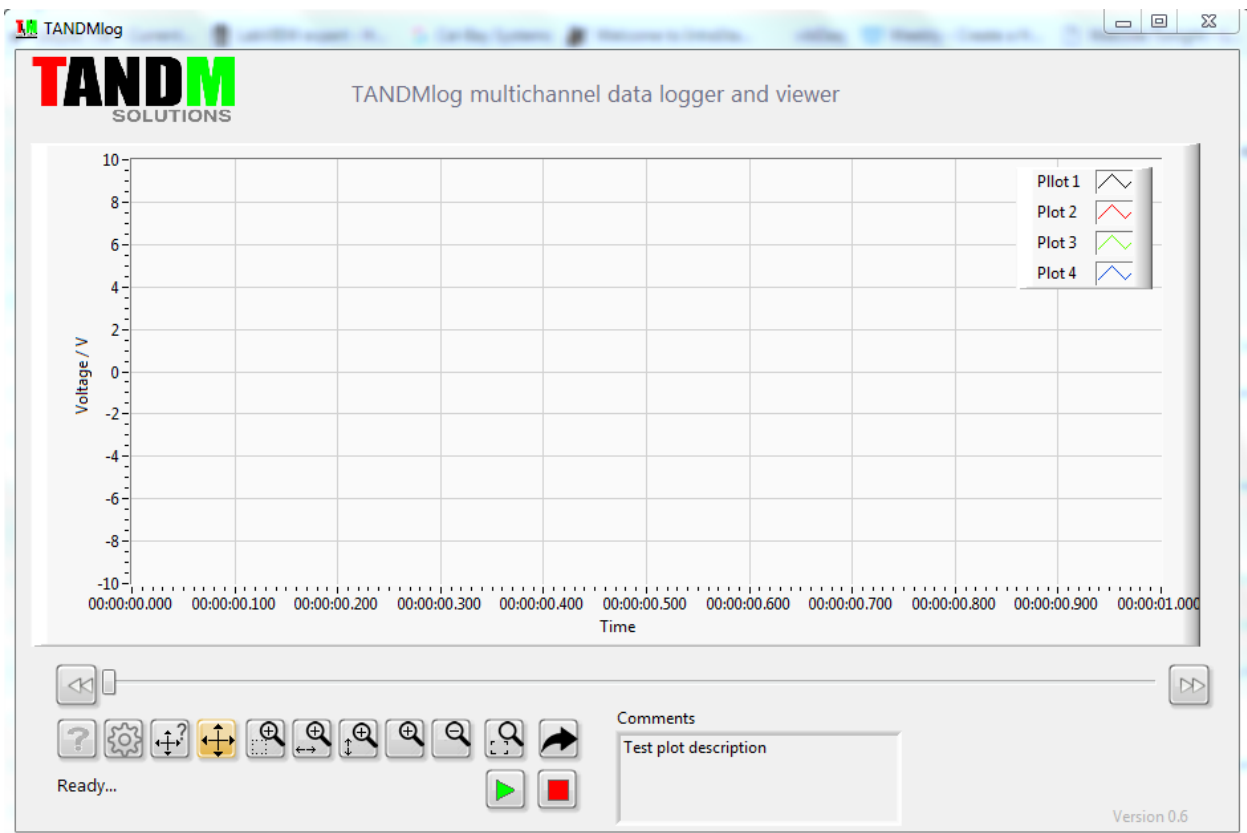
Launching TANDMlog

TANDMlog can be launched from the Windows Start menu. Navigate to *T and M Solutions* and click the *TANDMlog* shortcut icon 

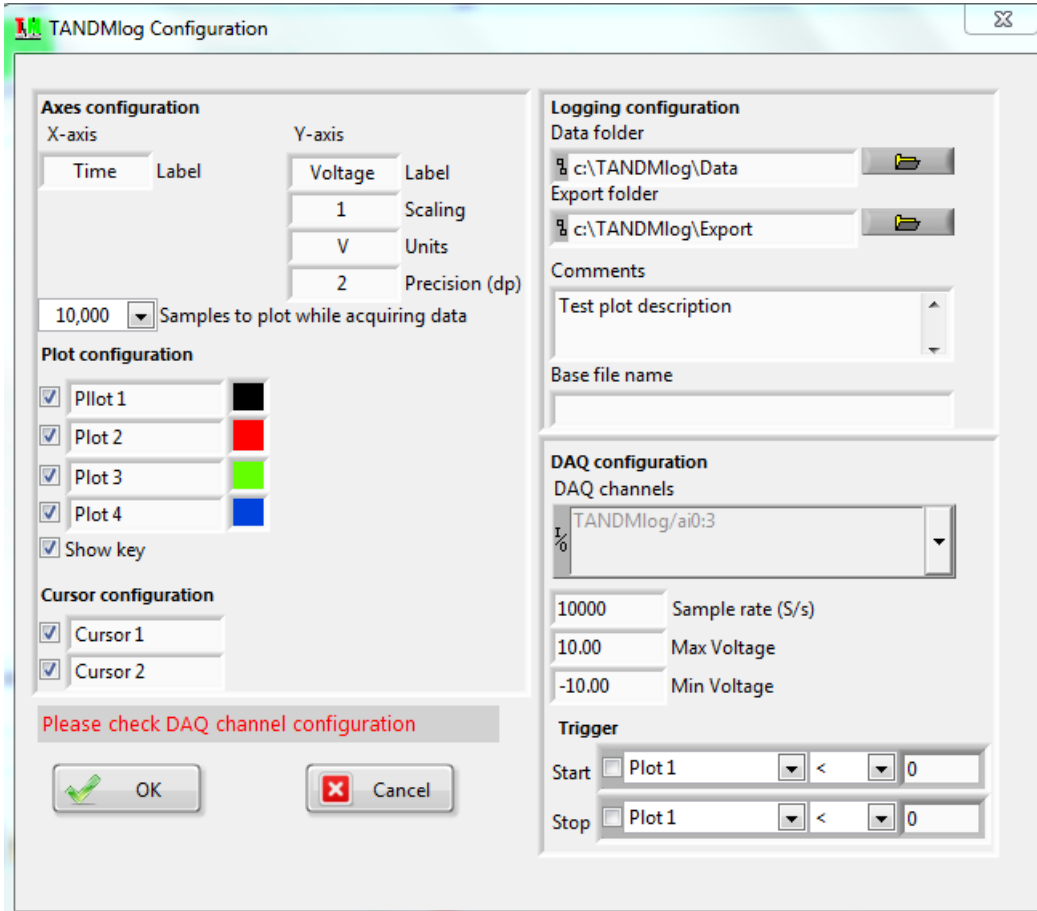
Alternatively click the TANDMlog shortcut icon on the desktop.

Exiting TANDMlog

To exit TANDMlog click the close button on the top right of the window 



System configuration



Cursor Configuration

The cursors can be enabled using the tick box. The cursor names are also configurable. If the *find cursor* button is clicked on the front panel then both cursors will be enabled. (By default both cursors are enabled and labelled *Cursor 1* and *Cursor 2*)

Logging Configuration

- **Data folder** contains the path to store the acquired data as TDMS files. The folder can be changed by clicking the *browse* button. (default C:\TANDMlog\Data)
- **Export folder** contains the path used to store the exported data; either the graph as a JPEG image file or the graph data as a CSV spreadsheet file. The folder can be changed by clicking the *browse* button. (Default C:\TANDMlog\Export)
- **Comments** contains the text displayed below the graph and also appended to any exported files. It is intended to include a description of the experiment or test being performed. The comment can also be changed by typing directly into the *comment* field below the graph.
- **Base file name** contains the text used to prepend file names used for logging and exporting. The *Base file name* is intended to easily identify a sequence of data files associated with a specific experiment or test.

DAQ Configuration

- **DAQ channels** contains a list of data acquisition channels available on the system. Up to four channels can be selected. The combo box allows single DAQ channels to be selected. If multiple channels are required then click *browse* and holding down the control key, click on the required channels. Alternatively the required channels can be typed directly into the field, for example:
 - Dev1/ai0:3 will use the DAQ device 1 channels 0,1,2 and 3.
 - Dev2/ai0:Dev2/ai2:Dev2/ai5 will use DAQ device 2 channels 0,2 and 5.
- **Sample rate** is a number that is used to set the data acquisition sample rate in samples per second (Default 10,000)
- **Max Voltage** is a number that is used to set the maximum voltage expected (Default 10)
- **Min Voltage** is a number that is used to set the minimum voltage expected (Default -10)

Trigger

- **Start trigger** is enabled using the tick box. Once enabled, the start of the data acquisition logging will be delayed until the condition selected is satisfied. The first list box selects the plot used to trigger from. The next list box selects the trigger condition either less than (<) or greater than (>). The trigger level is entered into the final field.
- **Stop trigger** is enabled using the tick box. Once enabled, the end of the data acquisition logging will be delayed until the condition selected is satisfied. The first list box selects the plot used to trigger from. The next list box selects the trigger condition either less than (<) or greater than (>). The trigger level is entered into the final field.

Operation

Starting Acquisition

Data acquisition is started by clicking the start button. ▶

Once data acquisition has started the data is displayed on a moving chart and simultaneously saved to disk. The y-axis parameters such as label, unit and scale are configured using the *settings* dialogue. The x-axis shows the timestamp of the data acquisition. For example, 10:51:12.600 indicates 51 minutes and 12.600 seconds past ten o'clock. If a start trigger is enabled (see [Trigger Configuration](#)) then although the data is displayed on the moving chart it will not be logged until the start condition trigger is met.

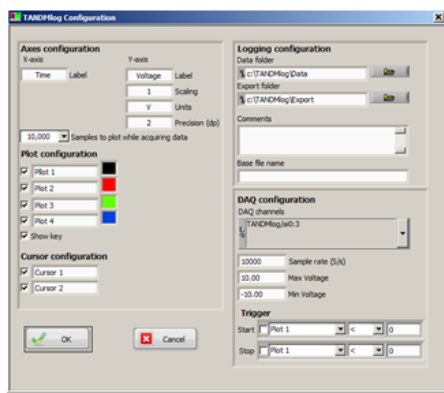
Stopping Acquisition

Data acquisition is stopped by clicking the stop button. ■

If a stop trigger is enabled (see [Trigger Configuration](#)) then the acquisition will stop automatically once the stop condition trigger is met.

Settings Dialogue

To configure the TANDMlog program click the settings button. ⚙ This will launch the *settings* dialogue.




Axes Configuration


- **X-axis label** contains text that appears on the x-axis of the graph. (default *Time*)
- **Y-axis label** contains text that appears on the y-axis of the graph. (default *Voltage*)
- **Y-axis scaling** is a number that is used to scale the axis to allow data to be displayed in real units (default *1*). For example, if an acquired voltage of 1V actually indicates 20Pa then the y-axis scaling should be 20.
- **Y-axis units** contains text to be displayed on the y-axis and after the y-axis cursor measurements (default *V*) For example, Pa, V or A.
- **Y-axis precision** controls the number of decimal places to which the cursor measurement is displayed. Please note that the data is always logged at the full precision available.
- **Samples to plot while acquiring data** limits the amount of data displayed on the chart during data acquisition. The amount of data displayed must be limited to prevent the display update slowing and the computer becoming unresponsive.

Using the Cursors

The cursors can be used to measure or highlight interesting features displayed on the graph.

The cursors can be enabled or disabled using the *settings* dialogue.

To quickly find the cursors, click the *find cursors* button  This will position the cursors on the screen and automatically enter *cursor mode*.

To manually enter *cursor mode* click the *cursor mode* button  The mouse can then be used to drag both the x and y cursors. As a cursor is dragged, the absolute value at the cursor is displayed along with the difference between the cursors.

Data Folders

The default data folder is C:\TANDMlog. If this folder does not exist then it will be created when the TANDMlog program is first run. Two folders are created below the C:\TANDMlog folder, Data and Export. C:\TANDMlog\Data contains date-stamped files of the acquired data. Data is stored in TDMS format. C:\TANDMlog\Export contains date-stamped files of exported data. Data is either JPEG image data or CSV format. The data folder locations can be changed by using the *settings* dialogue.

File Formats

Acquired data is streamed to disk using the Technical Data Management Streaming (TDMS) file format developed by National Instruments. A detailed explanation is available via this link [The NI TDMS File Format \(white paper\)](#)

Exported data is comma separated value (CSV) format suitable for importing into a spreadsheet. The files have an extension of csv.

Exported images are of standard JPEG format with the extension jpg.

File names are formed from the *Base File Name* followed by the date and time that the file was created. The *Base File Name* can be changed in the settings dialogue and is intended to easily identify a sequence of data files associated with a specific experiment or test.


For example:

'Timing Test A 2015_12_25_20_5_59.jpg' is the name of an exported image file with a *Base File Name* of 'Timing Test A' saved at 20:05:59 on 25 December 2015.

Configuration File

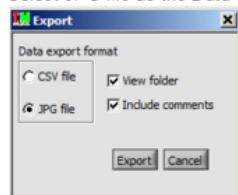
The user-configurable settings are stored in an XML file *settings.xml* this is located in the folder *(User's Profile folder)\AppData\Local\T and M Solutions\TANDMlog*. The AppData folder is hidden by default by Windows but can be shown by typing %LocalAppData% into the Windows start menu search box. The settings file must not be edited manually; all necessary changes are by using the settings dialogue.

Exporting to an Image File

To export an image of the graph to a JPEG file click the *export* button 

The *export* dialogue box will be shown.

Select *JPG file* as the *Data export format*.




Select *Include comments* to append the *comments* field to the image.

Click *Export* to create the image file in the *export folder* (This location can be changed using the *settings* dialogue)

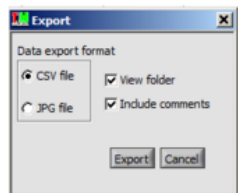
If *View folder* was ticked then the export folder will be opened to allow viewing of the file.

Exporting to a Spreadsheet File

To export the current data segment to a spreadsheet file click the *export* button 

The *export* dialogue box will be shown.

Select *CSV file* as the *Data export format*.



Select *Include comments* to prepend the *comments* field to the spreadsheet file.

Click *Export* to create the spreadsheet file in the *export folder* (This location can be changed using the *settings* dialogue)

If *View folder* was ticked then the export folder will be opened to allow viewing of the file.

Support

Technical Support

Please contact TANDM Solutions for technical support.

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