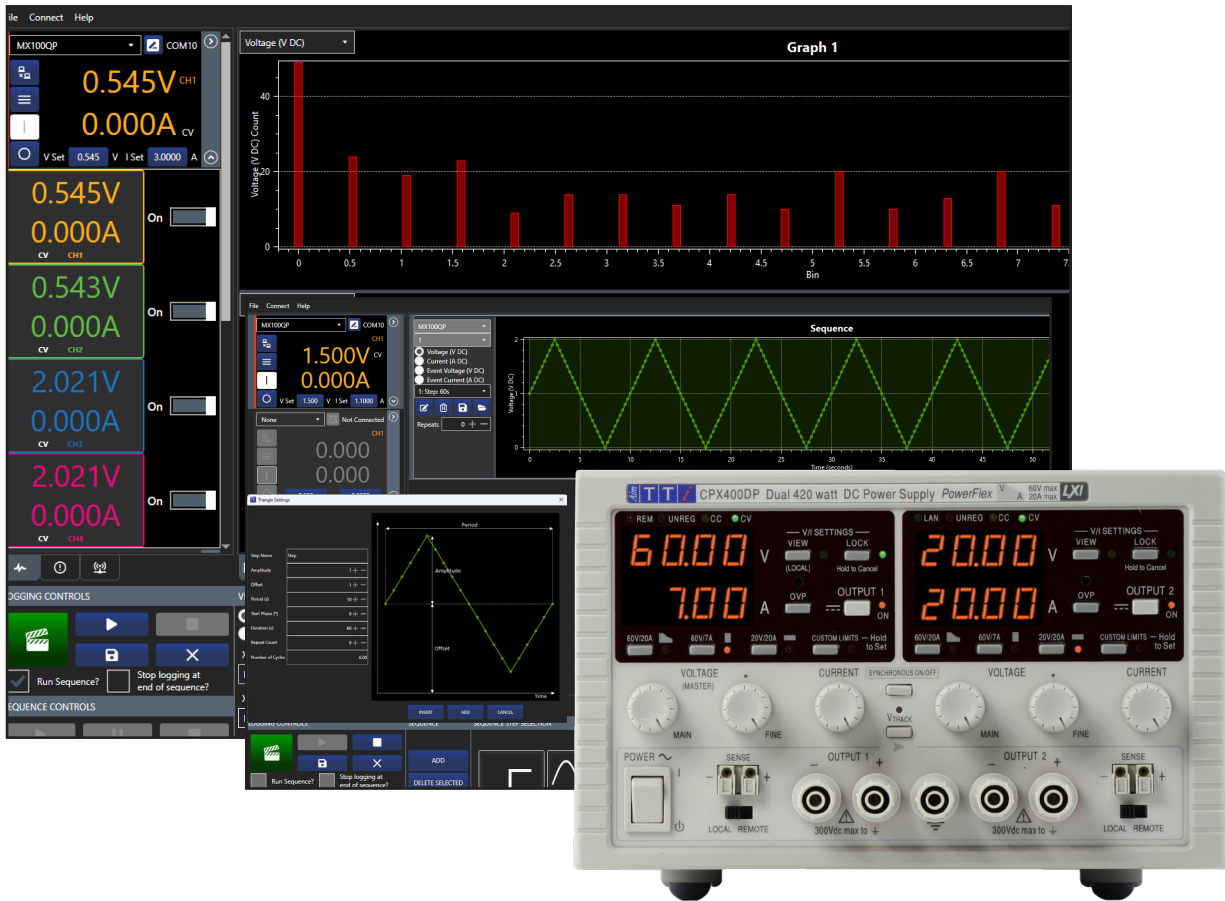


# INSTRUCTION MANUAL

EN



## TEST BRIDGE

PC Software

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# 1. INTRODUCTION

## Features

Multi Instrument Control.

Logging to table, graph and histogram format.

Single point logging with Pass / Fail limits.

Timed sequence control across all instruments and channels.

USB, LAN and RS232 compatible.

## Intended use

List of compatible instruments:

(Firmware updates may be required for compatibility)

Power Supplies	
Series	Models
CPX	CPX200DP
	CPX400DP
	CPX400SP
MX	MX100TP
	MX180TP
	MX100QP
	MX103QP
PL	PL-P & PLH-P
QL	QL-P Series I & II
QPX	QPX1200SP
	QPX600DP
	QPX750SP
TSX	TSX-P Series I & II

Precision Measurement	
Series	Models
Loads	
LD	LD400P
LDH	LDH400P
DMMs	
1908	1908 & 1908P
LCR Measurement	
LCR	LCR400
Frequency Counters	
TF	TF930
	TF960

*Some functions are applicable to Power Supplies and Loads only, these are detailed throughout this Instruction Manual.*

## Using this manual

Colour coding:

Green = Larger view / selected area

- ① Orange = Instruction to select
- ① Blue = Optional instruction to select
- ① Yellow = Description of item

## Symbols

The following symbols are displayed throughout the manual:

### CAUTION



Indicates a hazard that could damage the product that may result in loss of important data or invalidation of the warranty.

### NOTE



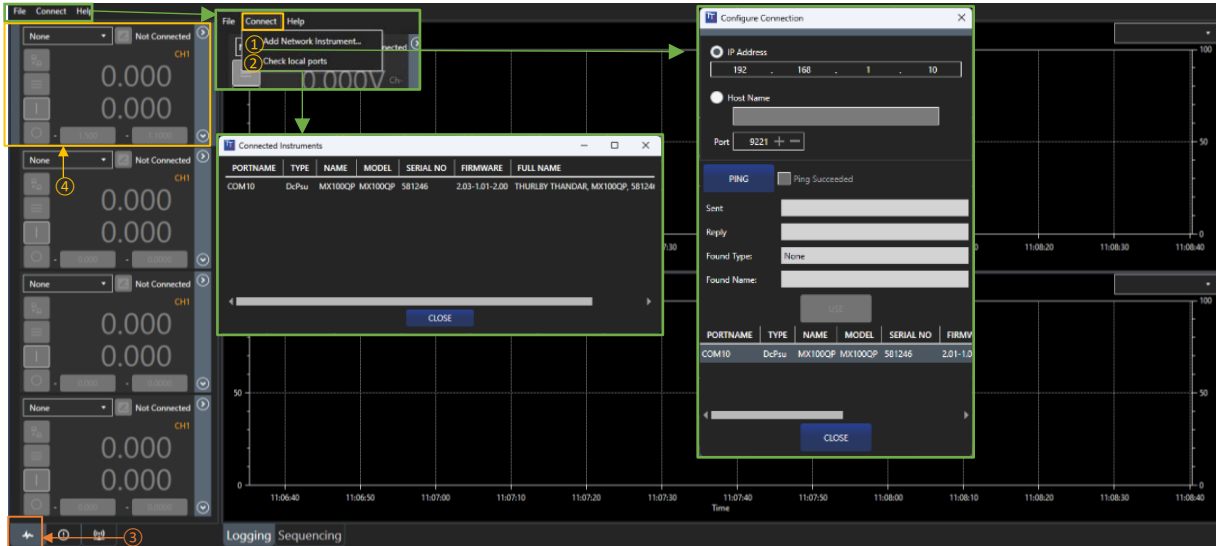
Indicates a helpful tip

## 2. GETTING STARTED

### File

**Open/Save Configuration** - Open or save the Instrument Control Panel and Recording Channel configurations.

**Exit** - Close the application.



### Connect

**Add Network Instrument** - ① Specify the IP address or host name and enter the port number (generally 9221 or 5025) – see the instrument’s Instruction Manual for more details. Click the **PING** button to test the connection- if successful the **USE** button will activate. Click the **USE** button to continue.

**Check Local Ports (USB & RS232)** - ② Display and refresh the list of available instruments.

### NOTE



Checking ports can take up to 10 seconds if not connected via LAN.

### Help

**Help** - This PDF guide to using the software.

**About** - Application details and a ‘report generator’ function to provide feedback.

### Instrument Control Panel

The Instrument Control Panel is selected using the icon ③.

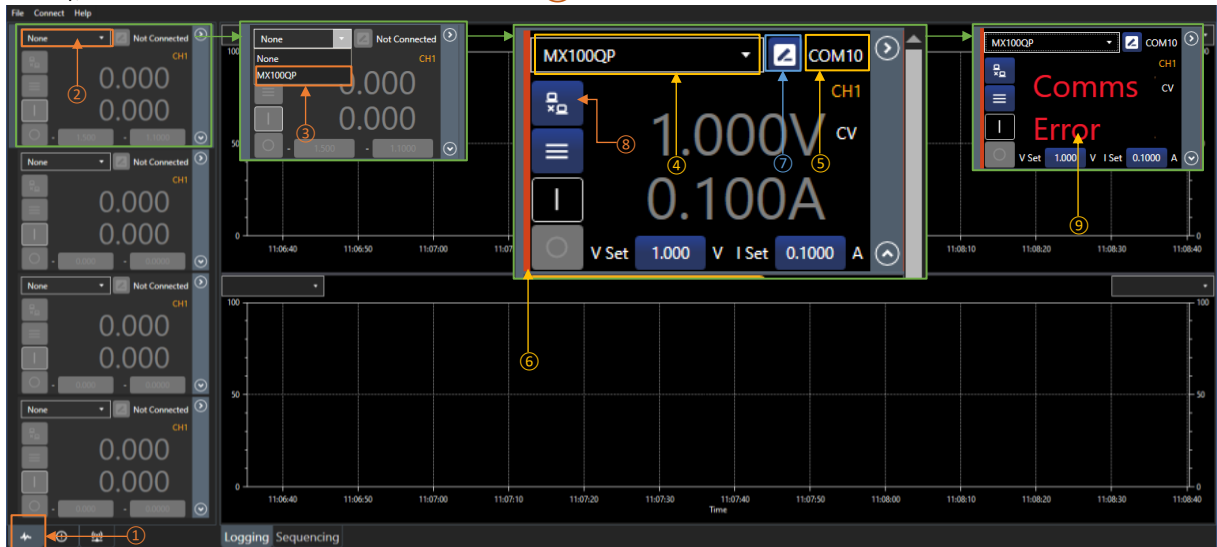
Up to four instruments can be connected to the Control Panel. Each instrument will populate one control box ④.

For details on how to use the instrument control box, see ‘*Instrument control*’.

# 3. INSTRUMENT SETUP

## Select an Instrument

Firstly, ensure Instrument Control is selected ①.



Select the drop-down box in the Instrument Control Panel ② to show all instruments available.

If a connected instrument is not shown, refer to 'Connect'.

The available instruments will be listed under the instrument name e.g. 'MX100QP' for the MX100QP DC Power Supply.

Select the instrument ③ to activate the Instrument Control Panel.

The instrument name will now be shown ④, in addition to the COM port details or IP address ⑤ in the top of the Instrument Control Panel. A coloured strip will be allocated ⑥ on the left, indicating the product category.

The instrument can be given a unique name, using the edit box ⑦.

The meter digits show live readings when the channel is on, and the digits will be shown in the associated channel colour. If the output is off, the displayed digits show the set values, and are shown in grey.\*

### NOTE



The channel output state will match the instrument when connected, this may be on or off depending on the setup\*\*.

To disconnect an instrument, select the disconnect button ⑧, or choose **None** from the drop-down box. This will reset the Instrument Control Panel back to the default state. If an instrument is physically disconnected or communication is lost a 'Comms Error' will show ⑨. Check the physical connection, if the instrument is reconnected the program will try to reconnect to it.

\*Power Supplies & Loads only

\*\*Excludes QL Series I

## 4. INSTRUMENT CONTROL



### Selecting a Channel

#### (Multi - Channel Instruments)

The Instrument Control Panel displays the settings of the active channel, the active channel number ① will match the selected channel colour.

The meter will show Channel 1 when first activated.

To select a different channel, first select or ② to display all available channels. The channel numbers run in ascending order and start at 1 closest to the Instrument Control Panel. Each channel is shown in a different colour.

The channel control can be active or hidden at any time using the / & / ② buttons.

Select the active channel by clicking on the channel meter ③ - this will then change the main Instrument Control Panel ④ to reflect the readings and settings for that channel.

### Turning Channels On and Off \*

#### Single Channel

To turn the channel output on or off, use the ON/OFF toggle ⑤.

When the channel is on, the meters on the control box show the live data for each available channel, when the output is off the meter shows the set values for each channel (grey).

#### Multi Channels (All On/All Off)

It is possible to turn all the channels on or off simultaneously with the All ON or All OFF ⑥ buttons on the Instrument Control.

### NOTE

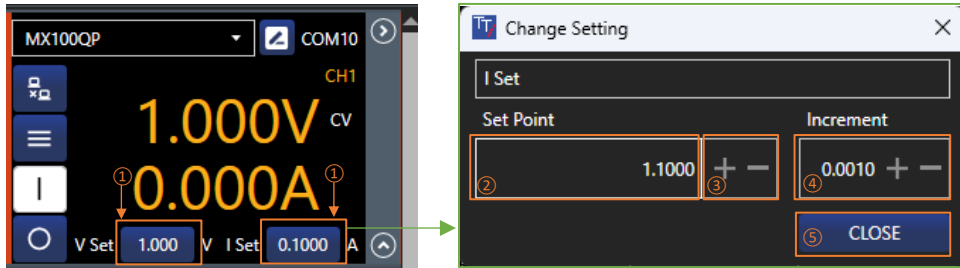


The Multi-Channel control box does not need to be shown to use the All ON or All OFF buttons.

If an output has tripped, a trip indicator ⑦ and reset button ⑧ will appear. The output will need to be reset before turning the output back on.

\*Power Supplies and Loads only

## Setting a Value\*



The active channel settings are changed using the **V Set** and **I Set** settings fields. These show the set values. These parameters are instrument specific and will change according to the instrument type, for example, with an electronic load **V Set** and **I Set** will be replaced by **Level A** and **Level B**.

To change the value, select the button ①. A pop-up will appear with the setting options.

Values can be entered by selecting ② and editing, either by using the keyboard or the mouse wheel to increase/decrease the value.

+/- ③ keys can be used to increase/decrease the set value by the amount specified in the set increment step ④.

Increment values can be entered by selecting ④ and editing, either by using the keyboard or +/- buttons to increase/decrease the value.

### NOTE

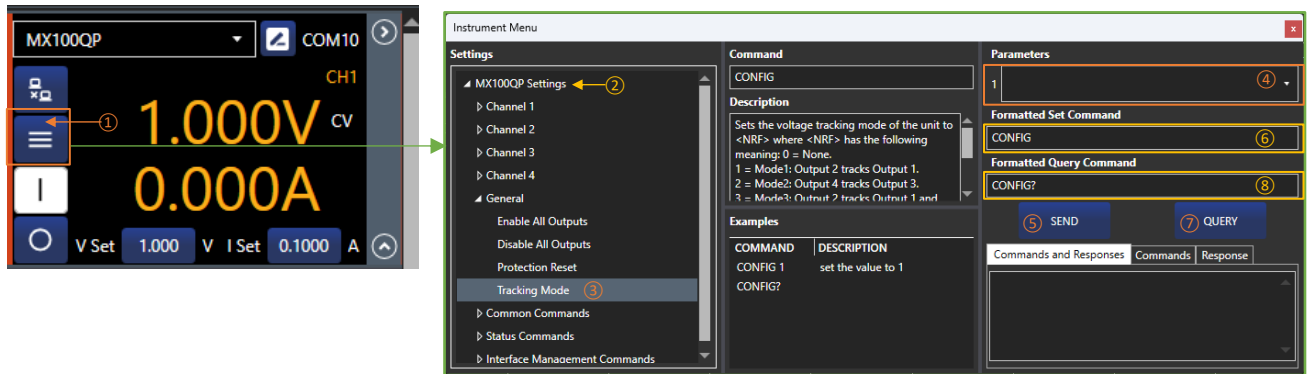


These changes are live and will show on the instrument as they are changed in the Change Setting pop-up.

Close the Change Settings pop-up using the **CLOSE** button ⑤.

\*Power Supplies and Loads only

## Settings Menu



To access the instrument settings, select the Settings Menu button (1).

This menu contains settings and functions such as OVP, limits, ranges etc. These are instrument specific and will vary depending on the instrument connected.

Each block of settings is contained within a tree view (2), the selected setting on the left (3) defines the available parameters (4) on the right. If no parameter is available, the action has no numeric value option.

Selecting a command will display the description and an example (referenced from the Programming Manual). Commands that have string parameters with fixed options will be shown in a dropdown list. Commands with numeric parameters will allow the user to enter a value in a text box. Commands where the numeric parameter has units will also have a dropdown list of the allowed units. Units are optional; where they are omitted, the base units will be used, e.g. V, A, W,  $\Omega$  or s.

Press **Send** (5) to send the formatted set command (6). Alternatively, right-click an example to execute.

Press **Query** (7) to send the formatted query command (8). The response will be shown in the "Response" box.

### NOTE



All commands are in the tree for reference. However, some cannot be executed; these commands send/receive data that Test Bridge can't supply or handle. For example, sending an instruments configuration as a binary block of data.

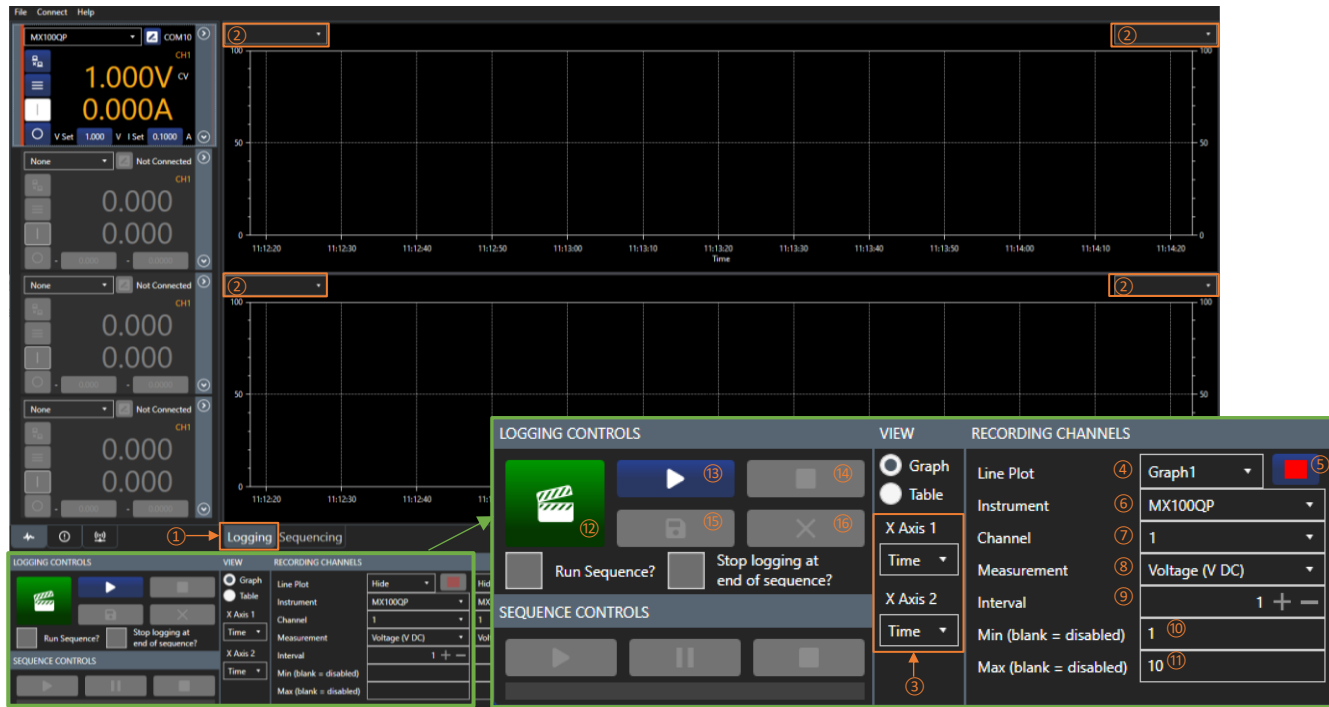
## 5. LOGGING

### Overview

Logging uses recording channels to capture live data; channels can be set to record values from any channel on an active instrument at specified time intervals. A maximum of 8 parameters can be logged from any active channel. Varying measurement intervals can be set alongside units and plot line colour. The results are plotted on one of the two available graphs and can also be viewed in a table and exported as a .CSV (comma separated values), a .TSV file (tab separated values) or as a plain text file. The graph provides advanced zooming and panning functions, allowing for efficient data analysis.



# Logging Setup



Firstly, select logging mode ①.

## Recording channel setup & Logging controls

Once the recording channels have been setup, data logging is controlled using the logging controls:

- ② Set the Y axis units
- ③ Select the X axis units
- ④ Select the preferred graph
- ⑤ Select the colour of the logging line
- ⑥ Select which instrument to log
- ⑦ Select which channel to log
- ⑧ Select the unit to be logged
- ⑨ Set the logging interval.
- ⑩ Set a minimum pass / fail limit
- ⑪ Set a maximum pass / fail limit
- ⑫ Log a single point of data
- ⑬ Start logging data
- ⑭ Stop logging selected data
- ⑮ Save the logged data as a file (CSV, TXT or TSV)
- ⑯ Clear all logged data

## NOTE



'Line Plot' ⑥ Data will not be displayed or logged if the line plot is hidden.

'Logging Interval' ⑨ The minimum is 250ms. To ensure the best results, check the minimum sampling rate specifications in the instrument's Instruction Manual.

'Save' ⑮ will only save the logged data. To save instrument setups, see 'File'.

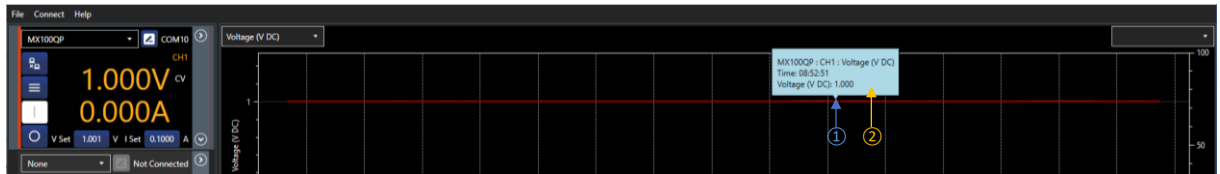
TSV - Tab Separated Values, CSV - Comma Separated Values, TXT - Plain text file.

## CAUTION









'Clear' ⑯ is irreversible. Save any important data before clearing.

# View



When the data is recorded and displayed on a graph, it can be viewed in several different ways:

**Show Values** - Click and drag the mouse across the graph ① to show the details ② of that specific point in the logged data. This can be dragged along the entire data line to show any point within the log. The following actions are available for graph navigation. To begin, click on the graph area:

 Pan	Right click and drag	Alt + left click and drag	Arrow keys	 fine pan	Ctrl + Right click and drag	Ctrl + Alt + left click and drag	Ctrl + Arrow keys
 Zoom	Mouse wheel (if available)	Numeric keypad +/-	Page Up / Page Down	 Fine zoom	Ctrl + mouse wheel	Ctrl + numeric keypad +/-	Ctrl + Page Up / Page down
 Zoom a rectangle	Ctrl + right-click and drag	Middle mouse button	Ctrl + Alt + left click and drag	 Reset zoom	A on the keyboard,	Right click select Reset Zoom	Alt + Ctrl + left double click

**Note:** To zoom in one axis only, place the cursor over the axis, then use the mouse wheel to zoom

## Table

TIMESTAMP	ELAPSED	LOG 1	PASS 1	LOG 2	PASS 2	LOG 3	PASS 3	LOG 4	PASS 4	LOG 5	PASS 5	LOG 6	PASS 6	LOG 7	PASS 7	LOG 8	PASS 8	ON DEMAND
08/11/23-08:51:16:59	00:00:00:00	9.990E-001	False															False
08/11/23-08:51:17:63	00:00:01:03	9.990E-001	False															False
08/11/23-08:51:18:65	00:00:02:06	9.990E-001	False															False
08/11/23-08:51:19:69	00:00:03:10	9.990E-001	False															False
08/11/23-08:51:20:72	00:00:04:12	9.990E-001	False															False
08/11/23-08:51:21:74	00:00:05:15	9.990E-001	False															False
08/11/23-08:51:22:79	00:00:06:20	9.990E-001	False															False
08/11/23-08:51:23:83	00:00:07:23	9.990E-001	False															False
08/11/23-08:51:24:86	00:00:08:27	9.990E-001	False															False
08/11/23-08:51:25:90	00:00:09:31	9.990E-001	False															False
08/11/23-08:51:26:93	00:00:10:33	9.990E-001	False															False
08/11/23-08:51:27:96	00:00:11:37	9.990E-001	False															False
08/11/23-08:51:28:98	00:00:12:39	9.990E-001	False															False
08/11/23-08:51:30:01	00:00:13:41	9.990E-001	False															False
08/11/23-08:51:31:04	00:00:14:45	9.990E-001	False															False
08/11/23-08:51:32:08	00:00:15:49	9.990E-001	False															False
08/11/23-08:51:33:13	00:00:16:54	9.990E-001	False															False
08/11/23-08:51:34:15	00:00:17:56	9.990E-001	False															False
08/11/23-08:51:35:19	00:00:18:60	9.990E-001	False															False
08/11/23-08:51:36:24	00:00:19:64	1.000E+000	True															False
08/11/23-08:51:37:27	00:00:20:68	9.990E-001	False															False
08/11/23-08:51:38:30	00:00:21:70	9.990E-001	False															False
08/11/23-08:51:39:33	00:00:22:73	1.000E+000	True															False
08/11/23-08:51:40:35	00:00:23:76	9.990E-001	False															False
08/11/23-08:51:41:40	00:00:24:81	9.990E-001	False															False
08/11/23-08:51:42:41	00:00:25:82	9.990E-001	False															False
08/11/23-08:51:43:45	00:00:26:85	9.990E-001	False															False
08/11/23-08:51:44:49	00:00:27:89	1.000E+000	True															False

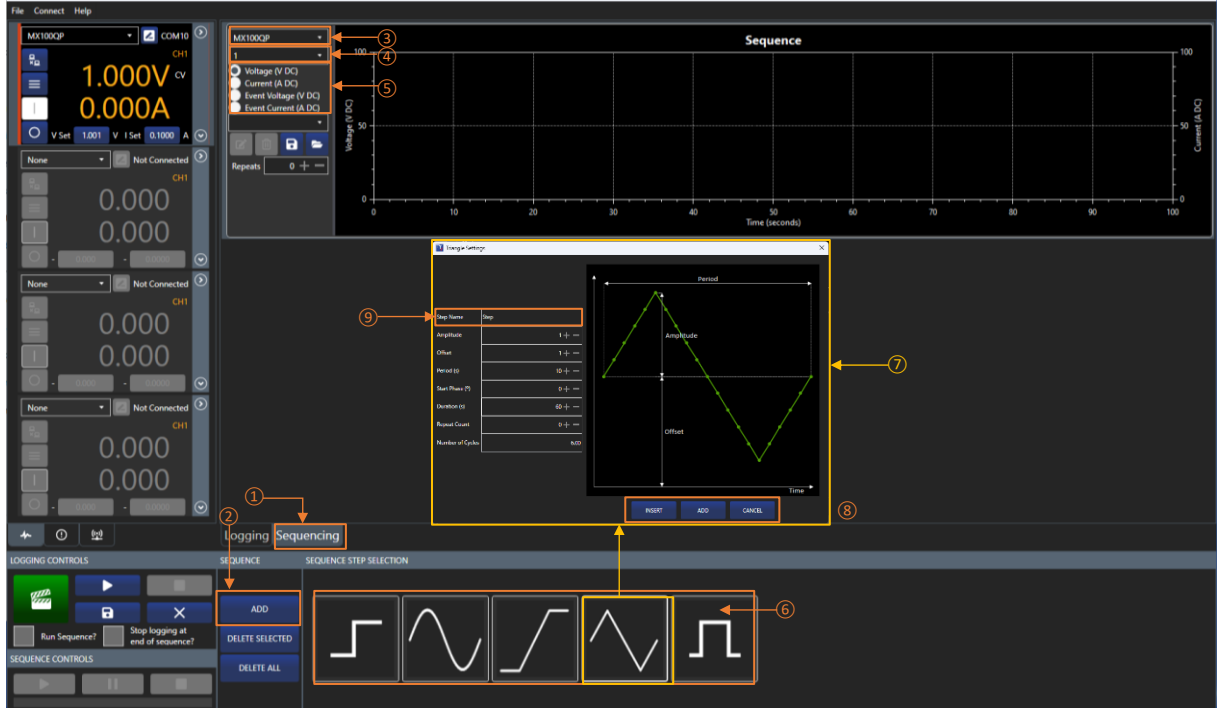
Any logged data can also be viewed in a tabular format. To change the view, select **Table** ①. Select the table format from ②.

The data is arranged in columns. Each active recording channel is allocated a LOG number, ascending from left to right (1 to 8). On demand ③ will be true if the data has been logged as a single point using the 'log now' button ④.

# 6. SEQUENCING

## Overview

Sequence numbers are limited only by the number of channels that are available; each sequence is allocated to a specified channel on an instrument. Two different parameters can be added to each sequence, along with two events. A range of built-in step options are available, including: sine wave, square wave, triangle wave, ramp, and step.



## Sequencing Setup

Firstly, select Sequencing mode (1), then select **Add** (2) to start creating a sequence.

Each sequence is allocated to a specified channel. Before the sequence can be created, an instrument (3) and channel (4) need to be specified. Use the drop-down boxes to select these. The sequencing tools will now be available to use.

### NOTE



The sequence update period is limited to 250ms. Dots represent the update points, with linear lines joining points. i.e. A sine wave set for 1s period will have 5 points and be represented as a triangle.

## Adding Steps to a Sequence

Each individual channel sequence can contain a primary and secondary parameter\*, and an event for each parameter. These are selected using the radio buttons (5) and colour coded for identification.

To add a step to the sequence, select the parameter or event, then select a shape from the options in the step selection (6). Each shape has a unique pop-up window (7) that gives the editable parameters for that shape:

Each step has the option to Insert, Add or Cancel (8):

**INSERT** - Place the step BEFORE the selected step.

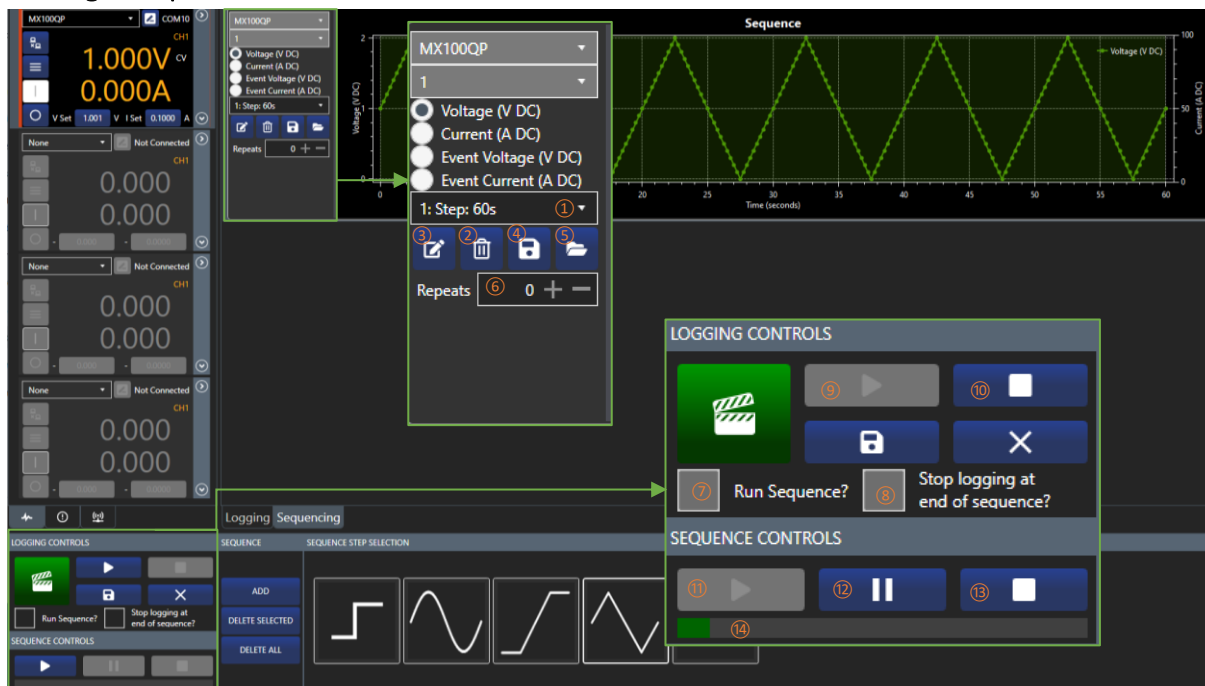
**ADD** - Place the step AFTER the last step.

**CANCEL** - Return to the sequence without making any changes.

There is also an option to name the step (9).

\*Power Supplies and Loads only

## Editing a Sequence



Steps that have been added to the sequence can be selected using the drop-down box **1**. The steps are highlighted in the sequence with a background the same colour as the unit/event.

- 1** Step selection drop down
- 2** Deletes the current step
- 3** Edits the sequence step selected in **1**
- 4** Saves a sequence file
- 5** Opens a sequence file
- 6** Repeat the sequence
- 7** When selected, starts the sequence when logging starts
- 8** When selected, logging will stop when the sequence is complete
- 9** Starts logging data, if **7** is selected the sequence will also start
- 10** Stops logging data, if **7** is selected the sequence will also stop
- 11** Start/continue the sequence
- 12** Pause the sequence
- 13** Stop the sequence
- 14** Sequence progress bar

### Running a Sequence While Logging

Once the sequence setup is complete, it can be run by selecting **Run Sequence** **7**, followed by the **Run** button **9** on the logging controls.

The logging graph will then show the results for the running sequence, provided the recording channels have been set to view the channel allocated to the sequence. See Recording channel setup for more details.

**9** Start logging and run the sequence if **7** is ticked. **15** Pause the sequence, **16** Stop the sequence.

### Running a Sequence Independently of Logging

Once the sequence setup is complete, it can be run by selecting **14**. **7** must be unticked to run a sequence independently of logging.

**14** Start/continue the sequence, **15** Pause the sequence, **16** Stop the sequence.

### Saving/Loading a Sequence

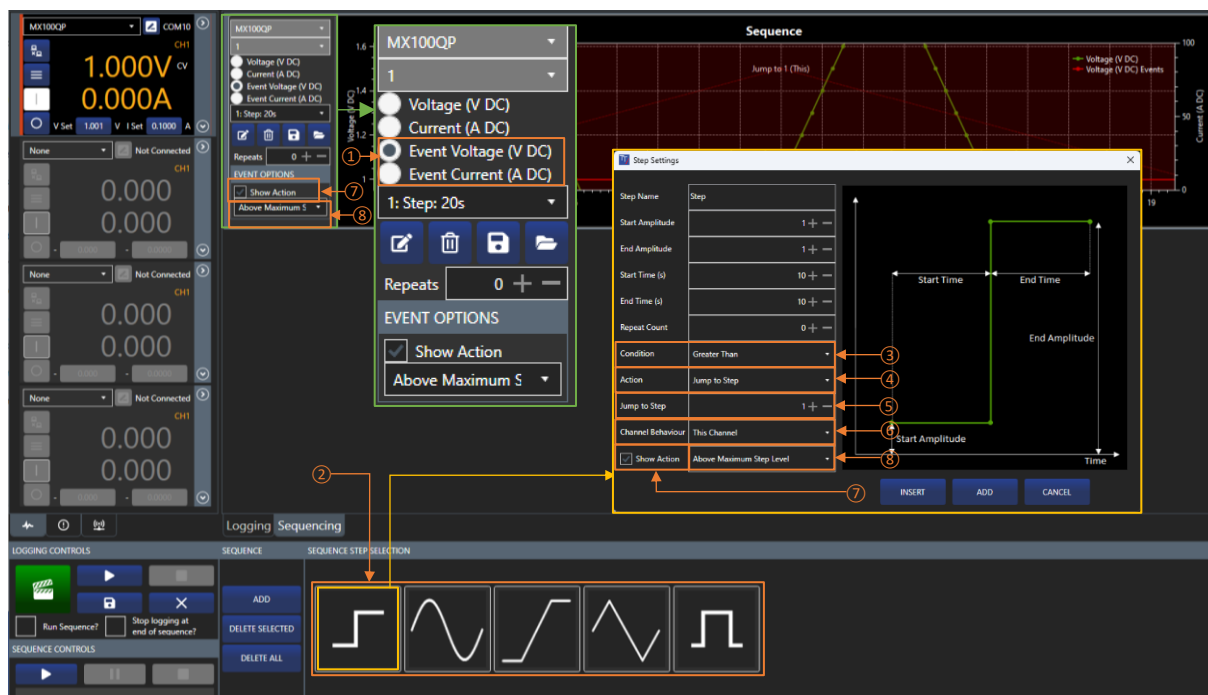
Sequences can be saved using the **Save** button **4** and loaded using the **Load** button **5**.

## NOTE



**Save / Load** will save / load steps for primary and secondary parameters, including events, for the selected sequence. To save instrument setups, see 'File'.

# Sequence Events



A sequence event is added in the same way as a sequence step, using radio buttons ① and steps ②. An event allows an action to be added for a met condition and therefore has the following additional parameters : **Condition, Action & Show Action**.

If the value read from the instrument meets the condition ③ the selected action ④ will be performed.

**CONDITION**

- Greater Than (value)
- Greater Than or Equal To (value)
- Less Than (value)
- Less Than or Equal To (value)
- Equal To (value)



**ACTION**

- Turn Off This Channel**  
(the active channels output will be turned off)
- Turn Off This Instrument's Channels**  
(all channel outputs for this instrument will be turned off)
- Turn Off All Instruments Channels**  
(all channel outputs for all instruments will be turned off)
- Jump to Step**  
(will jump sequence execution to the start time of the selected step number)
- Stop Sequence**  
(will stop sequence for all instruments)

If you choose **Jump to Step** as an action, you must then specify the step number ⑤ and choose if you want just this channel to jump, or all channels ⑥ in the selected instrument, or all channels in all instruments.

**Show Action** ⑦ allows you to show the action on the sequence graph to remind you what will happen if the condition is met, this can be hidden by unticking the box or change its location by selecting where it will be shown from the dropdown list ⑧.

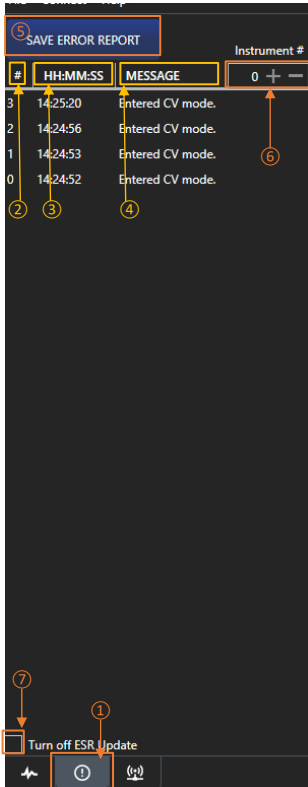
## NOTE



**Jump to Step** will cause the sequence progress bar to go backwards if you jump to an earlier step (e.g. jump from step 2 to step 1)

# 7. ERROR LOG AND COMMUNICATIONS

## Error Log



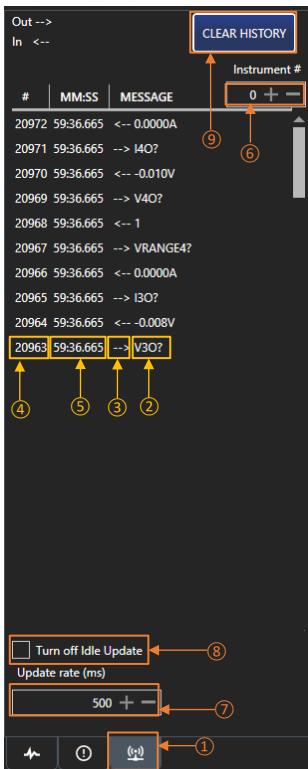
The Error Log panel is selected using the tab ① and will present the last 50 errors that have been logged.

Each error message ④ has an index number ② and time allocated ③ as a reference point.

The Error Log can be saved using the Save Error Report button ⑤.

To change the instrument, select the number reference ⑥ using the +/- keys. Numbers run from 0-3 starting with the first instrument at 0.

To pause the ESR and show new error messages only, select the Turn off ESR Update box ⑦.



## Communications

The communications panel is selected using the tab ①.

The communications panel shows the last 50 commands used to communicate between Test Bridge and the connected instruments.

Messages ② are either a transmitted or received command, this is indicated with the Out/In arrows ③. Each message has an index number ④ and time allocated ⑤ as a reference point.

To change the instrument, select the number reference ⑥ using the +/- keys. Numbers run from 0-3 starting with the first instrument at 0.

Messages are recorded at the selected interval update rate ⑦ - the minimum is 100ms. Messages are recorded even when the instrument is idle. To stop communications recording idle data, select the Turn Off Idle update ⑧.

The history can be cleared using the Clear History button ⑨.

## EXCELLENCE THROUGH EXPERIENCE

Aim-TTi is the trading name of Thurlby Thandar Instruments Ltd. (TTi), one of Europe's leading manufacturers of test and measurement instruments.

The company has wide experience in the design and manufacture of advanced test instruments and power supplies built up over more than thirty years.

The company is based in the United Kingdom, and all products are built at the main facility in Huntingdon, close to the famous university city of Cambridge.

## TRACEABLE QUALITY SYSTEMS

TTi is an ISO9001 registered company operating fully traceable quality systems for all processes from design through to final calibration.



ISO9001:2015

Certificate number FM 20695

## WHERE TO BUY AIM-TTI PRODUCTS

Aim-TTi products are widely available from a network of distributors and agents in more than sixty countries across the world.

To find your local distributor, please visit our website which provides full contact details.



Designed and built in Europe by:



**Thurlby Thandar Instruments Ltd.**

Glebe Road, Huntingdon, Cambridgeshire.

PE29 7DR United Kingdom

Tel: +44 (0)1480 412451 Fax: +44 (0)1480 450409

Email: sales@aimtti.com Web: www.aimtti.com



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